Solid Waste Management Plan
1998 -2017

December 2014

Frederick County, Maryland
Division of Utilities and Solid Waste Management

Deleted: August 2013¶

[This page intentionally left blank]

Table of Contents..... TC-1

List of Figures F-1

List of Tables T-1

Introduction I-1

Background I-1
Plan Priority I-1
Plan Organization I-2
Chapter 1 - Goals and Regulatory Framework I-2
Chapter 2 - County Background Information I-3
Chapter 3 - Existing Solid Waste Management Program I-3
Chapter 4 - Assessment of Solid Waste Management Alternatives I-3
Chapter 5 - Solid Waste Management Plan of Action I-3
Certifications I-3

Chapter 1 - Goals and Regulatory Framework 1-1

Goals and Objectives 1-1
Structure of County Government 1-11
Laws and Regulations 1-11
Federal 1-12
State 1-12
Maryland Department of the Environment 1-12
Municipal Landfills 1-23
Land Clearing Debris Landfills - Industrial Waste Landfills 1-24
Rubblefills 1-24
Short-Range Solid Waste Management Policy and Action Recommendations 1-25
Processing Facilities, Transfer Stations, Incinerators 1-25
Maryland Environmental Services 1-25
Northeast Maryland Waste Disposal Authority 1-25
County 1-26
Frederick County Land Acquisition Policy 1-26
The Frederick County Permit Application Consistency Check List 1-26
The Frederick County Recycling Plan 1-26
Frederick County Ordinance 06-03-399 1-26
Frederick County Ordinance 06-05-401 1-26
Municipal 1-26
Maryland Environment Code Annotated 1-27
COMAR 26.03.02.B 1-27

Chapter 2 - County Background Information 2-1

General 2-1
Population 2-1
Municipalities 2-1
Planning Regions 2-3
Federal Facilities 2-4
Zoning 2-4
Comprehensive Plan 2-4
Chapter 3 - Existing Solid Waste Management Program 3-1

Waste Generation 3-1
Residential 3-2
Commercial, Industrial and Institutional 3-2
Commercial 3-2
Industrial 3-4
Clean Fills 3-5
Institutional 3-5
Rubble 3-5
Controlled Hazardous Substances 3-5
Dead Animals 3-6
Bulky Wastes 3-6
Tires 3-6
Sewage Sludge 3-7
Septage 3-7
Asbestos 3-7
Other 3-8
Special Medical Waste 3-8
County Maintenance Debris 3-8
Agricultural Waste 3-8
Recreational Waste 3-9
Mining Waste 3-9
Used Oil and Antifreeze 3-9
Waste Composition 3-9
Recycling 3-10
Residential Programs 3-10
Reichs Ford Road Dropoff 3-10
Recyclables Collected at Reichs Ford Road Dropoff 3-10
Residential Recycling Program 3-11
Seasonal Programs 3-11
Yard Waste 3-11
Bulky Wastes 3-12
Electronics 3-12
Organics 3-12
Commercial, Industrial and Institutional Programs 3-12
Frederick County Public Schools Recycling Program 3-14
Program Description 3-14
Collection and Marketing 3-15
Stakeholders 3-15
Recycling Contract 3-15
Recycling Contractor 3-15
List of County Schools 3-16
Elementary Schools 3-16
Middle Schools 3-17
High Schools 3-17
FCPS Charter School/Specialty Schools 3-17
College Facilities 3-17
Program Implementation Schedule 3-17
Program Monitoring 3-18
Quantities 3-18
Exported Waste 3-18

Imported Waste 3-19
Municipal Waste Inspection Program 3-19
Sludge 3-19
Waste Water Sludges 3-19
Recyclables 3-21
Controlled Hazardous Substances 3-21
Special Medical Waste 3-21
Collection Systems 3-21
Municipal Waste 3-21
Commercial Waste Haulers 3-21
Recyclables 3-21
Marketing of Recyclables 3-22
Fluorescent and Compact Fluorescent Light Recycling 3-22
Solid Waste Acceptance Facilities 3-23
Landfills 3-23
Reichs Ford Road Sanitary Landfill - Site A 3-23
Closure Cap Components 3-23
Active Gas Extraction System 3-24
Post-Closure Plan – Site A 3-24
Post-Closure Land Use 3-24
Reichs Ford Road Sanitary Landfill - Site B 3-24
Primary Liner System 3-25
Secondary Liner System 3-25
Frederick County Rubblefill 3-25
Fort Detrick Landfill 3-26
EASTALCO Landfill 3-30
City of Frederick Clean Fill 3-30
Incinerators 3-30
Fort Detrick Incinerator 3-30
Frederick Memorial Healthcare Systems Incinerator 3-30
Maryland Department of Agriculture Incinerator 3-30
Other Management Facilities 3-31
Recyclable Dropoffs 3-31
ESSROC Tire Recycling 3-31
Ballenger Creek Waste Water Treatment Plant 3-31
Frederick Memorial Healthcare System Rotoclave Medical Waste Processing System 3-31

Chapter 4 – Assessment of Solid Waste Management Alternatives 4-1

Collection 4-2
Existing System 4-2
Advantages 4-3
Disadvantages 4-3
Franchising 4-3
Advantages 4-4
Disadvantages 4-4
Licensing System 4-5
Advantages 4-5
Disadvantages 4-5
County Operation 4-5
Advantages 4-6
Disadvantages 4-6

Land Disposal 4-6
Existing and Proposed Facilities 4-6
Sanitary Landfills 4-6
Rubble Landfills 4-9
Technology 4-9
Costs 4-10
Advantages 4-11
Processing/Transfer Facility 4-11
Disadvantages 4-17
Processing/Transfer Facility 4-17
Recycling 4-19
Existing Program 4-19
Composting/Yard Waste Recycling 4-19
Commercial 4-20
Residential 4-20
Curbside Collection 4-21
Operations 4-21
Equipment 4-21
Costs 4-22
Advantages 4-22
Disadvantages 4-22
Dropoff Centers 4-22
Operations 4-22
Equipment 4-23
Costs 4-23
Advantages 4-23
Disadvantages 4-23
Recyclable Material Processing Facilities 4-23
Mixed Waste Processing Facility (MWPF) 4-24
Costs 4-25
Advantages 4-25
Disadvantages 4-25
Material Recovery Facility (MRF) 4-25
Costs 4-25
Advantages 4-26
Buy-Back Centers 4-26
Operations 4-26
Costs 4-26
Advantages 4-26
Disadvantages 4-26
Yard Waste Composting 4-27
Collection 4-27
Markets 4-27
Types of Yard Waste 4-28
Technologies 4-28
Backyard Composting 4-28
Low-Level Technology for Large Scale Operations 4-28
Mid-Level Technology for Large Scale Operations 4-29
High-Level Technology for Large Scale Operations 4-29
Costs 4-29
Advantages 4-29
Disadvantages 4-30

Solid Waste Composting 4-30
Markets 4-30
Technologies 4-32
Pre-Processing 4-32
Digestion 4-33
Curing and Post-Processing 4-34
Costs 4-34
Advantages 4-34
Disadvantages 4-34
Municipal Waste Combustion and Waste to Energy 4-35
Technologies 4-35
Mass Burning 4-35
Refuse-Derived Fuel (RDF) Waste to Energy Technology 4-36
Costs 4-38
Advantages 4-38
Disadvantages 4-38
Summary of Solid Waste Management Alternatives 4-39
Siting New Acceptance Facilities 4-39
Constraints on the siting of Solid Waste Management Facilities 4-43
Topography 4-43
Soils 4-43
Geologic Conditions 4-48
Location 4-48
Aquifers 4-49
Wetlands 4-49
Surface Water and Flood Plains 4-50
Water Quality 4-50
Adjacent Incompatible Land Use 4-51
Planned Growth Patterns 4-51
Areas of Critical Federal, State or County Concern 4-51
Monocacy Scenic River 4-52
Frederick Secondary and Maryland Midland Railways 4-52
Parks 4-52
Special Waste Management 4-52
Asbestos 4-52
Special Medical Waste 4-53
Hazardous Waste 4-53
Emergency Response for Hazardous Waste Spillage or Leakage 4-54
Non-hazardous Contaminated Soils 4-54
Comprehensive Plan Requirements 4-56

Chapter 5 - Solid Waste Management Plan of Action (1998-2017) 5-1

Meeting the Goals and Objectives 5-9
Protection of Health and the Environment 5-10
Conserve Natural Resources 5-10
Financial Self-Sufficiency 5-10
Multi-Jurisdictional Solutions 5-10
Public Education 5-11
Maintain the Solid Waste Management Program 5-11
Source Reduction 5-11
Collection 5-12
Disposal Facilities 5-12

Resource Recovery (Waste-to-Energy) 5-13
Sanitary Landfills 5-13
Rubble Processing Operations 5-15
Recycling 5-15
Residential Recycling 5-16
Commercial, Industrial and Institutional Recycling 5-17
Apartment Building and Condominium Recycling Plan 5-18
Apartment Building and Condominium Recycling (ABCR) Program 5-18
Stakeholders 5-19
Participating Apartment Buildings and Condominiums 5-20
Schedule for Implementation of the ABCR Program 5-20
Program Monitoring 5-21
Program Enforcement 5-21
Special Events Recycling Plan 5-21
Special Events Recycling Program (SERP) 5-22
Materials and Obligations 5-22
Stakeholders 5-22
Participating Public Sites 5-23
Program Monitoring 5-23
Program Enforcement 5-24
Yard Waste and Food Waste 5-24
Household Hazardous Wastes 5-25
Purchasing of Recycled Products 5-25
Controlled Hazardous Substances 5-26
Other Wastes 5-27
Volume-Based Solid Waste Billing 5-27
Financing 5-27
Legal Initiatives 5-28

Glossary G-1

Deleted: 1
Deleted: 2
Deleted: 3
Deleted: 4
Deleted: 4
Deleted: 4
Deleted: 5
Deleted: 5

Appendices

A Title 26 Department of the Environment Subtitle 3 Water Supply, Sewerage, Solid Waste and Pollution Control and Funding, Chapter 3 Development of County Comprehensive Solid Waste Management Plan, Code of Maryland Regulations (COMAR)

B Frederick County Solid Waste Advisory Committee Charter

C Areas of Critical Concern

D Combined Municipal Solid Waste Management Plan for the Municipalities of Frederick County

E Zoning Text Amendment County Ordinance 91-32-032

F Frederick County Septage Implementation Plan and Haulers

G Standard Procedures Out-of-County Refuse Inspection/Violations

H Public and County Review Process for Solid Waste Management Facility Permit Applications and Procedures for Amending the Solid Waste Plan

I Overview of Amendment Process of the Frederick County Solid Waste Plan

J Contaminated Soil Policy, Frederick County Landfill

K Solid Waste Management Plan (1998-2017) Updates or Amendment End Notes

L Waste-To-Energy Disposal Facility, Resolutions No. 06-05 and No. 09-19

M Solid Waste Modeling for Frederick County

N Supplemental Waste-To-Energy Information

O Participating Apartment Buildings and Condominiums

P Participating Public Sites

FIGURE	TITLE	PAGE
1-1	Solid Waste Management Hierarchy	1-1
1-2	Frederick County Organization Chart	1-13
2-1	Frederick County Vicinity Map	2-2
2-2	Planning Regions and Federal Facilities	2-6
3-1	Projection of Solid Waste Generation by Waste Category Percentages 2011-2017	3-4
3-2	Solid Waste Acceptance Facilities	3-27
4-1	Composting Process Flow Diagram	4-30
4-2	Composting Facility Layout	4-31
4-3	First Level Screening Exclusion Areas: Processing Facilities	4-44
4-4	First Level Screening Exclusion Areas: Land Disposal Sites	4-45

TABLE	TITLE	PAGE
1-1	Countywide Comprehensive Plan – Themes and Goals	1-2
1-2	Frederick County Solid Waste Management Plan Goals and Objectives	1-8
1-3	Frederick County Solid Waste Management Policies	1-10
1-4	Summary of Federal Statutes Affecting Solid Waste Management (General)	1-14
1-5	Summary of Federal Regulations (CFR, Title 40, Subchapter 1)	1-16
1-6	Summary of Maryland Laws Affecting Solid Waste Management Statutes	1-19
1-7	Summary of Annotated Code of Maryland Titles Affecting Solid Waste Management	1-21
1-8	Summary of Maryland Regulations Affecting Solid Waste Management	1-22
1-9	Countywide Comprehensive Plan – Solid Waste Management Policies and Action Recommendations	1-28
1-10	Solid Waste Management Plan – Proposed Solid Waste Facility	1-29
1-11	Non-Governmental Solid Waste Plan Amendment Process	1-30
2-1	Municipality Populations (1980, 1990, 2000, and 2010 Census Estimates)	2-3
2-2	Frederick County Population Projections by Planning Region – 1980-2020	2-7
2-3	Frederick County Zoning Regulations for Solid Waste Facilities	2-8
3-1	Annual Generation of Waste in Frederick County	3-3
3-2	Residential Recycling Program Summary	3-13
3-3	Maryland Recycling Act (MRA) Tonnage Report System – County Recycling Accounting Form – 2009	3-20
3-4	Solid Waste Acceptance Facilities	3-27
4-1	Estimated Landfill Life	4-8
4-2	Typical Landfill Pre-Development Cost	4-12
4-3	Typical Landfill Development Cost	4-13
4-4	Typical Landfill Operating Cost	4-14
4-5	Typical Landfill Closure and Post-Closure Cost	4-15
4-6	Summary of Solid Waste Management Alternatives	4-41
4-7	General Procedure for Siting Solid Waste Management Facilities	4-46
5-1	Historic Action Plan Summary, 1998-2011	5-2
5-2	Long-Term Action Plan Summary, 2001-2045	5-7
5-3	Financial Requirements for Recommended Solid Waste Program	5-8

[This page intentionally left blank]

INTRODUCTION

BACKGROUND

Americans generated approximately 229.9 million tons of municipal solid waste in 1999. Solid waste generation has almost doubled in the last twenty years despite the increased public awareness of the necessity for waste reduction.
As a nation, our previous disposal practices underestimated the importance of solid waste management. Improper planning, design, operation, and maintenance of our landfills and incinerators provided a source of air, water, and soil contamination. Today we realize that appropriate planning, design, operation, and maintenance are essential to reduce the potential of adverse environmental impacts from solid waste facilities.

Throughout our country many existing landfills and incinerators will close due to stricter regulations. Numerous landfills are nearing capacity. Therefore, the need to site new landfills is immediate. However, new landfill sites are limited due to stricter regulations, public concerns, costly environmental controls, and limited space in densely populated areas. Reduced landfill capacity in the older, densely populated areas of the Northeast is a growing problem. An increasing amount of waste generated in the Northeast is being transported to Midwestern and Southern states for disposal.

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 plan is required to be reviewed and updated, if necessary, by the County every three years. 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 June 30, 1998 and an amendment to the plan was adopted by the County on October 25, 2005 and approved by the Maryland Department of the Environment on January 23, 2006, which covers the period of 1998-2017.

Additionally, updates and amendments to the plan were approved by the Frederick County Board of County Commissioners on September 9, 2010 via Resolution No. 10-26 and submitted to MDE on September 21, 2010.

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. It provides the data and the framework that will be relied upon to make numerous decisions on the detailed implementation of required capital construction and management programs in the coming decades. 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.

This plan will be updated to reflect these specific decisions as they are approved. 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 MDE requirements. 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. 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 Solid Waste Management Plan

The purpose of this chapter is to compile a database of current solid waste quantities and management practices in the County and to serve as a baseline for the development of recommendations in the following chapters. Current waste generation rates and population projections are used to project solid waste generation for the planning period. A description of the existing collection system, the current recycling program, and existing and planned solid waste management facilities is presented.

Chapter 4 Summary – Assessment of Solid Waste Management Alternatives

Using the data compiled in the previous 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 on two County maps illustrating first level screening criteria for facility siting.

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 1998-2017 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, 1998-2017, was approved and adopted by the Frederick County Board of County Commissioners as stipulated in Resolution No. 98-17 dated June 30, 1998 which is provided at the end of this section. The letter approving this plan from the Maryland Department of the Environment is also provided at the end of this section.

THE EFFECTIVE DATE OF THIS RESOLUTION IS JUNE 30, 1998

RESOLUTION NO. 98-17

RESOLUTION OF
THE BOARD OF COUNTY COMMISSIONERS
OF FREDERICK COUNTY, MARYLAND

Re: ADOPTION OF THE
SOLID WASTE MANAGEMENT PLAN

PREAMBLE

Each county in Maryland is required to have a County Solid Waste Management Plan. Md. Environment Code Ann., § 9-503.

Frederick County adopted a Solid Waste Plan in March of 1986 which was amended in December of 1987, February of 1990, and July of 1991.

By Resolution 93-03, the Board of County Commissioners adopted the Frederick County Solid Waste Management Plan 1992 - 2012.

The Board of County Commissioners appointed a Solid Waste Advisory Committee which worked extensively to develop the Solid Waste Management Plan.

The Solid Waste Advisory Committee conducted various public hearings and public meetings to work on the Solid Waste Management Plan.

The Solid Waste Management Plan has been submitted to each official planning agency that has jurisdiction in the County for review and comment.

8/17/98 pc: Bcc, Co. Atty, DPW, Landfill, File

The Board of County Commissioners held a duly advertised public hearing to consider the Solid Waste Management Plan on May 19, 1998.

The Maryland Department of the Environment was notified prior to the public hearing held by the Board of County Commissioners.

The Frederick County Planning Commission reviewed the Solid Waste Management Plan and certified that the Plan is consistent with the County Comprehensive Plan.

Under State law, Md. Environment Code Ann. § 9-507, the Maryland Department of the Environment must take action on this plan.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF COUNTY COMMISSIONERS OF FREDERICK COUNTY, MARYLAND, that the Frederick County Solid Waste Management Plan 1998 - 2017 is hereby adopted.

The undersigned hereby certifies that this Resolution was approved and adopted on this 30th day of June, 1998.

ATTEST:

BOARD OF COUNTY COMMISSIONERS
OF FREDERICK COUNTY, MARYLAND

By: _____ (SEAL)

William E. Dennis
County Manager

Mark L. Hoke
President

C:\DATA\WP\RES-SOL

MDE

MARYLAND DEPARTMENT OF THE ENVIRONMENT
2500 Broening Highway • Baltimore Maryland 21224
(410) 631- 3000 • 1- 800 -633-6101 • http:// www.mde.state.md.us

Parris N. Glendening Governor

Jane T. Nishida
Secretary

November 10, 1998

CERTIFIED MAIL
Return Receipt Requested

The Honorable Mark L. Hoke, President
Board of County Commissioners of Frederick County
Winchester Hall
12 East Church Street
Frederick, Maryland 21701

Dear Commissioner Hoke:

The purpose of this letter is to advise you that the Maryland Department of the Environment has completed the review of the 1998 - 2017 Frederick County Solid Waste Management Plan (Plan) dated March 1998. The Plan, which was received by the Department on August 26, 1998, has been distributed and reviewed in accordance with the provisions of Title 9, Subtitle 5 of the Environment Article, Annotated Code of Maryland and the Code of Maryland Regulations (COMAR) 26.03-03.

Based on this review, the Department has determined that the Plan satisfies the Department's previously stated guidelines and complies with the defined requirements of COMAR 26.03.03. In accordance with §9-507(a) of the Environment Article, Annotated Code of Maryland, the 1998 - 2017 Frederick County Solid Waste Management Plan dated March 1998 is approved.

As you are aware, solid waste management planning is given a high priority by the Department. The Administration appreciates and commends the efforts of Frederick County in developing and updating the solid waste management plan in a timely manner. The Department also commends Frederick County for continuing to expand opportunities for public participation in the solid waste planning process. The active participation of a well informed citizenry in the planning process ensures that decisions affecting solid waste management in the County will be made to the benefit of all of its citizens.

2

The Honorable Mark L. Hoke,
President Page Two

Frederick County is encouraged as part of the County's solid waste management planning process to continue to explore regional or area-wide approaches to solid waste management. In addition to municipal solid waste, which comprises the majority of the County's efforts in waste management, secondary waste streams such as household hazardous waste or yard waste provide opportunities for regional management approaches which could provide economic and environmental benefits to the County and the region.

Thank you for your continuing interest and cooperation in providing sound and long term solid waste management planning for Frederick County. Please use the date of this letter as the anniversary date upon which to schedule the next update and review of the Plan pursuant to § 9-503(b) of the Environment Article, Annotated Code of Maryland.

If I can be of any further assistance, please feel free to contact me at (410) 631-3304. If you have any questions regarding this letter, please contact Ms. Regina Rochez, Administrator, Office of Planning and Outreach Services at (410) 631-3314.

Sincerely,

Richard W. Collins, Director
Waste Management
Administration

RWC:

cc:

Mr. Robert M. Hayes, P.E.
Mr. Irvin L. Slike, Jr.

RECEIVED
NOV 16 1999

3

[This page intentionally left blank]

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.

> *Planning is characterized by a collective effort to achieve common end results (goals). Success of a plan rests on the identification of these end results as well as the means of achieving them (objectives).*

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.

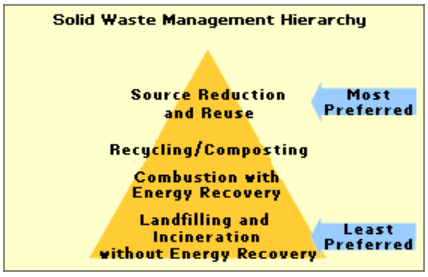


Figure 1-1
Source: http://www.epa.gov/waste/images/hierarchy.gif

GOALS AND OBJECTIVES

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 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 SWAC 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.

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

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.
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.

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

THEME: SERVING OUR CITIZENS

SC-G-01	Provide for community services and facilities in a n 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: 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.

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

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.
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.

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

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.

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

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 through 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 percent of the waste stream annually. Take practicable and economical actions to meet the voluntary statewide waste diversion goal of 60 percent by the year 2020. This goal includes a 55 percent recycling rate plus up to a 5 percent 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 established by the Board of County Commissioners 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 the commercial single-stream recycle fee of $25.00 per ton to provide commercial entities with economic incentives to recycle waste.

M. Identify, encourage and assist, where feasible, in establishing public and private markets for sale and/or reuse of recyclables.

Formatted: Numbered + Level: 1 + Numbering Style: A, B, C, … + Start at: 1 + Alignment: Left + Aligned at: 0.49" + Tab after: 0.74" + Indent at: 0.74"

Formatted: Numbered + Level: 1 + Numbering Style: A, B, C, … + Start at: 1 + Alignment: Left + Aligned at: 0.49" + Tab after: 0.74" + Indent at: 0.74"

Formatted: Numbered + Level: 1 + Numbering Style: A, B, C, … + Start at: 1 + Alignment: Left + Aligned at: 0.49" + Tab after: 0.74" + Indent at: 0.74"

Table 1-2 - continued

Frederick County Solid Waste Management Plan

Goals and Objectives

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. Review and revise County regulations and codes to encourage 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 responsibility for 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 that evaluate the progress and implementation of the Solid Waste Management Plan in achieving the stated goal and objectives.

Formatted: Numbered + Level: 1 + Numbering Style: A, B, C, … + Start at: 14 + Alignment: Left + Aligned at: 0.5" + Indent at: 0.75"

Formatted: Numbered + Level: 1 + Numbering Style: A, B, C, … + Start at: 14 + Alignment: Left + Aligned at: 0.5" + Indent at: 0.75"

Formatted: Numbered + Level: 1 + Numbering Style: A, B, C, … + Start at: 14 + Alignment: Left + Aligned at: 0.5" + Indent at: 0.75"

Formatted: Numbered + Level: 1 + Numbering Style: A, B, C, … + Start at: 14 + Alignment: Left + Aligned at: 0.5" + Indent at: 0.75"

Formatted: Numbered + Level: 1 + Numbering Style: A, B, C, … + Start at: 14 + Alignment: Left + Aligned at: 0.5" + Indent at: 0.75"

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 "Frederick County Land Acquisition Policy" (Resolution 02-17, adopted August 6, 2002).
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 should 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 in conservation zones, agricultural preservation properties, or areas of critical concern (see Appendix C).
8. Provide an integrated Solid Waste Management System, including provisions for recycling, resource recovery (waste-to-energy), waste transfer, and in-County disposal, which is adequate to accommodate Frederick County's current and projected municipal solid waste generation.[I]
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.[I]
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.[I]
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.[I]

Formatted: Indent: Left: 0.06", Numbered + Level: 4 + Numbering Style: 1, 2, 3, … + Start at: 1 + Alignment: Left + Aligned at: 1.99" + Tab after: 2.24" + Indent at: 2.24", Tab stops: 0.31", List tab + Not at 2.24"

FREDERICK COUNTY COMPREHENSIVE PLAN VISION STATEMENT

The purpose of the Vision statement for this Plan will focus not so much on the desired end state. Following the description of the County's regional context and background is a very broad vision statement that sets the stage for the more detailed vision statements within each theme.

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 - direct 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 Board of County Commissioners (BOCC) which appoints division directors. Solid waste planning is the responsibility of the County Commissioners and the SWAC. Solid waste administration is the responsibility of the County Commissioners and the Division of Utilities and Solid Waste Management (DUSWM), which was formed into its own division on February 2000 separate from the Division of Public Works.[I]

The SWAC was created for the purpose of recommending to the Board of County Commissioners the soundest methods of waste disposal, recycling, and waste reduction; and advising the Board of County Commissioners on specifically requested policy alternatives. The SWAC has 12 voting members who meet once a month. The SWAC Charter provided in Appendix B 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 as shown in Figure 1-2.

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.

State regulations meet or exceed those mandated by federal regulations. State regulations specify minimum design criteria and the permitting, construction, operation, maintenance, and monitoring requirements for many solid waste management facilities.

County regulations must be compatible with federal and state laws and regulations, 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. Descriptions of responsible agencies and the applicable federal, state and County laws and regulations are discussed below.

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) documents 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 on 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. A summary of federal regulations important to solid waste management derived from CFR, Title 40, Subchapter I-Solid Wastes is provided in Table 1-5.

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 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.

Figure 1-2
FREDERICK COUNTY ORGANIZATION CHART

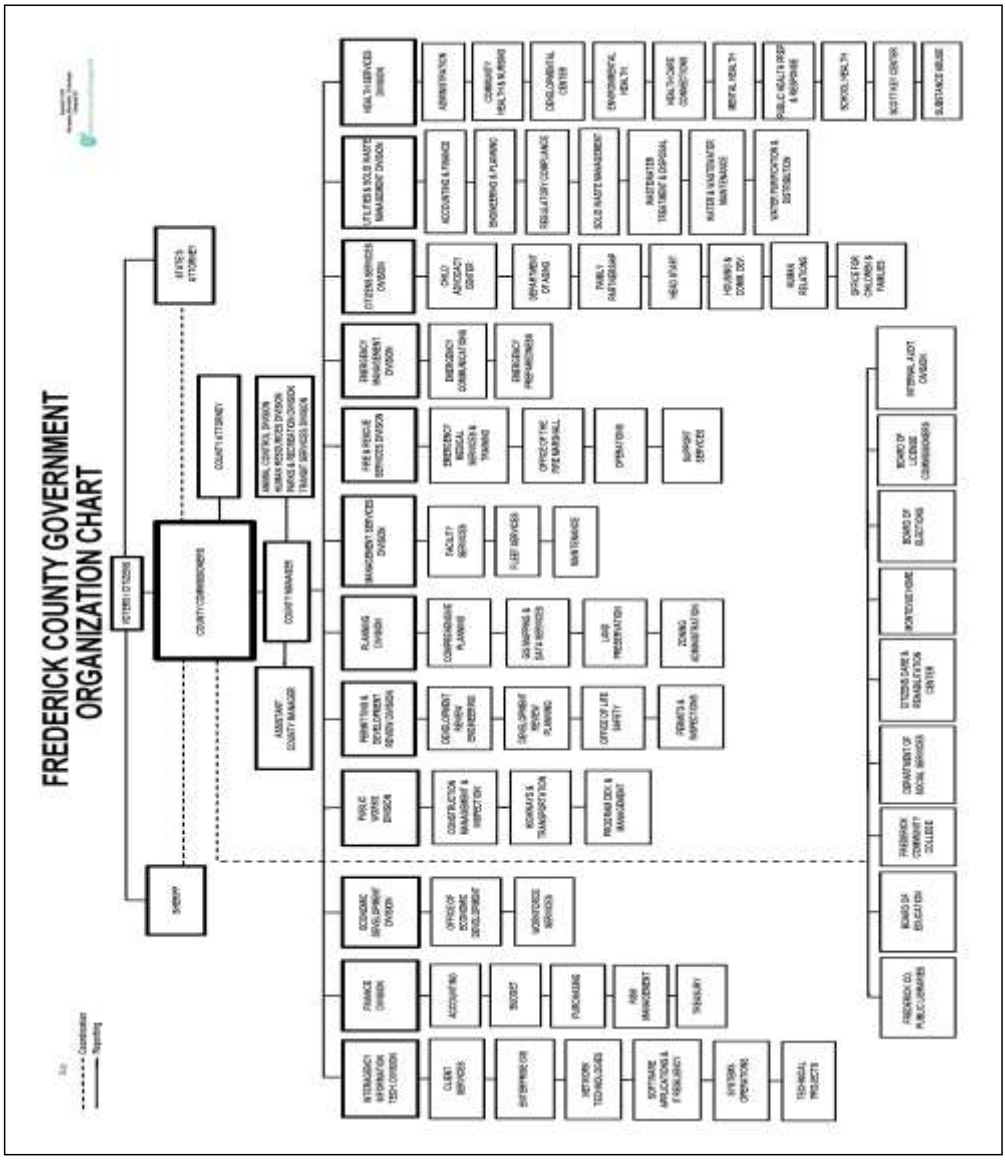


Table 1-4
Summary of Federal Statutes Affecting Solid Waste Management
(General)

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 sludges.

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:

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.

Federal Emergency Management Act:

Prohibits siting of facilities within the 100-year floodplain.

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.

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 and the Mercury Oxide Battery Act. A summary of the state laws affecting solid waste management is provided 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 Titles affecting solid waste management.

State regulations are compiled into a document entitled 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. A summary of the regulations which affect solid waste management is provided in Table 1-8.

MDE enforces regulations for two additional recycling-related acts. These regulations are for the 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.

Table 1-5
Summary of Federal Regulations
(CFR, TITLE 40, SUBCHAPTER 1)

Part 240: ***Guidelines for the Thermal Processing of Solid Wastes***

Minimum performance level for municipal solid waste incinerators with a capacity of 50 tons per day, or greater.

Part 241: ***Guidelines for the Land Disposal of Solid Wastes***

Minimum performance levels any municipal solid waste disposal site operation.

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 244: ***Solid Waste Management Guidelines for Beverage Containers****

Minimum actions for reducing beverage container waste; covers use of returnables, information requirements and implementation.

Part 245: ***Promulgation of Resource Recovery Facilities Guidelines****

Guidelines for the recovery of resources from residential, commercial and institutional solid wastes, including regionalization and planning techniques.

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: ***Guidelines for the Procurement of Products that Contain Recycled Materials***

Recommended guidelines only. Procedures that can be utilized in the specifications for procurement of products to increase the use of recycled materials.

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

Procedures for the identification of regional solid waste management planning districts pursuant to Section 4002(a) of the Solid Waste Disposal Act.

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

Guidelines for development and implementation of state solid waste management plans

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

Criteria to determine which solid waste facilities pose a reasonable probability of adverse effects on health or the environment. Facilities in violation will be considered open dumps. Does not apply to municipal solid waste landfills (MSWLF) (covered under Section 258).

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

Table 1-5 - Continue
Summary of Federal Regulations
(CFR, TITLE 40, SUBCHAPTER 1)

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

Establishes minimum national criteria for the design and operation of municipal solid waste landfills. 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 and a general overview of Parts 260 through 265.

Part 261: ***Identification and Listing of Hazardous Waste***

Provides identification of those materials which are subject to regulation as hazardous under Parts 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-transportation requirements, record-keeping 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 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 Disposal Sites***

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

Part 267: ***Interim Standards for Owners and Operators of New Hazardous Waste Land Disposal Facilities***

Establishes minimum national standards which define the management of hazardous waste for new land disposal facilities.

Part 268: ***Land Disposal Restrictions***

Identifies a schedule to evaluate listed wastes for prohibition of land disposal and establishment of treatment standards for these wastes.

Table 1-5 - Continue
Summary of Federal Regulations
(CFR, TITLE 40, SUBCHAPTER 1)

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 Programs***

Establishes the applicable state hazardous waste management programs.

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 the County's waste stream by 15 or 20 percent, respectively.

Asbestos Control - 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.

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

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.

Sludge Application (1993):

Land application procedures for sludges 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 for implementing a 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 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.

Comment [cmj1]: SB781

Formatted: Font: Italic

Formatted: Font: Italic

Formatted: Font: Italic

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 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*

Section 204 *- Installing, Altering or Extending Water Supply Systems, Sewerage Systems or Refuse Disposal Systems*

Section 204.1 *- Installing, Altering or Extending Incinerators*

Section 204.2 *- Installing Altering or Extending Landfill Systems*

Section 209 *- Landfill System Hearings*

Section 210 *- Prerequisites for Issuance of Permit*

Section 211 *- Landfills, Incinerators and Transfer Stations; Requirements for Security*

Section 212 *- Landfill Systems - Options to Purchase*

Section 212.1 *- Denial of Permit to Nongovernment Person*

Section 213 *- Term of Permit (5 Years)*

Section 214 *- Revoking or Refusal to Renew a Permit*

Section 215 *- Closures and Cover When Operation Ends*

Section 225 *- Landfills Near Hospitals Prohibited (½ Mile Radius)*

Section 226 *- Certification of Public Necessity Required for Hazardous Waste Landfill System*

Section 227 *- Infectious Waste in Landfill System Prohibited*

Section 228 *- Scrap Tires- 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 9 - Chapters 1-6, Forest Conservation

Under Title 09

Subtitle 5 - County Water and Sewerage Plans

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

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 an, 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 5 - Chapter 3, Construction on Nontidal Waters and Floodplains

Subtitle 5 - Chapter 4, Nontidal Wetlands

Subtitle 5 - Chapter 7, Wetlands Regulations

Subtitle 8 - Water Pollution

Subtitle 9 - Chapter 1, Erosion and Sediment Control

Subtitle 9 - Chapter 2, Stormwater Management

Subtitle 11 - Air Quality

Subtitle 13- Disposal of Controlled Hazardous Substances

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 Board of County Commissioners 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.

Formatted: Bulleted + Level: 1 + Aligned at: 0" + Indent at: 0.25"

Formatted: Bulleted + Level: 1 + Aligned at: 0" + Indent at: 0.25"

Formatted: Bulleted + Level: 1 + Aligned at: 0" + Indent at: 0.25"

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.

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.

Rubblefills (COMAR 2 6.04.07.13-26.04.07.18)

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.[1]

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:[1]

- 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. Construction of a separate rubble disposal cell at the sanitary landfill is no longer planned.[1]

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 becomes a cost-effective solution.[1]

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.

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

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.

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[I] 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.[II]

Frederick County Land Acquisition Policy - Resolution No. 02-17 documents legal authority and standard procedures for real estate acquisitions for use by the County (Appendix E).

The Frederick County Permit Application Consistency Check List provides a means for the DSWM[I] 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 BOCC, 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 H. 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. Frederick County Board of County Commissioners 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.

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 BOCC 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 D. 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.
- WTE Municipal Resolutions

Formatted: Indent: Left: 0", Hanging: 0.06", Bulleted + Level: 1 + Aligned at: 0" + Tab after: 0.25" + Indent at: 0.25", Tab stops: 0.19", List tab

Formatted: Indent: Left: 0", Hanging: 0.06", Bulleted + Level: 1 + Aligned at: 0" + Tab after: 0.25" + Indent at: 0.25", Tab stops: 0.19", List tab

Formatted: Indent: Left: 0", Hanging: 0.19", Bulleted + Level: 1 + Aligned at: 0" + Tab after: 0.25" + Indent at: 0.25", Tab stops: 0.19", List tab

Formatted: Indent: Left: 0", Hanging: 0.19", Bulleted + Level: 1 + Aligned at: 0" + Tab after: 0.25" + Indent at: 0.25", Tab stops: 0.19", List tab

Formatted: Indent: Left: 0", Hanging: 0.19", Bulleted + Level: 1 + Aligned at: 0" + Tab after: 0.25" + Indent at: 0.25", Tab stops: 0.19", List tab

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.
PU-P-12	Construction of a regional energy recovery facility or waste-to-energy (WTE) per the Board of County Commissioner approved plan and to be located in the McKinney Industrial Park adjacent to the Ballenger Creek Wastewater Treatment Plant and Division of Utilities and Solid Waste Management headquarters is consistent the County Solid Waste Management Plan and this Countywide Comprehensive Plan. [1,2]
ACTION RECOMMENDATIONS	
PU-A-04	Maintain representation on regional boards that evaluate the feasibility and implementation of regional solid waste acceptance and processing facilities.
PU-A-05	Construct a regional energy recovery facility or waste-to-energy (WTE) per the Board of County Commissioner approved plan in the McKinney Industrial Park adjacent to the Ballenger Creek Wastewater Treatment Plant and Division of Utilities and Solid Waste Management headquarters.

[1] RTI International, July 2008, Environmental Protection Agency's Municipal Solid Waste Decision Support Tool Analysis for Frederick County.
[2] R.W. Beck, Inc., September 2005, Solid Waste Management Options Report for Frederick County, Maryland.

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 Frederick County Board of County Commissioners.)

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 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/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 Board of County Commissioners 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 2000 Census Report, Frederick County had a population of 195,277 in 2000, an increase of approximately 30 percent from the 1990 Census Report of 150,208. According to the April 1, 2010 U.S. Census, Frederick County had a population of 234,669. The projected population through 2020, which covers the planning period for this document, is projected to be 287,913 (Frederick County Council of Governments Round 7.0 Forecast).

MUNICIPALITIES

There are 12 incorporated municipalities within Frederick County, the largest of which is Frederick City.

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

According to the 2000 U.S. Census Frederick City had an estimated population of 52,767, making it the third largest city in the state. According to the April 1, 2010 U.S. Census, the population of Frederick City was 65,787. Municipality population statistics for the 1980, 1990, 2000 and 2010 census are presented in Table 2-1.

The 12 municipalities of Frederick County represent 103,989 residents (2010 Census) or approximately 44 percent of the County population. There are 2,741 commercial and industrial establishments located within the municipalities, or approximately 73 percent

of the total establishments located within the County. Municipalities generate approximately 51 percent of municipal solid waste within the County.

Figure 2-1
Frederick County Vicinity Map

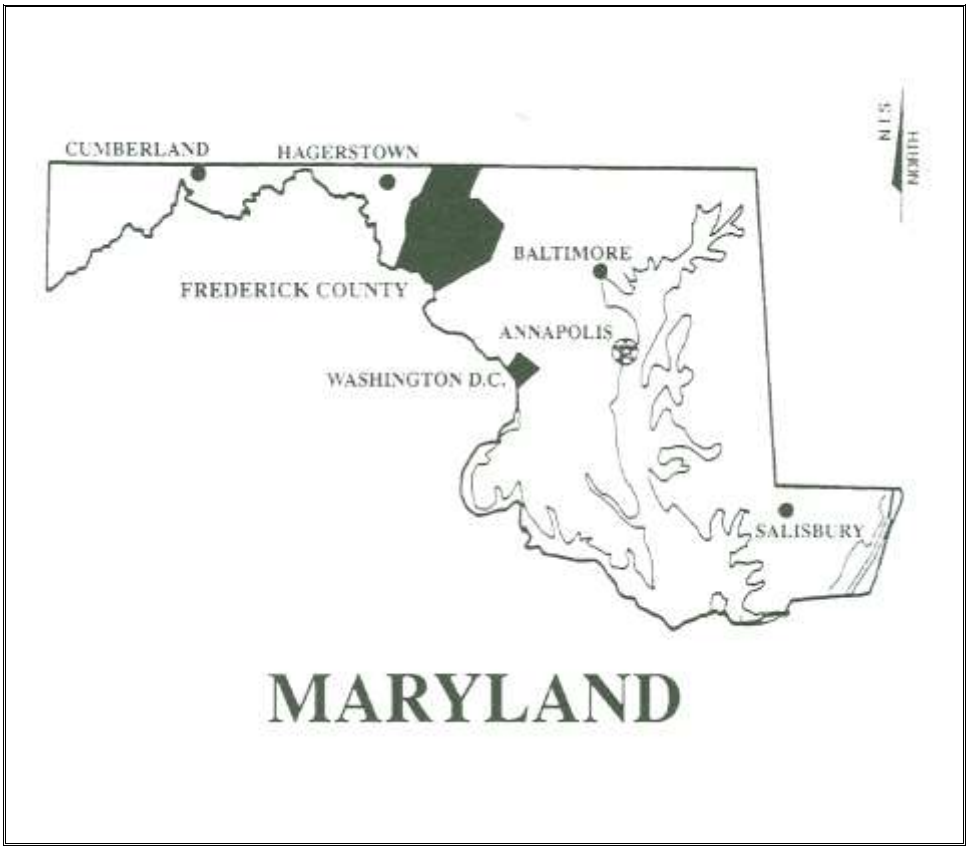


Table 2-1
Municipality Populations
1980, 1990, 2000, 2010 and 2020 Census Estimates

Municipality	1980 Census	1990 Census	2000 Census	2010 Census	2020 Projection
Brunswick	4,572	5,117	4,894	5,938	7,000
Burkittsville	202	194	171	151	165
Emmitsburg	1,552	1,688	2,290	2,814	3,380
Frederick City	28,086	40,148	52,767	65,787	78,961
Middletown	1,748	1,834	2,668	4,191	4,646
Mt. Airy (Fred. Co. Only)	540	1,497	3,415	*9,288	*10,038
Myersville	432	464	1,382	1,624	1,965
New Market	306	328	427	743	1,220
Rosemont	305	256	284	294	304
Thurmont	2,934	3,398	5,588	6,170	7,099
Walkersville	2,212	4,145	5,192	5,844	6,256
Woodsboro	506	513	846	1,145	1,250
Non-Municipal	71,397	90,626	115,353	130,680	132,305
Frederick County	114,792	150,208	195,277	234,669	254,589

***Population for entire Mt. Airy municipality. Source: Frederick County Community Development Division.**

PLANNING REGIONS

The basis for Frederick County planning is the "Community Concept" which has identified eight separate planning regions. Each region has a unique physical identity, geographic limits which are easily definable (mountain ridges, streams, etc.), and a historic or planned center of social and economic activity. The average size of these planning regions is approximately 80 square miles.

Each of the planning regions has regional community centers which are the major growth areas; these areas are planned to have a population range of 5,000 to 15,000. Secondary growth areas within each planning region with a population range of 1,000 to 5,000 are designated as district communities; those areas which are not planned for significant development, with populations less than 1,000, are identified as rural communities. Population projections for the next 20 years are provided for the eight planning regions within Frederick County in Table 2-2.

Planning Regions

Adamstown	New Market
Brunswick	Thurmont
Frederick	Urbana
Middletown	Walkersville

FEDERAL FACILITIES

Frederick County has two major federal facilities; Fort Detrick, Department of the Army and the Catoctin Mountain National Park. Fort Detrick is located in the northwestern portion of the City of Frederick. Catoctin Mountain National Park is located in the Thurmont Planning Region in the northwestern part of the County. Both facility locations are shown on Figure 2-2.

ZONING

The County remains predominantly undeveloped with approximately two-thirds of the County existing as agricultural or undeveloped land and about 16 percent as woodlands. Residential use comprises approximately 10 percent while commercial and industrial uses comprise approximately 2 percent 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 are the basic tools for guiding development toward the County's comprehensive plan. In November 1991, the BOCC adopted a zoning text amendment dealing with solid waste management facilities. The amendment established a solid waste district - a floating zone which can be established within agricultural (A), limited industrial (LI), and general industrial (GI) zoning districts. This amendment, County Ordinance 91-32-032, is provided in Appendix E.

Table 2-3 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.[II]

This plan shall not be used to create or enforce local land use and zoning requirements.

COMPREHENSIVE PLAN

The Countywide Comprehensive Plan is a long-range plan (20-year planning period) which coordinates and guides the development of Frederick County. This plan was updated and adopted on April 8, 2010 by Ordinance No. 10-05-540.

The plan includes discussions of the County's history, demographic trends, land use, environmental issues, mineral resources, housing, community services, transportation, community facilities, regional plans for the eight planning regions and implementation plan.

Regional plans are prepared for each of the eight planning regions. These plans are updated every five years or as often as needed to reflect the dynamics of the respective planning regions. Comprehensive plan goals and objectives and short-range solid waste management policies and action recommendations are presented in Chapter 1. As with zoning regulations, permit applications for solid waste management facilities within Frederick County must be consistent with the County comprehensive plan.

Figure 2-2
Planning Regions and Federal Facilities

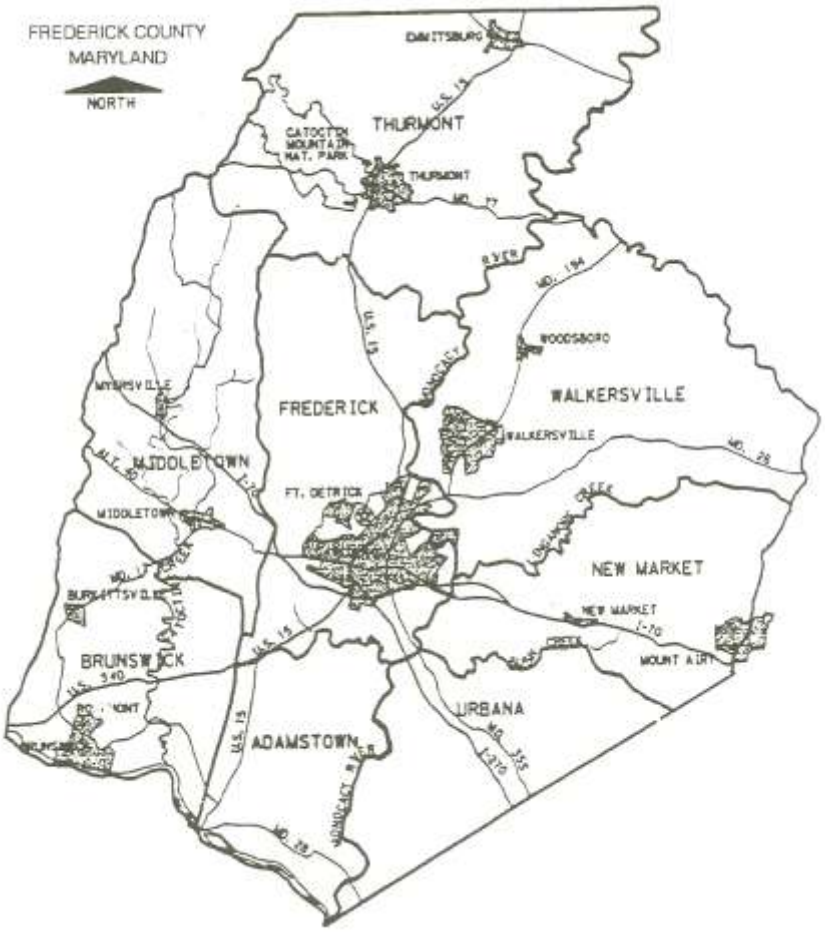


Table 2-2
Frederick County
Population Projections by Planning Region
1980-2020

	Census 1980	Census 1990	January 2000	Projected 2010	Projected 2020
Frederick County Planning Regions	**114,792**	**150,208**	**195,277**	**243,221**	**287,913**
Adamstown	**3,093**	**4,884**	**9,065**	**9,545**	**11,400**
Brunswick	**10,386**	**12,347**	**14,465**	**17,072**	**19,945**
Frederick	**40,849**	**60,235**	**69,810**	**96,976**	**115,164**
Middletown	**12,872**	**14,084**	**17,434**	**20,964**	**23,857**
New Market	**10,627**	**15,855**	**29,107**	**32,662**	**40,226**
Thurmont	**14,517**	**15,081**	**19,669**	**20,644**	**24,403**
Urbana	**7,605**	**9,341**	**13,153**	**18,800**	**22,265**
Walkersville	**14,843**	**18,381**	**22,574**	**26,558**	**30,653**

These projections will be updated as part of the Countywide Comprehensive Plan Update
Source: U.S. Census, Frederick County Planning Department.

Source: U.S. Census, Frederick County Planning Department and Frederick County Council of Governments Round 7.0 Forecast.

Table 2-3
Frederick County Zoning Regulations for Solid Waste Facilities

Zoning Ordinance 1-19-5.310 Amended November 29, 1991 by County Ordinance 91-32-032[II]

- Recycling pickup and distribution centers may be located in districts zoned limited industrial and general industrial, subject to 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 1-19-10.800, Solid Waste District County Ordinance 91-32-032

- 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 which 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 BOCC.
- 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.

Formatted: Indent: Left: 0.06", Hanging: 0.63", Bulleted + Level: 1 + Aligned at: 0.25" + Tab after: 0.5" + Indent at: 0.5"

Formatted: Indent: Left: 0", Hanging: 0.69", Bulleted + Level: 1 + Aligned at: 0.25" + Tab after: 0.5" + Indent at: 0.5"

Formatted: Indent: First line: 0.19", Bulleted + Level: 1 + Aligned at: 0.25" + Tab after: 0.5" + Indent at: 0.5"

Table 2-3
Frederick County Zoning Regulations
for Solid Waste Facilities – continued

Zoning Ordinance 1-19-10.800, Solid Waste District
County Ordinance 91-32-032

- The application shall be filed and processed in the same manner as a zoning map amendment. The application may be granted if the BOCC 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 eight restrictions.
  - Frontage: The site shall have a minimum of eighty (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 three hundred (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.
  - 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.

Formatted: Indent: Left: 0", Hanging: 0.69", Bulleted + Level: 1 + Aligned at: 0.25" + Tab after: 0.5" + Indent at: 0.5"

Formatted: Indent: First line: 0.19", Bulleted + Level: 1 + Aligned at: 0.25" + Tab after: 0.5" + Indent at: 0.5"

Formatted: Indent: Left: 0.69", Hanging: 0.19", Bulleted + Level: 1 + Aligned at: 0.25" + Tab after: 0.5" + Indent at: 0.5"

Table 2-3
Frederick County Zoning Regulations
for Solid Waste Facilities – continued

Zoning Ordinance 1-19-8.348 Solid Waste Operation
County Ordinance 91-32-032

- The following provisions shall apply to solid waste operations requiring special exception approval in agricultural and general industrial districts:
  - Minimum Lot Area: Ten (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 operation, volume of operation and dust control. Parking and maintenance of trucks and other equipment and activities accessory to the operations must be included with 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 agriculture district shall comply with section 1-19-7.610 as it applies to the light industrial (LI) district.
  - The site shall have a minimum of 80 feet of road frontage. Access to a site via a panhandle is prohibited.
  - 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 of zoning shall correspond to the comprehensive plan designation.

Formatted: Indent: Left: 0", Hanging: 0.69", Bulleted + Level: 1 + Aligned at: 0.25" + Tab after: 0.5" + Indent at: 0.5", Tab stops: Not at 0.5"

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, disposal 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
- Commercial, industrial (non-hazardous), institutional
- Rubble (land clearing and demolition debris)
- Controlled hazardous substance
- Dead animals
- Bulky wastes
- Tires
- Sludge (wastewater treatment plant)
- Septage
- Asbestos
- Other

Projected generation in these waste categories in Frederick County during the period 2011 through 2017 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.

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 Landfill. Landfill records indicate that 71,528 tons of residential waste was delivered there in 2009.

Recyclables recovered by residents are collected by the County's Curbside Recycling Collection Program and the County Satellite Recycling Dropoff Centers. The Satellite Dropoff Program was terminated effective July 1, 2011 in response to the full expansion of the Residential Curbside Recycling Program. These combined programs recovered 20,061 (pre-residual) tons of recyclables in 2009.

Adding these recovered recyclables to the waste disposed in the landfill provides a total residential municipal solid waste generation of 91,589 tons for 2009.

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

For planning purposes, employment statistics from the County's Economic and Community Development Commission (ECDC) were used to determine the percentages of commercial, industrial and institutional waste contained in this waste stream.

Approximately 60 percent of the employees in the County are associated with retail commercial businesses. Approximately 10 percent of the employees are associated with manufacturing. ECDC statistics indicate that establishments providing services employ 24.6% of the employees and these establishments are an indication of institutional facilities within the County. It is assumed that 61.3 percent of the employees in the County are associated with commercial business, 19.6% industry, 33% agricultural and 15.8 percent institutional services.

Commercial

The Reichs Ford Road Landfill records indicate that 65,426 tons of commercial municipal solid waste were received in 2009. Commercial, industrial and institutional sources reported recovering 61,598 tons of recyclables in 2009.

Adding the recovered commercial recyclables reported to the County to the commercial municipal solid waste delivered to the County solid waste facility provides a total municipal solid waste generation of 127,024 tons in 2009. 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 generated within the County is collected and hauled to the County landfill or recycled directly through various outlets.

Table 3-1
Annual Generation of Waste in Frederick County

		MSW	MSW	MSW	MSW	MSW	MSW	Non-MSW	Non-MSW	Non-MSW	Non-MSW	Non-MSW	Non-MSW	Non-MSW	Non-MSW	Non-MSW	Non-MSW					
Year	Population	Residential	Commercial Institutional	Bulk Trash	Recyclables	Yard Waste	Tires (Tons)	Construction Rubble	Trees Stumps	Sludge	Asbestos	Clean Dirt	Roadside Cleanup	Blacktop Asphalt	Concrete	Dead Animals	Control Hazrub	Total	[1]Total MRA Waste Generated	MSW	Non-MSW	Septage (gallons)
2007	225,265	87,946	90,886	1,323	102,108	25,370	104	40,381	227	560	0	15,204	460	387	218	279	N/A*	365,859	436,582	307,633	57,726	6,250,000
2008	229,606	83,267	66,147	987	74,339	32,064	114	39,950	166	680	2	24,271	249	202	352	279	N/A*	322,968	426,639	256,804	66,164	7,900,000
2009	234,198	70,198	65,426	1,030	76,088	25,374	89	29,594	89	440	2	4,625	310	138	414	279	N/A*	279,947	365,846	238,116	35,831	8,230,000
2010	249,221	67,822	57,821	1,074	90,993	28,831	3,719	33,169	41	32	4	4,917	26	17	135	279	N/A*	288,880	347,842	246,541	38,620	4,460,000
2011	247,690	90,644	53,674	1,094	92,665	29,361	5,353	79,537	220	18,316	1	0	374	221	294	284	1,583	418,621	457,757	307,438	99,248	7,900,000
2012	252,159	92,280	95,263	1,113	94,337	29,890	5,449	80,972	224	18,646	1	0	381	225	299	289	1,611	421,094		312,985	101,038	8,050,000
2013	256,629	93,915	97,055	1,133	96,009	30,420	5,546	82,437	228	18,977	1	0	387	229	304	294	1,640	428,547		318,533	102,829	8,190,000
2014	261,098	95,551	98,745	1,153	97,681	30,950	5,642	83,842	232	19,307	1	0	394	233	310	300	1,668	436,010		324,080	104,620	8,330,000
2015	265,567	97,186	100,435	1,173	99,353	31,480	5,739	85,278	236	19,638	1	0	401	237	315	305	1,697	443,474		329,627	106,411	8,470,000
2016	270,036	98,822	102,125	1,192	101,025	32,009	5,835	86,713	240	19,968	1	0	408	241	320	310	1,725	450,937		335,174	108,202	8,620,000
2017	274,505	100,457	103,816	1,212	102,697	32,539	5,932	88,148	244	20,299	1	0	414	245	325	315	1,754	458,400		340,722	109,992	8,760,000
	Projected Total	668,856	691,215	8,071	683,769	216,649	39,496	586,897	1,627	135,152	8	0	2,760	1,630	2,167	2,097	11,677	3,052,078		2,268,560	732,340	58,320,000
	Projected Average	95,551	98,745	1,153	97,681	30,950	5,642	83,842	232	19,307	1	0	394	233	310	300	1,668	436,010		324,080	104,620	8,331,429
	Projected Percent	21.9%	22.6%	0.3%	22.4%	7.1%	1.3%	19.2%	0.1%	4.4%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.4%	100%		75.3%	24.3%	

For MSW projections, 2007 was established as a baseline per capita rate, then reduced by 6.3% to reflect EPA trends.
For other waste types, rolling averages were used to determine a per capita multiplier times population projections.
Projections reflect potential waste generation within the County to ensure development of adequate solid waste management systems.
Figures for 2010 are actuals received at Frederick County Landfill and do not represent entire generation of waste in Frederick County.
Figures for 2010 represent data collected during severe economic recessionary conditions as well as tipping fees near the upper end of the regional market spectrum.
Projections provided by Mid Atlantic Solid Waste Consultants minus tire projections.
* CHS not handled within Frederick County Government's solid waste management systems.
[1] MRA total waste generated (tons) supplied by MDE.

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

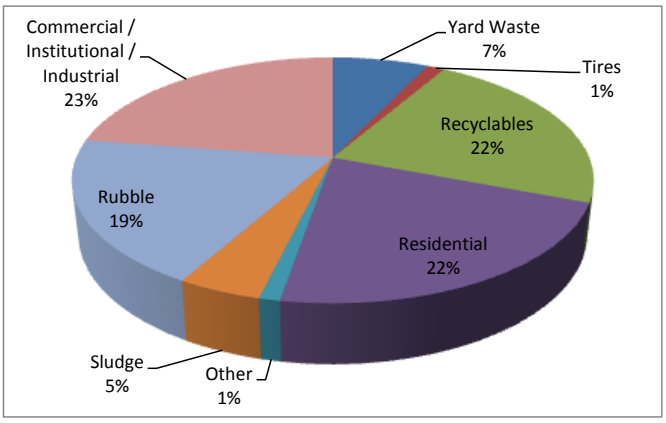


Figure 3-1. Other includes CHS, Dead Animals, Bulk Trash, Asbestos, Clean Dirt, Blacktop, Tree Stumps, Concrete, and Roadside Cleanup.

Industrial

In general, industrial waste generated within the County is hauled to the County landfill. Industrial wastes generated at the Eastalco Aluminum Company are landfilled on-site at the Eastalco Landfill. Cement Kiln Dust (CKD), an industrial non-hazardous waste generated at the Essroc Cement Corporation cement manufacturing plant is landfilled on-site at the Essroc CKD Landfill.

It is assumed that 23 percent of the County landfill waste stream recorded as non-rubble commercial and institutional waste is derived from industrial sources. Recyclables reported to the County are included in this total.

The Eastalco Landfill was used as a disposal site for potliner brick and other wastes associated with the aluminum manufacturing process. Eastalco Landfill disposed of 6,079 tons in 2001. Eastalco recycled 3,500 tons of materials and fluids in 2001. Combining disposal and recycling, the facility generated 9,579 tons of waste in 2001.[I]

The Essroc CKD Landfill is used as a disposal site for CKD generated at the Essroc Cement Corporation's Frederick cement manufacturing plant. Essroc generates between 100 and 110 tons of CKD per day. This equates to approximately 30,000 to 40,000 tons of CKD generated annually. Of this total waste generated, 1% is recycled back into the cement manufacturing process. Future efforts to

increase recycling and reuse may decrease the total quantity of CKD disposed of in the on-site CKD landfill.

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, Department of Program Development and Management.

Institutional

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

Special medical waste generated within Frederick County is either incinerated at the Frederick Memorial Healthcare System Incinerator or collected and hauled to Baltimore for incineration. This special medical waste is described in a subsequent section.

Frederick Memorial Healthcare Systems steam sterilizes special medical waste on site using an approved proprietary system that sterilizes and grinds the waste into a material safe for ultimate disposal in the Reichs Ford sanitary landfill.

The U.S. Army operates an incinerator complex and landfill at Fort Detrick. Fort Detrick manages its entire waste stream independent of Frederick County's solid waste management purview and, therefore, is not a component of the County's Solid Waste Management Plan.
Frederick County schools generated 3,579 tons of waste in Fiscal Year 2010.

Rubble

Rubble includes land clearing, demolition and construction debris as defined in COMAR 26.04.07.11 and .13. Rubble generated within the County is accepted at the Reichs Ford Road Landfill.

With the closure of the dedicated rubble landfill at the Reichs Ford Road 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 Landfill accepted 30,186 tons of rubble in 2009 (C&D – highway, C&D – 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 in 2009, 274 tons of dead animals were incinerated. 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 Landfill and are accepted at no charge. When feasible, large white good items and large scrap metal items contained in loads delivered to the landfill are separated for recycling. Landfill records indicate that 3,963 tons of bulky items (white goods and scrap metal) were accepted at the Reichs Ford Road Landfill in 2007, 2,933 in 2008 and 2,073 in 2009.

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.

The per capita generation rate for bulky materials is estimated at .02 pounds per person per day.

Tires

In 2009, approximately 89 tons of scrap tires were delivered to the Frederick County landfill.

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 Landfill holds a license as a secondary disposal site for scrap tires, meaning that no more than 1,500 scrap tires may be stored on site at any one time. The license # is 2008-RSC-0280. 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.

U.S. EPA documentation recommends a generation rate for used scrap tires of one scrap tire per person per year. This generation rate will be used to project the generation of used scrap tires in Frederick County.

Sewage Sludge

The majority of sewage sludge generated within Frederick County is disposed using land application on State-permitted sites (primarily farms) in Maryland and neighboring states. The Reichs Ford Road Landfill receives only small quantities of sludge under emergency situations. As discussed in Chapter 2, the WTE facility will also provide up to 50,000 tons per year of sludge disposal capacity for the County's Ballenger – McKinney WWTP.

The landfill accepted delivery of 440 tons of sludge in 2009.

Based on sludge received at the landfill, the average per capita generation rate was .01 pounds per person in 2009. For this plan, the per capita generation rate of .01 pounds per person per day will be used for sludge projections. 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 landfill. This is anticipated to continue until such time as the County's waste-to-energy facility is operational and can handle up to 50,000 tons per year of sewage sludge.

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 Creek Waste Water Treatment Plant (WWTP). Frederick County's septage implementation plan is provided in Appendix F.

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 Creek WWTP.

Ballenger Creek Wastewater Treatment Plant treated an average of 10,386 gallons of septage per day in 2010.

Asbestos

The Reichs Ford Road Landfill accepted 1.77 tons of asbestos in 2009, which 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.[I]

Special medical waste generated in the Frederick Memorial Healthcare System is steam sterilized on site. Approximately 5,600 pounds of special medical waste are processed daily[III], using an approved proprietary system that sterilizes and grinds the waste into a material safe for ultimate disposal in the Reichs Ford sanitary landfill.

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 on-site at the Fort Detrick Medical Waste Incinerator Plant.

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 rubble or 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 landfill are classified as commercial or rubble waste.

Recreational Waste

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

Mining Waste

Numerous quarries throughout the County mine crushed stone which is used for various types of aggregate. Primary materials mined for crushed stone 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 associated with quarrying operations is overburden (soil), which is usually stockpiled on-site or sold as clean fill to the construction industry. Although quantities of this material are significant, it does not currently pose a solid waste management problem in the County.

Used Oil and Antifreeze

Many industries and businesses collect their used oil and antifreeze for recycling or reuse. Individuals are estimated to produce approximately 60 percent of waste oil in Maryland.

Waste oil and antifreeze are collected for recycling by Maryland Environmental Service (MES), Frederick County and commercial establishments such as garages and service stations.

MES provides waste oil collection at six sites in Frederick County. Three of the six 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 2009 were 1,629 tons of waste oil and 152 tons of antifreeze. These numbers are likely to be low, however, since reporting is not mandatory and reports from private facilities are not collected 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 landfill for disposal or recovered by recycling. For calendar year 2009, the percent composition of the County's municipal solid waste stream is approximately 72% municipal solid waste (47% residential and 53% commercial) and 18% construction and demolition waste (12% residential and 88% commercial). 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.

In 1995-96, Frederick County conducted an analysis of the waste delivered to the County landfill. This analysis showed paper products at 38.8%, making up the largest part of Frederick County's waste stream, with corrugated cardboard at 8% the largest single paper type. Food waste (11.9%) and plastics (10.4%) were also large items. The paper and plastic percentages were comparable with EPA studies, which show these categories at 38.9% and 9.5%, respectively. However, yard waste, which was 8.5% of Frederick County's sample, is usually 14.6% of municipal solid waste nationally.

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 (all of whom are included in the current Frederick County Recyclable Materials Collection Service Agreement).

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 Dropoff Center. 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 Dropoff

The County has provided a dropoff center for recyclables at the Reichs Ford Road Landfill since 1989. The landfill dropoff center is open during normal operating hours for the landfill. The following recyclables are collected at the Reichs Ford Road Dropoff:

Recyclables Collected at Reichs Ford Road Dropoff

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**
Textiles	**Large Appliances**
Scrap Metal	**Yard Waste**

With the exception of scrap tires and electronics, the above listed materials are accepted at no charge. The fee for both scrap tires and electronics disposal at the collection facility is $3.80 per 100 pounds.

Residential Recycling Program

A recycling program, including a curbside collection program and satellite dropoff 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, participants are encouraged to utilize the fully-expanded Curbside Recycling Program and/or the Reichs Ford Road Recycling Center.

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 20,061 tons of residential single-stream recyclables in 2009 from the curbside and dropoff 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 2009 holiday, over 40 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 2009, 16,360 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 Landfill. 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.

The County and some municipalities provide special bulk trash collection. The County also conducted a municipal and non-municipal bulk (disposal) voucher program; however this program was terminated beginning in fiscal year 2011 due to discontinued funding.

The County no longer conducts Free Bulk Trash Day or collects latex paint and mattresses.[I] The planned Resource Recovery Facility (WTE) will accept non-liquid latex paint and mattresses which are not recycled, and process these wastes into energy. Metals in the mattresses and in paint cans will be recovered from the ash residue and recycled as scrap.

A non-profit group, formerly called the Frederick Non-Profit Building Supply and now known as the Frederick 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 facility for a fee of $3.80 per 100 pounds. 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 28,937 tons of organics were recycled in 2009. 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. Frederick Community College is included in the County's single-stream service contract. 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.

Table 3-2
Residential Recycling Program Summary

ROUTE/LOCATION	2009 Tons
Collection Day: 1A **Areas: Adamstown, Ballenger Creek, Buckeystown, Dickerson**	1408.26
Collection Day: 2A **Areas: Brunswick, Burkittsville, Jefferson, Point of Rocks**	1559
Collection Day: 3A **Areas: Middletown, Myersville**	1618.06
Collection Day: 4A **Areas: Catoctin Mountain area, Smithsburg, Sabillasville**	1439.84
Collection Day: 5A **Areas: Emmitsburg, Thurmont**	1222.62
Collection Day: 1B **Areas: Creagerstown, Rocky Ridge, Walkersville, Woodsboro**	1592.8
Collection Day: 2B **Areas: Libertytown, Mount Pleasant**	1407.03
Collection Day: 3B **Areas: Mount Airy, New Market**	2000.93
Collection Day: 4B **Areas: Green Valley, Ijamsville, Monrovia, Spring Ridge, Urbana**	2192.87
Collection Day: 5B **Areas: City of Frederick**	1718.58
DROP-OFFS	
Brunswick	97.69
Buckeystown	116.57
East Street, City of Frederick	222.19
Jefferson	202.64
Middletown	237.22
Mount Pleasant	252.40
Myersville	182.88
Reichs Ford Road	244.75
Rosemont Ave, City of Frederick	222.19
Thurmont	298.26
Urbana	175.96
Yellow Springs	133.30
YARD WASTE	
All Sites	16359.98
TOTALS	34,906.02

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 2009 approximately 60% of the MRA recycling taking place in the County is estimated to come from commercial and institutional sources. In 2009, commercial recyclers in Frederick County recycled 61,598 tons of material. [I]

Frederick County Public School Recycling Plan

1. Program Description

This plan is to be implemented into compliance with Maryland State Law as of October 1, 2010. Many aspects of this plan have already been 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. Frederick County's Department of Solid Waste Management (DSWM) oversees and manages all recycling contracts and collection for the County.

The Frederick County Board of Education will be included in the Frederick County Recyclable Materials Service Agreement for recycling collection, and 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 collection contractor will supply internal recycling containers to all of the public schools to aid with collection, this number will be an agreed upon amount between the collection contractor and FCPS The materials will then be brought to the Frederick County transfer station and transported to the County's contracted Material Recovery Facility for both processing and marketing. This Service Agreement for processing and marketing of the materials will be managed by the County's Department of Solid Waste Management.

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 under the Frederick County residential collection contract. Each school will determine, with the assistance of the County's DSWM, 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 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 and linking back to the FCPS recycling webpage
- Educating principles and administrative staff when requested by the BOE
- Attending outreach events when requested by the BOE
- Assisting with promotional and educational materials when requested by the BOE

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Tab after: 0.5" + Indent at: 0.5"

Recycling Contract

The Board of Education will participate in Frederick County's Recyclable Materials Collection Service Agreement for recycling collection, and the Service Agreement 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. Each month the contractor will

submit to the County's DSWM, who will in turn provide this to the BOE and FCC administration, the tonnages collected for each school for that month's collection.

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
- Lewistown 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

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Tab after: 0.5" + Indent at: 0.5"

- Whittier Elementary School
- Wolfsville Elementary School
- Woodsboro Elementary School
- Yellow Springs Elementary School

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Tab after: 0.5" + Indent at: 0.5"

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

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Tab after: 0.5" + Indent at: 0.5"

High Schools

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

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Tab after: 0.5" + Indent at: 0.5"

FCPS Charter School/Specialty Schools

- Heather Ridge School
- Monocacy Valley Montessori School
- Rock Creek School

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Tab after: 0.5" + Indent at: 0.5"

College Facilities

- Frederick Community College

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Tab after: 0.5" + Indent at: 0.5"

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

10/01/2010 – 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 County Department of Solid Waste Management will receive the monthly tonnage reports from the collection contractor, and subsequently track each school's progress in terms of tonnage recycled per student. This information will be available to all of the schools upon request. The Department will also monitor the external containers on occasion for contamination and report these findings to the FCPS Energy and Recycling Coordinator for contamination outreach at that school. The collection contractor will invoice FCPS and FCC directly for payment of services. In cases of violations, the FCPS Energy and Recycling Coordinator and the FCC Executive Director of Facilities Planning will alert the County DSWM, who will then address the violation with the collection contractor in writing within 7 business days. The contractor must begin corrective actions within 7 business days of notification by the County DSWM. Per the Service Agreement, the County DSWM shall request FCPS or FCC to withhold payment for service and the County DSWM shall assess liquidated damages as deemed necessary until corrective actions are taken.

Quantities

Quantities of materials recovered from the residential recycling program are provided in Table 3-2. A recycling program summary including the curbside program, the Reichs Ford Road dropoff center and estimated commercial recycling is presented in Table 3-3.

The Maryland Recycling Act of 1988 requires diversion of 20% by weight of the tonnage at the Frederick County Landfill beginning in 1994. Frederick County achieved a 41.32% recycling rate (44.32% waste diversion rate) in 2007, a 41.39% recycling rate (44.39% waste diversion rate) in 2008 and a 41.63% recycling rate (46.63% waste diversion rate) in 2009.

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 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 disposal facility, the Reichs Ford Road Landfill, 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 standard procedures for out-of-county refuse inspections and violations are provided in Appendix G.

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

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. This may include, but not be limited to, wastewater sludge from the following treatment plants:

- Blue Plains, Washington, DC
- Hanover, PA
- Little Patuxent, Anne Arundel County
- Piscataway, Prince George's County
- Alexandria, VA

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Tab after: 0.5" + Indent at: 0.5"

Table 3-3
Maryland Recycling Act (MRA) Tonnage Report System
County Recycling Accounting Form - 2009

CATEGORY	Maryland Recycling Act Recyclables	Residential Recycling (TONS)	Commercial Recycling (TONS)	MRA Tons Recycled (TONS)
Metals	Aluminum Cans	391.23	10.85	402.08
	Mixed Cans (AL & Tin/St)	0	0	0
	Tin/Steel Cans	452.92	0	452.92
	White Goods	2073.00	0	2073.00
	Lead Acid Batteries	67.95	224.88	292.83
	Back-End Scrap	0	0	0
Paper	Newspaper	8579.01	1116.13	9695.14
	Old Corrugated Cardboard	2705.34	17074.04	19779.38
	Office/Computer Paper	0	4288.17	4288.17
	Magazines	0	0	0
	Mixed Paper	713.44	1343.70	2057.14
Compost/Mulch	Grass	0	0	0
	Leaves	28.50	1.50	30.00
	Brush and Branches	372.00	248.00	620.00
	Mixed Yard Waste	12638.99	8425.99	21064.98
Compost/Mulch	Wood Waste	0	114.66	114.66
	Pallets	0	585.26	585.26
Plastic	Mixed Plastic	667.27	43.69	710.96
	Plastic – Shrink Wrap	0	37.56	37.56
	Plastic - Film	220.78	93.78	314.56
	Other: Misc. Plastics	0	0	0
Glass	Mixed Glass	2219.30	0.80	2220.10
	Green Glass	0	0	0
	Brown Glass	0	0	0
	Clear Glass	0	0	0
Other Materials	Misc. Organics/Renderings		7532.00	7532.00
	Textiles	262.68	0	262.68
	Scrap Tires	2323.07	0	2323.07
	Animal Protein/Solid Fat	0	755.54	755.54
	Electronics	332.61	533.51	866.12
Tires to Cement	Total Wt. (12%)	0	11.56	11.56
TOTAL	Total MRA Recycling Materials	40134.01-	61598.03	101732.04

Recyclables

Table 3-3 provides a summary of documented quantities of recyclables collected within the County during 2009. A total of 101,732tons of recyclables were reported to the County for 2009. 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.[1]

COLLECTION SYSTEMS

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

Municipal Waste

Most municipal solid waste collected within the County for disposal, with the exception of Fort Detrick, is hauled to the Reichs Ford Road Landfill, 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 landfill. 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. Fort Detrick's landfill accepts 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 facility or by residents taking the materials to buy-back centers.

The County's recycling program currently included 11 residential satellite recycling dropoff locations and curbside collection for 74,123 households in Frederick County as of July 2011. The County procures this contract collection service from a private sector hauler for both programs.

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

Table 3-5 shows that 101,732 tons of Maryland Recycling Act materials were recycled in 2009.

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, high-grade office paper, flexible foam, bulky/oversized rigid plastics and textiles 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 landfill, then the marketing of recyclables is included in the County's "Recycling Agreement" with the Northeast Maryland Waste Disposal Authority.

The planned WTE will recover and sell scrap metal, contributing to the County's recycling rate.

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 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. PSC Environmental is the current HHW collection contractor. 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.

All fluorescents and compact fluorescent lights containing mercury are transported to AERC Recycling in Allentown, PA. AERC uses a high-temperature retarder to collect and purify mercury for reuse.

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 My Organic Market, The Common Market, Home Depot 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 3-4.

Landfills

REICHS FORD ROAD SANITARY LANDFILL - SITE A

Site A is located on a 315-acre site three miles east of the City of Frederick and was in operation from 1967 to 1998. The landfill is an unlined facility. A leachate conveyance and pumping system is in place.

The on-site leachate treatment plant provides full treatment of Site A and Site B leachate. The existing network of monitoring points, i.e.; groundwater well locations, drinking water well locations and surface water monitoring points, provides good multidirectional coverage of ground water and surface water quality. An existing system is in place for storm water management and sediment and erosion control. Reichs Ford Road Sanitary Landfill (Site A) underwent closure construction, which included capping the 72-acre footprint with an impervious geomembrane cap. Site A has been closed since 1998.[I]

Closure Cap Components

The geosynthetic cap components include (bottom to top):

- 10-ounce, non-woven geotextile over existing soil cover
- 30-mil polyvinylchloride (PVC) geomembrane
- One-foot protective drainage layer containing six-inch diameter, perforated HDPE lateral pipe serving as a Secondary Leachate Collection System (SCS)
- 10-ounce, non-woven geotextile
- 0.24-inch geonet

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Indent at: 0.5"

The component of the closure cap include (bottom to top):

A two-foot layer of final cover on top of geosynthetic cap components comprises of 21 inches of soil and three inches of topsoil. Prior Site B land use was agriculture, and nutrient-rich topsoil will enhance vegetative growth. Areas with less than 15% side slopes will have Ballenger Creek's Lime Stabilized Sewage Sludge mixed with soil to create topsoil.

Active Gas Extraction System

For the removal of landfill gas (LFG), an active gas extraction system has been installed as a major element of closure construction. The gas system consists of extraction wells placed into the waste, restricting landfill gas movement off-site. Blowers are connected to each well, drawing the gas out of the landfill. After the gas is conveyed to the blowers, it is either combusted to generate electricity or flared, destroying 99% of the volatile organic compounds.

Beginning in early CY 2010, a landfill gas-to-energy facility began operations, converting methane gas into electricity for on-site use and/or sale to the local power grid. The energy system is owned and operated by a private company, selected through a competitive procurement. The County earns a share of energy revenues each year.

Post-Closure Plan – Site A

Pursuant to federal regulations {40 CFR 258.61(c)}, a Closure and Post-Closure Report for Site A was submitted to MDE in August 1996. Post-closure care must be continued for 30 years unless MDE and the County perceive that a reduced period is sufficient to protect human health and the environment. Post-closure care will consist of the following: (1) maintain integrity of final cover; (2) maintain leachate collection system; (3) monitor groundwater; (4) maintain, operate and monitor landfill gas system.

Post –Closure Land Use

Due to a change in regulation, the 17-acre rubblefill south of Site A was closed in 2001. Capping of the rubblefill was completed and accepted in 2006 and the rubblefill now has an improved surface for use as a yard trim recycling area. A yard trim access road and a Site B access road will be incorporated into the closure cap construction. Currently, the closed Site A is anticipated to be open, grassed space.

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 183 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. Cell 1 has a state-of-the-art double composite liner system comprised of a primary liner system, and a secondary liner system and a composite drainage net as a witness zone.

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 operation).

Primary Liner System

- Two-foot 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

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Indent at: 0.5"

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 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.

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Indent at: 0.5"

Below the secondary liner system is a composite drainage net to detect leachate leaking 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 from the waste disposal cell sump to the on-site leachate treatment plant for treatment and final disposal.

FREDERICK COUNTY RUBBLEFILL

Landfills restricted to accepting waste from construction, demolition and land-clearing activities only are referred to as rubblefills. The rubblefill site at Reichs Ford has been closed since 2001.[1]

Rubblefills have been designed and constructed with no barriers to contain potential pollutants from the rubblefill which may migrate from the rubblefill to underlying groundwater.

A Maryland Register Notice of Final Action on COMAR 26.04.07 Solid Waste Management requires the new facilities or expansion into new cells at existing rubblefills and existing facilities to meet upgraded standards.

The proposed upgrade is to design and install an impermeable liner system, leachate collection and removal system.

Rubblefills accepting waste as of September 22, 1997 were required to meet the requirements by July 1, 2001 or close. The existing 17-acre rubblefill south of Site A was estimated to have had two years of life expectancy beyond the cut-off date of July 1, 2001.

Waste unloaded at the working face of an unlined rubblefill must be inspected before burial for unacceptable wastes by a third-party checker in accordance with an inspection protocol approved by the MDE.

FORT DETRICK LANDFILL

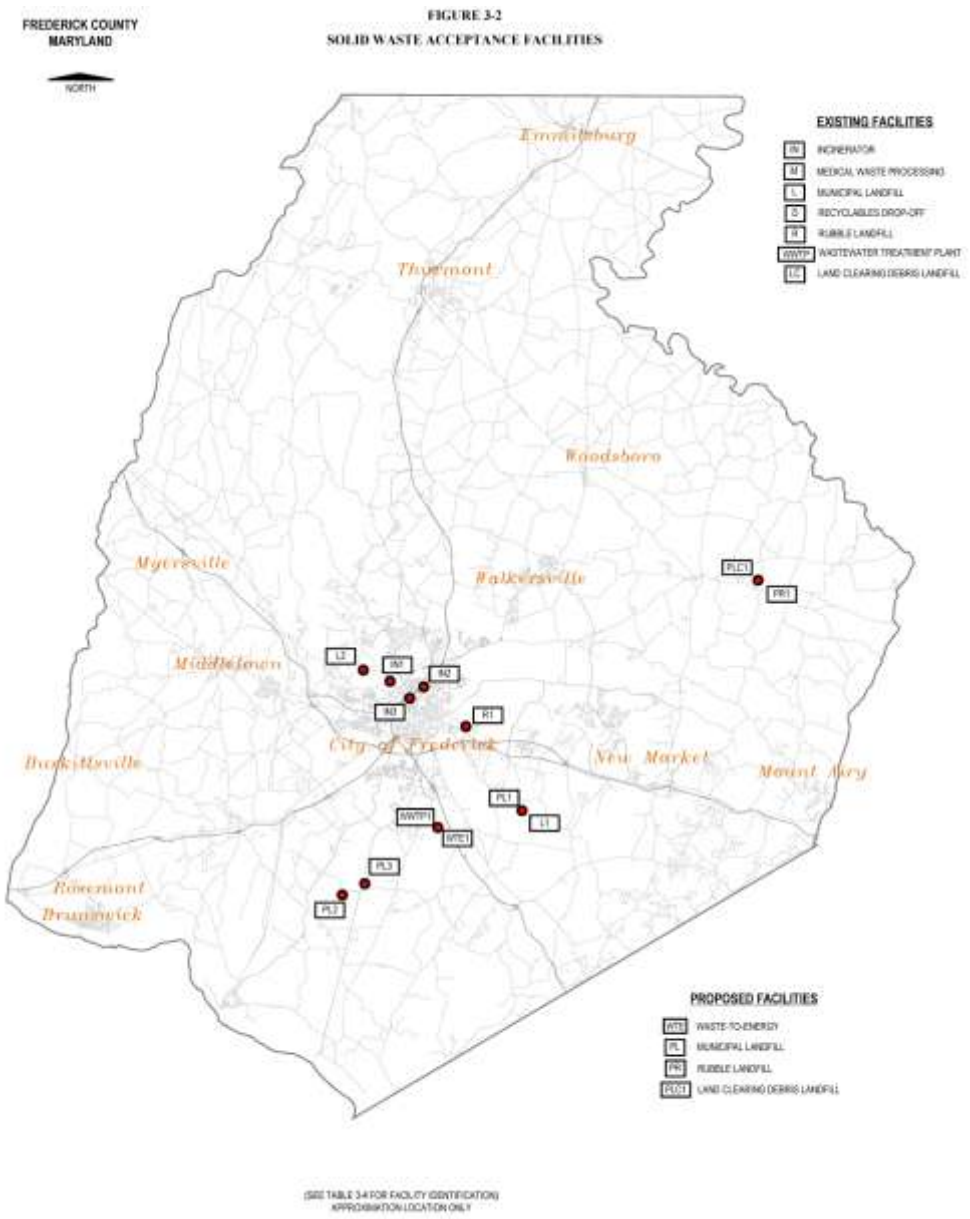
Fort Detrick in the City of Frederick constructed a lined sanitary landfill that began operation in October, 1990. Leachate is collected and discharged to the facility's sanitary sewer system. The current working face encompasses 7 acres. The Fort Detrick Landfill is projected to reach capacity in 2093.

Table 3-4
SOLID WASTE ACCEPTANCE FACILITIES

EXISTING							
Facility	**Figure 3-2 ID**	**MD Coordinate**	**Size (Capacity)**	**Waste Accepted**	**Owner**	**Status - Refuse Disposal Permit**	**Life (Years)**
Transfer and Processing 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 [1]
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	

Table 3-4 (Continued)
SOLID WASTE ACCEPTANCE FACILITIES

EXISTING							
Facility	**Figure 3-2 ID**	**MD Coordinate**	**Size (Capacity)**	**Waste Accepted**	**Owner**	**Status - Refuse Disposal Permit**	**Life (Years)**
Site B Sanitary Landfill **Status: Cell 1, Site operational 1/1997** **Cell 2, Site operational 9/2001** **Cell 3, Site to be operational 2005**	PL1	560,000N 700,000E	183 acres	Residential Commercial/ Institutional Sludge Asbestos Other	Frederick County	Yes (Also refer MDE permits, Table 3-6 (a))	40-45 years (assuming transfer operation)
EASTALCO **New Landfill**	PL2	545,000N 668,000E	10 acres	Potliner Brick	EASTALCO, Inc	Yes	> 25
ESSROC Materials, ESSROC cement Kiln Dust Landfill	PL3	547,000N 672,000E	110 tons per day	Cement Kiln Dust	ESSROC Cement Corporation	Requires MDE Permit	30; will complete a CKD industrial landfill in 2002 to replace the existing landfill.


FREDERICK COUNTY
MARYLAND
NORTH
FIGURE 3-2
SOLID WASTE ACCEPTANCE FACILITIES
EXISTING FACILITIES
IN INCINERATOR
M MEDICAL WASTE PROCESSING
L MUNICIPAL LANDFILL
C RECYCLABLES DROP-OFF
R RUBBLE LANDFILL
WWTP WASTEWATER TREATMENT PLANT
LC LAND CLEARING DEBRIS LANDFILL
Emmitsburg
Thurmont
Woodsboro
Myersville
Walkersville
Middletown
City of Frederick
New Market
Brookmeville
Mount Airy
Rosemont
Brunswick
PLC1
PR1
L2
IN1
M2
M1
R1
PL1
L1
WWTP1
WTE1
PL3
PL2
PROPOSED FACILITIES
WTE WASTE-TO-ENERGY
PL MUNICIPAL LANDFILL
PR RUBBLE LANDFILL
PLCD LAND CLEARING DEBRIS LANDFILL
(SEE TABLE 3-4 FOR FACILITY IDENTIFICATION)
APPROXIMATION LOCATION ONLY

The Fort Detrick landfill accepts incinerator ash, non-burnable waste, animal bedding and water treatment plant sludge. The landfill receives approximately 13 tons of waste weekly.[1] 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 is disposed of on-site, with the exception of recyclables and controlled hazardous substances. The waste generated at the facility is either incinerated or landfilled on-site.

EASTALCO LANDFILL

The EASTALCO plant operated a permitted 10-acre industrial waste. The first of five permitted cells is currently active.[1] 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.

The Essroc cement manufacturing plant located in Buckeystown is in the process of applying for a privately owned 25 acre cement kiln dust (CKD) landfill on its existing property. The average annual generation rate of CKD is 35,000 tons per year. The approximate life of the proposed landfill is a minimum of 30 years. Only CKD waste generated at the Essroc Cement Corporation facility will be disposed of in the proposed landfill.

CITY OF FREDERICK CLEAN FILL

The City of Frederick operates a clean fill located near the airport in the eastern part of the city. This clean fill accepts only non-permit wastes and therefore is not considered a permitted facility.

INCINERATORS

FORT DETRICK INCINERATOR

Fort Detrick has four incinerators in the same building. Processible solid waste burned at the complex includes medical, residential, commercial and institutional waste. The incinerator complex processes approximately 11 tons of waste per day.[1]

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 1,000 pounds of special medical waste each day.

MARYLAND DEPARTMENT OF AGRICULTURE INCINERATOR

The Department of Agriculture Incinerator processes dead animals obtained from the County's Animal Control Division, veterinary animal clinics, residents and the County Highway Department. The incinerator processes 9,045 pounds of dead animals each month, according to MDA records.

OTHER MANAGEMENT FACILITIES

RECYCLABLE DROPOFFS

Frederick County operated 11 satellite dropoffs through July 1, 2011. The satellite dropoffs 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 dropoff center program effective July 1, 2011.

The Reichs Ford Road Dropoff provides for collection of the items that were collected at the satellite dropoffs as well as motor oil, antifreeze, lead-acid batteries, scrap metal, large appliances, electronics, scrap tires, bulky/oversized rigid plastics, flexible foam, mixed paper and textiles.

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 CREEK WASTEWATER TREATMENT PLANT (WWTP)

The 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. The plant accepts over 220,000 gallons per month and 7,330 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 5,574 pounds of medical waste each day. [III]

[This page intentionally left blank]

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. Reduce the generation of waste
2. Reuse waste materials
3. Recycle waste
4. Waste-to-energy
5. Landfilling

Formatted: Numbered + Level: 1 + Numbering Style: 1, 2, 3, … + Start at: 1 + Alignment: Left + Aligned at: 0.5" + Indent at: 0.75"

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: [I]

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.[I] At the beginning of January 2011the remaining capacity in the Site B landfill, including approved vertical expansion capacity was 3,775,940 cubic yards.

Formatted: Numbered + Level: 1 + Numbering Style: 1, 2, 3, … + Start at: 1 + Alignment: Left + Aligned at: 0.5" + Indent at: 0.75"

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. [I]

Formatted: Numbered + Level: 1 + Numbering Style: 1, 2, 3, … + Start at: 1 + Alignment: Left + Aligned at: 0.5" + Indent at: 0.75"

3. On September 28, 2001, the County ceased operation of the separate rubble cell at the County Landfill and commenced incorporating the waste material in the municipal solid waste cell at the landfill. [I]

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 management option in the event that conditions develop that preclude solid waste transfer to another disposal site. [I]

5. Tipping fees at the County Landfill have been raised to $76 per ton for MSW and $85 per ton for C&D and these tipping fees include automatic escalators due to the sensitivity of fuel costs and long-haul transfer and disposal.[3] A tipping fee was added for commercial single-stream recyclables in 2009; the tipping fee is $25.00 per ton as of July 2011. In addition, clean earth material, which the County formerly accepted at no cost, is now subject to the prevailing tipping fee if determined in the best interests of the County. The resolution adopting the new tipping fee also eliminated rubblefill and dumping fee exemptions. [I]

6. The County conducted a Household Hazardous Waste (HHW) Collection Event in calendar year 2001 and plans to conduct additional events in the future. [I]

Formatted: Numbered + Level: 1 + Numbering Style: 1, 2, 3, … + Start at: 1 + Alignment: Left + Aligned at: 0.5" + Indent at: 0.75"

Formatted: Numbered + Level: 1 + Numbering Style: 1, 2, 3, … + Start at: 1 + Alignment: Left + Aligned at: 0.5" + Indent at: 0.75"

Formatted: Numbered + Level: 1 + Numbering Style: 1, 2, 3, … + Start at: 1 + Alignment: Left + Aligned at: 0.5" + Indent at: 0.75"

Formatted: Numbered + Level: 1 + Numbering Style: 1, 2, 3, … + Start at: 1 + Alignment: Left + Aligned at: 0.5" + Indent at: 0.75"

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 landfill.

[3] Current 2010 tipping fees for MSW are $76.00 per ton (escalated as required for fuel adjustments as needed). C&D tipping fees are $85.00 per ton (escalated as required for fuel adjustments as needed). Separate tipping fees have been established for mattresses, tires and commercial single-stream recycling.

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 landfill 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

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Indent at: 0.5"

Advantages

The elimination of overlapping collection routes should result in the reduction of collection costs for homeowners and commercial accounts by reducing truck miles and gas consumption. Truck traffic and air pollution can also be expected to be reduced and franchising would provide access to optional services such as yard waste collection. 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 increasing their efficacy.

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

Disadvantages

Franchising may result in an increased bureaucracy at the expense of the free market. Establishment of a franchise system in Frederick County would probably result in the elimination of several private micro-haulers from collection activities 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. The Commissioner form of Government in place within Frederick County lacks the legislative authority to institute independent franchise collection systems and must seek state enabling legislative approval in order to put such a system in place. Such efforts have been unsuccessful in the past.

Licensing System

The licensing system would provide a compromise between the existing collection system and a franchise collection system. The licensing system would 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 will 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

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Indent at: 0.5"

Advantages

This system allows for the individual and commercial establishments to deal with the hauler of his/her choice; therefore, small private haulers would be given an equal opportunity to compete with the large haulers. 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. The private haulers may not agree to 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.

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 actual waste collections from within the County.

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

LAND DISPOSAL

Landfilling will remain an important component of every integrated solid waste management program. Source reduction, recycling, and resource recovery (waste-to-energy) can significantly reduce but not eliminate the need for a landfill.

Existing and Proposed Facilities

Sanitary Landfills

Frederick County owns and operates the Reichs Ford Municipal Sanitary Landfill, located off of Reichs Ford Road, about 4 miles southeast of the City of Frederick. The landfill 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 facility to permitted sanitary landfills located in other jurisdictions.[1]

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 the Southern Alleganies Landfill in the State of Pennsylvania. The interim transfer of MSW from the Reichs Ford Road 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.[1]

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. 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.[1]

In 2000, weigh scale records showed that the waste disposal acceptance rate at the County Landfill 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.[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 mega-fill 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.

Table 4-1
Estimated Landfill Life[1]

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	4,344,534	3,378,720	1,900,530	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

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

- 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 [I]
- Modification of the configuration of the existing landfill to maximize the disposal capacity of the planned new cells. [I]
- Develop a regional resource recovery (waste-to-energy) facility through NMWDA to serve Frederick and Carroll County's current and future combustible waste disposal needs.

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Indent at: 0.5"

The County completed engineering and construction of a 1,200 ton per day solid waste processing and transfer facility. The County also sought and received a modification of its existing State Refuse Disposal Permit for the County Landfill, 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. [I] The BoCC in cooperation with the Carroll County BoCC in July 2009 entered into a memorandum of understanding and other agreements with the NMWDA for the development of a 1,500 ton per day waste-to-energy facility that will provide long-term disposal capacity for Frederick and Carroll counties. The WTE facility will significantly reduce the volume of waste which requires landfill disposal, extending the life of the Reichs Ford Landfill.

Rubble Landfills[I]

The County also operated a separate, unlined rubble cell at the landfill. 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 June 30, 2001, in order to comply with the provision 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 Landfill is diverted to the municipal waste cell or transferred for disposal elsewhere. [I]

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

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Indent at: 0.5"

Costs

Landfill management costs and tipping fees have been increasing. The tipping fee for sanitary waste at the time this plan was first written in July 1998 was $45 per ton. Fiscal Year 2010 tipping fees are $76 per ton for MSW and $85 per ton for C&D. 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

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Indent at: 0.5"

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

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Indent at: 0.5"

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.

Advantages

Due to the significant waste volume reduction achieved through waste-to-energy (WTE) processing, conserving disposal capacity at the current Site B landfill for future WTE ash disposal is both prudent and cost effective, since it will postpone the need to site, permit and construct a new landfill for decades. This is consistent with the Current County Comprehensive 10-Year Solid Waste Management Plan. In addition, since modification of the existing landfill configuration does not expand the landfill footprint, the additional disposal capacity can be achieved without typical capital expenditures.[I]

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:[I]

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 until the County develops local disposal capacity in a regional WTE facility and

Formatted: Numbered + Level: 1 + Numbering Style: 1, 2, 3, … + Start at: 1 + Alignment: Left + Aligned at: 0.25" + Indent at: 0.5"

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

Formatted: Numbered + Level: 1 + Numbering Style: 1, 2, 3, … + Start at: 1 + Alignment: Left + Aligned at: 0.25" + Indent at: 0.5"

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

Formatted: Numbered + Level: 1 + Numbering Style: 1, 2, 3, … + Start at: 1 + Alignment: Left + Aligned at: 0.25" + Indent at: 0.5"

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

Table 4-2
Typical Landfill Pre-Development Cost

Cost Description (c)	Cost ($) <500 Acres (a)	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 - 85,000

a. Acres of total landfill property
b. Land purchase can vary greatly depending on location
c. Typical costs are based on 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 - Develop. 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.

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 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**

Notes:-

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. [I]

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 are currently hosting 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. However, the opportunity to secure long-term, stable solid waste disposal capacity and minimize costs using a regional WTE facility, has been determined to be in the best interest of the County and the users of the solid waste disposal system. [I]

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. 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. [I]

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. It is important to recognize that similar, but sole liability exists with the existing Reichs Ford Road Landfill, particularly in the unlined Site A landfill. [I]

Another option available to increase the life expectancy of the current landfill is to increase the rate of recycling to reduce the quantity of solid waste that requires landfilling. In 2009, the County recycling rate was 41.63 percent and the waste diversion rate was 46.63 percent.

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. Substantial amounts of land are diverted from other beneficial uses.

Processing / Transfer Facility

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 to a large part provided by private haulers. Private commercial and industrial facilities also collect and recycle waste materials generated by their operations and 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. [I]

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

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. [I]

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. [I]

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. [I]

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.[I]

RECYCLING

Although recycling is not new, it is gaining wider acceptance as a viable approach to the solid waste management and disposal problems which Frederick County faces.

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 is 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 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 2009 shows an overall waste reduction rate of 46.63 percent. This includes a 41.63 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 dropoff facility at the landfill, 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 the Board of County Commissioners 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. The County encourages siting and operation of private companies involved in recycling and wood waste recovery, consistent with all current zoning and land use policies.[I]

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

Composting/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 mulch to farmers, landscapers, and municipal parks and recreation departments. Municipalities may divert grass clippings and leaves to farmers. Also, in 2011 the County Commissioners approved the ability to locate and/or operate certain on-farm food waste composting programs (with associated on-farm use) as well as certain food waste digestion-to-composting facilities.

Yard waste collection has expanded within the County, particularly within Home Owner Associations (HOA) and certain municipalities. This varies by area and may included drop-off containers at central locations or door-to-door season 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 Landfill facility for a fee, $25.00 per ton as of 2011.

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 in 2008 there were more than 8,000 businesses in Frederick County.

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.[4]

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 dropoff center at the Reichs Ford Road facility. The dropoff 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.

4 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 Frederick County Landfill.

Operations

There are several variations of curbside recycling:

- Resident- or Multiple-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.

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Indent at: 0.5"

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.

Materials 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 Board of County Commissioners expanded the residential single-family home curbside recycling program to all eligible properties within the County. This program now serves over 74,123 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, 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 $172,900 for a self-loading truck. Labor costs can range from $22.00 to $174.00 per ton of material collected. As of 2011, Frederick County pays a base fee of $3.19 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 in the last twelve years 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 not a cost-effective or efficient method for collecting recyclables 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.

Dropoff Centers

Dropoff 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.

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

Operations

Small dropoff centers can use a number of containers for collection of recyclables. Containers successfully used for dropoffs include roll-offs, 55-gallon drums, and igloo bins, which are bell-shaped containers.

Currently, many of Frederick County's existing dropoffs are located at shopping centers and parks as well as at the Reichs Ford Road Landfill. Effective July 1, 2011, the Board of County Commissioners eliminated all County dropoff centers, with the exception of the Reichs Ford Road Center with the advent of the full expansion of the residential curbside recycling program in calendar year 2009.

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 dropoff centers require office or warehouse facilities and storage containers.

Material processing requirements are dependent upon the type of dropoff 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 dropoff 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 fee's, 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

Dropoff centers are less convenient than curbside programs. Vandalism, theft and illegal dumping may be present problems at dropoff centers. Often, dropoff 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) or "dirty MRFs"; and material recovery facilities or "clean MRFs".

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 ("clean MRF") does not 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.

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Indent at: 0.5"

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

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Indent at: 0.5"

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 capital 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 MRFs 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.

Buy-Back Centers

Frederick County has only one large processor/redemption center now operating within the County. Buy-back centers operate similar to dropoff 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.

Reverse vending machines are also becoming a popular trend in recycling. The machine weighs, crushes, and stores aluminum cans, and pays for the material based on current market prices. Reynolds Aluminum sponsors a number of these machines which are located in shopping center parking lots throughout the country. Equipment requirements are dependent on the approach or the combination of approaches used.

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-groundwood mulch and a finished general use compost in 2009. Both products are offered for sale at rates determined by the County Commissioners 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 require reusable or biodegradable collection bags. Frederick County Government does not currently have a formal collection program for yard trimmings, although residents may transport their materials (grass clippings, leaves, brush, branches, and Christmas trees) to either of the County-supported yard trimming collection sites: Walkersville Heritage Park or Reichs Ford Road Landfill.[I]

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 s offer limited collection of Christmas trees immediately following the holiday which are then 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, the revenue 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 woody 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

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Tab after: 0.5" + Indent at: 0.5"

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Indent at: 0.5"

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.

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.

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Indent at: 0.5"

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 Compost 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.

Figure 4-1
Composting Process Flow Diagram

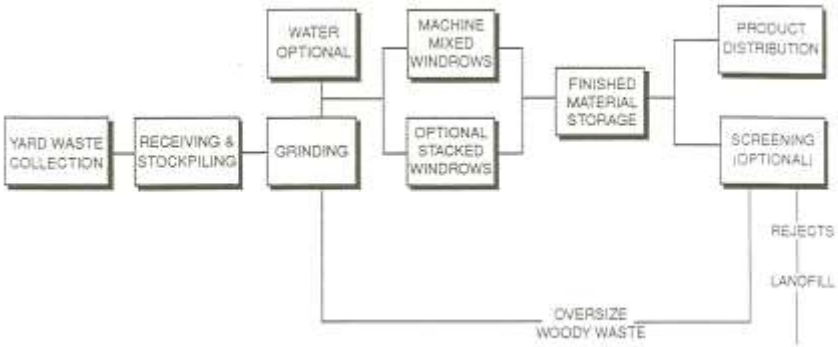
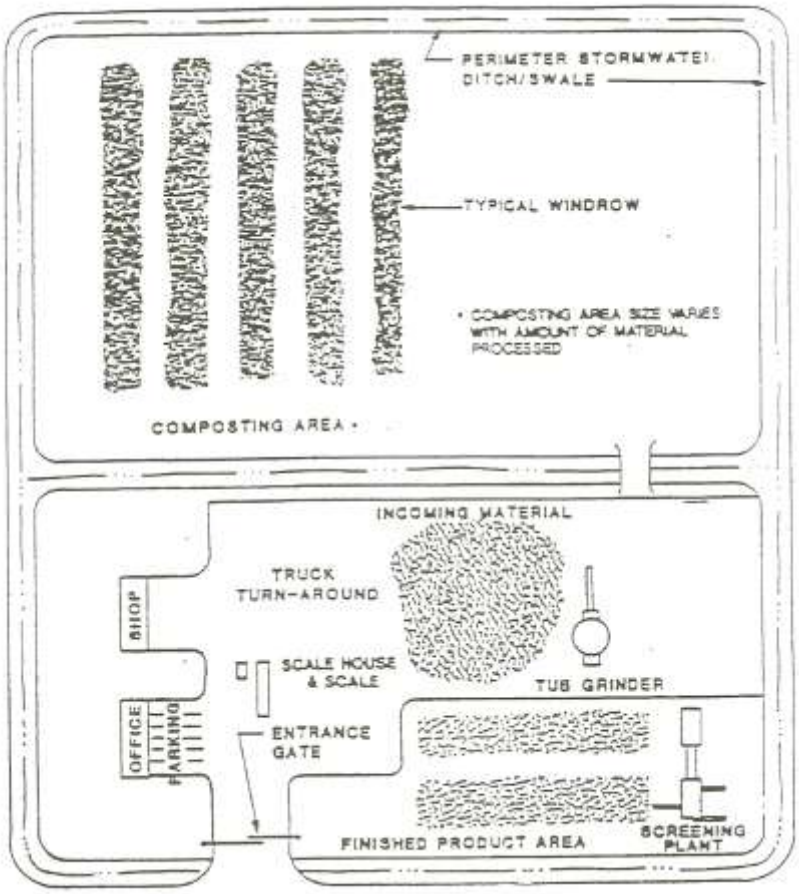


Figure 4-2
Composting Facility Layout



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.

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Indent at: 0.5"

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.

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Indent at: 0.5"

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

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Indent at: 0.5"

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 design 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 600 TPD in 2012.

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.

The proposed Resource Recovery Facility (WTE) for Frederick and Carroll Counties is a Mass Burn facility. The following is a general description of this technology.

Technologies

Mass-Burning: The proposed WTE facility will be constructed and operated with energy recover. 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. Incoming waste is screened for radiologic content, then directed to an enclosed tipping hall. Waste is dumped into a refuse storage pit and fed into a charging hopper using a refuse feed crane. The waste moves by gravity from the charging hopper vertically through a chute to an enclosed refuse feed table. The waste is transferred from feed table into the furnace by a horizontal moving ram. The refuse feed crane can also be used to remove bulky and non-processible objects from the pit and sets them aside for recycling or landfill disposal.

The furnace is designed to continually agitate the waste as it burns. Waste particles are very heterogeneous in size and agitation is required so that complete or near-complete combustion is achieved. Within the furnace the waste tumbles down a series of moving stepped grates. Controlled quantities of air must also be supplied to the furnace to support combustion. The combustion air is pulled from the tipping hall and refuse storage pit by large forced draft fans, thereby preventing the escape of odors outside the WTE facility.

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

After passing through the boiler the flue gases travel through a superheater where they increase the energy content of a portion of the steam previously manufactured by the boiler. Certain reagents are injected into the flue gas stream to control pollutants, including carbon to capture mercury emissions and urea or liquid ammonia to control nitrogen oxide emissions. Flue gas is then directed through air quality control equipment, including acid gas scrubbers and fabric filter baghouses, and discharged to the atmosphere via a stack. Flue gas emissions for some constituents are monitored with Continuous Emission Monitors (CEM), which take samples every six minutes. These are compiled into block averages to ascertain compliance with regulated emission limits.

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. Bottom ash is formed by combusted material that remains at the bottom of the furnace chamber, while fly ash consists of fine particles of ash and other solids captured by the air quality control equipment. Bottom ash will be passed through a screening device, under a magnet and over an eddy current separator to recover ferrous and non-ferrous metals for recycling. 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.

In Europe, ash streams have been successfully recycled as construction aggregate and raw materials. The County will embark on an ash recycling program once the facility is operational, and the ash streams are available for research and marketing.

Refused-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

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Indent at: 0.5"

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

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Indent at: 0.5"

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

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Indent at: 0.5"

- 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.

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Indent at: 0.5"

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.

Although the earlier 4 County Study mentioned previously indicated that waste-to-energy was not economically feasible in Frederick County, in 2009 more recent analysis and actual WTE construction cost proposals indicate otherwise.

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. In addition, the summary indicates whether or not each alternative will be considered in the Action Plan presented in Chapter 5.

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.

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Tab after: 0.5" + Indent at: 0.5"

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

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

Table 4-6
Summary of Solid Waste Management Alternatives

Alternative	Rec*	Potential for Meeting Goals and Objectives of the Solid Waste Management Plan (SWMP)
COLLECTION		
Existing System	N	This system does not meet the SWMP objectives of cost effectiveness and increasing recycling and waste reduction.
Franchising	R	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	R	Allows for customer selection of haulers and a potential means for the County to implement policies for flow control and recycling.
Public Operation	N	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)	R	Necessary element of integrated solid waste management system to protect public health and the environment. Cost-effective alternative for management of wastes that cannot be recycled, reused, or combusted with energy recovery. Existing Subtitle D Reichs Ford Road Landfill shall provide disposal for WTE ash in the absence of beneficial reuse of material.
RESIDENTIAL RECYCLING		
Curbside Recycling Collection (Existing Program)	R	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	N	A more cost-effective and efficient means of recycling within the remote, rural residential areas of the County.
Material Recovery Facility (MRF)	N	Not recommended for inclusion within the County program due to the availability of capacity in regional facilities.

***Rec** (Recommendation):

R: Recommended for further consideration.
N: Not recommended; eliminated from further consideration.
NC: Not currently recommended; may be reconsidered in the future after further study and evaluation.

Table 4-6 – Continued
Summary of Solid Waste Management Alternatives

Alternative	Rec*	Potential for Meeting Goals and Objectives of the Solid Waste Management Plan (SWMP)
Mixed Waste Recovery Facility (MWRF)	N	This system ("dirty MRF") 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	R	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	R	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	R	Cost-effective and efficient method in which to reduce the amount of waste requiring final disposal, conserving land and landfill space.
Solid Waste Composting	N	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	N	Mass burning of municipal waste does not meet the resource recovery, environmental, or economic goals and objectives of the plan.
WASTE-TO-ENERGY		
Mass Burn with energy recovery	R	This alternative is considered superior to landfill disposal of waste based on the EPA waste management hierarchy. It is preferred over both in-County and out-of-jurisdiction landfill disposal options. 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. [5,6] .
Refuse Derived Fuel	N	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.

***Rec** (Recommendation):

R: Recommended for further consideration.
N: Not recommended; eliminated from further consideration.
NC: Not currently recommended; may be reconsidered in the future after further study and evaluation.

[5] Reference Solid Waste Modeling Support for Frederick County, Maryland Board of Commissioners Final Report, July 28, 2008 prepared by RTI International Research Triangle Park, NC
[6] Reference Solid Waste Management Options Report for Frederick County Maryland, September 2005, R.W. Beck, Inc.

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.

Additionally, low-lying areas within the 100-year flood plain are not acceptable for development as a land disposal facility due to state and federal regulations. 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.

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

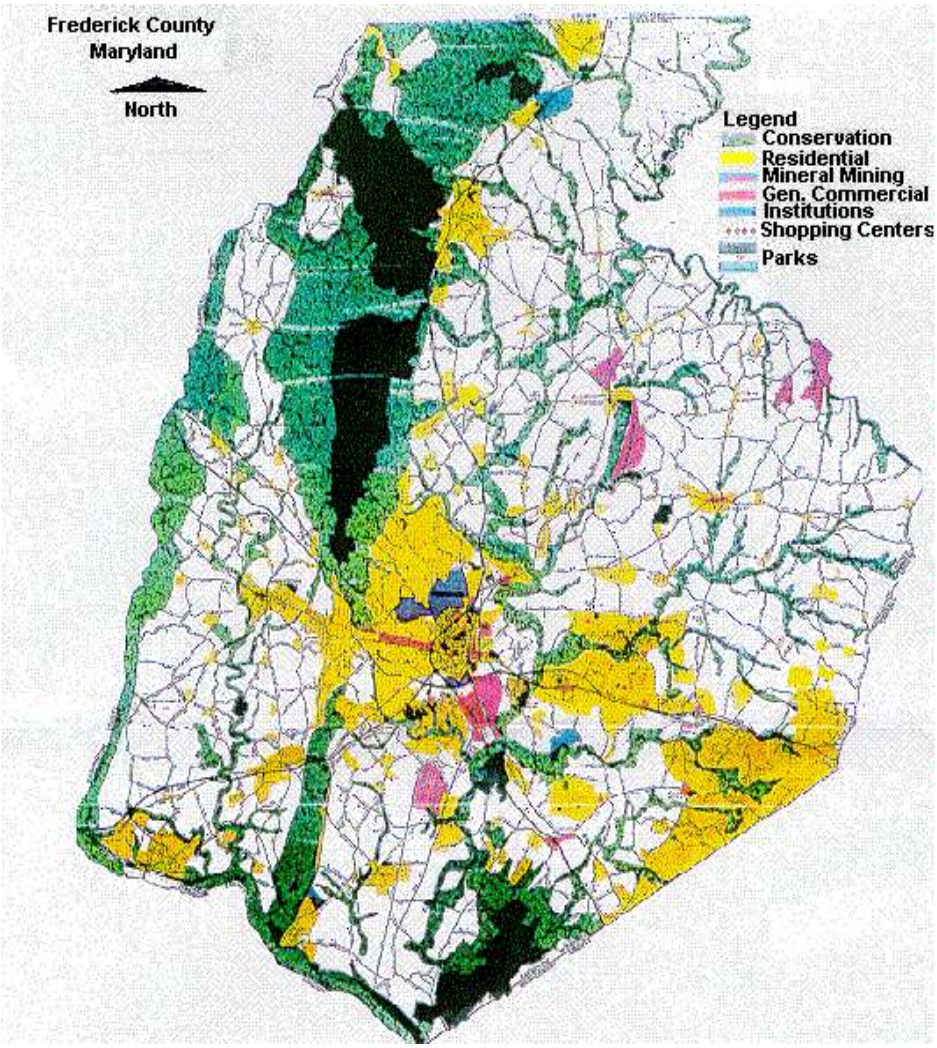


Figure 4-4
First Level Screening Exclusion Areas:
Land Disposal Sites

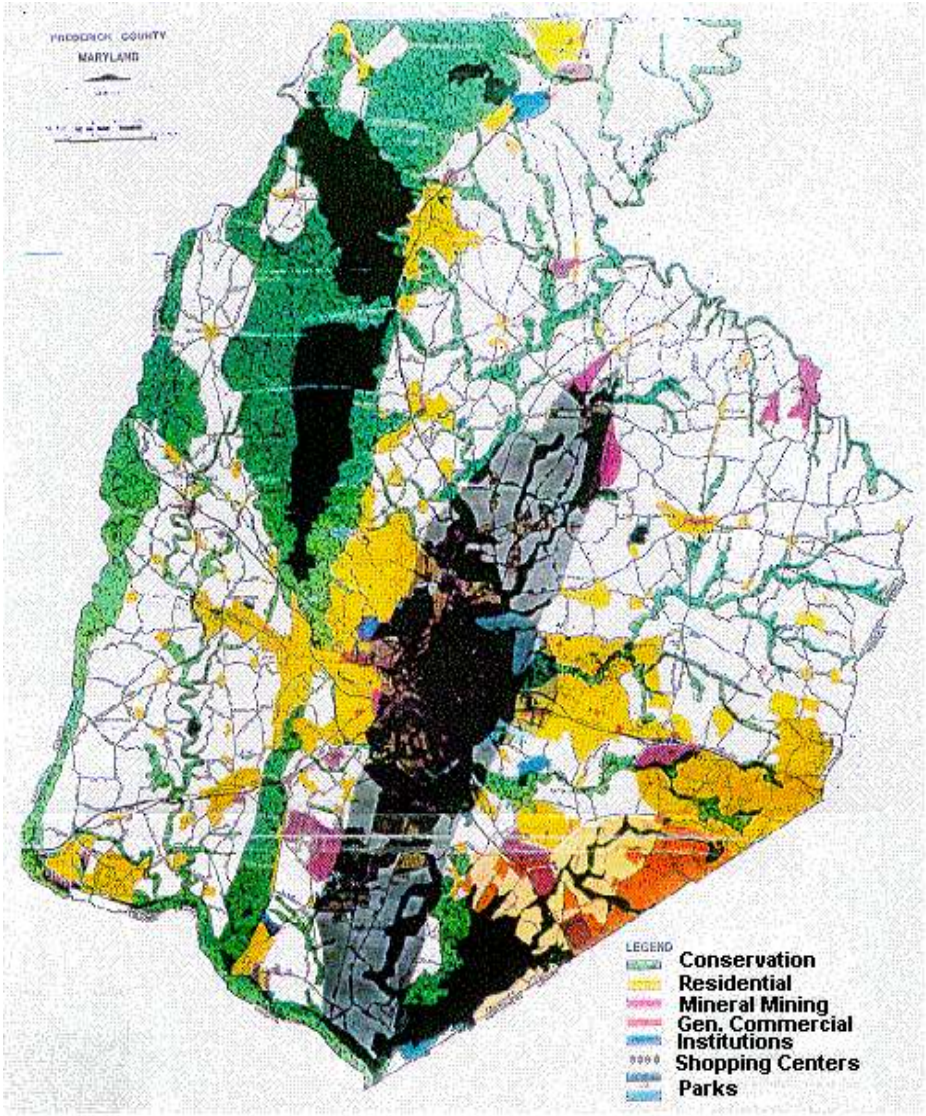


Table 4-7
General Procedure for Siting Solid Waste Management Facilities

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, 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 nonfeasible 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 Board of County Commissioners 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 Board of County Commissioners and the Solid Waste Advisory Committee shall oversee this meeting.

Final Site Selection shall be made by the Frederick County Board of County Commissioners, 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 Commissioners.

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.

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 BOCC, SWAC, DoSWM[1], 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.

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Indent at: 0.5"

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.

A portion of the aquifer in the Bennett Creek water shed in the Urbana area has been designated by the U.S. EPA as a sole-source aquifer. This aquifer is the primary source of drinking water for more than 50 percent of the population in the area. The recharge area for the Urbana sole-source aquifer encompasses approximately 180 square miles including the eastern half of the Urbana area, northern Montgomery County and western Howard County. The importance of protecting the recharge area from contamination is paramount as its contamination would affect the water quality for the entire aquifer. Therefore, Frederick County excludes this area from landfill development. 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. Facilities located within the 100-year flood plain may 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.

Flood plains are not suitable for siting solid waste management facilities within Frederick County.

Federal regulations (CFR 40) contain provisions banning the location of solid waste facilities within 100-year flood plains.

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

Frederick County has 24 water quality stations which monitor the quality of surface waters which provide baseline data. This information could prove useful in determining the surface water quality downstream of any solid waste management facility site.

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:

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

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Indent at: 0.5"

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 aide 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.

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Indent at: 0.5"

- 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.

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Indent at: 0.5"

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 dropoff 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 Sanitary Landfill 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.

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Indent at: 0.5"

Special Medical Waste

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

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. Currently 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.

On Saturday, October 23, 2010, the County held a household hazardous waste (HHW) collection event at the Public Safety Training Facility located on Reichs Ford Road. The collection event was 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. The HHW collection event was successful, resulting in the collection of 17,620 pounds of hazardous materials at an invoiced cost of $14,054 to the County. Based upon the success of the collection effort, the County plans to schedule additional events in the future. 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.[I]

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

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Indent at: 0.5"

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 (see Appendix J for Frederick County's contaminate soil policy). 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.

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Indent at: 0.5"

- 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-

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Indent at: 0.5"

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Indent at: 0.5"

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. [II]

CHAPTER 5
SOLID WASTE MANAGEMENT PLAN OF ACTION (1998-2017)

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 1998 through 2017 is presented in this chapter. A summary of the long-term (1998-2045) 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.

Significant changes have occurred since the Solid Waste Management Plan of Action (1998-2017) Section of the Frederick County Comprehensive 10-Year Solid Waste Management Plan was adopted in 1998. These changes, and the resultant proposed modifications to the Frederick County Solid Waste Management Plan of Action over the remaining six years of the 10-year planning period are summarized below:[1]

1. The County has moved forward in the area of source reduction. In 2009, 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 short-term 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. Long-term, the remaining Site B landfill capacity will provide ash disposal for Frederick County's portion of the ash generated at the proposed regional WTE facility. 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.

Formatted: Numbered + Level: 1 + Numbering Style: 1, 2, 3, … + Start at: 1 + Alignment: Left + Aligned at: 0.25" + Tab after: 0.5" + Indent at: 0.5"

Formatted: Numbered + Level: 1 + Numbering Style: 1, 2, 3, … + Start at: 1 + Alignment: Left + Aligned at: 0.25" + Tab after: 0.5" + Indent at: 0.5"

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[7]

[7] 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[8] 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[9] 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[10] 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[11] November 2005[12]
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

[8] Consent Order MDE #CO-01-SW-090 authorized Frederick County to defer suspension of rubblefill operation until Cell 2A became operational.
[9] 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.
[10] Initial contract with PEPCO ended with contractor withdrawing one year after execution of agreement.
[11] The Frederick County Commissioners in their 2006, 2008 and 2009 legislative package pursued this legislation without success.
[12] 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

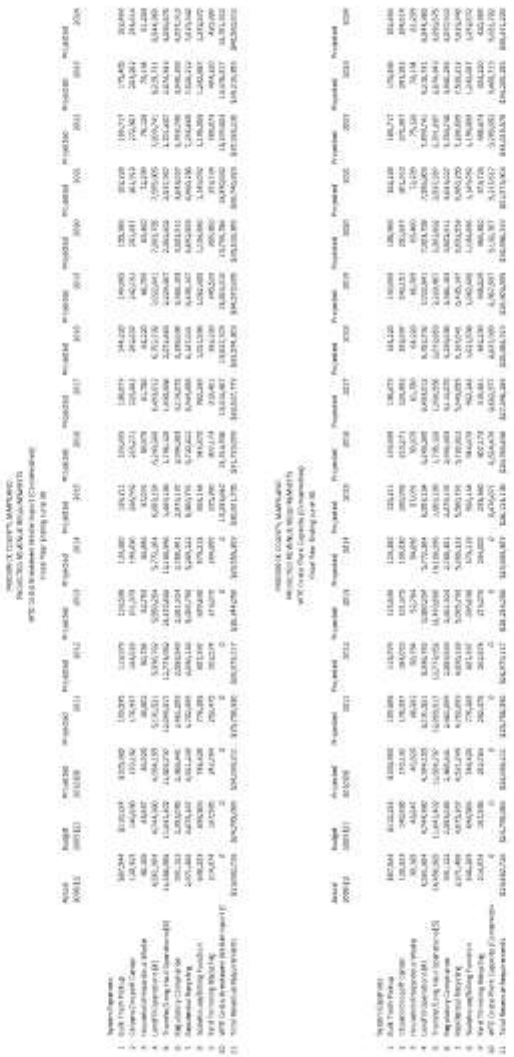
Program or Facility	Description	Date
Establish Long Term Solid Waste Management Strategies/Recycling Program Goals	· Develop comprehensive recommendations to the BoCC to expand and improve the recycling services to County residents and other users of the waste disposal facilities. · Present recommendation to the BoCC for their consideration/adoption	January 2007 October 2007

Table 5-2
Long-Term Action Plan Summary
2001 - 2045

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
Waste To Energy Facility Evaluation/Development	· Prequalify reliable demonstrated technologies · Request Design Build & Operate (DBO) proposals from qualified vendors (NMWDA) · Review advanced European waste management systems · Consider regional WTE Facility options with Carroll County · Complete WTE facility site evaluation/selection and present to the BoCC Best and Final Proposals	August 2006 October 2006 April 2007 December 2007 January 2009
Waste To Energy Facility Approvals/Permitting	· Execute necessary agreements with the NMWDA and others as necessary for regional WTE project[13] · Begin necessary state and federal permitting for WTE facility construction · Secure necessary permits · Begin Construction of WTE Facility · Complete Construction of WTE Facility (commission)	July 2009 August 2010 November 2011 March 2012 July 2015

[13] See Appendix N for executed MOU with Carroll and NMWDA and energy recovery agreement between Frederick County and NMWDA.

Table 5-3
Financial Requirements for Recommended Solid Waste Program



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 Landfill 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 Landfill. In addition, the County is abandoning plans to seek a site for a separate rubble landfill.[1]

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.[1]

5. To reduce the quantity of certain residential hazardous materials being disposed of in the County Landfill, 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 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. This system gives credit to the County for source reduction activities. These credits are in addition to the

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

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Indent at: 0.5"

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

A licensing agreement developed by the SWAC through a series of public hearings and meetings with haulers should be instituted with the adoption of this plan. The licensing system is recommended in order to give the County a better understanding of the tonnage expected to be brought to the County Landfill over the license period (one year). The agreement requires the hauler to estimate the tonnage they expect to deliver. The estimates given will aid the Department Action Plan in its financial forecasting.

Once the licensing procedure is underway, the implementation of a volume-based system is recommended. In this type of system, the residential customer is charged based on the number and size of containers put out for collection each week. In a "pay-by-the-can" system, standardized collection containers are issued, with a set monthly collection fee for each size. Stickers can be purchased for any excess waste placed in bags. This type of billing system encourages waste reduction and recycling in order to minimize the size and number of disposal containers to reduce costs.

The County should also implement a limited pilot program to evaluate the feasibility of franchised collection. A pilot franchised collection district will be established in an unincorporated area of the County. The franchise will be awarded to a private hauler based on competitive bidding. The limited pilot program should include volume-based billing and economic incentives for recycling.

DISPOSAL FACILITIES

Frederick County should continue to provide disposal capacity for municipal wastes and rubble within the County throughout the planning period. 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.

The BoCC has determined that a regional Waste to Energy facility will complement existing programs and provide the best long term disposal solution for combustible waste remaining after recycling efforts. The remaining capacity in the Reich's Ford Road Site B landfill can provide disposal for Frederick County's proportionate share of the ash generated by the WTE facility. Since the ash represents approximately 1/10 the volume of the waste combusted, the existing landfill can provide more than enough capacity for the planning period of the WTE facility. Regional solutions involve transportation of wastes to other counties, and/or importation of solid waste into Frederick County. In July 2009 the BoCC executed a Memorandum of Understanding with Carroll County and the NMWDA regarding the development of regional WTE facility that will serve the two Counties. The BoCC subsequently entered into an Energy Recovery Agreement with the NMWDA for the facility construction at the McKinney Industrial Park adjacent to Frederick County's Ballenger-McKinney WWTP.[14]

County Solid Waste Disposal 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.[15] The County's integrated Solid Waste Management System will consist of a combination of waste processing and recycling, energy recovery using WTE transfer and disposal operations, which shall be used until the WTE facility is operational and thereafter if needed for non-processible waste. 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 so that additional landfill capacity or a new landfill will not be needed during the planning period.[1]

Resource Recovery (Waste-To-Energy)

The waste-to-energy facility included in this plan shall be owned by the Northeast Maryland Waste Disposal Authority on behalf of Frederick County and Carroll County. It will be a 1,500 ton per day, mass-burn municipal solid waste combustion facility and will be located on a site owned by the County at 4549 Metropolitan Court, Frederick, Maryland and leased to the NMWDA. It will accept municipal solid waste from Frederick County and Carroll County and other sources approved by the County in accordance with inter-jurisdiction agreements and agreements with the NMWDA. It is anticipated to have a 40-45 year life span. The facility will also accept sewage sludge from Frederick County's Ballenger-McKinney Wastewater Treatment Plant. Residue generated by the facility will be disposed of in accordance with agreements between the counties and the NMWDA. The facility will be located at 557,000N and 685,000E (Map ID No. WTE1). As of February 2013, the Refuse Disposal Permit for this facility is pending.

Sanitary Landfills

The Site B Landfill, in conjunction with the interim waste transfer operation and the proposed WTE facility development will provide necessary disposal capacity for approximately 45 years. Based on

[14] See Appendix N for executed MOU with Carroll and NMWDA and energy recovery agreement between Frederick County and NMWDA.

[15] Private facilities include institutional and industrial facilities that have existing waste disposal permits for disposal of their own facility's waste.

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: [I]

Short-Term Actions:

1. The County is on an interim basis, relying on existing solid waste disposal capacity available within other jurisdictions, until the WTE facility is constructed and operational. 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. [I]
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. [I]
4. The County will evaluate other areas within the existing landfill property to determine their potential suitability for constructing additional solid waste containment cells. [I]
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 will serve Frederick and Carroll County's waste disposal

Formatted: Numbered + Level: 1 + Numbering Style: 1, 2, 3, … + Start at: 1 + Alignment: Left + Aligned at: 0.25" + Tab after: 0.5" + Indent at: 0.5"

needs and generate approximately 55 MW of electricity with approximately 45 MW available for sale.

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.

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 maxigrinder 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.[I]

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.[I]

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 also monitors and advises FCPS on program statistics. Additionally, as noted elsewhere in this Solid Waste Management Plan the County's Waste-to-Energy facility shall assist the County in meeting its recycling goals by diverting reclaimed ferrous and non-ferrous metals post combustion. 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 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. The system should remain voluntary unless a severe drop in recycling collections is experienced or the state legislature raises recycling goals and mandatory collection is deemed an option for meeting that requirement.

Satellite dropoff centers were discontinued, with the exception of the Reichs Ford Road facility, on July 1, 2011 since curbside recycling is available to 100 percent of single-family homes in the County.

Multi-family recycling should be tested for its cost-effectiveness and potential to reduce trash. The County should study pilot programs conducted by multi-family complexes and their conclusions in more urban jurisdictions in Maryland and pilot the most successful method in an apartment complex in Frederick County. Grant funding, sponsorship or a public-private pilot partnership will be necessary to finance the pilot project as apartment complexes are generally considered commercial enterprises, even though they serve residents. The pilot project should be evaluated after a year to determine its success and, if feasible, ways to add the concept to other apartment complexes.

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.

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Indent at: 0.5"

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:

1. 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.

2. 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.

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

4. 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.

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

Formatted: Numbered + Level: 1 + Numbering Style: 1, 2, 3, … + Start at: 1 + Alignment: Left + Aligned at: 0.25" + Tab after: 0.5" + Indent at: 0.5"

Formatted: Numbered + Level: 1 + Numbering Style: 1, 2, 3, … + Start at: 1 + Alignment: Left + Aligned at: 0.25" + Tab after: 0.5" + Indent at: 0.5"

6. 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.

7. 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 O.

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.

Formatted: Numbered + Level: 1 + Numbering Style: 1, 2, 3, … + Start at: 1 + Alignment: Left + Aligned at: 0.25" + Tab after: 0.5" + Indent at: 0.5"

Formatted: Numbered + Level: 1 + Numbering Style: 1, 2, 3, … + Start at: 1 + Alignment: Left + Aligned at: 0.25" + Tab after: 0.5" + Indent at: 0.5"

Formatted: Numbered + Level: 1 + Numbering Style: a, b, c, … + Start at: 1 + Alignment: Left + Aligned at: 0.25" + Tab after: 0.5" + Indent at: 0.5"

Formatted: Numbered + Level: 1 + Numbering Style: a, b, c, … + Start at: 1 + Alignment: Left + Aligned at: 0.25" + Tab after: 0.5" + Indent at: 0.5"

Formatted: Numbered + Level: 1 + Numbering Style: a, b, c, … + Start at: 1 + Alignment: Left + Aligned at: 0.25" + Tab after: 0.5" + Indent at: 0.5"

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.

Special Events Recycling Plan

1. Special Events Subject to the Recycling Program

Comment [cmj2]: SB781

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 P. 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:

1. 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.

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

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

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

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

6. 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.

7. 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 P.

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:

1. 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.
2. 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.

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 mulching 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. It is estimated that about 350 people have been reached through clinics held from 1994-1997. A master composter/recycler program should also be started to provide more community volunteer support for disseminating the word about backyard composting/grasscycling.

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. Grasscycling takes care of what, in normal rainfall years, is a problematically large portion of the yard waste generated in Frederick County. Grass clippings cannot, on large scale, be incorporated into the mulch chipped at the mulching sites; however, in the right proportions are suitable for commercial composting operations. In some cases, such as those found by Montgomery County, the amounts of grass normally generated overwhelm the carbon to nitrogen ratio needed to produce quality compost. For that reason, as well as other fiscal reasons such as collection and processing costs, the County should continue to promote grasscycling educational programs.

Discussions begun in previous years should continue with the City of Frederick toward developing a public-private partnership resulting in centralized collection site to service the County's primary population area, City of Frederick and environs. The County should work in conjunction with the City to attract a private operator, locate a site and develop a collection system. Markets are a primary element of planning in establishing the site-based yard waste program. While residents have been the primary market for mulch produced at these sites through the County's free distribution program, if the quantity should increase dramatically due to bans or the centralization of City of Frederick site, a secure, long-term outlet for the material must be established.

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.

HOUSEHOLD HAZARDOUS WASTE

On Saturday, November 3, 2001, the County implemented a statewide contract available through the Maryland Environmental Service to conduct a household hazardous waste (HHW) collection event in the County. Based upon the success of the collection effort, the County now schedules two 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 has conducted successful household hazardous waste collection days in the past nine years. This practice of providing a temporary acceptance facility should be continued in order to divert these materials from the landfill. The feasibility of establishing a permanent receiving and processing facility at the landfill should be evaluated.

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: [I]

- 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. [I]
- 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.

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Indent at: 0.5"

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 (Appendix F). 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.

VOLUME-BASED SOLID WASTE BILLING

The County proposed a pilot program to evaluate volume-based solid waste collection services. The results of the pilot test were deemed to be unsuccessful. As a result, the County does not plan to attempt to conduct another pilot test in the foreseeable future. The County will continue to review published literature to assess the success of such programs in other jurisdictions. The County will reassess the viability of implementing another pilot program in Frederick County based upon the results of that review.[I]

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. [I]

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, dropoff 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.

[This page intentionally left blank]

Glossary

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.

Bottom Ash - The unburned and non-burnable portion of municipal solid waste incineration.

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.

Dropoff 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).

Fly Ash - Particulates resulting from burning of municipal solid waste that are collected from flue gases in the air pollution system.

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

.01 Definitions.

A. In this chapter, the following terms have the meanings indicated.

B. Terms Defined.

(1) "County" means any of the 23 Maryland counties or Baltimore City.

(2) County Plan.

(a) "County plan" means a comprehensive plan for adequately providing throughout the county (including all towns, municipal corporations, and sanitary districts) the following facilities and services by public or private ownership:

(i) Solid waste disposal systems;

(ii) Solid waste acceptance facilities; and

(iii) Systematic collection and disposal of solid waste, including litter.

(b) "County plan" includes all revisions to the plan.

(3) "Department" means the Department of the Environment.

(4) "Governing body" means the Board of County Commissioners, or the County Executive and Council, or the Mayor and City Council of Baltimore.

(5) "Litter" means any waste materials, refuse, garbage, trash, debris, dead animals, or other discarded material.

(6) "Refuse" means any solid, liquid, semi-solid, or contained gaseous material resulting from industrial, commercial, mining, or agricultural operations, or from community activities, which:

(a) Is discarded, or is being accumulated, stored, or physically, chemically, or biologically treated before being discarded; or

(b) Has served its original intended use and sometimes is discarded; or

(c) Is a manufacturing or mining by-product and sometimes is discarded.

(7) "Revision" means either an adopted amendment to, or a periodic update of, a county plan.

(8) "Solid waste" means any garbage, refuse, sludge, or liquid from industrial, commercial, mining, or agricultural operations, and from community activities, but does not include solid or dissolved material in domestic sewage or in irrigation return flows.

(9) "Solid waste acceptance facility" means any sanitary landfill, incinerator, transfer station or plant, whose primary purpose is to dispose of, treat, or process solid waste.

(10) Solid Waste Disposal System.

(a) "Solid waste disposal system" means any publicly or privately owned system that:

(i) Provides a scheduled or systematic collection of solid waste;

(ii) Transports the solid waste to a solid waste acceptance facility; and

(iii) Treats or otherwise disposes of the solid waste at the solid waste acceptance facility.

(b) A solid waste disposal system includes each solid waste acceptance facility that is used in connection with it.

(11) "Solid waste management" means the systematic administration of activities which provide for the collection, source separation, storage, transportation, transfer, processing, treatment, re-use, or disposal of solid waste.

.02 General Provisions.

A. Each county shall maintain a current, comprehensive, solid waste plan which covers at least the succeeding 10-year period. Each plan shall be prepared in accordance with these regulations, and shall be arranged with an introduction and five chapters as set forth in Regulation .03.

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.

.03 Plan Content.

A. The introduction shall contain:

(1) A statement certifying that the plan has been prepared in accordance with these regulations and that it has been officially adopted by the governing body of the county; and

(2) The letter of approval from the Department.

B. Chapter One shall contain a:

(1) Statement of the county's goals regarding solid waste management, the objectives and policies necessary to achieve these goals, and a discussion of the conformance of these objectives and policies with those of State, regional, and local comprehensive land use plans and programs;

(2) Brief discussion, with charts, of the structure of the county government as it relates to solid waste management; and

(3) Brief discussion of State, federal and local agencies, laws, and regulations which affect the planning, establishment, and operation by the county of solid waste disposal systems.

C. Chapter Two shall contain a:

(1) Table which shows the county's present and projected population (if more than one set of projections is shown, the set upon which the plan is based shall be noted);

(2) Map which shows the location of municipalities and federal facilities within the county;

(3) Discussion of current county zoning requirements as they relate to solid waste management activities; and

(4) Discussion of the current status of the county comprehensive land-use plan, including the date that the plan was adopted and last updated.

D. Chapter Three shall contain:

(1) A table that shows the existing and projected, for at least the succeeding 10-year period, annual generation (in tons, cubic yards, or gallons, as appropriate) of:

(a) Residential (household, domestic) wastes;

(b) Commercial wastes;

(c) Industrial (nonhazardous) solids, liquids, and sludges;

(d) Institutional (schools, hospitals, government buildings) waste;

(e) Land clearing and demolition debris (rubble);

(f) Controlled hazardous substances (CHS);

(g) Dead animals;

(h) Bulky or special wastes (automobiles, large appliances, etc.);

(i) Vehicle tires;

(j) Wastewater treatment plant sludges;

(k) Septage; and

(l) Other wastes (water treatment plant sludges, residues collected by a pollution control device, agricultural wastes, mining wastes, litter, street sweepings, recreational wastes, etc.) unless they are generated in insignificant quantities. However, the Department may require the county to substantiate any omission.

(2) A discussion of the bases for the data presented in the table required by § D(1).

(3) A discussion of the types and quantities of solid waste, if significant, which are entering or leaving the county for processing, recovery, or disposal.

(4) A description of existing solid waste collection systems, including service areas.

(5) Information concerning each existing public or private solid waste acceptance facility (incinerators, transfer stations, major composting sites, sanitary and rubble landfills, dumps, major resource recovery facilities, CHS facilities, injection wells, and industrial waste liquid holding impoundments) including:

(a) Its location on a map;

(b) Its Maryland grid coordinates;

(c) Its size in acres;

(d) The types and quantities of solid wastes accepted;

(e) Ownership;

(f) Permit status; and

(g) Anticipated years of service life remaining.

E. Chapter Four.

(1) Chapter four shall contain an assessment (using a narrative description, maps, charts, and graphs as appropriate) of the county's needs to alter, extend, modify, or add to existing solid waste disposal systems during the next 10 years.

(2) The assessment above shall use, when appropriate, the background information contained in chapters one, two, and three.

(3) The assessment shall consider the constraints imposed upon the establishment of solid waste acceptance facilities by:

(a) Topography;

(b) Soil types and their characteristics;

(c) Geologic conditions;

(d) Location;

(e) Use and depth of aquifers;

(f) Location of wetlands;

(g) Location of surface water sources and their flood plains and watersheds;

(h) Existing water quality conditions;

(i) Incompatible land use;

(j) Planned long-term growth patterns;

(k) Federal, State and local laws and areas of critical State concern (as designated by the Department of State Planning).

(4) The assessment shall evaluate:

(a) The use of source separation and source reduction programs to reduce the quantities of solid wastes which shall be collected for disposal;

(b) Resource recovery options to reduce land disposal capacity needs;

(c) Consumer education programs, and cooperation with appropriate suppliers for the purchase of recycled products to encourage, and help create a market for, resource recovery and source separation programs;

(d) The need for disposal capacity for asbestos;

(e) Programs and procedures needed to respond to the unplanned (emergency) spillage or leaking of hazardous wastes within the county; and

(f) Whether existing local master plans and zoning regulations provide for the appropriate siting, operation, or both, of solid waste management systems or facilities.

F. Chapter Five.

(1) Chapter five shall contain the county's plan of action with respect to all types of solid waste and all phases of solid waste management.

(2) The plan of action in § F(1), 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.

.04 Technical Requirements Applicable to County Plans.

A. Maps in the county plans shall be of sufficient scale and clarity to clearly show the required information.

B. Projections in the county plans shall be given for at least the succeeding 10-year period at intervals of not more than 5 years.

.05 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

Frederick County Solid Waste Advisory Committee Charter

FREDERICK COUNTY SOLID WASTE ADVISORY COMMITTEE

CHARTER

Mission Statement

The Frederick County Solid Waste Advisory Committee (SWAC) is created for the purpose of recommending to the Board of County Commissioners the soundest methods of waste disposal, recycling, and waste reduction; and advising the Board of County Commissioners on specifically requested policy alternatives. A recommendation from SWAC is required on amendments to the County's Solid Waste Management Plan.[1]

Duties of the Committee

The primary duty of the SWAC is to offer a recommendation to the Board of County Commissioners on findings of consistency with the Solid Waste Management Plan. A finding of consistency with the Solid Waste Management Plan is necessary so that the Maryland Department of the Environment can process Solid Waste Permit applications and/or issue Solid Waste permits.

The SWAC follows the application process as specified in the Frederick County Solid Waste Management Plan. Each Committee member may gather information from a variety of sources to aid that member and the Committee in voting on a particular application. Facility tours, site visits and/or public meetings may be warranted to assist the Committee or a member.[1]

Solid Waste Department Liaison

The Division of Utilities and Solid Waste Management (DUSWM) Liaison is the Department Head of Solid Waste Management or his/her designee. The Liaison is assigned to advise and assist the Committee in its decisions.[1]

Meetings

Meetings of the Committee will be held once monthly; the date, time and place to be established by the Committee at its annual organizational meeting. DUSWM staff shall give members 48 hours' notice of any change in meeting date/time. [I]

All Committee meetings shall be public meetings. Expert witnesses and members of the public may be called before the Committee, or its subcommittees, at the invitation of a majority of the Committee. [I]

The Committee shall keep minutes of its meetings and decisions, to be taken by a Committee member appointed at the annual organizational meeting, and to be available through the offices of the DUSWM. [I]

Agendas shall be provided for the members for items to be discussed at the next scheduled meeting. Committee members shall be informed by telephone 48 hours before the scheduled meeting of any item being added to the agenda that was not included on the original agenda. [I]

Special Meetings

Special meetings may be called by the chairman or, in his/her absence, the vice chairman. Notice of such a meeting must be given to each member by mail or phone at least 48 hours before said meeting unless exigent circumstances makes such notice impossible. [I]

Attendance

It shall be the duty of each member to make every effort to attend all meetings. Should any member be absent from one-half or more of all meetings held during the year, the Committee may recommend to the Board of County Commissioners that the member's resignation be requested. [I]

Officers and Committees

The Committee shall conduct its annual meeting in the month of September and elect a chairman, vice-chairman and secretary. The Chairman or, in his/her absence, the Vice-Chairman, shall preside at all meetings of the Committee. The presiding officer shall rule on all points of order or procedure, subject to Robert's Rules. Subcommittees shall be organized throughout the year, as needed, and subcommittee chairs and meeting times selected. Minutes of subcommittee meetings will be kept and approved in the same manner as Committee meeting minutes. [1]

Membership [1]

If qualified candidates exist and are willing to serve, the Committee shall have 13 voting members, in the following categories:

Designated

*Business-Industrial

*Business-Commercial/Retail

*Business-Hi-tech/Financial

*Environmental Group

*Civic Organization

*Municipality-40,000 pop. or more

*Municipality-39,999 pop. or less

*Commercial Solid Waste/Recycling Company

Non-Designated

*Four (4) at-large positions. [1]

Each member shall serve a term of three (3) years and no more than two full consecutive terms, unless a replacement cannot be found, in which event the term shall be extended until a replacement can be found.[I]

A member of the Board of County Commissioners shall be a voting, ex-officio member of the Committee, and shall serve in such capacity concurrent with his/her term.[I]

Voting

A quorum shall consist of a majority of the existing membership of the Committee. Questions put to a vote are decided by a majority of the members present and voting, if a quorum is present. No decision may be made in the absence of a quorum. A tie vote by the Committee shall be interpreted as a defeat of the motion upon which the vote was taken. The Committee may, in its discretion, elect to vote again on a matter for which a tie vote occurred. No member shall vote on a matter in which he/she has a financial interest. Members are encouraged to consult the County Attorney's Office as to the propriety of voting on any matter which may involve a conflict of interest.[I]

In order to be eligible to vote, a member must have attended all meetings or reviewed a record of any meetings from which he/she was absent at which the matter was discussed.[I]

Conduct of the Committee

The SWAC is comprised of twelve citizen volunteers and the designated member of the Board of County Commissioners. The Committee shall seek to make decisions by consensus, to the extent possible, taking into consideration the broad spectrum of opinions and information existing in the community at large. A member shall not speak for the Committee, except as authorized by the Committee.[I]

Appendix C

Areas of Critical Concern

Areas of Critical Concern

Under the authority of the State Land Use Act of 1974, a program known as Areas of Critical State Concern (ACSC) was initiated. The purpose of the program was to designate certain "critical" geographical sites or structures that are of such County and State significance that the authority of this State law would save them from indiscriminate or inappropriate development. Under the State law, each county and all state agencies were given the task of designating critical areas for submission to the Department of State Planning for approval. Areas receiving state approval were to be identified as an element of each political jurisdiction's comprehensive plan.

Critical State Concern Areas have three categories of classification. The first category is intended for those areas having physical features suitable for preservation. This means areas that should have little or no interference from human activity. A marsh or an endangered species habitat are possible examples.

The second category is that of conservation. This describes areas of general protection, but allows development that does not have an adverse impact on the subject area. Many unique sites and structures could fit into this category, including such areas as historic places, scenic vistas or unique recreation facilities.

The final category is that of utilization. This category differs dramatically from the first two categories in that it refers to lands that are valuable for some future pre-determined use and should be reserved for such. Generally, such sites designated for utilization are vacant and the purpose of the category is to indicate that a particular use, generally a more intensive use, is desirable for that property because of its unique location or situation.

In 1978, Frederick County approved eighteen sites for recommendation to the state for inclusion in the program; three under the category of suitable for conservation, ten under the category of suitable for preservation and five under the category of suitable for utilization. However, the only site designated by the State as a critical area thus far has been the land along the right-of-way of the Frederick secondary and Maryland Midland Railways. This

land, not included among those approved by the County, was felt to be important for the future industrial development of Frederick County and should be protected as an economic resource.

Appendix D

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 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 managements 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 county commissioners, 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 no 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 hat 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 E

Zoning Text Amendment County Ordinance 91-32-032

THE EFFECTIVE DATE OF THIS ORDINANCE IS November 29, 1991

ORDINANCE NO. 91-32-232

ZONING TEXT AMENDMENT R-T-91-10

SOLID WASTE FACILITIES

PREAMBLE AND LEGISLATIVE FINDINGS

The existing zoning chapter of the Frederick County Code does not adequately address solid waste zoning issues. The Board of County Commissioners requested staff to prepare amendments to the Zoning Ordinance to improve the handling of solid waste zoning issues.

A new solid waste floating zone with appropriate development standards and other requirements provides the Board of County Commissioners with the best tool to promote the County's health, public safety and welfare and to protect the environment. Certain solid waste facilities will be best addressed through the special exception process with appropriate development standards and other requirements. Definitions are added to clarify the meanings of certain defined terms.

The requirements of a 10 acre minimum lot size and 150 foot setbacks for both the solid waste floating zone and solid waste special exceptions promote the County's health, public safety and welfare and protect the environment. Any smaller lot size would not allow sufficient buffer for adjacent properties.

CAPITALS INDICATE MATTER ADDED TO EXISTING ORDINANCE.
~~STRIKEOUT~~ indicates matter deleted from existing Ordinance.

Co. Atty., P-Z, File, Gordon

The 150 foot setbacks are particularly important due to the distinctive adverse characteristics of solid waste facilities, such as odor, increased traffic, noise, unsightliness, and the potential to attract vermin, etc.

Similarly, floodplains are not appropriate locations for the solid waste facilities requiring either a solid waste floating zone or a special exception. Floodplains are especially sensitive areas which, among other things, inherently have run-off problems. Engineered solutions to such problems are particularly difficult for a solid waste facility. The County had previously recognized similar problems in adopting §§1-19-324 and 1-19-361(2) of the Frederick County Code (1979).

Adoption of this ordinance is in the best interests of Frederick County and promotes the health, safety and general welfare of Frederick County.

This proposed text amendment was referred to the Frederick County Planning Commission for an investigation and recommendation. The Planning Commission conducted an appropriate investigation. The Frederick County Planning Commission held a duly advertised public hearing on this proposed zoning text amendment on October 10, 1991. The Planning Commission with very little comment recommended approval of the text amendment by a unanimous vote of those present.

This zoning text amendment and the public hearing were duly advertised in both the Frederick News and Frederick Post, newspapers of general circulation in Frederick County, on November 2 and November 9, 1991.

The Board of County Commissioners held a duly advertised public hearing concerning this text amendment on November 19, 1991. The Board of County Commissioners specifically finds that this adopted ordinance does not contain any substantial changes from the proposed text amendment reviewed by the Planning Commission and that every provision of this adopted ordinance was included in the summary of the proposed ordinance appearing in the newspaper notice so that nothing in this adopted ordinance is a substantial change from the newspaper notice.

NOW, THEREFORE, BE IT ENACTED AND ORDAINED BY THE BOARD OF COUNTY COMMISSIONERS OF FREDERICK COUNTY, MARYLAND, that Sections 1-19-4 and 1-19-289 are hereby amended and new sections 1-19-325 and 1-19-404 are added to read as follows:

Sec. 1-19-4.

COMPOSTING MEANS THE PROCESS IN WHICH ORGANIC SOLID WASTE IS BIOLOGICALLY DECOMPOSED UNDER CONTROLLED CONDITIONS TO YIELD A NUISANCE-FREE, HUMUS-LIKE PRODUCT.

COUNTY GOVERNMENT INCINERATOR MEANS ALL OF THE FURNACES OR COMBUSTION UNITS AT THE PREMISES OWNED BY THE BOARD OF COUNTY COMMISSIONERS OF FREDERICK COUNTY THAT USE CONTROLLED FLAME COMBUSTION FOR THE THERMAL DESTRUCTION OF REFUSE, INDUSTRIAL WASTE, INFECTIOUS WASTE OR SEWAGE SLUDGE. "INCINERATOR" DOES NOT MEAN A HAZARDOUS WASTE INCINERATOR.

COUNTY GOVERNMENT RECYCLING DROP-OFF CENTER MEANS A FREDERICK COUNTY BOARD OF COUNTY COMMISSIONERS-OPERATED FACILITY WHERE RECYCLABLE MATERIALS CAN BE DROPPED OFF FOR COLLECTION BY THE AGENCY OR PRIVATE OPERATOR UNDER CONTRACT WITH THE RESPONSIBLE AGENCY.

COUNTY GOVERNMENT RUBBLE LANDFILL MEANS A RUBBLE LANDFILL OWNED BY THE BOARD OF COUNTY COMMISSIONERS OF FREDERICK COUNTY AND OPERATED BY OR ON BEHALF OF THE BOARD OF COUNTY COMMISSIONERS.

COUNTY GOVERNMENT SOLID WASTE TRANSFER STATION MEANS A TRANSFER STATION OWNED BY THE BOARD OF COUNTY COMMISSIONERS OF FREDERICK COUNTY AND OPERATED BY OR ON BEHALF OF THE BOARD OF COUNTY COMMISSIONERS.

PROCESSING FACILITY MEANS 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 MARYLAND DEPARTMENT OF THE ENVIRONMENT IS NOT CONSIDERED TO BE A PROCESSING FACILITY.

RESOURCE RECOVERY FACILITY MEANS A PROCESSING FACILITY AT WHICH COMPONENT MATERIALS OF SOLID WASTE ARE RECOVERED FOR USE AS RAW MATERIALS OR ENERGY SOURCES.

a. RESOURCE RECOVERY FACILITY - SEPARATED RECYCLABLES MEANS A RESOURCE RECOVERY FACILITY ACCEPTING ONLY RECYCLABLES WHICH HAVE BEEN PREVIOUSLY SEPARATED FROM THE MUNICIPAL SOLID WASTE STREAM.

b. RESOURCE RECOVERY FACILITY - NON-SEPARATED MATERIALS MEANS A RESOURCE RECOVERY FACILITY ACCEPTING ANYTHING OTHER THAN RECYCLABLES WHICH HAVE BEEN PREVIOUSLY SEPARATED FROM THE MUNICIPAL SOLID WASTE STREAM.

RECYCLING PICK-UP AND DISTRIBUTION CENTER MEANS A FACILITY DESIGNED FOR THE COLLECTION OF RECYCLABLE MATERIALS AND DISTRIBUTION OF THESE ITEMS TO MARKETS ACCEPTING THESE ITEMS FOR PROCESSING.

SEWAGE SLUDGE MEANS THE ACCUMULATED SEMI-LIQUID SUSPENSION, SETTLED SOLIDS OR DRIED RESIDUE OF THESE SOLIDS THAT IS DEPOSITED FROM SEWAGE IN A MUNICIPAL WASTE WATER TREATMENT PLANT, WHETHER OR NOT THESE SOLIDS HAVE UNDERGONE TREATMENT.

SLUDGE AMENDED YARD WASTE MEANS A PROCESS WHEREBY SEWAGE SLUDGE AND YARD WASTE ARE COMBINED TO CREATE A COMPOST.

SLUDGE PIT MEANS A FACILITY DESIGNED FOR THE HOLDING OF SEWAGE SLUDGE FOR A PERIOD OF TIME PRIOR TO DISPOSAL.

SOLID WASTE MEANS ANY GARBAGE, REFUSE, SLUDGE, OR LIQUID FROM INDUSTRIAL, COMMERCIAL, MINING OR AGRICULTURAL OPERATIONS OR FROM COMMUNITY ACTIVITIES.

SOLID WASTE GENERATOR MEANS A RESIDENTIAL, COMMERCIAL, INDUSTRIAL OR GOVERNMENTAL FACILITY THAT CREATES SOLID WASTE THROUGH A PROCESS OF PROVIDING A PRODUCT OR SERVICE AS LONG AS THIS PROCESS DOES NOT REQUIRE SOLID WASTE OR COMPONENTS OF SOLID WASTE AS PART OF THE MATERIAL IN THE PROCESS.

TRANSFER STATION MEANS A PLACE OR FACILITY WHERE WASTE MATERIALS ARE TAKEN FROM ONE COLLECTION VEHICLE (FOR EXAMPLE, COMPACTOR TRUCKS) AND PLACED IN ANOTHER TRANSPORTATION UNIT (FOR EXAMPLE, OVER-THE-ROAD TRACTOR-TRAILERS, RAILROAD GONDOLA CARS, BARGES OR SHIPS) FOR MOVEMENT TO OTHER SOLID WASTE ACCEPTANCE FACILITIES. FOR THE PURPOSE OF THESE REGULATIONS, COLLECTION POINTS SERVING RURAL RESIDENTIAL AREAS ARE NOT CONSIDERED TO BE TRANSFER STATIONS, PROVIDED THAT SOLID WASTE IS NOT TRANSFERRED FROM A COLLECTION VEHICLE TO ANOTHER TRANSPORTATION UNIT. THE MOVEMENT OR CONSOLIDATION OF A SINGLE GENERATOR'S SOLID WASTE AT THE SITE OF GENERATION MAY NOT BE CONSIDERED TO BE A TRANSFER STATION.

Sec. 1-19-239.

Public Governmental and Public Utilities - Natural Resources Uses

	C	A	R1	R3	R5	R8	R12	R16	VC	MS	GC	CRI	LI	GI
Landfill/Governmental		P	/	/	/	/	/	/	/	/	/	/	P	PS
Solid/Waste/Transfer/Stations //Government/Only		P	/	P	/	/	/	/	/	/	P	/	P	/
Government/Sanitary /Landfill		PS	/	/	/	/	/	/	/	/	/	/	/	PS
Borrow/Pit/Operations		PS	/	/	/	/	/	/	/	/	/	/	/	PS
Industrial/Waste/Landfill		PS	/	/	/	/	/	/	/	/	/	/	/	PS
Rubble/Landfill		PS	/	/	/	/	/	/	/	/	/	/	/	PS
Recycling/Operations	/	/	/	/	/	/	/	/	/	/	/	/	/	PS
Recycling/Pickup/and //Distribution/Centers	/	/	/	/	/	/	/	/	PS	PS	PS	/	/	PS

SOLID WASTE OPERATIONS

	C	A	R1	R3	R5	R8	R12	R16	VC	HS	CC	ORI	LI	GI
BORROW PIT OPERATIONS		PS											PS	PS
INDUSTRIAL WASTE LANDFILL		E												E
RUBBLE LANDFILL		SW												SW
COUNTY GOVERNMENT RUBBLE LANDFILL		PS												PS
COUNTY GOVERNMENT SANITARY LANDFILL		PS												PS
COUNTY GOVERNMENT SOLID WASTE TRANSFER STATION		E									PS? HJ		PS	PS
COUNTY GOVERNMENT RECYCLING DROP OFF CENTERS	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS
RECYCLING PICK UP AND DISTRIBUTION CENTERS													PS	PS
COUNTY GOVERNMENT INCINERATORS		SW												SW
RRF (RESOURCE RECOVERY FACILITY - SEPARATED RECYCLABLES)		SW											SW	SW
RRF (RESOURCE RECOVERY FACILITY - NON-SEPARATED MATERIALS)														SW
COMPOSTING (COMMERCIAL AND GOVERNMENTAL)														
YARD WASTE		E												E
SLUDGE AMENDED YARD WASTE		SW											SW	SW
SOLID WASTE COMPOSTING		SW											SW	SW
SLUDGE PIT		E												

P - Principal Permitted Use subject to design regulations.

PS - Principal Permitted Use subject to Site Development Plan approval. See Sections 1-19-411 through 1-19-413.

E - Principal Permitted Use as a special exception with Site Development Plan approval. See Section 1-19-376 and following.

T - Permitted as Temporary Use as a special exception. Section 1-19-213.

X - Permitted as a Temporary Use only. See Section 1-19-213.

SW - SOLID WASTE FLOATING ZONE.

A blank indicates that the use is not permitted under any situation.

SEC. 1-19-325. SOLID WASTE DISTRICT.

A. 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.

B. THE USES PERMITTED IN THE SOLID WASTE DISTRICT SHALL BE AS SET FORTH IN SECTION 1-19-289. ANY USE, DEALING WITH SOLID WASTE WHICH REQUIRES A PERMIT FROM THE MARYLAND DEPARTMENT OF THE ENVIRONMENT NOT SPECIFICALLY ADDRESSED IN SECTION 1-19-289, WILL BE REVIEWED UNDER THESE CRITERIA AND MAY BE ESTABLISHED ONLY UPON THE APPROVAL OF THE BOARD OF COUNTY COMMISSIONERS.

C. A PROPERTY OWNER MAY FILE AN APPLICATION WHICH SHALL CONSIST OF THE FOLLOWING:

1. APPLICATION STATING REQUEST

2. SITE PLAN

3. STATEMENT OF CONSISTENCY WITH THE COUNTY SOLID WASTE PLAN

4. DOCUMENTS ESTABLISHING COMPLIANCE WITH ALL DEVELOPMENT STANDARDS SET FORTH BELOW

5. A TRAFFIC STUDY ESTABLISHING THAT ADEQUATE TRAFFIC ROUTES ARE AVAILABLE

6. AN ENVIRONMENTAL IMPACT STUDY ESTABLISHING THAT THE PROPOSED FACILITY WILL CAUSE NO SUBSTANTIAL ADVERSE IMPACTS ON THE ENVIRONMENT

D. THE APPLICATION SHALL BE FILED AND PROCESSED IN THE SAME MANNER AS A ZONING MAP AMENDMENT. THE APPLICATION MAY BE GRANTED IF THE BOARD OF COUNTY COMMISSIONERS 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 IT SATISFIES THE DEVELOPMENT STANDARDS AND CRITERIA SET FORTH IN THIS SECTION AND ALL OTHER APPLICABLE PROVISIONS OF THIS CHAPTER.

E. DEVELOPMENT STANDARDS

1. MINIMUM LOT SIZE SHALL BE TEN (10) ACRES.

2. NO PORTION OF THE SITE ON WHICH THE SOLID WASTE FACILITY IS LOCATED MAY BE WITHIN A DESIGNATED FLOODPLAIN.

3. REQUIRED SETBACKS:

A. ALL ACTIVITIES ASSOCIATED WITH USE SHALL BE LOCATED A MINIMUM OF 150 FEET FROM THE PROPERTY LINES.

4. 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. AGRICULTURAL BUILDINGS ARE EXEMPT FROM HEIGHT RESTRICTIONS.

5. FRONTAGE: THE SITE SHALL HAVE A MINIMUM OF EIGHTY (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.

6. LOT WIDTH: THE LOT WIDTH AT THE FRONT BUILDING LINE SHALL BE A MINIMUM OF THREE HUNDRED (300) FEET.

7. OPEN SPACE/GREEN AREAS: ALL SETBACK AREAS SHALL BE LANDSCAPED AND MAINTAINED AS GREEN SPACE.

8. EXCLUSIONS FROM SETBACKS: FENCES, RAILROAD ACCESS, WARNING SIGNS, SECURITY/NOISE BARRIERS, BERMS AND ACCESS ROADS MAY BE LOCATED WITHIN THE SETBACK AREAS.

9. FENCING: FENCING SHALL BE REQUIRED AROUND ALL SOLID WASTE AND ACCESSORY ACTIVITY AREAS.

10. 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.

11. 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.

F. 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 SECTION 1-19-307 OF THIS CHAPTER AS SET FORTH FOR LIMITED INDUSTRIAL (LI) DISTRICTS.

Section 1-19-404. SOLID WASTE OPERATION.

THE FOLLOWING PROVISIONS SHALL APPLY TO SOLID WASTE OPERATIONS REQUIRING SPECIAL EXCEPTION APPROVAL IN AGRICULTURAL AND GENERAL INDUSTRIAL DISTRICTS:

A. MINIMUM LOT AREA: TEN (10) ACRES.

B. BUILDING SETBACK SHALL BE 150 FEET FROM PROPERTY LINE.

C. THE HOLDER OF THE SPECIAL EXCEPTION MUST MAINTAIN ALL APPLICABLE VALID FEDERAL, STATE AND LOCAL PERMITS.

D. 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.

E. 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 SECTION 1-19-107 AS IT APPLIES TO THE LIMITED INDUSTRIAL (LI) DISTRICT.

F. THE SITE SHALL HAVE ACCESS TO A COLLECTOR OR ARTERIAL ROADWAY AS DESIGNATED ON THE COMPREHENSIVE PLAN AND BE BUILT TO SAID CLASSIFICATION REQUIREMENTS.

G. THE SITE SHALL HAVE A MINIMUM OF 80 FEET OF ROAD FRONTAGE. ACCESS TO A SITE VIA A PANHANDLE IS PROHIBITED.

H. 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.

I. THE USE AND ZONING SHALL CORRESPOND TO THE COMPREHENSIVE PLAN DESIGNATION.

The undersigned hereby certifies that this Ordinance was approved and adopted on the 19th day of November, 1991.

ATTEST:

Dawn Hatzer
Administrative Officer

BOARD OF COUNTY COMMISSIONERS
OF FREDERICK COUNTY, MARYLAND

By
Ronald L. Sundergill
President

ZTART9110

Appendix F

Frederick County Septage Implementation Plan and Haulers

Septage Regulation Implementation Plan

- MDE will adopt the new septage regulations with an effective date 90 days after adoption.

- MDE will require the counties to submit within 90 days of regulations adoption, for review and approval, a plan showing how they will meet the new standards. The plan must show regulation compliance by December 31, 1991. All counties must be in compliance by that date unless special exemptions are granted by the Secretary of the Environment.

- Revolving loan funds will be made available to the counties and municipalities to the maximum extent possible for implementation of these standards.

- The counties will continue to inspect trucks and issue licenses to haul septage to treatment Facilities. Existing county permit fees structure will apply.

- MDE will issue and enforce permits for septage treatment facilities and land application sites for treated septage.

- The existing approved septage disposal sites will be allowed to continue in operation until the county has the capability to properly handle the septage generated within its boundaries. Minimum operating standards will apply. Those standards shall include the following:

  - Septage shall be spread to prevent pending and runoff, liquid septage applied on an existing grass or hay stand does not require incorporation into the soil, all other septage snail be incorporated with the soil within a reasonable time period to allow liquid infiltration into the soil, but no later than 2 days following application;

  - Septage may not be landspread within 500 feet of any water course, or within 200 feet of any property boundary, public road or highway, or within 2,00C feet of any neighboring homesite except in the case of septage land application sites which were approved prior to implementation of the new regulations. On these sites prior Buffer zones and set backs apply until treatment plant upgrades are made for treating septage, but in no case will the Buffer zones and setbacks be less than the existing Duffer zones shown in COMAR 26.04.06.09A(8)(a); and

  -Septage may not be discharged into any waters of the State.

- Any changes in operating procedures or buffer zones at existing sites must be approved by MDE, and will be subject to the new regulatory requirements.

Formatted: Bulleted + Level: 1 + Aligned at: 0.5" + Tab after: 0.75" + Indent at: 0.75"

Water and Sewer Plan Update Requirements for Septage

- An evaluation of the amount of septage generated within the county.
- A detailed description of how all septage is treated so as to meet State regulatory requirements.
- Septage must be handled as it is generated on a 24-hour day
- Septage must be properly handled and treated so that normal operation at wastewater treatment plants are not adversely affected
- Regional approaches are encouraged to address septage disposal within counties.
- Treatment facility applications for solely septage waste will be processed on a case-by-case basis

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Tab after: 0.5" + Indent at: 0.5"

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Tab after: 0.5" + Indent at: 0.5"

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Tab after: 0.5" + Indent at: 0.5"

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Tab after: 0.5" + Indent at: 0.5"

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Tab after: 0.5" + Indent at: 0.5"

MEMORANDUM

FEBRUARY 11, 1991

TO: COMMISSIONER SUNDERGILL

FROM: ROBERT H. HAYES, P.E., DEPUTY DIRECTOR
DEPARTMENT OF PUBLIC WORKS

THRU: R. WAYNE KEELER, P.E., DIRECTOR
DEPARTMENT OF PUBLIC WORKS

Approved BOCC 5-0 on March 7, 1991

SUBJECT: NEW SEPTAGE DISPOSAL REGULATIONS

Richard W. Collins, Acting Director, for the State of Maryland's Hazardous and Solid Waste Management Administrations sent a December 27, 1990 letter to you advising of the new regulations for disposing of septage disposal. The Department of Public Work's role in septage disposal in Frederick County has been the operator of the only wastewater treatment plant in Frederick County that will except septage into its processing system.

The Bureau of Water and Sewer accepts septage from permitted haulers at our Ballenger Creek WWTP at a cost of $27.50 per 1000 gallons. We received 401,800 gallons in FY '89, 928,300 gallons in FY '90, and 681,950 gallons in the first 6 months in FY '91. The septage has had some effect on the treatment process aggravating existing performance problems at Ballenger Creek WWTP. Consequently, the County and State of Maryland entered into a Consent Order in July, 1990, to correct several problems at the treatment plant. The short-term correction for septage receiving impacts included converting an existing tank into a receiving basin for the septage with gradual discharge into the plant influent. This was in place of the normal practicing of dumping the entire truck directly into the influent with no flow control or pacing. These modifications were completed in August, 1990 in accordance with the consent order.

The long range solution simply takes the short term receiving station/flow control concept and creates a permanent facility with a more automated card system to measure, record, provide access and create a less staff intensive system on a 16 hour day basis to haulers. The system is being sized to accommodate 23,043 gallons of septage per day expandable if needed. The State's estimate of septage generated in Frederick County is 23,043 gallons per day based on 1990 population figures for septic systems.
The design of these facilities is included in the current study to expand Ballenger Creek WWTP being performed by O'Brien and Gere Engineering Consultants. The prior Board Of County Commissioners approved the Capital Project to fund the long term receiving station facility. Our current schedule is to complete design by April 1, 1991, begin construction by July 1, 1991, and complete the facility 6 - 9 months thereafter.

It appears the State is eliminating land application of septage through the administration procedures being used as discussed in the Septage Regulation Implementation plan, but not as a result of the new regulations. The regulations exempts existing approved sites from the new setbacks and provides for haulers to undertake stabilization in lieu of using a wastewater treatment. The State is forcing the septage haulers to use wastewater treatment plants which will result in the Ballenger Creek WWTP becoming the only septage receiving station in Frederick County unless other municipalities volunteer to receive septage at the facilities they own and operate.

The State's Regulation Implementation Plan requires the County to submit a management plan showing how we will meet the new standards. Frederick County is in very good shape to implement the new regulations since we currently operate a septage receiving station at Ballenger Creek WWTP and are proceeding with permanent septage receiving facilities through an approved capital project.

The County Health Department will no longer permit and inspect septage land application sites since the new regulations retain that authority with MDE. Therefore, their only role will be to continue to inspect trucks and issue licenses to haul septage to the Ballenger Creek WWTP. The Bureau of Water and Sewer will continue to regulate access to Ballenger Creek WWTP, measure septage, invoice haulers, and recommend appropriate fees to the Board Of County Commissioners for their approval during the budget process.

I have attached a letter to this memorandum, outlining our management plan for the State's review and approve. It is brief, but outlines our approach and schedule for constructing the permanent septage receiving facility.

If there are any questions about the information contained herein or our management plan, I will gladly address them.

cc: Board of County Commissioners
Dawn Hatzer
Dr. Bowes

Winchester Hall
12 East Church Street
Frederick, Maryland 21701

(301) 694-1100
FAX (301) 694-0050

COMMISSIONERS
Hal I. Sundergill, President
T. Dorsey Grant, V. President
David P. Zinn
Brian L. Reeder
Ann Sam Dayhoff

BOARD OF COUNTY COMMISSIONERS OF
FREDERICK COUNTY, MARYLAND

February 14, 1991

Richard W. Collins, Acting Director
Hazardous and Solid Waste Management
Maryland Department of the Environment
2500 Broening Highway
Baltimore, MD 21224

Dear Mr. Collins:

Frederick County is contining with the implementation of several tasks that will accommodate the new regulations for septage disposal. Before the draft regulations were first presented, the County had funded and was proceeding with an upgrade of our septage receiving facilities. Please consider this letter as the Management Plan you requested in your December 27, 1990.

Frederick County's Department of Public Works, Bureau of Water and Sewer will continue to receive septage at its Ballenger Creek WWTP. The septage haulers will be bringing greater volumes as a consequence of the new regulations. However, we do not have better information to predict the increases in septage than the information presented by the State in their regulations Economic Impact Analysis. This management plan and the facilities under design are based on the 23,043 gpd used by the State of Maryland in their Economic Impact Analysis Table 2. The receiving facility will also be designed to accommodate future expansion. The Ballenger Creek WWTP received the following quantities of septage: 401,800 gallons in FY 89, 928,300 gallons in FY 90 and 681,950 gallons the first 6 months in FY 91. This converts to daily rates of 1,100 gpd, 2,543 gpd and 3,737 gpd respectively. The Frederick County Health Department conducted a survey in June, 1990 that asked for quantities of septage disposed of by the haulers in total. Eleven of Nineteen haulers responded indicating a total of 3,440,700 gallons of septage was collected for calendar year 1989. This represents a 9,427 gpd rate. County staff feels comfortable with an original septage facility design rate of 23,043 gpd and the ability to expand the facility in the future as more volume data becomes available.

The septage receiving facilities will be sent to the State for review for a construction permit. The concepts incorporated will generally include the following:

1. 23,043 gpd capacity expandable,
2. Two 6,000 gallon dumping bays,
3. Regulated/paced discharge into the plants influent headworks,
4. Truck scale system to weigh/measure quantities received,

5. Card system to identify, provide access, log and record information for invoicing the haulers, and
6. Isolated area to accommodate 16 hours per day 7 days per week access to the facility — the County sees no need to provide 24 hour per day access based on input from haulers or a regulatory requirement, therefore, will not go beyond the 16 hours per day.

The project schedule for the permanent septage receiving facility plans design completion by April 1, 1991, construction start by July 1, 1991, and construction completion 6-9 months later. The construction time cannot be better defined until the final plans and specifications are complete. The State will be notified accordingly.

The County modified an existing basin to receive septage and control its discharge to the plant influent in August, 1990. This interim receiving facility has reduced the impact on the treatment plant by pacing the septage discharge over a longer period of time versus the 20 minute dump occurring before. This temporary facility was built because of prior problems at the treatment plant that resulted in a consent order being signed by the State and County. This temporary facility will stay in operation until the new facility is constructed.

The Ballenger Creek WWTP is currently permitted to dispose of its sludge at the Reichs Ford Road Landfill in Frederick County. Consequently, no changes in this permit are contemplated because of the new septage disposal regulations.

The Frederick County's 10 year water and sewer plan mentions the disposal of septage, however, we anticipate the need for a more thorough discussion of septage disposal especially its significance at Ballenger Creek WWTP. This will be completed by the December 31, 1991 deadline.

The Frederick County Health Department will retain a role in the administration of the new septage dispose. They will be responsible for permitting and an annual inspection of all scavenger trucks for use in Frederick County. Inspections will occur in March each year.

The County Health Department had designated Charles Gillis as their contact responsible for septage management. He can be reached at 301/694-1723.

The Department of Public Works has assigned Michael G. Marschner, as the operations Division Chief assuming the responsibility to manage septage receiving and treating at the Ballenger Creek WWTP. He can be reached at 301/694-2568.

If there are questions or comments concerning this management plan, please contact Robert M. Hayes, Deputy Director of Public Works at 301/694-1129.

Sincerely,

BOARD OF COUNTY COMMISSIONERS
OF FREDERICK COUNTY MARYLAND

By: _____
Ronald L. Sundergill
President

cc: Board of County Commissioners
Dawn Hatzer

FREDERICK COUNTY SCAVENGER PERMITS

FC-1 Roelkay's Septic Service
19621 Frog Eye Road
Knoxville, MD 21758

FC-2 Dale Fogle
Fogle's Septic Clean, Inc.
558-R Obrecht Road
Sykesville MD 21784

FC-3 Urbana Septic Service
4235 Baker Valley Road
Frederick, MD 21701

FC-4 Harold M. Staley, Jr.
6830A Putman Road
Thurmont, MD 21788

FC-5 B & W Disposal
7025 Baltimore National Pike
Frederick, MD 21701

FC-6 Robert E. Linton
8867 Indian Springs Road
Frederick, MD 21701

FC-7 R. J. Smith
9615 Liberty Road
Frederick, MD 21701

FC-8 Town of Emmitsburg
22 E. Main Street
P.O. Box 380
Emmitsburg, MD 21727

FC-9 Frederick County Bureau of Water & Sewer
7303 Marcie's Choice Lane
Frederick, MD 21701

FC-10 H. W. Rohrbaugh
16658 Old Emmitsburg Road
Emmitsburg, MD 21727

FC-11 Thomas Crummitt Changed Thomas Crummitt Jr.
908 Oak Street 10506 Lee Lane Pike
Frederick, MD 21701 Mt Airy Md 21771

FC-12 R. Rogers Nicklas
General Delivery
Buckeystown, MD 21717-9999

Appendix G

Standard Procedures Out-Of-County Refuse Inspection/Violations

Inspection of Loads

A log shall be kept of all vehicles inspected for Out-of-County refuse. This log shall include:

- Date of Inspection
- Time of Inspection
- Vehicle ID Number
- Company Name
- Person performing Inspection (or ownership of Log Sock)
- Results

The inspection shall be conducted in an area that is removed from the working face of the landfill.

The load is to be dumped off the truck and inspected by searching for evidence of mailing addresses or other property identification that would indicate the suspected origins of the refuse.

Out-of-County Refuse Violations

If it appears to the inspector that a substantial amount of the load has originated from outside Frederick County, the landfill Foreman will be notified.

If the Landfill Foreman, by independent inspection believes that a substantial portion of the load has originated from outside the boundaries of Frederick County. He will:

- Request driver of vehicle to remain at site while inspection is taking place
- Begin collection of samples of the evidence
- Begin photographing the load of refuse
- Notify the Bureau Chief or Department Director as to what has occurred.
- Notify the owner that this load was found to contain substantial "Out-of-County" refuse and invite the owner to conduct their own inspection.
- Load the refuse into 30-yard open top containers and cover them with tarps

If the owner does not notify the landfill foreman in writing within 48 hours that they wish to examine the load, the County will have no obligation to continue to store the material. If the Foreman received a written request from the owner indicating a desire to inspect the material, the owner will be notified that they have 2 weeks to inspect the material before it is permanently disposed of.

Sanctions

The Director of Department of Public Works or his designee shall determine the appropriate sanctions to be imposed for the depositing of out-of-county refuse in the County's facilities.

In determining the appropriate sanction, the Director or his designee shall consider:

- Whether it was a first-time violation or a repeat offense.
- Whether the load was removed from the landfill after the determination that out-of-county trash was deposited.
- Any explanation offered by the offending party.

A fine of up to $1,000 per offense may be imposed and/or the individual/company may have its permits to use the landfill suspended for such a period of time as deemed appropriate.

If it is determined that the company shall have its permits permanently revoked, no new permits shall be issued to any company having any director or partner or owner in common with the company whose permits were revoked.

Revised 2/92

Appendix H

Public and County Review Process for Solid Waste Management Facility Permit Applications and Procedures for Amending the Solid Waste Plan[1]

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 representative exemptions is shown in **Appendix 1.** [1]

For a proposed facility to be formally included in the Plan, application must be made for an amendment, as follows: [1]

1. Preliminary Public Informational Meeting: [1]

a. A copy of the application is given to the Department of Solid Waste Management (DoSWM)/Solid Waste Advisory Committee (SWAC) with appropriate information (application criteria listed in **Appendix 2**) in order to begin the process of establishing consistency with the Solid Waste Management Plan (SWMP). [1]

b. Applications will be accepted from the first of the month through the fifteenth. The DoSWM will notify the applicant that the application is complete one week after receipt. DoSWM will notify the Department of Planning and Zoning (DPZ), The Board of County Commissioners (BOCC) and any other County agency that would have interest in or be directly affected by the application. [1]

c. Within ninety (90) days of the acceptance of the application, the applicant and DoSWM will establish dates for a SWAC, Planning Committee and Board of County Commissioners meeting (See Flow chart - **Appendix 3**). Within these ninety (90) days, SWAC, Planning Commissioners or BOCC may request any additional information it deems necessary for those meetings. The applicant will be responsible for advertising the notice of the BOCC 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 DoSWM for the BOCC public hearing. [1]

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. [1]

e. Before the Board of County Commissioners may adopt a revision of, or an amendment to the Solid Waste Management Plan, the Department of Planning and Zoning 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. [1]

2. Final Approval of Plan Amendment by State: [1]

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. [1]

3. Zoning Authorization for Facility Operation: [1]

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. [1]

Appendix 1 - Exemptions to the Amendment Process: [I]

The following solid waste activities are examples of installations that would not require an amendment to the Frederick County Solid Waste Management Plan: [I]

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. [I]

b. Recycling collection bins located outdoors at County-owned buildings, parks and local businesses. [I]

c. Recycling bins located indoors for schools, County-owned buildings and businesses. [I]

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. [I]

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 Board of County Commissioners 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.

Appendix 2 - Application Criteria [I]

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: [I]

A. The application shall be on a company letter head [I]

B. The applicant shall provide the following preliminary information in the application: [I]

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]

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]

i) Scaled site map.

Formatted: Indent: Left: 0", Hanging: 0.5", Numbered + Level: 1 + Numbering Style: A, B, C, … + Start at: 1 + Alignment: Left + Aligned at: 0.25" + Tab after: 0.71" + Indent at: 0.71", Tab stops: 0.5", List tab + Not at 0.71"

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.

Appendix 3 – SWMP Amendment Flow Chart[1]

Solid Waste Management Plan Amendment
Time-line Flow Chart

Appendix I

Overview of Amendment Process
of the
Frederick County Solid Waste Plan

(90-Day Amendment Process from Submission Date)

1. Request to amend is forwarded to SWAC and Planning Commission within 5 days of receipt by the DoSWM.[1]

2. During the next 64 days, items #3 through #5 can be scheduled.

3. DoSWM [1] schedules amendment for discussion and recommendations at the next SWAC meeting.

4. DoSWM [1] 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 DoSWM [1] schedules the requested amendment for public hearing before the County Commission after ensuring the notice for County Commission review has a minimum of 14 days notice in a local newspaper.

6. County Commission may hold work session to discuss amendment.

7. Upon County Commission holding the public hearing the Commission may make a final determination on the requested amendment at either the public hearing or at a following Commission work session.

8. One week following County Commissioner's public hearing or work session the DoSWM [1] may notify requesting the amendment of the Solid Waste Plan.

Appendix J

Contaminated Soil Policy

Frederick County Landfill

Due to the nature of Solid Waste Management and the safety of the public as well as landfill employees, certain procedures must be adhered to insure proper disposal of contaminated soils.

If any commercial, business or residential customer inquires about proper disposal of contaminated soils, they must be informed of these procedures.

1. If they are an out-of-county or out-of-state hauler or contractor, they must provide the Frederick County Landfill with a letter of verification, verifying load is being generated within the boundaries of Frederick County.

2. All suppliers of contaminated soils also must provide the Frederick County Landfill with a letter of verification which will state WHERE soil has been generated, WHO is generating the soil, WHEN soil will be disposed of and HOW MUCH soil is to be generated.

3. Frederick County Landfill must receive a copy of the TCLP Test on contaminates, this test designates soils to contain safe levels of contaminates for landfill disposal. This test may also flag contamination on industrial sites other than fuel or gas.

NOTE: Any load which does not have a letter of verification or TCLP Test will not be able to unload. Also, if TCLP test has a failing result, load will not be able to unload. A new TCLP test will be required after each 100 cubic yards disposed.

4. Soils which contain contaminates and adhere to these procedures will be charged $50.00/ton or at the current tipping rate at refuse type 2B-Construction Rubble. [1]

5. All documents received on contaminated soils, copies should be made for Scalehouse, Shop and Administrative Files.

6. Inquiries pertaining to laboratories capable of analyzing soil samples, as well as other alternative companies who are authorized to accept oil-contaminated soil for treatment and recycling, may be mailed or faxed a copy of this letter as well as a copy of laboratories and oil-contaminated soil disposal sites. (See attached pages.)

Appendix K

Solid Waste Management Plan (1998-2017)
Updates or Amendment End Notes

I. As changed and approved in May 2003.
II. As changed by Ordinance No. 05-28-389 effective November 4, 2005 and approved by MDE in January 2006.
III. As changed and approved in June 1998.

Formatted: Numbered + Level: 1 + Numbering Style: I, II, III, … + Start at: 1 + Alignment: Left + Aligned at: 0.25" + Indent at: 0.5"

Appendix L

WASTE-TO-ENERGY DISPOSAL FACILITY

Frederick County
Resolution No. 06-05

Frederick County
Resolution No. 09-19

THE EFFECTIVE DATE OF THIS RESOLUTION IS February 16, 2006

RESOLULTION NO. 06-05

RE: Waste to Energy Disposal Facility

PREAMBLE

The Board of County Commissioners of Frederick County, Maryland ("Board") passed a resolution (Resolution No. 04-36) to become a participating political subdivision of the Northeast Maryland Waste Disposal Authority ("Authority") on September 23, 2004. In this resolution, the Board declared its intention to participate in the activities of the Authority for the purpose and with the intent of initiating, developing, and implementing one or more projects for solid waste management.

The mission of the Authority is to assist the participating political subdivisions of the State of Maryland, other public entities, and the private sector as a regional coordinating agency and financing vehicle providing participants with waste disposal facilities and facilities that generate compost, recyclables, steam and electricity, which are derived from or related to waste disposal facilities.

The Board requested the Authority to undertake a study of future waste disposal options. The Authority commissioned a waste study from R. W. Beck and Associates. This study recommended (among other things) the development of a waste-to-energy facility as the most efficient and reliable waste management disposal option.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF COUNTY COMMISSIONERS OF FREDERICK COUNTY, MARYLAND as follows:

1. The Board hereby adopts the recommendation of the Beck Study that a waste-to-energy facility is the most efficient and reliable waste management disposal option.

2. The Board hereby directs the Authority to conduct a procurement for waste-to-energy facilities as detailed in the Study completed by its consultant R.W. Beck and Associates, to negotiate a service agreement with the highest ranked Proposer and to present the contract to the Commissioners on or before December 1, 2006.

3. The Board recognizes the complexity of the development of waste-to--energy facilities and understands that the Authority plans to use its Procurement Regulation 14.13.01.10 which sets forth the guidelines for competitive negotiations.

4. The Board directs the Authority to evaluate and recommend the location of the waste-to-energy facility.

5. The Board hereby directs Frederick County's Member Representative on the Authority's Board to work with the staff of the Authority on the procurement and identification of a site for a regional waste-to-energy facility.

6. If the Board determines that participation in a waste-to-energy facility with the Authority is in the best interests of Frederick County, the Board will enter into a waste disposal agreement with the Authority as allowed under Md. Annotated Code, Natural Resources Article, Section 3-905(a)(14) of the Authority's enabling legislation.

7. The Board acknowledges that it is under no obligation to participate in a waste-to-energy facility.

The undersigned hereby certifies that this Resolution was approved and adopted on the 16 day of February, 2006.

ATTEST:

Douglas D. Browning
County Manager

BOARD OF COUNTY COMMISSIONERS
OF FREDERICK COUNTY, MARYLAND

By _____
John L. Thompson, Jr.
President

THE EFFECTIVE DATE OF THIS RESOLUTION IS JULY 9, 2009

RESOLUTION NO. 09-19

RESOLUTION OF
BOARD OF COUNTY COMMISSIONERS OF
FREDERICK COUNTY, MARYLAND

RE: THE EXECUTION AND DELIVERY OF A MEMORANDUM OF UNDERSTANDING WITH CARROLL COUNTY AND THE NORTHEAST MARYLAND WASTE DISPOSAL AUTHORITY AND AN ENERGY RECOVERY AGREEMENT FOR A REGIONAL ENERGY-FROM-WASTE PROJECT

WHEREAS, the Board of County Commissioners of Frederick County, Maryland (the "County") has determined to participate in a regional solid waste disposal system including, without limitation, a publicly owned, resource recovery facility (the "Facility") to be located in the County, to be built and operated by the Northeast Maryland Waste Disposal Authority ("Authority").

WHEREAS, pursuant to an Energy Recovery Agreement (the "Agreement"), the Authority will provide waste disposal services to the County and the County will use up to 60% of the Regional-Energy-From-Waste project and pay the net costs of the Authority in connection with the Facility and the provision of waste disposal services to the County.

WHEREAS, the Facility will be constructed and operated by a subsidiary of Wheelabrator Technologies, Inc. ("Wheelabrator") pursuant to a Service Contract between the Authority and Wheelabrator. Wheelabrator's performance under the Service Contract will be guaranteed by Wheelabrator's parent company pursuant to a parent company guarantee.

WHEREAS, the Facility will be located on land owned by the County in the McKinney Industrial Park near the Ballenger Creek Wastewater Treatment Plant (the "Project Site"). The County will lease the Project Site to the Authority.

WHEREAS, certain matters relating to the development and use of the Facility are provided for in a Memorandum of Understanding among the County, the Authority and Carroll County, Maryland (the "MOU").

WHEREAS, the Design-Build Price for the Facility contained in the Service Contract is based on a different proposed location for the Facility.

WHEREAS, the County mandates that the Service Contract include the development of a comprehensive recycling plan for the Facility thereby ensuring the optimal recovery of recyclable materials from the waste stream both before and after processing.

WHEREAS, Wheelabrator has provided computer generated renderings of the architectural aspects of the Facility.

WHEREAS, these renderings include enclosing the air pollution control systems within the building.

WHEREAS, the County requires that the Facility shall reflect the concepts provided in these renderings and, in particular (without limitation), the enclosing of the air pollution control systems within the building.

WHEREAS, the Essroc cement kiln is located near the Project Site.

WHEREAS, a decommissioned stack is on the Essroc property.

WHEREAS, the owners of the Essroc cement kiln may be willing to remove this decommissioned stack.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF COUNTY COMMISSIONERS OF FREDERICK COUNTY, MARYLAND that:

1. The MOU between the County and the Authority is hereby approved, provided that the Fixed Component of the Design-Build Price for the Facility contained in the Service Contract will not be increased due to the relocation of the Facility to the Project Site.

2. The President of the Board is hereby authorized and directed to execute and deliver the MOU on behalf of the County.

3. The MOU approved by this Resolution to be executed and delivered shall be substantially in the form as previously forwarded to the Board with (i) such changes, revisions, omissions and insertions in form or content which do not materially adversely affect the substance of the transactions contemplated by the MOU as may be approved by the President of the Board, the execution of such agreements to constitute conclusive evidence of the President's approval of any and all changes, revisions, omissions and insertions therein from the form of the MOU hereby approved, or with (ii) such other changes, revisions, omissions or insertions approved by future resolution or resolutions of the Board. The President of the Board is hereby authorized and directed on behalf of the County to deliver the MOU and to take all actions necessary or appropriate to execute and deliver, and to cause to be executed and accepted by the other parties

thereto, the MOU, including approval of the Service Contract with Wheelabrator. The Agreement is to come before the Board in the future for consideration.

4. The Authority shall require, in its Service Contract with Wheelabrator, the development of a comprehensive recycling plan for the Facility, to ensure optimal recovery of recyclable materials as economically feasible from the waste stream before and after processing. This plan will be provided to the BOCC for inclusion in the Frederick County Solid Waste Management Plan.

5. The architectural aspects of the Facility shall reflect the concepts provided in Wheelabrator's computer generated renderings, including enclosing the air pollution control systems within the building.

6. The Authority shall make a reasonable effort to negotiate with the owners of the Essroc cement kiln for the possible removal of its decommissioned stack as a part of the development of the Facility.

The undersigned hereby certifies that this Resolution was approved and adopted on the 9th day of July, 2009.

ATTEST:

Ronald A. Hart
County Manager

BOARD OF COUNTY COMMISSIONERS
OF FREDERICK COUNTY, MARYLAND

By: _____
Jan H. Gardner, President

\\\BA - 091070000000 - 388834 v1

Appendix M

SOLID WASTE MODELING
FOR
FREDERICK COUNTY

FREDERICK COUNTY, MARYLAND
SOLID WASTE MANAGEMENT OPTIONS

Solid Waste Modeling Support for Frederick County, Maryland Board of Commissioners
Final Report – July 28, 2008
Prepared by:
RTI International
Research Triangle Park, NC

R.W. Beck, Inc.
September 2005
Solid Waste Management Options Report for Frederick County, Maryland

Solid Waste Modeling Support for Frederick County, Maryland Board of Commissioners

Final Report – July 28, 2008

Prepared by:
RTI International
Research Triangle Park, NC

Prepared for:
Frederick County

Solid Waste Modeling Support for Frederick County, Maryland Board of County Commissioners

1—Introduction and Goals

The Frederick County, Maryland Board of County Commissioners is interested in developing a more detailed and quantitative understanding of the relationships and tradeoffs between landfill and waste-to-energy (WTE) alternatives for managing post-recovery municipal solid waste (MSW). Post-recovery MSW includes residuals wastes after materials have been removed for recycling and composting.

This analysis was conducted using RTI's Municipal Solid Waste Decision Support Tool (MSW-DST). The data and results generated through this project provide a general assessment of the potential tradeoffs in cost, energy, and emissions associated with the management of post-recovery MSW in Frederick County. An analysis of other specific alternatives, waste streams, or regions may produce different results.

2—Methodology

Estimates for net total annual cost, energy consumption, and multi-media (air, water, land) emissions were calculated using RTI's MSW DST. The MSW DST is a computer-based model developed by RTI in cooperation with the U.S. Environmental Protection Agency (EPA) Office of Research and Development to assist communities and MSW planners in analyzing the full costs and life cycle environmental aspects of alternatives for MSW management. The MSW DST is populated with North American average default data, which has been modified to use site-specific data supplied by Frederick County. Users can evaluate the numerous MSW management strategies that are feasible within a community or region and identify the alternatives that are economically and environmentally efficient, making tradeoffs if necessary. The MSW DST has undergone extensive stakeholder input and peer review (as well as a separate peer review by the U.S. EPA) and is regarded as a cutting-edge software tool that can help solid waste planners make more informed decisions. Additional information about the MSW DST is supplied in Attachment A and can be obtained from RTI.

The methods used in the MSW DST to calculate the energy and environmental results are built on the principles of Life Cycle Assessment (LCA). LCA is a type of systems analysis that accounts for the complete set of upstream and downstream (cradle-to-grave) energy and environmental aspects associated with industrial systems. The technique examines the inputs and outputs from every stage of the life cycle from the extraction of raw materials, through manufacturing, distribution, use/reuse, and waste management. In the context of integrated waste management systems, an LCA tracks the energy and environmental aspects associated with all stages of waste management from waste collection, transfer, materials recovery, treatment, and final disposal. For each of the waste management operations, energy and material inputs and emissions and energy/material outputs are calculated (see Figure 1). In addition, the energy and

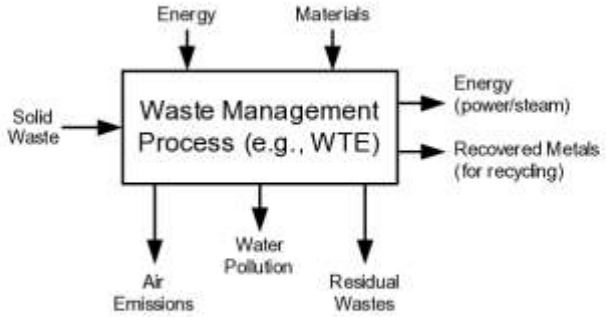


Figure 1. Life Cycle Inputs and Outputs of a Waste Management Process.
All waste management processes that comprise an integrated waste management system consume energy and materials and produce emissions. Some processes, such as WTE, recover energy and materials. The benefits associated with any energy or materials recovered are captured in the life cycle study.

emissions associated with fuels, electrical energy, and material inputs are captured. Likewise, the potential benefits associated with energy and/or materials recovery displacing energy and/or materials production from virgin resources are captured in the life cycle results.

Taking a life-cycle perspective encourages waste planners to consider the environmental aspects of the entire system including activities that occur outside of the traditional framework of activities from the point of waste collection to final disposal.

3—Strategies Analyzed

The primary goal of the project was to identify and quantify the cost and environmental aspects of the management of 229,100 tons of post-recovery MSW for the following management alternatives:

1) In-County landfill disposal
2) In-County WTE with disposal of ash in a local landfill.
3) Out-of-State landfill disposal

For the landfill alternatives, it is assumed that local and out-of-state landfills are designed and operated based on the requirements established by U.S. Subtitle D landfill standards. The landfills are assumed to contain a liner system and collect and manage (i.e., treat) leachate and a gas collection system. For the in-county landfill strategy, it is assumed (based on available information) that landfill gas would be collected and flared. For the out-of-state landfill strategy, the MSW goes to multiple facilities. It is assumed that 84%

of the MSW is disposed of in landfills that collect and combust landfill gas in an internal combustion engine-generator set to generate electricity. The electricity produced is used for internal power load and the remainder is assumed to be delivered to the regional electricity grid. The remaining 16% of the MSW is assumed to be disposed of in landfills that collect and flare landfill gas.

The local WTE strategy assumes a modern mass-burn MSW combustion facility that produces electrical energy and recovers ferrous and non ferrous metal from the combustion ash. The electrical energy produced is used for internal power load and the remainder is delivered to the regional electricity grid. Ash from the combustion process is assumed to be transported and disposed of in a dedicated ash landfill. Recovered metals are assumed to be sent to a steel plant for recycling.

Table 1 lists the mass flow of waste for each strategy. The following assumptions and conditions were applied to all strategies analyzed (as appropriate):

- The quantity of post-recovery MSW managed in each strategy analyzed was assumed to be 229,100 tons per year.
- Waste composition, as shown in Table 2, is based on the average post-recovery composition of waste in Frederick County.
- Electricity consumption and related emissions are based on the Mid-Atlantic Area Council regional electricity grid mix of fuels which contains about 46% coal and 42% nuclear as the main fuels.
- 100-year time frame was used for estimating landfill gas emissions.
- Electrical energy produced from WTE and landfill gas-to-energy was assumed to offset the average regional electricity grid mix of fuels which contains about 94% coal, 1.5% natural gas, and 4.5% other (e.g., biomass).

Key assumptions used in this analysis by waste management process are listed in Table 3.

Table 1. Mass Flow of Waste for the Scenarios Analyzed (wet tons).

	Annual Tons Managed		
	Local LandFill	**Local WTE**	**Out-of-State Landfill**
Post-Recovery MSW	229,100	229,100	229,100
Collection	229,100	229,100	229,100
Long-Haul Transfer	0	0	229,100
WTE	0	229,100	0
Local Landfill	229,100	0	0
Out-0f-State Landfill	0	0	229,100

Table 2. Post-Recovery Waste Composition.

Waste Item	Percent Composition
Paper	40%
Plastic	13%
Organic	29%
Ferrous Metal	4%
Non-Ferrous Metal	1%
Glass	2%
Wood	6%
Inorganic	4%
Yard Waste	1%
TOTAL	100%

Source: R.W. Beck. 2005. "2005 Waste Composition Study for Montgomery County, Maryland. Memorandum prepared for the Northeast Maryland Waste Disposal Authority. June 2005.

Table 3. Key Assumptions By Process Used in This Analysis.

Parameter	Assumption
General	
Waste Tonnage	229,100 tons
Waste Composition	See Table 2
Waste Collection Frequency	1 time per week
Transportation Distances	
Collection to local landfill	20 miles one way
Collection to local WTE	20 miles one way
Collection to transfer station	20 miles one way
Transfer station to out-of-state landfill	200 miles one way by truck
WTE	
Basic Design	Mass burn with electricity and ferrous recovery
Plant Heat Rate	17,500 btu/kwh
Ferrous Recovery Rate from Ash	88%
Aluminum Recovery Rate	.14% of incoming waste tonnage
Assumed Offset for Energy Recovery	Average regional utility grid mix of fuels based on 94% coal, 1.5% natural gas, and 4.5% other.
Landfill	
Basic Design	Conventional, Subtitle D Type
Time Period for Calculating Emissions	100 years
Landfill Gas Collection Efficiency	75%
Landfill Gas Oxidation Rate	15%
Landfill Gas Management	Flare for local. 84% energy recovery, 16% flare for out-of-state
Assumed Offset for Energy Recovery	Average regional utility grid mix of fuels based on 94% coal, 1.5% natural gas, and 4.5% other.

4.0 Results

The summary level results for each scenario analyzed are shown in Table 4. Results are presented as net totals for each scenario and waste management activity. Therefore, a positive value represents a net cost or emission whereas a negative value represents a net cost, energy, or emissions savings/avoidance. For example, a negative value for carbon emissions means that the MSW management strategy offsets (or avoids) more carbon equivalent emissions than it produces by virtue of energy and materials recovery and displacing utility sector energy production and/or materials production from virgin resources, respectively.

Results for annual cost, energy consumption, criteria air pollutants and greenhouse gases (carbon emissions) have been charted in Figures 2 through 5 and are discussed below.

4.1 Net Cost

The cost modeled by the MSW DST is consistent with "full cost accounting" principles. It includes the capital, operating and maintenance, and labor costs over the life of the facilities included in each scenario. Therefore, the cost is not necessarily representative of the tip fee charged by any facility. For facilities recovering energy and/or materials and selling them to create revenue, this revenue stream is netted out of the cost. The cost results therefore represent a net annual cost.

Figure 2 shows the annual net cost (total expenses minus revenues) results for the scenarios analyzed. In general, the net cost for the local landfill and WTE alternatives are about the same at approximately $100/ton with the out-of-state landfill cost higher due to the need for waste transfer and out-of-state transportation and is approximately $125/ton.

The cost results presented are not "tipping fees" but rather include all capital and operating costs from the point of waste collection to final disposition. The cost for the landfills uses a provided landfill cost of $57/ton escalated by 4% to the year 2012. Cost for the WTE facility uses a provided estimate for 2012 electricity sale price of $73.86/MWh. The costs represent average costs for landfill and WTE processes and actual costs for specific facilities may be different, particularly in different regions.

Table 4. Summary Level Results.

Parameter	Units	Local Landfill	Local WTE	Out-Of-State Landfill
Cost	US$	22,918,622	22,512,705	28,841,869
Energy Consumption	MBTU	161,504	-2,443,433	-131,968
Air Emissions				
Total Particulate Matter	lb	21,534	-362,515	-61,701
Nitrogen Oxides	lb	173,897	-428,322	1,746
Sulfur Oxides	lb	29,652	-1,456,256	-393,384
Carbon Monoxide	lb	769,237	-192,123	305,880
Carbon Dioxide Biomass	lb	247,853,167	401,689,556	247,508,214
Carbon Dioxide Fossil	lb	5,208,127	-216,593,839	-54,899,805
Carbon Equivalents	MTCE	18,854	-28,137	10,215
Hydrocarbons (non CH4)	lb	24,280	83,089	45,147
Lead	lb	0	8	-3
Ammonia	lb	4	-298	-69
Methane	lb	6,335,978	-494,011	6,181,406
Hydrochloric Acid	lb	10,000	5,317	4,539
Ancillary Solid Waste*	lb	795,054	-48,521,358	-12,284,278
Water Emissions				
Dissolved Solids	lb	14,184	-93,608	3,823
Suspended Solids	lb	1,247	-160,359	-46,333
BOD	lb	262,058	-82	261,720
COD	lb	534,308	174	535,119
Oil	lb	39,576	1,612	42,555
Sulfuric Acid	lb	13	-2,248	-675
Iron	lb	63	-12,116	-3,649
Ammonia	lb	4,687	-780	4,691
Copper	lb	0	0	0
Cadmium	lb	1	-4	0
Arsenic	lb	0	0	0
Mercury	lb	0	0	0
Phosphate	lb	50	-1,083	-294
Selenium	lb	0	0	0
Chromium	lb	1	-4	0
Lead	lb	0	0	0
Zinc	lb	0	-1	0

*Includes primarily solid waste generated from energy and/or materials production processes.

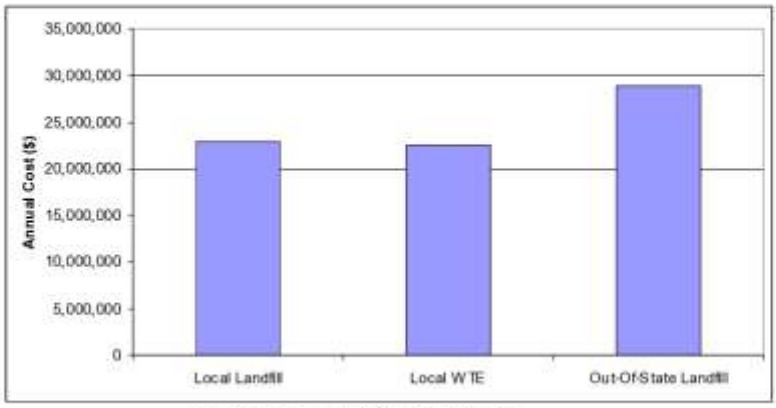


Figure 2. Annual Net Cost by Strategy.

4.1 Net Energy Consumption

Energy is consumed by all waste management activities (e.g., landfill operations), as well as by the processes to produce energy and material inputs (e.g., diesel fuel, landfill liner) that are included in the analysis. Energy can also be produced by some waste management activities (e.g., landfill gas-to-energy, WTE) and can be offset or avoided by other activities (e.g., metals recovery and recycling from combustion ash). If the energy produced and/or offset by the waste management system is greater than the energy consumed, then a net energy savings is achieved. Energy use (or savings) is an important parameter in life-cycle studies, because it often drives the results of the study due to the significant amounts of air and water emissions associated with energy production.

As shown in Figure 3, the local WTE strategy results in large net energy savings. The net energy savings from WTE strategy results from the following key aspects:

- Energy production offsets the production of energy in the petroleum and utility sectors.
- Metals recovery and recycling from WTE combustion ash offsets the consumption of energy otherwise needed to extract and process virgin materials to manufacture metals.

The contribution of materials and energy recovery to the overall energy savings varies. The savings associated with materials recycling is approximately the same on a btu-saved basis as the savings associated with energy recovery, based on the assumed tonnage of

materials recycled and the tonnage input to (and amount of energy recovered) in the WTE process. If materials recycling were not included in WTE strategy, the total net energy savings would be approximately half the value as presented in Table 4 and Figure 3.

Figure 3 also shows the impact of landfill gas-to-energy on net energy consumption. The local landfill collects and flares landfill gas while for the out-of-state landfill strategy it is assumed that 84% of the MSW is sent to landfills that collect and utilize landfill gas for electrical energy production.

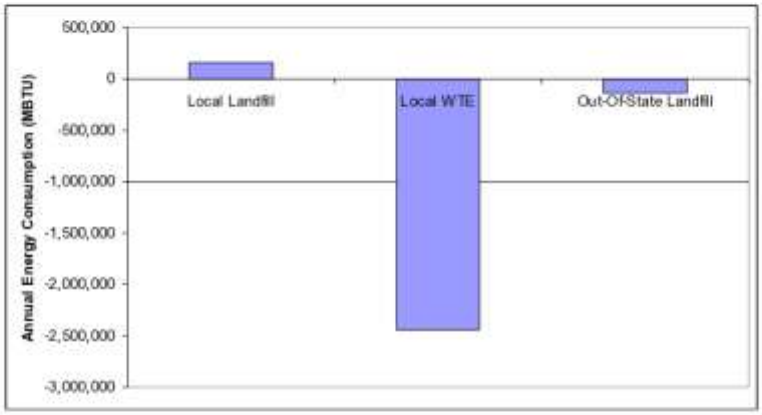


Figure 3. Net Energy Consumption by Strategy.

4.2 Criteria Pollutants

Figure 4 illustrates the results of the different MSW management strategies with respect to emissions of criteria air pollutants, including particulate matter (PM), sulfur oxides (SOx), nitrogen oxides (NOx), carbon monoxide (CO), and lead (Pb). Because criteria pollutants are highly correlated to energy production, the differences in criteria pollutants generally tend to track with the differences in net energy consumption between the strategies. On a life-cycle basis, transportation is a relatively insignificant factor when compared to energy and materials production (or recovery).

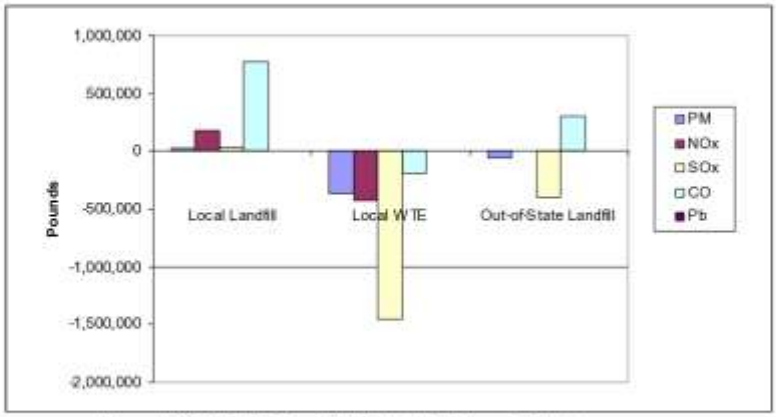


Figure 4. Net Total Criteria Pollutant Emissions by Strategy.

4.2.1 Particulate Emissions

Particulate matter, or PM, is the term for particles found in the air, including dust, dirt, soot, smoke, and liquid droplets. Particles can be suspended in the air for long periods of time. They come from a variety of sources and, in the case of waste management and this study, result largely from fuels combustion in vehicles, combustion of waste, and combustion of fuels for the production of electrical energy. PM is a major source of haze that reduces visibility, can cause erosion of structures, and can lead to health effects associated with lung and heart disease.

As shown in Figure 4, the local WTE and out-of-state landfill strategies result in a net PM offsets, which means a greater amount of PM emissions are avoided that are created by virtue of materials and energy recovery. The WTE strategy has a higher avoidance of PM emissions than the out-of-state landfill strategy due to the displacement of greater amount of power produced in the utility sector (i.e., on a per ton basis, WTE produces a greater energy offset)

4.2.2 Nitrogen Oxide Emissions

NOx emissions can lead to such environmental impacts as smog production, acid deposition, and decreased visibility. NOx emissions are largely the result of fuel combustion and typically are largest for waste collection activities. Offsets of NOx emissions can result from the displacement of energy production and/or the recycling of materials (which also saves energy).

Figure 4 shows the same trend in NOx emissions as for PM. The WTE strategy exhibits a large NOx savings. The out-of-state landfill strategy, due to its large percent of gas-to-energy reduces NOx as compared to the local landfill option with gas flaring. Again, the amount of NOx emissions offset by each strategy is governed largely by the NOx emissions associated with electrical energy production in the regional electricity grid mix of fuels.

4.2.3 Sulfur Oxide Emissions

SOx emissions can lead to such environmental impacts as acid deposition, corrosion, and decreased visibility. Similar to NOx emissions, SOx emissions are largely the result of fuel combustion processes. Likewise, SOx emission offsets can result from the displacement of combustion activities, mainly fuels and electrical energy production, as well as the use of lower sulfur-containing fuels.

Figure 4 shows that the WTE and out-of-state landfill strategies result in net offsets of SOx emissions. The WTE strategies has a larger net offset than the any of the landfill strategies due primarily to its efficiency at recovery energy and offsetting fossil based electrical energy production.

4.2.4 Carbon Monoxide Emissions

CO is a colorless, odorless gas that is formed when carbon in fuel is not burned completely. It is a component of motor vehicle exhaust, which contributes about 56% of all CO emissions nationwide. Other sources of CO emissions include industrial processes (such as metals processing and chemical manufacturing) and power production. CO contributes to the formation of smog, which can trigger serious respiratory problems.

Figure 4 illustrates that CO follows the same trend as seen in the PM, NOx, and SOx emissions; that is, the greater the level of recycling and energy recovery, the lower the CO emissions (or greater the CO emissions offset). The WTE strategy exhibits the greatest level of net offset for CO emissions.

4.2.5 Lead Emissions

The major sources of lead emissions have historically been motor vehicles (such as cars and trucks) and industrial sources. Due to the phase-out of leaded gasoline, metals processing is the major source of lead emissions to the air today. The highest levels of lead in air are generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufacturers. People, animals, and fish are mainly exposed to lead by breathing and ingesting it in food, water, soil, or dust. Lead accumulates in the blood, bones, muscles, and fat, leading to a variety of health effects. Infants and young children are especially sensitive to even low levels of lead.

As shown in Figure 4, lead emissions are too small from most scenarios to show up on the chart. The highest levels of lead emissions result from the WTE strategy and are directly related to the combustion process itself.

4.3 Carbon Emissions

Carbon emissions contribute to the greenhouse effect; thus, these emissions can lead to climate change and its associated impacts. Carbon emissions can result from the combustion of fossil fuels and the biodegradation of organic materials (e.g., methane gas from landfills). Offsets of carbon emissions can result from the displacement of fossil fuels, materials recycling, and the diversion of organic wastes from landfills. We report carbon emissions in units of MTCE, derived as follows:

$$[(\text{Fossil } CO_2 * 1 + CH_4 * 21) * 12/44] \ / \ 2200$$

As shown in Figure 5, the WTE strategy results in a net offset of carbon emissions. These offsets are directly related to the following aspects:

- Electrical energy production offsets carbon emissions from the generation of electrical energy using fossil fuels in the utility sector.
- Materials recovery and recycling offsets carbon emissions by avoiding the consumption of energy that otherwise would be used in materials production processes.
- Landfill disposal, which creates methane gas, a potent GHG, is avoided.

The figure also illustrates the impact that moving from a landfill gas flaring to energy recovery system has on carbon emissions.

In all strategies, the amount of carbon emissions avoided via energy recovery is highly dependent on the mix on fuels that is displaced on the regional electrical energy grid. If the grid mix is largely comprised of fossil fuels, the offset with be greater than a case where the regional grid mix is comprised of significant nuclear or renewable power sources. In this analysis, the regional grid is primarily coal.

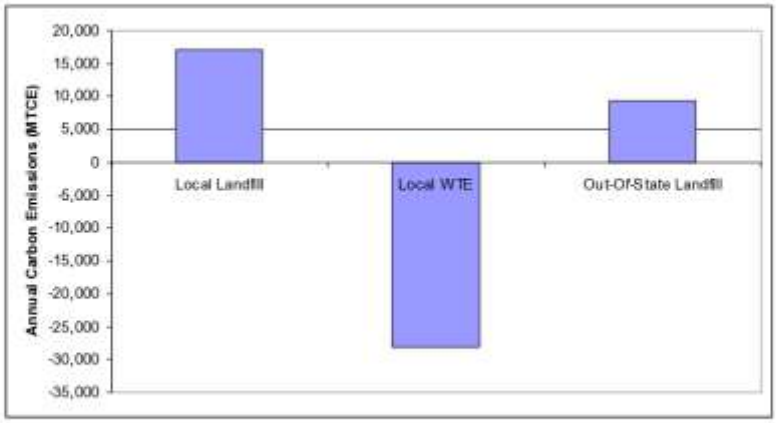


Figure 5. Net Total Carbon Equivalent Emissions by Scenario.

5.0 Conclusions

The results of this analysis are useful for identifying the potential cost and environmental implications for post-recovery MSW management strategies and to demonstrate tradeoffs exist between cost and environmental aspects. On a cost basis, it appears that the local landfill and WTE alternatives are comparable and less expensive than the out-of-state landfill alternative. On an environmental basis, it appears that the higher materials and energy recovery associated with the WTE alternative creates significant environmental benefits as compared to the landfill alternatives. On a greenhouse gas basis, the WTE strategy can reduce/avoid approximately 35,000 to 45,000 MTCE per year as compared to the alternative landfill strategies.

The results presented in this report should be used as general indicators since they represent process averages. Analyses of specific technologies or facilities may produce different results.

Attachment A
Background Information About the MSW DST

The MSW DST was developed through a cooperative agreement between the U.S. EPA's Office of Research and Development and RTI's Center for Environmental Analysis to assist communities and other waste planners in conducting cost and environmental modeling of MSW management systems. Users can evaluate the numerous MSW management strategies that are feasible within a community or region and identify the alternatives that are economically and environmentally efficient, making tradeoffs if necessary.

The MSW DST allows users to analyze existing waste management systems and proposed future systems based on user-specified information (e.g., waste generation levels, waste composition, diversion rates, infrastructure). The current components included in the MSW DST are waste collection, transfer stations, material recovery facilities (MRFs), mixed MSW and yard waste composting, combustion and refuse-derived fuel production, and conventional or bioreactor landfills. Existing facilities and/or equipment can be incorporated as model constraints to ensure that previous capital expenditures are not negated by the model solution.

As illustrated in Figure 1-1, the MSW DST consists of several components, including process models, waste flow equations, an optimization module, and a graphic user interface (GUI). The process models consist of a set of spreadsheets developed in Microsoft Excel. These spreadsheets use a combination of default and user-supplied data to calculate the cost and life-cycle coefficients on a per unit mass basis for each of the 39 MSW components being modeled for each solid waste management unit process (collection, transfer, etc.). Each process model describes and represents the essential activities that take place during the processing of waste items. For example, the collection model includes parameters for waste collection frequency, collection vehicle type and capacity, number of crew members, and number of houses served at each stop. Although national average default values are included in the MSW DST for such parameters, users can override the default values with site-specific information. These operational details, which are input by the user to represent an MSW management system, are then synthesized in the process model to estimate the cost of processing as a function of the quantity and composition of the waste entering that process. The resulting cost coefficients from each waste management process model are then used to estimate the cost of that option.

The MSW DST also contains models for ancillary processes that may be used by different waste management processes. These models calculate emissions for fuels and electrical energy production, materials production, and transportation. Electricity, for example, is used in every waste management process. Based on the user-specified design information and the emissions associated with generating electricity from each fuel type, the MSW DST calculates coefficients for emissions related to the use of a kilowatt hour of electricity. These emissions are then assigned to waste stream components for each facility that uses electricity and through which the mass flows. For example, MRFs use

electricity for conveyors and facility lighting. The emissions associated with electricity generation would be assigned to the mass that flowed through that facility. Users can specify whether the emissions associated with generating electrical energy are based on a national, regional, or user-defined mix of fuel.

The optimization module is implemented using a commercial linear programming solver called CPLEX. The model is constrained by mass flow equations that are based on the quantity and composition of waste entering each unit process and that intricately link the different unit processes in the waste management system (i.e., collection, recycling, treatment, and disposal options). These mass flow constraints preclude impossible or nonsensical model solutions. For example, these mass flow constraints will exclude the possibility of removing aluminum from the waste stream via a mixed waste MRF and then sending the recovered aluminum to a landfill. The optimization module uses linear programming techniques to determine the optimum solution consistent with the user-specified objective and mass flow, and user-specified constraints. Examples of user-specified constraints are the use of existing equipment/facilities and a minimum recycling percentage requirement.

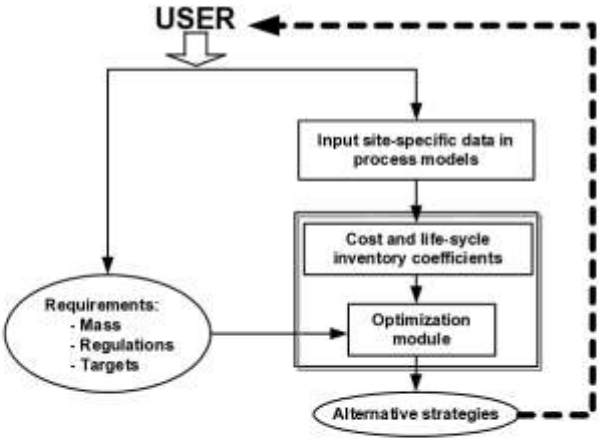


Figure 1-1. Conceptual Framework for the MSW DST.

The environmental aspects associated with a defined MSW management strategy are estimated in terms of annual net cost, energy consumption, and environmental releases (air, water, solid waste). For example, waste collection vehicles consume fuel and release several types of air pollutants in their exhaust. The collection process model of

the MSW DST uses information about the quantity and composition of waste generated and a host of collection route parameters to estimate the amount of fuel consumed and air emissions by waste constituent collected. In addition, the environmental burdens associated with producing the fuel used in the collection vehicles are calculated and included in the collection results. All process modules in the MSW DST operate in a similar manner and express results as a function of the quantity and composition of the waste entering each process.

In some waste management processes, cost, energy, and emission offsets may occur. For example, diverting recycling materials from the waste stream results in a revenue stream and can displace energy consumption and emissions associated with virgin materials production. Similarly, waste management processes that recover energy (e.g., WTE, landfill gas utilization) will displace energy production in the utility sector and thereby avoid fossil fuel production- and combustion-related emissions. In applying the MSW DST, any materials or energy recovery-related benefits are netted out of the results for each process.

Attachment B
Sensitivity Analysis for Key Parameters

In this attachment, sensitivity analysis results are presented for three main items of the analysis based on issues and concerns raised by reviewers, including:

1. The use of rail haul instead of truck haul for out-of-state landfill disposal;
2. Changing electrical energy grid mix of fuels; and
3. Increasing recycling rates over time and its impact on waste available for WTE.

Analyses of these conditions were conducted to observe their impact on the net total results to determine their significance.

B.1 Analysis of Truck versus Rail Haul for out-of-state landfill disposal:

To investigate the impact and sensitivity of using rail haul instead of truck haul for out-of-state landfill disposal, the following scenarios were analyzed:

- Out-of-state landfill disposal with original truck haul (200 mile)
- Out-of-state landfill disposal with 100 mile rail haul
- Out-of-state landfill disposal with 150 mile rail haul
- Out-of-state landfill disposal with 200 mile rail haul

The results from these scenarios are illustrated in Figures B-1 through B-3. In general, rail haul is shown to be a more cost and energy efficient mode to transport waste (see Figure B-1). For energy, the results are all negative values because the out-of-state landfill recovers energy from landfill gas (see also Figure 3 in the main portion of the report). The negative value can be interpreted as follows: the amount of energy to collect, transport, and dispose of the waste is less than the amount of electrical energy recovered from combusting the landfill gas in an internal combustion energy generator set. This also includes "upstream" energy savings associated with not having to produce fossil fuels for electricity production. At the comparable haul distance of 200 miles, the net difference between the truck and rail haul scenario can be taken and shows that the rail haul scenario consumes approximately 25,000 MBTU less than the truck haul scenario.

On a greenhouse gas basis, Figure B-3 shows that the truck and rail haul scenarios do not appear to be significantly different. In general, transportation is not typically a significant contributor to greenhouse gas emissions in waste management analyses. However, the transportation sector as a whole in the U.S. is a large contributor. The key greenhouse gas driver in waste management analyses is landfill gas emissions.

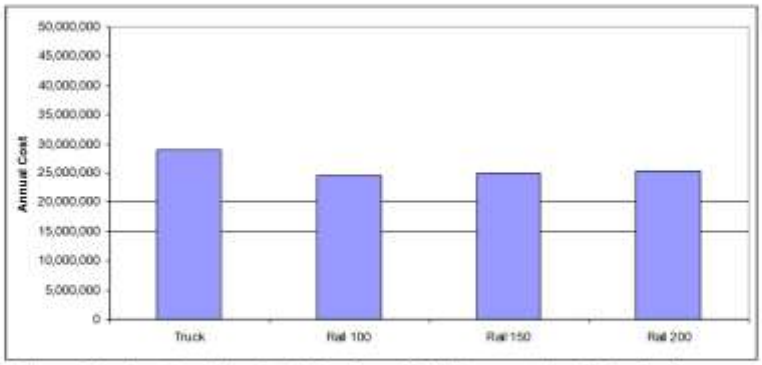


Figure B-1. Cost Sensitivity Results for Long-Haul Transportation Using Truck and Rail Modes and Variation of Rail Haul Distance.

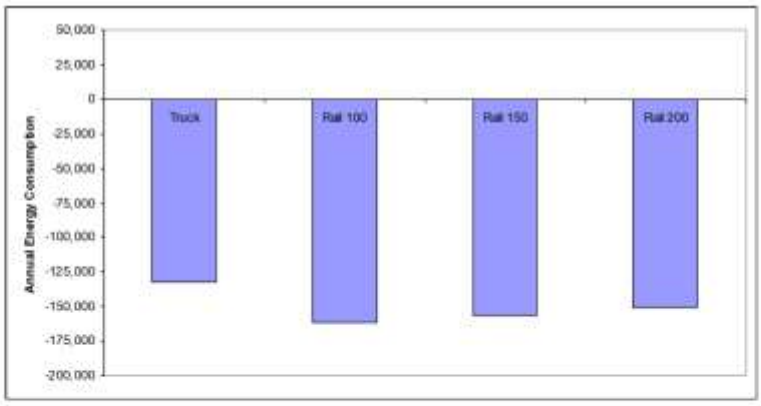


Figure B-2. Energy Consumption Sensitivity Results for Long-Haul Transportation Using Truck and Rail Modes and Variation of Rail Haul Distance.

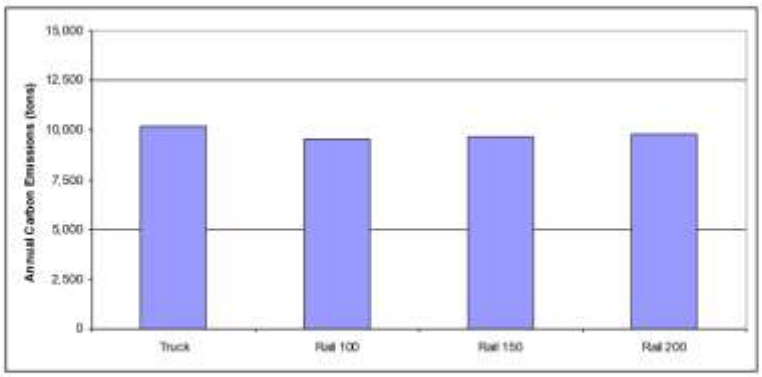


Figure B-3. Carbon Emission Sensitivity Results for Long-Haul Transportation Using Truck and Rail Modes and Variation of Rail Haul Distance.

B.2 Analysis of Changing Electrical Energy grid mix of fuels over time

To investigate the impact and sensitivity of changing the electrical energy grid mix of fuels on the net total WTE scenarios, the following scenarios were analyzed:

- WTE using the original grid mix of 94% coal, 1.5% natural gas, and 4.5% other.
- WTE using the alternative grid mix of 90% coal, 5.5% natural gas, and 4.5% other.
- WTE using the alternative grid mix of 80% coal, 15.5% natural gas, and 4.5% other.
- WTE using the alternative grid mix of 70% coal, 25.5% natural gas, and 4.5% other.

The results from these scenarios are illustrated in Figures B-4 and B-5. In general, the amount of energy consumed remains the same as shown in Figure B-4. On a greenhouse gas basis, Figure B-5 shows that the change in the grid mix as analyzed does not have a significant impact on greenhouse gas emissions.

If the analysis looked instead at displacing coal and/or natural gas with more non-fossil fuels (e.g., biofuel) or other alternative energy sources (e.g., solar, wind, hydro), then the impact would likely be more significant.

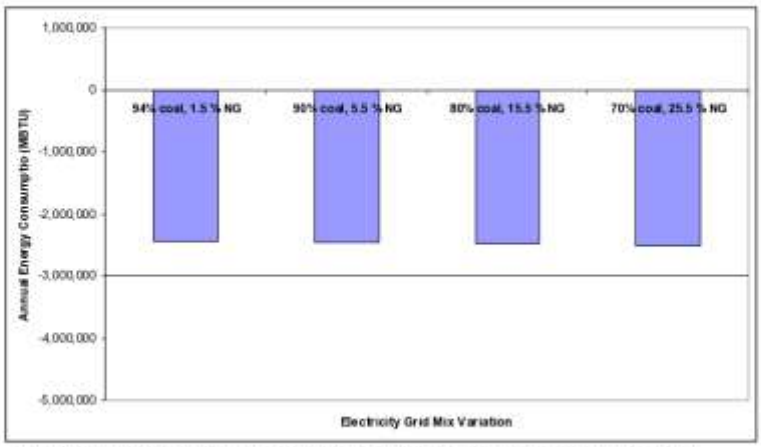


Figure B-4. Energy Consumption Sensitivity Results for WTE Using Alternative Electricity Grid Mixes of Fuels.

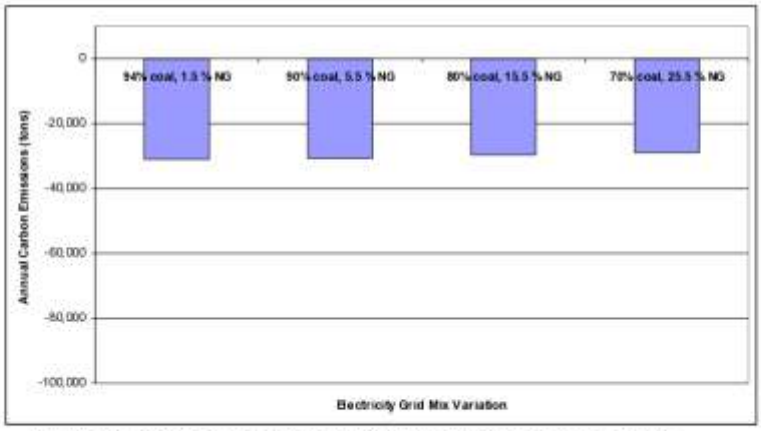


Figure B-5. Carbon Emission Sensitivity Results for WTE Using Alternative Electricity Grid Mixes of Fuels.

B.3 Analysis of Increasing Recycling Rates Over Time

In addition to the sensitivity analyses conducted for the use of rail haul instead of truck haul for out-of-state landfill disposal and changes in the electrical energy grid mix of fuels, a sensitivity analysis was also conducted to investigate the impact of recycling rate increases from the period 2005 to 2024. The county has a goal to reach 60% recycling by the year 2024.

Shown in Table B-1 is the current waste recycling and residuals (post-recycling waste that must be disposed or used for WTE). The calculated recycling rate for these current projections is approximately 37%. As new recycling rate goals are implemented, the amount of waste recycled increases proportionately to the tonnage generated in a given year. Likewise the amount of residual waste increases based on the growth in waste generation over time and also decreases depending on the amount of waste recycled. For example, as shown in Table B-1, the tonnage of waste generated is projected to increase from 321,700 tons in 2005 to approximately 460,300 tons by 2024. As the recycling rate increases over the same time period from 35% in 2005 to 60% in 2024, the amount of waste recycled increases from 112,300 tons in 2005 to 276,200 tons in 2024. The amount of residual waste remaining after recycling remains steady and then decreases slightly as recycling rates are pushed up past 50%. If waste generation increases faster than projected in the table, then more waste will be recycled and more residual will remain for landfill disposal or WTE. Likewise, if waste generation increases at a slower rate than projected, then less waste will be recycled and less residual will remain for landfill disposal or WTE. The "Adjusted Residual" values represent annual averages that do not include C&D wastes. Therefore they do not represent the total waste amount that has to be managed by a disposal facility.

Table B-1. Current County Projected Recycling and Residuals Tonnage and Projected Tonnage Using Proposed Recycling Rate Goals.

	2,005	2,010	2,015	2,020	2,024
Residuals	209,400	222,540	242,566	268,237	290,349
Recycled (No C&D)	112,294	129,675	142,010	157,039	169,984
Total Tonnage	321,694	352,216	384,576	425,276	460,332
Percent Recycled	35%	37%	37%	37%	37%
Recycling Rate Goals	35%	40%	50%	55%	60%
Adjusted Residual	209,400	211,329	192,288	191,374	184,133
Adjusted Recycled	112,294	140,886	192,288	233,902	276,199
Materials	90,000	112,000	125,000	198,000	198,000
Composting	22,294	28,886	67,288	35,902	78,199

Although the tonnage of waste changes over time, it was projected that the composition of the waste remains constant. Recycling includes both materials recycling and organic waste composting. Given that there is a finite amount of recyclable material in the waste,

once the recycling rate reaches about 55%, there is no longer readily available material (i.e., paper, plastic, glass, metals) to recycle and thus to reach the 60% goal only organics (yard and food waste) composting is employed).

Two sets of recycling scenarios were analyzed, differing only in how the post-recycling residuals are managed:

1. Recycling and landfill disposal (with gas collection and flaring) of the residuals.
2. Recycling and WTE of the residuals.

The results from these scenarios are summarized in Figures B-6 and B-7. Figure B-6 shows the net energy consumption for the recycling rate scheme and either landfill disposal of the residuals or use of the residuals for WTE. As shown in the chart, both scenarios exhibit a negative energy consumption trend. This is due to recycling of materials and associated offset of virgin materials production and related energy savings. The recycling and WTE scenario results in a greater net energy savings than the recycling and landfill scenario due to the production of electricity and associated offset of electricity produced by fossil fuels in the utility sector. The difference between the two lines gives the increased energy savings of WTE versus landfill disposal of the residuals.

Figure B-7 shows the net carbon emissions for the recycling rate scheme and either landfill disposal of the residuals or use of the residuals for WTE. Like the net energy results, both scenarios exhibit a negative carbon emission trend. This is likewise due to recycling of materials and associated offset of virgin materials production and related energy savings. The recycling and WTE scenario results in a greater net carbon emission savings than the recycling and landfill scenario due to the production of electricity and associated offset of electricity produced by fossil fuels in the utility sector as well as avoidance of landfill disposal where landfill gas (a potent greenhouse gas) would be produced. The difference between the two lines gives the increased carbon emission savings (or avoidance) of WTE versus landfill disposal of the residuals.

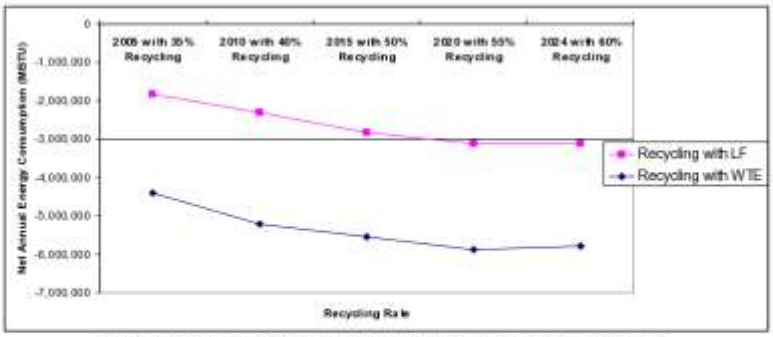


Figure B-6. Energy Consumption Results Analyzing Variations in Recycling Rates.

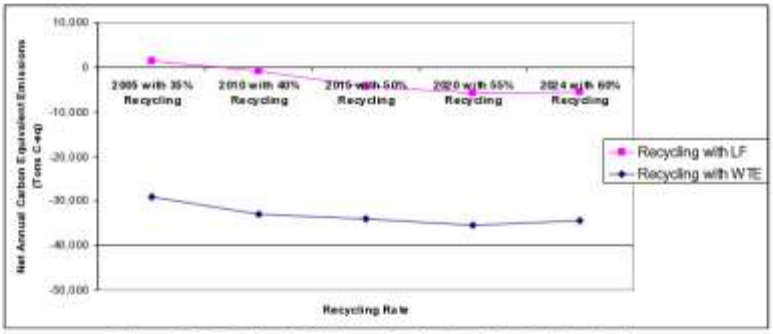


Figure B-7. Carbon Emissions Results Analyzing Variations in Recycling Rates.

Appendix N

SUPPLEMENTAL WASTE-TO-ENERGY INFORMATION

Memorandum of Understanding
By and Among
Carroll County, Maryland,
Frederick County, Maryland
And
Northeast Maryland Waste Disposal Authority
For the Development of a Regional Energy Recovery Facility

Energy Recovery Agreement
Between
Frederick County, Maryland
And
Northeast Maryland Waste Disposal Authority
Dated July 29, 2009

Recycling Plan
Frederick County and Carroll County WTE Facility
August 2009
Wheelabrator

Memorandum of Understanding
By and Among
Carroll County, Maryland,
Frederick County, Maryland
and
Northeast Maryland Waste Disposal Authority
for the Development of a Regional Energy Recovery Facility

Whereas, Carroll County, Maryland and Frederick County, Maryland (collectively, the "Counties") are members of the Northeast Maryland Waste Disposal Authority (the "NEA") and each have a representative on the Authority's Board of Members; and

Whereas, the NEA has procured, financed, owns and operates two energy recovery facilities ("ERF") which generate steam and/or electricity, and has experience in developing such projects; and

Whereas, according to the Director of the Maryland Energy Administration, "Maryland continues to consume far more electricity than we generate. Not only does this cause high prices, but we now face the possibility of summertime shortages (of electricity) as early as 2011"[1] and it is in the best interest of the Counties' residents that adequate supplies of electricity are available for public purposes; and

Whereas, the Counties desire that non-recycled solid waste be converted into energy in a modern, renewable energy facility, because the alternate method, long hauling of waste to out of state landfills is expensive and not sustainable; and

Whereas, Frederick County desires to have an optional disposal method for sewage sludge; and

Whereas, the Counties hereby evidence their intent to cooperate in the development of a new ERF (the "Facility") because the energy produced by this type of facility is deemed by the United States Environmental Protection Agency ("US EPA") and the European Union to be a source of renewable energy, and is preferred to long hauling and land filling trash; and

Whereas, the use of an ERF reduces net emissions of greenhouse gases; and

Whereas, the proposed Facility will re-use approximately 800,000 gallons per day of treated wastewater effluent which otherwise would be discharged into the Monocacy or Potomac Rivers; and

Whereas, the NEA has conducted a multi-step, public procurement for the design, permitting, construction and operation of the Facility; and

Whereas, with regard to the Facility, the NEA has issued a Best and Final Offer Document, has evaluated responses, assisted the Counties in the selection of the best offer, assisted with the negotiation of a Service Agreement (between the NEA and the Preferred Vendor) and Energy

Recovery Agreements between each County and the NEA for presentation to the governing bodies of each County.

Now, therefore, the NEA and the Counties hereby agree to evidence their mutual intentions with regard to the Facility as described in this Memorandum of Understanding.

Part I: Description of the Facility

1) The Facility will be located on a site to be provided by Frederick County through a long-term lease with the NEA.

2) The Facility will be owned by the NEA on behalf of the Counties.

3) The Facility will be a modern, state-of-the-art, energy recovery facility which meets or exceeds all of the standards set forth by Federal, State, and local law.

4) The Facility will accept municipal solid waste, sewage sludge and other processible waste materials allowed by permit. It will generate electricity and recycle ferrous and non-ferrous metals.

5) The Facility is expected to have a design capacity of 547,500 tons per year and will have a minimum processing capacity of 503,700 tons per year of waste, sewage sludge and other acceptable waste materials.

Part II: Responsibilities of the NEA

6) The NEA has completed a multi-step procurement which began with a Request for Qualifications, proceeded to a Request for Proposals and finished with presentation of Best and Final Offers.

7) The NEA and representatives of each County, with assistance from the Consulting Engineer, selected the best proposal, the "Preferred Vendor" for the design, construction and operation of the Facility.

8) The NEA and its legal counsel have prepared a final draft Service Agreement to be executed by and between the NEA and the selected vendor (the "Vendor"), and the terms of the Service Agreement shall be subject to the approval of the County Representatives.

9) The NEA has prepared for County review an Energy Recovery Agreement for each County. Each Energy Recovery Agreement describes the benefits and responsibilities of each County with regard to the Facility, the NEA and the Vendor and gives each County the right to use a share of the Facility capacity. The NEA developed a Energy Recovery Agreement utilizing the following guidelines:

   a. Energy revenues, recovered material revenues (metals, ash and any other future product) and any other revenue that varies in accordance with waste deliveries

will be credited against Facility costs and expenses on a pro-rated basis according to the actual waste tonnage deliveries of the Counties.

b. Interest earnings and any other revenue that are fixed or are not related to waste deliveries will be credited to the Counties on a pro-rated basis according to the allocated design capacity.

c. Facility expenses that are fixed or not tonnage related, including debt service and the base operations and maintenance costs will be paid by the Counties on a pro-rated basis according to the allocated design capacity of each County; and costs that vary in accordance with tonnage deliveries will be allocated to the Counties in accordance with actual waste tonnage deliveries of the Counties.

d. All uncontrollable circumstance costs will be shared by the Counties pro-rated based upon their allocated design capacity.

10) After each Energy Recovery Agreement is approved by the governing bodies of each County, the NEA will issue a notice to proceed to the Vendor. The Vendor will prepare all Facility permit applications for review and approval by the NEA and Counties. After approval by the NEA and the Counties, the Vendor will submit the permit applications to the appropriate permitting agencies. All permit applications will be in the NEA's name.

11) After the signing of both of the Energy Recovery Agreements, the Authority will invoice the Counties on a once monthly basis in accordance with the terms of the Energy Recovery Agreements for project development costs, subject to approval of a budget by both Counties. The Authority will provide supporting documentation for all invoices in reasonable detail and in form and content reasonably acceptable to the Counties. At no time will the Counties pay for NEA staff time. Certain out of pocket expenses and all third party consultant and advisor expenses are reimbursable expenses, and there is no mark-up by the NEA. Bills will include all invoices and bills received by the Authority on or before the 25th day of the preceding month.

12) Once all of the Facility permits are received by the NEA, the NEA will develop all required financing documents (the "Financing Documents"), including bond documents, the trust indenture, and other required documents.

13) Certain design, engineering and equipment specification work must be done prior to submitting permit applications to the Maryland Department of the Environment and other regulatory agencies. Should both Counties elect not to go forward with the Project prior to financing, the NEA will stop work on the Project, and the Counties will reimburse the NEA for actual design, engineering and permitting work performed by the NEA but each County's obligation will not exceed $1.5 million or combined $3.0 million. Should Frederick County elect not to go forward with the Project, before Carroll County elects not to go forward with the Project, Frederick County will be responsible for reimbursing the project costs. If Carroll County elects not to go forward, and Frederick County cannot find a substitute equity partner, Carroll County shall pay the project costs. In such

an event NEA will work diligently to find a substitute equity partner, which Frederick County can consider as a replacement for Carroll County. However, the final approval of a substitute equity partner shall be solely Frederick County's decision. The maximum obligation under this reimbursement requirement for either County is $1.5 million, unless the County is required to reimburse all project costs under the terms of Section 13, in the event the maximum obligation shall $3 million.

14) If the financing is approved by both Counties, the NEA shall sell Revenue Bonds to finance the Facility, including but not limited to fixed construction cost, construction management costs, capitalized interest during construction, debt service reserve funds and other costs related to the Facility. Both Counties must approve the Revenue Bonds sources and uses of funds prior to issuance.

15) The NEA will provide each County with proposed terms of the Revenue Bonds and the related sources and uses of funds and will not proceed with issuance of the Revenue Bonds if either County objects to the issuance of the Revenue Bonds; the Counties shall have 45 days after receiving the proposed terms of the Revenue Bonds to object to them and not authorize the issuance of the Revenue Bonds for the project.

16) The NEA shall monitor the design, construction, and invoicing by the Vendor, approve payment requisitions, manage the retainage and approve the acceptance tests in accordance with the Service Agreement. Both Counties have the right to participate in all of these activities.

17) During the operations period, beginning with the acceptance of waste at the Facility and extending through the terms of each of the Energy Recovery Agreements, the NEA shall among other things, enforce the provisions of the Service Agreement, invoice each County for its share of costs, keep books and records, provide an annual audit of the Facility expenses, staff monthly project review meetings, maintain an inventory of all equipment, and approve withdrawals from the Facility Operation & Maintenance reserve fund.

18) Prior to submission of permit applications, the NEA shall execute a site lease with Frederick County for the property necessary to construct and operate the Facility during its expected useful life. The terms and conditions of the site lease will be provided to Carroll County by the NEA for its comment and review prior to the execution of the site lease.

19) Prior to Facility construction, the NEA will execute a Public Works Utility Agreement with Frederick County for the development, operation and maintenance of a pump station and force main to supply non-potable utility water from the Ballenger Creek Waste Water Treatment Plant discharge pipe or alternate Frederick County non-potable water system.

20) The NEA will, at the direction of Frederick County, modify the County's transfer station in order to allow the transfer station to operate as a materials recovery facility (MRF) or

develop a new MRF. The costs for the MRF will be borne by Frederick County, which may recover the costs from MRF participants.

Part III: Responsibilities of Frederick County and Carroll County

21) Frederick County and Carroll County will each sign a separate Energy Recovery Agreement with the NEA.

22) Under the Energy Recovery Agreement, Frederick County will be allocated 60% of the Facility design capacity and Carroll County will be allocated 40% of the Facility's design capacity.

23) Only Frederick County will earn a Renewable Energy Dividend which shall be a share of gross electricity revenues. The Renewable Energy Dividend shall reduce the net cost of disposal for Frederick County, or at the direction of the County Representative, may be distributed to the Solid Waste Fund once each year. Such amount shall be 1% of gross energy revenues in the first year, and shall increase to 5% of gross energy revenues over a five year period. Thereafter, the amount shall be 5% of gross energy revenues. The estimated amount of the Renewable Energy Dividend credited to Frederick County is $300,000 the first year of operations (in FY 2009 Dollars).

24) In order to minimize truck traffic, Carroll County will deliver most of its waste in transfer trailers unless an emergency or other condition at its transfer station occurs, in Carroll County's reasonable discretion, which prevents such deliveries in trailers.

25) Carroll County agrees to use truck routes and delivery times, all of which are approved by Frederick County, which shall not be unreasonably withheld.

26) The net operating costs (debt service, operating & maintenance, pass through, administration costs less revenues) shall be calculated in accordance with Part II (item 9) of this Memorandum of Understanding. In no case shall either County be responsible for paying for more than its allocated capacity, unless an agreement has been reached between the Counties. Either County may request services unique to its County in which case the additional costs for such request will be paid solely by the requesting County.

27) If Carroll County does not need its entire allotted facility capacity it will first offer the capacity to Frederick County. If Frederick County declines the offer, Carroll County may make available unused capacity to another entity. Carroll County shall require that any entity making use of the avaible unused capacity must comply with all applicable provisions of this MOU as well as all regulations and contract provisions governing the use and operation of the facility.

28) If Frederick County does not need its entire allotted facility capacity it will first offer the capacity to Carroll County. If Carroll County declines the offer, Frederick County may make available unused capacity to another entity. Frederick County shall require that any

entity making use of the avaible unused capacity must comply with all applicable provisions of this MOU as well as all regulations and contract provisions governing the use and operation of the facility.

29) Each County will be responsible for the cost of transportation for its share of ash residue and to provide a permitted ash residue recycling location (such as a Subtitle D landfill). The amount of ash each County will be responsible shall be prorated with their tonnage delivery including marketed capacity.

30) Frederick County will, at its expense, provide weigh master staff for the scale house at the Facility during the daytime shift. Nighttime deliveries will be automatically weighed and recorded using radio frequency identification tags and computer system or another comparable automated system.

31) Both Counties acknowledge that the financing and development process and associated expenses are a necessary function of pursuing the development of the Facility, and that there is no guarantee that the Facility will be permitted or financed.

32) Either or both of the Counties may choose to recover its Facility development expenses in the issuance of Revenue Bonds.

33) Prior to the issuance of the Revenue Bonds, the Counties will develop a protocol for the terms of ownership and control of the Project upon final payment of the NEA Revenue Bonds and expiration of the Service Agreement.

34) Prior to the issuance of NEA Revenue Bonds, each County shall notify the NEA of its interest in purchasing the electricity, capacity, renewable energy credits and ancillary services. Frederick County will have the rights to 60% of the energy output, approximately 27 MW. Carroll County will have the rights to 40% of the energy output, approximately 18 MW. The Counties may elect to purchase the Energy from time to time, by giving notice to the NEA and entering into an energy purchase contract with the NEA. If the Counties do not elect to purchase the Energy, or any attributes derived therefrom, the NEA will sell the energy and attributes at the available market prices based on a competitive process. All proceeds from the sale of energy and attributes will be credited to the respective County, and applied to reduce the net cost of disposal.

Part IV: Responsibilities of the Vendor

35) The NEA shall require that the Vendor sign a Service Agreement with NEA.

36) The NEA shall require that the Vendor design, build and operate the Facility for a term to be selected by the Counties prior to financing, and which term is co-terminus with the term of the Revenue Bonds.

37) The NEA shall require that the Vendor guarantee the following, and be subject to damages for non-compliance:

a. Annual Waste Processed;

b. Annual Energy Production;

c. Annual Ferrous and Non-Ferrous Metal Recovery Efficiency;

d. Compliance with all Facility Permit Conditions and all applicable Federal, State and local laws, rules and regulations (to include payment of all applicable fines or penalties arising from violation of such);

e. Utility and Residue Guarantees.

It is Acknowledged and Agreed that the Counties and the NEA will work together in good faith to develop the Facility and negotiate contracts based on the general terms above.

This Memorandum of Understanding evidences the intentions of the parties with regard to the facility.

All further financial obligations of the Counties' shall be memorialized in the Energy Recovery Agreement to be executed by and between Carroll County and the NEA and Frederick County and the NEA, in case of any conflict between that agreement and this MOU, the provisions of the Energy Recovery Agreement shall prevail.

This Memorandum of Understanding is signed this 23rd day of July 2009.

ATTEST:

BOARD OF COUNTY COMMISSIONERS
OF FREDERICK COUNTY, MARYLAND

Mary E. Baker

By: Jan H. Gardner
Name: Jan H. Gardner
Title: President

ATTEST:

BOARD OF COUNTY COMMISSIONERS
OF CARROLL COUNTY, MARYLAND

Kathryn W. Rouschenberg

By: Steven D. Powell
Name: STEVEN D. POWELL
Title: CHIEF OF STAFF

REVIEWED BY:
COUNTY ATTORNEY'S OFFICE FOR
CARROLL COUNTY
DATE: 7-23-09

ATTEST:

NORTHEAST MARYLAND WASTE
DISPOSAL AUTHORITY

M. Catherine Cobb

By: Robin B. Davidov
Name: Robin B. Davidov
Title: Executive Director

(1) Letter from Malcolm D. Woolf, Director, Maryland Energy Administration to Governor O'Malley, January 14, 2008.

ENERGY RECOVERY AGREEMENT

Between

FREDERICK COUNTY, MARYLAND

and

NORTHEAST MARYLAND WASTE DISPOSAL AUTHORITY

Dated July 29, 2009

TABLE OF CONTENTS

Page

ARTICLE I 2

Definitions 2
County's Rights 2
Participation by Carroll County 2
Facility Site 2
Sludge and Wastewater Effluent 2
Renewable Energy Dividend 3

ARTICLE II CONSTRUCTION OF AND OPERATION OF THE FACILITY 3

Delivery of Waste to Facility 3
Construction of NEA Component 3
Operation And Maintenance Of Facility 4
The Company As The NEA's Provider Of Waste Disposal and Energy Recovery Services Under This Agreement 4
NEA Component Constitutes a Part of the System; No Responsibility of County with Respect to Facility 5

ARTICLE III DELIVERY OF WASTE AND PROVISION OF DISPOSAL SERVICE 5

Delivery of Waste 5
Provision of Disposal Service by NEA 8
NEA Refusal Rights 8
Recycling Of County Acceptable Waste 8
NEA Receipt of NEA Sponsored Waste 9
Waste Delivered to the Facility 9
Recycling or Disposal of Residue 10
County Covenant for Benefit of NEA 10
County Pledge 11

ARTICLE IV RECOVERY FEE AND PAYMENTS 11

Energy Recovery Fee 11
Billing of the Disposal Fee 14
Annual Settlement 15
County's Payment Obligations 15

ARTICLE V PROCESSING CAPACITY REDUCTIONS 16

Notice 16
NEA Operations During a Processing Capacity Reduction. NEA Obligations to Accept Waste 16
Changes Necessitated by Uncontrollable Circumstances 17

ARTICLE VI CONTROL RIGHTS OF PARTICIPATING COUNTIES 17

NEA Component Agreements 17

Changes in Design, Construction or Operation 18
County Approval Rights Over NEA Activities And Expenses 19
NEA Right To Take Certain Actions To Avoid Default 20
Termination for Convenience of Service Agreement 20
Other Termination Of Service Agreement 21
County Right To Inspect Facility 21

ARTICLE VII FINANCING 21

Issuance of Bonds 21
Bondholder Benefit Provisions 22
Financing And Offering Materials 22
Additional Financing 22
Cooperation with Financing 24
Compliance with Internal Revenue Code 24
Insurance Proceeds; Third Party Payments 24

ARTICLE VIII BREACH, ENFORCEMENT AND TERMINATION 24

Breach 24
Termination For Default 25
Waiver 27
Termination for Convenience or at End of Term 27
Survival of Certain Rights and Obligations 29
Dispute Resolution 29
Limitation Of Defenses 29

ARTICLE IX TERM; RENEWAL; FACILITY TRANSFER 30

Term 30
Conditions Precedent 30
Renewal 31
Sale of NEA Component 31

ARTICLE X REPRESENTATIONS AND WARRANTIES 31

Representations and Warranties of the NEA 31
Representations and Warranties of the County 31

ARTICLE XI MISCELLANEOUS 33

Insurance 33
Assignment 35
Cooperation 35
Taxes 35
Notices 35
Entire and Complete Agreement 36
Binding Effect 36
Further Assurances 36
Applicable Law 36
Counterparts 36
Rules of Interpretation 36

Amendment or Waiver 37
Relationship of the Parties 37
Public Disclosure 37
Limitation Of Liability 37
Limitation of NEA Payment Obligations To Bond Proceeds And NEA Component Revenues 37
General Obligation Not Subject to Appropriation 37

Exhibit A – Definitions and Interpretations A-1

ENERGY RECOVERY AGREEMENT

THIS ENERGY RECOVERY AGREEMENT (this "Agreement") dated as of July 29, 2009 is between the Board of County Commissioners of Frederick County, Maryland (the "County") and Northeast Maryland Waste Disposal Authority (the "NEA" and together with the County, each a "Party" and collectively, the "Parties").

RECITALS

1. The County operates the County Disposal System for solid waste generated in the County as reflected in the County's Comprehensive Solid Waste Management Plan.

2. The County provides curbside residential collection of recyclables, and transportation and processing of such recyclables. The County collects recyclable materials at a transfer station and subsequently transports and processes recyclable materials for businesses and institutions.

3. The County has determined to provide for the conversion into energy of solid waste that is not recycled using capacity at a regional resource recovery facility (the "Facility"). Nothing in this Agreement restricts any County recycling programs or requires the delivery by the County to the Facility of solid waste that the County elects to include in a recycling program.

4. The Facility will be developed, owned and operated by the NEA. The Facility will accept solid waste at the direction of the County and Carroll County, Maryland.

5. The NEA is empowered to assist the participating members to effectuate waste disposal and energy recovery programs on a regional basis. The NEA will enter into a long-term energy recovery agreement with Carroll County that is substantially similar to this agreement.

6. The Facility will generate substantial amounts of electricity (approximately 45 MW after in-house requirements are met) from the waste delivered by the County. If the County so elects, the NEA will sell a proportionate amount of such electricity to the County for use at County facilities. If not, the NEA will provide for the sale of such electricity to third parties. In all cases, all revenues from sales of electricity will reduce the County's disposal costs under this Agreement.

7. All of the Residue generated at the Facility will be screened, and ferrous and non-ferrous metals removed and recycled. If there is no market for the remaining Residue, each Participating County will accept its proportionate share of Residue. The County has elected to recycle its share of Residue as alternate daily cover at the County landfill. The NEA will deliver the Residue to the County landfill. The County will only accept Residue which meets permit requirements and environmental standards for the County landfill, which is a Subtitle D landfill.

8. The County will provide for a site located in the County for the Facility and lease such site to the NEA, pursuant to a long-term Facility Site Lease, (the "Facility Site Lease") for the expected useful life of the Facility.

9. The Facility will be constructed and operated for the NEA by a qualified, full-service vendor (the "Company") under a long-term construction and operation agreement (the "Service Agreement").

10. The NEA will finance the costs of the Facility from the proceeds of its revenue bonds. The bonds of the NEA shall not be a debt of the County nor shall the bonds of the NEA constitute a full faith and credit pledge of the taxing powers of the County. The County may elect to (1) recover its purchase price for the Facility site from the NEA bond proceeds, or (2) amortize the purchase price as a Facility Site Lease rental to be included as a component of the Fixed Operating Cost of the Facility.

Now therefore, in consideration of the premises' and of the mutual obligations undertaken herein, the Parties hereby agree as follows:

ARTICLE I
DEFINITIONS AND RIGHTS OF COUNTY

Section 1.1 Definitions. Capitalized terms used herein shall have the meanings given to such terms in Annex A hereof.

Section 1.2 County's Rights. Pursuant to this Agreement, the NEA and the County will cooperate in developing and operating the NEA Component. The NEA will not enter into the Facility Site Lease, the Service Agreement, the Bond Documents, or any other NEA Component Agreement that affects the County's Energy Recovery Fee without first receiving the approval of the appropriate County Representative, and where required by the County's Board of County Commissioners.

Section 1.3 Participation by Carroll County. The NEA will enter into a long-term energy recovery agreement with Carroll County that provides for (i) the use of 40% of the capacity of the Facility , and (ii) the payment by Carroll County of its share of the NEA's net cost of operation of the Facility (the "Carroll County Agreement"). Nothing in this Agreement shall require the County to increase the amounts due hereunder due to a default by Carroll County under the Carroll County Agreement or to pay to the NEA of any amounts due under the Carroll County Agreement.

Section 1.4 Facility Site. The County owns property located at the McKinney Industrial Park near the Ballenger Creek Wastewater Treatment Plant and will provide a portion thereof of approximately 10 acres to the NEA under the Facility Site Lease.

Section 1.5 Sludge and Wastewater Effluent.

(a) The Facility is being designed to dispose of sludge from County waste water facilities and under the Service Agreement, the Company is obligated to accept and process such sludge.

(b) The Facility is designed to beneficially reuse effluent from the County's wastewater treatment plant and the NEA shall provide the transmission pipe to deliver provision of such effluent from the County's main conduit to the Facility.

Section 1.6 Renewable Energy Dividend. From and after the Commercial Operations Date, the NEA shall pay the County a share of the revenues actually received from the sale of electricity, capacity, ancillary services and renewable energy credits (together the "Energy Revenues") which shall constitute, the "Renewable Energy Dividend" The Renewable Energy Dividend shall either be applied by the NEA as a credit against the Energy Recovery Fee to reduce the net cost of disposal for Frederick County, or at the direction of the County Representative, may be distributed to the Solid Waste Fund. The amount of the Renewable Energy Dividend shall equal the following percentages of the Energy Revenues recovered by the NEA during each Operating Year.

Operating Year	Percentage of Net Energy Revenues
1	1%
2	2%
3	3%
4	4%
5 and thereafter	5%

The estimated amount of the Renewable Energy Dividend in the first twelve months of operations is $300,000 in FY 2009 Dollars.

ARTICLE II
CONSTRUCTION OF AND OPERATION OF THE FACILITY

Section 2.1 Delivery of Waste to Facility. The County hereby designates the Facility as the central solid waste acceptance facility for the County for the disposal of non-recycled Acceptable Waste generated in the County (up to the amounts which the NEA is required to accept pursuant to this Agreement). Nothing in this Agreement requires the County to deliver to the NEA for disposal under this Agreement any solid waste that the County recycles under any County program (which may include private recycling in accordance with the Comprehensive Solid Waste Management Plan) or to require any Person to deliver recyclable materials to any place other than a County or County-approved recycling facility under such County program

Section 2.2 Construction of NEA Component.

(a) Facility. After the Financial Closing, the NEA shall, (i) cause the Company to design, construct on the Facility Site pursuant to the Facility Site Lease, install, equip, complete, start-up and test the Facility, so as to pass certain acceptance tests and permit requirements, and (ii) apply the Bond proceeds to pay the Capital Costs thereof and any other costs as provided in the Trust Indenture.

(b) Notice. The NEA shall promptly notify the County Representatives of the existence or occurrence of any circumstance of which the NEA has actual knowledge which would, in the reasonable opinion of the NEA Representative, adversely affect the ability of the Company to design, construct, install, equip and complete the Facility in accordance with the Service Agreement.

(c) Construction Information. The NEA shall provide the County with monthly construction reports and shall make available all information regarding the construction of the Facility that is in the NEA's control and is requested by the County Representative. The County Representative may attend monthly construction status meetings held with the Company.

Section 2.3 Operation And Maintenance Of Facility Following the Commencement Date, the NEA shall operate and maintain the Facility in accordance with Applicable Law and Prudent Solid Waste Management Practices. The NEA and the County acknowledge that a substantial objective of the County is to secure solid waste disposal services for the County in an environmentally sound manner and accordingly the NEA agrees that it shall cause the Company in accordance with the Service Agreement to meet its obligations with respect to the cleanliness of the Facility, compliance with environmental and other Applicable Law and, should any such nuisance condition or violation of Applicable Law occur, to expeditiously remedy the condition or violation. In addition, the NEA shall cause the Company in accordance with the Service Agreement to repair, maintain and replace the Facility's pollution control equipment in accordance with sound engineering practice so that the equipment meets the performance levels required by the Service Agreement.

Section 2.4 The Company As The NEA's Provider Of Waste Disposal and Energy Recovery Services Under This Agreement. The County acknowledges and agrees that:

(1) The NEA will enter into the Service Agreement with the Company to obtain the services of the Company to fulfill substantially all of the NEA's obligations to the County under this Agreement other than the obligations of the NEA hereunder to administer and enforce the Service Agreement and any other obligation hereunder which is not dependent or expressly conditioned upon performance by the Company under the Service Agreement. Prior to the termination of the Service Agreement, the Company's performance of its obligations under the Service Agreement constitutes performance of all of the NEA's obligations under this Agreement other than the obligations of the NEA hereunder to administer and enforce the Service Agreement and any other obligation hereunder which is not dependent or expressly conditioned upon performance by the Company under the Service Agreement.

(2) Before the termination of the Service Agreement and pursuant to the Service Agreement, the Company has agreed, in the name, on behalf and in the place and stead of the NEA, to perform certain obligations of the NEA under this Agreement, the Facility Site Lease, and certain other NEA Component Agreements.

(3) The performance by the Company on behalf of the NEA of the NEA's obligations under this Agreement constitutes performance of such obligations by the NEA for all

purposes hereof. The NEA shall not be in default of any obligation under this Agreement to cause the Company to take any action despite the failure of the Company to take such action if the NEA is diligently enforcing the provisions of the Service Agreement in accordance with this Agreement.

Section 2.5 NEA Component Constitutes a Part of the System; No Responsibility of County with Respect to Facility.

(a) The County acknowledges the NEA Component is necessary and desirable for the efficient operation of the County Disposal System and for the provision of County Disposal Services by the County and is in compliance with its Comprehensive Solid Waste Management Plan.

(b) The County is not responsible, by reason of the execution and delivery of this Agreement or any other reason whatsoever, and has not undertaken any responsibility for, the design, construction, installation, equipping, start-up, testing or operation of the Facility and related structures or the ownership, operation or maintenance of the Facility, or the acquisition, construction, operation or maintenance of any Alternate Disposal Facility (other than County owned or operated Alternate Disposal Facilities) and the County shall not in any way be deemed to have incurred any liability to the NEA, the Company, the Trustee, any Bondholders or any other Person whatsoever, with respect to any matters referred to above relating thereto; except that the County's responsibilities with respect to the Designated Landfill shall be set forth and governed by the Landfill Agreement and its obligations with respect to the Facility Site shall be set forth and governed by the Facility Site Lease. The Parties acknowledge that the primary interest of the County in the Facility and in any Alternate Disposal Facility is in assuring the ability of the NEA to render the service to the County of providing the capacity for the acceptance, processing and disposal of all Acceptable Waste delivered to the Facility in accordance with the Service Agreement and, in the event and to the extent the Facility is not available to accept, process or dispose of such waste, providing for the acceptance and disposal of such waste at an Alternate Disposal Facility. The provisions of this Section shall in no way limit the obligations of the County to pay the Energy Recovery Fee and all other amounts due under this Agreement or any other NEA component Agreement to which the County is a party to the extent required under Article II of this Agreement and otherwise meets its obligations under this Agreement.

ARTICLE III
DELIVERY OF WASTE AND PROVISION OF DISPOSAL SERVICE

Section 3.1 Delivery of Waste.

(a) Designated Haulers. The County shall compile and provide the NEA with the following information about all of its Designated Haulers delivering Waste to the Facility: name and address; identification number; county; and any other information required pursuant to any NEA Component Agreement. The NEA shall accept waste for the account of the County only from the County's Designated Haulers and within any limitations as to quantity, type of waste or hours of delivery that the County may set forth in its notice to the NEA regarding its Designated Haulers. The NEA shall not accept waste from the account of the

County for any Person other than a Designated Hauler or County employee. The County may change the information about its Designated Haulers from time to time by delivering written notice to the NEA. The County shall not permit its Designated Haulers to deliver waste that is generated in Carroll County.

(b) Delivery Schedules and Procedures. The County Representative and the NEA Representative agree to cooperate with the other Participating County Representative in the development of an annual operating plan pursuant to the Service Agreement. Deliveries of Acceptable Waste to the NEA Component hereunder shall be consistent with the Service Agreement and substantially in accordance with written procedures established by mutual consent of the Parties. These delivery procedures shall reflect the waste transportation and disposal practices within the Participating Counties and the design and operating requirements of the Facility or the Alternate Disposal Facility, as in effect at the time of delivery, and may not unreasonably either impede the ability of the County to deliver or to cause the efficient delivery of, all Acceptable Waste which the NEA is obligated to receive from the County hereunder or impair the ability of the NEA to receive and dispose of, or arrange for the disposal of, such Acceptable Waste in accordance with this Agreement and the Service Agreement.

(c) Representatives. The County and the NEA each shall designate in writing within sixty days of the execution of this Agreement an individual to transmit instructions, receive information and otherwise coordinate service matters arising pursuant to this Agreement (respectively, the "County Representative" and the "NEA Representative"). Either Party may designate a successor or substitute representative at any time by notice to the other Party. The NEA Representative shall also notify the County in writing within 30 days of its receipt of Carroll County's designation of an individual to transmit instructions, receive information and otherwise coordinate service matters arising pursuant to the Carroll County Agreement (together with the County Representative, each a "Participating County Representative" and together the "Participating Counties Representatives"), or a successor or substitute therefor.

(d) Measuring and Acceptance of Waste at Facility.

(a) The County has elected to operate and maintain road vehicle scales, record transactions and provide data to the NEA at the Facility after the Commencement Date. The County shall weigh all road vehicles (1) removing waste, Residue or Recovered Materials from the Facility, or (2) delivering waste to the Facility (whether or not the NEA accepts the waste so delivered) and complete a weight record with regard thereto. The weight record shall contain gross weight, tare weight, date and time, county of origin, and road vehicle identification. The County shall give each road vehicle operator written confirmation of such information at the time the road vehicle is weighed. The NEA and Carroll County may have employees or agents in the scale house at any time to observe scale operations or review weigh records. The County shall furnish the NEA copies of all weight records.

(b) The County may require each road vehicle operator delivering waste to present to the scale operator a card, permit, identification, or license. The NEA Representative, the Participating County Representatives or

the Company Representative may reasonably require from time to time the revalidation of the tare weight of any road vehicle or the reweighing of unloaded road vehicles.

(c) If the permanent road vehicle scales at the Facility are not working properly or are being tested, a "scale outage" will occur, and the County Representative, the NEA Representative and the Company Representative shall reasonably estimate the quantity of waste delivered from each Participating County on the basis of truck volumes and historical information about the NEA, the Participating Counties, and the Designated Haulers. These estimates take the place of actual weighing records during the scale outage. In order to participate in the estimating of quantities of waste during a scale outage, Carroll County shall have an employee or agent present in the scale house when each road vehicle arrives. If they do not, the estimate of the NEA and the County shall be used. Any estimate made under this Section is final.

(d) Testing of Scales. The NEA shall inspect and test the road vehicle scales as required by Applicable Law, and shall treat the costs of such inspection and testing as a NEA Administrative Cost hereunder. Upon the written request of either of the Participating County Representatives, the NEA shall make or cause to be made additional tests of all road vehicle scales. The cost of these additional tests shall be paid by the Participating Counties, according to their Proportionate Shares.

(e) Incorrect Scales. If any test shows that a scale registers farther above or below the correct reading than permitted by Applicable Law, the charges and calculations based on inaccurate readings made within thirty (30) days preceding the test shall be corrected by the percentage of inaccuracy found. If a test of the scales has been performed during the preceding thirty (30) days, only the readings and related charges and calculations made after that test shall be corrected on the basis of the subsequent test.

(f) Monthly Information. The County Representative shall furnish the NEA and Carroll County with information for each month, within ten days after the end of the month. The Participating Counties, the NEA, and the Company shall establish procedures for the maintenance and distribution of any and all other scale records agreed upon by such parties to be kept by the County.

(g) Records. The NEA shall maintain daily records of the total tonnages of waste accepted, the tonnages of Acceptable Waste disposed of during the construction period and the tonnages of Recovered Materials, Residue, Acceptable Waste that is diverted or bypassed and not processed at the Facility,

and, after the Commencement Date, Unacceptable Waste that is removed from the Facility. The NEA Representative shall furnish the County and Carroll County with information for each month, within ten days after the end of the month.

(h) County Tipping Fees. The County may establish and collect tipping and disposal fees from all Persons delivering waste to the Facility by or on behalf of the County and these tipping and disposal fees shall be revenues of the County and not the NEA.

Section 3.2 Provision of Disposal Service by NEA.

(a) Service Covenant. After the Commencement Date, subject to the NEA's rejection rights under Section 3.3, the NEA shall provide or cause the provision of the service of disposing of all non-recycled Acceptable Waste that is generated in the County and delivered by or on behalf of the County pursuant to this Agreement to the Facility, excluding the disposal of Residue from the processing of Acceptable Waste at the Facility. The NEA shall do and perform all acts and things which may be necessary or desirable in connection with its obligation under this Section 3.2(a), including without limitation all planning, development, administration, implementation, construction, operation, maintenance, management and contract work related thereto or undertaken in connection therewith. Notwithstanding the foregoing, the NEA shall not be obligated to accept Acceptable Waste from the County in an amount greater than 60% of the Annual Facility Throughput Guarantee, as such term is defined in the Service Agreement, in any Fiscal Year and, before the Service Agreement Termination Date, the County's Proportionate Share of any additional amount that the Company shall accept pursuant to the Service Agreement. The obligations of the NEA pursuant to this Section constitute its "Service Covenant".

(b) Alternate Means of Disposal. The NEA may carry out its Service Covenant through the Service Agreement or through the use of any other agreements with such Persons (including, but not limited to, the Participating Counties) or the use of any such facilities, using such technologies and upon such terms and conditions as are consistent with Applicable Law and with Prudent Solid Waste Management Practices. To the extent the Facility is not available at any time or for any reason (including failure by the Company to perform its obligations pursuant to the Service Agreement) for the receipt and processing of Acceptable Waste that the NEA is required to accept from the County under this Agreement, the NEA shall cause the Company to provide for alternate disposal (if the Company is obligated to provide such alternate disposal pursuant to the Service Agreement) or the NEA shall use Alternate Disposal Methods available for the disposal of such Acceptable Waste delivered by or on behalf of the County hereunder. The NEA shall designate and may change from time to time the Alternate Disposal Facility, and shall deliver written notice to the County Representative of such designation or change. The NEA shall exercise its commercially reasonable efforts to minimize the costs incurred in complying with the Service Covenant consistent with its responsibilities hereunder and under the Service Agreement (including the enforcement thereof), other NEA Component Agreements and the Bond Documents, Applicable Law and Prudent Solid Waste Management Practices. The provision of service by the NEA in meeting the

Service Covenant by means other than the processing of waste at the Facility shall constitute "Alternate Disposal Methods."

(c) County Disapproval of Alternate Disposal Methods. Subject to the provisions of Section 6.4, the NEA shall comply with any direction of the County Representative with respect to the Alternate Disposal Method for Acceptable Waste delivered hereunder, including the use of an Alternate Disposal Method or Alternate Disposal Facility other than that proposed by the NEA, if the direction is in accordance with the NEA Component Agreements, the Bond Documents and Applicable Law.

Section 3.3 NEA Refusal Rights. The NEA may reject deliveries of (1) Hazardous Waste, (2) Unacceptable Waste, (3) waste that is delivered in violation of reasonable rules and regulations of the NEA adopted in accordance with this Agreement, (4) waste delivered outside of Receiving Hours and (5) any waste in excess of the County's Proportionate Share of the daily, weekly, monthly and annual processing capacity of the Facility, which shall be, prior to the Service Agreement Termination Date, the amounts set forth in the Service Agreement as rejection rights of the Company.

Section 3.4 Recycling Of County Acceptable Waste. The NEA shall cooperate with the County in the County's establishment of programs and facilities for the recycling of Acceptable Waste in compliance with Applicable Law. These programs and facilities shall be conducted and implemented by the County, however, at the direction of the County, the NEA shall provide a materials recycling facility or other recycling facilities or recycling services, on terms and conditions mutually agreed by the Parties, as a cost payable solely by the County.

Section 3.5 NEA's Receipt of NEA Sponsored Waste. The NEA shall not accept at the Facility any waste that is not delivered pursuant to this Agreement or the Carroll County Agreement; provided that if the Facility has available capacity to accept additional waste due to seasonal and annual fluctuations in the delivery of Acceptable Waste by or on behalf of the County hereunder or by or on behalf of Carroll County under the Carroll County Agreement, the NEA may notify the Participating Counties and only if directed to do so in writing by both Participating Counties, the NEA may accept such quantities of Acceptable Waste as may be explicitly permitted by such written directions. Revenues from the acceptance of such waste shall be the NEA Component Revenues which shall be applied to reducing the Counties' net cost of disposal. The associated electricity generation shall be available to the Counties, or if directed by the County Representatives, shall be sold to third parties and the revenues applied to reducing the Counties' cost of disposal.

County Acceptable Waste. The NEA shall accept Acceptable Waste for the account of the County only from the County's Designated Haulers including employees of the County. The County shall be responsible for waste delivered by its Designated Haulers as if such waste were delivered by County employees.

Section 3.6 Waste Delivered to the Facility.

(a) Screening and Removal of Unacceptable Waste. The County shall not knowingly deliver, and shall use all legal means reasonably available to prevent the delivery for

its account hereunder of Unacceptable Waste to the NEA Component by its Designated Haulers or any other Person. The NEA shall not knowingly receive, and shall cooperate with the County to prevent the receipt of, Unacceptable Waste at the Facility. The County and the NEA shall cooperate in establishing and enforcing procedures required to assure the safe and proper conduct of Designated Haulers of the County and drivers of delivery vehicles in the manner contemplated by this Agreement and the Service Agreement. The NEA may inspect all vehicles delivering waste to the Facility, and all waste delivered, before or after unloading, for the presence of Unacceptable Waste or Hazardous Waste.

(b) Hazardous Waste. The Parties acknowledge that the Facility has not been designed and is not intended to be used in any manner or to any extent as facilities for the handling, transportation, storage or disposal of Hazardous Waste. Neither the County nor the NEA shall countenance or knowingly permit the delivery of Hazardous Waste to the NEA Component. The NEA shall cause the Company to diligently comply with the waste screening practices and procedures set forth in the Service Agreement. The NEA and the County shall diligently cooperate in enforcing all Applicable Laws and establishing administrative procedures prohibiting the delivery of Hazardous Waste to the NEA Component.

(c) Disposal Responsibility and Costs. The NEA shall, in accordance with the Service Agreement, remove and dispose of, or cause the removal and disposal of, all Unacceptable Waste and Hazardous Waste delivered to, and inadvertently accepted at, the NEA Component. All costs associated with the handling or disposal of Hazardous Waste incurred by the NEA are deemed to be costs and expenses incurred in providing Waste Disposal and Energy Recovery Services under this Agreement, and constitute Variable Costs, to be allocated in full to the Participating County who, directly or through one or more Designated Haulers or other Persons, delivered such Hazardous Waste. If the source cannot be determined, the cost shall be a Variable Cost attributed to both of the Participating Counties pursuant to Section 4.1(c)(ii).

Section 3.7 Recycling or Disposal of Residue. Each of the Participating Counties shall be responsible, at its expense, for the recycling or disposal of its Proportionate Share of the Residue generated from the NEA Component, which shall be calculated pursuant to Section 4.1(c)(ii). The County and the NEA shall enter into a Landfill Agreement that permits the NEA to deliver for disposal, without charge, the County's Proportionate Share of Residue generated during the term of this Agreement to the Designated Landfill. If the County fails to do so, the NEA shall provide for the transportation and disposal of the County's Proportionate Share of Residue, at the County's expense as a Variable Cost under Section 4.1(c)(iii). The County shall notify the NEA, of its Designated Landfill at least 30 Business Days prior to the Commencement Date, and shall arrange to make any payments required by such Designated Landfill directly. A Participating County may change its Designated Landfill upon 10 Business Days notice, in writing, to the NEA and the Company. The NEA shall be responsible for the transportation of Residue to the Designated Landfill and the cost of such transportation shall constitute a Variable Cost under Section 4.1(c)(iii) so that each Participating County shall bear the cost of transporting its Proportionate Share of Residue from the Facility to its Designated Landfill.

Section 3.8 County Covenant for Benefit of NEA. The County agrees and covenants that so long as the NEA is in compliance with this Agreement, the NEA is entitled to operate each NEA Component without undue interference or interruption and accordingly

hereby agrees (1) not to take any action (or fail to take any action) which would adversely affect the NEA's ability to enjoy the rights and benefits conferred upon the NEA, or to undertake obligations in connection with any NEA Component (including the Facility, the Facility Site, or any construction or operation activities thereon), and (2) to cooperate with the NEA with respect to all matters affecting such enjoyment; provided, however, that this Section shall not be construed to (1) exempt the NEA from any provision of this Agreement requiring compliance with Applicable Law or (2) preclude the County from enforcing its Applicable Laws. The passage by the County of any ordinance, local law or similar enactment having the force of law or enforcement of any existing law, ordinance or enactment which is (1) discriminatory in nature and adverse to the construction or operation of any NEA Component by the NEA or to the performance by the NEA of its obligations under this Agreement, (2) not a necessary or appropriate exercise of the police power sufficient to override and impair such County agreement and covenant for the benefit of the NEA and (3) not in respect and furtherance of the proviso of the sentence immediately preceding, shall be deemed to be a breach of this Section 3.8.

Section 3.9 County Pledge. In consideration of and as an inducement to the sale of the Bonds by the NEA upon favorable terms and at favorable interest rates, the County, to the extent permitted by Applicable Law, hereby pledges to and agrees with the Bondholders that the County will not limit or impair the rights hereby vested in the NEA to purchase, construct, maintain, operate, repair, improve, reconstruct, renovate, rehabilitate or dispose of the NEA Components, or any part or parts thereof, for which Bonds of the NEA shall have been issued, to fulfill the terms of the Bond Documents or any agreements made with the Bondholders or with any Person with reference to the NEA Components or part thereof, or in any way impair the rights and remedies of the Bondholders, until the Bonds, together with interest thereon, with interest on any unpaid installments of interest and all costs and expenses in connection with any action or proceeding by or on behalf of the Bondholders, are fully met and discharged and authorize the NEA to include such pledge and agreement in the contract with the Bondholders.

ARTICLE IV
RECOVERY FEE AND PAYMENTS

Section 4.1 Energy Recovery Fee.

(a) Payment of Energy Recovery Fee. In consideration for the NEA's obligations under the Service Covenant and all other services being rendered and obligations assumed by or on behalf of the NEA to the County under this Agreement, commencing on the Commencement Date and throughout the term of this Agreement, the County shall pay to the NEA the Energy Recovery Fee. If the County disputes any portion of the Energy Recovery Fee billed by the NEA it shall nonetheless pay the entire amount of the Energy Recovery Fee so billed when due and subsequently resolve such dispute in accordance with Section 8.6 hereof.

(b) Calculation of Energy Recovery Fee. The Energy Recovery Fee shall be determined in accordance with the following formula:

$$RF = DS + FF + DC + OC + AC + VC - PR$$

Where

RF = Energy Recovery Fee.

DS = The County's Proportionate Share of Debt Service.

FF = The County's Proportionate Share of the Facility Fee.

DC = The County's Proportionate Share of the Alternate Disposal Costs.

OC = The County's Proportionate Share of Operating Costs.

AC = The County's Proportionate Share of NEA Administrative Costs.

VC = The County's Proportionate Share of the Variable Costs.

PR = The County's Proportionate Share of NEA Component Revenues.

Each component of the Energy Recovery Fee shall be computed in accordance with this Section and may be adjusted from time to time as provided in this Agreement. Although calculated by components, the Energy Recovery Fee is and shall be considered to be a single annual fee.

(c) Proportionate Share. The County's Proportionate Share of costs or revenues shall be as follows:

(i) With respect to costs or revenues received or incurred by the NEA, the amount of which is not variable based on the amount of Acceptable Waste processed or electricity produced by the Facility and which is not otherwise a Variable Cost allocated solely to one Participating County, the Proportionate Share shall be 60% of such revenue or cost for the County, and 40% of such revenue or cost for Carroll County.

(ii) With respect to Variable Costs or NEA Component Revenues which vary directly with the amount of waste processed at the Facility, the Proportionate Share for each Participating County shall be a ratio (the "Actual Delivery Ratio") equal to (a) the amount of Acceptable Waste received from such Participating County's Designated Haulers during the applicable Billing Period, divided by (b) the total amount of Acceptable Waste received at the Facility during the applicable Billing Period.

(iii) The County's Proportionate Share of the following items shall be 100%: (1) Services requested by the County in writing that are performed for the benefit of the County and not Carroll County, such as requests for additional receiving hours, (2) costs incurred by the NEA pursuant to Section 3.4, (3) costs of transportation of the County's Actual Delivery Ratio of Residue from the Facility to the Designated Landfill, (4) if the Designated Landfill is not available, the cost of transportation and disposal of the County's Actual Delivery Ratio of Residue at

facilities determined by the NEA, (5) Discriminatory County Taxes and (6) any Effluent Charge.

(d) Debt Service. Debt Service is an amount equal to (i) the amount of any principal of and premium, if any, and interest on the Bonds plus (ii) any amount required to be deposited into reserves, debt service funds or other funds established under the Trust Indenture or other Bond Documents, plus (iii) fees and expenses (including expenses of counsel) of the NEA, the Trustee, and any remarketing agent, lender, letter of credit bank or other credit facility provider, and tender agent, if any, for the Bonds and administrative fees and expenses of the NEA under any Bond Documents, plus (iv) any amounts payable under credit support facilities including reimbursement obligations.

(e) Facility Fee. The Facility Fee is an amount equal to all amounts required to be paid by the NEA to the Company under the Service Agreement, including, but not limited to, the service fee thereunder, any termination damages and other amounts payable thereunder; provided that Variable Costs shall be excluded from the Facility Fee.

(f) Alternate Disposal Costs. Alternate Disposal Costs is an amount equal to all costs and expenses, other than Variable Costs, incurred by the NEA (other than such costs which are payable through the Facility Fee component) in connection with the handling, transportation, storage, treatment and disposal by Alternate Disposal Methods of Acceptable Wastes.

(g) NEA Administrative Costs. NEA Administrative Costs is an amount equal to all reasonable administrative costs of the NEA, other than Variable Costs, attributable to the administration and enforcement by the NEA of its obligations under this Agreement, including, but not limited to, the following: accounting, legal, engineering and other professional fees, including the fees of the Consulting Engineer required to be retained by the NEA pursuant to the Service Agreement or this Agreement, the Independent Public Accountant, the Insurance Consultant; any fees, expenses or liabilities required to be paid by the NEA to any trustee, paying agent or fiduciary for the Bonds; and expenses related to the issuance of the Bonds.

(h) Operating Costs. Operating Costs is an amount equal to all amounts payable by the NEA pursuant to any NEA Component Agreement, and any other costs of the NEA incurred in connection with the provision by the NEA of the operation and performance of its services required under this Agreement including insurance premiums, Taxes on the NEA Component or its activities hereunder, Facility Site Lease payments, and utilities; provided that Variable Costs shall be excluded from Operating Costs.

(i) Variable Costs. Variable Costs is an amount equal to the sum of costs paid or incurred by the NEA with respect to the NEA Component, to the extent that the amount or value of which is based on the amount of Acceptable Waste processed at the Facility, or which are incurred at the request of, or for the sole benefit of, one Participating County, or that are otherwise allocated to the County hereunder, or to Carroll County under the Carroll County Agreement. Variable Costs include (i) the cost of the transportation of the County's Proportionate Share of Residue from the Facility to the Designated Landfill, (ii) if the County

fails to provide a site for its Proportionate Share of Residue, the cost of transportation and disposal of such Residue and (iii) costs of consumable materials at the Facility that are based directly on waste processing levels.

(j) NEA Component Revenues. NEA Component Revenues is an amount equal to all revenues and other amounts received by the NEA, derived from the NEA Component, including without limitation material or energy sales revenue sales (including amounts paid pursuant to any energy sales agreement), sales of environmental attributes including but not limited to renewable energy credits (RECs), revenues from Recovered Materials, investment income, fines and penalties, grant proceeds, indemnification and surety payments, insurance and condemnation proceeds otherwise unencumbered under the Bond Documents and any other amounts paid to the NEA pursuant to any NEA Component Agreement (including damages paid thereunder); provided, however, that NEA Component Revenues shall not include (i) the Energy Recovery Fee or any other amount payable by a Participating County under its Participating County Agreement or any NEA Component Agreement (other than a County Electricity Sales Agreement), (ii) Bond proceeds or (iii) amounts required to be rebated by the NEA pursuant to the Internal Revenue Code to preserve the tax-exempt status of any Bonds.

(k) Adjustments to Components of Energy Recovery Fee. During any Processing Capacity Reduction the components of the Energy Recovery Fee shall be increased or decreased, as applicable, to reflect (1) the NEA's reduced expenses of operation and maintenance, and (2) the amount of any increased or additional expenses of operation and maintenance of the NEA Component and providing the services rendered hereunder caused by such Processing Capacity Reduction. During a Processing Capacity Reduction, the NEA shall use reasonable efforts to minimize the expenses of operating and maintaining the NEA Component and providing the services rendered hereunder.

Section 4.2 Billing of the Energy Recovery Fee.

(a) County Statements. For each Billing Period, the NEA shall render a statement (a "Billing Statement") to the County setting forth the County's Energy Recovery Fee and any other amounts due under this Agreement for the Billing Period. For purposes of the Billing Statement, the County's Proportionate Share of all costs shall be deemed to be sixty percent (60%), which shall be recalculated pursuant to Section 4.1(c) for the Annual Settlement Statement, as described more fully in Section 4.3. The NEA shall render such Billing Statement by the 25th day of the Billing Period following the Billing Period to which the Billing Statement applies, for all components of the Energy Recovery Fee. During the first Billing Period, the NEA will issue a Billing Statement pursuant to which the Energy Recovery Fee is equal to the Debt Service for the first Billing Period, and each following Billing Statement shall contain the Debt Service amount for the Billing Period following the Billing Period for which the Billing Statement is issued, so that the Debt Service for each Billing Period is paid in advance. The County shall pay the Energy Recovery Fee amount listed on the Billing Statement and any other payment balance due to the NEA within fifteen (15) days of its receipt of the Billing Statement. Upon the written request of either the NEA or the County, the Billing Statement shall be prepared by the certified public accountant that prepares the NEA's financial statement or

another accountant mutually agreeable to the parties. The cost of such preparation is a Variable Cost allocated 100% to the County.

(b) Estimates and Adjustments. To the extent that the actual value of any item in any Billing Statement cannot be accurately determined at least five (5) days prior to the date on which the NEA renders the Billing Statement, such item shall be billed on an estimated basis and an adjustment shall be made to reflect the difference between such estimated amount and the actual amount of such item on the Billing Statement rendered next following the fifth day after the date on which the NEA learns the exact amount of such item. Notwithstanding the foregoing, the component of the Energy Recovery Fee constituting NEA Component Revenues shall not be estimated, but shall be equal to the NEA Component Revenues actually received by the NEA (or by the Trustee on behalf of the NEA) on the fifth Business Day prior to the date on which the Billing Statement is rendered.

(c) Annual Estimates. At least one hundred twenty (120) days prior to the end of each Fiscal Year, the NEA shall provide the County a written statement setting forth its reasonable estimate of the County's Energy Recovery Fee for the next Fiscal Year, which statement shall not be binding on the NEA. The estimate shall contain an itemized breakdown of each component of the Energy Recovery Fee in reasonable detail. To the extent practicable, the NEA shall update the estimate of each Energy Recovery Fee as the amount thereof can be more accurately determined.

(d) Late Payments. Any payment due to the NEA under this Agreement shall be deemed late if not received by the payment date set forth in Section 4.2(a). Late payments shall accrue interest at a rate equal to the Prime Rate in effect at such time, plus two percent (2%), from the date the applicable Billing Statement is received up to and including the date on which such payment is made. Such interest will be calculated on the basis of daily compounding and the actual number of days elapsed.

Section 4.3 Annual Settlement. Within 100 days after the end of each Fiscal Year, the NEA shall deliver to the County an annual settlement statement (the "Annual Settlement Statement") setting forth the County's actual Energy Recovery Fee payable with respect to such Fiscal Year and a reconciliation of such amount with the amounts actually paid by the County pursuant to the Billing Statements with respect to such Fiscal Year. If any amount is then in dispute, the Annual Settlement Statement shall set forth the NEA's estimate of such amount and a final reconciliation of such amount shall be made in the Billing Statement for the Billing Period immediately following the resolution of such dispute.

Section 4.4 County's Payment Obligations.

(a) Payment Irrespective of Waste Deliveries. As long as the NEA is in compliance with its Service Covenant hereunder, the County must pay the NEA the Energy Recovery Fee as provided hereunder during the term of this Agreement, whether or not the County delivers or cause to be delivered any waste to the NEA for disposal either at the Facility or by Alternate Disposal Methods.

(b) County's Obligation to Pay the Energy Recovery Fee. Subject to Section 4.4(c) hereof, from the Commencement Date to the date of expiration or termination of this Agreement, the obligation of the County to pay the Energy Recovery Fee pursuant to Section 4.1(a) is absolute and unconditional and is not to be subject to delay or diminution by reason of set-off, abatement, counterclaim, existence of a dispute or otherwise and the County shall take all such action as may be necessary to provide for the timely payment of the Energy Recovery Fee and all other amounts due hereunder. The County hereby acknowledges that the services to be provided by the NEA pursuant to this Agreement are of a valuable and unique nature to the County and that the Energy Recovery Fee and all other amounts to be paid by the County to or for the account of the NEA constitutes fair consideration therefor.

(c) Disputes. If the County disputes any amount billed by the NEA in any Billing Statement, the County shall nonetheless pay the billed amount and shall provide the NEA with written objection within thirty (30) days of the receipt of such Billing Statement (if the basis for the objection can be known within thirty (30) days, otherwise within thirty (30) days after actual knowledge of the basis for the objection) indicating the amount that is being disputed and providing all reasons then known to the County for its objection to or disagreement with such amount. If the County and the NEA are not able to resolve such dispute within thirty (30) days after the County's objection, either Party may pursue dispute resolution pursuant to Section 8.6 hereof.

ARTICLE V
PROCESSING CAPACITY REDUCTIONS

Section 5.1 Notice. The NEA shall immediately advise the County Representative by telephone, as soon as possible after becoming aware of such condition, of any Processing Capacity Reduction, its effect on the NEA's ability to perform its obligations hereunder and under any energy sales agreement and the other NEA Component Agreements, and the NEA's best estimate of its probable duration and impact on the Energy Recovery Fee. The NEA shall confirm such advice in writing within 24 hours. The NEA shall use the Designated Landfill or Alternate Disposal Methods and Alternate Disposal Facilities to the extent necessary to perform its obligation to accept and dispose of Acceptable Waste under this Agreement and shall use best efforts to resume normal operation of the NEA Component as soon as possible. Following any Processing Capacity Reduction, the NEA shall, upon the request of the County Representative, provide the Consulting Engineer with such information as is necessary for the Consulting Engineer to determine the cause of the Processing Capacity Reduction and to make its estimate of when the Processing Capacity Reduction will end.

Section 5.2 NEA Operations During a Processing Capacity Reduction. NEA Obligations to Accept Waste. During a Processing Capacity Reduction the NEA shall continue to accept and dispose of waste delivered hereunder and shall process as much of the Acceptable Waste delivered as possible taking into account the NEA's obligations under the Carroll County Agreement. The components of the Energy Recovery Fee shall be adjusted pursuant to Section 4.1(b) as applicable to account for the impact of any Processing Capacity Reduction. During a Processing Capacity Reduction the NEA shall use reasonable efforts to

minimize the expenses of operating and maintaining the NEA Component and providing the services rendered hereunder.

Section 5.3 Changes Necessitated by Uncontrollable Circumstances.

(a) Capacity Maintenance Change. The NEA shall make or cause to be made any Changes to the NEA Component required, as a result of an Uncontrollable Circumstance, to repair or replace any damaged or destroyed portion of the NEA Component or to restore operating levels of the NEA Component to those set forth in the Performance Standards, or to enable the NEA to perform its obligations under this Agreement, the Bond Documents and the other NEA Component Agreements without resort to Alternate Disposal Methods or Alternate Disposal Facilities. The Changes described in this Section 5.3(a) constitute "Capacity Maintenance Changes".

(b) Notice. As soon as possible after becoming aware of an Uncontrollable Circumstance, the NEA shall give the County Representative and the Consulting Engineer a statement describing the Uncontrollable Circumstance and its cause (to the extent known by the NEA), a description of the conditions (1) requiring the use of Alternate Disposal Methods or Alternate Disposal Facilities or (2) delaying the performance of the NEA's obligations, and an estimate of the costs of any Capacity Maintenance Change ("Additional Capital Investment"). The amount of such Additional Capital Investment for any Capacity Maintenance Change due to an Uncontrollable Circumstance or required to enable the NEA to perform its obligations under this Agreement, the Bond Documents and the other NEA Component Agreements, without resort to Alternate Disposal Methods or Alternate Disposal Facilities, shall equal the reasonable Capital Costs and expenses for repair, restoration, modification or maintenance incurred by the NEA for the repair, replacement or restoration of, or addition to, any portion of the NEA Component necessitated by such Uncontrollable Circumstance that have not been paid from insurance proceeds or by the Participating Counties or third parties.

(c) Consultation with County. The NEA shall consult with and answer any inquiries of the County Representative and the Consulting Engineer regarding the conditions caused by the Uncontrollable Circumstance or the Standards, or to enable the NEA to perform its obligations under this Agreement, the Bond Documents and the other NEA Component Agreements without resort to Alternate Disposal Methods or Alternate Disposal Facilities.

ARTICLE VI
CONTROL RIGHTS OF PARTICIPATING COUNTIES

Section 6.1 NEA Component Agreements.

(a) Approval of County Required Prior to Execution. Except as provided in Section 6.4, the NEA shall not execute or amend any NEA Component Agreements without the prior written approval of both of the Participating Counties Representatives. The NEA shall use reasonable efforts to include a provision in each NEA Component Agreement which states that the Participating Counties are third party beneficiaries of such NEA Component Agreement and, in connection with consulting agreements, to include indemnification provisions in favor of the Participating Counties.

(b) Performance by NEA. The NEA shall diligently and in a timely manner perform all of its obligations under each of the NEA Component Agreements.

(c) Enforcement by NEA. Subject to the rights of the County set forth in Section 7.3 hereof, the NEA shall diligently enforce and manage the NEA Component Agreements including enforcing the duties and obligations thereunder of Persons with which the NEA enters into such NEA Component Agreements.

Section 6.2 Changes in Design, Construction or Operation.

(a) Changes Required to be Undertaken by NEA. The NEA shall make any Change necessary to enable the NEA to (i) comply with Applicable Law, (ii) meet its obligations under this Agreement or any NEA Component Agreements or Bond Documents, or (iii) avoid a default by the NEA under any NEA Component Agreement or Bond Document.

(b) Changes at Participating Counties' Request. Upon written request duly executed by both Participating Counties Representatives, the NEA shall make any reasonable Change to the NEA Component or the NEA's operations with regard to the NEA Component that are conducted or are to be conducted on the NEA Component Sites or public roads that are permitted by the Bond Documents but only if (1) sufficient funds are available pursuant to the provisions of Section 7.4 to provide for the payment of Capital Costs and related costs of the Change, (2) both Participating Counties consent to the amendment of this Agreement or any other NEA Component Agreement or Bond Document to waive or modify any obligations of the NEA that the NEA cannot perform because of the Change or modification of the NEA's operations, (3) the Energy Recovery Fee is equitably adjusted by any increases or decreases in the costs, expenses or liabilities incurred by the NEA because of the Change or modification of the NEA's operations, activities or liabilities, (4) each Participating County pays its Proportionate Share of all penalties, rebates, liabilities increased or accelerated charges and any other costs payable by the NEA under the NEA Component Agreements and the Bond Documents because of the effect of the Change or modification of the NEA's operations, activities or liabilities, (5) the Participating Counties provide any information in the Participating Counties' control concerning the proposed Change or modification of the NEA's operations that the NEA reasonably requests and (6) such Change is permitted pursuant to Applicable Law. Notwithstanding the foregoing sentence, prior to the Service Agreement Termination Date, the NEA is not required to make any Changes to the Facility which the Company is not obligated to make pursuant to the Service Agreement.

(c) Submission of Plans; Consultation. The NEA shall not make any material modification or addition to the NEA Component unless it has submitted the plans and specifications for the Change to the County Representative and the Consulting Engineer at least 20 days or such lesser time as is practicable in light of the circumstances requiring such Change, before the intended implementation date of the Change. The NEA shall discuss and answer any reasonable inquiries of the County Representative or the Consulting Engineer relating to the proposed Change. The County may, but is not obligated to, have the Consulting Engineer review the plans and specifications to determine whether the proposed Change impairs the ability of the NEA Component to meet the Performance Standards and Applicable Law during the remaining term of this Agreement. The NEA shall incorporate into the Change any modification requested by both County; provided that such modifications meet the requirements of Section 6.2(b).

Section 6.3 County Approval Rights Over NEA Activities And Expenses.

(a) Dispute Resolution Pursuant to NEA Component Agreements. In the event that any Person with which the NEA has entered into an NEA Component Agreement asserts any dispute pursuant to such NEA Component Agreement, the NEA shall immediately provide the Participating Counties with notice thereof (the "NEA Dispute Notice"). Such notice shall specify (1) the NEA Component Agreement pursuant to which the dispute is asserted, (2) the subject matter and/or amount in controversy with respect to the dispute, (3) the recommendation of the NEA as to the disposition of the dispute, and (4) any other information which the NEA believes would be relevant to the Participating Counties in making the determination described below. Following receipt of such NEA Dispute Notice, the Participating Counties shall, in one written notice to the NEA agreed upon by both Participating Counties, (the "County Dispute Response"), at least 3 Business Days prior to the date on which the NEA shall take action with respect to the dispute, either (1) concur in the recommendation of the NEA as stated in the NEA Dispute Notice, or (2) direct the NEA to take action other than that recommended by the NEA. If the Participating Counties direct the NEA to take action other than that recommended by the NEA, the NEA shall take such action provided for in the County Dispute Response, provided such action is consistent with Section 6.2(b). In the event the Participating Counties fail to provide the County Dispute Response within the period required, the NEA shall follow the recommendation contained in the NEA Dispute Notice.

(b) NEA Exercise of Discretionary Rights Pursuant to NEA Component Agreements. The NEA shall not exercise any Discretionary Right without the prior consent of all Participating Counties. In the event that the NEA wishes to exercise any Discretionary Rights, the NEA shall immediately provide the Participating Counties with notice thereof (the "NEA Exercise of Rights Notice"). The NEA Exercise of Rights Notice shall specify (1) the NEA Component Agreement pursuant to which the NEA wishes to exercise such discretionary right; (2) an estimate of the effect on the Energy Recovery Fee, if any, the exercise of such right would have, (3) the date by which the NEA wishes to exercise such right and (4) any other information which the NEA believes would be relevant to the Participating Counties in making the determination described below. Following receipt of such NEA Exercise of Rights Notice, the Participating Counties shall, in one written notice to the NEA agreed upon by both Participating Counties, (the "County Exercise of Rights Response"), at least three (3) Business Days prior to the date on which the NEA intends to exercise such right either (1) consent to the exercise of such right by the NEA or (2) refuse to consent to the exercise of such right by the NEA. If the Participating Counties consent to the exercise of such right by the NEA, the NEA shall exercise such right. If the Participating Counties refuse to consent to the exercise by the NEA of such right, or do not provide a County Exercise of Rights Response with the time period described in the NEA Exercise of Rights Notice, the NEA shall not exercise such right.

(c) Exercise by NEA of Rights Other than Discretionary Rights. Prior to the Commencement Date, the Participating Counties Representatives and the NEA Representative shall develop a protocol with respect to the exercise by the NEA of rights other than Discretionary Rights. Such protocol shall describe notice requirements of the NEA, and consultation rights of the Participating Counties, as well as any other matters upon which the Participating Counties Representatives and NEA Representative mutually agree including the initial and subsequent

budgetary amounts for NEA Administrative Costs and Operating and Maintenance Costs pursuant to Section 4.1 hereof.

(d) Participating Counties Direction to Exercise Rights, Including Discretionary Rights. The NEA shall exercise any rights, including Discretionary Rights, which it has under any NEA Component Agreement in accordance with written notice thereof to the NEA, duly executed by both Participating Counties Representatives, (the "County Exercise of Rights Notice"). The County Exercise of Rights Notice shall specify (1) the NEA Component Agreement pursuant to which the NEA may exercise such right, and (2) the date by which the Participating Counties wish the NEA to exercise such right (which date shall be at least three days subsequent to the date of the County Exercise of Rights Notice). Upon receipt of the County Exercise of Rights Notice, the NEA shall take the action specified in the County Exercise of Rights. Notice, subject to Section 6.4 and provided such action does not create a default or violation under and is consistent with the NEA Component Agreements, the Bond Documents and Applicable Law. If the NEA exercise a right or rights pursuant to this subsection, then the Energy Recovery Fee will be adjusted by any increases or decreases in the costs, expenses or liabilities incurred by the NEA because of the exercise of rights and each Participating County will pay its Proportionate Share of all penalties, liabilities, rebates, increased or accelerated charges and any other costs payable by the NEA under the NEA Component Agreements and the Bond Documents because of the effect of the exercise of rights.

Section 6.4 NEA Right To Take Certain Actions To Avoid Default. Notwithstanding the provisions of ARTICLE VI, or Section 3.2(c) or Section 7.7, the NEA may, without the prior written consent of the Participating Counties, take any action (or refrain from taking any action directed by the Participating Counties) which is necessary to avoid any default (or to remedy any condition, which with the passage of time or giving of notice would constitute a default) under the NEA Component Agreements or the Bond Documents, including the exercise of Discretionary Rights. To the extent practicable in light of the time period available prior to the occurrence of the default which the NEA seeks to avoid by taking the action, the NEA shall consult with the Participating Counties prior to taking such action. The NEA shall consider any alternatives proposed by the Participating Counties to avoid such default. Prior to taking any such action pursuant to this Section, the NEA shall deliver the Participating Counties Representatives a certificate of the Consulting Engineer stating that, in its opinion (1) failure to take such action will materially adversely affect the ability of the NEA to meet its obligations under this Agreement, (2) the alternatives proposed by the Participating Counties, if any, are not viable for the purpose of avoiding the material adverse effect which will result from the failure to take the proposed action, and (3) the proposed action is consistent with Prudent Solid Waste Management Practices, the NEA Component Agreement, Bond Documents and Applicable Law. If the NEA delivers the certificate, its proposed action does not require the Participating Counties' consent.

Section 6.5 Termination for Convenience of Service Agreement.

(a) Participating Counties Right to Require NEA to Terminate Service Agreement for Convenience. The Participating Counties, by written request duly executed by the Representatives of each Participating County, may require the NEA to exercise its rights under the Service Agreement to terminate the Service Agreement for convenience pursuant to

the Service Agreement by providing the NEA with notice thereof and providing all funds required in connection with such termination pursuant to the Service Agreement.

(b) Abandonment of Project. In the event the Participating Counties require the NEA to terminate the Service Agreement for convenience pursuant to the terms thereof, the Participating Counties will be deemed to be exercising their rights to terminate this Agreement for convenience, and the provisions of Section 8.4 will apply. The Participating Counties shall jointly and severally indemnify the NEA for all costs and expenses arising out of the NEA Component Agreements after the termination of this Agreement, except as assumed by Participating Counties pursuant to Section 9.4.

Section 6.6 Other Termination Of Service Agreement. The Participating Counties, acting in agreement, may direct the NEA to terminate the Service Agreement pursuant to the terms thereof by providing the NEA with notice thereof and providing any funds required in connection with such termination under the Service Agreement and complying with Section 6.5.

Section 6.7 County Right To Inspect Facility; Energy Purchases.

(a) The County has the right to enter and inspect any NEA Component at any time; provided, however, that such entry and inspection shall be consistent with the provisions of the Service Agreement with respect to the NEA's right to enter and inspect the Facility and consistent with any applicable NEA Component Agreements with respect to other portions of the NEA Component. The County shall use its reasonable efforts to provide notice to the NEA prior to exercising its rights pursuant to this Section.

(b) The County may inspect the books and records of the NEA as they relate to the matters under this Agreement at any time upon reasonable prior notice.

(c) If requested by the County, the NEA shall enter into an energy sales agreement with the County for the County's Proportionate Shares of the energy produced by the Facility at a price equal to at least the wholesale market value of such energy and containing other commercially reasonable terms and terms required by the Bond Documents. Payments under the County's energy sales agreement shall be allocated to the County's Proportionate Shares of the NEA Component Revenues, which reduce the County's Energy Recovery Fee.

ARTICLE VII
FINANCING

Section 7.1 Issuance of Bonds.

(a) Issuance of Bonds. The NEA shall use its best efforts to finance the estimated Capital Costs of developing, financing, constructing, acquiring, completing, testing and placing in service of the NEA Component by the issuance of one or more Series of Bonds in accordance with ARTICLE VII hereof. Bonds issued by the NEA to finance the NEA Component shall not constitute a debt of the State or the County, and neither the State nor the County shall be liable thereon, nor shall the Bonds be payable out of any funds of the NEA other than those pledged therefor. The NEA shall not (and is not required to) issue any Bonds unless the County Bond Approval is secured from both Participating Counties for purposes of clarification and without in any way limiting the foregoing, County Bond Approval from a

Participating County shall not be deemed to have been secured if such Participating County has affirmatively disproved the Bonds in writing, unless such disproval is subsequently affirmatively retracted in writing.

Section 7.2 Bondholder Benefit Provisions.

The County and the NEA acknowledge that the holders of any Bonds issued by the NEA pursuant to this Agreement are third party beneficiaries of this Agreement; provided, however, any consent by the NEA to an amendment or modification of this Agreement shall be deemed consent of the holders of any such Bonds. Notwithstanding any other provisions hereof, in the event of termination by the Participating Counties of this Agreement pursuant to the default provisions hereof, the Participating Counties shall assume the obligations of the NEA under the NEA Component Agreements and the Bond Documents. In such event, the NEA shall assign the NEA Component Agreements and the Bond Documents to the Participating Counties, as tenants in common according to their Proportionate Shares.

Section 7.3 Financing And Offering Materials.

(a) Consent of County Generally Required for Financing. The NEA shall not finance or refinance any Capital Costs by the issuance of Bonds or otherwise without notifying the County and giving them reasonable opportunity to review and comment on any official statement, prospectus or other disclosure documents distributed in connection with the offering of debt or equity to finance or refinance such costs. Except as provided under Section 7.4, the NEA shall not create any obligation that increases Debt Service without the prior written consent of the County.

(b) Refinancing at Direction of Participating Counties. Upon the written direction of the Participating Counties, duly executed by both Participating Counties Representatives, and to the extent permitted by Applicable Law and the Bond Documents, the NEA shall use reasonable efforts to refinance any outstanding Bonds that are taken into account in the determination of Debt Service using the method of refinancing suggested in writing by the Participating Counties, if (1) the related financing agreements do not impose operating restrictions or financial or other covenants or restrictions on the NEA that are more burdensome than those contained in the Bond Documents, (2) the refinancing does not violate the provisions of the Bond Documents, the NEA Component Agreements or Applicable Law, and (3) the Participating Counties reimburse the NEA, pursuant to each Participating County's Proportionate Share, for its expenses incurred in connection with the refinancing that are not paid from the proceeds of the refinancing. The inability of the NEA to effect any financing or refinancing shall not constitute a default or Event of Default under this Agreement. The amount financed or refinanced may include reasonable issuance costs, reserve funds and other customary financing costs.

Section 7.4 Additional Financing.

(a) Unless the NEA Representative and both of the Participating Counties Representatives otherwise agree, (1) any increase in the cost of construction to be paid by the NEA, pursuant to the Service Agreement, (2) any Additional Capital Investment in connection with any Capacity Maintenance Change to the NEA Component undertaken pursuant to Section

6.3(a) and (3) any Capital Costs necessary for the NEA to undertake its obligations under this Agreement shall be paid for as follows:

First, to the extent permitted by Applicable Law and the Bond Documents, from the proceeds of any available insurance, payments by third parties and any condemnation proceeds of awards available therefor;

Second, to the extent permitted by Applicable Law and the Bond Documents, from any applicable reserves for contingencies established pursuant to the Bond Documents or other available funds under the Bond Documents; and

Third, from the proceeds of additional Bonds or other additional financing pursuant to subsection (B).

Fourth, from moneys or capital made available by the Participating Counties under written agreements duly executed by both Participating Counties.

(b) If additional financing for any Capital Cost of the NEA is required by this Agreement, the Bond Documents, the NEA Component Agreements or the Participating Counties, the NEA shall use best efforts, to the extent permitted by Applicable Law and the Bond Documents, to cause to be issued and sold additional Bonds in an amount sufficient to pay the amount of such Capital Cost, together with any other costs associated with the issuance of such Bonds, less any moneys made available by the Participating Counties, if any, with respect to such cost upon and subject to terms and conditions contained in the Bond Documents. The term of such additional Bonds shall not be greater than the shorter of (i) the useful life of the assets acquired with the proceeds of such Bonds or (ii) the then remaining useful life of the NEA Component, as improved, or (iii) the remaining term of this Agreement as such term may be extended at the request of both Participating Counties. In no event will the NEA's inability to issue, or cause such additional Bonds to be issued, constitute a default or Event of Default under this Agreement. Notwithstanding the foregoing, the NEA may not issue any additional Bonds for any reason without the prior written consent of the Participating Counties, acting in agreement.

(c) If the NEA is unable to issue or cause to be issued additional Bonds to finance any Capital Cost referred to in subsection (A) above, or the Participating Counties do not consent to the issuance of additional Bonds pursuant to subsection (B) above, the Participating Counties, in accordance with their Proportionate Shares, shall provide or cause to be provided moneys, letters of credit or other assurances satisfactory to the NEA sufficient to pay or provide for the payment of the full amount of such Capital Costs. If the Participating Counties fail to provide such moneys, letters of credit or other assurances satisfactory to the NEA, the Participating Counties will be deemed to consent to the issuance of additional Bonds pursuant to subsection (B).

(d) After the financing for any Capital Cost described in Section 7.4(a) or Section 7.4(b), the Debt Service component of the Energy Recovery Fee will increase to include the debt service to be paid during each Fiscal Year with respect to any additional Bonds issued by the NEA to finance such Capital Costs and related costs, including cost of issuance, cost reserve funds, costs of credit enhancement and administrative costs. As an accommodation but not as a precondition to the County's obligation to pay the Energy Recovery Fee, the NEA shall deliver a

notice describing the basis for any such adjustment to the County Representative at least 30 days before the proposed adjustment is to take effect.

Section 7.5 Cooperation with Financing. The County shall cooperate with the NEA in the financing or refinancing of the NEA Component or any Change to the NEA Component and provide the NEA with any information that it may reasonably request in order to effect the financing of the NEA Component or any Change to the NEA Component. The County shall make available information reasonably necessary for a public offering of the Bonds. In addition the County shall make available to the NEA, its underwriters, their counsel, bond counsel, the rating agencies, independent engineers or feasibility consultants, credit facility providers and other financing institutions or parties involved in the financing process and the issuance of the Bonds, such information in the control of the County as reasonably requested. The County shall provide certification as to the accuracy and completeness of such information made available in connection with the financing of the NEA Component or any Change to the NEA Component and issuance of the Bonds. The County shall make available information reasonably requested by bond counsel, the NEA's counsel or underwriters counsel so that they can render opinions about the tax-exempt status of the Bonds and to the Consulting Engineer and feasibility consultant designated by the NEA so they can render opinions concerning the County's and NEA's ability to perform their obligations under this Agreement and with respect to the NEA Component.

Section 7.6 Compliance with Internal Revenue Code. It is the intention of the Parties that the interest on Bonds that are initially issued as tax-exempt bonds remain exempt from Federal income taxation to the extent permitted by the Internal Revenue Code in effect on the date of issuance of such Bonds and to that end each Party covenants that it shall not take any action that would adversely affect the tax-exempt status of any such Bonds and shall use reasonable efforts to preserve the tax-exempt status of all such Bonds. The NEA agrees that the County is a third party beneficiary of all covenants, agreements, representations and warranties of the NEA made to preserve or establish the tax-exempt status of such Bonds.

Section 7.7 Insurance Proceeds; Third Party Payments. The NEA shall use reasonable efforts to effect the recovery of proceeds from insurance or any other third party for any loss or claim in respect of the NEA Component; provided, however, that the Participating Counties may direct any judicial or other proceedings initiated by the NEA in connection with the recovery of such insurance proceeds.

ARTICLE VIII
BREACH, ENFORCEMENT AND TERMINATION

Section 8.1 Breach.

(a) The Parties agree that in the event any Party breaches any obligation under this Agreement or any representation made by any Party hereunder is untrue in any material respect, the other Party shall have the right to take any action at law or in equity (including actions for injunctive relief, mandamus and specific performance) it may have to enforce the payment of any amounts due or the performance of any obligations to be performed hereunder. No Party shall have the right to terminate this Agreement except as provided in Section 8.2 hereof and with respect to the County, Section 8.4 hereof.

(b) No Special, Consequential or Indirect Damages. In no event, whether based upon contract, tort or otherwise arising out of the performance or nonperformance by the NEA or the County of any obligation of the NEA or the County under this Agreement, will the NEA or the County be liable or obligated in any manner to pay special, consequential, punitive, or indirect damages except as specifically provided in this Agreement.

Section 8.2 Termination For Default.

(a) By NEA. The NEA shall have no right to terminate this Agreement for any reason whatsoever, except if one or more of the following events (each an "Event of Default") shall happen:

(i) if default shall be made in the payment of all or any portion of the Energy Recovery Fee when due pursuant to Section 4.2 and such default shall continue for a period of thirty (30) days after the NEA has given the County written notice of the payment default;

(ii) the repeated failure or refusal by the County substantially to perform or observe any covenant, agreement or condition on its part provided in this Agreement (other than a default described in clause (i) above); except that no such failure or refusal shall give the NEA the right to terminate this Agreement for cause under subsection (i) or (ii) of this section unless:

(a) The NEA has given prior written notice to the County stating that a specified failure or refusal to perform or observe exists which will, unless corrected, constitute a material breach of this Agreement on the part of the County and which will, in its opinion, give the NEA the right to terminate this Agreement for cause under this subsection unless such breach is corrected within a reasonable period of time, and

(b) The County has neither challenged in an appropriate forum the NEA's conclusion that such failure or refusal to perform has occurred or constitutes a material breach of this Agreement nor corrected or diligently taken steps to correct such breach within a reasonable period of time but not more than ninety (90) days from the date of the notice given pursuant to clause (a) of this subsection (but if the County shall have diligently taken steps to correct such breach within a reasonable period of time, the same shall not constitute a breach giving rise to the right of termination for as long as the County is continuing to take such steps to correct such breach); or

(iii) a Bankruptcy Event shall occur with respect to the County.

(b) Accounting and Examination of Records After Default. The County covenants that if an Event of Default shall have happened and shall not have been remedied, the books of records and accounts of the County and all other records relating to the Solid Waste Management Contracts, the Solid Waste Collection and Disposal Fund and the County Disposal System shall at all times be subject to the inspection and use of the NEA and of its agents and

attorneys, including the Consulting Engineer. The County covenant that if an Event of Default shall happen and shall not have been remedied, the County, upon demand of the NEA, will account as if it were the trustee of an express trust, for all revenues and other moneys, securities and funds pledged or held under this Agreement for such period as shall be stated in such demand.

(c) Proceedings Brought by NEA.

(i) If an Event of Default shall happen and shall not have been remedied, then and in every such case, the NEA may proceed to protect and enforce its rights under the Agreement by a suit or suits in equity or at law, whether for the specific performance of any covenant herein contained, or in aid of the execution of any power herein granted, or for an accounting against the County as if the County were the trustee of an express trust, or in the enforcement of any other legal or equitable right as the NEA, being advised by counsel, shall deem most effectual to enforce any of its rights or to perform any of its duties under the Agreement.

(ii) Upon the occurrence of an Event of Default, by suit, action or proceedings in any court of competent jurisdiction, the NEA shall be entitled to terminate this Agreement.

(d) Remedies Not Exclusive. No remedy by the terms of this Agreement conferred upon or reserved to the NEA is intended to be exclusive of any other remedy, but each and every such remedy shall be cumulative and shall be in addition to every other remedy given under this Agreement or provided at law or in equity or by statute.

(e) By County. The County shall have no right to terminate this Agreement for cause except if one or more of the following events shall have happened:

(i) the repeated failure or refusal by the NEA substantially to perform any material obligation under this Agreement (including the provision of Waste Disposal and Energy Recovery Services); except that no such failure or refusal shall give the County the right to terminate this Agreement for cause under this subsection unless:

(a) The County has given prior written notice to the NEA stating that a specified failure or refusal to perform exists which will, unless corrected, constitute a material breach of this Agreement on the part of the NEA and which will, in its opinion, give the County the right to terminate this Agreement for cause under this subsection unless such breach is corrected within a reasonable period of time, and

(b) The NEA has neither challenged in an appropriate forum the County's conclusion that such failure or refusal to perform has occurred or constitutes a material breach of this Agreement nor corrected or diligently taken steps to correct such breach within a reasonable period of time but not more than ninety (90) days from the date of the notice given pursuant to clause (a) of this

subsection (but if the NEA shall have diligently taken steps to correct such breach within a reasonable period of time, the same shall not constitute a breach giving rise to the right of termination for as long as the NEA is continuing to take such steps to correct such breach); or

(ii) a Bankruptcy Event shall occur with respect to the NEA.

(f) Accounting and Examination of Records After Default. The NEA covenants that if an Event of Default shall have happened and shall not have been remedied, the books of records and accounts of the NEA and all other records relating to the NEA Component, the NEA Component Agreements and the NEA Component Revenues shall at all times be subject to the inspection and use of the Participating Counties and of their agents and attorneys, including the Consulting Engineer. The NEA covenants that if an Event of Default shall happen and shall not have been remedied, the NEA, upon demand of the Participating Counties, will account as if it were the trustee of an express trust, for all moneys, securities and funds pledged or held under any NEA Component Agreement for such period as shall be stated in such demand, subject in all cases to the Bond Documents, the Service Agreement and Section 7.1 hereof.

(g) Proceedings Brought by County.

(i) If an Event of Default shall happen and shall not have been remedied, then and in every such case, the County may proceed to protect and enforce their rights under the Agreement by a suit or suits in equity or at law, whether for the specific performance of any covenant herein contained, or in aid of the execution of any power herein granted, or for an accounting against the NEA as if the NEA were the trustee of an express trust, or in the enforcement of any other legal or equitable right as the County, being advised by counsel, shall deem most effectual to enforce any of their rights or to perform any of their duties under the Agreement.

(ii) Upon the occurrence of an Event of Default, by suit, action or proceedings in any court of competent jurisdiction, the County shall be entitled to terminate this Agreement on the same terms and conditions as termination for convenience except for payments to the NEA which are disputed, subject to resolution thereof pursuant to Section 8.6 hereof which process shall survive the termination of this Agreement for such purpose.

(h) Remedies not Exclusive. No remedy by the terms of this Agreement conferred upon or reserved to the County is intended to be exclusive of any other remedy, but each and every such remedy shall be cumulative and shall be in addition to every other remedy given under this Agreement or provided at law or in equity or by statute.

Section 8.3 Waiver. Unless otherwise specifically provided by the terms of this Agreement, no delay or failure to exercise a right resulting from any breach of this Agreement will impair such right or shall be construed to be a waiver thereof, but such right may be exercised from time to time and as often as may be deemed expedient. Any waiver shall be in writing and signed by the Party granting such waiver. If any covenant or agreement contained in

this Agreement is breached by any Party and thereafter waived by any other Party, such waiver shall be limited to the particular breach so waived and will not be deemed to waive any other breach under this Agreement.

Section 8.4 Termination for Convenience or at End of Term.

(a) After Commencement Date. Notwithstanding any other provision of this Agreement to the contrary, the Participating Counties, by written notice duly executed by both Participating Counties Representatives, may terminate their obligations to the NEA under the Participating County Agreements at any time after the Commencement Date by (i) giving the NEA 180 days' notice of such termination, and (ii) paying the Termination Costs described in Section 8.4(c).

(b) Prior to Commencement Date. Before the Commencement Date, the Participating Counties, by written notice duly executed by both Participating Counties Representatives, may terminate their obligations under this Agreement by written notice delivered to the NEA if the Participating Counties have paid the NEA or made provision satisfactory to the NEA for the payment of (A) all expenses incurred by the NEA up to the date of termination of the NEA and (B) all amounts payable by the NEA to terminate the NEA Component Agreements approved by the Participating Counties or the Participating Counties Representatives, and any other agreements relating to the NEA Component that have been approved by the Participating Counties Representatives. The NEA shall invoice the County for all amounts payable by the County pursuant to this Section in accordance with its Proportionate Share, and shall provide any supporting documentation reasonably requested by the County. The obligation to make payments pursuant to this paragraph shall survive termination of this Agreement.

(c) Termination Costs. Upon the termination of this Agreement for convenience pursuant to this Section or at the expiration of this Agreement in accordance with its terms, (i) the County shall take any and all steps within its control that are necessary to assist the NEA in terminating the NEA's obligations, if any, under the NEA Component Agreements and the Bond Documents and (ii) the County and the NEA shall agree upon and the County shall pay to the NEA an amount equal to its Proportionate Share of the sum of the following, provided the County has not previously paid, or made arrangements satisfactory to the NEA for the payment of, such costs:

(i) The amount necessary to (a) pay or make provision satisfactory to the Trustee and the NEA for the payment of Debt Service on all outstanding Bonds or (b) fully and irrevocably defease all outstanding Bonds.

(ii) All reasonable and necessary costs and liabilities incurred by the NEA and associated with settling and paying termination claims under the NEA Component Agreements and other agreements entered into by the NEA with respect to the NEA Component and its performance by the NEA of its obligations under this Agreement.

(iii) All reasonable and necessary storage, transportation, and other costs incurred by the NEA for the preservation, protection, or disposition of NEA Component equipment, materials and facilities.

(iv) All reasonable and necessary costs incurred by the NEA for any accounting, clerical or other expenses reasonably necessary for the preparation of termination settlement documents and supporting data.

(v) All reasonable and necessary costs incurred by the NEA in terminating the operation of the NEA Component, including any severance pay and other reasonable and necessary costs incurred in terminating employees.

(vi) Any payments or other charges due and payable by the NEA under the Service Agreement, the Facility Site Lease, the NEA Component Agreements that are incurred or payable as a result of the termination of this Agreement.

(vii) Any other costs or expenses incurred or to be incurred by the NEA as a result of the termination of this Agreement. Such costs include, without limitation, any costs or expenses necessary to decommission and raze the NEA Component in accordance with Applicable Law and the NEA Component Agreements and any costs or expenses reasonably necessary to avoid a default by the NEA under any NEA Component Agreement, Bond Document or other agreement relating to the NEA Component that remains in effect, in whole or in part, after the date of the Notice of Termination.

(d) In arriving at the amount due to the NEA under this Section, there will be deducted from the County's Proportionate Share all unliquidated advance or other payments on account theretofore made to the NEA by the County that are applicable to the terminated portion of this Agreement.

Section 8.5 Survival of Certain Rights and Obligations. The rights and obligations of the Parties under this, Section 2.3, Section 11.1 (with respect to the NEA Component Site), Section 11.16, Section 3.8, Section 4.4(c), Section 8.2, Section 8.4, Section 8.6, Section 8.7, and Section 11.15 survive any termination of this Agreement. No termination of this Agreement limits or otherwise affects the rights and obligations of any Party that have accrued before the date of such termination.

Section 8.6 Dispute Resolution.

(a) The NEA and the County shall in good faith attempt to resolve any dispute or matter in controversy under this Agreement.

(b) Each of the Parties hereby agrees that any legal proceedings which may arise under this Agreement shall be brought into the State courts located in the County.

Section 8.7 Limitation Of Defenses. The County and the NEA agree that neither Party may assert as a defense against any claim by another Party for failure to perform

its obligations (i) impossibility or impracticability of performance, (ii) the existence, nonexistence, occurrence or nonoccurrence of any foreseen or unforeseen fact, event or contingency that may be a basic assumption of the NEA or the County, (iii) commercial frustration of purpose, or (iv) contract of adhesion.

ARTICLE IX
TERM; RENEWAL; FACILITY TRANSFER

Section 9.1 Term. This Agreement is in effect from the date of its execution or, if later, the date on which the last condition precedent pursuant to Section 9.2 is satisfied, and, unless sooner terminated in accordance with ARTICLE IX, shall continue in effect until the Maturity Date.

Section 9.2 Conditions Precedent.

(a) The obligations of NEA pursuant to this Agreement shall be subject to the satisfaction, or waiver by NEA, of each of the following conditions precedent, and this Agreement shall not be deemed effective until the same have each occurred:

(1) Execution of the Service Agreement;

(2) Execution of the Carroll County Agreement;

(3) Execution of the Facility Site Lease and other required leases, easements, or rights of way, if any;

(4) Execution of all other NEA Component Agreements deemed necessary by the NEA for the completion and operation of the NEA Component.

(b) If the foregoing conditions precedent have not been satisfied by December 31, 2012, either Party may terminate this Agreement.

(c) If the Service Agreement is terminated pursuant to Section 4.5 of the Service Agreement prior to Financial Closing, the County shall pay the NEA 50% of the amount due to the Company thereunder.

Section 9.3 Renewal. Unless at least 180 days before the end of the initial term of this Agreement and, if applicable, the end of the first renewal period, (1) the County gives the NEA written notice stating it does not want the term of this Agreement to extend or (2) the NEA gives the County written notice stating it does not want the term of this Agreement to extend, this Agreement shall automatically extend for two additional terms of 5 years at a Energy Recovery Fee calculated and paid as provided in ARTICLE VII of this Agreement.

Section 9.4 Sale of NEA Component.

(a) Participating Counties Purchase Right. Upon the termination of the Service Agreement and the Maturity Date of the Bonds, the Participating Counties will, by

means of a notice executed by both Participating Counties given within 180 days before the Maturity Date, direct the NEA as to whether to continue to operate the Facility or to sell the Facility. The Participating Counties shall have a right of first refusal in connection with any proposed sale of the Facility upon such termination subject to any lien created by the Bond Documents. Any net proceeds from sale or disposal of the Facility shall be disbursed on a pro-rata basis to the Participating Counties according to their Proportionate Shares. Prior to the Financial Closing, the Participating Counties and the NEA may enter into other arrangements (including a bargain purchase by the Participating Counties) for the Facility after the Maturity Date of the Bonds.

(b) No Other Transfers Permitted. The NEA shall not sell, lease, sublease or otherwise transfer the NEA Component or any portion of the NEA Component to any Person without the prior written consent of both of the Participating Counties; provided, however, that the NEA may sell, lease, sublease or transfer any portion of the NEA Component if the NEA provides a written certification of the Consulting Engineer that such portion is no longer necessary or desirable for the NEA to meet its obligations hereunder and that the proceeds received therefrom represents fair market value thereof. The net proceeds of such sale shall constitute NEA Component Revenues.

(c) Requirements for Participating Counties Exercise of Purchase Option. In the event that the Participating Counties elect to purchase the NEA Component pursuant to subsection (A) above, the Participating Counties shall enter into valid and binding agreements, in form reasonably satisfactory to the NEA, whereby simultaneously with such purchase, the Participating Counties irrevocably assume all of the rights, duties, liabilities and obligations of the NEA relating to the Facility and the performance by the NEA and/or this Agreement or the Carroll County Agreement, or all such liabilities and obligations of the NEA are terminated without cost, liability or expense to the NEA, including expenses and liabilities under (a) the NEA Component Agreements or the performance of NEA's obligations hereunder, (c) any litigation or proceeding relating to the foregoing and (d) any other contracts relating to the NEA Component. The NEA shall provide the Participating Counties Representatives with copies of any contract, Government Approvals, lawsuits or liabilities described in this subsection before the sale of the NEA Component.

ARTICLE X
REPRESENTATIONS AND WARRANTIES

Section 10.1 Representations and Warranties of the NEA. The NEA hereby makes the following respective representations and warranties, as of the date of execution and delivery of this Agreement, to and for the benefit of the County:

(a) The NEA is a body politic and corporate validly existing under the Constitution and laws of Maryland, with full legal right, power and authority to enter into and perform its obligations under this Agreement.

(b) The NEA has duly authorized the execution and delivery of this Agreement and this Agreement has been duly executed and delivered by the NEA and

constitutes a legal, valid and binding obligation of the NEA, enforceable against the NEA in accordance with its terms.

(c) Neither the execution or delivery by the NEA of this Agreement, nor the performance of the NEA's obligations in connection with the transactions contemplated hereby nor the NEA's fulfillment of the terms or conditions of this Agreement (i) conflicts with, violates or results in a breach of any Applicable Law, or (ii) conflicts with, violates or results in a breach of any term or condition of any judgment or decree, or any agreement or instrument, to which the NEA is a party or by which the NEA or any of its properties or assets are bound, or constitutes a default thereunder.

(d) No approval, authorization, order or consent of, or declaration, registration or filing with, any governmental authority is required for the valid execution and delivery by the NEA of this Agreement except those that have been duly obtained or made.

(e) Except as disclosed to the County in writing, there is no action, suit or proceeding, at law or in equity, before or by any court or governmental authority, pending or, to the best of the NEA's knowledge, threatened, against the NEA, wherein an unfavorable decision, ruling or finding would materially adversely affect the performance of its obligations hereunder or in connection with the other transactions contemplated hereby or which, in any way, would adversely affect the validity or enforceability of this Agreement or any agreement or instrument entered into by the NEA in connection with the transactions contemplated hereby.

Section 10.2 Representations and Warranties of the County. The County hereby makes the following representations and warranties to and for the benefit of the NEA:

(a) The County is a political subdivision of the State of Maryland and a body politic and corporate duly organized and validly existing under the constitution and laws of the State of Maryland, with full legal right, power and authority to enter into and perform its obligations under this Agreement.

(b) The County has duly authorized the execution of this Agreement and this Agreement has been duly and validly executed and delivered by the County and constitutes a legal, valid and binding obligation of the County, enforceable against the County in accordance with its terms.

(c) Neither the execution or delivery by the County of this Agreement, nor the performance by the County of its obligations in connection with the transactions contemplated hereby, or the fulfillment by the County of the terms or conditions of this Agreement (1) conflicts with, violates or results in a breach of any Applicable Law, or (ii) conflicts with, violates or results in a breach of any term or condition of any judgment or decree, or any agreement or instrument, to which the County is a party or by which the County or any of its properties or assets are bound, or constitutes a default thereunder or (iii) results in the creation or imposition of any lien, charge or encumbrance of any nature whatsoever upon any of the properties or assets of the County, except as expressly contemplated by this Agreement.

(d) No approval, authorization, order or consent of, or declaration, registration or filing with, any governmental authority is required for the valid execution and delivery of this Agreement by the County, except such as have been duly obtained or made.

(e) Except as disclosed to the NEA, in writing, there is no action, suit or proceeding, at law or in equity, before or by any court or governmental authority, pending or, to the best of the County's knowledge, threatened, against the County, wherein an unfavorable decision, ruling or finding would materially adversely affect the performance by the County of its obligations hereunder or in connection with the transactions contemplated hereby, or which, in any way, would adversely affect the validity or enforceability of this Agreement, or any other agreement or instrument entered into by the NEA in connection with the transactions contemplated hereby.

ARTICLE XI
MISCELLANEOUS

Section 11.1 Insurance.

(a) Required Insurance. The NEA shall obtain and maintain, or cause to be obtained and maintained, insurance, in forms approved by the County Representative, covering the NEA Component, that are available on commercially reasonable terms and conditions and afford adequate protection against loss caused by damage to, destruction of, or business interruption of all or any part of the NEA Component, and liability insurance for bodily injury and damage resulting from damage to or destruction of all or any part of the NEA Component owned by the NEA (the "Required Insurance"). The NEA will satisfy the preceding sentence if (i) before the termination of the Service Agreement it maintains, or causes to be maintained, the insurance specified in Appendix 14 to the Service Agreement, or (ii) after the Service Agreement Termination Date it maintains, or causes to be maintained, insurance reasonably recommended by the Insurance Consultant. Any form of insurance submitted by the NEA to the County for approval shall be deemed approved if the County fails to take action with respect thereto within thirty (30) days after submission by the NEA. The NEA shall procure and maintain any additional insurance coverage related to the NEA Component requested by the County Representative or required by Applicable Law that is available on commercially reasonable terms.

(b) Evidence of Insurance. The NEA shall deliver to the County copies of all certificates of insurance for Required Insurance and any policy amendments and policy renewals. Each policy procured by the NEA with respect to the NEA Component shall name the County as an additional insured (with waiver of right of subrogation) and provide for at least 30 days' prior written notice to the County of termination or cancellation or of any change in coverage or deductibles.

(c) Qualified Insurance Providers. The NEA shall carry all Required Insurance with responsible insurance companies of recognized standing. The NEA shall carry all Required Insurance with insurance companies that are rated at least "A" or its equivalent by Best's Keys Rating or another national rating organization. The NEA may effect Required Insurance by endorsement of blanket insurance policies.

(d) NEA Insurance. The NEA shall not take out separate insurance concurrent in form or contributing in the event of loss with Required Insurance if the existence of such insurance reduces amounts payable under Required Insurance. The NEA shall immediately notify the County whenever it applies for any separate insurance relating to the NEA Component and shall promptly deliver the policy or policies evidencing the separate insurance to the County.

(e) Submission of Claims. The NEA shall submit, or cause to be submitted, to the appropriate insurer timely notices and claims of all losses insured under any Required Insurance policy, pursue such claims diligently and comply with all terms and conditions of Required Insurance policies. The NEA shall promptly give the County Representative copies of all notices and claims of loss and any documentation or correspondence related to such losses. The NEA shall make all policies for Required Insurance, policy amendments, and other related insurance documents available for inspection and photocopying by the County Representative on reasonable notice.

(f) Consultant Insurance. The NEA shall review its insurance coverages and insurance coverages of its consultants and subcontractors performing services under this Agreement with the County Representative. The NEA shall require its consultants to maintain the greater of their current coverages or the insurance coverages required by the consultants' or subcontractors' agreements with the NEA. The NEA shall exercise every reasonable effort to obtain from each of its consultants a certificate of insurance naming the County as an additional insured (as a third party beneficiary) and further providing that the insurance policy will not be cancelled, interrupted or otherwise modified to the potential detriment of the NEA or the County without first providing both the NEA Representative and the County Representative with 45 days advance written notice (or such other written notice as may be provided by Applicable Law) of such cancellation, interruption or modification. Upon the request of the County Representative, the NEA will use every reasonable effort to increase its insurance coverage and the insurance coverage of its consultants to levels consistent with the coverages that would be required by a private entity performing similar services, if the insurance is available on commercially reasonable terms. The NEA will also provide the County Representative with, and make every reasonable effort to obtain from its consultants, such information or certificates of insurance as either of the County Representative may request concerning the coverages maintained by the consultants or the NEA under this Agreement. The NEA may satisfy its own obligation to provide insurance coverage through its participation in the State self-insurance program.

The County shall reimburse the NEA, or any of the NEA's consultants, as the case may be, for any costs or expenses incurred by them in pursuing any indemnifications, acknowledgements, or insurance coverages referenced herein including additional premiums, costs or expenses and of obtaining additional coverages, adding the Counties as an "additional insured" or as a "third party beneficiary" or making any other changes to the terms or conditions of their insurance policies to comply with this Agreement, according to its Proportionate Share with respect to costs and expenses incurred by the NEA with respect to both Participating County Agreements.

Section 11.2 Assignment. Neither the NEA nor the County may assign this Agreement without the prior written consent of the other Party, except that the NEA may

assign its rights, remedies, powers and privileges under this Agreement to the Trustee, the NEA's lenders or the provider of any credit facility without the permission of the County.

Section 11.3 Cooperation. Each Party shall use reasonable efforts to implement the provisions of and to administer this Agreement in accordance with the intent of the Parties to minimize all taxes, so long as neither Party is materially adversely affected by such efforts.

Section 11.4 Taxes. In the event the NEA is required by Applicable Law to remit or pay Taxes which are the County's responsibility hereunder, the County shall promptly reimburse the NEA for such Taxes. In the event the County is required by Applicable Law to remit or pay Taxes which are the NEA's responsibility hereunder, the NEA shall promptly reimburse the County for such Taxes. Nothing shall obligate or cause a Party to pay or be liable to pay any Taxes for which it is exempt under Applicable Law.

Section 11.5 Notices. All notices, designations, consents, approvals, and other communications required, permitted or otherwise delivered under this Agreement shall be in writing and may be telexed, cabled or delivered by hand or mailed by first class registered or certified mail, return receipt requested, postage prepaid, or dispatched by next day delivery service and in any case shall be addressed as follows:

If to the NEA:

Northeast Maryland Waste Disposal Authority
Tower II – Suite 402
100 S. Charles Street
Baltimore, Maryland 21201
Attention: Executive Director

If to the County:

Frederick County
4520 Metropolitan Court
Frederick, MD 21704
Attention: Director, Division of Utilities & Solid Waste Management

Changes in the respective addresses to which such communication may be directed may be made from time to time by any Party notice to the other Parties. Any such communications given in accordance with this Section 11.5 shall be deemed to have been given five Business Days after the date of mailing communications given by any other means shall be deemed to have been given when delivered.

Section 11.6 Entire and Complete Agreement. This Agreement (including all Schedules) constitutes the entire and complete agreement of the Parties with respect to its subject matter and supersedes all prior or contemporaneous understandings, arrangements, commitments and representations, all of which, whether oral or written, are merged into this

Agreement. The Schedules to this Agreement are an integral part of this Agreement and shall be afforded full force and effect as though incorporated in their entirety in the Articles hereof.

Section 11.7 Binding Effect. This Agreement binds and inures to the benefit of the Parties and any successor or assignee acquiring an interest hereunder permitted by Section 11.1.

Section 11.8 Further Assurances. Each Party shall execute and deliver any instruments and perform any acts that may be necessary and reasonably requested by the other Party in order to give full effect to this Agreement.

Section 11.9 Applicable Law. The laws of the State of Maryland govern the validity, interpretation, construction and performance of this Agreement.

Section 11.10 Counterparts. This Agreement may be executed in counterparts, each of which shall be deemed an original, and all of which when executed and delivered together constitute one and the same instrument.

Section 11.11 Rules of Interpretation.

(a) Entire Agreement. This Agreement contains the entire agreement between the Parties with respect to the transactions contemplated by this Agreement and, except as expressly provided otherwise herein, nothing in this Agreement is intended to confer on any Person other than the Parties and their respective permitted successors and assigns hereunder any rights or remedies under or by reason of this Agreement.

(b) Severability. If any clause, provision, subsection, Section or Article of this Agreement shall be ruled invalid by any court of jurisdiction, then the Parties shall: (1) promptly meet and negotiate a substitute for such clause, provision, section or Article which shall, to the greatest extent legally permissible, effect the intent of the Parties therein; (2) if necessary or desirable to accomplish item (1) above, apply to the court having declared such invalidity for a judicial construction of the invalidated portion of this Agreement; and (3) negotiate such changes in, substitutions for or additions to the remaining provisions of this Agreement as may be necessary in addition to and in conjunction with items (1) and (2) above to effect the intent of the Parties in the invalid provision. The invalidity of such clause, provision, subsection, Section or Article shall not affect any of the remaining provisions hereof, and this Agreement shall be construed and enforced as if such invalid portion did not exist.

(c) References. All reference to designated "Articles", "Sections", "Schedules" and other subdivisions are to the designated Articles, Sections, Schedules and other subdivisions of this instrument.

(d) Captions. The table of contents and the headings or captions used in this Agreement are for convenience of reference only and do not define, limit or describe any of the provisions of this Agreement or the scope or intent hereof.

Section 11.12 Amendment or Waiver.

Neither this Agreement nor any provision of this Agreement may be changed, modified, amended or waived except by a written instrument signed by the Party against whom enforcement of such change, modification, amendment or waiver is sought.

Section 11.13 Relationship of the Parties. No Party has any responsibility whatsoever with respect to services provided or contractual obligations assumed by any other Party and nothing in this Agreement shall be deemed to constitute one Party a partner, agent or legal representative of any of the other Parties or to create any fiduciary relationship between the Parties.

Section 11.14 Public Disclosure. Promptly following the written request of the County Representative, the NEA shall provide the County Representative with any information within its control which it is permitted by Applicable Law (including Title 1D, Subtitle 6 of the State Government Article of the Annotated Code of Maryland) to disclose.

Section 11.15 Limitation Of Liability. The execution and delivery of this Agreement by the NEA and the County shall not impose any personal liability on the members, officers, employees or agents of the NEA or the County. No recourse will be had by a Party for any claims based on this Agreement against any member, officer, employee or other agent of the other Party in his or her individual capacity, all such liability, if any, being expressly waived by the County and the NEA by the execution of this Agreement.

Section 11.16 Limitation of NEA Payment Obligations To Bond Proceeds And NEA Component Revenues. The liability of the NEA for any monetary payments with respect to, or as a result of, this Agreement are not payable from the general funds of the NEA or any amounts received by the NEA in respect of the Energy Recovery Fee and the incurrence or nonperformance of such obligations or payments will not constitute or create a legal or equitable pledge of, or lien or encumbrance upon or claim against, any of the assets or property of the NEA or of its income, receipts or revenues, except NEA Component Revenues and Bond proceeds available to pay such amounts under Applicable Law and the Bond Documents.

Section 11.17 Contractual Obligation; Not Subject to Annual Appropriation.

(a) This Agreement is a general contractual obligation of the County and although the County expects to generate the amounts due hereunder from tipping fees and system benefit changes, its obligations under this Agreement are not limited to such funds. The County's obligations hereunder are not subject to annual appropriation by the County.

(b) If the County elects prior to the Financial Closing, the pecuniary obligations of the County may be limited to funds in a solid waste enterprise fund, provided that the County and the NEA enter into a mutually-agreed supplement to this Agreement providing for a rate covenant and other covenants regarding the pledge of and management of the County Disposal System and the County's revenues therefrom.

IN WITNESS WHEREOF, the NEA and the County have executed this Agreement July 29, 2009.

[SEAL]

ATTEST:

M. Catherine Coble

M. Catherine Coble
Director of Finance & Administration

NORTHEAST MARYLAND WASTE DISPOSAL AUTHORITY

Robin B. Davidov

Robin B. Davidov
Executive Director

[SEAL]

ATTEST:

By: Patricia M. Weber
Name: Patricia M. Weber
Title: Administrative Specialist

FREDERICK COUNTY, MARYLAND

Jan H. Gardner

Jan H. Gardner, President
Board of County Commissioners of
Frederick County, Maryland

R.J.M.
6-5-09

Exhibit A
DEFINITIONS AND INTERPRETATION

As used in this Agreement, the following terms shall have the meanings set forth below:

"Acceptable Waste" means that portion of waste materials or debris which can be combusted, having a composition with characteristics such as that collected and disposed of as part of normal collections of waste materials and debris in the County, such as, but not limited to: garbage, rubbish, trash, paper, cardboard, cartons, wood (except as limited below), boxes, rags, cloth, bedding, leather, grass, leaves and brush, yard trimmings, tree limbs, plastics, refuse, beds, mattresses, sofas, carpeting and combustible construction and demolition debris and other combustible waste, bicycles, tin cans, and other noncombustible residential waste, automobile tires or small vehicle tires to the extent the air emission criteria of the Facility shall not be violated as a result of incinerating such tires, as well as portions of commercial and industrial waste materials or debris which may be combusted, and lumber, logs and trees if no more than four (4) feet long and/or six (6) inches in diameter, excepting, however, Unacceptable Waste and Hazardous Waste while the Service Agreement is in effect. Acceptable Waste shall include any waste that the Company is required to accept at the Facility under the Service Agreement, including sewage sludge delivered by or on behalf of Frederick County.

"Actual Delivery Ratio" has the meaning given in Section 4.1(c)(ii).

"Additional Capital Investment" has the meaning given in Section 5.3(b).

"Administrative Budget" means the Administrative Budget of the NEA described in Section 4.1(G) hereof.

"Agreement" means this Agreement between the NEA and the County (including the Exhibits and Schedules to this Agreement), as amended or modified from time to time.

"Alternate Disposal Costs" has the meaning given in Section 4.1(f).

"Alternate Disposal Facility" means a sanitary landfill (including any Designated Landfill), within or without the County boundaries, solid waste acceptance, transportation and disposal facilities at which waste material or debris is accepted, stored or disposed of by or on behalf of the NEA other than the normal sites to be used for such activities pursuant to this Agreement.

"Alternate Disposal Methods" means any method of acceptance, transportation, storage and/or disposal of Acceptable Waste, other than operation of the normal acceptance at and processing through the Facility under the Service Agreement, by which the NEA or any Person acting for or on behalf of the NEA accepts, transports, stores or disposes of, or causes to be accepted, transported, stored or disposed of, Acceptable Waste, either through the use of the NEA Component, the NEA Component Sites, the Designated Landfill, the Alternate Disposal Facilities or otherwise.

"Annual Settlement Statement" has the meaning given in Section 4.3.

"Applicable Law" means (i) any applicable statute, common law, treaty, rule, code, ordinance, regulation, interpretation, certificate, or order of any Governmental Authority, (ii) any license, permit, franchise, certificate or other authorization of, and required registration or filings with any Governmental Authority, or (iii) any judgment, decision, decree, injunction, order or the like of any Governmental Authority.

"Bankruptcy Event" means, with respect to any Person, the (i) filing of a petition or otherwise commencement, authorization or acquiescence in the commencement of a proceeding or cause of action by such Person under any bankruptcy, insolvency, reorganization or similar law, or having any such petition filed or commenced against it, (ii) making an assignment or any general arrangement for the benefit of creditors, (iii) otherwise becoming bankrupt or insolvent (however evidenced), (iv) having a liquidator, administrator, receiver, trustee, conservator or similar official appointed with respect to it or any substantial portion of its property or assets, or (v) generally being unable to pay its debts as they fall due.

"Billing Period" means each calendar month during the term of this Agreement except that (1) the first Billing Period shall begin on the Commencement Date and shall end on the last day of the month in which the Commencement Date occurs and (2) the last Billing Period shall end on the last day of the term of this Agreement.

"Billing Statement" has the meaning given in Section 4.2(a).

"Bond" means any bonds, notes or other obligations of the NEA issued or incurred before or during the term of this Agreement to finance or refinance all or part of the Capital Costs of the NEA Component. Bonds include any credit facilities, interest rate swaps or hedges or similar financing obligations.

"Bond Documents" means the Trust Indenture, mortgage or security agreements, and any other agreements relating to the Bonds.

"Bondholder" means any Person possessing a beneficial interest in one or more Bonds.

"Business Day" means each Monday, Tuesday, Wednesday, Thursday, and Friday which is not a public holiday in the State of Maryland.

"Capacity Maintenance Change" has the meaning given in Section 5.3(a).

"Capital Costs" means (i) any item of cost of a capital nature incurred by the NEA which cost constitutes a "cost of the project" under the NEA's enabling legislation or (ii) any other cost of a NEA Component which is approved in a County Bond Approval. Capital Costs include reserve funds, and reasonable working capital.

"Carroll County" means County Commissioners of Carroll County, Maryland, a political subdivision of the State.

"Carroll County Agreement" means the Energy Recovery Agreement entered into by and between the NEA and Carroll County relating to the NEA Component.

"Change" means any restoration, modification, addition or alteration to the NEA Component.

"Commencement Date" means the date on which construction and start up testing of the Facility is complete and the Facility has achieved commercial operations pursuant to the Service Agreement.

"Company" has the meaning given to such term in the recitals.

"Comprehensive Solid Waste Management Plan" means the County's comprehensive solid waste management plan of the County which is in effect and approved by the State of Maryland from time to time.

"Consulting Engineer" means an independent engineer or engineering firm or corporation of engineers, of recognized standing, having skill and experience with respect to the design, construction and operation of facilities similar to those contemplated hereunder, as may be designated by the NEA (subject to the approval of the Participating Counties, which approval cannot be unreasonably withheld) from time to time, and approved pursuant to the terms of Trust Indenture.

"County" has the meaning given in the preamble.

"County Bond Approval" with respect to a Participating County means either (i) the affirmative approval of the Board of Commissioners of the County of the maximum principal amount, the maximum interest rate, and the final maturity of the Bonds (the "Key Bond Terms") or (ii) the failure of the Board of Commissioners to disapprove the Key Bond Terms of a NEA Bond issue within 45 days after the NEA has given to the President of the Board a written notice stating the Key Bond Terms and stating that it intends to issue Bonds to finance the Facility.

"County Disposal Services" means all waste materials and debris disposal services which are required to be provided by the County pursuant to the County's obligation to dispose of all waste materials and debris generated within its geographical boundaries, whether such services are provided through the use of the County Disposal System, by solid waste management contracts or otherwise. "County Disposal Services" includes any recycling or materials recovery activities undertaken within the County Disposal System.

"County Disposal System" means the (a) plants, structures, buildings, machinery, equipment, fixtures and other real and personal property owned or leased by the County pursuant to and for the purposes of providing solid waste management service, including but not limited to any components which are necessary or desirable for the efficient operation of the County Disposal System and any appurtenances which are necessary or useful and convenient therefor and (b) any rights and obligations of the County under any solid waste management contracts, as such

contracts may be amended, modified or renewed. The County Disposal System includes the rights of the County to disposal services under this Agreement.

"County Exercise of Rights Notice" has the meaning given in Section 6.3(d).

"County Exercise of Rights Response" has the meaning given in Section 6.3(b).

"County Representative" means, with respect to any direction, instruction, or other action of the County in accordance with this Agreement, an individual duly authorized by a written order duly executed by the County, the current authorization of which shall be confirmed at any time at the request of the NEA prior to such direction, instruction or other action becoming effective.

"Debt Service" has the meaning given in Section 4.1(d).

"Designated Hauler" means any Person delivering waste to the NEA pursuant to this Agreement on behalf of a Participating County, including employees or agents of the County.

"Designated Landfill" means any landfill or facilities made available to the NEA by the County for disposal of Landfill Waste pursuant to a Landfill Agreement.

"Discretionary Rights" means the reserved rights described in the Service Agreement, including:

1. Right to require Changes to the Facility pursuant to Article VII of the Service Agreement.

2. Right to accept Facility at less than the Minimum Performance Standard.

3. Right to terminate for Company failure to perform or for convenience.

4. Right to waive any defaults.

In addition, the Participating Counties, by a written direction duly executed by both Participating Counties Representatives, may designate any other rights under any Service Agreement as "Discretionary Rights" by written notice to the NEA.

"Discriminatory County Taxes" means Taxes levied or imposed by the County (or any agency, public authority, special district, subdivision or other public instrumentality thereof) on the NEA, the Company, the Facility, or the activities contemplated by the NEA Component Agreements, and paid or incurred by the NEA or the Company, but not including (a) sales or excise taxes, user fees, assessments or other charges for benefits, services, utilities, licenses or permits, in each case established on a basis that does not have the effect of discriminating against waste disposal and/or energy recovery facilities and payable by a broad range of businesses and industries, (b) interest, penalties or fines, or (c) amounts payable by the NEA or the Company to the County under contractual arrangements therewith, including rentals payable under the Facility Site Lease.

"Effluent" means any treated or reclaimed wastewater furnished by the County to the NEA for use at the Facility.

"Effluent Charge" means any charge, fee, imposition or other amount imposed by the County or any agency thereof on the discharge of cooling water or other Facility effluent into the County's effluent discharge system or for the use of treated or reclaimed wastewater received from the County.

"Energy Recovery Fee" means the annual fee payable to the NEA by the County pursuant to this Agreement.

"Event of Default" means an Event of Default as defined in Section 8.2.

"Facility" has the meaning given in the Recitals.

"Facility Fee" has the meaning given in Section 4.1(e).

"Facility Site" means a site upon with the Facility is to be located, subject to lease from the County to the NEA.

"Facility Site Lease" means collectively (1) the agreement between the County and the NEA concerning the lease to the NEA of the Facility Site and the granting of certain easements and rights to the NEA, as such agreement may be extended, revised or amended, and (2) any agreement between the NEA and the County concerning use of the Facility Site, or any part thereof, by the NEA, as such agreements may be amended or modified from time to time.

"Financial Closing" means the date on which the Bonds are issued and proceeds thereof are available to pay substantially all of the costs of the NEA Component.

"Fiscal Year" means the NEA's fiscal year for accounting purposes, lasting from the first day of July to the 30th day of June of the following calendar year.

"Governmental Authority" means any court, tribunal, authority, agency, commission, official or other instrumentality of the United States, any arbitrator, any foreign country or any domestic or foreign state, county, city or other political subdivision or any Native American tribal council or similar governing entity having jurisdiction over the applicable subject matter.

"Hazardous Waste" means any waste, substance, object or material deemed hazardous under Applicable Law including, without limitation, "hazardous waste" as defined under the Solid Waste Disposal Act, 42 U.S.C. §§ 6901 et seq., as amended, or any successor legislation, and the regulations thereunder, and "hazardous substance" as defined under the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. 9601 et seq., as amended, or any successor legislation, and the regulations thereunder, or any other applicable Federal, State or local law and the regulations thereunder, provided, however, that household hazardous waste shall not constitute Hazardous Material. Hazardous Material shall include radioactive materials. If

any Governmental Authority now or hereafter having appropriate jurisdiction shall determine that substances which were not, as of the Commencement Date, considered harmful, toxic or dangerous, are harmful, toxic or dangerous, then such substances shall be Hazardous Waste for the purposes of this Agreement as of the effective date of any such determination.

"Independent Public Accountant" means any nationally recognized firm of public accountants designated by the NEA to perform the services required to be performed by the Independent Public Accountant hereunder and approved by the County Representative, which approval shall not be unreasonably withheld.

"Insurance Consultant" means an independent consultant or firm of consultants with a favorable national reputation that is designated by the NEA and approved by the County Representative, which approval shall not be unreasonably withheld.

"Internal Revenue Code" means Title 26 of the United States Code, as the same may be revised, expanded, or amended.

"Landfill Agreement" means any agreement between the NEA and the County (and any agreement assigning or otherwise making available to the Company any of the NEA's rights thereunder) providing, among other things, for the disposal of Residue and bypassed waste, as such agreement may be amended or modified from time to time.

"Landfill Waste" has the meaning ascribed thereto in the Landfill Agreement.

"Maturity Date" means the earlier of (i) the final stated maturity date of the Bonds, or (ii) the date on which all of the Bonds are defeased in accordance with the terms thereof.

"NEA" means Northeast Maryland Waste Disposal Authority, and its successors and permitted assigns.

"NEA Administrative Costs" has the meaning given in Section 4.1(g).

"NEA Component" means the components of the County Disposal System which are to be undertaken by the NEA pursuant to this Agreement, including, collectively, the Facility, any Changes to the Facility made in accordance with this Agreement, and any Alternate Disposal Facility or Alternate Disposal Methods and any NEA Component Agreement.

"NEA Component Agreements" means the Facility Site Lease, the Service Agreement, and all energy sales agreements, landfill agreements, or agreements regarding an Alternate Disposal Facility, and this Agreement, together with any and all other agreements to which the NEA is a party necessary for the NEA to fulfill its obligations under this Agreement that are approved by the County Representative pursuant to Section 6.3 or entered into in accordance with Section 6.4, as such agreements may be amended or modified from time to time.

"NEA Component Revenues" has the meaning specified in Section 4.1(j).

"NEA Component Sites" means the Facility Site, and any Alternate Disposal Facility.

"NEA Dispute Notice" has the meaning given in Section 6.3.

"NEA Exercise of Rights Notice" has the meaning given in Section 6.3(b).

"NEA Representative" means the Executive Director, acting pursuant to a duly authorized resolution of the NEA, or any other Person designated in writing by the Executive Director, the current authorization of the designee shall be confirmed by the Executive Director at any time at the request of the County Representative prior to any direction, instruction or other action of the designee becoming effective.

"NEA Sponsored Waste" means Acceptable Waste delivered to the Facility from Persons through agreements directly with the NEA and not for the account of either Participating County.

"Nonperforming Party" means a Party to this Agreement who fails to perform any obligation or comply with any requirement of such Party under this Agreement.

"Notice of Termination" means a written notice requiring the termination of this Agreement due to an Event of Default pursuant to ARTICLE VIII hereof that specifies the factual basis for such termination and the date on which this Agreement will terminate pursuant to ARTICLE VIII hereof.

"Operating Costs" has the meaning given in Section 4.1(h).

"Operating Year" means the NEA's fiscal year commencing on July 1 in any year and ending on June 30 of such year provided, however, that with respect to operations of the Facility, the first OperationsYear shall commence on the Acceptance Date and shall end on the following June 30. Any computation made on the bvasis of a Contract Year shall be adjusted on a pro rata basis to take into account any Contract Year of less than 365 or 366 days, whichever is applicable.

"Participating County" means the County or Carroll County.

"Participating County Agreement" means either this Agreement or the Carroll County Agreement.

"Participating County Representative" means either of the County Representative or the corresponding individual authorized by Carroll County as its representative pursuant to the Carroll County Agreement.

"Person" means an individual, partnership, corporation, limited liability company, business trust, joint stock company, trust, unincorporated association, joint venture, firm, or other entity, or a governmental entity, division, agency, or official.

"Prime Rate" means a rate per annum equal to the cost (without proof or evidence of any actual costs) to the relevant Party (as certified by it) if it were to fund or of funding the relevant amount.

"Priority Acceptable Waste" has the meaning given in Section 8.6(a).

"Processing Capacity Reduction" means a reduction in the amount of Acceptable Waste processed by the Facility per day, pursuant to the Service Agreement.

"Proportionate Share" has the meaning given in Section 4.1(c).

"Prudent Solid Waste Management Practices" means, as of any particular time, any of the practices, methods and acts (not limited to the optimum practice, method or act) engaged in or generally acceptable to a significant portion of the solid waste management industry at or prior to such time, or any of the practices, methods and acts, which in the exercise of reasonable judgment in light of the facts and circumstances known at the time a decision was made, could have been expected to accomplish the desired results consistent with good business practices, reliability, economy, safety and expedition.

"Receiving Hours" means the period of operation for the Facility commencing at 6:30 a.m. on each Monday through Saturday and ending at 6:00 p.m. on the same day, or another eleven and one half (11.5) hour period of operation for each Monday through Saturday which is specified in writing by the NEA.

"Recovered Materials" means ferrous and nonferrous metals recovered at the Facility from Acceptable Waste or Residue.

"Required Insurance" has the meaning given to such term in Section 11.1(a).

"Residue" means the material which remains after Acceptable Waste is processed in the Facility, including bottom ash and fly ash.

"Service Agreement" has the meaning given in the recitals.

"Service Agreement Termination Date" means the date on which the Service Agreement will terminate pursuant to its terms.

"Service Covenant" means the covenants and agreements of the NEA set forth in Section 3.2(a).

"Solid Waste Management Contracts" means all contracts, leases and agreements with any Person to which the County is a party which bear upon or affect any obligation or responsibility of the County with respect to the disposal of waste materials and debris, including without limitation, any contract, lease or agreement providing for the design, construction, maintenance or operation, disposal service, property acquisition, sale or use, of electricity or material sales.

"State" means the State of Maryland.

"Tax" or "Taxes" means all taxes, assessments, charges, duties, fees, levies or other governmental charges, including, without limitation, all federal, state, local, foreign and other income, franchise, profits, gross receipts, capital gains, capital stock, transfer, property, sales, use, value-added, occupation, property, excise, severance, windfall profits, stamp, license, payroll, social security, withholding and other taxes, assessments, charges, duties, fees, levies or other governmental charges of any kind whatsoever (whether payable directly or by withholding and whether or not requiring the filing of a tax return), all estimated taxes, deficiency assessments, additions to tax, penalties and interest; provided that, except in the case of Discriminatory County Taxes, the term "Tax" shall not include taxes imposed on the Company that are reimbursable under the Services Agreement.

"Trust Indenture" means the trust indenture entered into by the NEA with the Trustee in connection with the issuance of the Bonds.

"Trustee" means the trustee appointed by the NEA under the Trust Indenture to such term in the Bond Documents.

"Unacceptable Waste" means that portion of waste materials and debris that is not Acceptable Waste, and is not normally accepted at facilities similar to the Facility in accordance with Prudent Solid Waste Management Practices. Unacceptable Waste is waste that is predominantly noncombustible materials which by Applicable Law may not be combusted by the Facility, or which, in the mutual judgment of the NEA and the Company (a) may present a substantial endangerment to public health or safety, (b) may cause applicable air quality or water effluent standards to be violated by the normal operation of the Facility, or (c) will materially and adversely affect the operation of the Facility, unless such Unacceptable Waste is delivered in minimal quantities and concentrations as part of normal collections in which case such material shall constitute Acceptable Waste. Items of Unacceptable Waste will be established by reasonable regulations by the NEA, based on relevant government approvals, Applicable Laws, the Service Agreement or other NEA component Agreements. Unacceptable Waste includes all items or materials which constitute "Non-Processible Waste" pursuant to the Service Agreement.

"Uncontrollable Circumstance" means an event or circumstance which hinders or prevents one Party from performing one or more of its obligations under this Agreement, which event or circumstance was not anticipated as of the date hereof, which is not within the reasonable control of, or the result of the negligence of, such Party, and which, by the exercise of commercially reasonable efforts, such Party is unable to overcome or avoid or cause to be avoided, including, but not limited to, flood, storm, strike, earthquake, epidemic, war, riot, civil disturbance, sabotage, act of God, or any condition or situation which either party reasonably believes imminently endangers or is reasonably likely to imminently endanger life or property or any other cause beyond the control of such Party. Without in any way limiting the foregoing, with respect to the NEA, any Uncontrollable Circumstance, as defined in the Service Agreement, which releases the Company from any obligation under the Service Agreement shall be deemed an Uncontrollable

Circumstance pursuant to this Agreement to the extent the Company's nonperformance hinders or prevents the NEA from performing one or more obligations under this Agreement.

"Variable Costs" has the meaning given in Section 4.1(i).

"Waste Disposal and Energy Recovery Services" means all services which the NEA is obligated to provide the County under the Service Covenant.

RECYCLING PLAN

FREDERICK AND CARROLL COUNTY WTE FACILITY

AUGUST 2009

Wheelabrator

RECYCLING PLAN
WHEELABRATOR Frederick and Carroll WTE Facility

TABLE OF CONTENTS

Section Page

1.0 **INTRODUCTION** ……..2

2.0 **PERSONNEL** ……..2

2.1 AUTHORITY & RESPONSIBILITIES…… 2

2.2 TRAINING ……3

3.0 **ACRONYMS & DEFINITIONS** ……..3

3.1 LIST OF ACRONYMS ……..3

3.2 KEY DEFINITIONS ……..4

4.0 **WASTES DELIVERED TO THE FACILITY FROM OFFSITE**…… 5

4.1 WASTE LOAD SCREENING…… 5

4.2 WASTE RECEIVING AND LOAD INSPECTION……..5

4.2.1 Waste Receiving System……6

4.2.2 Load Inspection Procedures……..7

4.3 MANAGEMENT OF SPECIFIC IDENTIFIED BULKY RECYCLABLE MATERIALS.... 7

4.3.1 Bulky Waste Procedures …… 7

4.3.2 CFC-containing Appliance Procedures …… 8

4.3.3 Metal Compressed Gas Cylinders …… 9

4.3.4 Metal Recovery from Bottom Ash Handling ……10

4.4 MARKETING OF RECYCLABLE MATERIALS……11

APPENDIX:

APPENDIX A Tipping Floor Rules & Procedures

Formatted: Indent: Left: 0", Hanging: 0.5", Outline numbered + Level: 1 + Numbering Style: 1, 2, 3, … + Start at: 1 + Alignment: Left + Aligned at: 0" + Indent at: 0.25"

Formatted: Outline numbered + Level: 2 + Numbering Style: 1, 2, 3, … + Start at: 2 + Alignment: Left + Aligned at: 0.63" + Indent at: 0.88"

Formatted: Indent: Hanging: 0.13", Outline numbered + Level: 2 + Numbering Style: 1, 2, 3, … + Start at: 1 + Alignment: Left + Aligned at: 0.5" + Indent at: 0.75"

Formatted: Indent: Hanging: 0.31", Outline numbered + Level: 2 + Numbering Style: 1, 2, 3, … + Start at: 1 + Alignment: Left + Aligned at: 0.5" + Tab after: 0.75" + Indent at: 0.75"

Formatted: Indent: Left: 1.19", Outline numbered + Level: 3 + Numbering Style: 1, 2, 3, … + Start at: 1 + Alignment: Left + Aligned at: 1" + Tab after: 1.5" + Indent at: 1.5"

1.0 introduction

This Recycling Plan describes the methods that will be used to identify and remove certain recyclable materials (i.e. bulky metal items, white goods, ferrous and non-ferrous metals) from the mixed waste stream received at the Frederick/Carroll Waste-To-Energy facility. The plan also seeks to ensure coordination of efforts between Frederick County DUSWM and Wheelabrator to ensure diversion of these recyclables to the Frederick County transfer station, located at the Reich's Ford Road Sanitary Landfill.

In carrying out this plan Wheelabrator will participate and assist the County and the NMWDA in local (Frederick County) recycling initiatives. Wheelabrator will not accept source separated loads of recyclables unless they have been deemed unfit for recycling.

- The Plan addresses loads of recyclables inadvertently arriving at the WTE facility
- The Plan addresses municipal solid wastes brought to the facility.
- The Plan does not cover recycling programs implemented by communities or businesses whose waste is delivered to the WTE facility.
- The Plan address the removal of recyclable metals following combustion in the facility's ferrous and non-ferrous metals recovery systems

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Tab after: 0.5" + Indent at: 0.5"

The actions described in this plan are voluntary and are not requirements of laws and regulations, or facility permits. The actions are consistent with company policy including established safety practices described in the Injury Prevention Manual (IPP Manual). Employees of the WTE facility will be trained in following this Recycling Plan.

This facility will operate in accordance with all applicable regulations and with all permit conditions.

2.0 personnel

2.1 AUTHORITY & RESPONSIBILITY

All WTE Facility Personnel will be trained to do the following:

- ensuring that loads of waste accepted at the facility for disposal are visually inspected for the presence of certain recoverable bulky recyclable items such as bulk metals, white goods, and propane cylinders and any other bulky metal item that may not be collected through the ferrous or non-ferrous recovery system
- properly isolating identified recyclable materials on the tipping floor while complying fully with company safety policies (Appendix A – Tipping floor Rules and Procedures),
- reviewing and following this Recycling Plan.

Formatted: Bulleted + Level: 1 + Aligned at: 0" + Tab after: 0.25" + Indent at: 0.25"

The **Scale House Attendant** (a Frederick County employee) is responsible for:

- weighing all incoming loads, recording certain information for billing and recordkeeping purposes,
- performing first level screening to determine whether the waste in the vehicle is MSW or Recyclables,
- if the load is recyclables, the scale house attendant will direct the vehicle to the County's Transfer Station where the recyclables can be recovered and shipped to a materials recovery facility of other appropriate destination at the direction of the County.

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Indent at: 0.5"

The **Environmental Health & Safety (EH&S) Manager** or designate is additionally responsible for:

- developing and implementing the Facility Recycling Plan,
- employee training, and
- recordkeeping.

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Tab after: 0.5" + Indent at: 0.5"

The WTI **Operations Manager** or designate is additionally responsible for:

- ensuring that visual load inspections are done by the Loader Operator, and
- ensuring that wastes are properly managed on the tipping floor and,
- ensuring that workers comply with Tipping Floor safety policies when executing this Recycling Plan.

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Tab after: 0.5" + Indent at: 0.5"

The **Tipping floor attendant** is responsible for:

- inspecting loads of waste once they are unloaded to the tipping floor,
- visually identifying and isolating bulky recyclable items,
- monitoring tipping floor traffic and ensuring that Tipping Floor Rules and Procedures are followed.

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Indent at: 0.5"

2.2 TRAINING

Operations personnel who are involved in operations on the tipping floor will participate in annual Recycling Plan training. Records of all training are maintained by the EH&S Manager or in the training records management system/central files. The training program teaches employees how to perform their duties in accordance with this Recycling Plan. The facility's EH&S Manager directs the training program.

3.0 acronyms & DEFINITIONS

3.1 LIST OF ACRONYMS

CFC	Chlorofluorocarbon
DUSWM	Frederick County Division of Utilities and Solid Waste Management
EH&S	Environmental Health & Safety
MSW	Municipal Solid Waste
NMWDA	Northeast Maryland Waste Disposal Authority
SS	Shift Supervisor
WTE	Waste-to-Energy
WTI	Wheelabrator

3.2 KEY DEFINITIONS

Acceptable Waste – Wastes that the facility is allowed to accept and combust as defined by the State Refuse Disposal Permit and other environmental regulations and site permits;

Accumulate – collection and storage of waste.

Bulky Metals – means large metal items, such as stove, dish washers, refrigerators that can be readily observed by the crane operator or loader operator and separated from the balance of the waste and recycled.

Container – any portable device in which a material is stored transported, treated, disposed of, or otherwise handled.

Environment – means any air, land, surface water, or ground water.

Generator – The person or facility whose act or process produces waste.

Municipal Solid Waste or MSW -- mixed loads of Acceptable Waste.

Non-Processible Waste -- means (a) Hazardous Material; (b) dirt, concrete and other construction material and demolition debris; (c) refrigerators, washing machines, large appliances and similar "white goods"; (d) large items of machinery, equipment and mechanical parts, such as motor vehicles and major components thereof, agricultural equipment, trailers and marine vessels, or any other large item of waste; (e) sludge (except Acceptable Sewage Sludge), sewage, wastewater and septic, cesspool, human, animal, offal and liquid waste; (f) incinerator residue, ashes, foundry sands, and large concentrations of plastics disposed of as wastes; (g) oil, paints, acids, caustics, poisons, asbestos, chemicals, highly ignitable substances, explosives and ordnance materials; and (h) any other materials the receipt and combustion of which is likely to cause damage to or otherwise materially and adversely affect the operation of the Facility, constitute a material threat to health or safety, or violate or cause the violation of any Applicable Law.

Operator – the person or entity responsible for the overall operation of the facility (e.g., Wheelabrator).

Recyclables Loads -- loads of waste materials which are accepted in the County's single stream recycling program.

4.0 Wastes Delivered to the Facility from offsite

4.1 WASTE LOAD SCREENING

The responsibility for screening waste arriving at the WTE facility is divided between the scalehouse and the WTE Facility. Frederick County employees will operate the scalehouse, weigh incoming loads, and record certain information for billing and record keeping purposes. Scalehouse operators will ascertain if the waste inside of the vehicles in mixed solid waste (MSW) or Recyclables. If the load is Recyclables, the vehicle will be directed to the County's transfer station, where the material will be unloaded, re-loaded and shipped to a materials recycling facility, or to another facility designated by Frederick County.

If the load is ascertained to be MSW, the vehicle will be directed to the enclosed tipping hall of the WTE facility. Further screening will take place as described in subsequent sections of the plan.

4.2 WASTE RECEIVING AND LOAD INSPECTION

Waste receiving must be done safely in accordance with WTI's Tipping Floor Safety Rules and Procedures (**See Appendix A**).

The waste receiving process is described as follows.

The refuse receiving and handling system is designed to:

1. screen incoming loads for radiation
2. weigh and record incoming loads of materials
3. safely accept and convey MSW into the feeder hopper, and
4. provide an opportunity to inspect the incoming refuse and remove bulk recyclables from the waste stream.

Formatted: Outline numbered + Level: 1 + Numbering Style: 1, 2, 3, … + Start at: 1 + Alignment: Left + Aligned at: 0.75" + Indent at: 1"

The waste receiving system consists of the following components.

- Platform Truck Scales
- Radiation Detectors
- Tipping Floor
- Front End Loader
- Refuse Pit
- Overhead Refuse Cranes
- Boiler Charging Hoppers
- Video Cameras

Formatted: Bulleted + Level: 1 + Aligned at: 0.75" + Indent at: 1"

4.2.1 Waste Receiving System

Formatted: Indent: Left: 0.5", Outline numbered + Level: 3 + Numbering Style: 1, 2, 3, … + Start at: 1 + Alignment: Left + Aligned at: 0.75" + Indent at: 1.25"

Platform Truck Scales

There are two platform truck scales, one for incoming trucks and one for exiting trucks although each scale can serve the incoming or exit function. The scales are electronic, load-cell-type platform scales.

Scale house instrumentation provides information regarding the gross, tare and net weight of a truck on the scale and is read on a LCD readout with ticket printers. The scales are attended by a County employee and the scales are calibrated quarterly.

Radiation Detector

A radiation detector will be installed at the scale to scan incoming loads for materials that may be emitting radiation. Loads which trigger the detector will be directed to a holding area and will not be permitted to deposit their loads until further screening has taken place in accordance with the facilities radioactive load management plan.

Tipping Floor

The truck tipping floor provides ample space for refuse trucks to back up to the pit, unload refuse, pull out and exit the receiving building. The floor also provides an area to manually unload refuse and for inspection of truck loads once they have been unloaded.

Front End Loader

The front end loader operator (Tipping Floor Attendant) directs the tipping floor operations and seeks to safely minimize truck unloading and turnaround times. The Tipping Floor Attendant, along with the Crane Operators, observe the refuse as it is unloaded into the tipping floor or refuse pit. The Attendant performs inspections and during these inspections looks for bulk recyclable items (white goods including appliances, other bulk metal items such as propone tanks, loads of aluminum or steel) However, on occasion bulk recyclable items may be missed on the tipping floor and is pushed or delivered into the pit. If bulk recyclable items are discovered in the refuse pit, then it is removed to the tipping floor by the overhead crane. The supervisor will consider safety ramifications when determining the best course of action for removing bulky recyclables.

Refuse Pit

The facility's refuse storage pit extends below the tipping floor level. The pit provides storage of MSW to balance out deliveries and combustion schedules.

Overhead Refuse Cranes

Two overhead cranes provide a means of transporting the refuse from the refuse pit to the boiler charging hoppers. Both cranes are located above the refuse pit. These are track-mounted cranes (gantry cranes) equipped with tine orange peel grapples. The refuse cranes are also used to sort and remove oversize bulky metal items from the pit.

The crane control room (crane deck or pulpit) is located at the center of the refuse storage pit facing the tipping floor. Crane deck windows offer operators an unobstructed view of the entire pit area. Video monitors provide a view of the trench and floor when refuse inventory is high as well as other views from other cameras on the plant closed circuit television network. Remote video cameras are strategically located above the refuse feed hoppers to assist the crane operators in positioning the grapples.

Video Cameras

The Crane Operators share responsibility for tipping floor monitoring with the Tipping Floor Attendant. Video cameras provide the crane and control room operators with a means to monitor areas of the plant not directly in their eyesight. The crane operator has video cameras that monitor the level within the boiler charging hoppers for feeding purposes and allow constant monitoring of the immediate tipping floor area by the pit.

The cameras are always on. Cameras located at the entrance and exit of the plant are used to pan the entire area. Cameras over the charging hoppers show the level of the charging hopper. The crane operators can set the television controller to switch from camera to camera or to lock on one camera, depending on the need.

4.2.2 Load Inspection Procedures

All loads are visually inspected by WTI to screen loads delivered to the tipping floor for bulky metal materials. Load inspections are performed by trained personnel, generally the loader operator, following the facility's written procedure..

4.3 MANAGEMENT OF SPECIFIC IDENTIFIED BULKY RECYCLABLE MATERIALS

The following specific waste types are discussed in this Section.

- Bulky Recyclable Materials
- CFC-containing Appliances

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Tab after: 0.5" + Indent at: 0.5"

4.3.1 Bulky Waste Procedures

When the loader operator visually identifies bulky recyclable materials, the operator will use discretion to determine if the item can be separated from the balance of the waste with the loader. If it can, the operator will separate the item and place it in a designated section of the tipping floor or directly into a roll off container designated for accumulating recyclables recovered from the tipping floor. Neither the loader operator nor any other employees will attempt to separate recyclable materials by hand or with hand tools. Items which cannot be separated safely by the loader will not be recovered prior to combustion but will be recovered by the post-combustion ferrous and non-ferrous metal separation systems in the ash handling facility.

When a sufficient volume of recyclable material has accumulated the material will be loaded out and removed or the roll off container will be removed from the tipping floor. The recyclable material will be sent to an appropriate recycling facility such as the vendor handling the post combustion metals. All loads of recovered recyclable materials will be weighed prior to leaving the site.

Records of shipment of recovered bulky materials will be maintained by the facility EH&S manager. The EH&S manager will communicate or post the volumes of material recovered in accordance with the facility contract and/or permit obligations.

4.3.2 CFC-containing Appliance Procedures

Chlorofluorocarbons (CFCs) are gasses that in the liquid state when under pressure in an appliance. They are generally colorless and odorless. CFCs were used as refrigerants in air conditioners, freezers, refrigerators, heat pumps, water coolers, vending machines and similar devices. CFCs that escape into the atmosphere are harmful because they deplete the stratospheric ozone layer that surrounds the earth. The ozone layer absorbs dangerous ultraviolet sunlight that causes skin cancer and damages plants. Because of these hazards CFC production stopped on January 1, 1996. However, many CRF-containing appliances are still in use. Disposal of these appliances is controlled by environmental regulations to prevent CFC releases. The facility has a separate CFC-containing Appliance Management Plan. Strict compliance with this plan will insure operation in accordance with environmental regulations. Plan highlights are summarized below.

Coordinating the management and disposal of CFC-containing appliances with the existing DUSWM CFC and white goods recycling programs will greatly reduce the possibility that this type of waste will arrive at the WTE facility. However, if they do inadvertently arrive at the WTE facility, the following guidelines will apply.[16]

WTE Personnel Guide for the Handling of CFC-containing Appliances

If possible, carefully reload the CFC-containing appliance back onto the delivery truck. If reloading the appliance is not possible, then handle the appliance as directed in the following procedure.

Carefully move the appliance to a secure area on or near the tipping floor in a manner that protects the appliance's pressure parts (generally the back or bottom) from further damage. "Careful handling" may include the following.

- Use of a hand truck.
- Gently pushing the appliance on its side or front with a front-end loader bucket.
- Carrying the appliance in the front-end loader bucket. Unload the bucket by hand, or by gently tipping the bucket.

Even damaged appliances are subject to the "careful handling" requirements. Handle all damaged CFC-containing appliances as if they were undamaged and contained a full CFC charge. Careful handling applies to all CFC-containing appliances, even appliances that are:

- damaged, or

Formatted: Bulleted + Level: 1 + Aligned at: 0.5" + Tab after: 0.75" + Indent at: 0.75"

Formatted: Bulleted + Level: 1 + Aligned at: 0.5" + Tab after: 0.75" + Indent at: 0.75"

[16] The Wheelabrator, the NMWDA, and the DUSWM will coordinate their CFC appliance education outreach efforts to minimize the likelihood of these particular types of wastes arriving at the WTE facility.

- have cut or punctured lines, or
- are missing refrigerant parts.

Procedures or Onsite CFC Recovery and Offsite Final Disposal

- An EPA-certified technician using EPA-certified equipment must be used to inspect CFC-containing appliances and recover CFCs.

Formatted: Bulleted + Level: 1 + Aligned at: 0.5" + Tab after: 0.75" + Indent at: 0.75"

- Obtain inspection records and CFC recovery certificates from the CFC recovery technician during each site visit. The CFC certified technician will be a contractor who comes to the site only when a sufficient number of CFC containing appliances have been accumulated.
- Insure that the CFC recovery technician places a sticker on the appliance confirming that it is CFC free and completed the required forms. Note: Placing a sticker on the appliances does not replace the requirement for keeping the inspection and recovery records.
- After obtaining inspection and recovery records certifying that the appliance is CFC free it can be placed facility's scrap metal bin. Careful handling requirements no longer apply after the CFCs have been recovered, and crushing is permitted.
- Environmental regulations impose several recordkeeping requirements that are not discussed here. Consult the facility's Plan in Appendix C for a full description of regulatory requirements.

4.3.3 Metal Compressed Gas Cylinders.

Gas cylinders will be handled in accordance with the practices described below since there are hazards associated with these items that prevent the containers from being handled as bulky recyclables.

Small propane tanks of the type used for barbeque grills are the most common type of compress gas cylinders found in MSW. However, other cylinders are also occasionally encountered. Compressed gas bottles from commercial sources are potentially hazardous waste. These bottles must be removed from the waste, and if possible reloaded onto the truck that delivered them. If the commercial generator cannot be ascertained, the facility might need to manage the bottle as a hazardous waste. Immediately contact the facility's EH&S Manager if this situation arises.

The cylinder must be disposed of offsite. Typically, the cylinders can be delivered to a local propane gas company for re-use. Damaged cylinders can be recycled when they are properly emptied and vendors like propane companies are equipped and trained to perform this action.

4.3.4 Metal Recovery from Bottom Ash Handling

Bottom ash will fall from the end of the grates through a chute and into a hydraulic ram-type bottom ash extractor. The ash will be quenched within the water-filled extractor.

A relatively small quantity of ash will not make it to the end of the grate and instead, will fall through small openings between grate blocks or air holes in the grates. This material is known as "grate siftings" or "riddlings." This material will be collected in a series of under-grate chutes that lead to a wet drag conveyor. The drag conveyor will deposit the siftings into the bottom ash extractor.

The bottom ash extractor will push the quenched bottom ash onto a vibrating pan conveyor, which will transfer the ash to the bottom ash scalper. The scalper is a large screen that separates oversized material (primarily ferrous metals) from the remaining bottom ash. The oversized fraction will be deposited in a storage container or bunker, while the remaining bottom ash will be routed to additional metal recovery equipment.

An over-belt or drum magnet will be located at the end of the transfer conveyor from the scalper. Ferrous metals removed by the magnet will be transported to another conveyor, which will drop them into the ferrous metal storage area. The remaining bottom ash will be directed to the non-ferrous metals separator (eddy current separator). Non-ferrous metals such as aluminum, copper and brass will be removed by the eddy current separator and deposited into the non-ferrous storage container or bunker. The bottom ash will then fall into the enclosed bottom ash storage area before off-site disposal or beneficial use.

All recovered ferrous and non-ferrous metals will be recycled.

4.4 MARKETING OF RECYCLABLE MATERIALS

All of the recovered metals will be loaded into vehicles and taken directly to a recyclable processing facility, a scrap dealer, or an end user or freight yard for further shipment.

4.5 EDUCATION

Wheelabrator will assist the DUSWM with educating Frederick County residents about integrated waste management practices including source reduction, recycling, and resource recovery using WTE. The WTE facility will be designed to include an educational center, which can be used in conjunction with facility tours to inform residents of all ages about recycling and resource recovery. Wheelabrator will work closely with the DUSWM to develop educational programs that provide the public with comprehensive information on the County's entire integrated waste management system, including its residential recycling programs and associated waste management systems.

Appendix O

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 P

Participating Public Sites

Comment [cmj3]: SB781

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

Comment [cmj4]: SB781

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