

**York County
Municipal Solid Waste Management Plan**

**UPDATE AND REVISION
PADEP APPROVAL ISSUED FEBRUARY 20, 2014**



**Prepared by
The York County Solid Waste and
Refuse Authority**

**Project Consultant
Nestor Resources, Inc.**

INSIDE COVER

York County Municipal Solid Waste Management Plan

York County Board of Commissioners

M. Steve Chronister, President

Doug Hoke, Vice President

Christopher B. Reilly

York County Solid Waste and Refuse Authority

Edward N. Heindel, Chairman
Joseph Hoheneder, Vice Chairman
Clarence Nace, Secretary
William S. Brenneman, Treasurer
**Noah Krout, Assistant
Secretary/Treasurer**

Wayne Paup
Matt Sommer
Charles F. Ritzmann
Timothy S. Malinky
David Vollero, Executive Director

Project Consultant

Nestor Resources, Inc. Valencia, PA

Municipal Waste Advisory Committee

Scott Wagner
Penn Waste
Recycling Industry

Linda Marshall
York Township
Townships of the 1st Class

James E. Gross
City of York
City

John Holman
Springettsbury Township
Townships of the 2nd Class

Delmar Hauck
Manchester Township
Townships of the 2nd Class

Patricia Schaub
Hopewell Township
Townships of the 2nd Class

Barb Krebs
Hanover Borough
Borough

Mark Pergolese
Republic Services of Pennsylvania, LLC
Solid Waste Industry

Phyllis Chant
Glatfelter Paper Co.
Industry

Jim Leaman
Codorus Creek Watershed Association
Citizen's Organization

Sophie Simon
Dover Township Wastewater Treatment
Solid Waste Industry

Felicia Dell
York County Planning Commission
At-Large Member

Joseph Hoheneder
York County Solid Waste and Refuse
Authority
Solid Waste Industry

Gregg Pearson
York County Solid Waste and Refuse
Authority
Solid Waste Industry

TABLE OF CONTENTS

INTRODUCTION.....	15
History and Purpose.....	15
Background	17
Elements of the Plan	18
Waste Stream Analysis	18
Waste Handling and Disposal	18
Recycling and Waste Minimization	18
Public Awareness and Participation	19
Implementation Strategy.....	19
Plan Structure and Organization.....	19
CHAPTER ONE	23
Municipal Waste in York County.....	23
Developing a Relevant Plan	25
Characteristics of York County.....	25
Figure 1-1 Location of York County and the Municipalities	26
Figure 1-2 York County Population Density 2010	27
A Changing Profile.....	28
Figure 1-3 York County Population Changes 2000-2010	28
Impact on Solid Waste Management	29
Table 1-1 York County Historic and Projected Population 2000 thru 2040	30
Categories and Sources of Municipal Solid Waste	31
Defining the Generators	31
Figure 1-4 York County Housing Units Types and Estimated Numbers 2010.....	32
York County Residential Municipal Solid Waste Generators	32
York County Commercial Municipal Solid Waste Generators.....	33
Figure 1-5 Commercial Establishments in York County 2010	33
Community Events.....	34
Special Handling Municipal Waste Streams and Sources.....	35
Septage and Sewage.....	35
Table 1-2 York County Wastewater Treatment Facilities.....	36
Table 1-2 York County Wastewater Treatment Facilities cont'd	37
Regulated Medical Waste.....	38

Figure 1-6 Estimated Annual Tons York County Regulated Medical Waste Generation 2010	39
Overview of Municipal Solid Waste Trends.....	40
Common Elements of Municipal Solid Waste	40
USEPA Categories of Products and Non-Products in Municipal Solid Waste.....	41
Processible and Non-processible Waste.....	42
Historic Variations in Municipal Solid Waste.....	42
Properties, Composition, and Recovery	42
Waste Generation	43
Table 1-3 Changes in Composition of Municipal Solid Waste Generated in the USA 1960-2010	43
Figure 1-7 Material Changes in Municipal Solid Waste Generated in the USA	44
Table 1- 4 Changes in Composition of Municipal Solid Waste Disposed 1960-2010	45
Thousand Tons Per Year	45
Figure 1-8 Composition Changes in Municipal Waste Disposed in the USA 1960-2010	46
Figure 1-9 Composition of MSW Generated, Recovered, or Disposed in the USA 2010	47
National Statistics 2010	48
York County Estimates and Reported Data	48
Managing Non-Processible Wastes	49
Waste from Construction and Demolition Activities	49
York County Construction and Demolition Waste Management	50
Summary	52
CHAPTER TWO	53
Current Practices	53
Waste Management Infrastructure	55
Flow Control of Municipal Waste	55
Collection and Transportation Network	56
Regulating Transporters of Municipal Waste	56
York County Flow Control Ordinance	57
Septage Transporters.....	57
Regulated Medical Waste Transporters	58
Competition for Disposal Capacity.....	58
York County Disposal Patterns 2000-2010	59
Table 2-1 Pennsylvania Facilities Reporting Disposal of York County Waste in 2010	60

Blue Ridge Landfill	61
Cumberland County Landfill	61
G.R.O.W.S. North Landfill	61
Lancaster County Resource Recovery	62
LCSWMA Frey Farm Landfill	62
Lycoming County Resource Management Landfill	62
Modern Landfill	62
Mosteller Landfill.....	63
Mountain View Reclamation Landfill	63
Sandy Run Landfill	63
Sanitary Landfill	63
Wayne Township Landfill	64
Wheelabrator Falls	64
York County Resource Recovery.....	64
Table 2-2 York County Resource Recovery Center Origin, Types and Quantities of Waste Accepted in 2010	64
Changes in the Disposal Rate of Processible Waste 2000-2010.....	65
Table 2-3 Trends in York County MSW Disposal 2000-2010.....	66
Figure 2-1 Population and MSW Disposal Trends in York County 2000-2010.....	66
Methods for the Disposition of Special Handling Waste.....	67
Management of Sewage Sludge, Biosolids and Residential Septage.....	67
Multi Agency Compliance and Enforcement	68
Table 2-4 Reported Disposal Methods for York County Septage in 2010	69
Table 2-5 Reported Disposal Methods for York County Biosolids in 2010	70
Disaster Debris Management Preparedness	71
Improper Disposal Practices	72
Illegal Dumping.....	72
Figure 2-2 Reported Illegal Dump Sites in York County 2010.....	74
Littering.....	75
Open Burning.....	76
Prevention and Remediation.....	76
Assessment of and Recommendations for the Disposal System.....	77
CHAPTER THREE.....	79
Future Forecast	79
Responsibility to Provide for Disposal/Processing.....	81

Forecasting Capacity Requirements	81
Reported Disposal Quantities.....	82
Future Waste Generation Rate	82
Population	82
Disposal Capacity Needs.....	83
Table 3-1 York County Projected Disposal Capacity Requirements Tons Per Year	83
Table 3-2 Resource Recovery Center Projected Processing Capacity	84
Flow Control Measures and Capacity Assurances	85
Composition and Combustion	85
Table 3- 3 Percent of Total BTU Value in Various Component Materials of Discarded MSW in the USA.....	86
Figure 3-1 Materials in MSW Disposed in the USA Contributing to Total BTU Value	86
Figure 3-2 Changes in the Net Heating Value of Municipal Waste in the USA 1960-2010	87
Sufficient Local Capacity for Processible Waste	87
Capacity for Non-processible Waste	88
Disposal Outlets for Other Types of Municipal Waste	89
Ash Management.....	89
Conclusions	90
CHAPTER FOUR.....	93
Recycling Programs	93
Working Toward a Common Goal.....	95
Impact on the Economy and Environment	95
Financial Rewards and Challenges.....	95
Local Employment	96
Environmental Impact of Local Recycling Efforts	97
Figure 4-1 Reduction in Emissions and Energy Consumption	97
Countywide Recycling Achievements	98
Defining Collection & Processing Methodologies.....	98
Adjusting For Mixed Loads.....	99
Reported Data	99
Table 4-2 York County Reported Tons of Other Materials Recycled 2008-2010.....	100
Focus on Specific Elements and Actual Efforts.....	100
Benchmarking.....	102
Figure 4-2 Collecting and Utilizing Recycling Data	102

Reporting Practices	103
Overview of the Comparative Analysis.....	103
Figure 4-3 Maneuvering the Table(s)	104
Understanding the Ratings	104
Recovery of Common Act 101 Recyclable Items	105
Table 4-3 York County 2010 Recycling Performance for Act 101 Materials Reported vs. National Expectations	105
Recovery of Other Recyclable Materials	106
Table 4-4 York County 2010 Recycling Performance for Other Materials Reported vs. National Expectations	106
Meeting the State’s Goals	107
Determining the Recycling Rate	107
Table 4-5 Summary of York County 2010 Recycling Performance Reported vs. National Expectations	107
Putting the Recycling Rate in Perspective	108
Municipal Programs	109
Mandated Municipal Programs	109
Figure 4-4 Act 101 Minimum Requirements for Mandated Municipalities	109
Methods of Compliance	110
Mandated and Non-mandated Municipalities in York County	110
Figure 4-5 York County Mandated and Non-mandated Municipalities based on the 2010 Census	111
Residential Collection Programs	112
Common Program Elements of Local Municipalities	112
Municipal Curbside Recycling Collection	112
Drop-Off Recycling Collection	113
A Closer Examination Of Municipal Collection Systems.....	113
Reported Results.....	113
Measuring Up	114
Infrastructure and Performance	114
Figure 4- 6 Residential Recycling Pounds Per Home Per Week	116
Figure 4- 6 Residential Recycling Pounds Per Home Per Week cont.	117
Table 4-6 Residential Recycling Ranked by Total Pounds Per Home Per Week	118
Impact of Residential Waste Collection Specifications on Recycling Performance	120
Collection Program Criteria	120
Figure 4-7 York County Residential Recycling Rates Based on Waste Collection Programs	121

Table 4-7 York County Act 101 Mandated Municipalities Residential Collection Programs	122
Table 4-8 York County Municipalities with Residential Collection Programs Mandated by Local Ordinance	123
Table 4-9 Residential Collection Programs in York County Non-Mandated Municipalities	124
Table 4-9 Residential Collection Programs in York County Non-Mandated Municipalities (cont'd)	125
Table 4-9 Residential Collection Programs in York County Non-Mandated Municipalities (cont'd)	126
Figure 4-8 Types and Availability of Municipal Waste and Recycling Collection Services ..	127
Commercial Recycling	128
Reported Achievements	129
Figure 4-9 Commercial Recycling Performance in Pounds Per Home Per Week	131
Table 4-10 Commercial Recycling Ranked by Pounds Per Home Per Week	132
Yard and Leaf Waste Management	133
Table 4-11 Yard Waste Management Sites	134
Programs Sponsored by the York County Solid Waste and Refuse Authority.....	135
Drop-Off Recycling Collection.....	135
Special Handling Materials	136
Household Hazardous Waste	136
HHW Management Generation in York County	136
YCSWA HHW Collection Events and On-Call Service	137
Discarded Electronic Devices.....	138
Covered Device Recycling Act.....	138
Table 4-12 Electronic Device Recycling Drop-off Collection Points in York County	139
Management of Discarded Pharmaceuticals in York County	140
Figure 4-10 Drop-off Locations for Pharmaceutical Discards	141
Community Outreach and Education	142
Land Repurposing	142
Private Sector Contributions.....	143
Opportunities for Increased Recovery.....	145
The Influence of Single Stream Recycling on Collection Costs and Performance	145
Unrealized Benefits.....	145
Misfocused Specifications	146
Ordinances and Enforcement.....	147
Future Improvements	147

Recycling At Community Activities	147
Major Appliances (White Goods)	148
Carpeting	148
Recycling Potential in York Public and Private Schools	149
Recycling and Waste Minimization in Hospitals and Medical Facilities	150
Sorting Out the Waste Streams	150
Case Studies.....	151
Local Opportunities	152
Construction and Demolition Recycling	153
Figure 4-11 Uses for Recyclable Materials in Construction & Demolition Waste	154
Alternatives to Demolition	155
Figure 4-12 Readily Salvageable Demolition Materials	156
Incentivizing C&D Recycling.....	157
Refundable Deposits for Recycling C&D debris.....	157
Government Procurement Policies with Preference for Recycling of C&D Debris	157
Recognition Programs to Encourage Contractors to Reduce And Recycle.....	157
Future Investigation	158
Recovering From A Disaster	158
Summary and Conclusions.....	158
CHAPTER FIVE	161
Building Upon Success.....	161
Integrated Waste Management to Support the County’s Comprehensive Goals.....	163
Overview of the Recommendations	164
Capacity Assurances, Material Recovery, and Energy Production	164
Broadening Opportunities.....	165
Figure 5-1 Criteria for Waste Material Management.....	165
Figure 5-2 Recommendations and Timeline for the Municipal Solid Waste Infrastructure	166
Municipal Collection Programs and Services.....	166
Figure 5-3 Cost Comparison of Residential Service and Utilities	167
Future Expectations.....	168
Facilitating Change.....	168
Figure 5-4 Recommendations and Timeline for the Municipal Services and Programs	170
Community Event Recycling Network	171
Figure 5-5 Recommendations and Timeline for a Community Event Recycling Network...	171

Disaster Debris Planning and Coordination	171
Figure 5-6 Stages of Disaster Management	172
Figure 5-7 Recommendations and Timeline for Disaster Debris Planning	172
Expanding the Sources and Types of Recovered Materials.....	172
Schools.....	173
Health Care Facilities	173
White Goods.....	173
Figure 5-8 Recommendations and Timeline for Expanded Material Recovery	174
Concluding Comments and Future Actions	174
CHAPTER SIX	177
Capacity Assurances	177
York County’s Long Term Commitment to Manage Waste by Recovering Energy	179
Overview of the Selected Methods for Disposal and Processing.....	179
Figure 6-1 York County’s Integrated Waste Management System	180
The York County Resource Recovery Center	180
Practical Benefits of Converting York County’s Waste into Energy.....	181
The Role of the Resource Recovery Center in Mitigating Climate Change	182
Figure 6-2 Impact of Processing York County’s Municipal Solid Waste at the Resource Recovery Center	182
Reducing Fossil Fuel Dependency.....	182
Eliminating Methane Gas Emissions	183
Future Improvements and Enhancements to the Center	184
Summary	185
CHAPTER SEVEN	187
York County Solid Waste and Refuse Authority	187
Administration and Oversight.....	188
Agent of the County.....	188
Overview of the Solid Waste Authority	188
Figure 7-1 York County Solid Waste and Refuse Authority Organizational Chart	189
Staffing.....	191
Executive Management Team	191
Engineering and Operational Management	192
Community Services	192
Planning and Recycling	192

Board and Staff Professional Development	193
National and State Resources	193
Fiscal Responsibility	194
CHAPTER EIGHT	195
Public & Private Sector Functions	195
Complementary Roles	197
County Level Facilities and Functions	197
Municipal Level Facilities and Functions	197
Future Programs and Facilities	198
CHAPTER NINE.....	199
Implementation & Enforcement	199
Purpose and Need.....	200
County Flow Control Ordinance	200
Municipal Waste Disposal Capacity Agreement.....	200
Delegation Agreement	201
York County Solid Waste and Refuse Authority Approval of the Plan	201
CHAPTER TEN	203
Future Impact	203
Continuity of Programs and Services	205
Guidance and Administration	205
Universal Participation in Collection Services.....	205
Environmental Concerns in Disaster Management	205
Status Review	206
CHAPTER ELEVEN.....	207
Business of Waste Management.....	207
Mutual Needs and Obligations	209
Shared Access to Capacity	209
Cooperation and Commitments	210
CHAPTER TWELVE	211
Public Participation	211
A Plan Tailored to the Local Community	213
Selection and Appointment of Participants	213
Figure 12-1 York County Municipal Waste Advisory Committee	214

Presentations and Discussions	215
Immediate Issues and Expectations	215
Future Research and Studies	216
Documentation of the Meetings	216
Outcome.....	216
APPENDIX A	217
Definitions	217
APPENDIX B	235
Disposal Agreements.....	235
Modern Landfill Disposal and Emergency By-Pass Agreement.....	237
Amendment to Modern Landfill Disposal and By-Pass Agreement	267
Emergency By-Pass Agreements	275
APPENDIX C.....	279
Legal Mechanisms for Implementation	279
Flow Control Ordinance.....	281
Adoption of the York County Municipal Solid Waste Management Plan	295
PADEP Approval Published in the Pennsylvania Bulletin	297
APPENDIX D	299
Delegation & Authority	299
Delegation Agreement	301
APPENDIX E	311
References & Acknowledgements	311
APPENDIX F.....	315
Stakeholder Input	315
Municipal Waste Advisory Committee Appointments.....	317
Figure F-1 Sample Appointment Letter	318
MWAC Meeting Minutes Date October 13, 2011	320
MWAC Meeting Minutes Date May 24, 2012	323
MWAC Meeting Minutes Date November 15, 2012	326
MWAC Meeting Minutes Date November 19, 2013	335
Public Review and Comment Process.....	340
Comments and Responses.....	340
APPENDIX G	345

Recycling Tables and Assumptions.....	345
Calculating 2010 York County Recycling Quantities	347
Table G-1 York County 2010 Total Recycled Materials Summary by Municipality	359
Table G-1 (cont.) York County 2010 Total Recycled Materials Summary by Municipality	360
Table G-2 York County Municipalities 2010 Total Recycled Materials Summary % of	
Expected	361
Table G-2 (cont.) York County Municipalities 2010 Total Recycled Materials Summary % of	
Expected	362
Table G-3 York County Schools Waste Generation and Recovery Potential.....	363
York County School Districts School Recycling Program Potential.....	363
York County Re-TRAC Reports 2010	369

INTRODUCTION

History and Purpose



Planning for municipal solid waste management in York County has occurred in some fashion for over 40 years. Many of the early plans were efforts to coordinate the waste management responsibilities of the municipalities. These had minimal effect, because the County had no statutory powers of enforcement. Most recently, the Municipal Waste Planning, Recycling and Waste Reduction Act of 1988 (Act 101), for the first time, shifted the authority for municipal waste management to the County. In turn, the County was provided with the option of designating an agent to assume those powers and fulfill those responsibilities. York County designated as its agent the York County Solid Waste and Refuse Authority. By state legislative design, this transfer of authority away from the municipalities was intended to give the County the ability to implement the recommendations developed in the planning process. Act 101, placed upon the County the responsibility for securing sufficient disposal capacity for its waste through contractual commitments or through the ownership and operation of its own processing facilities. Additionally, it required the **County to demonstrate to what extent it could feasibly attain the state's recycling initiative**. Shortly before the enactment of Act 101, the County had already initiated planning efforts to address its disposal needs through the proposed design and construction of the York County Resource Recovery Center. In January 1991, York County incorporated into its previously adopted Plan, the new guidelines of Act 101, along with the legal powers to enforce its programs. The final Plan was ratified and adopted by the municipalities and approved by the York County Board of Commissioners and the Pennsylvania Department of Environmental Resources now known as the Pennsylvania Department of Environmental Protection. (PADEP)

The efforts of the Authority to implement the Plan have produced tangible and substantial results throughout the years. The Plan provided numerous benefits to York County. By developing disposal capacity in a state of the art waste-to-energy facility the County and Authority ensured its citizens fair and equitable disposal costs and increased protection from future potential environmental liabilities. By monitoring collection and disposal practices, it reduced the occurrence of illegal dumping in the County, thus enhancing public health and safety. The combination of mandated and voluntary recycling initiatives conserved valuable natural resources.

There have been no revisions to the Plan since it was adopted. This current project will serve as the most in-depth review of waste management and recycling practices in York County since 1991. This update evaluates the effectiveness of the existing Plan and reviews York **County's ability** to implement the tenets upon which it was based. From those findings, certain components may be revised and programs may be altered to complement the current regulatory climate, the changing demographics, the characteristics of the waste stream, and the resources of York County. The Plan will outline the step-wise process from fact finding through analyses to final

recommendations. It will also provide a schedule by which the revised Plan will be implemented.

Elements of the Plan

The York County Municipal Solid Waste Management Plan uses a series of fundamental components designed to provide a comprehensive evaluation of the current solid waste infrastructure, the management of specific material, as well as individual and collective behaviors that influence local practices. The findings support the development of future enhancements and improvements to the collection, processing, and recovery programs. The planning process consisted of the following exercises.

Waste Stream Analysis

The waste stream analysis establishes an inventory of the sources of municipal waste, identifies specific generators in select categories, and characterizes the content of the waste. National and regional studies and trends are used to analyze the local waste stream, its composition and to calculate future disposal and recovery rates. Finally, projected population and other demographic trends are used to derive future solid waste management capacity needs.

Waste Handling and Disposal

The waste handling and disposal component explores **the County's municipal solid waste collection programs for residential, commercial, institutional and government entities.** It identifies those who provide services for the collection, processing and disposal of York County municipal waste. The adequacy of municipal collection **programs for the County's current and future population and expected waste generation** was reviewed. Gaps and inadequacies of services are identified. Undesirable waste management activities along with mechanisms to deter such behavior are discussed. This component also contains a detailed inventory and description of current disposal facilities. Alternative technologies and mechanisms are examined to enhance the integrated waste management system and provide value based benefits and services to York County residents.

Recycling and Waste Minimization

The recycling and waste minimization component begins with an inventory of the waste recycling programs available within York County. Composting programs and yard waste management services are also outlined. Public and private sector operations are acknowledged. The recycling and waste minimization component **assesses the County's actual overall attainment of the statewide goal of a 35% recycling rate.** Individual municipal performance is assessed as well. Finally, this component highlights materials with potential for future recovery for energy and recycling. Enhancements to County and/or municipal programs are identified.

Public Awareness and Participation

The public awareness and participation component includes direct involvement from the Municipal Waste Advisory Committee (MWAC). This group is representative of the diverse stakeholders of York County. Perspectives and opinions were offered by municipal officials, the public, business owners and private sector representatives from the waste and recycling industry. They commented on the adequacy of current services and provided a vision for the future.

Implementation Strategy

The final component brings together the findings and recommendations of the planning process into an action plan. The implementation strategy describes the resources, tools and timeframe to achieve the goals of the York County Municipal Solid Waste Management Plan for the next 25 years.

Plan Structure and Organization

The York County Municipal Solid Waste Management Plan and resulting updates and revisions comply with PA Code, Title 25, Chapter 272, Subchapter C. The Plan is comprised of twelve chapters and a series of appendices as needed. The chapters follow the required sequence outlined in Act 101, and the planning requirements documented in the most recent PA DEP Technical Guidance Document, 254-2212-504 *Guidelines for the Development and Implementation of County Municipal Waste Management Plan Revisions* published in the Pennsylvania Bulletin on January 2, 2010. Following is a brief description of their contents.

Chapter 1 Municipal Waste in York County discusses York County's current waste stream characteristics, reported and estimated waste quantities and material types, and projections of the waste stream over the next 25 years. The chapter also examines general demographic data such as population and housing densities, urban and rural elements, economic conditions and county characteristics, including climate, geology, and traffic conditions, which may influence waste collection, waste disposal, and type of materials disposed of over the next 25 years.

Chapter 2 Current Practices documents the current collection and disposal practices throughout the County. It identifies transporters of different types of municipal waste. It also provides data on the ultimate disposition of various York County municipal waste components. Lastly, it discusses the degree to which York County competes for disposal capacity with other entities.

Chapter 3 Future Forecast projects the future waste generation and disposal capacity that will be required by York County for the next 25 years. It presents legal issues related to flow control and capacity assurances. It also discusses the consideration given to the hierarchy of current and future available waste management technologies during the planning process.

Chapter 4 Recycling Programs presents the overall performance of recycling programs currently operating throughout York County. It compares the County's efforts to similar programs implemented in other areas of the United States. It illustrates strengths and weaknesses and makes recommendations for future recovery.

Chapter 5 Building Upon Success offers the analysis and reasoning behind selections made during the planning process for enhancing the comprehensive waste management system in York County. It provides economic and environmental benefits of various options. It also offers a description of anticipated gaps in waste management as well as potential business opportunities.

Chapter 6 Capacity Assurances presents the results of York County's disposal capacity determination. It subsequently identifies the names, locations and types of facilities that may be designated to receive York County's processible and non-processible municipal solid waste over the next 25 years.

Chapter 7 York County Solid Waste and Refuse Authority identifies the York County Solid Waste and Refuse Authority as the agency that will assure that the final recommendations of the Plan are carried out according to the implementation strategy. This section describes the statutory authority of the YCSWA, provides the organizational structure, and addresses the base financial needs of the agency to achieve the programs and services outlined in the plan.

Chapter 8 Public & Private Sector Functions discusses the disposal, composting and recycling facilities, equipment and programs currently owned and operated by public sector organizations (county and municipal) in York County. In addition, it may recommend future public facilities that might be developed.

Chapter 9 Implementation & Enforcement explains the legal documents necessary to implement and enforce specific elements of the approved York County Municipal Solid Waste Management Plan. These include contracts, ordinances, rules, regulations, and other related information.

Chapter 10 Future Impact outlines how the elements of the Plan will allow for a smooth transition from any current and potentially conflicting programs to those newly recommended.

Chapter 11 Business of Waste Management describes the relationship between the York County Municipal Solid Waste Management Plan and private sector owned and operated facilities located both within and outside of the County. It offers assurances that if and when the recommendations of the County Plan require changes that impact these facilities, it will allow for existing contractual obligations until the terms of expiration.

Chapter 12 Public Participation identifies the members of the MWAC and the stakeholder segment, which they represent. It highlights the issues felt to be of greatest importance by the MWAC and describes the input of the Committee during the planning process.

The Appendices

Professional sources of information, technical references, acknowledgements, and a **record of the public's participation are all useful and necessary to support the** assumptions and recommendations made throughout the Plan. In addition, legal documents, rules and regulations, forms and other mechanisms will be used to enforce the Plan. The appendices serve as a reference point for this and other types of information vital to the development and implementation of the Plan. Following is a description of the contents provided in the series of appendices. They are listed here in no particular order of significance.

Appendix A Definitions contains basic words and acronyms used throughout the document and their meanings as they relate to solid waste management.

Appendix B Disposal Agreements contains the contract provisions required of any facilities, which may reserve disposal capacity for specific types of municipal waste for York County during this planning period.

Appendix C Legal Mechanisms for Implementation includes County ordinances necessary to implement the provisions of the York County Municipal Solid Waste Management Plan.

Appendix D Delegation & Authority presents the official delegation and transference of duties from York County to the York County Solid Waste and Refuse Authority. The document delineates the powers, responsibilities and financial commitments of the two parties.

Appendix E References & Acknowledgements presents a list of background publications referenced and other tools used to justify assumptions and other recommendations made in the development of the Plan.

Appendix F Stakeholder Input documents the degree of public participation utilized in development of this Plan. It includes meeting minutes. It shows both citizen and private sector involvement in development of the future enhancements to waste management in York County and the final adoption of the Plan.

Appendix G Recycling Tables and Assumptions provides documentation of the assumptions used in the analyses of recycling performance. Background data reported from municipal recycling programs and the potential for school recycling programs is also included.

CHAPTER ONE

Municipal Waste in York County



Developing a Relevant Plan

To be realistic and effective, a comprehensive municipal solid waste management plan must be tailored to address the unique characteristics and prevailing conditions of the local jurisdiction. The history and heritage of the people who live, work and operate businesses in a community can significantly influence their views and expectations on any number of public issues. Factors such as occupation, income, education, and employment play a role in their buying power, and subsequently the types and number of goods purchased and those discarded. These same factors **strongly determine an individual's ability and/or willingness to pay for services**, including waste management. They also offer insight into current waste management practices, utilization of basic services, and factors that could motivate change.

This first chapter outlines the physical and demographic characteristics of York County. Current conditions and behaviors are explored through a historical perspective. Narratives and tables present the sources and activities that generate various categories, or streams, of municipal solid waste in York County. Finally, the chapter offers commentary on notable trends and conditions.

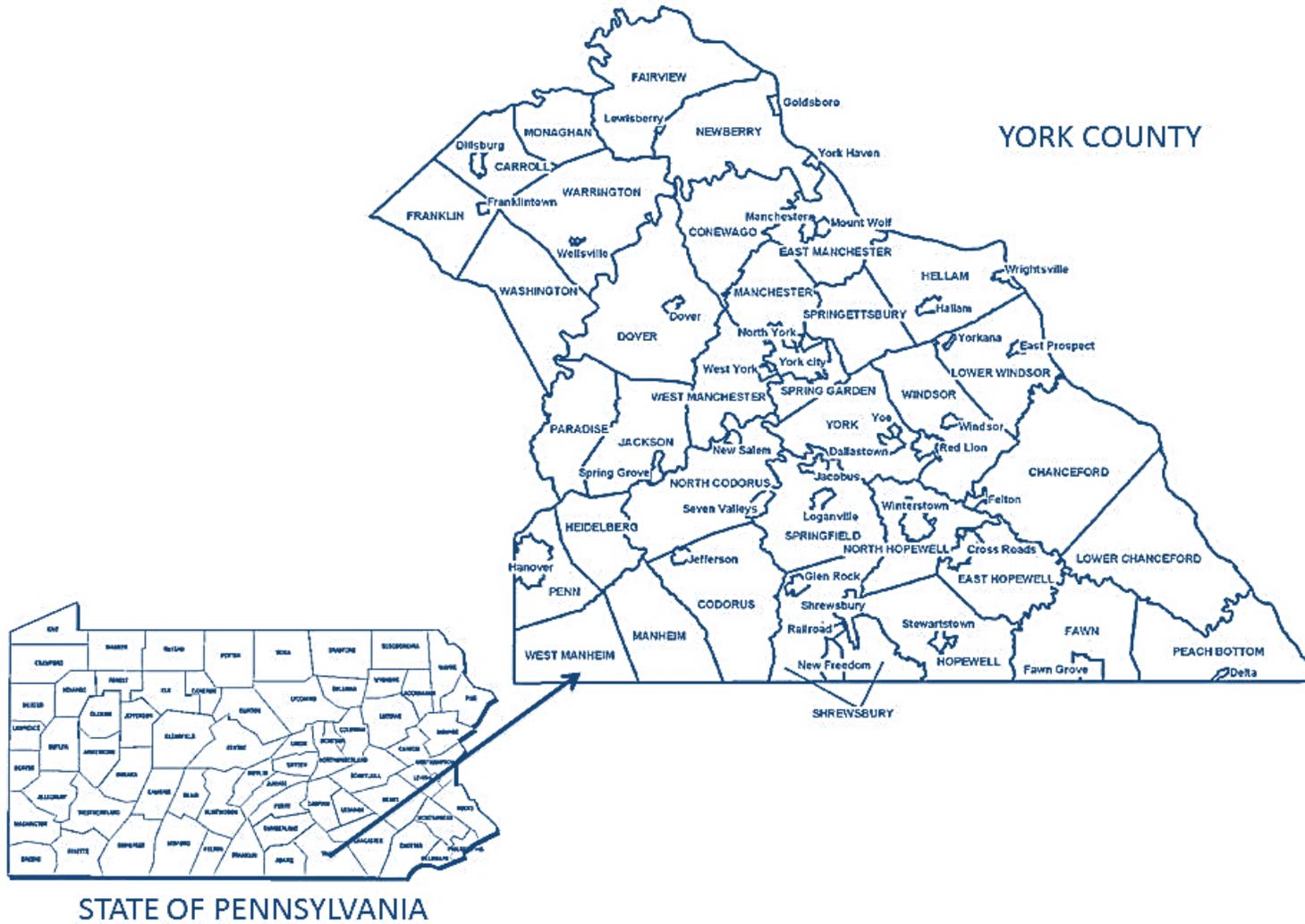
Characteristics of York County

York County is located in south central Pennsylvania. To the south, it borders the state of Maryland. The Susquehanna River flows along the entire length of York County's eastern boundary. Contiguous Pennsylvania counties are Adams, Cumberland, Dauphin, and Lancaster. Major roadways that provide direct access to the heart of the County include Interstate 83 that runs essentially north and south, and State Route 30 that runs more or less east and west. York County is within close proximity to the state capitol, Harrisburg, and to Philadelphia, one of Pennsylvania's major metropolitan centers of population. Baltimore and Washington, D.C. are close enough for many residents to consider both within commuting distance for work. Figure 1-1 shows York County in relation to the state of Pennsylvania. It also shows the many political jurisdictions and municipalities within the County. The City of York is the county seat.



In spite of the picturesque rolling farmland, which can be seen throughout rural areas, York County is very urbanized. According to the 2010 decennial US Census, **70% of the County's population resides in urban centers, cities, boroughs, etc. with highly concentrated population densities.** Another 5% live in urban clusters, which are concentrated areas of population density in otherwise rural areas. Figure 1-2 shows where the concentrations of population are located in York County.

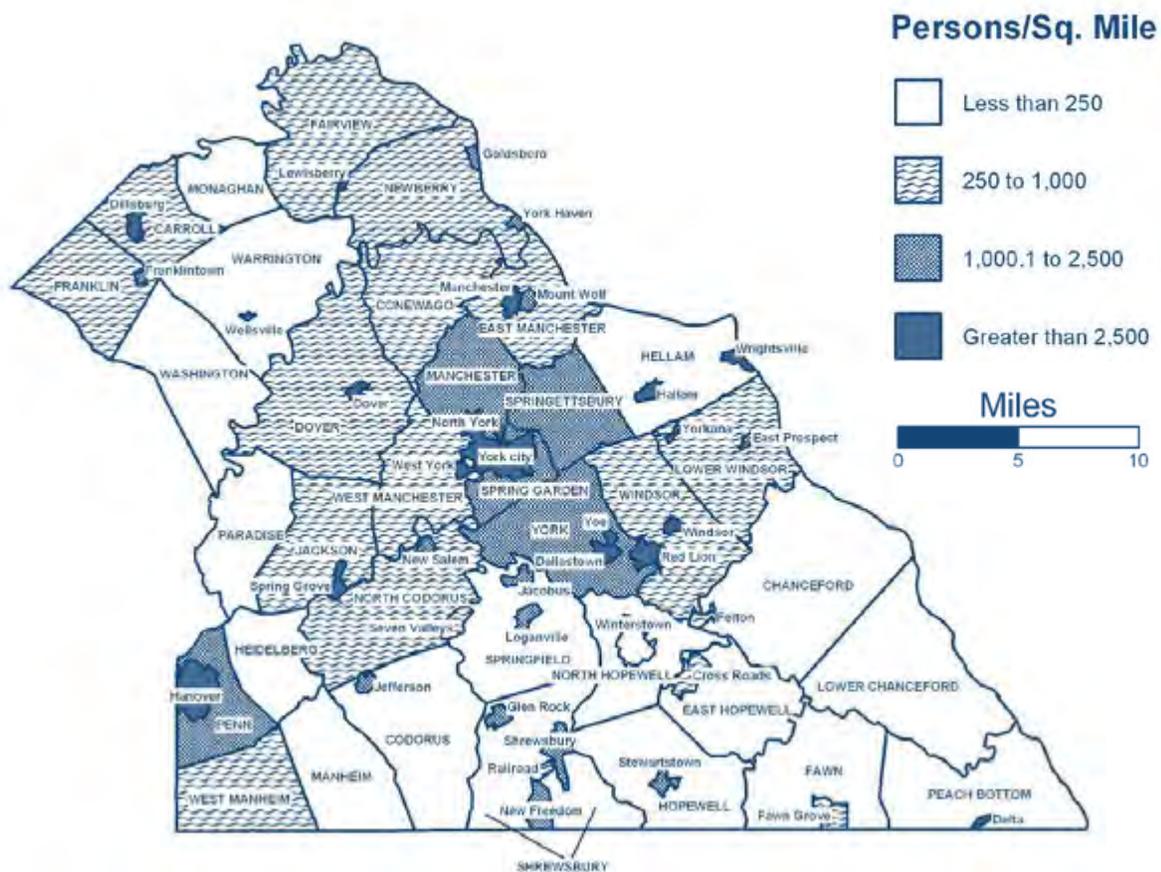
Figure 1-1 Location of York County and the Municipalities



A considerable amount of industrialization also developed, some of which was a direct result of the agricultural nature of the surrounding area. Many of the industries, businesses, and manufacturers located in York County compete in the global marketplace. Therefore, employment, personal income, and the local tax base are currently affected by a much broader scope of economic conditions. Mergers, acquisitions and overall industry consolidation, along with competing labor forces from other states and countries, have led to downsizing, relocation, or modifications to the existing operations. All changed the nature of many of the jobs available and have subsequently altered the demographics of the County.



Figure 1-2 York County Population Density 2010

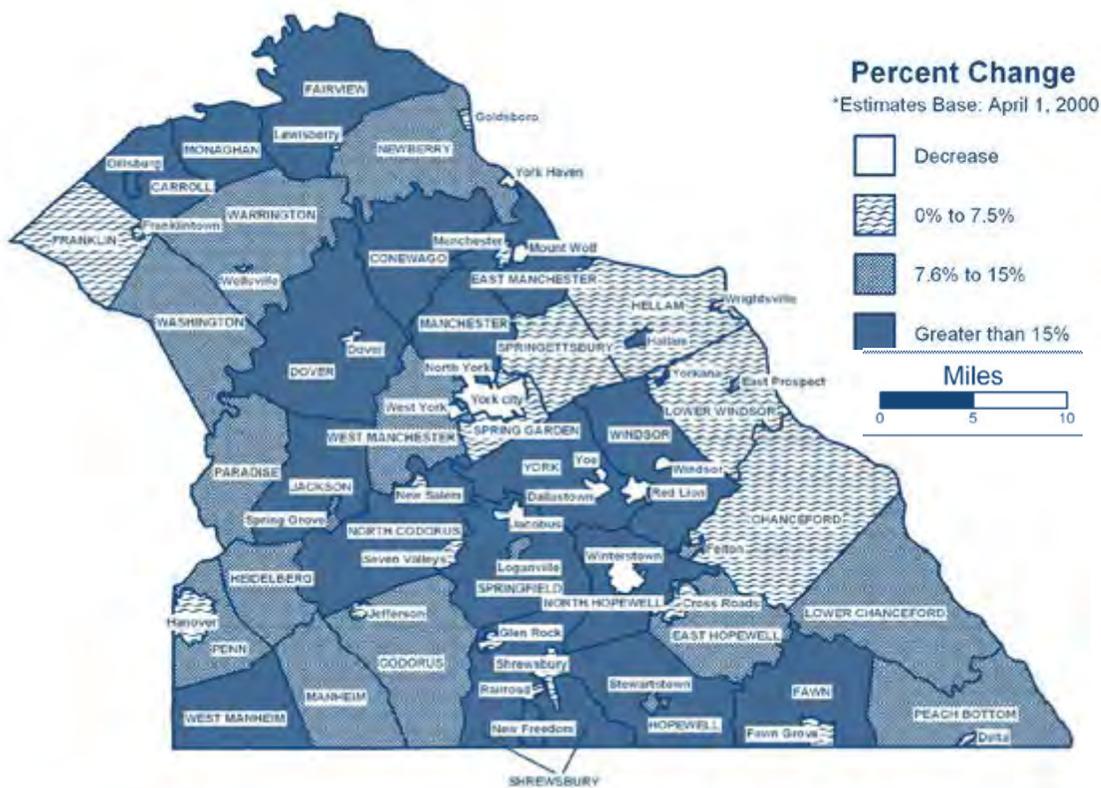


Source: US Department of Commerce, Bureau of Census and Penn State Data Center

A Changing Profile

Since 2000, the complexion of the County has been showing signs of change. A number of demographic measures illustrate this trend. From 1970 to 2000, York County's population gradually grew from 273,427 to 384,323 people, or the rate of approximately 3696 people per year. That is a 41% increase, similar to the national population rate during the same period. However, from 2000 to 2010, while the US population grew at a rate of 9.7%, York County's population increased by 54,902 people, a 13.85% increase, and 5,290 people per year. That represents 49% of the entire increase in the previous three decades. Figure 1-3 shows where the greatest changes in population occurred.

Figure 1-3 York County Population Changes 2000-2010



Source: US Department of Commerce, Bureau of Census

Map is based on the 2000 April 1 baseline estimates prior to the later adjustments by the US Census Bureau as shown in Table 1-1.

A portion of that increase, 32%, can be attributed to natural changes (births, deaths, etc.), which would be representative of the long-term trends in population typical for the County. Of greater significance during the last decade, is that migration, primarily from other counties and states, contributed to 69% of the growth in population. A large source of the County's migration is from the state of Maryland. One of the results of this was the increase in planned residential developments in the southern portion of the County during this same period.

Other sources of migration include the ongoing exodus of people from metropolitan areas in surrounding PA counties, seeking lower taxes and affordable housing. **York County's population rate is projected to slow in comparison to recent trends.** Table 1-1 lists the municipalities of York County along with recent population changes and projected growth.

The influx from other states and counties did not only increase the number of people, it is starting to create a more diverse population. Although significantly still the minority, the numbers of Hispanics have increased, according to the US Census Bureau by 116% between 2000 and 2010. While the actual amount of individuals in this mix of various ethnic groups are still minuscule compared with the Baltimore and Philadelphia regions, nearly every township surrounding the City of York saw minority populations increase.

Impact on Solid Waste Management

Such growth can have a significant impact on the solid waste management infrastructure. Greater quantities of waste result from construction. New homes require new furnishings and a multitude of other purchases, which often results in related discards of older items. The act of moving generates large quantities of cardboard containers and other packing materials. Finally, population itself is a traditional indicator of waste generation. Disposal capacity and the network of waste collection service providers may need to expand to meet the demand. Processing capacity for recyclables must be considered. Changes in methods for collection from drop-off to curbside often occur. During the planning process, all of these conditions were examined.

With increasing diversity comes a need to rethink how proper solid waste management practices are communicated. Reinforcing local standards may require more effort to reach those accustomed to entirely different systems of waste management. Language barriers could affect how the methods and availability of recycling opportunities and events are publicized.

Domestic migration is also transplanting clusters of people from more urban settings into predominantly rural municipalities. These local governments are often ill prepared for the greater expectations for public services than traditionally offered. Many elected officials and managers who have never considered providing or contracting for municipal waste and recycling collection are now being confronted with the desire for these services from their new constituents.

Table 1-1 York County Historic and Projected Population 2000 thru 2040

Municipality	2000	2010	2020	2030	2040
Carroll Township	4,729	5,939	7,446	8,007	9,242
Chanceford Township	5,979	6,111	6,275	7,314	7,635
Codorus Township	3,649	3,796	4,073	4,304	4,341
Conewago Township	5,290	7,510	10,219	10,158	11,570
Crossroads Borough	520	512	515	520	525
Dallastown Borough	4,087	4,049	4,069	4,110	4,131
Delta Borough	741	728	731	731	731
Dillsburg Borough	2,077	2,563	2,934	3,123	3,373
Dover Borough	1,815	2,007	2,091	2,296	2,388
Dover Township	18,074	21,078	22,713	26,172	28,588
East Hopewell Township	2,212	2,416	2,598	3,104	3,333
East Manchester Township	5,111	7,264	8,024	9,296	10,537
East Prospect Borough	692	905	970	1,038	1,100
Fairview Township	14,321	16,668	18,412	20,081	21,631
Fawn Grove Borough	463	452	453	449	446
Fawn Township	2,748	3,099	3,491	3,992	4,453
Felton Borough	449	506	537	537	554
Franklin Township	4,515	4,678	4,820	5,947	6,306
Franklintown Borough	532	489	516	521	526
Glen Rock Borough	1,809	2,025	2,116	2,196	2,333
Goldsboro Borough	939	952	968	978	988
Hallam Borough	1,562	2,673	2,686	2,713	2,740
Hanover Borough	14,573	15,289	16,053	16,375	16,702
Heidelberg Township	2,970	3,078	3,336	3,750	4,020
Hellam Township	5,930	6,043	6,244	6,431	6,624
Hopewell Township	5,062	5,435	5,713	6,170	6,664
Jackson Township	6,095	7,494	8,278	9,034	9,676
Jacobus Borough	1,203	1,841	1,857	1,894	1,913
Jefferson Borough	631	733	756	788	797
Lewisberry Borough	385	362	364	367	371
Loganville Borough	908	1,240	1,248	1,273	1,286
Lower Chanceford Township	2,903	3,028	3,183	3,586	3,800
Lower Windsor Township	7,420	7,382	7,419	7,716	8,130
Manchester Borough	2,350	2,763	2,800	2,837	2,866
Manchester Township	12,700	18,161	20,061	22,392	26,432
Manheim Township	3,119	3,380	3,823	4,309	4,642
Monaghan Township	2,140	2,630	2,998	3,333	3,649
Mount Wolf Borough	1,373	1,393	1,411	1,404	1,370
New Freedom Borough	3,512	4,464	4,797	5,277	5,435
New Salem Borough	648	724	750	765	788
Newberry Township	14,375	15,285	16,187	19,226	20,456
North Codorus Township	7,934	8,905	9,837	10,915	11,477
North Hopewell Township	2,507	2,791	3,006	3,486	3,749
North York Borough	1,687	1,914	1,924	1,827	1,882
Paradise Township	3,609	3,766	3,871	4,429	4,675
Peach Bottom Township	4,422	4,813	5,385	6,411	7,008

Municipality	2000	2010	2020	2030	2040
Penn Township	14,592	15,612	16,410	18,945	20,792
Railroad Borough	300	278	271	273	269
Red Lion Borough	6,149	6,373	6,339	6,590	6,702
Seven Valleys Borough	492	517	526	536	541
Shrewsbury Borough	3,378	3,823	4,014	4,609	4,938
Shrewsbury Township	5,947	6,447	6,777	7,048	7,673
Spring Garden Township	11,974	12,578	12,651	12,904	13,420
Spring Grove Borough	2,058	2,167	2,264	2,393	2,507
Springettsbury Township	23,883	26,668	28,730	30,313	32,882
Springfield Township	3,889	5,152	5,410	5,680	5,964
Stewartstown Borough	1,752	2,089	2,163	2,443	2,551
Warrington Township	4,446	4,532	4,642	5,371	5,486
Washington Township	2,460	2,673	2,880	3,247	3,395
Wellsville Borough	279	242	243	243	244
West Manchester Township	17,035	18,894	20,648	22,301	24,518
West Manheim Township	4,865	7,744	8,646	9,524	10,797
West York Borough	4,321	4,617	4,635	4,723	4,771
Windsor Township	12,807	17,504	20,460	22,454	25,847
Windsor Borough	1,331	1,319	1,324	1,350	1,376
Winterstown Borough	546	632	654	709	742
Wrightsville Borough	2,223	2,310	2,399	2,287	2,212
Yoe Borough	1,022	1,018	1,028	1,025	1,039
York City	40,862	43,718	43,958	44,398	44,746
York Haven Borough	809	709	688	733	703
York Township	23,637	27,793	28,488	33,061	36,127
Yorkana Borough	241	229	219	217	215
County Total	382,068	434,972	464,424	504,958	542,340
Percentage Increase from Previous Decade reflects Census Bureau adjustments	384,323	13.85%	6.77%	8.73%	7.40%
Source York County Planning Commission	Census adjustments				

Categories and Sources of Municipal Solid Waste

It is common at the federal and state levels to categorize and regulate waste more by who and where it is generated than by its actual characteristics or environmental impact. It is important to understand the regulatory and practical basis for categorizing the sources of municipal waste because, while the overall contents of the waste stream remains the same, the proportion of the materials differs in each category. This becomes a major consideration in developing recycling and other waste management technologies and diversion programs. A very detailed discussion of specific materials in the waste stream and the sources where they are most likely to be found is provided in Chapter 4. The purpose here in Chapter 1 is to clearly define the terms used to identify each source.

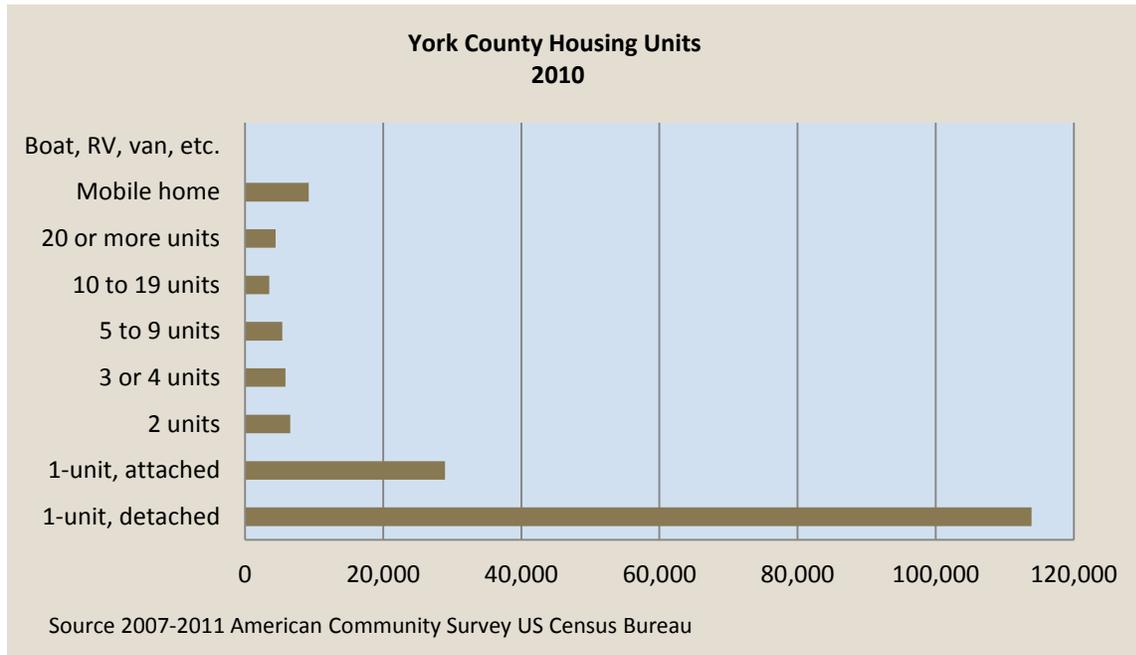
Defining the Generators

Basically the sources or generators of municipal solid waste, which will be discussed throughout the Plan, are divided into two categories. Residential sources include single-family detached homes as well as townhouses, condominiums, apartments,

mobile home parks, etc. According to the USEPA and PADEP studies, at least 54% of **municipal waste is generated by a community's residents. In rural communities, the studies show the proportion of residential waste to be even higher.**

Commercial sources include all types of businesses, offices, government facilities, and institutions. Community events are typically included in this category as well. The remaining 46% of the general municipal waste stream is the result of commercial activities. Within the commercial classification there are special wastes generated by select operations. These materials, which include sewage sludge, regulated medical waste and construction & demolition waste, are considered apart from general commercial waste for planning and management purposes. Industrial, mining, and manufacturing activities are also excluded from the definition of municipal solid waste generators.

Figure 1-4 York County Housing Units Types and Estimated Numbers 2010



York County Residential Municipal Solid Waste Generators

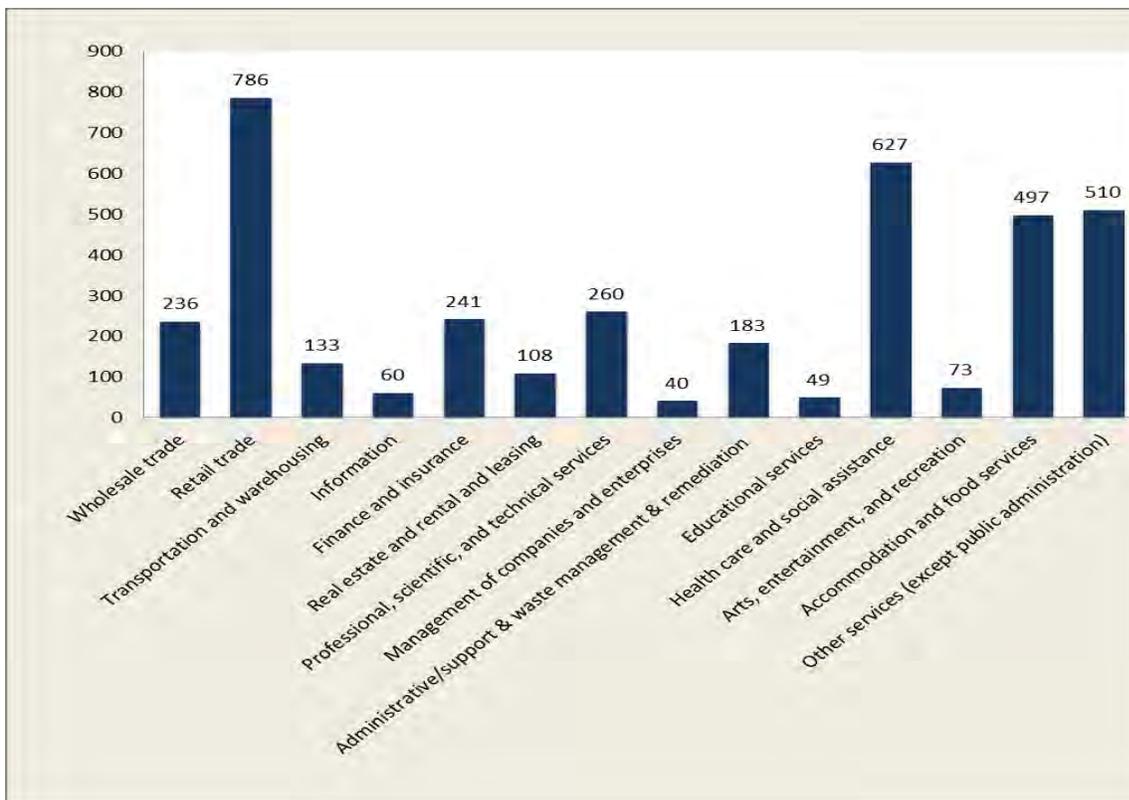
As shown in Figure 1-4, the majority of York County's residential generators of municipal waste live in single-family detached housing units or in structures with 4 or less attached units. These are the types of units for the most part that can be serviced in curbside collection programs. These services occur through municipal ordinances and contracts, which may or may not require resident participation. In approximately 10% of the municipalities, the decision to contract and pay for collection service falls largely on the individual resident. Those living in multi-family dwellings, defined as 5 or more attached structures, are more dependent on property owners and managers to provide these opportunities. Ensuring that proper waste

management practices are implemented throughout the County is an important part of the York County Municipal Solid Waste Management Plan. Exploring the effectiveness of local programs is an important element of the planning process. Motivating and/or mandating desired behaviors and participation in those available services and programs was a discussion point of the Municipal Waste Advisory Committee members.

York County Commercial Municipal Solid Waste Generators

Within the York-Hanover, Pa Metropolitan Statistical Area, which encompasses York County, in 2010 there were approximately 3800 commercial establishments with five or more employees. More than half of all of the employers in York County are included in this category. These operations represent the commercial segment of municipal solid waste, which is generated in York County. Figure 1-5 shows the types and numbers of commercial operations that existed in 2010.

Figure 1-5 Commercial Establishments in York County 2010



Source: Penn State Data Center - County Business Patterns

The greatest numbers of establishments are retail stores, followed by health and social services, and the hospitality industry. The remaining employers in agriculture, mining, manufacturing, utilities, construction and other industrial related operations are not considered commercial waste generators. Identifying the nature of these commercial establishments is helpful in planning for municipal waste management. Overall, the commercial waste stream is relatively similar to residential municipal waste. However, specific materials, like cardboard, are generated in greater proportions in the commercial sector. Certain types of businesses may produce the bulk of one type of material over another. According to the USEPA, ninety percent of these materials are highly recyclable. Identifying the sources of the materials can make a difference between a successful and a mediocre recycling program. Chapter 4 provides a detailed examination of the materials generated by commercial sources and the potential to recover them for recycling.

Included in the numbers of commercial establishments are government facilities. Based on the types of government functions, these may be offices, parks and recreational venues, garages and maintenance buildings, retail outlets, and service centers. Municipal and county facilities as well as those of the state and federal government are included. In York County, some examples of federal offices include the US Post Offices, the Veterans Administration and the offices of federal legislators. Representative state facilities located in York County are state police barracks, liquor stores, PennDOT, and various agencies.

Community Events

Municipal waste is also generated at sporting events, fairs, festivals, and other celebrations. Attendees and vendors produce food scraps, cups, bottles, cans, flyers, boxes, etc. in varying quantities at these community events. Studies have shown that an average of 3 lbs. of waste per attendee per day can be expected for daylong events. However, no precise generation rate would apply to every event or location. Smaller events and venues may have differing quantities. The types of food served, the manner in which beverages are dispensed and the volume of promotional materials also factor into the equation. Recovering recyclables and organic waste from these activities is becoming more common, and in some communities is mandated. Some examples of the types of events in York County where municipal waste is generated and where recycling could occur include the York Fair, the Shrewsbury Fall Festival, the Annual Street Rod Festival, the Annual Southern York County BBQ Cook-Off, as well as other smaller local community events.

Special Handling Municipal Waste Streams and Sources

Certain types of municipal waste have properties or characteristics that require them to be managed in a different fashion or may provide opportunities for enhanced reuse or recycling. The physical nature of the waste may not be appropriate to transport in a conventional collection vehicle. The composition or amounts may present risks to those using traditional collection practices. Therefore, these categories of municipal solid waste are controlled and regulated differently.

Septage and Sewage

Currently twenty-seven wastewater treatment plants (WWTP) service the needs of York County communities. Connecting the WWTP with the source of the wastewater, York County homes and businesses, is an expensive proposition. Miles of pipelines must be laid to allow access to the system. To reduce the cost per mile, facilities are typically built to service households in more densely populated municipalities. York County follows this trend. Table 1-2 shows each York County WWTP and the municipalities within their service area.

In rural areas, on-lot septic systems must be installed by private homeowners. Septic systems must be periodically pumped by septic system service companies and the septage is either land applied or transported to a WWTP for treatment. Multi-family dwellings, such as mobile home parks and residential care facilities, as well as industrial operations may operate private pre-treatment systems, with the sewage being transported for final treatment.

Both the raw sewage and septage, which is **treated at WWTP's eventually, is** dewatered sufficiently to become sewage sludge or biosolids. These materials require a management outlet. In York County, common methods of handling biosolids include, agricultural utilization to fertilize crop-producing fields; composting; and landfill disposal. Sewage sludge is typically disposed in landfills. Overall, according to transporter reports provided to the YCSWA, 9,852 dry tons of biosolids and 18,497,518 gallons of septage were managed in York County in 2010. The companies that transport septage and biosolids within York County along with the facilities that manage York County biosolids are addressed in Chapter 2.

Table 1-2 York County Wastewater Treatment Facilities

Wastewater Treatment Plant	Service Area
Adams/Paradise WWTP	Paradise Township
Conewago Township WWTP	Conewago Township
Delta Borough WWTP	Delta Borough
Dillsburg Area WWTP	Carroll Township Dillsburg Borough Franklin Township Franklintown Borough
Dover Borough WWTP	Dover Borough
Dover Township WWTP	Conewago Township Dover Township Manchester Township West Manchester Township
East Prospect WWTP	East Prospect Borough
Eastern York County WWTP	Hallam Borough
Fairview Township WWTP	Fairview Township
Felton Borough WWTP	Felton Borough
Glen Rock Borough WWTP	Glen Rock Borough
Hanover WWTP	Hanover Borough Penn Township
Hollow Creek WWTP	Jacobus Borough Loganville Borough Seven Valleys Borough Springfield Township
Jackson Township WWTP	Jackson Township
Lewisberry WWTP	Lewisberry Borough Newberry Township
Lower Allen Township WWTP	Fairview Township, North

Table 1-2 York County Wastewater Treatment Facilities cont'd

Wastewater Treatment Plant	Service Area
New Freedom WWTP	Hopewell Township New Freedom Borough Railroad Borough Shrewsbury Township
Newberry Township WWTP	Newberry Township
North Codorus WWTP	New Salem Borough
Northeastern York County, Mount Wolf WWTP	Manchester Borough Mount Wolf Borough
Northeastern York County, Saginaw WWTP	East Manchester Township
Penn Township WWTP	Penn Township Hanover Borough West Manheim Township
Spring Grove WWTP	Spring Grove Borough
Springettsbury WWTP	Dallastown Borough Manchester Township Red Lion Borough Spring Garden Township Springettsbury Township Windsor Borough Windsor Township Yoe Borough York Township
Stewartstown WWTP	Hopewell Township Stewartstown Borough
Wrightsville Borough WWTP	Wrightsville Borough
York City WWTP	Manchester Township North York Borough Spring Garden Township West Manchester Township West York Borough York City York Township
York Haven WWTP	York Haven Borough

Regulated Medical Waste

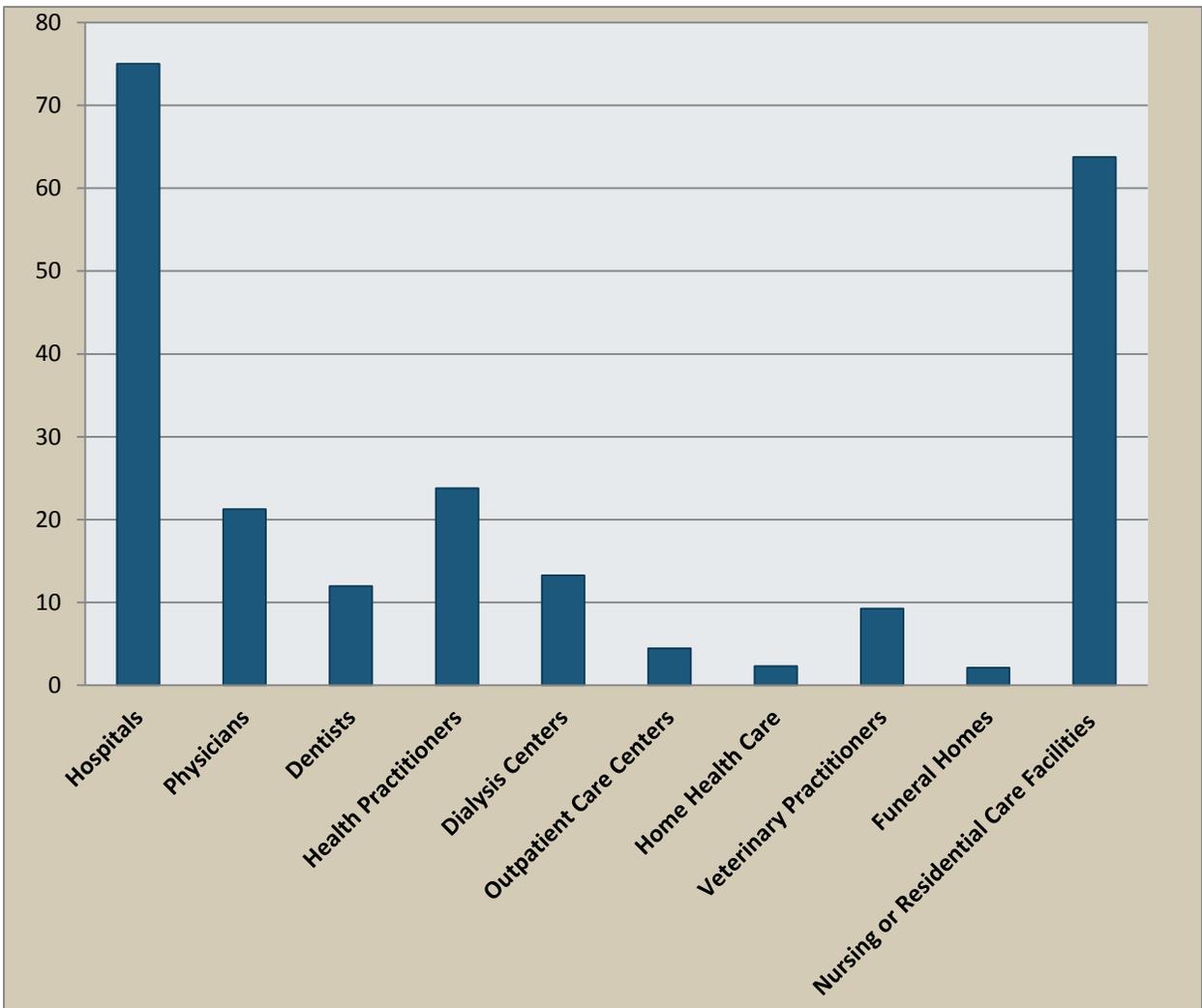
Similar to other institutional settings hospitals and resident care facilities generate significant quantities of municipal waste. Much of the material resembles waste found in the hospitality industry, where people are temporarily housed and fed. However, due to the nature of their operations, hospitals and other health care facilities also produce waste, which is required by federal and state regulations to be treated and handled separately from other materials. This waste was once identified in Pennsylvania as infectious/chemotherapeutic waste, which inappropriately described much of the material. The **broader term “regulated medical waste” is now** used for this material, which is a direct result of medical procedures, treatments and other activities.

In the past hospitals were the primary generators of regulated medical waste, since most medical procedures were performed as in-patient care. At that time hospitals commonly managed medical waste on site, typically through incineration. In the past twenty years, outpatient care is much more common. Therefore, medical waste generation is more widespread and is not as easily managed on-site. Consequently, commercial transporters and treatment facilities developed in direct proportion to the demand for services. Service providers operating within York County are identified in Chapter 2.

Figure 1-6 shows the estimated tons of York County regulated medical waste generated in 2010. The amount of waste, which is shown in Figure 1-6, was calculated using the expected rate of generation by type of facility or medical practice, documented in the 1990 *Pennsylvania Infectious and Chemotherapeutic Waste Plan*. The estimates show a total of 230 tons of medical waste. Approximately 274 tons of regulated medical waste was reported to the YCSWA by medical waste transporters. Other than for York Hospital, the reports do not show the source of the waste.

As shown on the chart and supported by the transporter data, hospitals continue to generate the bulk of the regulated medical waste. However, with an ever-increasing aging population, there has been a growing demand for skilled nursing and resident rehabilitation centers. This trend holds true in York County. Residential care facilities are the second largest source of the estimated amounts of medical waste generated. They also are in the category of the second largest number of commercial waste generators. Therefore, it is important to be aware of their operations.

Figure 1-6 Estimated Annual Tons York County Regulated Medical Waste Generation 2010



Source: US Census Bureau and Pennsylvania Infectious and Chemotherapeutic Waste Plan

Overview of Municipal Solid Waste Trends

The United States Environmental Protection Agency (USEPA) has collected and analyzed data on waste generation, disposal, and diversion from 1960 through 2010. Therefore, historic trends and changes, as well as yearly snapshots are available. The Franklin Associates of Kansas were commissioned by the USEPA to conduct this ongoing study and issue a series of publications. It continues to serve as the definitive survey on the characterization and composition of the national waste stream. Until recently, the reports were published as “*Characterization of Municipal Solid Waste in the United States.*” The most current iteration is titled “*Generation, Recycling, and Disposal in the United States: Facts and Figures for 2010.*” The project and publications are commonly referred to as **“The Franklin Study.”** The series focuses on municipal solid waste generated by residential and commercial sources. It is a useful tool to make initial assumptions and to reveal significant differences and/or anomalies in local programs based on national behaviors and performance.

Common Elements of Municipal Solid Waste

Municipal solid waste consists of everyday items such as product packaging, grass clippings, furniture, clothing, bottles, food scraps, newspapers, appliances, and batteries. In addition to identifying specific groups of materials, broad categories of products are also used in analyses of municipal solid waste. These include durable goods, non-durable goods, containers and packaging, organic wastes such as food and yard trimmings, and miscellaneous inorganic wastes. Although the same materials exist in the waste stream, categorizing them by product more clearly illustrates the relationship between product design, purchasing habits, and waste generation. With the emergence and growth of product stewardship legislation and regulations, there is increasing demand for sustainable design that allows for remanufacturing, reuse, and recycling. A description of the USEPA product categories is shown on the following page.

USEPA Categories of Products and Non-Products in Municipal Solid Waste

Paper and Paperboard

Collectively, the many products made of paper and paperboard materials comprise the largest component of MSW. The paper and paperboard materials category includes products such as office papers, newspapers, corrugated boxes, milk cartons, tissue paper, and paper plates and cups.

Glass

Glass is found in MSW primarily in the form of containers, but also in durable goods like furniture, appliances, and consumer electronics. In the container category, glass is found in beer and soft drink bottles, wine and liquor bottles, and bottles and jars for food, cosmetics, and other products.

Metals

Ferrous By weight, ferrous metals (iron and steel) are the largest category of metals in MSW. The largest quantities of ferrous metals in MSW are found in durable goods such as appliances, furniture, and tires. Containers and packaging are the other source of ferrous metals in MSW.

Aluminum The largest source of aluminum in MSW is aluminum cans and other packaging. Other sources of aluminum are found in durable and nondurable goods.

Other Nonferrous Other nonferrous metals (e.g., lead, copper, zinc) are found in durable products such as appliances, consumer electronics, etc. Lead in lead-acid batteries is the most prevalent nonferrous metal (other than aluminum) in MSW.

Plastics

Plastics are a rapidly growing segment of MSW. While plastics are found in all major MSW categories, the containers and packaging category (bags, sacks, and wraps, other packaging, PET bottles, jars and HDPE natural bottles, and other containers) has the most plastic tonnage.

Rubber and Leather

The predominant source of rubber in MSW is rubber tires from automobiles and trucks. Other sources of rubber and leather include clothing and footwear and other miscellaneous durable and nondurable products. These other sources are quite diverse, including such items as gaskets on appliances, furniture, and hot water bottles, for example.

Textiles

Textiles in MSW are found mainly in discarded clothing, although other sources were identified to be furniture, carpets, tires, footwear, and other nondurable goods such as sheets and towels.

Wood

The sources of wood in MSW include furniture, other durable goods (e.g., cabinets for electronic equipment), wood packaging (crates, pallets), and some other miscellaneous products.

Other Materials

Generation of “other materials” waste is mainly associated with disposable diapers. The only other significant sources of materials in this category are the electrolytes and other materials associated with lead-acid batteries that are not classified as plastics or nonferrous metal.

Other Wastes (Non-Product):

Food Scraps

Food scraps included here consist of uneaten food and food preparation wastes from residences, commercial establishments such as grocery stores and sit-down and fast food restaurants, institutional sources such as school cafeterias, and industrial sources such as factory lunchrooms. Pre-consumer food waste generated during the manufacturing and packaging of food products is considered industrial waste and therefore not included in MSW food scrap estimates.

Yard Trimmings

Yard trimmings include grass, leaves, and tree and brush trimmings from residential, institutional, and commercial sources. Although limited data are available on the composition of yard trimmings, it is estimated that the average composition by weight is about 50 percent grass, 25 percent brush, and 25 percent leaves. These are “ballpark” numbers that will vary widely according to climate and region of the country.

Processible and Non-processible Waste

Not included in the USEPA Franklin figures are materials that are regulated as municipal waste in Pennsylvania and thus reported as such, but may be tracked and monitored separately from MSW in other states. These include construction and demolition materials, and special handling wastes such as municipal wastewater treatment sludges. To better understand how this applies to York County, the Franklin Study tracks and monitors what is reported under the sub-category of wastes as **“municipal” by Pennsylvania** processing and disposal facilities.

The sub-category **“municipal”** consists primarily of processible waste, suitable for combustion at the York County Resource Recovery Center. Due to size or other characteristics, for a small fraction of the sub-category **“municipal,”** combustion is prohibitive. These **“non-processible”** wastes along with additional categories, which are defined and reported as municipal waste in Pennsylvania, are managed at other facilities. These include construction and demolition waste, sewage sludges, processed regulated medical waste and ash residue. Non-hazardous industrial wastes such as coal ash, slag, etc., which are managed as residual waste in Pennsylvania, are not included in the Franklin Study.

Historic Variations in Municipal Solid Waste

Before examining the current conditions in York County, it is necessary to have a much broader awareness and understanding of municipal solid waste issues and trends. Knowing what is common or normal in the majority of communities across the nation, provides a benchmark for evaluating local data. It also offers explanations for changes that challenge previously held assumptions. Finally, it provides insight into prevailing trends and evolving conditions that could affect future solid waste management capacity needs and the development of treatment and processing methodologies.

This section provides an overview of changes that have occurred nationally from 1960-2010 in the amounts, types and components of municipal solid waste generated compared to those which have been discarded. These statistics form the foundation for assumptions used throughout the planning process when considering the validity or anomalies of local data and programs.

Properties, Composition, and Recovery

The USEPA has documented through its studies that over the past 50 years the quantities, composition, and recovery of municipal solid waste have varied considerably. In contrast, over the past 5 years, the quantity of material generated and discarded has been relatively constant. Similarly, the amount of energy available through combustion per unit of MSW discarded has also remained relatively constant in recent years.

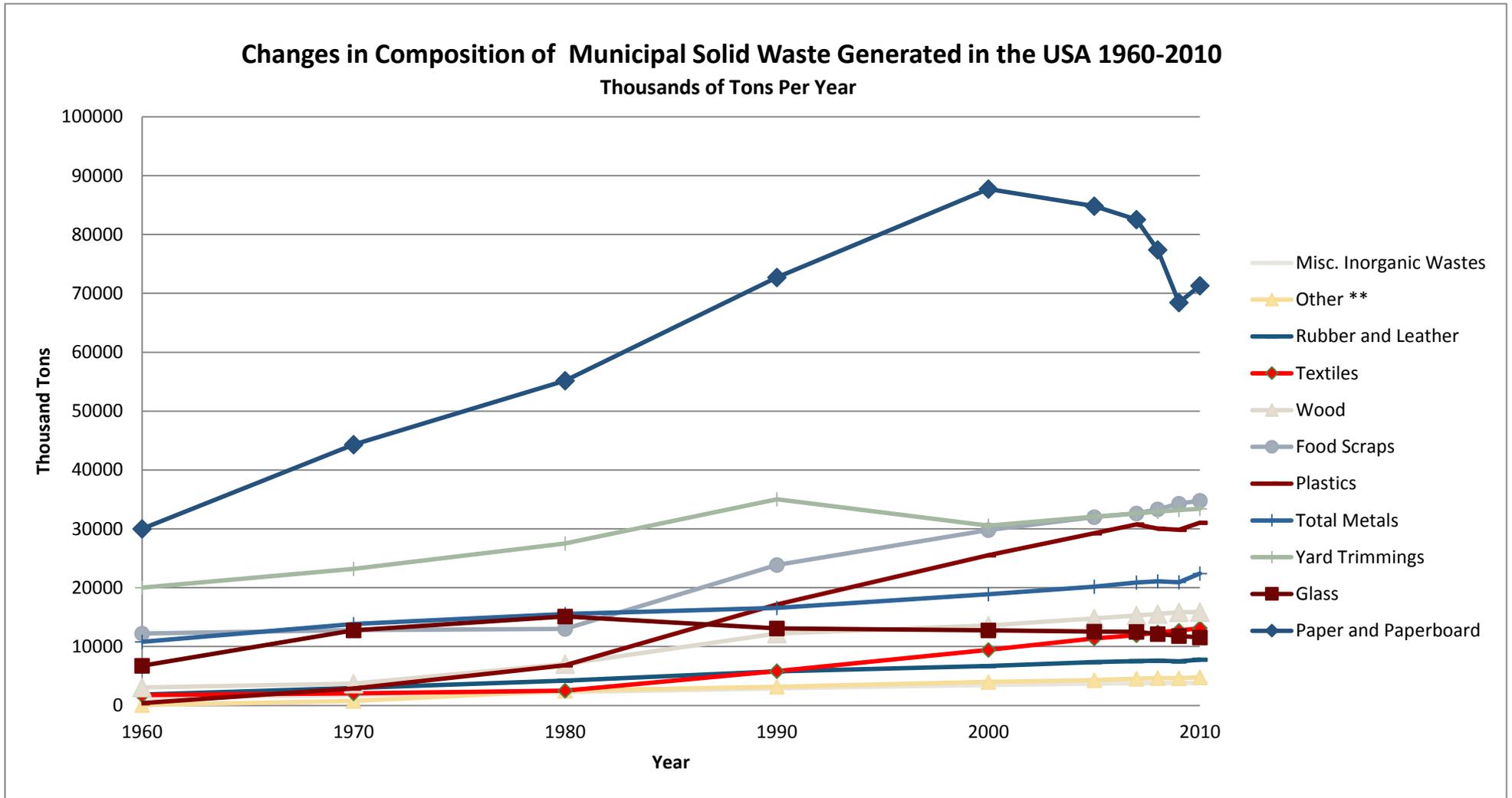
Waste Generation

Table 1-3 and Figure 1-7 present the amounts of municipal solid waste generated nationally from 1960 thru 2010 along with the quantities of individual material components. The total amount of municipal solid waste generated has approximately tripled over this 50-year period. The quantity and proportion that each individual component represents in the overall waste stream has also varied over the period. For example, in 1960 paper represented about 34% of the municipal solid waste stream. It has declined to about 28.5% in 2010. Plastic, which was less than 1% of the total municipal solid waste stream generated in 1960, has increased to over 12% of the total municipal solid waste stream in 2010.

Table 1-3 Changes in Composition of Municipal Solid Waste Generated in the USA 1960-2010
Thousand Tons Per Year

Materials \ Years	1960	1970	1980	1990	2000	2005	2007	2008	2009	2010
Materials in Products										
Paper and Paperboard	29,990	44,310	55,160	72,730	87,740	84,840	82,530	77,420	68,430	71,310
Glass	6,720	12,740	15,130	13,100	12,760	12,540	12,520	12,150	11,780	11,530
Metals (Total of All)	10,820	13,830	15,510	16,550	18,910	20,180	20,880	21,100	20,910	22,410
Ferrous	10,300	12,360	12,620	12,640	14,110	14,990	15,640	15,730	15,620	16,900
Aluminum	340	800	1,730	2,810	3,200	3,330	3,360	3,410	3,400	3,410
Other Nonferrous	180	670	1,160	1,100	1,600	1,860	1,880	1,960	1,890	2,100
Plastics	390	2,900	6,830	17,130	25,540	29,260	30,750	30,060	29,830	31,040
Rubber and Leather	1,840	2,970	4,200	5,790	6,710	7,360	7,540	7,630	7,490	7,780
Textiles	1,760	2,040	2,530	5,810	9,440	11,380	11,940	12,430	12,730	13,120
Wood	3,030	3,720	7,010	12,210	13,600	14,790	15,280	15,540	15,840	15,880
Other	70	770	2,520	3,190	4,000	4,280	4,550	4,670	4,640	4,790
Total Materials in Products	54,620	83,280	108,890	146,510	178,700	184,630	185,990	181,000	171,650	177,860
Other Wastes (non-products)										
Food Scraps	12,200	12,800	13,000	23,860	29,810	31,990	32,610	33,340	34,290	34,760
Yard Trimmings	20,000	23,200	27,500	35,000	30,530	32,070	32,630	32,900	33,200	33,400
Misc. Inorganic Wastes	1,300	1,780	2,250	2,900	3,500	3,690	3,750	3,780	3,820	3,840
Total Other Wastes	33,500	37,780	42,750	61,760	63,840	67,750	68,990	70,020	71,310	72,000
Total MSW Generated thousand tons per year	88,120	121,060	151,640	208,270	242,540	252,380	254,980	251,020	242,960	249,860
Source: USEPA										

Figure 1-7 Material Changes in Municipal Solid Waste Generated in the USA



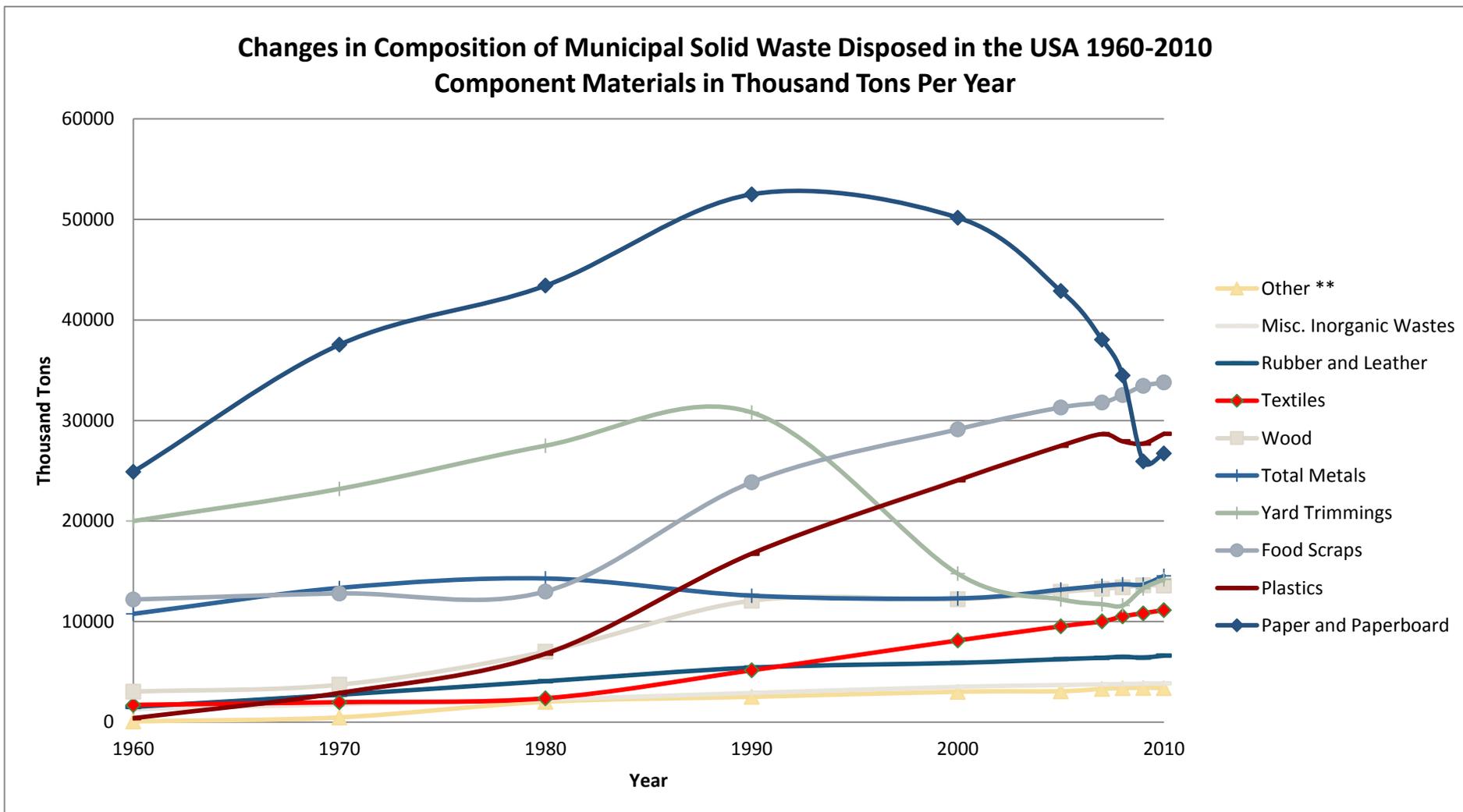
Waste Discarded or Disposed

Discards include the municipal solid waste remaining after recovery for recycling and compost processing. Of the municipal solid waste generated in the United States, about 33% is recovered through recycling and composting programs. The remaining 66% falls into the **category that USEPA labels “discarded” also commonly referred to as “disposed.”** Table 1-4 provides information on the quantities of various materials contained in municipal solid waste disposed over the past 50 years. While the total quantity of municipal solid waste generated has nearly tripled over this period, the quantity disposed has only doubled. This variation is because the proportion recovered through recycling has grown from less than 7% of total MSW in 1960 to about 34% in 2010.

Table 1- 4 Changes in Composition of Municipal Solid Waste Disposed 1960-2010
Thousand Tons Per Year

Materials \ years	1960	1970	1980	1990	2000	2005	2007	2008	2009	2010
Materials in Products										
Paper and Paperboard	24,910	37,540	43,420	52,500	50,180	42,880	38,050	34,480	25,930	26,740
Glass	6,620	12,580	14,380	10,470	9,880	9,950	9,640	9,340	8,780	8,400
Metals (Total of All)	10,770	13,350	14,290	12,580	12,310	13,180	13,570	13,710	13,690	14,540
Ferrous	10,250	12,210	12,250	10,410	9,430	9,960	10,360	10,420	10,390	11,190
Aluminum	340	790	1,420	1,800	2,340	2,640	2,630	2,690	2,710	2,730
Other Nonferrous	180	350	620	370	540	580	580	600	590	620
Plastics	390	2,900	6,810	16,760	24,060	27,490	28,650	27,930	27,710	28,680
Rubber and Leather	1,510	2,720	4,070	5,420	5,890	6,260	6,400	6,490	6,420	6,610
Textiles	1,710	1,980	2,370	5,150	8,120	9,530	10,020	10,520	10,830	11,150
Wood	3,030	3,720	7,010	12,080	12,230	12,960	13,260	13,410	13,610	13,580
Other	70	470	2,020	2,510	3,020	3,070	3,310	3,370	3,410	3,380
Total Materials in Products	49,010	75,260	94,370	117,470	125,690	125,320	122,900	119,250	110,380	113,080
Other Wastes										
Food Scraps	12,200	12,800	13,000	23,860	29,130	31,300	31,800	32,540	33,440	33,790
Yard Trimmings	20,000	23,200	27,500	30,800	14,760	12,210	11,730	11,600	13,300	14,200
Misc. Inorganic Wastes	1,300	1,780	2,250	2,900	3,500	3,690	3,750	3,780	3,820	3,840
Total Other Wastes	33,500	37,780	42,750	57,560	47,390	47,200	47,280	47,920	50,560	51,830
Total MSW Discarded - ttpy	82,510	113,040	137,120	175,030	173,080	172,520	170,180	167,170	160,940	164,910
Total MSW Generated - ttpy	88,120	121,060	151,640	208,270	242,540	252,380	254,980	251,020	242,960	249,860
Percent of MSW Discarded	93.6%	93.4%	90.4%	84.0%	71.4%	68.4%	66.7%	66.6%	66.2%	66.0%

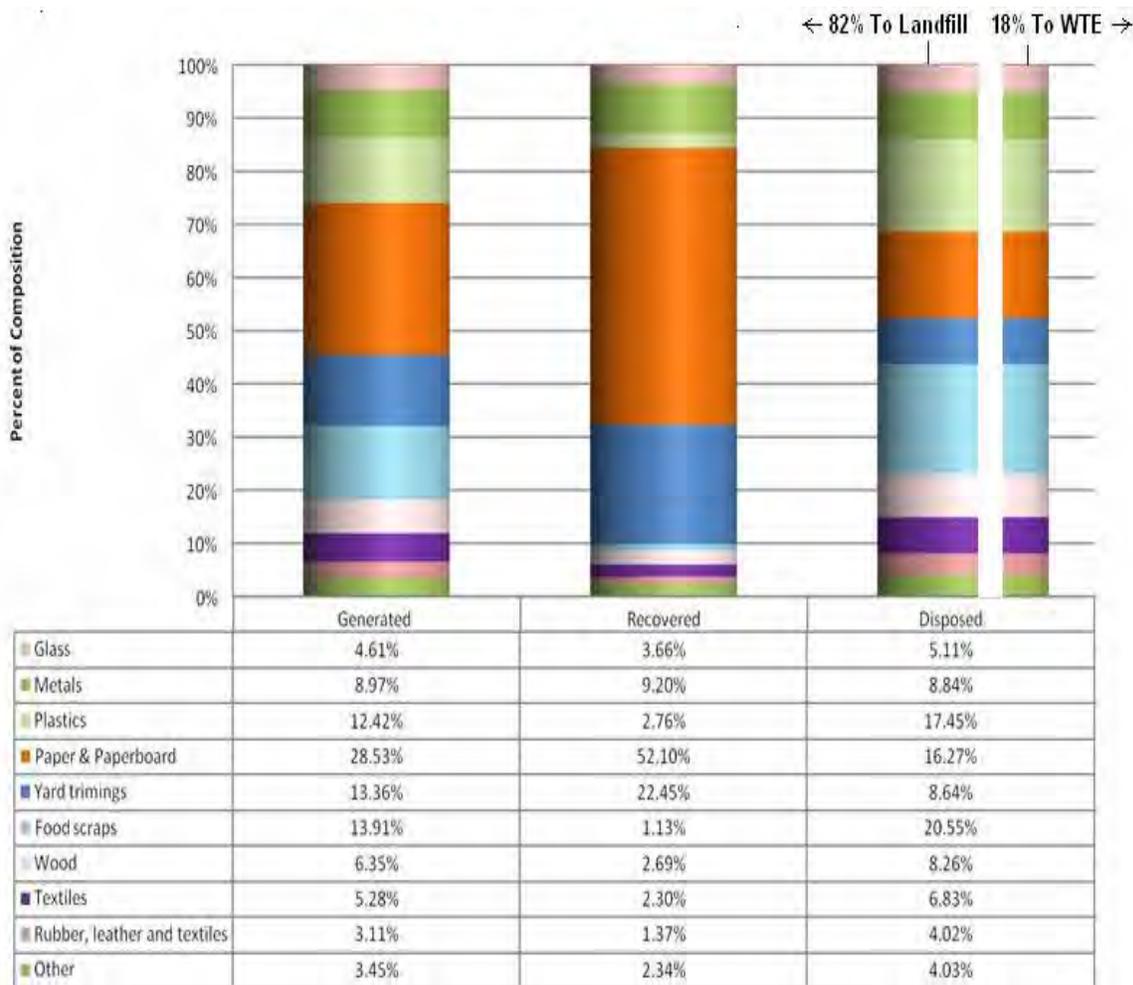
Figure 1-8 Composition Changes in Municipal Waste Disposed in the USA 1960-2010



For the last decade, due to changes in material usage, packaging and economic effects, among other factors, the total quantity of municipal solid waste generated nationally has been relatively constant. With increasing recovery, the quantity of municipal solid waste disposed has actually been constant to slightly declining for the past 20 years. Paper (including paperboard) is the largest category of material in MSW as generated. However, due to recycling, the quantity of paper disposed has been declining since about 1990. Recently, plastic and food scraps have surpassed paper as the principal components in discarded MSW.

Figure 1-8 offers a graphic representation of these historic trends. A contemporary view that compares waste generated, recovered and discarded for 2010 is shown in Figure 1-9.

Figure 1-9 Composition of MSW Generated, Recovered, or Disposed in the USA 2010



Source: USEPA

National Statistics 2010

In 2010, the Franklin Study estimated that 249.86 million tons per year of municipal solid waste (MSW) was generated in the United States. Of the MSW generated, 164.91 million tons per year were discarded. An estimated 84.95 million tons were recovered, establishing for 2010 a national recovery rate of 34%. This approximates **Pennsylvania's current recycling goal of 35%**.

Based on a national population of 309.05 million persons, MSW as defined by USEPA is

- Generated at the rate of 4.43 lbs/person/day.
- Discarded at the rate of 2.92 lbs/person/day.
- Recovered at the rate 1.51 lbs/person/day.

York County Estimates and Reported Data

Using these criteria, assuming the same level of performance in recovery programs, and the estimated 2010 population of 434,972 persons, proportional annual quantities of municipal solid waste as defined by USEPA for York County would be:

Estimated (2010)

- 351,664 tons generated,
- 232,102 tons discarded
- 119,562 recovered

Reported (2010)

- 385,506 tons generated,
- 294,506 tons discarded
- 91,000 tons recovered

Using a population of 434,972 persons, York County reported municipal solid waste as defined by USEPA is

- Generated at the rate of 4.85 lbs/person/day.
- Discarded at the rate of 3.71 lbs/person/day.
- Recovered at the rate 1.14 lbs/person/day.

There is a difference of more than 60,000 tons or roughly 27% between the estimates shown here and the amount of York County municipal solid waste as defined by USEPA reported as disposed in 2010 (294,506 tons). While this may appear to be a large quantity, when other indicators are considered and **particularly for a single year's snap shot in time, the discrepancy is understandable**. Local data is reported as inbound tons to the Resource Recovery Center and/or landfill and thus has a higher moisture content than the dry material in a product state factored into the USEPA figures. Depending on the mix of materials received, it would be totally feasible and commonly assumed in the industry that disposed material would have a moisture content that could **contribute 25% more weight than if it was dry**. Therefore, York County's disposal data is actually rather normal.

Managing Non-Processible Wastes

Municipal solid waste covers a wide spectrum of materials and categories. There are some subsets of the waste stream that are prohibitive to manage at a resource recovery facility because of their unique characteristics or their need for special handling. These wastes are considered non-processible or unsuitable for combustion. The USEPA, in its Franklin study, and many states factor some but not all of these non-processible materials into the overall quantities of municipal waste. In Pennsylvania, however, non-processible waste does fall within the regulatory framework of municipal solid waste. Therefore, in the planning process York County must address how both processible and all types of non-processible wastes are managed.

It should be noted that in discussions of and projections for residential and commercial municipal waste generation and recycling, some of the non-processible wastes are not included. Estimates for these wastes are provided separately. This section describes these special types of non-processible municipal solid waste and offers background on the quantities generated as well as known disposal practices.

Waste from Construction and Demolition Activities

Construction and demolition (C&D) waste is a perfect example of a waste stream that is defined and regulated as municipal waste in Pennsylvania, but viewed differently in other states. Construction and demolition projects in residential, commercial, and industrial establishments generate a highly variable composite waste stream. The name itself suggests the different activities that can occur depending on the specific project or job site. Work may include construction, renovation, and/or demolition and any or all of a number of related activities.

Projecting C&D waste generation and disposal rates can be challenging, if not impossible. There is little historical data at the national level that establishes trends for the quantities of C&D waste generated, recovered and disposed. Unlike processible municipal solid waste, the amounts of C&D waste from month to month and year to year are less consistent. The variables related to these materials are numerous and are affected by locale, demographics, and economics.

Construction and demolition projects are subject to seasonal weather conditions. In transitional climates, construction projects are often put on hold in months where weather conditions are harsh. Conversely, in fair weather months activities and waste generation escalate. Booms and busts in the economy can stimulate or deter new development and construction.

The volume and weight of C&D materials can fluctuate dramatically load-by-load based on the mix of materials and physical characteristics of each. Demolition projects will produce heavier and bulkier materials because the entire structure or at

least parts of the entire structure are being destroyed. Loads from these project sites typically contain a mixture of asphalt, concrete, earth, sand, trees, steel, brick, lumber, roofing materials, carpet remnants, dry wall, and other similar materials. On the other hand loads from new construction activities are typically lighter and include packaging materials such as cardboard boxes, Styrofoam, nylon or plastic strapping, pallets, etc.

For all of these reasons, it becomes easier to understand the difficulties in projecting C&D quantities for the long term. Attempts to characterize the C&D waste stream and determine reliable rates of generation were made in the northeastern United States. Because Pennsylvania is within the geographic proximity to and shares a similar climate with this area, the findings of those efforts are useful at a minimum for comparative purposes. The Northeast Waste Management Officials' Association (NEWMOA) and the Massachusetts Department of Environmental Protection each were responsible for separate studies. *Construction & Demolition Debris Industry Study in 2007* was published by the Massachusetts DEP and NEWMOA released *Construction & Demolition Waste Management in the Northeast in 2006*. Eight states were represented in the studies including: Rhode Island, New Hampshire, Vermont, Massachusetts, New Jersey, New York, Maine, and Connecticut.

As expected, the studies encountered a wide difference in generation rates from the reported disposal and recovery activity in the participating states. The initial results showed a broad swing in C&D waste generated, from a low of 0.19 tons per person per year to a high of 0.42 tons per person per year. The results were further refined and filtered to establish a commonality in definitions and other subjective variables. It was concluded that a median Of 0.31 tons per person per year could be reasonably used as the generation rate.

A number of items were excluded from the study and thus are not reflected in the generation rate calculations. It is common practice on project sites to utilize the materials from road and bridge projects as clean fill. These same materials, asphalt, brick, and concrete (ABC) wastes, are disproportionately heavier than many of the other C&D components and serve to skew the results. Trees and rocks from land clearing and grubbing activities were not included for similar reasons.

York County Construction and Demolition Waste Management

Applying the combined findings of the NEWMOA and the Massachusetts DEP studies, **York County's 434,972 person population** would be expected to generate 134,841.32 tons of C&D waste in 2010. Pennsylvania disposal facility reports for that year documented the disposal of 54,744 tons of C&D waste reportedly originating from sources in York County, about 60% less than anticipated. While this may appear to be a huge discrepancy, other factors and indicators should be considered before making a final judgment.

The Pennsylvania Department of Environmental Protection estimates that 17.5% of the material disposed in Pennsylvania landfills can be categorized as C&D waste. The disposal of 54,744 tons of York County C&D waste was reported by Pennsylvania disposal facilities in 2010. This represents approximately 15.5% of all municipal waste



(processable & non-processible) reportedly originating in York County and disposed in Pennsylvania facilities. Nearly all of the York tonnage was reported by one landfill located within the County. The reported figures are close enough to the PADEP estimates to conclude that overall an average amount of C&D waste is disposed properly.

C&D waste is categorized as non-processible and in York County is not flow controlled to any one designated facility. Transporters, particularly for large demolition projects, are often willing to drive farther if the disposal fee warrants it. Lower tipping fees are common in other states and in western Pennsylvania. So if a significantly greater amount of C&D waste is generated, as expected from the studies, it could be transported to remote facilities and the origin not reported accurately. Reporting requirements for out-of-state facilities are not as structured as **Pennsylvania's regulations. C&D material is not always reported separately from** municipal waste. In most instances, if the source of the material is recorded at all, it is for only the state, but not for the county of origin.

Private garbage haulers and/or municipal public works crews do not commonly collect C&D material as part of a residential curbside program. Therefore, to have the material hauled away **results in added and sometimes unforeseen costs. Instead, "do-it-yourselfers" often independently manage the waste from their projects.** Construction contractors and/or remodelers are often expected to handle this material. While most York County homeowners and businesses are known to handle their waste properly, a certain amount of C&D waste likely does not make its way to a proper disposal facility. Some of the material is burned on construction sites and is never documented. Another method used by homeowners and contractors is illegal dumping.

Construction and demolition material, which does not reach a landfill, is not necessarily improperly managed or disposed. Contractors often reuse doors, windows, hardware, etc. in other project applications. Second-hand and construction material reuse stores operated by non-profit organizations are becoming more popular. Additionally, C&D recycling is gaining momentum as an alternative to

disposal. Markets continue to develop for many of the components of C&D waste. Dry wall, carpeting, scrap wood, plaster, metals, and other materials are marketable commodities in alternative recycling applications such as feedstock for manufactured products, soil amendments, mulch, etc.

Determining an accurate C&D waste generation rate is difficult, however, it could be a valuable tool in the long range planning for York County. Improvements in the tracking and monitoring of these materials could be a first step. Such data would prove useful in the development of a C&D recycling program in York County. It could also serve as a form of deterrent against illegal dumping. Consideration of these potential solutions and further discussions can occur throughout the Plan implementation period.

Summary

Recent growth in York County has served as a catalyst for other changes. A larger and more diverse population places greater demands on public services, including waste management. Likewise, the very nature and composition of municipal solid waste is evolving and creating new challenges and opportunities. The Municipal Waste Advisory Committee incorporated these findings into its review and discussions during the planning process.

CHAPTER TWO

Current Practices



Waste Management Infrastructure

The core of a municipal solid waste management plan is to ensure that adequate resources are available for the collection, transportation, and disposition of the various waste streams. In addition, the plan must review and assess the management practices of the residents and businesses that generate the waste. This chapter focuses on the broad infrastructure of transporters and disposal/processing facilities that have developed to meet the needs of York County. It also discusses how and where those services are utilized and details issues that require added attention.

Flow Control of Municipal Waste

The control of the waste commodity, specifically where it can be disposed, is a power offered to local jurisdictions. A series of federal and state court rulings have consistently supported this authority, when implemented under specific circumstances. In a straightforward interpretation and enforcement of flow control, governmental laws or policies require waste materials to be disposed at one designated disposal facility. Typically, this occurs when the government entity has assumed full responsibility for waste management and has a vested interest (ownership and/or operation) in a landfill, transfer station, and/or waste-to-energy facility. Public investment in a facility has been a proven and effective tool to ensure proper municipal waste management and guarantee funding of related solid waste and recycling programs. Other forms of flow control are also allowable, even when the local public entity has no stake in the operation. When contractual arrangements are obtained through a fair open and competitive procurement process, waste disposal may be flow-controlled to designated third party facilities, public or private sector.

Waste flow control exists in the York County Municipal Solid Waste Management Plan. The policy, instituted by County Ordinance 89-4 in 1989, is implemented and enforced to support the Resource Recovery Center, which is owned by the York County Solid Waste and Refuse Authority. A copy of the ordinance is provided in Appendix C. Support for the policy is evidenced by the ratification of the 1991 Plan by the municipalities.

County Ordinance 89-4 requires that all municipal waste, which is generated in York County and that is acceptable for processing under the operational criteria must be delivered to the York County Resource Recovery Center. Such waste is referred to as “processable.” **Municipal solid waste that is not acceptable at the Center is called “non-processible.”** When non-processible waste is inadvertently delivered to the Center it is diverted to a facility, currently Modern Landfill, under contract with the Authority to accept the waste.

Certain types of non-processible waste that require special handling may be disposed or processed at any facility permitted to accept the material by the appropriate state regulatory agency. These include sewage, septage, and regulated medical waste. Likewise, construction and demolition waste, although it has many components that are processible, is currently not flow controlled to the Center but currently may be disposed at any appropriately permitted facility. Similar conditions exist for source separated food waste and other organics destined for compost facilities or digesters.

Collection and Transportation Network

In Pennsylvania, York County has one of the highest percentages of municipalities that contract with a single hauler for organized waste collection services on behalf of their residents. Municipalities secure these services through a competitive bidding process. In some instances, residents are required to pay for the municipally contracted services. In other communities, although the municipality secures a guaranteed price from a service provider that is granted the exclusive rights to operate within the jurisdiction, residents participate or subscribe on a voluntary basis. In still others communities, not only the choice to subscribe, but also the choice of vendor is strictly up to each resident. Because subscribing to waste collection is voluntary in these communities, by either personal choice or economic circumstances, some residents have no service provider.

Businesses, institutions, and municipal facilities have ready access to waste collection in York County. Typically, transporters contract directly with commercial and institutional establishments. In certain communities, small businesses that produce waste in quantities similar to residences have the ability to opt into the residential collection program. Others self-haul waste produced on site by their operations. Still others such as remodeling contractors and roofers as an example, haul waste generated off-site due to the services they provide.

Regulating Transporters of Municipal Waste

Owners of waste transportation vehicles that transport municipal or residual waste to a processing or disposal facility in the Commonwealth are required to obtain written authorization from PADEP. Municipal or residual waste processing or disposal facilities are prohibited from accepting waste from vehicles that do not have a valid authorization sticker. These requirements were created by the Waste Safety Transportation Program, Act 90, which was enacted in 2002. The Act does allow certain processing and/or disposal facilities to accept material from transporters without the Act 90 Authorization. These include:

Facilities where municipal or residual waste is being land applied through agricultural utilization or land reclamation.

Facilities that operate under a permit-by-rule.

Facilities that are not required to obtain a permit under §271.101 (relating to permit requirement).

Cement kilns burning waste tires as fuel.

Facilities that process electronic waste and components by sorting, disassembling or mechanical processing for beneficial use.

Composting facilities.

Facilities that process municipal or residual waste for beneficial use under an individual or general permit.

Transporters that collect waste in Pennsylvania but utilize an out of state disposal facility are also exempt, as are those with a registered gross vehicle weight less than 17,000 lbs., and trailers with a registered gross vehicle weight less than 10,000 lbs.

Of the numerous companies with Act 90 Authorization known to operate within York County the majority do not provide traditional residential curbside waste collection or commercial small-containerized service. Some haul only self-generated waste. Others are municipal operations. Overall, the primary focus of most of these transporters tends to be on construction and demolition related activities. Because they control a significant and important portion of the municipal waste stream, their practices must be considered in policies that result from the planning process.

York County Flow Control Ordinance

In addition to Act 90 Authorization, transporters of all types of York County municipal solid waste, inclusive of biosolids, septage, sewage sludge, construction demolition, and regulated medical waste are regulated by Ordinance 89-4. The purpose of the ordinance is to enforce flow control, monitor and control illegal dumping, and to acquire the necessary data to fulfill the Act 101 reporting requirements. Ordinance 89-4 provided for municipal waste collection & transporter licensing. In recognition of Act 90, the Authority will replace its licensing program with a hauler registration program under regulatory provisions of the ordinance.

Septage Transporters

In Pennsylvania, transporters of residential septage must register with the PADEP. Information for each load of septage that is collected and transported is recorded by each transporter. Required information includes, at a minimum: the county and state where the septage was collected; the name and address of the hauler transporting the septage; the name and location of the transfer, processing, or disposal facility where the septage has been or will be delivered; the weight or volume of the septage; and a description of any handling problems

or emergency disposal activities. Although a report is not filed, the information must be made available upon request to PADEP inspectors.

Septage cleanouts are done on a periodic as-needed basis. Therefore, homeowners contact the transporter of choice. It is common for transporters to cross county lines to provide such services. The PADEP can only identify haulers based on the location of their business, not on their service area. Therefore, many counties also require septage transporters to report on the activities conducted within their borders. York County has such a tracking program, which is enforced through a manifesting system to ensure that the septage is managed properly.

Regulated Medical Waste Transporters

Transporters of regulated medical waste (formerly called infectious chemotherapeutic waste) also fall within the ranks of those requiring a license in Pennsylvania. A stipulation of the license is that each transporter must report the origin and ultimate destination of the waste. The regulated medical waste transporters that operate within York County are also required to report tonnages to YCSWA.

Competition for Disposal Capacity

In Chapter 1 the difference between generation and disposal was discussed in detail. Waste, which is not beneficially reused, recovered, or recycled, is disposed. From a regulatory standpoint, a landfill and an operation that converts waste-to-energy through combustion are viewed as disposal facilities for reporting purposes. Both methods are utilized for the management of York County generated waste.

The waste generated in the homes, businesses, government facilities, and institutions in 2010 represents 52% of the total amount of waste generated in York County and disposed in Pennsylvania facilities. This is municipal solid waste, inclusive of construction & demolition waste, sewage sludge, and ash. Residues, which are the result of manufacturing and other industrial processes, represents the remaining 48% of the total amount of waste generated in York County and disposed in Pennsylvania facilities in 2010. This is residual waste.

Act 101 does not provide counties with the jurisdiction to regulate the collection, transportation, and disposal of residual waste. Nevertheless, residual waste factors into the development of the York County Municipal Solid Waste Management Plan, because it consumes disposal capacity that otherwise could be available for York County municipal waste. For the same reason, municipal and residual waste generated in other counties and other states must be considered. During the series of meetings, discussions, and studies that ultimately resulted in the adaption of the 1990 Plan, non-municipal and outside sources of waste were

examined. The purpose of the analysis was to determine the impact of these waste streams on the amount of disposal capacity that could be available for York County at existing Pennsylvania facilities. The results of those findings supported the need to construct the York County Resource Recovery Center to handle the **vast majority of York County’s municipal solid waste. This system continues to** serve the County. The need to use ancillary disposal facilities to manage the remaining portion was also determined.

Following is a brief description of each of the Pennsylvania facilities where varying types and amounts of York County generated waste were disposed in 2010. It also provides a snapshot of historical trends. Finally, it illustrates how some of the special handling waste streams are beneficially used.

York County Disposal Patterns 2000-2010

Based on annual reports submitted to the Pennsylvania Department of Environmental Protection for 2010, fourteen disposal facilities received some type of municipal and/or residual waste, which was generated in York County. Nearly all (97%) of the municipal solid waste was delivered to the York County Resource Recovery Center. The remaining 3% of the municipal waste was disposed at Modern Landfill. Of the non-processible municipal waste, the results are nearly in complete reverse. Modern Landfill receives nearly 90% of the York County sewage sludge, construction/demolition, and ash residue that is disposed. The Center accepts none of these waste streams. When both municipal and residual wastes generated in York County are considered, Modern Landfill (50%) slightly exceeds the York County Resource Recovery Center (44%) in total tons accepted. The other twelve facilities receive varying amounts of residual or non-processible municipal waste.

Table 2-1 lists the facilities, the types of wastes, tons of waste disposed in 2010 and the percentage each represents of the total. A brief description of each facility listed in alphabetical order follows.

Table 2-1 Pennsylvania Facilities Reporting Disposal of York County Waste in 2010

York County 2010 Reported Disposal Destinations														Tons Per Year Received by Waste Types			
Disposal Facility Receiving Waste	Municipal (MSW)	% Total Municipal	Residual	% Total Residual	Sewage Sludge (MSW)	% Total Sewage Sludge	Construction Demolition (MSW)	% Total C&D	Ash Residue (MSW)	% Total Ash	Asbestos	% Total Asbestos	Total MSW all categories	% Total MSW all categories	Total York Waste	% Total York Waste	
Blue Ridge Landfill	0	0%	104	0%	0	0%	211	0%	0	0%	0	0%	211	0%	314	0%	
Cumberland County Landfill	0	0%	19,006	6%	47	1%	1,819	3%	0	0%	0	0%	1,866	1%	20,872	3%	
G.R.O.W.S. North Landfill	0	0%	14	0%	0	0%	0	0%	0	0%	0	0%	0	0%	14	0%	
Lancaster County Resource Recovery	0	0%	3,444	1%	0	0%	0	0%	0	0%	0	0%	0	0%	3,444	1%	
LCSWMA Frey Farm Landfill	0	0%	11,027	3%	0	0%	0	0%	0	0%	0	0%	0	0%	11,027	2%	
Lycoming County Landfill	0	0%	14	0%	0	0%	0	0%	0	0%	0	0%	0	0%	14	0%	
Modern Landfill	8,126	3%	271,861	86%	3,005	78%	49,452	90%	13	100%	642	93%	60,596	17%	333,099	50%	
Mostoller Landfill	0	0%	0	0%	0	0%	38	0%	0	0%	0	0%	38	0%	38	0%	
Mountain View Landfill	38	0%	394	0%	811	21%	1,849	3%	0	0%	0	0%	2,698	1%	3,091	0%	
Sandy Run Landfill	0	0%	0	0%	0	0%	1,376	3%	0	0%	0	0%	1,376	0%	1,376	0%	
Sanitary Landfill	0	0%	0	0%	0	0%	0	0%	0	0%	38	6%	0	0%	38	0%	
Wayne Township Landfill	0	0%	4	0%	0	0%	0	0%	0	0%	8	1%	0	0%	12	0%	
Wheelabrator Falls Inc	0	0%	1,205	0%	0	0%	0	0%	0	0%	0	0%	0	0%	1,205	0%	
York County Resource Recovery	286,342	97%	10,710	3%	0	0%	0	0%	0	0%	0	0%	286,342	81%	297,052	44%	
													0		0	0%	
Waste Totals:	294,506	100%	317,782	100%	3,863	100%	54,744	100%	13	100%	689	100%	353,126	100%	671,596	100%	

Source PADEP

Blue Ridge Landfill

Blue Ridge Landfill is owned and operated by IESI, Inc. The site is located in Greene Township, near Scotland in Franklin County, Pennsylvania. The site is permitted to receive an average of 1450 tons per day. The site received 211 tons of construction/demolition waste and 104 tons of residual waste from York County in 2010. Overall, the combined categories of municipal solid waste received at **Blue Ridge comprise less than 1% of York County's total reported waste disposed.** The landfill accepted municipal solid waste from nine other Pennsylvania counties. Additionally, a large portion of its gate capacity in 2010, approximately 73%, was consumed by out-of-state waste, with New York providing the largest volume. Residual waste plays a lesser role at this facility than at other sites in the region.

Cumberland County Landfill

Approximately 3% of the waste originating in York County is disposed at the Cumberland County Landfill. It ranks second when compared to other landfills that received tonnage from York County for all types of waste other than municipal. 20,872 tons were delivered from York County to the site in 2010. **Advanced Disposal is the current owner/operator. Of the facility's 1500 ton permitted average daily volume, approximately 80 tons per day is delivered to the site from York County. IWS's hauling company is responsible for the bulk of the local material disposed at the site.** However, as evidenced by the proportion of construction demolition waste delivered to the site, it is also an outlet for local authorized transporters whose primary business is not waste collection, but nevertheless are responsible for material that they generate on the job. Twenty-three counties delivered some form of municipal solid waste to the Cumberland County Landfill in 2010. Fifteen counties also provided residual waste for disposal. The largest contributor of out-of-state waste in 2010 was New Jersey representing approximately 28% of the overall gate capacity used.

G.R.O.W.S. North Landfill

Waste Management owns and operates the G.R.O.W.S. North Landfill. The facility, which is located in Bucks County, is permitted to accept 10,000 tons of waste per day. It appears that one load of residual waste totaling 14 tons was transported from York County to G.R.O.W.S. in 2010. The landfill received 1.5 million tons of waste from fourteen Pennsylvania counties and four states in 2010.

Lancaster County Resource Recovery

The Lancaster County Solid Waste Management Authority also owns and operates the Lancaster County Resource Recovery Center. In 2010 a negligible amount, approximately 1%, of York County waste was disposed there. All of the **3,444 reported tons were residual waste. Much like York County's Resource Recovery Center**, the Lancaster facility focuses primarily on servicing the needs of municipal waste generators in Lancaster County.

LCSWMA Frey Farm Landfill

The Lancaster County Solid Waste Management Authority owns and operates the Frey Farm Landfill, which is located in Lancaster County. Frey Farm primarily serves the needs of Lancaster County for non-processible waste. In addition, it accepts considerable quantities of incinerator ash from the Lancaster and Harrisburg Waste-to-energy Facilities. The site accepted residual waste from York County in 2010, totaling 11,027 tons. This represents an estimated 3% of the total amount of the disposed residual waste from York County and approximately 2% of the total tons disposed from all categories.

Lycoming County Resource Management Landfill

Not far from Williamsport in North Central Pennsylvania, Lycoming County operates the Lycoming County Resource Management Landfill. Direct hauls to this landfill are likely cost prohibitive due to its distance from York County. Lycoming accepted some form of municipal solid waste from 12 counties in 2010. It also received residual waste from 28 counties. Overall, the ratio of residual waste disposed at the landfill in 2010 was approximately 19%. Only 14 tons of York County residual waste was reportedly disposed at Lycoming in 2010.

Modern Landfill

Fifty percent of the total solid waste stream from York County is disposed in Republic Waste Services Modern Landfill. Located in the Townships of Windsor and Lower Windsor in York County, the landfill receives waste from its own hauling company, York Waste Disposal, as well as other independent haulers. Of the 1,225,890.1 tons received at the facility in 2010, approximately 27% of the tons were from York County. Residual waste represents 82% of the total York County waste disposed there while 18% was a combination of non-processible municipal solid waste, including sewage sludge. Six counties other than York delivered municipal solid waste to Modern in 2010 and nineteen counties other than York delivered residual waste. Additionally, Modern received out-of state waste from nine sources in 2010. York, Montgomery, Philadelphia counties along with the state of Maryland were the largest sources of waste disposed at Modern.

Mosteller Landfill

The Mosteller Landfill in Somerset County is another facility owned and operated by Advanced Disposal. Brothers Valley and Somerset Townships are the host municipalities to the landfill. Less than 1%, or 38 tons of the construction demolition waste stream originating in York County was disposed at this site in 2010. Despite its location in Somerset, Mosteller received more municipal waste from other counties and out-of-state sources than from its host area in 2010. Minimal amounts of residual waste were disposed there. Seventeen counties overall used the site, however, the primary sources of waste received at Mosteller in 2010 were New Jersey and Maryland, representing nearly 53% of the overall gate capacity consumed.

Mountain View Reclamation Landfill

Another of Waste Management's facilities, the Mountain View Reclamation Landfill is located in Franklin County in the Townships of Atrium and Montgomery. In 2010, Mountain View received 38 tons of non-processible municipal solid waste, 1,894 tons of construction demolition waste and 394 tons of residual from York County. **Combined, that was less than 0.5% of the County's waste.** Nine other counties utilized the facility for disposal. Other than Franklin, the host county, in 2010, Dauphin County sent more waste to Mountain View than did any other county in Pennsylvania. Bordering states of Maryland, West Virginia and Virginia also were significant sources of waste in 2010, disposing of 148,495 tons or 58.25% of the total 254,943 tons received at the site.

Sandy Run Landfill

Advanced Disposal also owns and operates Sandy Run Landfill in Broad Township, Bedford County. In 2010, the facility received 1,376 tons of construction demolition material from York County, which represented 3% of that waste stream. Sandy Run had a service area that encompassed 17 counties and 2 states in 2010.

Sanitary Landfill

Sanitary Landfill is owned and operated by Westmoreland Waste, LLC. The facility, located in Rostraver Township, Westmoreland County, reported 38 tons of asbestos originating from York County in 2010. The facility does not regularly receive waste from York County, as distance makes direct hauls cost prohibitive. Sanitary receives waste from ten other Pennsylvania counties. It also accepts waste from ten states, other than Pennsylvania, but not in significant quantities. Allegheny and Washington counties are the largest disposers at the site.

Wayne Township Landfill

The Clinton County Solid Waste Authority operates the Wayne Township Landfill. In varying degrees of quantities, some being less than 1 ton, forty eight Pennsylvania counties utilized the Wayne Township site for disposal of municipal and/or residual waste in 2010. York County disposed of 8 tons of asbestos and 4 tons of residual waste at the site in 2010. This represents less than 1% of York's total waste disposed that year. The Wayne Township site currently receives no out-of-state waste.

Wheelabrator Falls

In 2010, 1,205 tons of residual waste from York County were delivered to the Wheelabrator Falls incinerator. The facility, located in Bucks County, is owned and operated by Wheelabrator Falls, Inc., a subsidiary of Waste Management.

York County Resource Recovery

The York County Resource Recovery Center is owned by the York County Solid Waste and Refuse Authority. Approximately 44% or 297,052 tons of York's municipal and residual waste was delivered to the Center located in Manchester Township in 2010. Built primarily to service the needs of its host county, in 2010 York County represented approximately 72% of the Center's total gate receipts. The facility received municipal solid waste from eight counties and three states. Residual waste played a smaller role overall with the majority of tons originating in York County. The Center solicits waste from outside sources to ensure that the combustion units have sufficient sources of fuel for cost effective and optimal operation. Table 2-2 shows the sources and types of waste received at the Center in 2010.

Table 2-2 York County Resource Recovery Center Origin, Types and Quantities of Waste Accepted in 2010

Origin	Municipal	Residual	Total
ADAMS	8,795	521	9,315
BLAIR	1	0	1
CUMBERLAND	28,011	11	28,022
DAUPHIN	15,403	3	15,406
FRANKLIN	0	0	0
LACKAWANNA	0	30	30
PHILADELPHIA	21,688	0	21,688
YORK	286,342	10,710	297,052
MARYLAND	41,781	0	41,781
NEW JERSEY	877	0	877
NEW YORK	522	0	522
Waste Totals:	403,419	11,274	414,693

Source YCSWA

Changes in the Disposal Rate of Processible Waste 2000-2010

Table 2-3 shows the waste received from York County at the York County Resource Recovery Center over the past ten years. Although the tons of York County municipal waste received at the Center grew in the first half of the decade, after 2006 they began a gradual decline and by 2009 returned to 2003 levels. This trend is not unique to the Center. The overall amount of York County municipal solid waste disposed declined yet the percentage of it received at the Center remained virtually the same. This has occurred in spite of a steadily growing County population.

The results shown in Table 2-3 mirror the national decline in municipal waste generated/disposed per capita. Industry forecasters predict this trend will gradually continue into the foreseeable future with minor but insignificant up and down movement in the overall scheme before leveling off.

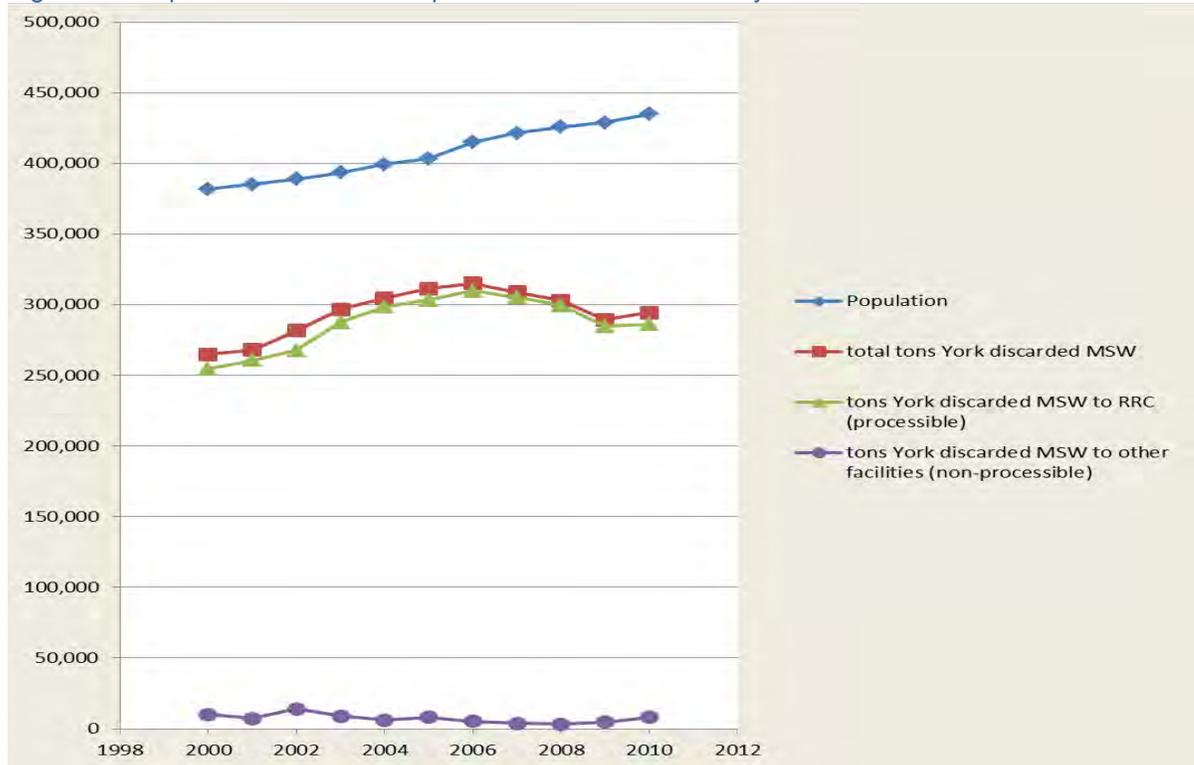
Figure 2-1 is a graphic representation that illustrates the population growth along with the tons of processible waste received from York County at the Resource Recovery Center. Although the tons processed at the Center and the population begin with a mutual ascent, after 2004 only the population increases. **Projections for York County's future disposal capacity requirements will need to** consider these trends closely along with other indicators of a changing waste stream, which are discussed throughout this report.

Table 2-3 Trends in York County MSW Disposal 2000-2010

Year	Population (a)	Tons Per Capita To RRC	Total Lbs Per Capita Per Day Disposed	Total York Disposed MSW (b)	York Disposed MSW To RRC (c)	% To RRC
2000	381,751	0.67	3.80	264,851	254,652	96.15%
2001	385,397	0.68	3.81	268,148	260,737	97.24%
2002	388,885	0.69	3.97	281,761	267,656	94.99%
2003	393,622	0.73	4.13	296,611	287,678	96.99%
2004	399,490	0.75	4.18	304,699	298,680	98.02%
2005	403,555	0.75	4.23	311,575	303,590	97.44%
2006	414,969	0.75	4.16	315,157	309,752	98.28%
2007	421,589	0.72	4.02	309,004	305,184	98.76%
2008	425,766	0.70	3.90	302,861	299,534	98.90%
2009	428,937	0.66	3.70	289,473	284,772	98.38%
2010	434,972	0.66	3.71	294,505	286,342	97.23%

- (a) From Table 1. Annual Estimates of the Resident Population for Counties of Pennsylvania: April 1, 2000 to July 1, 2009 (CO-EST2009-01-42) Source: U.S. Census Bureau, Population Division, March 2010
- (b) From Annual County/ Facility Reports to DEP from all facilities
- (c) from Annual Facility Reports to DEP as reported by YCSWA

Figure 2-1 Population and MSW Disposal Trends in York County 2000-2010



Methods for the Disposition of Special Handling Waste

Specialized methods of processing and disposal are required for select portions of the municipal waste stream. These include land application of biosolids, and thermal treatment or incineration of regulated medical waste.

Management of Sewage Sludge, Biosolids and Residential Septage

Wastewater from our homes and businesses contains properties that can be beneficial if managed correctly. On the other hand, the material can also pose health and environmental problems if not properly managed. In cities and suburban developments, the wastewater flows through a network of pipelines to centralized treatment facilities. Special physical, chemical, and biological processes sanitize the wastewater and remove the solids. The results are sewage sludge.

Biosolids are the nutrient-rich organic materials derived from sewage that have been stabilized to meet specific processing, pathogen reduction and quality control standards. Biosolids can be land-applied as a fertilizer to help rejuvenate farmland, forests, and minelands. Significant volumes of biosolids often are still disposed in landfills in many areas. The term

“biosolids” was introduced by the wastewater treatment industry to distinguish sewage sludge from industrial sludge by emphasizing that the former is produced by a biological process. The term “biosolids” also helps to distinguish this material from raw sewage and from those sewage sludges that contain large quantities of environmental pollutants.



In areas that are more rural, wastewater is held in a septic tank and periodically emptied by a septage transporter. There are essentially two acceptable methods of managing residential septage. The first option is to transport the septage to a municipal or private wastewater treatment facility or a septage treatment facility where it can be properly treated prior to final disposal. Because facilities within a reasonable driving distance may not be permitted to accept septage, this is not always a viable option. An alternative then is to beneficially use the septage by land application at an agricultural or reclamation site. Table 2-4 and Table 2-5 list the disposal methods and quantities of waste disposed for septage, sewage sludge, and biosolids.

Multi Agency Compliance and Enforcement

York County has taken a unique and proactive approach to the management of biosolids. Three agencies have collaborated to delineate and assign responsibilities and efforts for a variety of tasks that often overlap and become a duplicate use of resources. The result in York County is enhanced communication



between the participants and a greater understanding of biosolids activities. These efforts minimize the hazards that biosolids could pose to the public health and safety of York County as well as the overall environment. It also offers greater responsiveness to public concerns.

The Pennsylvania Department of Environmental Protection, the York County Solid Waste and Refuse Authority, and the York County Conservation District all participate in the Multi-Agency Biosolids Management Plan. Each participant in this Plan plays a specific role, which is defined in part by statutes and regulations. In addition, responsibilities have been designated based on practicality and logistics.

As might be expected the Department of Environmental Protection plays a primary role in permitting, inspecting, data management and compliance enforcement of wastewater treatment plants and biosolids land application sites. Training, technical assistance and educational programs are also offered by the Department. A separate licensing program for transporters of septage is implemented by the Department, while those who haul sewage sludge are regulated as part of the Act 90 Waste Transporter Safety Authorization.

The York County Solid Waste and Refuse Authority inspects land application sites and provides technical assistance and education. The Authority implements and enforces a manifest system for all loads of biosolids and septage along with reporting requirements. Reports and records of the compliance and enforcement activities related to the biosolids management program are maintained by the Authority.

The primary duties for biosolids management delegated to the York County Conservation District include reviewing and approving conservation plans and reviewing nutrient management plans. The District also provides technical assistance and education.

Table 2-4 Reported Disposal Methods for York County Septage in 2010

County or State	Disposal Site	Volume (gallons)
Land Applied		
Bucks	Upper Gwynedd-Towamencin Ma	4,020
Cumberland	Robert Peck Septic Service	334,925
Dauphin	Creek View Farm	20,450
	Walters Septic Service	11,100
Maryland	Little Patuxent WRP	1,500
York	Kenneth Joines	822,710
SUBTOTAL		1,194,705
Landfill		
Franklin	Mt. View Landfill	1,400
SUBTOTAL		1,400
WWTP		
Cumberland	Borough of Mechanicsburg	1,000
	Lemoyne Borough WWTF	113,902
Dauphin	Annville WWTP	4,850
Dauphin	Derry Township Municipal Authority	446,557
	Harrisburg WWTF	90,150
Lancaster	Ed. Armstrong & Sons Inc.	7,564
	Environmental Recovery	12,000
	Kline's Septic Service	1,166,458
	Lancaster Area Sewer Authority	679,870
Lancaster	Manheim Borough Sewer Auth.	115,350
	Multiple	124,300
York	Dover Township WWTP	1,847,120
	Glen Rock Sewer Authority	67,290
	North Codorus Township	21,400
	Outdoor World	18,600
	Penn Township WWTF	338,810
	Springettsbury WWTF	12,246,192
SUBTOTAL		17,301,413
TOTAL		18,497,518

Table 2-5 Reported Disposal Methods for York County Biosolids in 2010

Disposal Location County	Disposal Site	Volume (dry tons)
Land Applied		
Adams	Unknown	287.36
Bucks	Unknown	343.60
Dauphin	Unknown	1,013.12
Franklin	Unknown	682.89
Fulton	Unknown	190.60
Lancaster	Unknown	37.03
York	Multiple Sites (44 farms)	6,303.96
SUBTOTAL		8,858.56
Landfill		
Franklin	Mt View Landfill	101.83
York	Modern Landfill	246.12
York	Modern Landfill	95.61
SUBTOTAL		443.56
WWTP		
Adams	Gettysburg Municipal Authority	3.44
Dauphin	Derry Twp. Municipal Authority	0.12
Dauphin	Harrisburg WWTF	19.34
Lancaster	Kline's Septic Service	48.18
Lancaster	Manheim Borough Sewer Authority	7.48
York	Dover Township WWTP	11.94
York	N E Y C S A	63.69
York	Springettsbury WWTF	395.72
SUBTOTAL		549.91
TOTAL		9,852.03



Disaster Debris Management Preparedness

Although municipal solid waste generation, disposal and composition is relatively consistent, there are occasions when distinct spikes in the volume of material that must be managed can occur. Catastrophic events such as floods, tornados, ice storms, fires and other natural or manmade disasters can quickly cause unimaginable devastation and destruction. The damage to local structures and



contents results in massive quantities of debris that must be removed as rapidly as possible, yet in an efficient and responsible manner. According to Crystal Payton, a spokeswoman for the Federal Emergency Management Agency **“Debris is the issue before anything else can be done. You can’t begin rebuilding, you can’t shift gears into a new phase, until you clean up.”**

It is important to understand that during a major crisis debris removal is much more complicated than having contractors load and haul truckloads of branches to a processing facility. Damaged structures must be demolished; cars, trucks, boats and refrigerators must be carted away, along with rotting food, decaying vegetation and molding mattresses, upholstered furniture, draperies and carpeting. Workers must continually check for hazardous chemicals, gas leaks, and substances like asbestos.

Determining the best management strategy depends on many factors including the nature of the disaster, amount of debris expected, existing diversion programs, and availability of primary disposal facilities. In the past, disaster debris management was solely focused on removing the material without regard to its composition and characteristics, and delivering it to a disposal facility. Federal agencies have been known to burn large quantities of material on site. Contemporary wisdom suggests that much of the debris can be recovered and diverted from disposal. In York County, much of the material that must be disposed is converted to energy at the Resource Recovery Center operated by YCSWA. Methods to incorporate reuse and recycling into the disaster recovery process are discussed in Chapter 4.

“Debris is the issue before anything else can be done. You can’t begin rebuilding, you can’t shift gears into a new phase, until you clean up.”

Regardless of the type of event or the extent of destruction, the YCSWA must be poised to provide outlets for materials either at the Resource Recovery Center or at other appropriate contingency facilities. The initial burden of providing for and paying for disaster debris removal typically falls on local municipalities and private property owners. While disaster relief is often available from state and federal agencies, failure to follow proper protocol can reduce the amount of reimbursement due to a community. It is necessary to have procedures in place to document and monitor the invoicing process, the handling procedures, and ultimate disposition of the material. Therefore, pre-planning for such emergencies is important from a financial as well as public health and safety perspective. The best plans are cooperative and collaborative efforts between municipalities, service providers, and emergency management agencies.



At the time of the planning process, YCSWA was actively engaged as a participant to help the York County Emergency Management Services in developing a countywide disaster debris management plan. Stakeholders representing multiple agencies and levels of involvement with disaster response and recovery included municipal representatives, the York County Planning Commission and the York County Conservation District, among others. Together they proactively initiated a joint effort to design a system that is recognized in advance of such situations and that can be implemented readily throughout the County.

Improper Disposal Practices

Although the majority of York County residents use responsible waste management practices, there is evidence that others have chosen alternative outlets that can be problematic. There are still homes in the County that fail to utilize a waste collection service. It is safe to assume that a good portion of the waste from these residences is managed in a substandard fashion when compared to contemporary expectations and understanding. Local homes are not the only source of poor waste management habits. The effects of poor judgment, lack of awareness, or blatant disregard are evident in a number of scenarios discussed in this section.

Illegal Dumping

York County faces a disturbing waste management issue that is common throughout each county in the Commonwealth. Every Pennsylvania county experiences the practice of illegal dumping. Aside from the obvious

environmental harm, the presence of illegal dumps in a county or municipality has a negative impact on property values, public health and safety and the overall quality of life. Studies have shown that the very existence of dumpsites somehow signals that local society condones the practice. Consequently, more and more dumping occurs. Commercial and residential developers are less interested in locations where dumping is habitual and banks are fearful of loans on properties where a legacy of unknown contaminants might exist. Thus, illegal dumping has a direct influence on the local economy. Tourism is also hampered.



Through an ongoing series of physical surveys, Keep Pennsylvania Beautiful (formerly PA CleanWays) has confirmed that illegal dumping is more prevalent than might be suspected. The study performed in York County in 2010 was no exception. Although rural areas are the scene of

greater numbers of dumpsites with higher frequency of activity, the York County survey shows that illegal dumping occurs across all demographic barriers and communities. Figure 2-3 shows the location of the sites identified in the survey. The methodology used by Keep Pennsylvania Beautiful comes with a disclaimer that the survey is less than comprehensive. Due to issues of trespassing, physical access, and safety, individuals conducting the survey were limited to traveling on public roadways and to exploring sites that were readily visible from the vehicle. This constraint automatically excludes any dumpsites that might be on private roads or on personal property. Therefore, the report notes that the number of sites reported is probably far less than those that actually exist.

There were 274 illegal dumpsites identified in York County in 2010. The report estimates that combined, 263 tons of trash were deposited on the sites. This is one of the highest number of sites identified in the any one of the PA counties, which have been surveyed thus far by Keep Pennsylvania Beautiful. Of equal **interest is the study's claim that 90% of the identified** sites had recently experienced active dumping. Considering that this was not a comprehensive survey of the entire County and that there are many more illegal dumpsites suspected, this issue warrants additional investigation.

The map in Figure 2-2 shows that the majority of the dumpsites are in municipalities with less than 150 people per square mile and clearly rural. Poor utilization of available waste collection services, whether at the curbside or at centralized convenient drop-off centers, promotes illegal dumping. Allowing for voluntary use of the residential waste collection services that are available can also be a major contributing factor. These conditions exist in York County and they are most prevalent in many of the communities with the highest degree of

illegal dumping. Curiously, there are hardly any sites identified in the northwestern corner of the County. Either conditions are somewhat different there, or the survey did not adequately cover this region.

Not addressed in the field survey, but nevertheless an issue that should be made known is the amount of dumping by landowners, particularly those with farms and other large parcels of private lands. According to the College of Agricultural Sciences Cooperative Extension at Penn State University, not only do farm dumps still exist, but many also continue to grow. Lack of enforcement and the perception that this is a means to cheap disposal encourages the practice. Ignored



is the potential legacy of environmental liability and the cost of clean-up. As the final resting place for equipment farm dumps may also contain old batteries, pesticides, petroleum, tires and household waste. Even though the legality of the dump itself may not be challenged, the resulting pollution could drastically **reduce the farm's worth** and cost the farmer or heirs many thousands of dollars in cleanup.

With 2,370 farms and 292, 507 acres of farmland, this largely ignored issue could have a potentially significant impact in York County.

Littering

The act of littering is something that most individuals, have committed, either directly or indirectly. The wind catches a wayward plastic bag from a recent purchase and it quickly and effortlessly escapes our vehicle. A cigarette is extinguished and the smoker abandons the filter thinking that it will decompose. The remnants of a drive-thru lunch are tossed from an automobile window. All of these simple acts have a lingering impact on our communities. Daily littering does occur in York County.

The American State Litter Scorecard: A Sociopolitical Inquiry into Littering and The Response Role of 50 American States

describes littering as an environmental crime that damages scenic environments, promotes accidents, harms livestock, and fuels a breeding ground for disease causing insects and rodents. Although, studies indicate that women or people in care giving roles may litter less than others, in general all ages and genders are guilty of littering. Litterers are often unaware of the consequences of their behavior.



Open Burning

People burn waste for a variety of reasons. The study, *Open Burning in Rural Northeastern Wisconsin: An Analysis of Potential Air Pollution* examined the motivations and behaviors associated with the open burning of waste. Convenience, habit, and the avoided cost of trash collection ranked high on the list. These same reasons prompt illegal dumping.

The public in general has little to no awareness of the dangers of open burning. Over the past 50 years, more plastics and other synthetic materials have entered the waste stream. Burning these materials in an uncontrolled open air environment, without the sophisticated filtration systems and safeguards provided by modern waste combustors like the YCRRC, result in the release of toxic emissions.

Smoke from open fires can affect the health of a community. The smoke from campfires, smoldering leaves, as well as from the open burning of trash is released close to the ground where people can easily breathe it. People with heart and lung conditions are vulnerable, as are those with other chronic health problems.

The adoption and enforcement of burning ordinances is a step to control burning by local citizens. Some communities kick off the implementation of the ordinance with buy-back programs for the barrels. Just as with illegal dumping, mandating and enforcing waste collection at the municipal level could effectively minimize the practice.

Prevention and Remediation

Since its inception, the Authority has been a leader in the effort to eradicate poor waste management practices in York County. Litter awareness and prevention is **a component of many of the Authority's formal educational programs offered free** to school and community groups. The Authority monitors the activities of solid waste transporters to ensure that the waste that they collect is delivered to permitted disposal facilities and not dumped illegally.

In an effort to reduce the impact of littering, the Authority offers a free litter disposal program at the Resource Recovery Center. A prerequisite is that all recyclables must be separated from the litter collected. Citizens or community groups that participate in York County community clean-ups are eligible for the program. There is no limit to the number of clean ups a resident or group may conduct in a year. Preregistration is required to obtain the dashboard placard that enables participants to enter the Center on the scheduled date of their delivery.



Keep York County Beautiful is a grassroots organization dedicated to litter prevention and eradication of illegal dumping. It is an affiliate of Keep Pennsylvania Beautiful and also the national organization Keep America Beautiful. The York County Solid Waste and Refuse Authority supports the efforts of the local affiliate through volunteer efforts, distribution of promotional materials, financial, and other in-kind services. One of the staff serves as an advisory committee member for Keep York County Beautiful. As an affiliate, Keep York County Beautiful can obtain tool kits and turnkey programs from Keep America Beautiful through the state affiliate. Grants are often available to help purchase public venue receptacles to prevent litter and promote recycling.

Assessment of and Recommendations for the Disposal System

The York County Solid Waste and Refuse Authority, on behalf of the County and the municipalities, has ensured that convenient and affordable disposal outlets and collection services are available for a wide variety of discarded materials. The enactment of proper ordinances and actively enforcing them provided the proper support for all elements of the program to function.

York County showed great foresight in its commitment to the construction and operation of the Resource Recovery Center. Not only did the County accept full responsibility and control for the municipal waste generated within its borders, it also created a much needed alternative source of energy. Overall, the system of flow control has been successful. Documented disposal activity at the Center and local landfills certainly is an indication that a considerable portion of the municipal waste stream is managed responsibly. The high percentage of municipalities with organized waste collection programs is another key indicator that proper waste management is a high priority for the citizens of York County.

There has never been a formal study conducted to quantify the actual number of York County homes and businesses with or without a waste collection service provider. However, there is strong evidence to suggest where the gaps in participation are the most prevalent. Based on the Keep Pennsylvania Beautiful study, and casual observations and reports from local service providers, incidents of illegal disposal, open burning and other undesirable practices do occur in areas of the County. Undesirable disposal methods create pollution; endanger public health and safety; and lower property values. Public awareness of the problem and its effects are crucial in modifying this undesirable behavior. The growth and expansion of organized collection systems to areas with low participation could also eliminate much of the problem.

CHAPTER THREE

Future Forecast



Responsibility to Provide for Disposal/Processing

In the years immediately prior to and following the enactment of the Municipal Waste Planning, Recycling, and Waste Reduction Act (Act 101 of 1988), market conditions in the waste industry were in a state of transition and uncertainty. A sense of crisis prevailed throughout the environmental and regulatory community. The ever increasing municipal waste stream provoked fears that waste generation would exceed the available disposal outlets. During this period, more stringent federal and state landfill regulations were introduced. The impact of the regulations heightened the concerns for diminishing disposal capacity. Small private and municipal facilities found the costs of permitting, engineering design and construction as well as bonding for post closure care to be prohibitive. Many of these landfills closed. Some sold to larger conglomerates intent on internalizing the disposal of waste, which was collected by their hauling divisions. Others, like York County replaced their former method of land disposal with a waste-to-energy solution.

Act 101 specifies that securing long-term disposal capacity is the top priority for Pennsylvania counties during the development of a municipal solid waste management plan. Act 101 also places mandates for recycling on the municipalities in order to decrease the capacity demand by diverting waste **material from disposal. This chapter projects York County's generation and disposal requirements for the next twenty-five years.** It considers current and historic trends to determine future needs. The capabilities of the York County Resource Recovery Center were reviewed to determine what portion of the **County's processible municipal waste the Center could continue to manage, with or without modifications.** Factors, which could influence the availability of landfill capacity for non-processible wastes, and alternative methods of disposal and processing are considered. Finally, evidence is offered to demonstrate that York County has made responsible decisions and has taken proper actions to secure access to sufficient disposal capacity throughout the planning period.

Forecasting Capacity Requirements

A variety of indicators were examined to plan for the disposal capacity needs of York County. To plan for future needs, it is important to review and understand trends in current local reported disposal and recovery activities. Because waste is typically measured on a per capita basis, it is vital to know if growth or decline is anticipated in local population. This section describes the sources of data used to **calculate York County's capacity needs. It also illustrates the disposal requirements for the next 25 years.**

Reported Disposal Quantities

Data from the 2010 PADEP facility reports, prior to any adjustments that might have been made by PADEP, was used to determine disposal needs. 2010 is used as the baseline year for analysis and comparisons throughout the Plan. The County disposed of 294,506 tons of MSW and 54,744 tons of construction & demolition waste. In addition, 3,863 tons of sewage sludge and 13 tons of ash residue were also landfilled. In total York County disposed 353,126 tons of all types of municipal waste in Pennsylvania facilities. There are no reports of out-of-state disposal activity. Conspicuously absent from the reported municipal solid waste disposal data are the large quantities of ash resulting from the operation of the Resource Recovery Center. Because this material is sent directly to a processor that recovers valuable metals from the ash, it is not considered a “waste” at the point of generation (the Center.) However, once the metals have been removed, the residual ash is sent to a landfill to be beneficially used as an alternative daily cover. It is therefore counted within the tons of residual waste disposed from York County.

Future Waste Generation Rate

The United States Environmental Protection Agency (USEPA) tracks and monitors municipal solid waste generation and disposal in the United States. Trends and changes have been recorded since 1960. The most recent figures indicate that the waste generation rate per capita has leveled with little variation. For York County, the generation rate in 2010 for all types of municipal solid waste, including construction & demolition, sewage sludges, and ash residue was determined to be 1.02 tons per capita per year. A review of historic disposal trends in York County presented in Chapter 2 showed that local results mirror the national trends. Therefore, the projections for York County assume that per capita generation rates will remain constant throughout the duration of the planning period.

Population

The US Census Bureau conducted a national census in 2010. This was the most recent available census data published at the time the Plan was being developed. The Pennsylvania State Data Center at the Pennsylvania State University provides historical and current demographic information on counties and municipalities throughout the Commonwealth of Pennsylvania, much of it gathered from local sources. The York County Planning Commission (YCPC) makes long-term population projections, which it adjusts periodically when more current data becomes available during the projected period. YCPC recently adjusted its long range projections for the County, based on the results of the US Census. The Plan bases its population assumptions on the YCPC projections.

Disposal Capacity Needs

Table 3-1 presents actual and projected disposal capacity requirements for the years 2010 through 2035. The tons generated, recycled and disposed are based on actual reported data for 2010 the baseline year for the Plan. The future figures are based on a constant per capita generation and recovery rate with adjustments due to projected population changes. These projections are for all types of municipal waste generated in York County.

Table 3-1 York County Projected Disposal Capacity Requirements Tons Per Year

	Population	Generated	Recycled	Disposed
Actual 2010	434,972	444,126	91,000	353,126
Projected				
2011	437,917	447,133	91,616	355,517
2012	440,862	450,140	92,232	357,908
2013	443,807	453,147	92,848	360,299
2014	446,752	456,154	93,464	362,689
2015	449,697	459,161	94,081	365,080
2016	452,642	462,168	94,697	367,471
2017	455,587	465,175	95,313	369,862
2018	458,532	468,182	95,929	372,253
2019	461,477	471,189	96,545	374,644
2020	464,424	474,198	97,162	377,036
2021	468,477	478,336	98,010	380,327
2022	472,531	482,475	98,858	383,618
2023	476,584	486,614	99,706	386,908
2024	480,638	490,753	100,554	390,199
2025	484,744	494,945	101,413	393,533
2026	488,744	499,030	102,250	396,780
2027	492,798	503,169	103,098	400,071
2028	496,851	507,307	103,946	403,362
2029	500,905	511,447	104,794	406,653
2030	504,958	515,585	105,642	409,943
2031	508,696	519,402	106,424	412,978
2032	512,434	523,218	107,206	416,012
2033	516,173	527,036	107,988	419,048
2034	519,911	530,853	108,770	422,083
2035	523,649	534,669	109,552	425,117

Table 3-2 Resource Recovery Center Projected Processing Capacity

Year	County Population (a)	York County	York County	Contractual	Total Tons to	RRC	RRC Actual	RRC Annual	Remaining	RRC Annual	Remaining
		Tons Per Capita Received (b)	Tons Received (c)	Obligations for Out of County Tons (d)	Obligated to RRC YCSWA Accept (e)			Capacity Filled by YC Tons in %	Capacity in Tons	Capacity Filled by All YCSWA Tons in %	Capacity in Tons
2008	422,880	0.742	313,656	17,522	331,178		432,990	72.4	119,334	76.5	101,812
2009	428,926	0.690	296,072	17,383	313,465		433,802	68.3	137,730	72.3	120,337
2010	434,972	0.684	297,696	16,909	314,605		413,988	71.9	116,292	73.9	99,383
2011	437,917	0.727	318,214	17,717	335,931		435,281	73.1	117,067	77.0	99,350
2012	440,862	0.701	308,855	16,817	325,672		441,344	70.0	132,489	76.4	100,328
2013	443,807	0.704	312,440	17,148	329,588	430,204		72.6	117,764	76.6	100,616
2014	446,752	0.704	314,513	17,148	331,661	430,204		73.1	115,691	77.1	98,543
2015	449,697	0.704	316,587	17,148	333,735	430,204		73.6	113,617	77.6	96,469
2016	452,642	0.704	318,660	17,148	335,808	430,204		74.1	111,544	78.1	94,396
2017	455,587	0.704	320,733	0	320,733	430,204		74.6	109,471	74.6	109,471
2018	458,532	0.704	322,807	0	322,807	430,204		75.0	107,397	75.0	107,397
2019	461,477	0.704	324,880	0	324,880	430,204		75.5	105,324	75.5	105,324
2020	464,424	0.704	326,954	0	326,954	430,204		76.0	103,250	76.0	103,250
2021	468,477	0.704	329,808	0	329,808	430,204		76.7	100,396	76.7	100,396
2022	472,531	0.704	332,662	0	332,662	430,204		77.3	97,542	77.3	97,542
2023	476,584	0.704	335,515	0	335,515	430,204		78.0	94,689	78.0	94,689
2024	480,638	0.704	338,369	0	338,369	430,204		78.7	91,835	78.7	91,835
2025	484,744	0.704	341,260	0	341,260	430,204		79.3	88,944	79.3	88,944
2026	488,744	0.704	344,076	0	344,076	430,204		80.0	86,128	80.0	86,128
2027	492,798	0.704	346,930	0	346,930	430,204		80.6	83,274	80.6	83,274
2028	496,851	0.704	349,783	0	349,783	430,204		81.3	80,421	81.3	80,421
2029	500,905	0.704	352,637	0	352,637	430,204		82.0	77,567	82.0	77,567
2030	504,958	0.704	355,490	0	355,490	430,204		82.6	74,714	82.6	74,714
2031	508,696	0.704	358,122	0	358,122	430,204		83.2	72,082	83.2	72,082
2032	512,434	0.704	360,754	0	360,754	430,204		83.9	69,450	83.9	69,450
2033	516,173	0.704	363,386	0	363,386	430,204		84.5	66,818	84.5	66,818
2034	519,911	0.704	366,017	0	366,017	430,204		85.1	64,187	85.1	64,187
2035	523,649	0.704	368,649	0	368,649	430,204		85.7	61,555	85.7	61,555

(a) 2010 Census for 2010 population. Used YCPC projections for 2011 - 2035

(b) 0.704 tons is the average of '10, '11 & '12 tons per capita to the RRC and includes residual waste

(c) PC scale data used for '08 - '12 (YC tons - unburns)

(d) Waste delivered from Swatara Township, Highspire Borough & McSherrystown Borough. These three municipalities have contracts directly with the Authority.

(e) Column 6 = Column 4 + Column 5

(e) Column 6 = Column 4 + Column 5

(f) 430,204 is the avg. of '10, '11 and '12 processing

Seasonal waste generation: During seasonal fluctuations when higher-than-average waste deliveries occur, the RRC may experience periods of "seasonal capacity exceedance".

These seasonal peaks can occur for a period of a week(s) or even months. During these seasonal exceedance periods, additional measures must be taken to manage this waste

Source YCSWA

Flow Control Measures and Capacity Assurances

The decision to finance and construct the York County Resource Recovery Center was made to address the needs for long term management capacity for York County and to reduce the reliance on landfill disposal. An important added value was the ability of the **facility to generate electricity, thus reducing the County's** reliance on fossil fuels. The project was supported by a commitment from the municipalities to utilize the services of the Center for the disposal/processing of municipal waste generated within their political jurisdictions. To ensure that the facility operates at maximum efficiencies, York County enforces a flow control ordinance monitored by the Authority. The Center both historically and currently **manages an average of 97% of the County's municipal** waste. It also handles some of the residual waste. The Center serves as a disposal/processing option for surrounding counties as well.

Table 3-2 shows the Center's recent processing activity and commitments. It compares the current tons processed to its operational capabilities. Utilizing the current data and assuming that York County will follow current local and national trends, a constant rate of tons per capita received is assumed to project future needs. The population projections are based on YCPC information.

Composition and Combustion

Table 3-1 and 3-2 show raw tonnages of municipal solid waste that must be managed by the County. What neither table shows are how the components of the waste stream affect the amount of material suitable for processing and in turn energy recovery, both of which are crucial in the operation of the Center. Since significant quantities of municipal solid waste generated in York County are discarded and combusted for energy recovery, it is of interest to note what the changes in waste quantities and composition have had on the energy value.

As discussed in previous chapters, the rate of municipal solid waste generation for the last decade has been influenced by changes in material usage, packaging, and economic conditions, among other factors. With increasing recovery, the quantity of municipal solid waste disposed per capita has also been affected. Paper, which is highly combustible, remains as the largest category of material in municipal solid waste generated. However, due to recycling, the quantity of paper discarded has been declining since about 1990. Recently, plastic and food scraps have surpassed paper as the principal components in discarded municipal solid waste.

Table 3-3 presents a breakdown of the contribution of various components in municipal solid waste to the total net heat content of the material. As the relative proportions have changed since 1960, the net heat content has increased, particularly as the percentage of plastic has increased. However, recently net heat

content has remained relatively constant, particularly over the past five years. Other studies have shown a similar growth in gross heat content of MSW up to and tapering off at 2005. Figure 3-1 offers a graphic representation of these changes and Figure 3-2 illustrates the changes in BTU values.

Table 3- 3 Percent of Total BTU Value in Various Component Materials of Discarded MSW in the USA

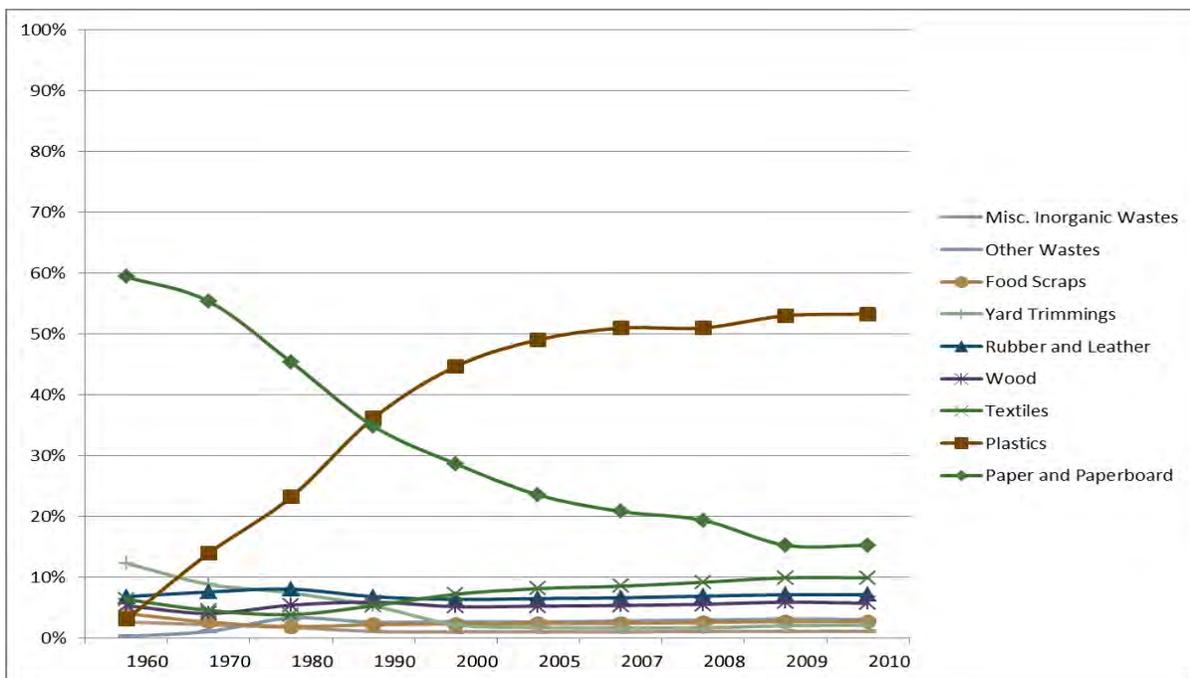
Materials \ years	1960	1970	1980	1990	2000	2005	2007	2008	2009	2010
Paper/Paperboard	59.36%	55.32%	45.33%	34.79%	28.60%	23.49%	20.78%	19.32%	15.23%	15.25%
Plastics	3.02%	13.91%	23.14%	36.14%	44.63%	49.01%	50.92%	50.95%	52.96%	53.22%
Rubber & Leather	6.79%	7.56%	8.02%	6.78%	6.33%	6.47%	6.60%	6.86%	7.11%	7.11%
Textiles	6.33%	4.53%	3.84%	5.30%	7.19%	8.11%	8.50%	9.15%	9.88%	9.87%
Wood	5.31%	4.04%	5.39%	5.89%	5.13%	5.23%	5.33%	5.53%	5.88%	5.70%
Food Scraps	4.01%	2.60%	1.87%	2.18%	2.29%	2.37%	2.40%	2.52%	2.71%	2.66%
Yard Trimmings	12.28%	8.81%	7.40%	5.26%	2.17%	1.72%	1.65%	1.67%	2.01%	2.09%
Misc. Inorganics	2.63%	2.16%	1.73%	1.07%	1.00%	1.01%	1.02%	1.06%	1.11%	1.10%
Other Wastes	0.26%	1.07%	3.27%	2.58%	2.67%	2.61%	2.80%	2.93%	3.11%	2.99%
Total %	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Net Heating Value
BTU per lb.

2211 2610 3036 3748 4407 4600 4678 4640 4600 4623

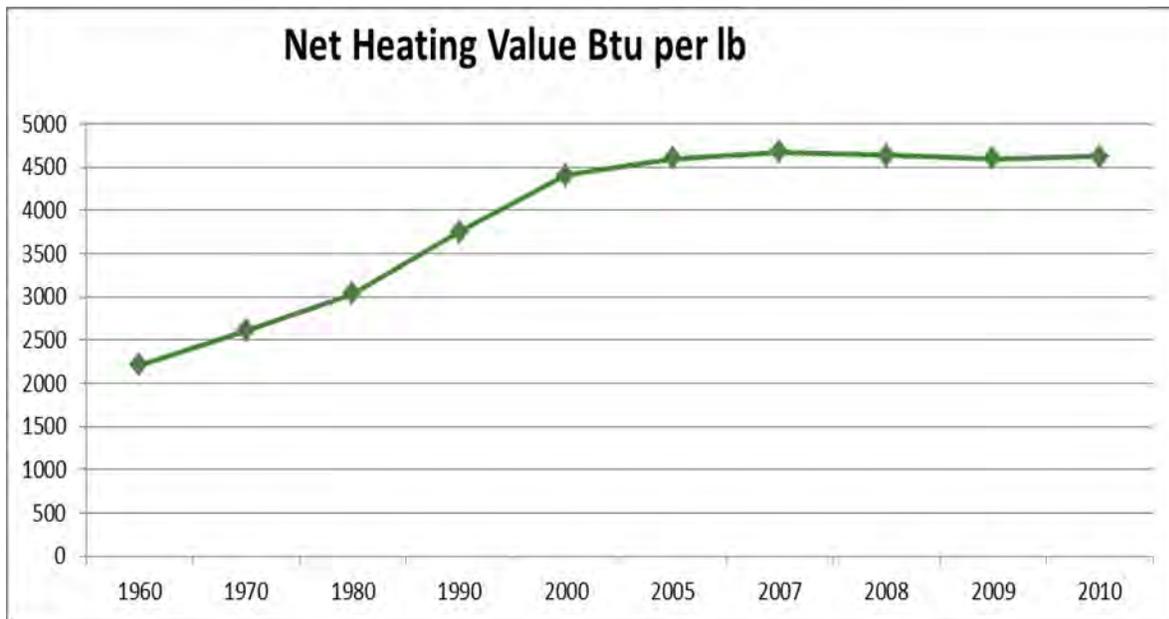
Sources: USEPA . Municipal Solid Waste in The United States: 2010 Facts and Figures and Methodology for Allocating Municipal Solid Waste to Biogenic and Non-biogenic Energy, Energy Information Administration, May 2007 USEPA. Municipal Solid Waste in The United States: 2010 Facts and Figures

Figure 3-1 Materials in MSW Disposed in the USA Contributing to Total BTU Value



Sources: USEPA . Municipal Solid Waste in The United States: 2010 Facts and Figures and Methodology for Allocating Municipal Solid Waste to Biogenic and Non-biogenic Energy, Energy Information Administration, May 2007

Figure 3-2 Changes in the Net Heating Value of Municipal Waste in the USA 1960-2010



Sufficient Local Capacity for Processible Waste

Clearly, the York County Resource Recovery Center has provided sufficient capacity to fulfill the Authority's commitment to manage York County processible waste during the last twenty-five years. Based on the projections, it is safe to



assume that if current operating conditions prevail and with the necessary facility upgrades and enhancements, the Center can continue to meet the County's needs for the next twenty-five years as well. Therefore, the York County Resource Recovery Center will remain as the designated facility to manage the County's processible municipal solid waste during this planning period.

As in the past, flow control mechanisms will be necessary to protect this public investment and provide for a consistent volume of material to maximize production. The Center has excess capacity, which will allow it to accept York County residual waste and materials from the surrounding area to control costs.

During the planning period, the continuing evolution of municipal solid waste composition will play an important role. To assure that the Center is operating optimally, the mix of available municipal solid waste materials and their potential for energy recovery must be closely monitored and scrutinized. Periodic

assessments and studies may be necessary to determine if certain wastes currently not delivered to the Center should in fact be delivered or directed there. These could include materials once considered non-processible and/or categories of materials with a certain portion of processible components. Additionally, new technologies and methods of energy recovery could be studied to determine if specific parts of the waste stream, not previously viewed as conducive to combustion could be successfully processed at the Center.

Capacity for Non-processible Waste

A certain portion of the municipal solid waste stream is not suitable for combustion. This non-processible waste must be handled at facilities other than the Resource Recovery Center. In addition, there are times when the Center may be unable to handle the volume of waste generated due to catastrophic events, temporary shut-downs, or other circumstances. This waste must by-pass the Center and be disposed elsewhere. Therefore, York County must also provide disposal capacity for these quantities of waste. Historically, this accounts for **approximately 3% of the County's municipal waste stream.**



An existing contract between the Authority **and Republic Services' Modern Landfill**, also located in York County, provides capacity assurances for by-pass waste when the Center exceeds its capacity on any given day or during service interruptions caused by regularly scheduled maintenance. The agreement also provides capacity for non-processible wastes generated in York County. A copy of the agreement, which was amended in 2011 and expires in 2025, is provided in Appendix B. A contingency letter of agreement from the Lancaster County Solid Waste Management Authority to accept emergency by-pass waste is also included. Based on the current available permitted capacity at Modern Landfill, it was determined that York County had in place sufficient capacity assurances to meet its needs for the disposal of non-processible and by-pass wastes during the initial years of planning period. When the capacity that could be made available through an expansion of the landfill is considered, the assurance of that capacity is extended. Based on these conditions, no additional capacity arrangements are deemed necessary at this time. Three years prior to the expiration of the Modern Landfill agreement the Authority will initiate a fair, open and competitive process to seek proposals for capacity assurances through the through the end of the planning period. Agreements will be executed with qualifying disposal /processing facilities for non-processible waste that is not transported to and /or

managed at facilities owned by the Authority and for by-pass waste generated in York County.

Disposal Outlets for Other Types of Municipal Waste

Included in the definition of processible and non-processible wastes used to **determine York County's disposal capacity needs are certain other subcategories** of the municipal solid waste stream. These include construction & demolition waste and sewage sludge. Because of the manner in which they are managed, other subcategories, such as biosolids and regulated medical waste, were not included in the overall capacity projections, but were demonstrated separately.

None of these subcategory wastes are currently flow controlled to a specific **Authority owned or contracted facility. Rather the County's ordinance and the Authority's rules, regulations and standards allow these waste streams to be** managed at any in or out-of-state facility permitted to accept them.

The Authority tracks and monitors all of these wastes through its reporting program. Therefore how much and where each type of waste is disposed is known. In addition, the Authority is actively engaged in the oversight of biosolids, through a multi-agency agreement with PADEP and the York County Conservation District. Based on these measures and controls, the Authority has determined that adequate disposal options are available for these sub-sets of municipal solid waste. Consequently, the Authority will not currently pursue additional capacity assurances for any of the waste streams, nor is it expected that the Authority will need to secure disposal/processing capacity for these materials in the future.

Ash Management

An inevitable result of a combustion oriented waste-to-energy operation is ash residue. Although the combustion process itself does reduce the volume of municipal solid waste, the resulting quantities of ash, if sent to a landfill for disposal, could still impact the airspace available for other waste.



Since the inception of the Resource Recovery Center, the York County Solid Waste and Refuse Authority identified the need to control the costs and effects of ash management. A study was conducted that explored a variety of options that were available or could be made available to manage this material. The study included a request for proposals for handling and processing methods for the ash. High on the list of selection criteria was the ability to recover valuable materials remaining in the residue.

The opportunity to utilize the ash for some beneficial use was also an important criterion. The design and implementation of the recommendations of the study **supported the Authority's goals and objectives to minimize the impact of ash residue.**

Each year approximately 170,000 tons of ash result from the operation of the Center. At the point of generation, the ash is considered a municipal solid waste. However, it is not reported as such or factored into the overall quantities of municipal solid waste if it is put to a beneficial use. Likewise, unless it is disposed in a landfill without further processing, it is not reported as municipal solid waste. Thirteen tons of ash residue generated in the County by sources other than the Center were reportedly disposed as municipal solid waste in Modern Landfill.

The Authority delivers 100% of the ash generated at the RRC to a facility, where the ash is processed to capture the bulk of the metals not retrievable prior to combustion. Approximately 18,000 tons of metals are recovered each year. The remaining ash is now considered a residual waste resulting from an industrial process. All of the material, approximately 145,000 tons are sent to Modern Landfill. Most of this material is put to a beneficial use as alternate daily cover at the landfill.

Conclusions

Since 1971, YCSWA has accepted the responsibility to manage the municipal solid waste generated within its jurisdiction at a publically owned disposal/processing facility. The decision for the York County Solid Waste and Refuse Authority to develop the Resource Recovery Center elevated the benefits of local ownership to include the production of energy and to capture the economic benefits of processing out of county waste to stabilize the long term cost of managing York County's waste.

The facility was constructed with the capacity to process York County's municipal solid waste for at least twenty-five years and with the potential for modifications to handle these materials for an extended lifetime. Chapter 6 provides greater details of the operating potential and planned upgrades to the Center. Contingencies were established to handle by-pass and non-processible wastes. **Current and anticipated conditions confirm the ability of the Center's capacity to fulfill the needs of the County.**

Agreements to manage the municipal waste not accepted at the Center are still current and will remain so through most of the planning period. For special subsets of municipal solid waste, mechanisms are implemented and enforced to ensure the proper management of and identify the need for future guarantees for disposal capacity if necessary. These findings demonstrate that sufficient capacity

exists to manage the municipal solid waste generated in York County during the greater portion of this planning period. Three years prior to the dates when current agreements are set to expire, the Authority will solicit proposals and execute capacity assurances for the remaining years in which the Plan will be in effect.

CHAPTER FOUR

Recycling Programs



Working Toward a Common Goal

Recycling has been an important element in York County's overall waste management schematic for decades. Waste diversion is practiced by residents, businesses, and government agencies. Since the January 1991 adoption of the current York County Municipal Solid Waste Management Plan, the recycling infrastructure has grown. Municipalities with curbside recycling collection have become the norm rather than the exception. When the Plan was adopted, markets for materials located outside of a 50 mile radius of the County were considered to be distant and remote. Today, materials from York County continue to support domestic users of recycled feedstock. However, York County recyclables are also commonly processed and shipped to Asian markets. The demand for recycling commodities on a worldwide basis has influenced how municipal collection programs are structured. New methods of collection and processing have developed, which allow for an expanded menu of materials that can be recovered to satisfy the marketplace.

This chapter describes York County's recycling accomplishments. It acknowledges those entities from both the private and public sectors that are involved in providing recycling services. Also explored are the constraints often encountered in the development and implementation of recycling operations. The current performance of the recycling activities and a comparison to national trends is included. Issues that must be considered in the development of cost effective collection programs are also discussed.

Impact on the Economy and Environment

Any discussion of waste reduction, reuse and recycling activities should include an acknowledgement of the benefits derived from those efforts. To put the value of **York County's residential, commercial, and industrial** recycling programs into perspective, it is important to understand that the recovery of materials from our homes, businesses, and factories, is vital to our economy and our environment. Recycling is one thing that the average citizen can do that has a direct impact on the conservation of energy, natural resources, pollution prevention, and climate change. It also creates jobs and reduces the costs of manufacturing.

Over 91,000 tons of municipal solid waste were recycled in York County and thus diverted from disposal in 2010. Before presenting the regulatory and operational details of the numerous programs that contributed to these results, the next few paragraphs serve as an introduction and reminder of the true worth of these activities.

Financial Rewards and Challenges

Arguably, the roots of recycling are fundamentally tied to economics. Manufacturers have always known that reusing materials involved less effort and energy than

obtaining them from virgin sources. The growth and expansion of many of our **nation's largest industries was dependent on the continuous cycle of material** recovery, particularly metals and plastics. Great wealth and fortunes resulted for those who realized the benefits of such resourcefulness.

Scavenging is recycling in its most basic form. It occurs as a natural and expected activity where local resources are limited. In these areas, the demand for materials exceeds the local supply. Thus the efforts of scavengers are economically rewarding. In the United States, early residential recycling programs ignored this basic premise. Often, the decision to recover materials was and for decades continued to be disproportionate to the available outlets for their reuse.

Current market conditions differ from those that were common 25 years ago. We participate in a global economy, which presents opportunities along with challenges. The need for affordable raw materials in developing countries has fueled interest in recovering greater volumes of recyclable materials from our waste stream. Similarly, as has been the prevailing policy in the European Union, waste materials are becoming widely recognized as a renewable source of energy recovery. In recent years, recyclables have exceeded manufactured products as the top U.S. exports. The challenge of these new markets is their tendency to fluctuate more unpredictably than their former domestic counterparts. Greater attention is being devoted to technologies for refuse derived fuels. True to its origins, business opportunities and economics are the contemporary drivers for material recovery rather than regulatory mandates.



Local Employment

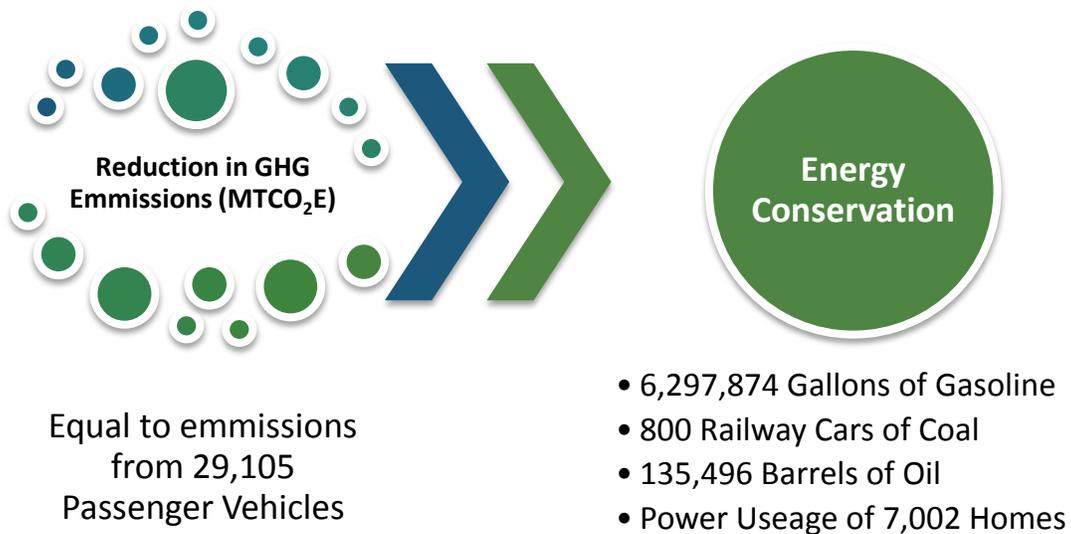
Business ventures and opportunities typically equate to job creation and growth. Unlike its primitive origins might suggest, the recovery of materials has developed into an industry of its own with a vast and sophisticated network of transporters, processors, brokers, and manufacturers. In York County, private-sector companies have invested millions of dollars in new recycling facilities, high-tech sorting and processing equipment, consolidation and transfer facilities, along with collection vehicles and containers. Likewise, grants and other sources of public funding have supported the development and implementation of educational programs, equipment purchases, and a number of special collection services. A variety of re-use and re-manufacturing ventures, all of which produce sustainable jobs, operate in York County. These include but are not limited to facilities that process materials for

packaging, flooring, and paper products. In addition to these private sector operations, energy recovery from municipal solid waste supports the employment of seventy-seven individuals at the York County Resource Recovery Center. Fifty-two people hold positions with Covanta York Renewable Energy, LLC and another twenty-five YCSWA employees are supported by RRC revenues.

Environmental Impact of Local Recycling Efforts

Although the recovery of materials for reuse and recycling may have been initiated by economic motives, there are other advantages derived. Because the impact of these benefits is not immediate and direct to the recycler, the gains are often overlooked. Until recently, it has been difficult to measure and quantify the environmental effects of recycling.

Figure 4-1 Reduction in Emissions and Energy Consumption



The Waste Reduction Model (WARM) is a tool created by the USEPA to track and evaluate greenhouse gas (GHG) emissions reductions. It can be used to assess the performance of a variety of waste management practices. These include source reduction, recycling, combustion, composting, and landfilling.

Figure 4-1 shows the environmental benefits of recycling in York County based on WARM. The model calculated emissions in metric tons of carbon dioxide equivalent (MTCO₂E), and energy units (million BTU) based on material types commonly found in municipal solid waste collection programs in York County. GHG savings for York County were calculated by comparing the emissions associated with the current form of disposal versus recycling over 74,000 tons of glass, cardboard, aluminum and bi-metal cans, mixed plastic containers, newspapers, magazines, cardboard, and mixed papers reported in local curbside and drop-off collection programs during 2010. Yard waste is excluded.

Countywide Recycling Achievements

Recycling activities in York County are tracked and monitored by YCSWA. Since 1991, the recovery of materials for recycling has steadily increased. Residents, businesses, government offices and institutions are all responsible for the success of local recycling programs. This section includes the overall combined reported results of those programs.

Defining Collection & Processing Methodologies

Recyclables are collected and processed in a variety of ways. Traditionally, materials were collected by type and each material was placed for collection in a separate bin. The materials were also transported in individual compartments of the body of the collection vehicle. This method is referred to as source separated recycling. Because of the pre-sorted condition, the weight of each material collected was easier to determine and report. Some municipalities offer drop-off collection sites for separated materials. Commercial establishments often source separate their recyclables to improve the marketability and because the materials may be handled by different vendors. Therefore, some of the materials collected in York County were reported on an individual or separated basis.

Unlike source separated collection systems, there are other recycling collection and processing programs, where certain materials are collected and transported together in the same bin and within the body of the collection vehicle. One system is commonly referred to as commingled collection and the other as single stream. Although there are similarities, there are some distinct differences between these two collection methods.

In commingled programs, it is generally thought that glass, plastic, and metal, bottles, cans and jugs are mixed together, while whatever forms of paper and cardboard that are accepted in the program are collected separately. Typically, a more narrow selection of plastics and paper are included in these commingled programs.

In a single stream recycling program, wider varieties of plastics are mixed in the bin with the glass and metals for collection, along with all forms of paper and cardboard. The majority of the residential recycling data reported in York County includes materials in primarily single stream but the 2010 recycling reports still showed a mix of commingled loads.



Adjusting For Mixed Loads

Providing an individual weight for each material is more complicated, if not impossible on in-bound commingled or single stream loads, the source of data from which most recycling performance is reported. However, waste composition and characterization studies of commingled and single stream systems provide relatively consistent data that can be applied to the reported figures provided by York County. This makes sense where the cost and time to conduct a local composition study is prohibitive. The composition of single stream and commingled recyclables differs depending on the items accepted by local processors. Other contributing factors include local demographics, economic conditions, frequency of collection, types of vehicles and processing equipment, and if materials are from a residential or a commercial source. All of these factors were taken into consideration in the adjustments applied to the York County reported data.

Reported Data

Table 4-1 presents the recycled materials reported for York County from 2008 through 2010. Three years of data were used to ensure that 2010 was not somehow unique or skewed from the norm in York County. This table lists only those materials, which are designated as source separated recyclables by Act 101, and thus are commonly collected in residential and/or commercial recycling programs. The figures shown in Table 4-1 were adjusted from actual reported values to account for materials assumed to be included in the categories reported as commingled and single stream. The assumptions were based on a review of collection guidelines published by local municipalities and hauling companies, published data from USEPA, as well as accumulated professional experience with the materials encountered in material processing facilities and subsequently marketed.

Table 4-1 York County Reported Tons of Act 101 Designated Materials Recycled 2008-2010*

Material	2008 Adjusted tpy	2009 Adjusted tpy	2010 Adjusted tpy
Mixed Glass	4,808	4,778	5,218
Bimetal Cans	2,558	2,124	2,748
Aluminum Cans	1,260	1,088	2,136
Packaging Plastic #1 and #2	2,323	1,521	1,233
Packaging Plastic #3 through #7	553	1,205	1,890
Newspaper	9,601	7,894	10,836
Magazines	818	2,298	2,164
Phone Books	171	309	55
Office Paper	2,647	6,211	9,569
Mixed Papers	9,926	13,044	9,594
Cardboard	36,213	23,915	25,869
Cardboard from Single Stream	2,053	2,311	2,864
Yard Waste	16,387	19,623	14,158
Totals			88,334

*adjusted to distribute materials collected commingled and single stream. Apparent errors are due to rounding

In addition to those items delineated in Act 101, other recyclable materials were also reported for York County for 2008-2010. Table 4-2 lists these items.

Table 4-2 York County Reported Tons of Other Materials Recycled 2008-2010

Material	2008 tpy	2009 tpy	2010 tpy
Major Appliances (White Goods)	55	215	344
Tires	2,836	2,142	2,974
Textiles	417	354	351
Batteries	3	298	241
Electronic Waste	130	280	301
Furniture	0	20	47
Total	3,441	3,309	4,258

Apparent errors are due to rounding

Source: YCSWA

MEASURING RECYCLING PERFORMANCE

Although the planning process is prompted by the need for disposal capacity, it also **requires a review and justification of a county’s overall waste management programs**, including recycling. To gain better insight into the overall performance of the

“One of the great mistakes is to judge policies and programs by their intentions rather than their results.”

Milton Friedman 20th century economist

recycling activities from all York County sources, historic and current reported data was reviewed and analyzed. Local reported statistics were compared to national figures to evaluate the performance of York **County’s program in relationship to expected results**. The current impact of collecting and processing certain

materials was assessed. Additional recyclable materials were examined for potential future inclusion in collection systems. The following sections discuss the findings of those exercises.

Focus on Specific Elements and Actual Efforts

For a variety of reasons, many state regulatory agencies and local recycling program managers feel compelled to report any number of materials that have been recovered and diverted from disposal. While these figures make the overall recycling rate look impressive, including them in an evaluation of a municipal recycling program distorts the data and **indicators of a local operation’s strengths and/or weaknesses**.



This is not to discount the importance of scrap dealers and brokers who recover metals, plastics, fiber and glass in large scale or the variety of pre-consumer materials recovered during manufacturing or other industrial/commercial processes. Many of these activities and operations pre-date the implementation of organized municipal recycling programs and mandates. Significant quantities are recovered, reused and recycled from these efforts. However, they have nothing to do with whether or not a residential curbside or drop-off recycling collection program is performing successfully. Neither do they reflect the efforts of local retail, office and other commercial and institutional establishments. Only those programs and efforts under the operational control or regulatory direction of a county or municipality should be



the focus of a municipal solid waste management plan.

Therefore, for the purpose of the York County Municipal Solid Waste Management Plan and the narratives and tables that will be found throughout the document, only those materials commonly found in residential and commercial recycling programs have been evaluated. For example, rather than consider all sources and types of aluminum that might have been recovered in York County, the Plan will address aluminum cans. Instead of measuring all potential types and forms of plastics, the Plan is concerned with plastics primarily found in bottles, jugs and other forms of packaging. By limiting the analysis to specific components of the municipal waste stream, it is easier to establish a true comparison of one program to another and between local and national results. In addition, it quickly reveals anomalies and quirks that require additional investigation. From past experience, many of the findings tend to be reporting errors, however, others often point to operational flaws, opportunities for cost savings or revenue generation.

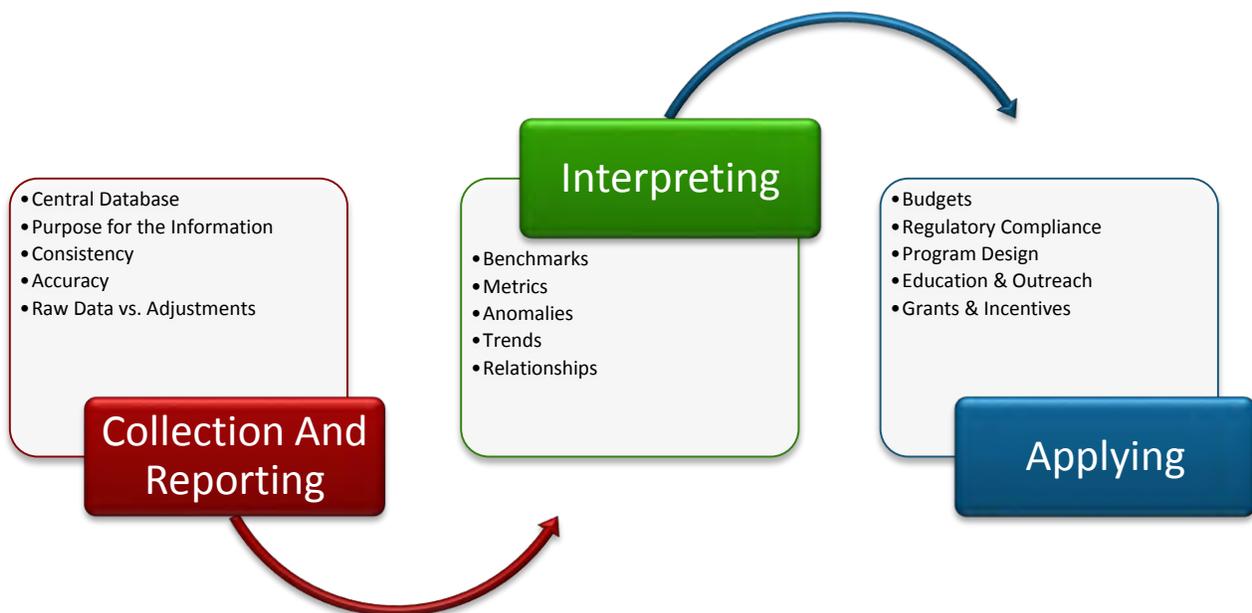
Included as Appendix G is the 2010 Re-TRAC York County Recycling Report. This Report was submitted to PA DEP in the summer of 2011 by the Authority. The Report shows all reported recycled tons in York County reported by York County municipalities and the Authority. As the Re-TRAC Report shows all reported recycled tons in York County in 2010, the purpose of Chapter 4 in this Plan is to provide evaluation specific to common residential and commercial recycling programs. Hence the recycling data contained in the Plan is quite different from the Re-TRAC data. In Re-TRAC the Authority reported 139,566 tons of material was recycled in 2010. The overall County recycling rate for 2010 was 33.5% as 277,230 tons were managed as waste.

Benchmarking

Peter Drucker, a highly regarded management consultant and writer of the 20th century, once said “What gets measured, gets managed.” When it comes to recycling, much effort is expended to gather data and report recycling activities, quantities and rates. However, processing and interpreting the data, and then actually applying the findings to continuously improve recycling programs are areas that get less attention.

One way to interpret data is to establish some sort of benchmark against which it can be compared and measured. Recycling statistics from local programs are generally compared to national information gathered and compiled on behalf of the United States Environmental Protection Agency (USEPA). Since 1986, the USEPA has commissioned the Franklin Associates of Prairie Village, Kansas to research, analyze, and compile a report on municipal solid waste trends. The study is commonly known as “The Franklin Study” however, the latest version is titled *“Generation, Recycling, and Disposal in the United States: Facts and Figures for 2010.”* This ongoing project tracks municipal solid waste data back as far as 1960. Approximately, every two years a new report is issued. Therefore, it tends to stay more current than periodic state waste composition studies. It is considered to be the definitive expert resource on waste characterization and composition. The study is a useful tool to make initial assumptions in a recycling analysis. Such an evaluation often raises questions, which prompt further observations and more in-depth investigations. It also helps to create greater awareness and understanding of the local data, which ultimately leads to program enhancements. Figure 4-2 illustrates the steps in an optimal recycling data management process.

Figure 4-2 Collecting and Utilizing Recycling Data



Reporting Practices

Because raw data can be interpreted in a variety of fashions to demonstrate any number of findings, the USEPA requires states to utilize certain standards in reporting recycling performance. These requirements are largely based on the findings of the Franklin Study. Although Pennsylvania utilizes these criteria in its annual reporting requirements, a review of data management procedures in the counties and municipalities across the Commonwealth suggests that other procedures are often introduced at the local level. Working with information from locale to locale, confirms the belief that data is gathered, organized and in many cases adjusted before it is reported in the fashion required by PADEP. Therefore, a comparison to national trends is a vital exercise in identifying anomalies. This exercise often reveals actual program strengths and weaknesses. Commonly it identifies misreporting practices, most of which are easily remedied. All of these were **considered during a review of York County’s recycling reports.**

Overview of the Comparative Analysis

This section reviews the results of the reported recycling efforts in York County and compares the performance of the program to national figures, which were derived by using the background data and methodology from the United States Environmental Protection Agency (USEPA). **Specifically, York County’s 2010 reported data was compared to the 2010 national published data for a true “apples to apples” evaluation.**

Since it is not common for individual materials to be listed in disposal reports, for **this exercise York County’s generation and disposal figures are calculated by material** using population and based on national figures from the Franklin Study. **York County’s actual reported recycling quantities for each material are then compared to** the estimated results, which would be expected if York County performed similarly to the national average.

A series of tables follows which present a snapshot of municipal waste generation, disposal, and recovery for York County as compared to the national averages. Table 4-3 focuses on only those materials designated in Act 101 for municipal recycling programs. Table 4-4 includes other York County reported recyclables. Finally, Table 4-5 offers a summary of the results of all York County recycling activities. Appendix G contains an explanation of the assumptions and calculations used to develop these tables.

The items are listed as products rather than materials, because that is how they are collected and managed in recycling programs. For instance, we commonly say that we **recycle “glass” which is a material, when in reality we recycle “glass bottles and jars”** which are products. To complicate the matter, some products such as major appliances or white goods may contain multiple materials such as plastic, glass and

several types of metal, which are removed and recycled individually. Nevertheless, we report the recycling of the “white goods.” For the purpose of consistency in this report, the term “materials” will be used in the narrative and the tables. Figure 4-3 provides a stepwise guide to assist readers in understanding and comparing the information which is presented in a series of three tables (Tables 4-3 thru 4-5) shown on the next several pages.

Figure 4-3 Maneuvering the Table(s)

For readers to understand more clearly the contents and findings shown in Table 4-3 thru 4-5 descriptions are provided for the items listed in each column.

Column 1-(Material by Category) Materials found in the York County municipal solid waste stream

Column 2-(MSW Generated Expected) Total amount of each material expected to be generated in York County, based on national averages.

Column 3- (MSW Generated % of Total) The percent that each item represents in the overall composition of the total municipal waste stream in York County.

Column 4-(MSW Disposed Expected) Total tons of each York County material expected to be disposed based on national averages.

Column 5-(MSW Recovered Expected) Total tons of each material expected to be recovered if York County performed similarly to the national averages for the level of population and types of materials collected.

Column 6-(2010 MSW Recovered Nationally) The rate at which each material was recovered at the national level in 2010. Note that each material is captured at a different rate.

Column 7-(2010 York Reported MSW Recovery) York Countywide total reported tons of materials recovered by all sources in 2010.

Column 8-(2010 York % of National Expected Recovery Achieved) York County is rated based on a percentage achieved of the national averages for 2010.

Understanding the Ratings

The last column in each of the tables shows a percentage rating for each material. It does not represent the percentage of the total materials recovered, or what is often known as the “recycling rate.” Rather, it shows whether York County’s performance is average (100%), better than average (more than 100%) or less than average (less than 100%) for each material.

It is worth noting that large quantities of materials are recycled outside of the municipal recycling programs. Therefore, for some of the materials shown on the table, substantial quantities may be recycled through other means and not reported.

For example, considerable amounts of corrugated cardboard and white goods are normally recycled directly by commercial entities. It is safe to assume that at least a portion of these materials go unreported.

Recovery of Common Act 101 Recyclable Items

The USEPA estimates that 90% of the types of materials, which are discarded, have the potential to be recovered for recycling. There are certain materials, however, that are more consistently recovered than are others. These materials tend to have ongoing end users and thus are more easily marketed, even if the resale value is lower than desired. Most of these items are shown in Table 4-3 and included in the list of materials designated for recycling in Pennsylvania by Act 101.

Table 4-3 York County 2010 Recycling Performance for Act 101 Materials Reported vs. National Expectations

Material by Category	MSW Generated Expected Total tpy	MSW Generated % of Total (in 2010)	MSW Disposed Expected Total tpy	MSW Recovered Expected Total tpy	2010 MSW Recovered Nationally (% of Total Generated)	2010 York Reported MSW Recovery Total tpy	2010 York % of Nationally Expected Recovery Achieved
Common Act 101 Recyclable Items:							
Glass Containers	13,174	3.75%	8,768	4,405	33.44%	5,218	118.46%
Aluminum Cans	1,928	0.55%	971	957	49.64%	2,136	223.20%
Bi Metal Cans	3,237	0.92%	1,070	2,167	66.96%	2,748	126.81%
Plastics							
Plastic #1 thru #7	19,254	5.48%	16,917	2,336	12.13%	1,890	152.54%
Plastic #1 and #2* (included in total above)	4,884	1.39%	3,786	1,098	22.48%	1,233	112.30%*
Paper							
Newspaper	13,906	3.95%	3,955	9,951	71.56%	10,893	109.47%
Magazines	2,238	0.64%	999	1,239	55.35%	2164	174.66%
Office-type Papers	7,403	2.11%	1,647	5,756	77.76%	9,569.	166.24%
Corrugated Boxes	40,886	11.63%	6,136	34,750	84.99%	28,731	82.68%
Mixed Paper	20,154	5.73%	9,120	11,034	32.32%	9,594	86.96%
Subtotal Common Act 101 Recyclable Items	122,180	34.74%	49,584	72,596	59.42%	72,943	100.48%
Yard Waste	47,009	13.37%	19,986	27,023	57.49%	14,158	52.4%
Subtotal Common Act 101 Recyclable Items including Yard Waste:	47,009	48.11%	69,570	99,619	57.86%	14,158	87.43%

*Plastics #1 and #2 represent bottles and jugs that make up the majority of plastics traditionally collected at the curb. Although they are included in the total amount of plastics, they are also shown separately to illustrate how they factor into the overall total.

Apparent errors are due to rounding

Primarily, these items consist of two categories. The first includes food and beverage containers and other forms of packaging for various food and consumer goods, i.e. shipping boxes, cereal boxes, frozen food trays, margarine tubs, detergent bottles. The second category includes commercial printing media, i.e. newspaper, junk mail, office paper, etc. In addition to these recyclable materials, Table 4-3 also includes yard waste, which although technically not recycled, is recovered and subsequently processed into mulch or compost. It is also included in the list of materials designated for recycling in Pennsylvania by Act 101.

Recovery of Other Recyclable Materials

In addition to the materials designated in Act 101, York County reported a number of other materials that were recycled in 2010. Other recyclables are also collected nationally based on market opportunities or for practical and environmental purposes. Some, but not all of these items were documented on York County recycling reports for 2010. Therefore, the opportunity to establish benchmarks for this portion of the waste stream also exists. Table 4-4 shows the expected and reported results for these materials for York County in 2010.

Table 4-4 York County 2010 Recycling Performance for Other Materials Reported vs. National Expectations

Material by Category	MSW Generated Expected Total tpy	MSW Generated % of Total (in 2010)	MSW Disposed Expected Total tpy	MSW Recovered Expected Total tpy	2010 MSW Recovered Nationally (% of Total Generated)	2010 York Reported MSW Recovery Total tpy	2010 York % of Nationally Expected Recovery Achieved
Other Recyclable Items:							
Textiles	14,412	4.10%	12,343	2,069	14.36%	351.5	17%
Carpeting	4,870	1.38%	4,433	436	8.96%	0	0%
Furniture	15,229	4.33%	15,214	14	0.09%	46.9	335%
Rubber Tires	7,305	2.08%	4,715	2,590	35.45%	2974	115%
Batteries	4,490	1.28%	169	4,321	96.24%	241.4	5.6%
Major Appliances (White Goods)	5,658	1.61%	1,984	3,673	64.93%	344	9%
Small Appliances	2,238	0.64%	2,083	155	6.92%	0	0%
Consumer Electronics	3,434	0.98%	2,519	915	26.64%	300.5	32.84%
Other Misc. Durables	25,855	7.35%	25,179	676	2.61%	0	
Steel Drums	619	0.18%	127	493	79.55%	0	
Wood Packaging	13,990	3.98%	10,753	3,237	23.14%	0	
Food Scraps	48,923	13.91%	47,558	1,365	2.79%	0	
Subtotal	147,023	41.82%	127,077	19,944	13.57%	4258.3	21.35%
Other Recyclable Items:							

Because the materials listed in Table 4-4 are not universally collected in residential curbside or drop-off and/or commercial collection programs, it is understandable that the overall total of the other materials is lower than the national average. The national data includes information from states, which may have disposal bans and other mandates for the recovery of one or more of the items. Aside from the normal residential programs, special collection programs and community clean-ups also serve as valuable outlets for these materials. Additionally, it is common for service and retail establishments to offer take-back programs for some of these items when

replacement products are purchased. It is likely that more of these materials are recycled in York County than are currently being reported.

Meeting the State's Goals

Nationally the rate of recovery for all municipal waste generated in 2010, including recyclable and non-recyclable material, was approximately 34%, which is close to the targeted goal of 35% recovery for Pennsylvania. Therefore, a comparison of the County's performance to the national norm, can demonstrate to what degree York County has attained Pennsylvania's goal. This is the purpose of Table 4-5. It combines the results from Tables 4-3 and 4-4 to demonstrate the total recovery of not only Act 101 designated materials, but also other items reported locally. By comparing those totals to the national totals, York County can demonstrate its success in attaining the recycling goals of the Commonwealth.

Determining the Recycling Rate

It is important to remember that as shown on the previous tables, each material is recovered at a different rate. For instance newspapers are recycled nationally at the rate of 71.56% but glass containers are only recycled at a rate of 33.44%. It is the cumulative total recovery of all tons of materials, which are typically accepted in municipal recycling programs, that determines the national rate and the state's goal.

Table 4-5 Summary of York County 2010 Recycling Performance Reported vs. National Expectations

Material by Category	MSW Generated Expected Total tpy	MSW Generated % of Total (in 2010)	MSW Disposed Expected Total tpy	MSW Recovered Expected Total tpy	2010 MSW Recovered Nationally (% of Total Generated)	2010 York Reported MSW Recovery Total tpy	2010 York % of Nationally Expected Recovery Achieved
Subtotal Common Act 101 Recyclable Items:	122,180	34.74%	49,584	72,596	59.42%	72,943	100.48%
Subtotal Common Act 101 Recyclable Items including Yard Waste:	122,180	48.11%	69,570	99,619	57.86%	72,943	87.43%
Subtotal Other Recyclable Items:	244,360	82.85%	119,154	172,215	13.57%	145,886	21.35%
Total Recyclable Items:	321,096	89.92%	196,648	119,562	37.81%	92,594	77.44%
Total Unrecyclable Items:	35,454	10.08%	35,454	0	0.00%	0	
Total Municipal Solid Waste:	351,664	100.00%	232,102	119,562	34.00%	92,594	77.44%

Please note Table 4-5 first shows the national rate of recovery of 37.81% for all materials that have the potential to be recycled. This excludes those materials that are non-recyclable. York County's reported performance is 77.44% of the national rate or,

in other words, a recycling rate of almost 30% for all of the recyclable materials. However, the USEPA and the PADEP determine the recycling rate on the amount of materials recovered from the entire municipal solid waste stream regardless of the fact that 10% of those materials have been predetermined to be non-recyclable. It is when the entire waste stream is considered that the national rate of recovery for recycling is calculated to be 34%, which also includes the yard waste, which is recovered and processed into mulch or compost. Therefore, in keeping with the USEPA and the PADEP methodology and using the total for all municipal solid waste, **York County's reported performance is 77.44% of the national rate or, in other words, a recycling rate of 26.3%.**

Putting the Recycling Rate in Perspective

Although the reported data for 2010 indicates that York County falls a little short of the 35% recycling rate for all municipal solid waste, that does not diminish the accomplishments that have occurred. First, the results can only be calculated based on the data that is reported. Second, the County does exceed the original goal of a 25% recycling rate actually established by law in Act 101. In addition, the local data slightly exceeds the national norm for the Act 101 materials, giving York County a 60% recovery rate for these specific items.

It should be noted that a little more than 45,000 tons of additional materials, primarily metal and some other items from scrap dealers, were reported to be recycled in York County. These items are not Act 101 materials collected on residential or commercial collection routes, and therefore have no effect on their performance. Since the purpose of the exercise was an assessment of those residential and commercial programs, these materials were eliminated from the analysis presented in Tables 4-3, 4-4, and 4-5.

A common reaction is to think that the overall recycling rate would automatically increase by adding the 45,000 tons to the totals in the tables. However, to ensure that the evaluation was not unfairly skewed, not only were the recycled tons excluded from the evaluation, but the estimated generation and disposal quantities for those materials were also eliminated. Thus, before the 45,000 tons could be added to the recycling data, it would also be necessary to increase the generation and disposal quantities shown on those same tables.

For whatever reasons, a slightly lower recycling rate for some materials means that a number of opportunities still exist to enhance recycling programs throughout the County. To identify these possibilities is the purpose of data management, benchmarking, and the whole planning process. A good place to uncover this potential is to examine the residential and commercial recycling programs that are implemented and facilitated by York County municipalities.

Municipal Programs

In Pennsylvania, the Municipal Waste Planning, Recycling, and Waste Reduction Act (Act 101) shifted the responsibility for municipal solid waste planning from municipalities to counties. However, it did not leave municipal governments without specific duties and responsibilities. While counties are required to focus on disposal, municipalities are directed to address municipal waste and recycling collection issues. This section discusses basic regulatory requirements for certain Pennsylvania municipalities that meet the criteria of Act 101.

Mandated Municipal Programs

Act 101 places unique mandates upon municipalities with populations of 10,000 or more, and those with populations of 5,000 or more with a population density of greater than 300 people per square mile. The Act requires these communities to implement mandatory residential curbside collection programs for recyclables and leaf waste. The municipality must also have mechanisms to ensure that commercial, institutional, and government establishments recycle and manage leaf waste accordingly. In addition to the original requirements, mandated communities are subject to amendments to Act 101 resulting from the provisions of Act 140 of 2006. Figure 4-4 outlines the responsibilities of the municipalities mandated by Act 101.

Figure 4-4 Act 101 Minimum Requirements for Mandated Municipalities

- ✓ An ordinance that requires all residents to have waste and recycling collection service.
- ✓ Curbside collection of residential recyclables must occur at least once per month;
- ✓ An ordinance that requires a commercial recycling program
- ✓ Collection of three recyclable materials designated in the Act (glass, aluminum, or bi-metal containers, plastics #1 or #2, newspaper, office paper and cardboard)
- ✓ Curbside collection of leaf waste must occur once per month, or alternatively, twice per year collection if a drop-off collection area for leaf waste is accessible between collections.
- ✓ Implementation of a residential and business recycling education program.
- ✓ Implementation of an enforcement program that monitors participation, receives complaints and issues warnings and provides fines, penalties, or both,
- ✓ Participation in a program for the recycling of special materials.
- ✓ Sponsors or facilitates a program to prevent illegal dumping and/or littering problems.
- ✓ Designation of a person or entity as the recycling coordinator

Methods of Compliance

The responsibilities of communities that meet the population criteria of the Act are direct and straightforward. To ensure compliance by residents and businesses, municipalities meeting the criteria are required to pass ordinances that mandate waste and recycling collection. Certain services and standards for collection frequency are required.

The Act allows municipalities choices in how these services can be provided. Municipal employees and equipment can perform the collections or communities can enter into contracts with an outside service provider for these functions. Provisions of the Act are inclusive of commercial, institutional, and municipal establishments, which are located in mandated municipalities. These entities must recycle and separate leaf waste for composting. The municipality is not required to ensure the service to commercial establishments; however, they are expected to enforce the mandate.

Mandated and Non-mandated Municipalities in York County

Prior to 2010 fourteen municipalities had initiated recycling programs due to Act 101 mandates. An additional four were added to this category based on the recent 2010 census data. Although they did not meet the population/density criteria of the Act, twenty communities enacted ordinances with some or all of the same requirements established by the law. In the remaining municipalities, participation is strictly on a voluntary basis.

Figure 4-5 shows the eighteen mandated municipalities in York County as of the 2010 census. It also lists those that mandated waste and recycling via local ordinances. Finally, Figure 4-5 shows the remaining municipalities with no mandates.

Figure 4-5 York County Mandated and Non-mandated Municipalities based on the 2010 Census



Act 101 Mandated Municipalities

- Carroll Township
- Conewago Township
- Dover Township
- East Manchester Township
- Fairview Township
- Hanover Borough
- Jackson Township
- Manchester Township
- Newberry Township
- Penn Township
- Red Lion Borough
- Spring Garden Township
- Springettsbury Township
- West Manchester Township
- West Manheim Township
- Windsor Township
- York (City)
- York Township



Mandated Municipalities By Local Ordinance

- Delta Borough
- Franklintown Borough
- Glen Rock Borough
- Goldsboro Borough
- Hallam Borough
- Hellam Township
- Jacobus Borough
- Lewisberry Borough
- Loganville Borough
- Manchester Borough
- Manheim Township
- Mt. Wolf Borough
- New Freedom Borough
- Shrewsbury Borough
- Spring Grove Borough
- Springfield Township
- Stewartstown Borough
- Wellsville Borough
- West York Borough
- Windsor Borough
- Yoe Borough



Non-mandated Municipalities

- Chanceford Township
- Codorus Township
- Cross Roads Borough
- Dallastown Borough
- Dillsburg Borough
- Dover Borough
- East Hopewell Township
- East Prospect Borough
- Fawn Grove Borough
- Fawn Township
- Felton Borough
- Franklin Township
- Heidelberg Township
- Hopewell Township
- Jefferson Borough
- Lower Chanceford Township
- Lower Windsor Township
- Monaghan Township
- New Salem Borough
- North Codorus Township
- North Hopewell Township
- North York Borough
- Paradise Township
- Peach Bottom Township
- Railroad Borough
- Seven Valleys Borough
- Shrewsbury Township
- Warrington Township
- Washington Township
- Winterstown Borough
- Wrightsville Borough
- York Haven Borough
- Yorkana Borough

Residential Collection Programs

Recycling does not occur in a vacuum. Instead it is part of a larger dynamic often referred to as integrated municipal solid waste management. The components of a local waste collection program can and do influence the recovery of recyclables from that community. Likewise, operational details and constraints, educational efforts, equipment choices, and overall service methodologies can strengthen or hamper results. A multitude of studies has been conducted to determine the impact of certain elements on the success or failure of residential collection programs. This section offers a summary of the types of waste and recycling collection programs implemented in the York County communities. It provides comments on factors that may support or hinder local goals.

Common Program Elements of Local Municipalities

At face value, waste collection practices in York County are similar from one municipality to another. Most communities offer some type of organized collection system, facilitated all or in part by local government and predominantly serviced by the private sector. Limits exist for the volume of waste that can be placed at the curb for each pick-up. These types of programs reinforce the need to recycle. However, in some municipalities the allowable volume is not significantly, if at all restrictive. Consequently, it is not an effective driver for recycling. Curbside collection of bulk waste, including appliances, commonly referred to as white goods, is widely available. Leaf waste is collected and due to Act 101 regulatory circumstances based on the size of the municipality is either composted or processed into mulch. In the remainder of the municipalities, yard waste is transported and disposed along with other municipal solid waste.

Municipal Curbside Recycling Collection

Convenience has proven to be a key motivational factor in fostering resident participation in recycling throughout the nation. Because it mirrors the existing **behavior and action of taking one's garbage to the curb, it is understandable that the** cornerstone of successful residential recycling programs is the availability of curbside collection. The majority of the residents within York County have the advantage of curbside recycling opportunities available in their communities. Out of seventy-two municipalities sixty-two have such services. In two municipalities, public employees and equipment are utilized to perform the collection. Typically, exclusive waste and recycling collection contracts are granted to local service providers. The costs of these programs are covered either by local taxes or are billed directly to local residents or property owners. However, in some instances there is no requirement for local residents to partake of and pay for these services. In select municipalities, recycling may be offered as part of a private subscription waste collection service. Although this is a strictly voluntary system, residents who wish to recycle do contract directly with one of the many service providers of their choice.

Drop-Off Recycling Collection

To provide recycling opportunities to the portion of York County's population without curbside recycling collection services, a number of municipalities offer drop-off collection sites. A few have drop-off collection points intended to complement their local curbside programs. The YCSWA also serves the recycling needs of the County with its own recycling drop-off service area. For the most part, these drop-off sites are not restricted to use by the residents within the political jurisdiction. Therefore, materials collected may or may not originate within the municipality where each site is located.

A Closer Examination Of Municipal Collection Systems

An in-depth analysis of the programs and materials recovered from households and from commercial establishments was conducted during the planning process. It focuses primarily on those materials collected at the curb and at drop-off sites in

The existence of a widespread infrastructure may facilitate recycling, but the ultimate measure of a program is whether or not it is capturing the greatest amount of materials available from local sources.

order to more clearly demonstrate the true effectiveness of these programs in recovering recyclables. To be more precise, scrap metal, wood pallets, appliances and other recycled materials typically attributable to commercial establishments were analyzed separately from the bottles, cans,

plastics, and paper found in the single stream collection programs. Key indicators that lead to improved performance are identified. Components that hinder recovery are also discussed. Trends and/or anomalies that are related to reporting are distinguished from those that are operational, program, or policy related. A brief overview of residential collection performance in 2010 along with subsequent recommendations resulting from the analysis follows here. A snapshot of how commercial recycling efforts in those same communities compares to residential actions is provided separately in a discussion of commercial recycling. Added comments, observations and suggested courses of action are provided later in Chapter 4.

Reported Results

As shown previously in Table 4-3, on a countywide basis the analysis indicates that for the most part recyclable Act 101 designated commodities are recovered at or above the national rate within York County. Noticeable, when the reports of individual municipalities are considered, is that some communities exceed the national norms by extraordinarily high proportions. Other oddities exist as well. This is particularly true when commercial and residential reported results are isolated from one another. Data from the municipal reports is provided in Appendix G.

Similar to the countywide results shown in Table 4-3, Appendix G shows individual municipal data for residential and commercial recycling and then compares the totals on a material basis to the expected results if the municipality performed the same as the national averages.

Gathering and compiling recycling data is a time consuming job and sometimes the criteria is confusing. Because the sources of the information vary, municipalities often receive conflicting or duplicate information. As reported, some of the raw data used during this analysis poses questions for future consideration. YCSWA provides assistance to municipalities that request support during the compilation and submittal of these recycling reports. A review of the information in Appendix G may point to specific issues and trends that require added clarification.

Measuring Up

Based on reports from local municipalities, York County recycles approximately 1.14 pounds per person per day. Recycling activities from commercial establishments are represented in that figure. As indicated previously in the Chapter 4 narratives and illustrated in Figure 4-4, certain recyclable commodities proportionately are generated and thus recovered in greater quantities by residential sources. Considering the residential reported quantities of these materials separately from commercial sources offers a more accurate assessment of the effectiveness of curbside and drop-off collection systems. Likewise, when figures for yard waste, which is processed for mulch or compost, are separated from regular curbside and drop-off recyclable materials, it is easier to see a more realistic picture of how residential recycling performs on a day-to-day basis throughout the County.

Infrastructure and Performance

It is important for counties to consider how certain components of municipal collection systems ultimately affect the performance of the county as a whole. A great focus of the York County Solid Waste and Refuse Authority since the previous planning process was to assist municipalities in attaining the recycling goals of Act 101. Therefore, a primary objective was to encourage the development of a recycling infrastructure. The growth in curbside collection programs and the shift from private subscription or voluntary programs to mandatory participation in municipally contracted services indicates that the municipalities, the local hauling companies, the Authority, and the processors were successful in those efforts. Moving forward, to build upon their success York County municipalities should focus not only on

Comparing similar metrics for each municipality is a good way to determine which recycling collection programs may be succeeding and which ones may need to be revised.

ensuring that opportunities for recycling are made available, but also on whether or not municipal collection systems cost effectively capture the optimal types and amounts of recyclable materials. While the existence of a widespread infrastructure may facilitate recycling, the ultimate measure of a program is whether or not it is recovering the optimal amount of materials available from local sources.

To provide stronger support to local municipalities, YCSWA needs to understand the strengths and weaknesses that exist in current programs, what materials are affected both negatively and positively, and what substitute mechanisms could be introduced to improve conditions. Comparing similar metrics for each municipality that offers a recycling collection program is a step to determine trends in which programs may be succeeding and which ones may need to be revised.

All serviceable occupied housing units, not just those known to participate in the program were used to calculate performance. For operational purposes, it is common to focus on the pounds per participating units. This is useful for calculating the number of homes that can be serviced on a route. However, the ratio of material recovered should be compared to the total amount generated, and therefore potentially recoverable, from all serviceable occupied housing units in the community.

To put this in perspective, assume that a total of 100 tons were recovered from a borough with 400 homes and a total of 3000 tons were recovered from a city with 18,000 homes. Although the city clearly collected more total tons of material, the borough collected a greater portion of the amount of material available for recovery from sources within its jurisdiction. Therefore, the borough would be considered to have a more effective and successful program than the city. Converting the actual tons collected into a per unit measure based on all potential housing units provides an accurate view of overall performance. This metric creates an equal standard for large and small communities and is more commonly becoming the basis for performance driven monetary incentive plans and grants that deliver the highest results.

Actual results are ranked and shown in Table 4-6. All of the municipalities whether or not they reported curbside and/or drop-off recycling collection data for 2010 are also shown in Figure 4-6.

Figure 4- 6 Residential Recycling Pounds Per Home Per Week
 Glass Bottles, Aluminum & Bi-Metal Cans, Mixed Plastics, Mixed Papers, Cardboard

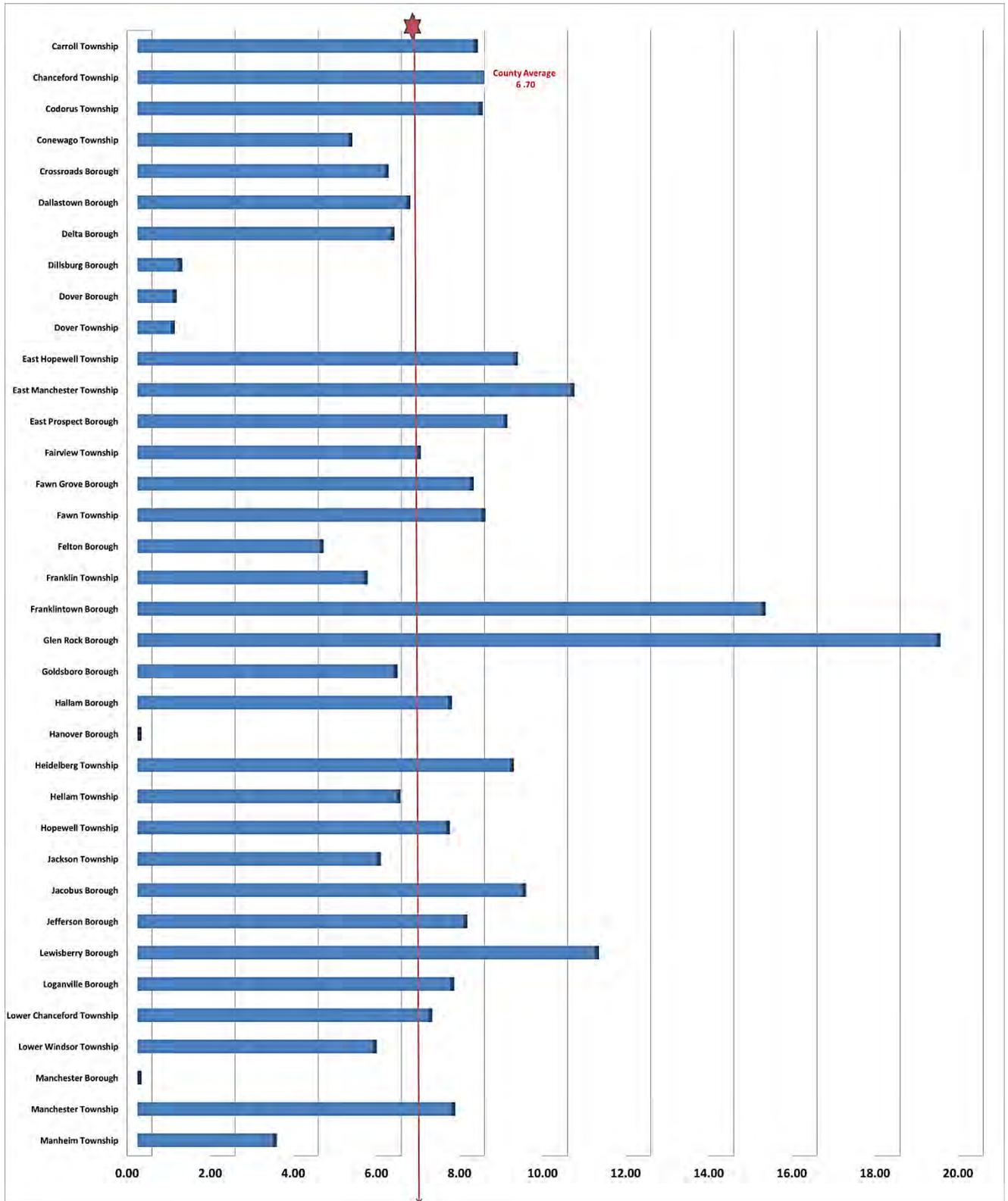


Figure 4- 6 Residential Recycling Pounds Per Home Per Week cont.
 Glass Bottles, Aluminum & Bi-Metal Cans, Mixed Plastics, Mixed Papers, Cardboard

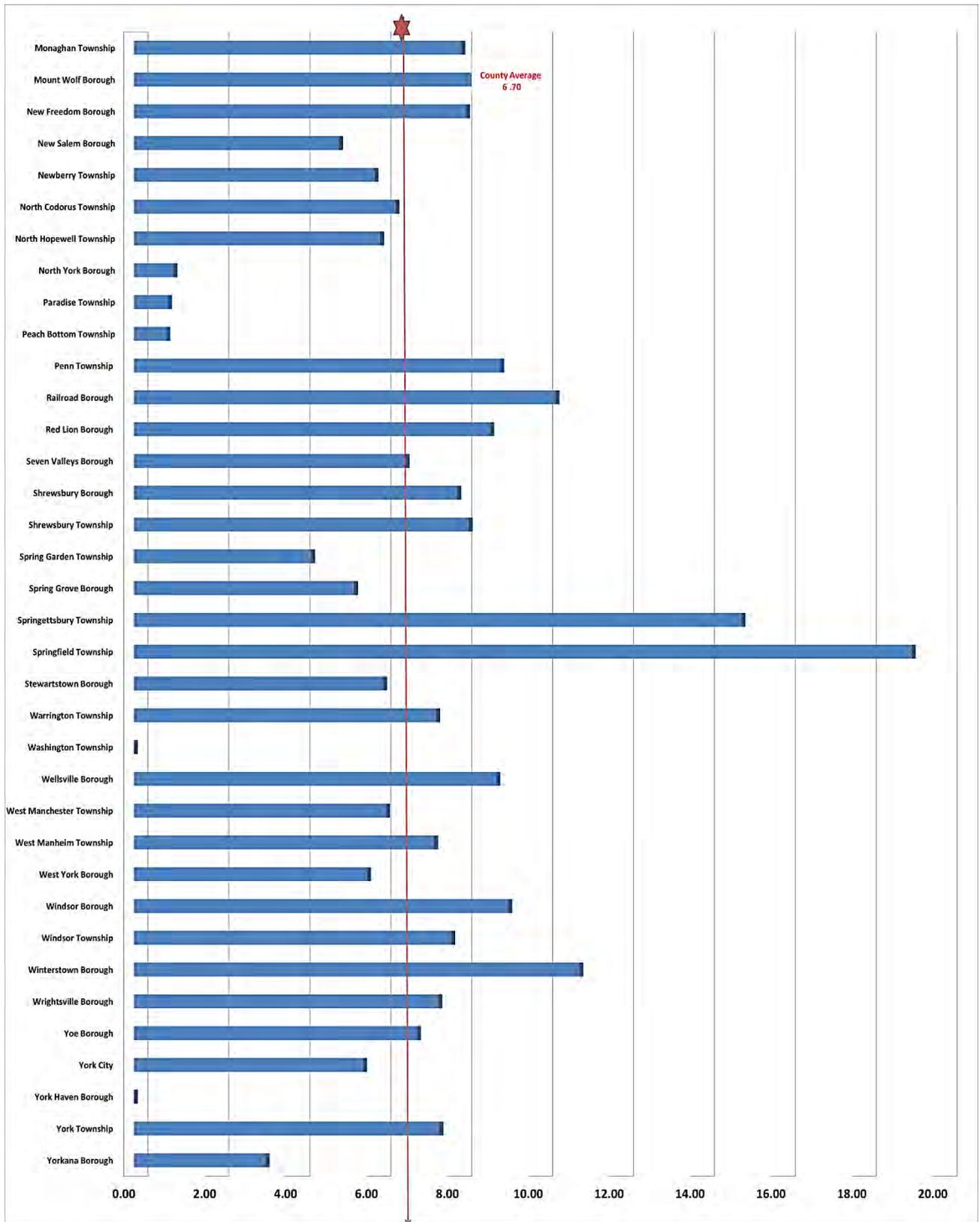


Table 4-6 Residential Recycling Ranked by Total Pounds Per Home Per Week

Municipality	Population 2010 (US Census Bureau)	Percent of Population	Occupied housing units (US Census Bureau American Community Survey ests.)	Glass	Aluminum Cans	BiMetal Cans	Mixed Plastic #1 through #7	Plastic #1 and #2	Newspaper	Magazines	Telephone Books	Office Paper	Cardboard	Cardboard from Single Stream	Mixed Paper	Total Tons	Pounds per capita per day	Pounds per home per week
Springfield Township	5,152	1.18%	917	51.7	11.2	25.3	14.5	12.8	123	12.5	0	57.9	3.4	34.9	111	458.3	0.49	19.22
Goldsboro Borough	952	0.22%	321	15.3	3.3	7.5	4.3	3.8	34.6	4.3	0	20	0	12.1	38.3	143.5	0.83	17.20
Manchester Township	18,161	4.18%	6,239	226	48.7	110	62.9	55.8	734	48	0	223	499	134.5	427	2568.7	0.78	15.83
Springettsbury Township	26,668	6.13%	4,207	175	38.1	86.2	49.3	43.7	395	49.3	0	229	0	138.2	439	1642.7	0.34	15.02
Dillsburg Borough	2,563	0.59%	945	35.6	7.7	17.5	10	8.9	80.3	10	0	46.5	0	28.1	89.1	333.7	0.71	13.58
Delta Borough	728	0.17%	222	8.3	1.8	4.1	2.3	2.1	18.7	2.3	0	10.8	0	6.5	20.7	77.6	0.58	13.44
Lewisberry Borough	362	0.08%	145	5.1	1.1	2.5	1.4	1.3	11.5	1.4	0	6.6	0	4	12.7	47.6	0.72	12.63
Winterstown Borough	632	0.15%	240	7.3	1.6	3.6	2.1	1.8	16.5	2.1	0	9.6	0	5.8	18.3	68.7	0.60	11.01
Railroad Borough	278	0.06%	96	2.8	0.6	1.4	0.8	0.7	6.2	0.8	0	3.6	0	2.2	6.9	26	0.51	10.42
Windsor Borough	1,319	0.30%	525	13.5	2.9	6.6	3.8	3.4	30.4	3.8	0	17.6	0	10.6	33.7	126.3	0.52	9.25
Penn Township	15,612	3.59%	5,972	296	61.8	140	84.9	70.9	359	119	0	8	266	0	0	1405.7	0.49	9.05
Wellsville Borough	242	0.06%	116	2.9	0.6	1.4	0.8	0.7	6.5	0.8	0	3.8	0	2.3	7.2	27	0.61	8.96
Mount Wolf Borough	1,393	0.32%	558	13.8	3	6.8	3.9	3.4	31.1	3.9	0	18	0	10.9	34.5	129.3	0.51	8.91
Red Lion Borough	6,373	1.47%	2,452	59.8	13	29.5	16.8	14.9	135	16.8	0	78.2	0	47.2	150	561.2	0.48	8.80
Fairview Township	16,668	3.83%	6,554	162	35.1	79.5	45.5	40.3	354	44.1	0	205	0	123.6	392	1480.6	0.49	8.69
Loganville Borough	1,240	0.29%	432	10.4	2.3	5.1	2.9	2.6	23.5	2.9	0	13.6	0	8.2	26.1	97.6	0.43	8.69
Shrewsbury Township	6,447	1.48%	2,606	59.8	13	29.4	16.8	14.9	135	16.8	0	78.1	0	47.2	150	560.7	0.48	8.27
New Freedom Borough	4,464	1.03%	1,535	34.9	7.6	17.2	9.8	8.7	78.9	9.8	0	45.6	0	27.6	87.5	327.6	0.40	8.21
Carroll Township	5,939	1.37%	1,999	44.9	9.8	22.1	12.6	11.2	102	12.6	0	58.7	0	35.4	113	421.3	0.39	8.11
Monaghan Township	2,630	0.60%	1,003	22.5	4.9	11.1	6.3	5.6	50.8	6.3	0	29.4	0	17.8	56.4	211.1	0.44	8.09
Felton Borough	506	0.12%	166	3.7	0.8	1.8	1	0.9	8.4	1	0	4.8	0	2.9	9.3	34.6	0.37	8.02
Glen Rock Borough	2,025	0.47%	767	17	3.7	8.4	4.8	4.3	38.5	4.8	0	22.3	0	13.4	42.7	159.9	0.43	8.01
Shrewsbury Borough	3,823	0.88%	1,430	31.7	6.9	15.6	8.9	7.9	71.6	8.9	0	41.4	0	25	79.4	297.3	0.43	7.99
Windsor Township	17,504	4.02%	6,168	134	29.2	66	37.7	33.4	303	37.7	0	175	0	105.7	336	1257.3	0.39	7.84
Jacobus Borough	1,841	0.42%	607	12.7	2.8	6.3	3.6	3.2	28.7	3.6	0	16.6	0	10	31.8	119.3	0.36	7.56
York Township	27,793	6.39%	11,238	235	51.1	116	66	58.5	530	66	0	307	5.5	185.1	588	2206.2	0.43	7.55
Wrightsville Borough	2,310	0.53%	925	19.3	4.2	9.5	5.4	4.8	43.6	5.4	0	25.2	0	15.2	48.4	181	0.43	7.52
Warrington Township	4,532	1.04%	1,745	36.1	7.9	17.8	10.2	9	81.6	10.2	0	47.2	0	28.5	90.5	339	0.41	7.47
West Manheim Township	7,744	1.78%	2,604	53.5	11.7	26.4	15.1	13.4	121	15.1	0	70	0	42.2	134	502.4	0.36	7.42
Jackson Township	7,494	1.72%	2,703	55.4	12.1	27.3	15.6	13.8	125	15.6	0	72.4	0	43.7	139	519.6	0.38	7.39
Heidelberg Township	3,078	0.71%	1,165	23.8	5.2	11.7	6.7	5.9	53.8	6.7	0	31.1	0	18.8	59.6	223.3	0.40	7.37
Yoe Borough	1,018	0.23%	407	7.9	1.7	3.9	2.2	2	17.8	2.2	0	10.3	0	6.2	19.8	74	0.40	7.00
Manheim Township	3,380	0.78%	1,263	23.9	5.2	11.8	6.7	6	54	6.7	0	31.3	0	18.9	59.9	224.4	0.36	6.83
Codorus Township	3,796	0.87%	1,418	26.8	5.8	13.2	7.6	6.7	60.6	7.6	0	35.1	0	21.2	67.2	251.8	0.36	6.83
Seven Valleys Borough	517	0.12%	178	3.3	0.7	1.6	0.9	0.8	7.5	0.9	0	4.4	0	2.6	8.4	31.1	0.33	6.72
Jefferson Borough	733	0.17%	279	5.2	1.1	2.5	1.5	1.3	11.7	1.5	0	6.8	0	4.1	12.9	48.6	0.36	6.70
Franklintown Borough	489	0.11%	170	3.1	0.7	1.5	0.9	0.8	7.1	0.9	0	4.1	0	2.5	7.8	29.4	0.33	6.65

Municipality	Population 2010 (US Census Bureau)	Percent of Population	Occupied housing units (US Census Bureau American Community Survey ests.)	Glass	Aluminum Cans	BiMetal Cans	Mixed Plastic # 1 through #7	Plastic #1 and #2	Newspaper	Magazines	Telephone Books	Office Paper	Cardboard	Cardboard from Single Stream	Mixed Paper	Total Tons	Pounds per capita per day	Pounds per home per week
North Codorus Township	8,905	2.05%	3,445	61.7	13.4	30.4	17.4	15.4	139	17.4	0	80.7	0	48.7	155	579.1	0.36	6.47
West Manchester Township	18,894	4.34%	7,468	129	28.1	63.5	36.3	32.2	291	36.3	0	169	0	101.8	323	1210.1	0.35	6.23
Dallastown Borough	4,049	0.93%	1,654	28.5	6.2	14	8	7.1	64.3	8	0	37.2	0	22.5	71.4	267.2	0.36	6.21
East Manchester Township	7,264	1.67%	2,481	42.4	9.2	20.9	11.9	10.6	95.8	11.9	0	55.4	0	33.5	106	397.8	0.30	6.17
Stewartstown Borough	2,089	0.48%	765	13	2.8	6.4	3.7	3.3	29.5	3.7	0	17.1	0	10.3	32.7	122.5	0.32	6.16
North Hopewell Township	2,791	0.64%	1,037	17.5	3.8	8.6	4.9	4.4	39.5	4.9	0	22.9	0	13.8	43.8	164.1	0.32	6.08
Newberry Township	15,285	3.51%	6,067	100	21.8	49.3	28.1	25	226	28.1	0	131	0	78.9	251	938.2	0.34	5.95
East Hopewell Township	2,416	0.56%	869	14.3	3.1	7	4	3.6	32.2	4	0	18.6	0	11.3	35.7	133.8	0.30	5.92
East Prospect Borough	905	0.21%	245	4	0.9	1.9	1.1	1	8.9	1.1	0	5.2	0	3.1	9.9	37.1	0.22	5.82
Hallam Borough	2,673	0.61%	1,278	20.6	4.5	10.1	5.8	5.1	46.4	5.8	0	26.9	0	16.2	51.5	192.9	0.40	5.81
West York Borough	4,617	1.06%	1,876	30	6.5	14.8	8.4	7.5	67.6	8.4	0	39.1	0	23.6	75	280.9	0.33	5.76
York City	43,718	10.05%	15,548	264	57.2	129	73.9	65.5	537	66.9	0	311	1.4	187.6	596	2288.8	0.29	5.66
Spring Grove Borough	2,167	0.50%	1,855	15	3.3	7.4	4.2	3.8	115	4.2	0	19.7	40.4	11.9	37.7	262.4	0.66	5.44
Conewago Township	7,510	1.73%	2,493	36.4	7.9	17.9	10.3	9.1	82.3	10.3	0	47.6	0	28.8	91.3	341.9	0.25	5.27
Hanover Borough	15,289	3.51%	6,806	289	51.5	69.7	0	0	220	35.3	0	0	236	0	0	902.4	0.32	5.10
New Salem Borough	724	0.17%	223	3.1	0.7	1.5	0.9	0.8	7.1	0.9	0	4.1	0	2.5	7.8	29.4	0.22	5.07
Dover Township	21,078	4.85%	8,362	117	25.4	57.4	32.8	29.1	263	32.8	0	152	0	92	292	1093.9	0.28	5.03
Manchester Borough	2,763	0.64%	1,015	13.8	3	6.8	3.9	3.4	31.1	3.9	0	18	0	10.9	34.5	129.3	0.26	4.90
Hopewell Township	5,435	1.25%	2,080	28.2	6.1	13.9	7.9	7	63.6	7.9	0	36.8	0	22.2	70.5	264.1	0.27	4.88
Dover Borough	2,007	0.46%	830	10.8	2.4	5.3	3.1	2.7	24.5	3.1	0	14.2	0	8.6	27.2	101.9	0.28	4.72
Spring Garden Township	12,578	2.89%	9,143	111	24.2	54.7	31.2	27.7	251	31.2	0	145	0	87.6	278	1041.5	0.45	4.38
Fawn Township	3,099	0.71%	309	3	0.6	1.5	0.8	0.7	6.7	0.8	0	3.9	0	2.3	7.4	27.7	0.05	3.45
Hellam Township	6,043	1.39%	2,394	21.9	4.8	10.8	6.2	5.5	49.5	6.2	0	28.6	0	17.3	54.9	205.7	0.19	3.30
Yorkana Borough	229	0.05%	182	1.6	0.4	0.8	0.5	0.4	3.7	0.5	0	2.1	0	1.3	4.1	15.4	0.37	3.25
Fawn Grove Borough	452	0.10%	1,114	6.2	1.4	3.1	1.8	1.6	14.1	1.8	0	8.1	0	4.9	15.6	58.6	0.71	2.02
Lower Windsor Township	7,382	1.70%	3,097	14.1	3.1	7	4	3.5	31.9	4	0	18.5	0	11.2	35.4	132.7	0.10	1.65
North York Borough	1,914	0.44%	698	1.9	0.4	0.9	0.5	0.5	4.3	0.5	0	2.5	0	1.5	4.8	17.8	0.05	0.98
Chanceford Township	6,111	1.40%	2,376	5.8	1.3	2.9	1.6	1.4	13.1	1.6	0	7.6	0	4.6	14.5	54.4	0.05	0.88
Paradise Township	3,766	0.87%	1,408	3.3	0.7	1.6	0.9	0.8	7.5	0.9	0	4.3	0	2.6	8.3	30.9	0.04	0.84
Peach Bottom Township	4,813	1.11%	1,928	4.3	0.9	2.1	1.2	1.1	9.7	1.2	0	5.6	0	3.4	10.7	40.2	0.05	0.80
Crossroads Borough	512	0.12%	166	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Franklin Township	4,678	1.08%	1,980	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Lower Chanceford Township	3,028	0.70%	1,030	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Washington Township	2,673	0.61%	1,086	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
York Haven Borough	709	0.16%	246	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
County Total	434,972	100%	163,873	3,351	714	1,570	862	760	7,065	906	55	3,499	1,052	2,108	6,691	28633	0.36	6.70

Manchester Township includes YCSWA drop-off

The results reflect a wide range of recovery. The County's average is roughly 6.70 pounds per home collected per week. Thirty-five municipalities exceeded the County's average. Nine show exceptional results. These include, ranked in order of the community most exceeding the norm: Springfield Township, Goldsboro Borough, Manchester Township, Springettsbury Township, Dillsburg Borough, Delta Borough, Lewisberry Borough, Winterstown Borough, and Railroad Borough. It should be noted that the results for Manchester Township include all of the materials collected at the YCSWA drop-off collection point. However, it is likely that much of the material originates from sources outside of Manchester Township.

Impact of Residential Waste Collection Specifications on Recycling Performance

Many of the communities in York County have seemingly similar collection specifications. However, subtle nuances in contract language, actual collection methods, and expectations of the local government for resident participation, and payment for services can make a huge difference in the results. Quality and frequency of education and communication also play an important role. To determine what, if any performance trends exist in York County due to program design, the results shown in Table 4-7 were reviewed based on the type of waste and recycling collection program offered by each municipality.

Collection Program Criteria

The criteria for consideration included requirements for participation (i.e. utilizing and paying for the services directly or indirectly through the tax base). Three categories of service arrangements were examined: 1) a sole service provider (private or public sector) with mandatory participation whether by Act 101 or local ordinance, 2) voluntary exclusive in which there is a sole service provider, but participation is

voluntary, 3) multiple providers offer services and utilizing and paying for the services is strictly voluntary. The type of rate structure was also considered an important factor. These included: 1) Pay-as-you-throw (PAYT) or variable rate billing structures in which residents have more than one service level option, 2) volume limitations capped at 4 bags per home per week, 3) allowable volumes of 5 or more bags per home per week (unlimited collection was included in this category because few communities offered this service).

At an average of 8.47 pounds per home per week, mandatory participation programs, regardless of design and whether mandated by Act 101 or local

Mandatory participation programs, regardless of design and whether mandated by Act 101 or local ordinance, had higher recovery rates than voluntary exclusive programs. Voluntary private subscription programs had the lowest rates.

In these mandatory programs, PAYT/variable rate structures outperformed all others.

ordinance, ranked higher than those with voluntary exclusive programs at 7.76 pounds per home per week, or voluntary private subscription programs with the lowest rate of 2.37 pounds per home per week. In the mandatory participation municipalities, PAYT/variable rate programs with an average of 9.38 pounds per home per week outperformed other rate structures. In the non-mandated and voluntary exclusive municipalities PAYT/variable rate programs averaged 7.42 pounds per home per week.

The 4-bag maximum in mandatory municipalities averaged 9.10 pounds per home per week and in non-mandated voluntary exclusive municipalities the average was 9.25 pounds per home per week. It should be noted that there were only two communities with a 4-bag limit in the voluntary exclusive category. Those homes with service levels of 5 bags or more recycled 7.81 pounds per week in mandated municipalities and 6.60 pounds per week in the non-mandated voluntary exclusive municipalities.

Surprisingly, the mandated municipalities by local ordinance ranked higher than the Act 101 mandated communities did in every category. However, those local ordinance municipalities also had a higher number of >5-bag programs than other rate structures, which disproportionately skewed the averages for PAYT and 4-bag limits.

Figure 4-7 provides a graphic representation of the results. The collection program specifications are shown in Tables 4-7 through 4-9. Act 101 mandated municipalities are listed on Table 4-7. Municipalities mandated by local ordinance are shown on Table 4-8. Finally, Table 4-9 lists non-mandated municipalities. Figure 4-8 is a map illustrating the location of mandatory and voluntary collection programs throughout the County. During the planning period, YCSWA should conduct a more thorough investigation to identify the specific conditions that contribute to these results.

Figure 4-7 York County Residential Recycling Rates Based on Waste Collection Programs



Table 4-7 York County Act 101 Mandated Municipalities Residential Collection Programs

Municipality	Waste Collection Services and Provider		Recycling Collection Methods and Materials	
	Public Works	Municipal Contract	Curbside	Drop-Off
Carroll Township		4 Bag Limit Wheeled Cart PAYT (18/yr.)	Single Stream Leaf waste Christmas trees	
Conewago Township		6 Bags Wheeled cart 1 Bulk	Single Stream	
Dover Township	Leaf Waste Brush	4 Bags Wheeled cart PAYT (12/yr.)	Single Stream Leaf Waste/Brush Christmas trees	Leaf Waste Christmas tree
East Manchester Township	Leaves	3 Bag Limit PAYT (no min) Wheeled Cart 1 Bulk	Single Stream Leaf Waste Christmas trees	
Fairview Township	Leaves	6 Bag Limit 1 Bulk	Single Stream Leaf Waste	Leaf Waste Christmas Trees E-waste
Hanover Borough	3 Bags Bulk Recycling Leaf Waste		Source Separated Aluminum, Bi-Metal & OCC & ONP Yard Waste & White Goods (on call)	Source Separated: Glass bottles White Goods, Mixed paper, Textiles & Yard Waste
Jackson Township		4 Bag Limit PAYT (no min) 1 Bulk	Single Stream	
Manchester Township	Leaves Christmas Trees	6 Bag Limit 1 Bulk	Single Stream Leaf Waste/Leaves Christmas Trees	Source Separated OCC, ONP Commingled Cans, Bottles and Plastics
Newberry Township		6 Bag Limit PAYT (no min) 1 Bulk	Single Stream Leaf Waste	
Penn Township	Leaf Waste Brush	PAYT (no min)	Commingled Cans, Bottles and Plastics #1 & #2 Leaf Waste	Source Separated OCC, ONP, Magazines, Mixed Papers & Plastics, Textiles and Plastic Bags, E-Waste
Red Lion Borough	Leaves Brush	6 Bag Limit PAYT (26 min) Wheeled Cart	Single Stream Leaves	Brush E-waste
Spring Garden Township	Leaves	4 Bag Limit p/pick-up 2xwk Wheeled Cart 1 Bulk	Single Stream Leaf Waste	
Springettsbury Township	Leaf Waste	1 Bag Limit 3 Bag Limit Wheeled Cart	Single Stream Leaf Waste Christmas Trees	
West Manchester Township	Leaves	2 Bag Limit p/pick-up 2xwk PAYT for Extra	Single Stream Leaf Waste Christmas Trees	
West Manheim Township	None	3 Bags 1 Bulk	Single Stream Leaf Waste Christmas Trees	
Windsor Township	Leaves	4 Bags Wheeled cart 3 Bulk (2x/yr.)	Single Stream Yard Waste Christmas Trees	Brush CFL Bulbs E-Waste
York (City)	Leaves Christmas Trees	6 Bag Limit/ pick-up 2xweek 5 Bulk Items on Call	Single Stream Leaves Christmas Trees White Goods	Leaf Waste
York Township	Leaves	3 Bag Limit Wheeled Cart 1 Bulk	Single Stream Leaf Waste	Leaf Waste E-Waste

Table 4-8 York County Municipalities with Residential Collection Programs Mandated by Local Ordinance

Municipality	Waste Collection Service Levels		Recycling Collection Methods and Materials	
	Public Works	Municipal Contract	Curbside	Drop-Off
Delta Borough		4 Bags 1 Bulk	Single stream	
Franklintown Borough			Single Stream	
Glen Rock Borough		4 Bag Limit per pick-up 2xweek 1 Bulk	Single Stream	Single Stream
Goldsboro Borough		4 Bag Limit 1 Bulk	Single Stream	
Hallam Borough		4 Bag Limit 1 Bulk	Single Stream	
Hellam Township		Wheeled Cart PAYT (26 min) 1 Bulk	Single Stream	
Jacobus Borough		8 Bag Limit 1 Bulk	Single Stream	
Lewisberry Borough		6 Bag Limit 1 Bulk	Single Stream	
Loganville Borough		6 Bag Limit 1 Bulk	Single Stream	
Manchester Borough	Leaves	6 Bag Limit 2x week	Single Stream	
Manheim Township		3 Bag Limit PAYT	Single Stream	
Mt. Wolf Borough		6 Bag Limit	Single Stream	
New Freedom Borough	Leaf & Brush Waste	6 Bag Limit 2x week	Single Stream	
Shrewsbury Borough		4 Bag Limit 2x week 1 Bulk	Single Stream	
Spring Grove Borough	Leaves	4 Bag Limit 2x week 1 Bulk	Single Stream	ONP, OCC (Boy Scout Project)
Springfield Township		Unlimited 3 Bag Limit Wheeled Cart PAYT	Single Stream	
Stewartstown Borough		6 Bag Limit 2x week Wheeled Cart 1 Bulk	Single Stream 2x week	
Wellsville Borough		5 Bag Limit 1 Bulk	Single Stream	
West York Borough		4 Bag Limit 2x week 1 Bulk	Single Stream	
Windsor Borough		5 Bag Limit per pick-up Wheeled Cart	Single Stream Yard Waste	Brush Waste
Yoe Borough	Leaves	Unlimited 1 Bulk	Single Stream	

Table 4-9 Residential Collection Programs in York County Non-Mandated Municipalities

	Public Works	Municipal Contract	Subscription	Curbside	Drop-Off	Participation
Chanceford Township		None	Private Subscription (no recycling options)	None	Single Stream Scrap metal	Voluntary
Codorus Township		4 Bags PAYT (24/yr.) 1 Bulk		Single stream	Commingled bottles and cans available 24/78; Source separated mixed paper and cardboard 1st weekend of month	Voluntary Exclusive
Cross Roads Borough		6 Bags PAYT (26/yr.) 1 Bulk		Single stream	None	Voluntary Exclusive
Dallastown Borough	Leaves	6 Bags 1 Bulk		Single stream	None	Voluntary Exclusive
Dillsburg Borough	Leaves	4 Bags PAYT (26/yr.) 1 Bulk		Single stream	None	Voluntary Exclusive
Dover Borough		6 - 12 Bags (6 - 2x/wk. Jun Sep) 1 Bulk		Single stream	None	Voluntary
East Hopewell Township		6 Bags PAYT (26/yr.) 1 Bulk		Single stream	None	Voluntary Exclusive
East Prospect Borough		Unlimited bags 1 Bulk		Single stream	None	Voluntary Exclusive
Fawn Grove Borough		6 Bags 1 Bulk		Single stream	None	Voluntary Exclusive
Fawn Township		None	Private Subscription (no recycling options)	None	Single Stream Bulk trash 1-2X/yr.	Voluntary
Felton Borough		4 Bags p/ pick-up 2xweek 1 Bulk		Single stream	None	Voluntary Exclusive
Franklin Township		None	Private Subscription offered by Waste Management and York Waste only. Includes recycling	Single stream	Source separated: metal cans glass bottles plastic #1 & #2 OCC ONP mixed paper textiles aluminum scrap	Voluntary

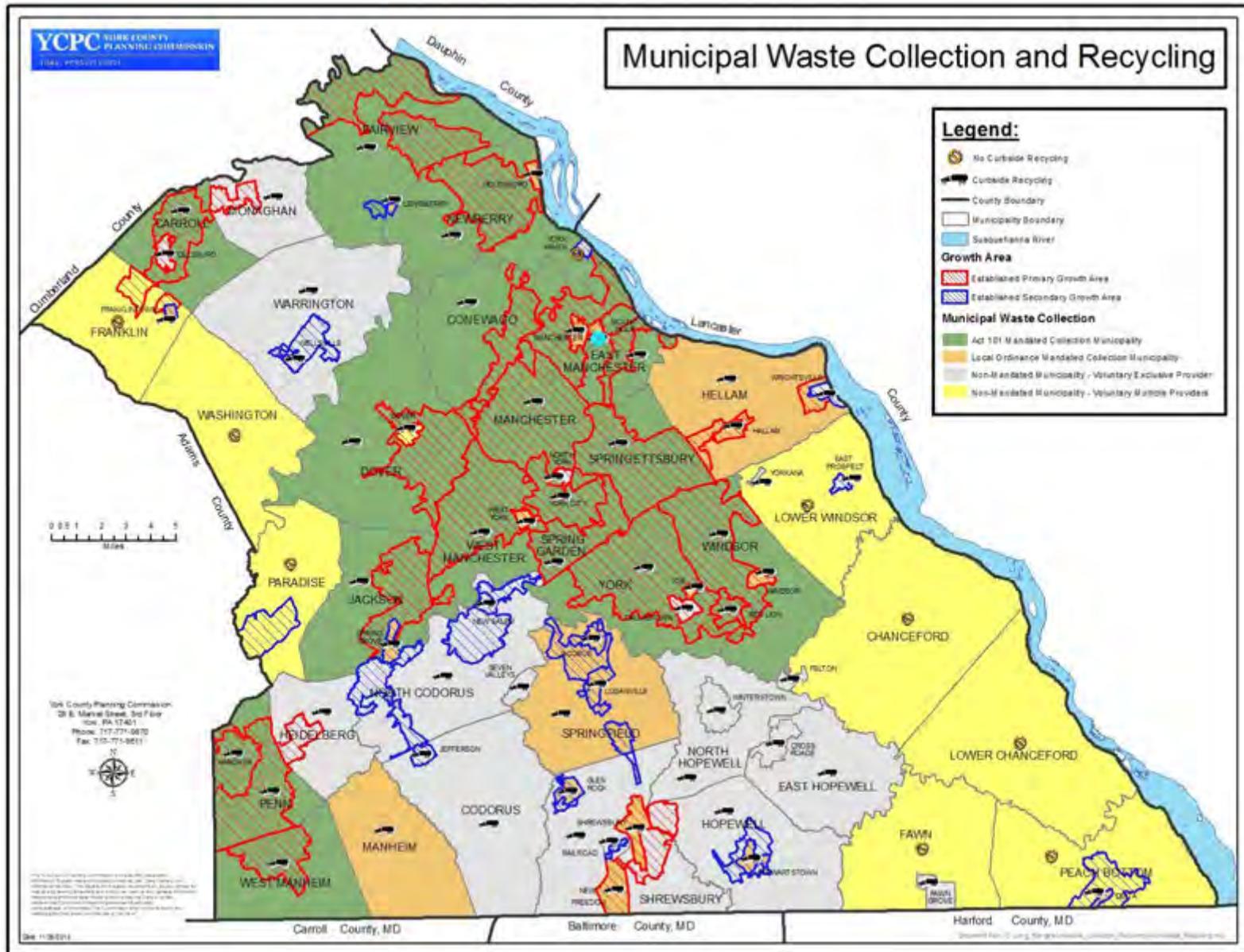
Table 4-9 Residential Collection Programs in York County Non-Mandated Municipalities (cont'd)

	Public Works	Municipal Contract	Subscription	Curbside	Drop-Off	Participation
Heidelberg Township		5 Bags PAYT (no min) 1 Bulk		Single stream	None	Voluntary Exclusive
Hopewell Township		4 Bags Wheeled Cart PAYT (26/yr.) 1 Bulk		Single stream	Electronics	Voluntary Exclusive
Jefferson Borough		4 Bags PAYT (26/yr.) 1 Bulk		Single stream	None	Voluntary Exclusive
Lower Chanceford Township		None	Private Subscription (no recycling options)	None	Single stream	Voluntary
Lower Windsor Township		Spring and Fall cleanups (drop-off)	Private Subscription (no recycling options)	None	Single stream Leaf waste Electronics	Voluntary
Monaghan Township		4 Bags PAYT (24/yr.) 1 Bulk		Single stream	Eye glasses Cell phones	Voluntary Exclusive
New Salem Borough	Leaves	4 Bags 1 Bulk		Single stream	None	Voluntary Exclusive
North Codorus Township	Leaves	6 Bags Wheeled cart 1 Bulk		Single stream	None	Voluntary Exclusive
North Hopewell Township		4 Bags PAYT (10/yr.) 1 Bulk		Single stream	None	Voluntary Exclusive
North York Borough		4 Bags p/ pick-up 2xweek 1 Bulk		Single Stream		Voluntary Exclusive
Paradise Township		None	Private Subscription (no recycling options)	None	Single Stream	Voluntary
Peach Bottom Township		None	Private Subscription (no recycling options)	None	Single Stream Ferrous metal	Voluntary
Railroad Borough		6 Bags 1 Bulk		Single stream	None	Voluntary Exclusive
Seven Valleys Borough		10 Bags 1 Bulk		Single stream	None	Voluntary Exclusive

Table 4-9 Residential Collection Programs in York County Non-Mandated Municipalities (cont'd)

	Public Works	Municipal Contract	Subscription	Curbside	Drop-Off	Participation
Shrewsbury Township		6 Bags PAYT (26/yr.) 1 Bulk		Single stream	Electronics Christmas tree	Voluntary Exclusive
Warrington Township		2 Bags 4 Bags 8 Bags PAYT (no min) Wheeled cart Fall and Spring bulk item cleanups		Single stream	Electronics	Voluntary Exclusive
Washington Township		None	Private Subscription (no recycling options)	None	Source separated: metal cans, glass bottles plastic #1 & #2 OCC ONP mixed paper textiles aluminum scrap	Voluntary
Winterstown Borough		4 Bags p/ pick-up 2xweek 1 Bulk		Single stream	None	Voluntary Exclusive
Wrightsville Borough	Unlimited bags Bulk (fee/item) Recycling Leaf waste Leaves Christmas tree	None	Municipal	Single stream Leaves White goods Leaf waste Christmas tree	None	Voluntary Exclusive
York Haven Borough		6 Bags p/ pick-up 2xweek 1 Bulk		None	None	Voluntary Exclusive
Yorkana Borough		Unlimited bags		Single Stream		Voluntary Exclusive

Figure 4-8 Types and Availability of Municipal Waste and Recycling Collection Services



Commercial Recycling

Recycling in commercial establishments is required in Act 101 mandated municipalities, as well as those that have enacted local ordinances that mirror the provisions of the Act. Commercial accounts include retail stores, restaurants, offices, schools, institutions, and government facilities. Thirty-eight of the seventy-two municipalities in York County reported some type of commercial recycling activity. Together they reported a total of 45,545 tons resulting from commercial recycling efforts in 2010. As would be expected, corrugated cardboard represented the single **largest commodity recovered in York County's** commercial sector. Ninety percent of all of the cardboard generated comes from commercial sources. Its recovery rate is high. Large retail chains, grocers and other types of product distributors recycle cardboard as a standard operating practice. York County follows those trends. Ninety-six percent of the cardboard, which was recycled in York County in 2010 was reported from the commercial sector. In fact, at 25,573 tons, including that portion found in loads of commercial single stream materials, cardboard represented 56% of all of the materials recovered from York County commercial establishments. That is not to say that other items are not recycled by businesses. Office paper is another material widely recycled by commercial entities. In York County, 8,973 tons of office and other mixed papers were reported in 2010, representing nearly twenty percent of the total commercial recyclables.



It is suspected that more recycling occurs throughout the County than what is currently reported. The process of gathering and organizing data from local businesses is low on the priority list for municipal staffs that have added functions besides oversight of the recycling program. In non-mandated areas, where no ordinances exist to stipulate recycling and/or reporting requirements, businesses

may have no incentive to submit this information. Therefore, it is not surprising that a little less than half of the municipalities had no commercial recycling to report.

Franchised chains often have corporate standardized waste and recycling collection **requirements. In many instances, one of a store's performance measures is the rate of recycling.** Their demand for recycling services helps to establish and support the

growth of the recycling collection and processing infrastructure. Consequently, commercial recycling is more prevalent in the densely populated areas of the County, where retail stores and services are typically clustered, and containerized recycling collection service is readily available. Because of their reliance on population and density to generate sufficient revenue, these commercial clusters also tend to be located in those municipalities in which commercial recycling is mandated by Act 101.

There are challenges in motivating small businesses, schools, and rural locations to recycle. For these operations, recycling can be perceived as an added cost. Space constraints for outside recycling containers can be limited in urban settings. Although services are available in more remote locations of the County, due to the lack of route density, the costs are higher than in urban areas. When recycling is a voluntary option, the immediate costs may be considered prohibitive by some business owners. Ironically, if more businesses opted to recycle in a geographic area, prices would be lower.

Reported Achievements

In spite of these challenges, where commercial recycling is reported, it appears to perform in a number of cases far better than do the residential programs. Table 4-10 shows the municipalities that did report commercial recycling tonnages ranked by the pounds per home per week reported. A more appropriate measure might be retail sales or number of employees, the metric of pounds per home per week is used here as a simple way to compare residential and commercial recovery as they relate to weekly collection services.

Figure 4-9 **provides a graphic representation of the results. The County's average rate** of commercial recovery was 10.69 pounds per home per week. Similar to the reported residential tonnages, there are large fluctuations in the reported data. However, unlike residential recycling, which is expected to be rather constant under like conditions, it is not unusual for commercial rates to differ dramatically from town to town. Few downtown shopping areas continue to thrive. Retail stores are more commonly built in suburban areas, which serve a wider population in contiguous municipalities.

Overall, the commercial recycling rates in York County are neither significantly high nor low. Interestingly, fewer municipalities reported commercial recycling than residential recycling, and yet the commercial data (45,545 tons or 10.69 pounds per home per week) accounts for 61% of the total common Act 101 materials recycled as opposed to the residential data (28,633 tons or 6.70 pounds per home per week) at 39%. Meanwhile, based on data provided by the USEPA, residential sources in areas similar to York County account for approximately 54% of the municipal waste generated, and an even higher portion in the rural areas. These findings raise questions and present opportunities.

Based on the types of materials reported, it is probable that recycling from multi-family residential units is also included in the commercial data. Of the occupied housing units in York County for 2010, multi-family dwellings represented only 8%, according to the American Community Survey of the U.S. Census Bureau. If the tonnages from these sources were known and could be attributed to the residential data, it could result in a minimal increase in residential performance.

A review of the reported data from the individual municipalities, also found that some pre-consumer materials from commercial/industrial operations might have been inadvertently included in the figures. If the data was adjusted to remove these quantities, the results might more closely resemble the expected balance between **residential/commercial recoveries**. It would however, also lower the County's overall recycling rate. These reports are included in Appendix G.

Figure 4-9 Commercial Recycling Performance in Pounds Per Home Per Week

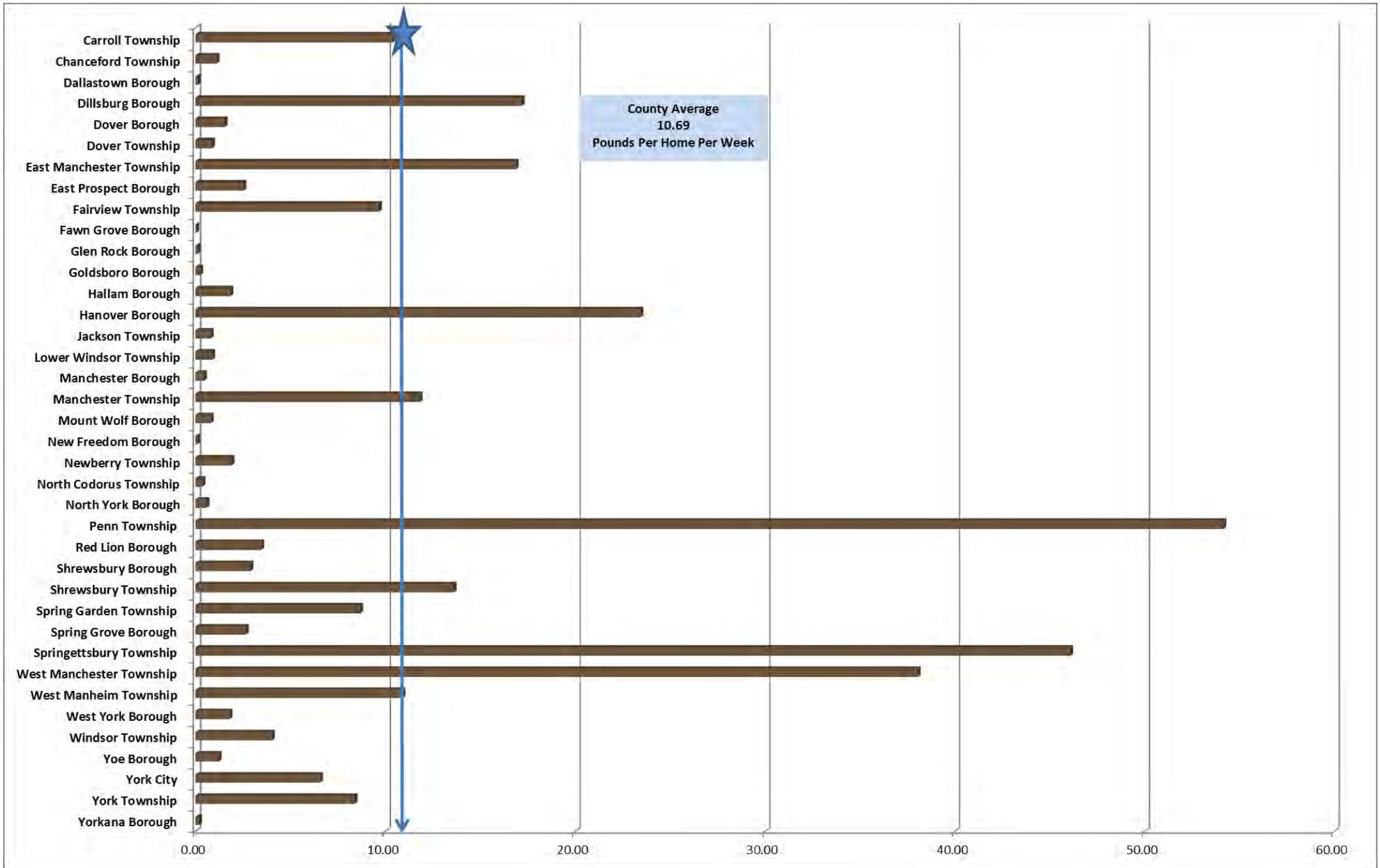


Table 4-10 Commercial Recycling Ranked by Pounds Per Home Per Week

Municipality	Population 2010 (US Census Bureau)	Percent of Population	Occupied housing units (US Census Bureau American Community Survey ests.)	Glass	Aluminum Cans	BiMetal Cans	Plastic #3 through #7	Plastic #1 and #2	Newspaper	Magazines	Office Paper	Cardboard	Cardboard from Single Stream	Mixed Paper	Total Tons	pounds per capita per day	Pounds Per Home Per Week
Penn Township	15612	3.59%	5,972	43.9	139.4	21.3	97.1	10.8	106.2	299.5	3679.8	3528.4	21	462.9	8410.3	2.95	54.16
Springettsbury Township	26668	6.13%	4,207	174.4	38.5	85.9	113.8	44.9	393.9	49.2	458.3	3104.2	137.6	441.4	5042.1	1.04	46.09
West Manchester Township	18894	4.34%	7,468	251	59.1	123.4	145.1	66.7	1477.4	737.3	254.4	3709.6	135.4	431.1	7390.5	2.14	38.06
Hanover Borough	15289	3.51%	6,806	19.4	14.1	43.8	48.6	8.2	74.4	3.4	30.5	3769.8	9.4	128.4	4150	1.49	23.45
Dillsburg Borough	2563	0.59%	945	14.7	3.2	7.2	4.1	3.7	33.1	4.1	277	27.1	11.6	36.7	422.5	0.90	17.20
East Manchester Township	7264	1.67%	2,481	51.4	12.2	17.1	125	17.9	62.6	7.8	80.6	622.9	21.9	69.4	1088.8	0.82	16.88
Shrewsbury Township	6447	1.48%	2,606	27.4	6.1	13.5	30.4	7.7	61.9	7.7	36.6	640.4	21.6	68.7	922	0.78	13.61
Manchester Township	18161	4.18%	6,239	147	31.5	71.3	40.7	36.1	210.9	26.3	122.1	923.5	73.7	234.2	1917.3	0.58	11.82
West Manheim Township	7744	1.78%	2,604	3	0.9	1.5	21.5	1.8	6.9	0.9	5.5	685.5	2.4	8.8	738.7	0.52	10.91
Carroll Township	5939	1.37%	1,999	47.1	9.9	22.5	24.9	11.4	25.1	3.1	27.6	332.4	8.8	27.8	540.6	0.50	10.40
Fairview Township	16668	3.83%	6,554	20.6	12.6	49.7	19.1	5.1	71.3	13	26.9	1359.6	16.2	51.5	1645.6	0.54	9.66
Spring Garden Township	12578	2.89%	9,143	182.4	38.8	87.8	50.2	44.5	187.4	23.4	229.5	943.5	65.5	207.9	2060.9	0.90	8.67
York Township	27793	6.39%	11,238	73.6	16	36.1	72.6	18.3	165.2	20.6	113	1693.1	57.7	183.6	2449.8	0.48	8.38
York City	43718	10.05%	15,548	622.7	130.9	296.4	169.3	150.2	246.3	30.7	142.5	505.7	86	273.3	2654	0.33	6.57
Windsor Township	17504	4.02%	6,168	26.8	5.6	12.8	20.5	6.5	12.7	1.6	14.8	525.8	4.4	14.1	645.6	0.20	4.03
Red Lion Borough	6373	1.47%	2,452	25.2	5.4	12.3	7	6.2	43.3	5.4	25	27.4	15.1	48	220.3	0.19	3.46
Shrewsbury Borough	3823	0.88%	1,430	9.2	2	4.6	2.6	2.3	20.9	2.6	12.1	20.8	7.3	23.2	107.6	0.15	2.89
Spring Grove Borough	2167	0.50%	1,855	11.8	2.5	5.6	3.2	2.8	0	0	0	102	0	0	127.9	0.32	2.65
East Prospect Borough	905	0.21%	245	0.1	0	0.1	0	0	0.2	0	0.1	15.2	0.1	0.3	16.1	0.10	2.53
Newberry Township	15285	3.51%	6,067	31.9	6.9	15.7	9	8	72	9	41.7	0	25.2	79.9	299.3	0.11	1.90
Hallam Borough	2673	0.61%	1,278	6.5	1.4	3.2	1.8	1.6	14.7	1.8	8.5	0	5.1	16.3	60.9	0.12	1.83
West York Borough	4617	1.06%	1,876	7.1	1.5	3.5	2	1.8	16	2	9.2	20.8	5.6	17.8	87.3	0.10	1.79
Dover Borough	2007	0.46%	830	3.5	0.8	1.7	1	0.9	8	1	4.6	0	2.8	8.9	33.2	0.09	1.54
Yoe Borough	1018	0.23%	407	1.4	0.3	0.7	0.4	0.3	3.1	0.4	1.8	0	1.1	3.4	12.9	0.07	1.22
Chanceford Township	6111	1.40%	2,376	30.4	6.3	14.3	8.2	7.3	0	0	0	1.9	0	0	68.4	0.06	1.11
Lower Windsor Township	7382	1.70%	3,097	3.6	1.3	1.8	1	0.9	8.2	1	4.7	36.4	2.9	9.1	70.9	0.05	0.88
Dover Township	21078	4.85%	8,362	12.3	2.6	6	3.4	3	20.2	2.5	11.7	98.3	7.1	22.4	189.5	0.05	0.87
Mount Wolf Borough	1393	0.32%	558	1.2	0.3	0.6	0.4	0.3	2.8	0.4	1.6	0	1	3.1	11.7	0.05	0.81
Jackson Township	7494	1.72%	2,703	4.9	1.1	2.4	1.4	1.2	11	1.4	6.4	10.4	3.9	12.3	56.4	0.04	0.80
North York Borough	1914	0.44%	698	1.1	0.2	0.6	0.3	0.3	2.6	0.3	1.5	0	0.9	2.9	10.7	0.03	0.59
Manchester Borough	2763	0.64%	1,015	1.2	0.3	0.6	0.4	0.3	2.8	0.4	1.6	0	1	3.1	11.7	0.02	0.44
North Codorus Township	8905	2.05%	3,445	3.5	0.8	1.7	1	0.9	8	1	4.6	0	2.8	8.9	33.2	0.02	0.37
Goldsboro Borough	952	0.22%	321	0.2	0	0.1	0.1	0.1	0.5	0.1	0.3	0	0.2	0.5	2.1	0.01	0.25
Yorkana Borough	229	0.05%	182	0.1	0	0.1	0	0	0.2	0	0.1	0	0.1	0.3	0.9	0.02	0.19
Dallastown Borough	4049	0.93%	1,654	0.6	0.1	0.3	0.2	0.2	1.4	0.2	0.8	0	0.5	1.5	5.8	0.01	0.13
Glen Rock Borough	2025	0.47%	767	0.2	0	0.1	0.1	0.1	0	0	0	1.8	0	0	2.3	0.01	0.12
New Freedom Borough	4464	1.03%	1,535	0.4	0.1	0.2	0.1	0.1	0.9	0.1	0.5	0	0.3	1	3.7	0.00	0.09
Fawn Grove Borough	452	0.10%	1,114	0.3	0.1	0.1	0.1	0.1	0.1	0	0.1	0	0	0.1	1	0.01	0.03
County Total	434972	100.00%	163,873	1868	1422	1178	1028	474	3771	1258	0	6070	24817	756	45545	0.57	10.69

Yard and Leaf Waste Management

A requirement of Act 101 in the mandated municipalities is for leaf waste to be separated from municipal solid waste and collected for processing into mulch or compost. Leaf waste consists of leaves, tree trimmings, brush, and other garden residues, but excludes grass clippings. Although the Act specifies that leaf waste must be collected once per month, PADEP has made some allowances to decrease the frequency of collection, if other conditions are met. Municipalities are permitted to conduct curbside collections on a limited basis twice per year. One collection is required in the spring to accommodate brush and trimmings from yard clean-ups and garden preparation. The second collection is to provide for autumn leaves, garden residues, and tree trimmings. Under the reduced collection frequency scenario, municipalities must provide a convenient drop-off site for residents to deliver leaf waste during the year.



Monthly collections for leaf waste rather than seasonal ones are common in York County mandated municipalities. During the growing season, some municipalities actually provide weekly leaf waste collection service to residents. In all but a few of the mandated communities, municipal crews collect leaves, either bagged or raked to the curb, on a seasonal basis. Although several municipalities provide drop-off collection sites for leaf waste and brush, Fairview Township is the only municipality whose drop-off site is also a yard waste composting facility. Several private sector facilities conduct composting and/or mulching operations as well. Table 4-11 shows the yard waste processors located in York County.

Yard waste is similar in all respects to leaf waste except that it does include grass clippings. Yard waste is collected throughout York County. However, in non-mandated municipalities yard waste is collected as trash and therefore is not processed into compost or mulch. Those yard waste quantities are not measured and reported separately from the municipal waste.



Although Act 101 does have requirements for the collection and/or processing of leaf and yard waste, it does not necessarily encourage the bagging and collecting of more leaf or yard waste. The Act allows

for other more sustainable options. One preferable method is “grass-cycling” in which a mulching mower produces grass clippings small enough to be left on the lawn as nutrients rather than bagged. Backyard composting of yard waste is another alternative, as is on-site mulching of brush for use in home landscaping.

Table 4-11 Yard Waste Management Sites			
Facility	Address	Hours of Operation	Materials Accepted
Eshbach Mulch	299 Burgs Lane York, PA	Monday – Friday 7:00 am to 5:30 pm Saturday 7:00 am to 4:00 pm	tree related materials (including clean wood)
Fairview Township	55 Fairview Road, New Cumberland, PA, 17070,	Weekdays – except holidays 9am to noon 1st & 3rd Saturdays: except holidays 7:30 am to 1:00 pm,	Christmas trees tree trimmings brush
H&H	660 Old Hanover Road Spring Grove, PA 17362	Sunday-Saturday daylight hours	tree related materials
Mighty Oak Mulch	533 Barshinger Road Red Lion, PA 17356		tree related materials (including clean wood)
Spring Valley Mulch	2770 Mill Creek Road Dover, PA 17315	Monday-Friday 7AM to 4PM	shrub clippings tree trimmings less than 21 inches in diameter
YCSWA	2700 Blackbridge Road York, PA 17406	RRC operating hours (customer needs a gate token from scale house attendant to access yard waste site)	all types of yard waste

Yard waste generation and recovery varies considerably from region to region and year to year. Factors such as climate, land use, and distribution of urban, suburban, and rural populations all contribute to yard waste quantities being more variable than other items contained in MSW. In its data and projections, USEPA includes only that yard waste material, which makes its way to disposal or composting facilities. The material that remains on the lawn or that is otherwise managed on-site is not counted in the **quantities of “generated,” “recovered,” or “disposed” in the national statistics. Similarly, York County’s data only accounts** for the portion of the yard waste that is segregated and placed at the curb or taken to drop-off sites for either composting or mulching.

Based on population it is estimated that 47,009 tons of yard waste was generated in 2010 in York County. If recovered at the national rate, about 27,023 tons would be expected to be recovered. York County municipalities reported 14,157.9 tons of yard waste recovered in 2010 about 52.4% of the national norm.

Since the collection and composting of leaf waste, which excludes grass clippings, is required only in Act 101 mandated municipalities, the lower than average reported recovery is not atypical in Pennsylvania. Many states have yard waste disposal bans and stricter requirements for yard waste collection and composting. Their data is included in the national figures. Therefore, the intent of this comparison is not necessarily a critique of performance. It does serve another purpose in the planning process, however.

By comparing York County's statistics to the national data one can calculate a rough estimate of the potential quantities of yard waste that are currently collected and disposed, rather than processed for compost or mulch. This is a useful planning tool to determine if more of the yard waste placed at the curb could or should be recovered in the future for other purposes, including feedstock for alternative energy production.

Programs Sponsored by the York County Solid Waste and Refuse Authority

Act 101 clearly places the responsibility on municipalities for the implementation of recycling programs. To support and supplement those municipal programs, YCSWA also provides convenient outlets and collection services for the recovery of a wide variety of recyclable materials and difficult to manage items. In addition, YCSWA serves as a source of education and information to the public as well as providing technical assistance to local municipalities. This section highlights the types and purposes of programs currently implemented by YCSWA.

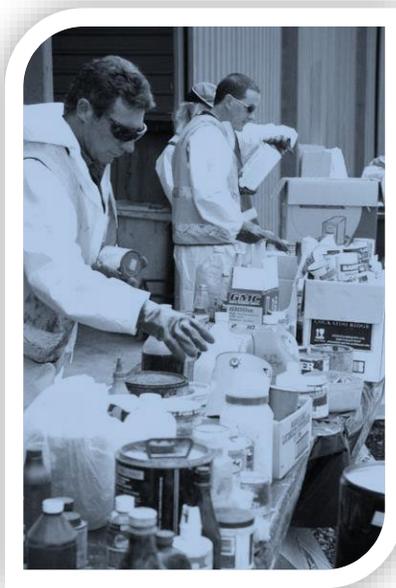
Drop-Off Recycling Collection

Bottles, cans, paper and other more traditional materials are associated with **recycling by the average household. The YCSWA's Public Recycling Drop-off Center** operates seven days per week during daylight hours. The Drop-Off Center is located in Manchester Township across from the Resource Recovery Center at 2651 Blackbridge Road, York, PA. The site is equipped with containers to accept glass, aluminum and bi-metal food and beverage containers as well as plastic containers #1 thru #7. Mixed paper and paperboard is also collected. These materials are transported to a local facility (currently Penn Waste) for processing and resale on the recycling commodities market.

Special Handling Materials

In addition to these commonly recovered materials, many other items can and should be removed from the waste stream rather than being processed or disposed. These materials may have hazardous traits that are harmful to the environment or have the potential to create public health and safety issues. Some or all of the items have been banned from disposal in other states. However, in Pennsylvania, currently it is legal for the majority of these materials generated by residential sources to be disposed. Aside from regulatory constraints, YCSWA believes there are practical reasons to handle the items in special programs. To address many of the environmental and other issues associated with these materials the Authority sponsors a variety of programs.

Household Hazardous Waste



In maintaining our homes, lawns, gardens, and swimming pools, we purchase and store a variety of products that would otherwise be considered hazardous materials if found in an industrial operation. Because they are generated in a residential setting they are classified as Household Hazardous Waste (HHW). Cleaning agents, pool chemicals, paints, herbicides and pesticides are all considered HHW. Considering that these materials may be ignitable and/or poisonous, they can be a liability in the community.

Many of these materials create a serious health and safety hazard in homes especially to children and the elderly. Oils, solvents, and other HHW when poured into the sanitary sewer systems can cause costly damage to public wastewater treatment systems. According to the Oklahoma State University Extension Fact Sheet ***Household Hazardous Waste Handling Procedures to Prevent Environmental Contamination***, more than two percent of all garbage collectors are injured by chemical burns, explosions, etc. each year from HHW in trash. Unexpected dangers occur when HHW combines with regular household trash; for example, soft drinks mixed with swimming pool dry chlorine can ignite.

HHW Management Generation in York County

The Pennsylvania Department of Environmental Protection, estimates that each person in Pennsylvania generates an average of four pounds of Household Hazardous Waste (HHW) each year. Using the 2010 US Census data, with a

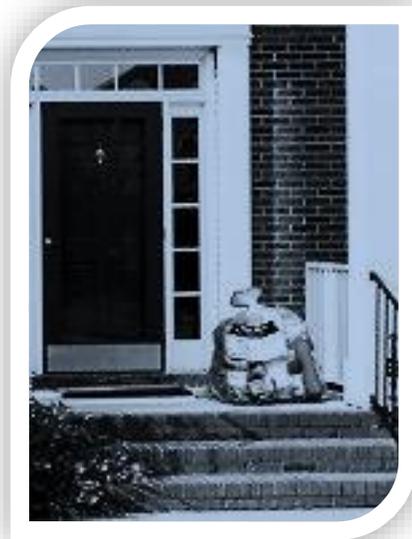
population of approximately 434,972 York County could expect to produce approximately 866 tons of HHW per year.

Factoring PADEP’s annual generation rate along with common behaviors, it is probable that the magnitude of HHW that exists is largely underestimated. In municipalities where residents remain at the same location for many years, the expected annual volume of HHW accumulates in homes over time rather than being disposed on a regular basis. Based on data derived from HHW collection events in Pennsylvania, it is estimated that the average household may have up to 16 pounds of HHW in storage. With 163,873 occupied housing units in York County, there could potentially be over 1300 tons of HHW stored in residential neighborhoods throughout the County.

YCSWA HHW Collection Events and On-Call Service

Providing regularly scheduled HHW collection events can prevent pollution and accidents. YCSWA offers a free annual HHW collection event each May. Residents may deliver a wide variety of materials to a location designated on the YCSWA site. Because there are safe, more readily available and less costly options for its management, paint is not accepted during the HHW event.

Unfortunately, not everybody can wait until an HHW collection event occurs. Individuals are often faced with the removal of large accumulated quantities due to sudden and unforeseen life events. Those who attempt to manage the materials responsibly can encounter significant obstacles and associated costs. To alleviate the challenges, YCSWA offers multiple solutions to accommodate the varied needs of York County residents.



In addition to the annual collection event, YCSWA sponsors an on-call service in which residents may arrange to have HHW picked up virtually at their door. YCSWA contracts with a private sector service provider to implement the program (currently Waste Management). Kits are issued to interested residents who call the contractor in advance to arrange for the service. Two requests per household per year are allowable under the program, which is made possible by a combination of grants issued by PADEP, a portion of the tipping fees from the Resource Recovery Center, and a small user co-pay fee. The volume of material that is accepted is limited to what can fit into a large clear bag provided with the kit. The bag in turn is placed at the door on the

prescheduled day. The clear bag allows the transporter to examine the contents and reject any inappropriate materials. The remaining materials are transported to facilities, which are permitted to process hazardous waste.

Discarded Electronic Devices

Televisions, computers, monitors and cell phones all become disposable commodities within extremely short time spans. Current trends show that these items are replaced by newer and better models every few years. For smaller devices, this happens as soon as every few months. This planned obsolescence has created a new problem in what to do with the old devices. Lead and other toxic materials are common elements in much of the equipment. Mercury from electronics has been cited as a leading source of mercury in municipal waste. In addition, brominated flame-retardants are commonly added to plastics used in electronics. Therefore, when discarded electronic equipment is disposed, it can pose environmental hazards.



Increasingly over the last decade, Pennsylvania counties and municipalities have been offering computer and electronics collections as part of HHW collections or separate special events. In addition, electronic refurbishers, dismantlers and processors have emerged that accept computers and other electronics for recycling. Public response to the drop-off events has been

favorable. Reports indicate that the amount of material recovered from one-day collections is substantial. However, it is still minimal in comparison to the volume known to exist. Programs that collect material more frequently are shown to have a higher degree of participation and increased recovery.

Covered Device Recycling Act

Pennsylvania legislators recently adopted the Covered Device Recovery Act (Act 108 of 2010 or CDRA). This piece of legislation provides for extended producer responsibility for discarded electronics, including computers and televisions, and bans these items from disposal beginning in 2013. The Act establishes a fund to pay for the recycling of these items. However, orphan materials, those produced prior to the effective date of the Act and/or by companies that no longer exist, are not included. It is anticipated that counties will still need to play a role in the collection of discarded electronics not covered by the Act and until the wave of orphan materials minimizes.

Table 4-12 Electronic Device Recycling Drop-off Collection Points in York County

Location	Address	Hours of Operation	
York County Solid Waste & Refuse Authority	Yard Waste Transfer Facility located off of Flour Mill Road in Manchester Township	Third Saturday of every month 9AM to 1PM	All York County residents and businesses
Fairview Township	55 Fairview Road, New Cumberland, PA 17070	Monday-Friday: 9AM to noon except holidays. 2nd and 3rd Saturday in January 7:30AM-1PM. 1st and 3rd Saturdays in February- December 7:30AM to 1PM	All York County residents and businesses
Penn Township	Recycling Drop-off Center located at Heights Ave. (next to the township building) in Hanover, PA 17331	Every Saturday 8AM to 3PM except holidays Monday-Friday 8AM-4:15PM except holidays	All York County residents and businesses
York Township	190 Oak Road, Dallastown, PA 17313	Third Saturday of the month 7AM to 11:30AM February, May, August and November	All York County residents and businesses
Hopewell Township	3336 Bridgeview Road, Stewartstown, PA 17363	Monday-Friday 8AM-4PM except holidays	Hopewell Township residents only
Warrington Township	3345 Rosstown Road, Wellsville, PA 17365	Monday-Friday 9AM-5PM	All York County residents and businesses
Windsor Township	970 White Oak Road, Windsor, PA 17366	Call Township for available times	Windsor Township residents and businesses only
Red Lion Borough	Borough Facility	Weekdays by appointment only	Red Lion Borough residents and businesses only
City of York	Memorial Stadium (access from Vander Avenue).	First Saturday of every month 10AM -2PM	All York City residents
Shrewsbury Township	11505 Susquehanna Trail South, Glen Rock, PA 17327	Monday-Thursday 8AM-3:30PM Friday 8AM-11:30AM	All York County residents and businesses

Unwanted pharmaceuticals can adversely affect human health when they are improperly administered. They can also work their way into the environment, **where they can indirectly affect people's health.** Studies in many countries, including the United States, have demonstrated the presence of pharmaceutical products at trace levels in water streams. One of the domestic studies, ***Pollution Prevention Measures for Unwanted Pharmaceuticals*** was conducted in 2005 by researchers from the Department of Earth and Environmental Engineering at Columbia University. It analyzed the life cycle of pharmaceutical products. Similar to the other reports, the study concluded that the major contributor to the presence of these substances in the environment is not the manufacturing operations. Instead, it is the actions of the consumers who purchase and take the drugs that pose the greatest problems. Through either metabolic excretion or direct attempts to dispose of the medications, these substances are flushed into the environment through our sanitary sewer systems.

The increasing illicit use of prescription medications has contributed to higher incidents of accidental deaths and a growing criminal element. No county in the Commonwealth is immune to this problem. A 2008 report from the Office of National Drug Control Policy notes that prescription medicines are the drug of choice among youth beginning as early as 12- and 13-years old. Storing unwanted medicines in the home increases the risk that these drugs may be used by young people for non-medical reasons.

Management of Discarded Pharmaceuticals in York County

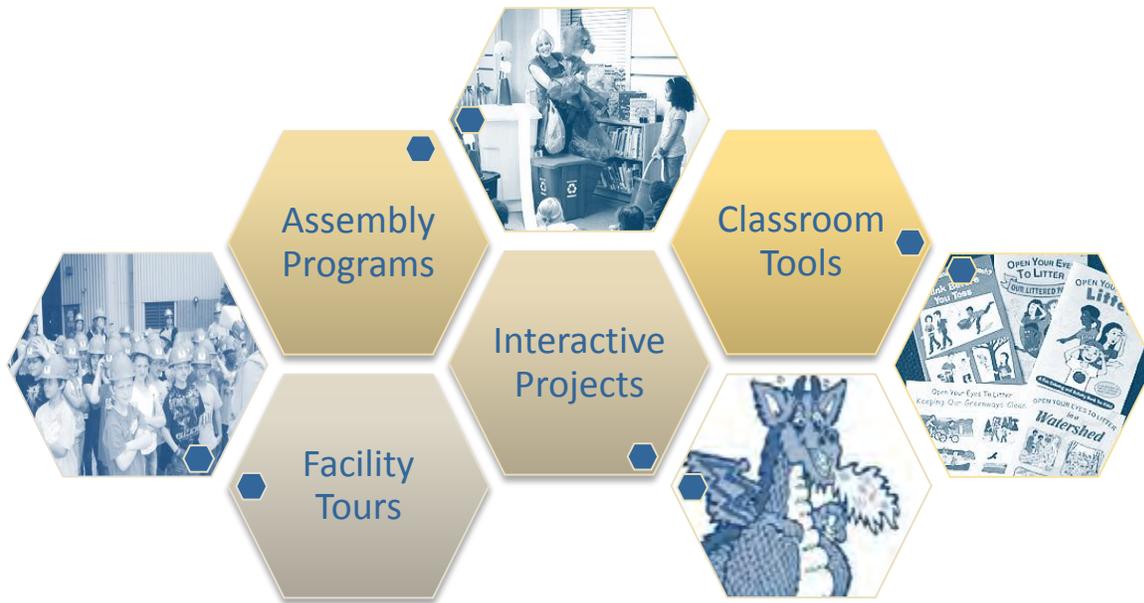
For all of these reasons discussed, YCSWA offers a variety of methods to residents for proper handling of unwanted or unused pharmaceuticals. The medications, which are recovered at special events dedicated to this purpose, commonly are destroyed by incineration. All of the processible municipal waste in York County is managed at the Resource Recovery Center, a waste-to-energy combustion process. Because the processible waste is subjected to extreme temperatures and reduced to ash, any medications discarded with the processible materials are destroyed. Therefore, rather than flushing the remaining pharmaceutical substances into the sanitary sewer system, York County residents can simply render these medications unrecognizable and dispose of them with their regular municipal solid waste. Alternatively, residents can arrange for a time to deliver unwanted pharmaceuticals directly to the RRC for destruction. Another option is for



residents to take their unwanted medications to one of the eleven participating police departments shown in Figure 4-10. At each site, YCSWA has provided specialized metal receptacles, which are designed to accept and secure the materials until they are taken to the RRC for destruction.

Figure 4-10 Drop-off Locations for Pharmaceutical Discards





Community Outreach and Education

The cornerstone of successful recycling and waste reduction efforts is an aggressive and comprehensive educational program. The York County Solid Waste & Refuse Authority has a staff of experienced and knowledgeable waste management and recycling professionals. They offer a host of free and informative programs to schools, municipalities, businesses, civic organizations and other community groups. YCSWA staff conducts tours of the Resource Recovery Center as well as traveling to conduct school assembly programs and provide presentations to organizations. A number of lesson plans and ideas for interactive learning sessions have also been developed by YCSWA. A free lending library contains resources for adults and children on topics including but not limited to landfills, hazardous waste, recycling, waste-to-energy, and other waste management and environmental issues.

Land Repurposing

For approximately 23 years, municipal solid waste generated within York County was disposed in the York County Sanitary Landfill, a 306 acre site located in Hopewell Township. The site was permitted by the PADEP in 1974 and accepted waste until 1997. Although 40 acres of the facility were constructed with synthetic liners, much of the landfill was operated with unlined disposal cells, as was **common in the 1970's**. **Consequently, some groundwater contamination did occur.** From 1989 forward, after the commencement of operations at the Resource Recovery Center, the landfill only received for disposal ash from the RRC. The final cells were closed and capped by 1998.

The Authority implemented remediation efforts that have been successful in containing and treating the contaminated groundwater. In 2005, the USEPA issued a statement that confirmed that the contamination at the landfill has been successfully addressed. Although the landfill is no longer in operation, the Authority continues its on-site maintenance programs, and provides monitoring and oversight of post-closure activities at the landfill.

In 2006, a project was launched to repurpose the acreage from a disposal site to a valuable community resource. The result was the development of the Hopewell Area Recreation Complex. From revenue generated by processing York County waste into energy at the RRC, the Authority provided the funds to build the Complex and Hopewell Township provides the staffing and resources to operate the Complex. The complex, which now features athletic fields, picnic pavilions, hiking trails and wildlife viewing areas, is available for use by all York County residents.

Although not a recycling program in the traditional sense of the word, nevertheless, this project is a prime example of the tangible benefits that can be derived from the operation of the Resource Recovery Center



Private Sector Contributions

The municipalities, the County and the Authority are not alone in advancing recycling efforts in York County. Corporate and private investments in collection and processing equipment and facilities have also supported the growth of the

local recycling infrastructure. A mixture of traditional scrap processors, high tech single stream processors, commodities brokers, and transfer facilities handle materials, which have been recovered from York County residents and commercial establishments. In addition, York County industries utilize feedstock from recyclable materials to produce new products. These include packaging, food and beverage containers, printing media, and green building materials. All of these recycling related ventures create jobs. Table 4-12 lists the York County operations that process and market recyclable materials.

Table 4-12 York County Processors and Brokers of Recyclable Commodities	
AMERICAN ASH RECYCLING 1072 Roosevelt Ave. York, PA 17404	NCB COMMODITIES 3340 Concord Rd. York, PA 17402
CSR 120 Hokes Mill Road York, PA 17404	PAZ METALS, INC. 4315 Run Way York, PA 17406
DARRAH'S 535 E. Prospect Street York, PA 17403	PENN MAR RECYCLING CO., INC. 14 Onion Blvd. Shrewsbury, PA 17361
ESHBACH MULCH PRODUCTS 299 Burgs Lane York, PA 17406	PENN WASTE, INC. P. O. Box 3066 York, PA 17402
H. & H. GENERAL EXCAVATING CO. P. O. Box 141 Spring Grove ,PA 17362	SEALED AIR CORPORATION 260 N. Blettner Ave. Hanover, PA 17331
J&K SALVAGE 1099 Kings Mill Road York, PA 17403	SPRING VALLEY MULCH, LLC 2770 Millcreek Rd. Dover Pa 17315
MIGHTY OAK MULCH, INC. 533 Barshinger Rd. Red Lion Pa 17356	WASTE MANAGEMENT RECYCLE AMERICA. 4555 Mt. Pisgah Rd. York ,PA 17402

Table 4-13 lists the manufacturers in York County known to incorporate recycled feedstock into their manufacturing processes.

Table 4-13 York County Manufacturers Utilizing Recyclable Feedstock		
AGED WOODS, INC. 4065 Deerhill RD Ste V101 YORK PA 17406	AUTHENTIC WOOD FLOORS P.O. Box 153 Glen Rock PA 17327	P.H. GLATFELTER COMPANY 228 South Main St. Spring Grove Pa 17362
BAUMMER SAWMILL 34 Industrial Drive Hanover PA 17331	EMECO INDUSTRIES INC 805 West Elm Avenue Hanover PA 17331	RAG RUGS P.O. Box 307 Dillsburg Pa 17019
ENVIRO-PRODUCTS INC. Po Box 15 Dillsburg Pa 17019	GRAHAM PACKAGING COMPANY, 2401 Pleasant Valley Road York Pa 17402	PENNEX ALUMINUM COMPANY 50 Community Street P.O. Box 100 Wellsville Pa 17365

Opportunities for Increased Recovery

Since the York County Municipal Solid Waste Management Plan was approved in 1991, curbside recycling has grown from a concept to an expected service in the majority of the municipalities. As the infrastructure has grown, the types and amounts of recyclable materials recovered have increased as well. It was demonstrated earlier in Chapter 4 that, excluding yard waste, York County recovers approximately 60% of the common Act 101 designated materials, which are available for recycling. Of all of the materials available in the municipal waste stream, York County has a recovery rate of 26.3%. Both rates are respectable. By falling somewhat short of the national averages and the PADEP recycling goals, there is room for improvement both in reporting methods and in overall program performance.

There are always opportunities to recover more materials. Suggestions for methods and sources of materials that could lead to greater recovery in York County are discussed and illustrated in the following series of narratives, tables, and graphics.

The Influence of Single Stream Recycling on Collection Costs and Performance

Due to the close proximity of high-tech recycling processing facilities, a greater variety of materials are accepted for collection in York County than in areas where source separation of each material is required. Not only are bottles, cans, jars, and jugs made of glass, metal, and plastic accepted, but also all types of paper and other plastics. Because the processing technology has mechanical sorting capabilities, these materials can be placed together in the same collection bin and transported mixed within the body of the truck. This

method of collection and processing is known as “single stream.” It is the norm in York County and therefore, all of these materials are collected in every municipal program, with negligible exceptions.



Unrealized Benefits

Access to single stream recycling should prompt municipal managers to rethink some of the basic tenets and beliefs on residential collection services that have been held for years. In a national and statewide environment where recycling rates peaked and have remained stagnant for years, single stream recycling is a game changer, if implemented correctly. Both a revamped education campaign and greater capacity to store recyclables between scheduled collections are universal needs in a single stream recycling environment. Both are also essential to increase participation and recovery rates. Communities that introduce single

stream collection with little fanfare or explanation of how it works and without providing the proper recycling containers will tend to show minimal increases in recovery. Those that develop a strategic plan to promote the change and provide the proper equipment notice significant improvements.

Misfocused Specifications

Inherent in single stream collection and processing technology is the ability to dig deeper into the waste stream and recover more materials faster, more efficiently and with lower labor and fuel costs. Aside from the tools described above, other factors can affect whether or not a community attains any of these benefits. The single most significant shift, which occurs in single stream collection programs, is



that the quantities of waste become less and the quantities of recyclables placed at the curb increase. In other words, materials that were once disposed and placed in the waste container, can now be recycled and are diverted into the recycling container, provided there is enough space to store the recyclables between scheduled collections.

Outdated bid specifications and the terms and conditions of contracts that have been used for decades focus on the volume of waste. Great attention is paid to the number of bags or containers of waste allowed. Little attention is given to the need for increased volumes of recyclables that could be collected at lower costs given the proper type and/or sized receptacle. Therefore, the common bid specifications ask for unnecessary disposal service limits and frequencies of collection that inflate the price and provide inadequate tools or mechanisms to reduce costs and increase the recovery of recyclable materials.

These older style bid specifications do not typically contain the proper language or flexibility to allow for the full advantages provided by single stream or any type of automated collection. Vague terms and conditions may be prohibitive to the lowest cost options. Because waste and recycling collection is not the primary focus of most municipal officials, the obstacles and constraints that these service specifications and contracts present may go unrecognized. Unfortunately, this often results in higher collection costs than would be possible with improved specifications and an enhanced single stream collection program. It can also contribute to lower than desired recovery rates.



Ordinances and Enforcement

A related but often ignored factor in municipal collection scenarios is the need to have in place local ordinances, which support the collection contractor. These ordinances, often accompanied by rules and regulations, are in essence the terms and conditions that must be followed by local residents. The ordinances, rules, and regulations should define the requirements for participation, payment, preparation and storage of materials and other issues. Failure to have supporting rules and regulations also increases the cost of collection, because it forces the contractor to spread speculative unrecoverable costs onto the paying customers. The ordinances must be enforceable and the municipality must implement the enforcement mechanism if they are to be effective.

Future Improvements

Creating a greater awareness of contemporary collection issues and technologies would benefit municipal officials. YCSWA could facilitate the exchange of ideas, solutions and collective concerns by hosting periodic roundtable sessions for representatives of local municipalities. The meetings could include presentations, workshops and interactive discussions. Local service providers, equipment vendors, regulatory agencies, consultants and others could be invited at times to offer advice and updates on newly developed tools and methods to improve service for local residents. Additionally, YCSWA staff could serve as information ambassadors through increased personal interaction and one-on-one meetings with local municipal managers.

Recycling At Community Activities

Several municipalities are mandated by Act 101 to require recycling at community activities, which draw 200 or more attendees. Events held in other areas of the County could also benefit from this practice. Municipalities are often unsure of how to promote and enforce this requirement. Event organizers charged with a long list of demands necessary to make the day a success, tend to overlook recycling as an essential component. Sometimes they are ill informed of the steps to establish a recycling **program; many don't have ready access to equipment such as portable recycling containers that could be placed throughout the footprint of the event; others don't recognize** how recycling can reduce litter and disposal costs for the event.



YCSWA could help facilitate the practice of recycling at community activities and support the efforts of local municipal officials. The Authority could serve as a centralized resource for equipment, how-to guides and other resources. In this role, the Authority could also track and monitor best practices, anticipated costs and other vital statistics that could advance community event recycling throughout York County.

In addition to the equipment, YCSWA could develop and make available to event organizers a materials tool kit that includes: planning timelines, sources of volunteers and service providers; volunteer instructions, release forms and a collection-reporting sheet and a letter to concessionaires.

Major Appliances (White Goods)

In 2010 York County reported 344.2 tons of white goods recycled. This is about 9% of the national norm. In York County, the national average would equate to an expected 3,673 tons of recycled major appliances.

It is safe to assume that greater quantities of major appliances were recycled than were reported in York County. The tons reported were often the result of municipal clean-ups or residential curbside collection programs. Yet according to the USEPA's ongoing waste generation and composition studies, the greatest percentages of major appliances recycled are more commonly from commercial sources.



Major retailers often outsource the take-back collection and Freon removal service. YCSWA could identify how local retailers handle old appliances. If these services are outsourced, the retailers could be asked to identify their service providers or the retailers could agree to report these activities directly to the Authority or the local municipalities.

Carpeting

Commercial installers handle the greatest volumes of carpeting. This is particularly true for those with accounts such as hotels, office buildings, multi-family dwellings and residential care facilities. An estimated 4,870 tons of waste carpeting were generated in 2010 in York County, with an anticipated recovery of about 436 tons. No carpeting was reported to be recycled. It is possible that many

of these businesses already recycle the old carpeting, which they remove during a new installation. It simply goes unreported. Much of this material is shipped directly to carpet mills in the southern states. There is at least one local carpet recycling outlet located in Philadelphia and another reportedly located near Harrisburg. An investigation of local practices could ensure that current recycling activities are reported.



Recycling Potential in York Public and Private Schools

Pennsylvania school districts are facing drastic reductions in federal and state funding. Nevertheless, many districts continue to dispose of large amounts of waste that could be recovered for recycling. This waste represents a significant loss of natural resources and school district funds. Until recently, the potential to recover materials from school classrooms and other activities was assumed, but not necessarily quantified. The Minnesota Pollution Control Agency initiated a project that physically sorted the waste produced at elementary, intermediate and high schools. The study, *Digging Deep Through School Trash*, conducted in 2010, provided one of the first comprehensive analyses of the composition of waste generated at public schools.

The findings revealed that on average, schools generate approximately .50 pounds of waste per student per day. Elementary schools generate slightly less and high schools generate slightly more. Based on the findings, it was predicted that at least 28% of the material generated in schools could be recovered for recycling. An even higher estimate of recovery was provided when the potential for separating and composting organic material was considered.

No exact data was available regarding the number of York County schools that actively participate in recycling programs or the quantities of materials that are recovered. If each public school district in York County performed at the same 28% recovery rate as the Minnesota study, it is estimated that 746 tons of material could be recovered for recycling. Private schools combined would contribute approximately 44 additional tons. The anticipated material recovery in York County on a school-by-school basis is included in Appendix G.

In general, Pennsylvania school districts do not have a great history of implementing long term recycling programs. Considerable reinforcement is necessary to retain many of these programs. If York County follows the state trends, schools could provide an opportunity to recover additional materials. YCSWA should inventory the schools that maintain recycling programs and

periodically refresh this list. Counties have discovered that a strong incentive for schools to implement recycling programs, is to make it a prerequisite to be eligible for education and outreach tools and services. Because YCSWA provides quality programs that are in demand by local districts, this could prove to be a useful and effective tool, if warranted.

Recycling and Waste Minimization in Hospitals and Medical Facilities

According to the American Hospital Association (AHA), the second largest expense on a hospital's balance sheet (following labor) is supply chain costs. The AHA reports that the average hospital provider spends more than \$72 million a year, nearly one-third of its annual operating budget, on supplies and related functions. Unfortunately, the majority of the materials procured by a hospital ultimately become waste. Health care facilities can generate up to 25 pounds of waste per day per patient. Nationally, nearly 7,000 tons of waste are generated every day resulting in \$10 billion in annual disposal costs across the health care industry.



In 2006, the Pennsylvania Department of Environmental Protection under a grant from USEPA Region 3, sponsored the Green Hospitals Pilot Project. Twenty hospitals from southeastern Pennsylvania participated in the pilot project, which was conducted in partnership with the Women's Health & Environmental Network (WHEN) and the Health Care Improvement Foundation. The purpose of the project was to encourage waste minimization and advance the implementation of sustainable practices in Pennsylvania healthcare facilities. The findings from the project and suggested solutions echo those seen nationally according to the AHA.

Sorting Out the Waste Streams

By its very nature and associated potential legal and environmental liabilities, much focus is placed on the infectious and chemotherapeutic components of a **hospital's overall waste stream. However, these Regulated Medical Wastes, which** were discussed in Chapter 1, represent only 5 to 15 percent of a facility's overall waste volume. Hazardous Waste makes up less than another 5 percent of the total. Therefore, the majority (80 to 85 percent) of the waste generated in hospitals is common municipal solid waste.

Each categorized waste has different costs. Those that require special handling and disposal obviously cost more than those that can be handled at a municipal solid waste management facility. A hurdle for most organizations is to reduce the significant volume of material erroneously disposed as Regulated Medical Waste that could be managed at a lower cost. A report recently published in the Canadian Medical Association Journal asserts that 50 to 85 percent of regular waste is incorrectly disposed of as Regulated Medical Waste, which is estimated to cost eight times more to process.



Hospital workers trained to follow health, safety, and regulatory guidelines understandably tend to err on the side of caution when disposing of materials. This is particularly true in areas of high visibility. Biohazard receptacles are placed in patient rooms, examining rooms, and other areas of the facilities in view of and accessible to patients and visitors. The potential

for non-regulated waste to be deposited in these areas is even greater. Lower Bucks Hospital, a participant in the Green Hospitals Pilot Project, reported a 65 to 70 percent reduction in the amount of ordinary trash disposed in its infectious and biohazard waste cans after removing the special waste containers from most general patient rooms.

Case Studies

While it may appear that the simplest strategy for managing waste and costs is for health care facilities, to continually reinforce that waste materials must be placed into the right container, it is just as important to communicate that many materials need not be disposed at all.

The Green Hospitals Pilot Project and AHA's research both show that the municipal solid waste from hospitals is similar in composition to the waste generated by hotels. Consisting primarily of paper, food waste and plastics, it is estimated that 40 to 60 percent of these materials can be recovered for recycling or processed by composting.

Operating rooms are responsible for nearly 30 percent of a hospital's waste while consuming a much smaller proportion of a hospital's budget. Almost 80 percent of the hospital packaging waste (primarily plastic and paper) from a single procedure is generated before the patient enters the operating room. By properly

segregating waste in its operating rooms, the University of Pittsburgh's Magee-Women's Hospital saved more than \$89,000 in 2010.

In 2009, the Healthcare Plastics Recycling Council, in conjunction with the Cleveland Clinic, Waste Management and Engineered Plastics, located in Erie, PA, conducted an extensive study of the potential to recover plastics from the operating room setting. The report *“Design Guidelines for Optimal Hospital Plastics Recycling”* is a great resource for instituting a similar program.

During the pilot, Doylestown Hospital found that by implementing its cooked-to-order patient menu, food waste dropped by 40 percent. Holy Redeemer Hospital started a food, yard waste and organic materials composting program that produces 5 tons per month. Many hospitals have expanded their recovery efforts into other areas, including batteries, cell phones, aluminum, and ink cartridges. Some recycle old and outdated furniture, medical equipment and supplies by donating them to local and Third World charities.



Local Opportunities

York County has five hospitals, according to the Pennsylvania Department of Health, Bureau of Health Statistics and Research. These include general acute care facilities as well as rehabilitation and specialty facilities. There are also a host of outpatient care facilities.

Based on information from the AHA, hospitals generate 25 pounds of waste per patient per day, with municipal waste accounting for 85% (21.25 pounds per patient per day). Therefore, hospitals in York County with a combined patient capacity of 932 could generate approximately 3614 tons of municipal solid waste per year. **If the results seen in the Green Hospitals Pilot Project and AHA's research could be replicated locally, York County hospitals could expect to recycle from 1,445 to 2,168 tons.** Because hospitals also have outpatient services onsite, the number of patients, the volume of waste, and thus the amount of recoverable material would all be greater.

Efforts should be taken to keep local institutions informed of all potential opportunities to recycle or reuse municipal solid waste and reduce their overall disposal costs. Additionally, the Authority should work with local processors to ensure that they are aware of new opportunities to recycle plastics and other materials from medical facilities.

Construction and Demolition Recycling

The Construction Materials Recycling Association (CMRA) estimates that 325 million tons of recoverable construction and demolition (C&D) materials are generated in the United States annually. Figure 4-11 shows the types of materials that can be recovered from construction & demolition waste and a short list of applications for the material

The *Leadership in Energy and Environmental Design (LEED) Green Building Rating System* is a driving force in the trend toward “Sustainable Building.” Recycling C&D debris is one of the most important aspects of this movement. To reduce the environmental impacts of renovation and new construction, LEED encourages construction sites to recycle. *Recycling Construction and Demolition Wastes: A Guide for Architects and Contractors* is a manual published by the Massachusetts Department of Environmental Protection, the Boston Society of Architects and Associated General Contractors of Massachusetts. It claims that 90%-95% of the material found on job sites can be recycled. To encourage the practice, recycling qualifies the structure for two or more points in the LEED Green Building Rating System. One LEED point is awarded for a recycling rate of 50%; a second for a recycling rate of 75%.

The York County Board of Commissioners practiced environmental stewardship **by demonstrating in one of the County’s own projects that green building techniques** was a priority in ensuring the future sustainability for their community. By choosing to renovate rather than to demolish the York County Administrative Center constructed in 1898, the County also reinforced the value of historic preservation.

Figure 4-11 Uses for Recyclable Materials in Construction & Demolition Waste

Concrete & Brick

- Road Base
- Drainage Media
- Pavement Aggregate

Asphalt

- Aggregate for New Hot Mixed Asphalt
- Road Sub-base

Wood

- Fuel for Waste to Energy
- Mulch
- Engineered Particle Board
- Remilled into Flooring

Drywall

- New Gypsum Wallboard
- Soil Amendments
- Portland Cement Production

Shingles

- Asphalt Binder
- Hot Mix Asphalt

Metal

- Melted and Reintroduced into other Metal Products

Cardboard

- Ground and Used in New Paper Stock

Plastic

- Fuel for Waste to Energy

In 2008, the Administrative Center received its silver LEED certification. Other examples of LEED certified projects in York County include: the Greenway Tech Centre and the offices of Wagman Construction, Inc. (both located in York), the Southern York County Library in Shrewsbury and the PNC Realty Services Branch located in Hanover. Local governments often qualify for greater economic development funding for LEED certified projects. Therefore, more interest in green buildings is anticipated.



Although certain components of C&D waste are processible and most others are recyclable, without regulatory requirements, most York County contractors have never had an incentive to segregate those materials. In the past, few C&D recycling facilities existed in or in close proximity to York County. Therefore, C&D waste in York County is disposed in landfills. Low disposal fees hampered interest in developing such diversion opportunities. In addition, the economic downturn in 2008 nearly halted new construction projects and reduced the volumes of C&D waste generated. Recently, current technologies and innovative uses for the material, including applications as a source of fuel or waste-to-energy, have prompted renewed interest in developing C&D recycling facilities in other counties.

As more and more projects seek LEED certification, the need for knowledgeable contractors, haulers and processors will increase. Contractors and waste management companies are often ill prepared to comply with the C&D recycling requirements. This can place them at a disadvantage in bidding and acquiring contracts for LEED projects. By providing education on the benefits and practices of C&D recycling, the Authority could help improve job opportunities along with diverting a greater portion of its municipal waste stream from landfill disposal. There is even some potential to acquire new sources of fuel for the Resource Recovery Center from the residue of C&D recycling facilities.

Alternatives to Demolition

Rather than reducing a building to a pile of rubble, alternatives exist to salvage useful items and valuable building materials. Deconstruction is the term used to describe the systematic removal of materials from structures in order to maximize the reuse and recycling of those resources. Although there may be additional costs associated with deconstruction, such as increased labor hours, under favorable conditions the cost of deconstruction is competitive with demolition, with the added bonus of reducing disposal costs. Figure 4-12 lists materials that are typically recovered in deconstruction projects

Figure 4-12 Readily Salvageable Demolition Materials

Appliances	Bricks	Doors	Flooring	Light fixtures	Metal framing	Pipes
Shelving	Cabinets	Insulation	Paneling	Wood beams	Dimensional lumber	Ceramic tile
Bathroom fixtures	Windows	Nails and Screws	Hardware	Mantels	Molding	Railings

Deconstruction is a prime source of materials, which are tax deductible when donated to a nonprofit organization. According to Habitat for Humanity, the tax value of used building material donations can often be substantial and at times large enough to pay for the costs of deconstruction. ReSource York is an example of a local outlet for useable building and renovation materials that provides added benefits to the community. Operated by Bell Socialization Services, the store provides employment to people with disabilities to help develop vocational and socialization skills. Additionally, it provides a valuable source of income to the non-profit organization.



Deconstruction of old buildings is proving to be a source of jobs and profits for businesses that understand the intricacies of professional piece by piece dismantling - rather than demolition. Many deconstruction companies are also in the business of historic preservation and renovation. The objective of deconstruction is to salvage as much of the material intact and in a condition feasible for reuse. An attempt is made to save everything-crown molding, mantels, windows, doors, dimensional lumber, nails, screws, bathtub, and plumbing. Hundreds of case studies from the U.S. Department of Housing and Urban Development, the Building Materials Reuse Association, the Associated General Contractors of America, and many others consistently demonstrate that up to 85 percent of a structure can be inventoried for future projects or donated to a reuse store.

In York and surrounding counties, there are areas and structures on the National Register of Historic Places. Strict guidelines determine how these homes and buildings must be maintained. Use of materials contemporary to the period or reasonable facsimiles is often required. Good sources of period pieces are structures that are being removed to make way for new development. Likewise, those in such an overall state of disrepair, that they are unsafe or not worth saving can provide a wealth of materials. These are cases where the sum of the parts is truly greater than the whole. Architectural antiques are in demand by those wishing to restore these structures to

their previous grandeur. Architectural antiques can command top dollar and the buyers need not be limited to the local area.



Incentivizing C&D Recycling

There are a number of ways that communities can create awareness, increase reuse and recycling, and decrease landfill disposal of C&D materials. Rather than outright disposal bans, a variety of monetary incentives and positive reinforcement have proven to be successful in triggering an increase in recovery. Following are a few of the methods commonly implemented.

Refundable Deposits for Recycling C&D debris

In this type of system contractors place a deposit on construction, demolition, and remodeling projects when the project permit is issued. The deposit rate is based on square footage of and the type and quantity of material expected to be generated by the project. The costs of recycling or processing that material is also factored into the equation. Upon demonstration of diversion of a pre-established percentage of the C&D debris, the full deposit or appropriate portion is refunded to the contractor.

Government Procurement Policies with Preference for Recycling of C&D Debris

Local governments can implement policies that require contractors to submit a recycling plan for a pre-established percentage of C&D material from construction and demolition of government facilities and projects. A portion of the final payment can be withheld until the contractor demonstrates that the project attained the desired results.

Recognition Programs to Encourage Contractors to Reduce And Recycle

Many jurisdictions have recognition programs for green businesses. The same principle can be applied to local developers, contractors, and remodelers. A monetary reward, media recognition, an award that can be displayed in an office, or decals that can be placed on vehicles and equipment have all been used successfully for this purpose.

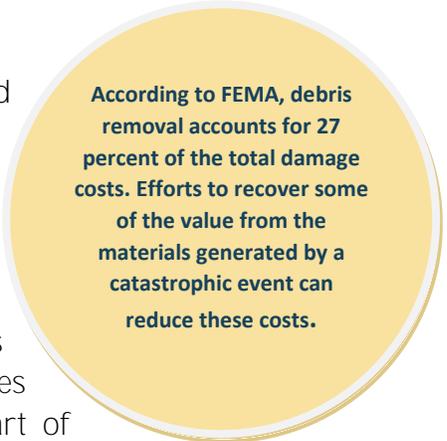
Future Investigation

A more comprehensive and focused study could offer more insight on local potential. YCSWA should give serious consideration to conducting such an investigation before any changes are introduced to the current system.

Recovering From A Disaster

The devastation and chaos in the aftermath of a catastrophic storm event or other natural disaster is not the opportune time to make decisions on the management of disaster debris. It is essential for community members, emergency response crews and local, state and federal recovery agencies to have an understanding of what might be encountered in a variety of situations, and to have policies and practices in place far in advance of the need for implementation.

Part of these plans should include the separation and recovery of materials that can be recycled, as well as those more suited for energy recovery than land disposal. Aside from the obvious benefits common to recycling materials under any circumstances, having an organized plan for recovering disaster debris for recycling can also ensure that local governments qualify for funding to cover these costs. FEMA advises planners to create lists of recyclable materials as part of their post-disaster debris management plans. The agency emphasizes focusing on end-user markets for recycled disaster debris, including identifying recyclable product buyers and even securing sales of recyclable materials prior to a disaster striking.



According to FEMA, debris removal accounts for 27 percent of the total damage costs. Efforts to recover some of the value from the materials generated by a catastrophic event can reduce these costs.

YCSWA recognizes the importance of planning for disaster debris management. The Authority was recently tasked with coordinating the disposal of excess materials resulting from flooding in the County. Therefore, the need for contingency outlets for materials is a known reality. Recovering materials from disaster debris was also supported as a priority need by the MWAC.

In 2013, a committee that included stakeholders from York County emergency management, public health and safety, waste management, planning, and public works agencies, developed a county wide disaster debris management plan, as an annex to the overall County emergency plans. YCSWA personnel participated in this process.

Summary and Conclusions

Noticeable improvements and advancements in recycling and waste diversion have occurred. Through grants, local tax dollars, and user fees, municipal governments were able to purchase a variety of equipment and recycling bins to launch and sustain local

recycling programs. Private sector investment has ensured the growth of the recycling infrastructure and has allowed the municipalities to provide cost effective curbside recycling collection to their residents. The presence of these services also offers a low cost alternative to local businesses, schools, and institutions looking to control the expense of waste disposal. Materials collected and processed in the County are used as feedstock by regional manufacturers to create new products. They also make York County part of the global economy. All of these recycling related activities create jobs and support the local economy. In addition, local recycling efforts have helped to reduce greenhouse gas emissions and conserve energy.

During the planning process, a review of historic recovery data, material sources, and collection practices provided insight into the County and municipal programs. A comparison to national generation and recovery trends helped to establish benchmarks and performance standards. The strengths of the programs were identified and recommendations for new opportunities to increase the recovery of materials were offered throughout the narratives. In Chapter 5, these ideas and suggestions are expanded into an actionable plan along with a timeline for implementation.

CHAPTER FIVE

Building Upon Success



Integrated Waste Management to Support the County's Comprehensive Goals

The impact of municipal solid waste management practices on economic development, property values, and social standards is significant. When these effects are recognized in a formal manner, their importance becomes more obvious to the public.

The 1997 York County Comprehensive Plan and its subsequent component updates outlines a series of initiatives that are intended to spur economic development and enhance the quality of life for local residents. There is a correlation between those goals and the value of instituting sound solid waste management practices within the community. According to the Comprehensive Plan, growth and development inevitably lead to a need for community facilities related to the protection of public health, safety and welfare. The Comprehensive Plan stresses that the availability of **adequate community facilities is an important indicator of an area's desirability as a place to live.**

The York County Municipal Solid Waste Management Plan complements the goals and objectives of the Comprehensive Plan. The purpose of this project was to identify current strengths and weaknesses in the municipal waste infrastructure. Included in **that exercise was an assessment of the capacity of the County's disposal and processing facilities** in relationship to the waste and recyclable materials resulting from recent and anticipated population growth. Recommendations were offered to fortify and sustain successful components of the municipal solid waste system and solutions were considered to improve others. The Municipal Waste Advisory Committee identified certain solid waste management priorities to support the anticipated growth and development of the County. Maintaining public health and safety, complying with environmental standards, and conserving natural resources were considered important objectives in the MWAC discussions, as well as the recommendations of the 2013 York County Municipal Solid Waste Management Plan Update. These factor well into the visions seen in the Comprehensive Plan.

This chapter presents the key municipal solid waste management issues, which were identified during the planning process. These topics are discussed at length in the narratives, and substantial supporting data is presented in the tables and graphics shown throughout the Plan. Here goals and recommendations are associated with a course of action to obtain each. It references determining factors that prompted these suggestions. It also provides a time frame by which specific elements of the Plan are to be attained and implemented. There are numerous programs and services discussed throughout the Plan. Unless otherwise noted, an exclusion of an existing program or service from Chapter 5 is an indication that each will continue through the planning period.

Overview of the Recommendations

The Municipal Waste Advisory Committee favored policies to ensure that the municipal waste collection and management system will be utilized by all York County residents and businesses. The need for tools and mechanisms to improve efficiencies and control the costs of municipal collection contracts while increasing the recovery of recyclables was strongly reinforced. The Committee favored continuation of flow control measures implemented to support the generation of alternative energy through the operation of the Resource Recovery Center. Exploring the feasibility of new technologies that increase the recovery and uses for materials for expanded energy recovery was favored. Continuation of the role of the York County Solid Waste and Refuse Authority as the agent to implement the Plan was affirmed without question. Planning for disaster debris management, including the recovery of recyclable materials was encouraged. The importance of creating a greater awareness of the proper handling and disposal of all forms of municipal solid waste was stressed to decrease illegal dumping and littering. The need for comprehensive data management that includes accurate reporting, analysis of the information and application of the findings was stressed in all of the discussions. Finally, the development of services and programs that provide for greater recycling opportunities and the diversion of hazardous materials was deemed important.

Capacity Assurances, Material Recovery, and Energy Production

In York County, a fundamental premise of all solid municipal waste management policies center on the decision to accept the responsibility for disposal and processing of the municipal solid waste generated within its jurisdiction. Implementation and oversight of this function and its related programs was delegated to the York County Solid Waste and Refuse Authority by the Board of Commissioners of York County. The linchpin of the program is the Resource Recovery Center, which uses combustion technology to produce energy from processible municipal waste. This multi-million dollar public investment has the demonstrated processing capacity to satisfy the dedicated flow of municipal waste generated within York County during this planning period.

Modern Landfill also located within the County, but owned and operated by the private sector, has a commitment through an agreement with the Authority to manage the non-processible and by-pass waste. Other parts of the municipal solid waste stream that are generated in York County will continue to be tracked and monitored for indications of trends that could identify when and if sufficient outlets for those materials could be in jeopardy.

The Municipal Waste Advisory Committee expressed support for the Authority, its multiple community service and educational programs and most importantly its

responsible fiscal management. Continued operation of the York County Resource Recovery Center with the enforcement of a flow control policy is recommended.

Broadening Opportunities

Throughout York County and south-central Pennsylvania, processors and end markets for a variety of recyclable materials exist. For decades, packaging and containers, made of glass, aluminum, bi-metal, plastics, and paper products such as cardboard and newsprint, have been recovered and diverted from disposal. The success of recycling programs, along with greater efficiencies in design and manufacturing is evidenced in the changing composition of the municipal solid waste stream. Decreasing percentages of packaging materials are seen in the municipal solid waste stream, which is disposed and in some cases that which is generated. Other components however, have continued to increase in generation and disposal.

Figure 5-1 Criteria for Waste Material Management



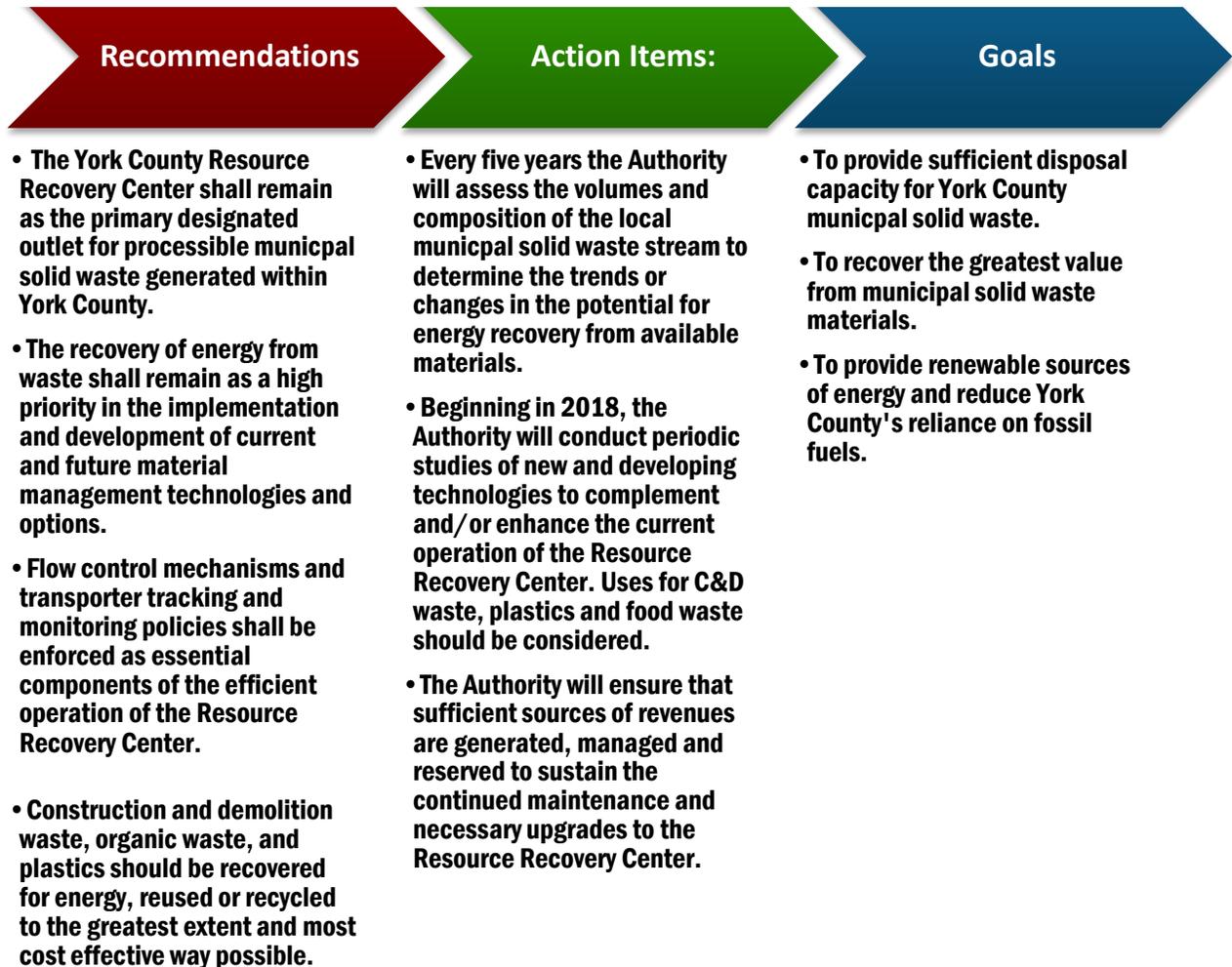
Organic waste, and in particular food waste, is still disposed in significant quantities. These materials have lesser BTU values in a combustion process than does paper, plastics, wood, etc. However, the utilization of organics as feedstock in other energy generating processes and technologies, such as anaerobic digesters, is gaining momentum. Construction and Demolition (C&D) waste is also primarily disposed in local landfills, rather than diverted for energy recovery, reuse or recycling. Plastics not traditionally recycled, another growing component of the municipal waste stream, present opportunities for the production of synthetic fuels and other energy recovery scenarios.

York County has not actively sought outlets for materials that are not traditionally included in municipal recycling programs. In addition, it has not recently examined those materials previously thought to be non-processible at the Center to determine if any of those items should be reconsidered and categorized as processible.

Figure 5-1 offers some criteria that should be considered when targeting components of the municipal waste stream for energy recovery, reuse or recycling. The recovery and processing of additional types of plastics as well as certain components of C&D waste, along with investigating the potential to increase the energy potential derived from food waste, present not only opportunities for waste diversion, but also for

potential business investment and economic development. The Municipal Waste Advisory Committee looked favorably upon waste diversion efforts coupled with economic development and job creation in the region. Those that can be partnered with the benefits of energy recovery were thought to be of greater importance.

Figure 5-2 Recommendations and Timeline for the Municipal Solid Waste Infrastructure

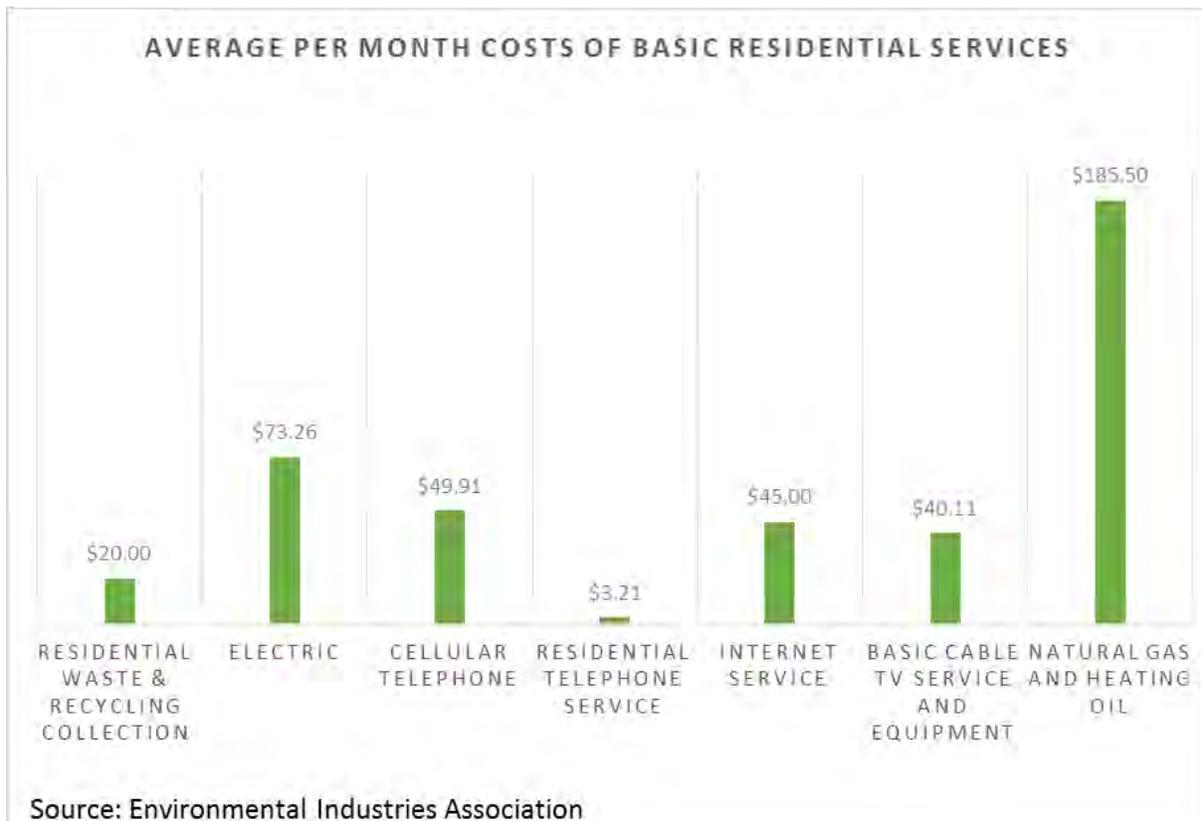


Municipal Collection Programs and Services

In previous chapters, the prevalence of littering, illegal dumping and open burning in York County was discussed. The Municipal Waste Advisory Committee concluded that the voluntary nature of some collection programs is one of the contributing factors to these undesirable behaviors. Therefore, residential waste and recycling collection was considered an important area for improvement in York County. The

committee discussed that when all basic residential services are compared, the overall cost per month for waste and recycling collection is one of the most affordable. By ensuring that all residents are serviced, the Committee suggested that unit costs could be lowered, recycling could be expanded, and that the overall quality of life in the County would be improved. Figure 5-3 shows the monthly rates for a variety of services, including waste and recycling collection.

Figure 5-3 Cost Comparison of Residential Service and Utilities



It should be noted that 64 municipalities currently provide their residents with a single hauler contract weekly collection of waste and recycling. Only eight municipalities are private subscription municipalities. These municipalities are not involved in household hauler selection and services provided. Over 90% of York County households have weekly access to waste and recycling services through their municipal provided contract.

The Committee provided examples confirming that in communities with strictly voluntary subscription collection, the unit cost of service was higher than in those that had mandatory participation. A similar trend was described when voluntary and mandatory competitively bid scenarios were discussed. Because the actual rates change from year to year, the value in including these dollar figures in the Plan was

dismissed. However, when comparing the mandated rates to subscription, the demonstrated constant was that subscription or voluntary areas consistently paid more than those where all homes were required to participate. Another finding was that a higher level of service offerings could be obtained for the same or frequently a lower unit rate in a mandatory versus a voluntary area. A related part of the discussions included the utilization of larger capacity recycling containers and the implementation of automated collection.

Future Expectations

The 18th century German author, political leader, and scientist, Johann Wolfgang van Goethe once said, **“If everyone sweeps before his own front door, then the street is clean.”** That very simplistic view, on a broader scale, applies to each citizen’s role in municipal solid waste management. To require that each household, business, institution, and government facility participates in an organized program for the collection and processing of the waste that they generate is reasonable. To share in the cost for those services is fair.

Facilitating Change

Creating the framework for universal participation to occur is a responsibility that local governments may overlook, neglect, misunderstand, and/or fear. Those that have already accepted the task are often confronted with misinformation or conflicting claims regarding service options, rapidly changing technologies and opportunities. To affect change, municipal officials appreciate support in understanding the elements that contribute to higher costs, service inefficiencies, and poor performance. In addition, they also benefit from sharing in the knowledge of others that have experience in transitioning to different types of service and programs.

YCSWA lacks direct jurisdiction over the municipal residential collection systems. Therefore, to make improvements to the overall residential program and diversion rate, it is more appropriate for the Authority to assume the role of educator, motivator and mediator. This is not to suggest that the Authority should involve itself in the competitive bidding process for municipal contracts. To facilitate a transition to more effective municipal programs, however, YCSWA could help foster the cooperation from all stakeholders, including: elected officials, service directors, and service providers.

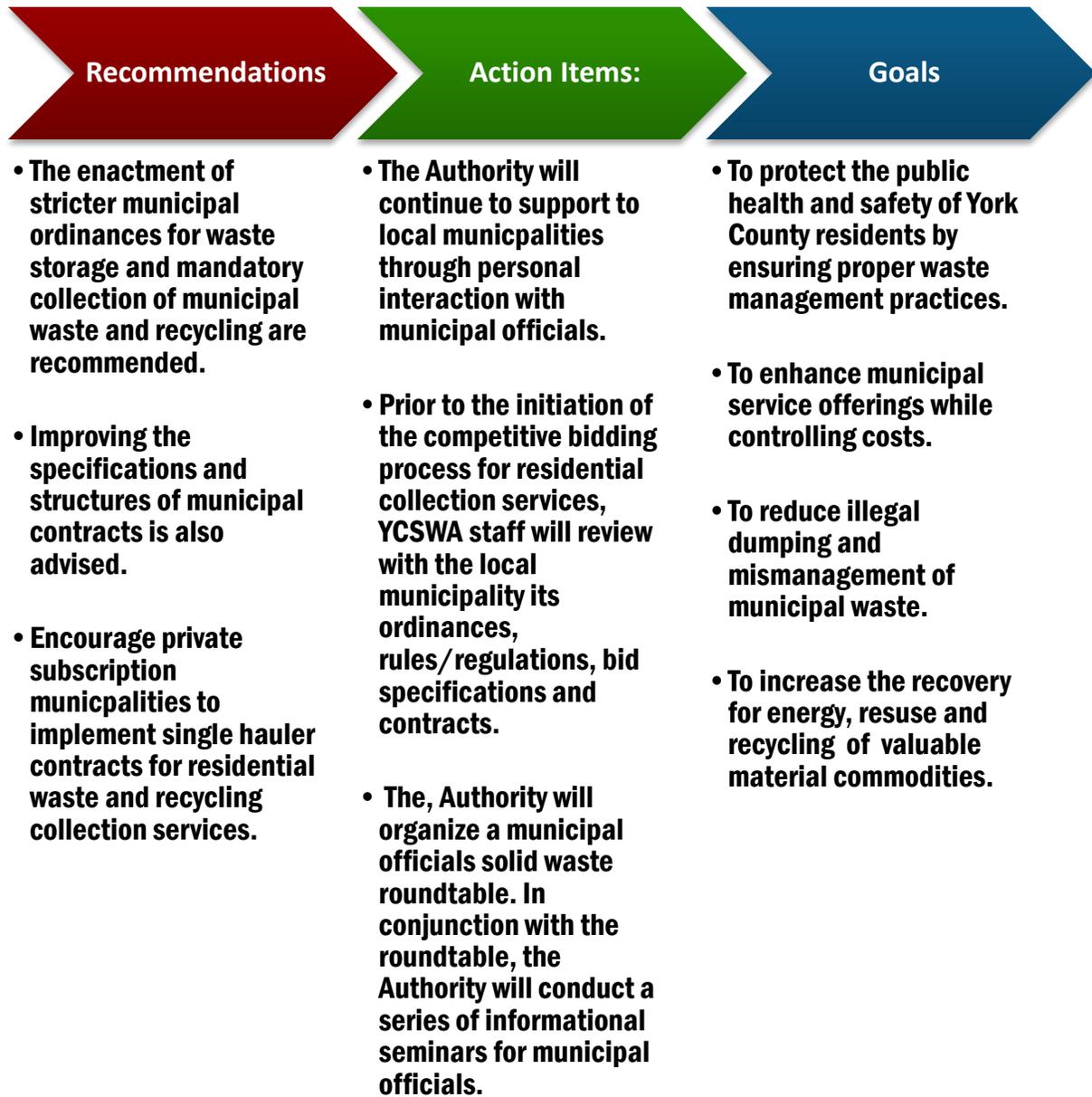
The existence or lack of “political will” and/or “willingness to pay” is a factor in a municipality’s decision to implement a contracted versus a subscription and/or a mandatory versus a voluntary collection system. Similar, if not greater, concerns exist when shifting from drop-off collection, which is perceived as free, to a user pay curbside program. Likewise, misperceptions about the implementation of Pay-As-You-Throw collection, variable rate structures, automated collection and other

features have stalled the growth of these programs in York County. Moving forward YCSWA must frequently engage and inform local decision makers and service managers to create greater awareness of new trends and opportunities in residential collection programs.



*"OUR CHOICES AT ALL
LEVELS—INDIVIDUAL,
COMMUNITY, CORPORATE
AND GOVERNMENT—
AFFECT NATURE. AND
THEY AFFECT US."
David Suzuki,
Suzuki Foundation*

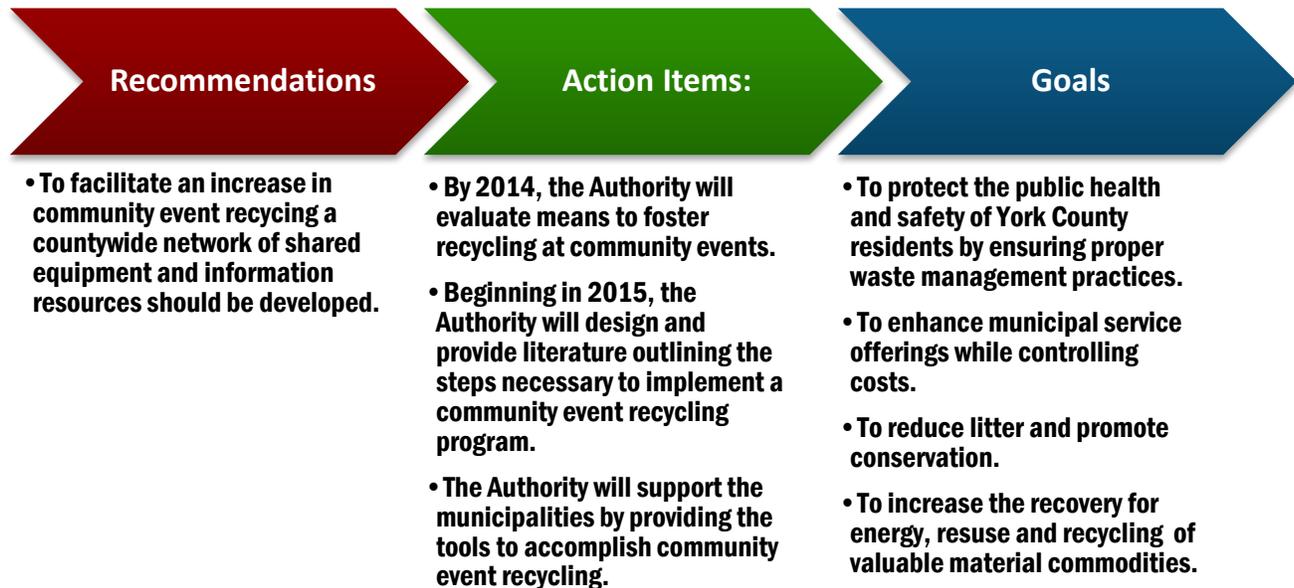
Figure 5-4 Recommendations and Timeline for the Municipal Services and Programs



Community Event Recycling Network

The recent addition of four communities to the previous list of fourteen Act 101 mandated municipalities increases the number of fairs, festivals and events that will be required to implement recycling programs during the planning period. For each municipality and/or venue to acquire the equipment to facilitate these event recycling opportunities is costly as well as a duplication of resources and efforts. A more efficient way is to share equipment through a centralized reservation and rental system. YCSWA would be an appropriate candidate to implement such a program. The Authority could also improve the manner in which community event recycling is conducted by developing guidelines and instructions to support the efforts of event organizers and to simplify the process for vendors.

Figure 5-5 Recommendations and Timeline for a Community Event Recycling Network



Disaster Debris Planning and Coordination

The role of municipal solid waste management after a disaster has been discussed at length in previous chapters. The cost to municipalities of recovering from a catastrophic event is significant. Disaster debris removal and disposal can represent at least 25% of those costs according to FEMA. Those costs can be lessened if the volume of waste that must be disposed can be reduced by recovering materials, which can be recycled or converted to energy.

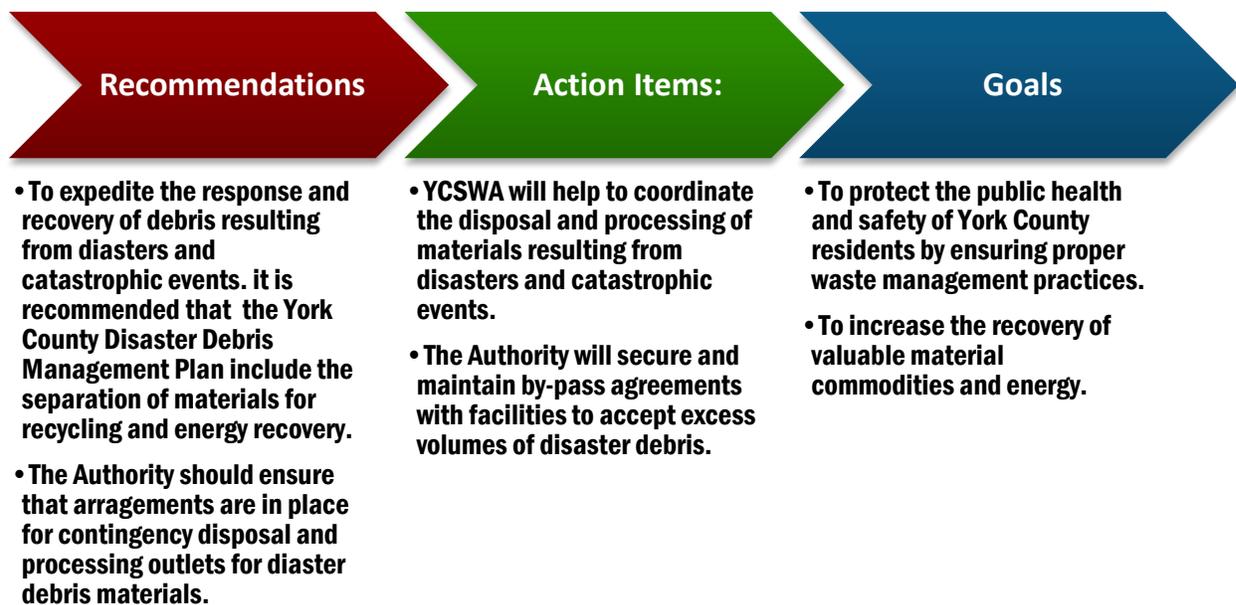
Figure 5-6 Stages of Disaster Management



At the time this Plan was being developed, York County completed the development of a countywide disaster debris management plan, which was incorporated into the County’s overall emergency management plan. YCSWA personnel were part of the development team. In addition, YCSWA plays an important role in coordinating the disposal logistics, particularly when the quantities of materials exceed local processing and disposal capacity.

The Municipal Waste Advisory Committee discussed the development of the disaster debris management plan and favored provisions for the recovery and diversion of the greatest possible amounts of materials prior to disposal.

Figure 5-7 Recommendations and Timeline for Disaster Debris Planning



Expanding the Sources and Types of Recovered Materials

A number of recyclable commodities and scenarios for recovering greater quantities and different types of materials were discussed throughout the Plan. MWAC looked favorably on the recovery of materials from the solid waste stream for recycling and energy production. Certain materials were noted that were either under reported or not recovered at an optimal rate. Additionally, sources of specific materials, which

were likely to result in the greatest return, were reviewed. Although the overall reported results of the commercial sector appear to outperform those from residential efforts, some opportunities to increase the quantities of recyclables recovered from specific commercial sources were identified.

Schools

School recycling programs were viewed by the MWAC as an important part of instilling waste reduction and recycling as lifelong behavioral skills. YCSWA provides York County school districts with numerous educational programs and activities, all with the purpose of encouraging sound environmental practices. Trends within Pennsylvania show that school districts have low participation in recycling. Those schools that do implement programs often have difficulty maintaining them due to costs and/or lack of staff or administrative motivation. As part of its interaction with the schools, YCSWA should explore what if any actions it could take to expand school recycling throughout the County.

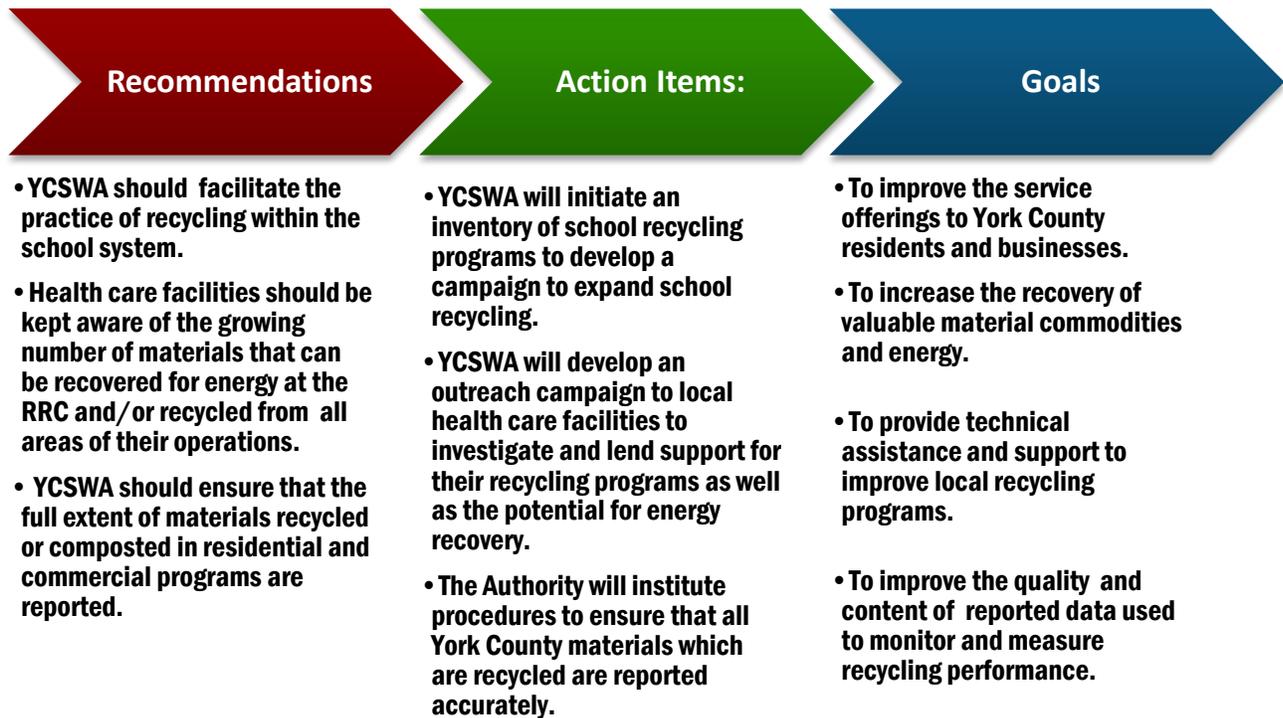
Health Care Facilities

With the population growth of York County, the expansion of health care facilities is expected to keep pace. Municipal solid waste represents the bulk of material discarded from medical facilities. A large portion of the municipal waste generated in hospitals and outpatient facilities is plastic and paper originating in operating rooms and resident care rooms. Both materials can be recovered for recycling and energy, but are commonly known to be improperly discarded with regulated medical waste. YCSWA should consider an outreach campaign to health care facilities in York County to determine their current waste and recycling practices and offer assistance when improvements are warranted.

White Goods

Appliances such as refrigerators, washers and dryers and stoves are commonly recycled by major department stores and scrap dealers. The majority of the municipalities include the collection of white goods in their residential curbside programs. Nevertheless, white goods were reported in York County at a lower rate than expected considering the outlets available. YCSWA should explore how white goods are handled once collected at the curb. Additionally, the Authority should broaden its network of sources that recycle these materials and should report those results.

Figure 5-8 Recommendations and Timeline for Expanded Material Recovery



Concluding Comments and Future Actions

MWAC participants offered valuable input during the development of the 2013 York County Municipal Solid Waste Management Plan Update. They identified the need for new components to build upon the already successful programs and services offered by the Authority, the municipalities and the private sector. In addition, they provided suggestions to enhance policies and enforcement to strengthen the protection of public health and safety resulting from proper municipal solid waste management. Based on the discussions and findings during the planning process a tangible action plan was designed to attain new goals and objectives.

The York County Municipal Solid Waste Management Plan is a dynamic instrument meant to allow for unforeseen events and opportunities. The Plan takes a big picture look at waste management and recycling practices in the County. The planning process revealed some developing trends, which will be monitored in the future. Key indicators brought to light issues or concepts that warrant further analysis and investigation. Therefore, feasibility studies, pilot programs, and surveys for a number of issues have been incorporated into the Plan's recommendations and implementation schedule.

Unforeseen issues and opportunities will occur within the next 25 years. Any one of them could affect the current assumptions and directives in the Plan. These include but are not limited to regulatory initiatives, sudden shifts in population, economic development, changes in the composition and volumes of waste discarded, and the introduction of new technologies not previously available. The Authority intends to review the status of Plan implementation and recommendations every five years. At that time, a determination can be made of whether or not circumstances have changed sufficiently to warrant revising the overall Plan. If such action is necessary, the Authority will follow the established procedures for revising the Plan.

CHAPTER SIX

Capacity Assurances



York County's Long Term Commitment to Manage Waste by Recovering Energy

Pennsylvania counties are required to ensure that sufficient capacity is made available to manage the volumes of municipal waste generated within their jurisdictions. In fact, this is the single most important responsibility outlined for counties by the Municipal Waste Planning, Recycling and Waste Reduction Act (Act 101). The manner in which a county acquires capacity or fulfills that requirement differs from one jurisdiction to another. Many counties enter into contractual arrangements with third party disposal facilities, primarily landfills. Others own and operate their own landfills. York County is one of the counties in the Commonwealth where the important decision was made to construct and operate a facility to utilize municipal solid waste as a valuable asset in the production of renewable energy, rather than having it disposed.

In Chapter 3, the disposal and processing needs for York County were projected for the next 25 years. Justifications for the methods, which will be utilized to fulfill those needs, were discussed in detail. Here in Chapter 6, a brief refresher is provided of the future assurances and selected disposal and processing options. Greater focus however, is given to the York County Resource Recovery Center - the linchpin of the entire integrated municipal solid waste management system and the foundation upon which the York County Municipal Solid Waste Management Plan was developed.

Overview of the Selected Methods for Disposal and Processing

The York County Resource Recovery Center was conceived and developed with the purpose of providing the capacity required to manage the waste generated in York County. It was anticipated that the Center should also handle some portion of the waste originating in surrounding counties. The goal was to ensure the proper management of municipal solid waste with the added advantage of producing electricity.

The Center, which is situated on a 141-acre campus in Manchester Township, has been in operation since 1989. From its inception, the Center was designated as the primary facility to receive municipal solid waste from York County. The Center has fulfilled that role for nearly 25 years. During the planning process, the Municipal Waste Advisory Committee acknowledged that the Resource Recovery Center should continue this function. Under current operating conditions, ongoing maintenance and future improvements, the Center has the capacity and ability to meet the waste management needs of York County for the next 25 years as well.

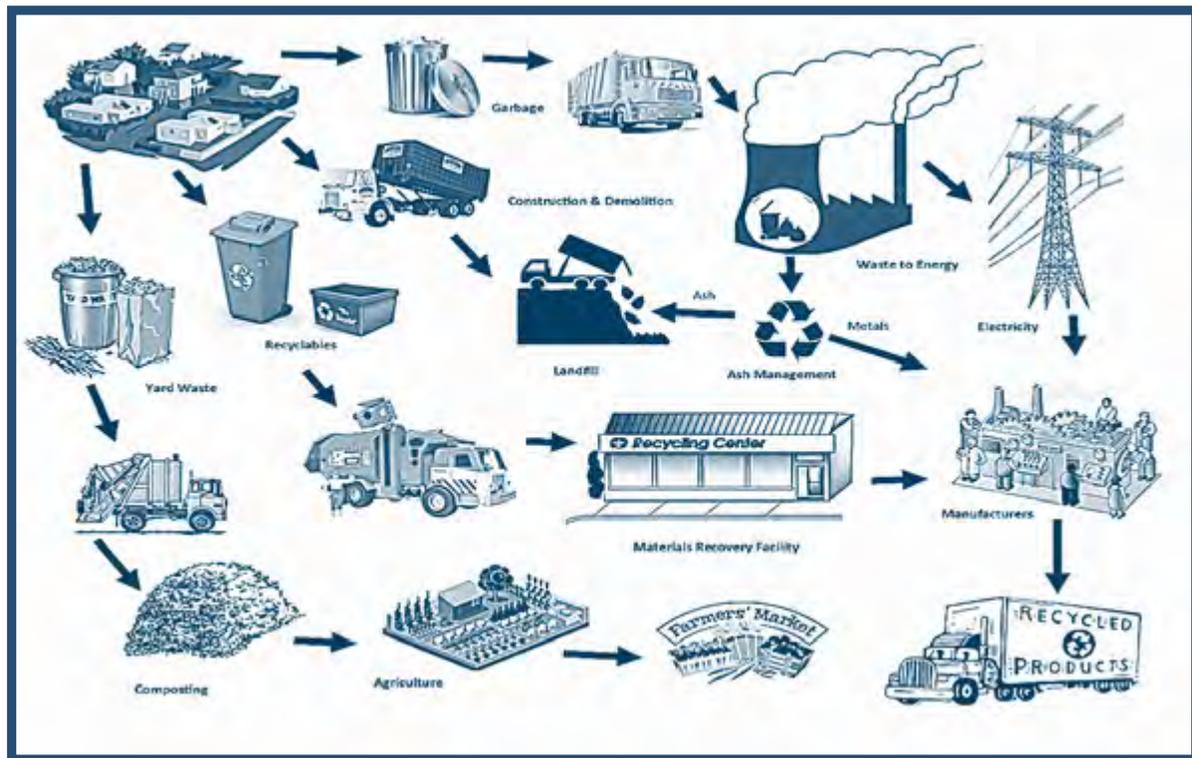
In 1989, a flow control mechanism, in the form was implemented as in conjunction with the provisions of Ordinance 89-4, the York County Flow Control Ordinance. It authorized a set of rules and standards for transporters to ensure that flow control is enforced. Ordinance 89-4 provided for municipal waste collection & transporter licensing. In recognition of Act 90, the Authority will replace its licensing program with a hauler registration program under regulatory provisions of the ordinance. Consequently, on

average, the Center processes approximately ninety-five to ninety-seven percent of the municipal solid waste discarded in the County each year. The remaining three to five percent of the municipal solid waste is considered non-processible. There are other sub-categories of municipal waste also unsuitable to be processed at the Center. These include sewage sludge, regulated medical waste, and some components of construction & demolition waste. **Therefore, the Center is not the sole recipient of all of York County's municipal solid waste.**

Existing contractual arrangements and agreements are in place for both the non-processible municipal waste and for times, when due to catastrophic events, waste volumes exceed the **Center's operational limits**. A by-pass agreement was executed with Modern Landfill. In addition a letter was obtained from the Lancaster County Solid Waste Management Authority agreeing to act as a by-pass contingency facility. Currently, all types of non-processible waste, including sewage sludge and regulated medical waste, as well as construction & demolition waste may be disposed in any facility with an active permit approval to accept these materials.

Source separated recyclables must be managed by a materials recovery facility, end-user or an interim dealer/broker. Source separated yard waste and food waste must be processed at a facility permitted and/or approved to accept the material for processing. Figure 6-1 shows the basic flow of municipal solid waste in York County.

The Figure 6-1 York County's Integrated Waste Management System



The York County Solid Waste and Refuse Authority owns the Center, which is currently operated and maintained under a contractual arrangement with Covanta York Renewable Energy, LLC. Turning municipal waste into energy involves a technically engineered facility design and process. It encompasses a number of safety and pollution control devices and procedures. The intricacies of each step of the mechanical process could be provided in the framework of technical and regulatory references and vocabulary. However, for the purpose of the Plan, a consolidated and simplified explanation of that process is offered.



The Center has three combustion units, which use the municipal waste as fuel to heat boilers capable of producing 360,000 pounds of superheated steam per hour. Each unit is capable of producing 120,000 pounds of steam per hour and is rated at 448 tons of waste per day. The steam in turn causes a turbine to drive a generator that creates electricity. By volume, the municipal waste is reduced by approximately 90% and a residual ash remains. The ash is processed to remove any remaining valuable metals and the remaining materials is beneficially used as alternative daily cover at a landfill.

The Center can generate up to 40 megawatts of electricity every day of the year...enough electricity to meet the demands of approximately 20,000 homes.

Practical Benefits of Converting York County's Waste into Energy

Aside from providing capacity to manage municipal solid waste, the Center has other advantages. The first and most obvious is the ability to generate power from domestic sources. Waste-to-energy facilities generate more renewable electric power from one ton of trash than any other waste management option. Up to 40 megawatts of electricity is generated at the Center **365 days per year 24 hours per day. That's enough electricity to power approximately 20,000 homes, which is equivalent to twelve percent of the housing units in York County.**

Metropolitan Edison purchases and distributes the electricity resulting from the conversion of waste into energy at the Center. Revenues from these transactions partially support the cost to operate the Center, including the wages and benefits of the employees. The economic sustainability of the system is supported by the Pennsylvania Alternative Energy Portfolio Standards Act of 2005. Pennsylvania law requires each electric distribution company and electric generation supplier by 2020 to incorporate into the

electricity supply 18% from alternative energy sources. This includes 10% from resources such as large-scale municipal waste-to-energy operations like the York County Resource Recovery Center. The increasing cost of compliance for fossil fuel electricity sources continue to make waste-to-energy attractive in the marketplace.

The Role of the Resource Recovery Center in Mitigating Climate Change

A lifecycle analysis is the most accurate method for understanding and quantifying the complete accounting of any municipal solid waste management option. The ability of waste-to-energy to prevent greenhouse gas emissions on a lifecycle basis and mitigate climate change has been recognized globally. The York County Resource Recovery Center achieves the reduction of greenhouse gas emissions through three separate mechanisms; a reduction in fossil fuel consumption, the energy conservation from the recovery of materials, and the avoidance of methane gas generation.

Figure 6-2 Impact of Processing York County’s Municipal Solid Waste at the Resource Recovery Center



Source USEPA WARM Model

Reducing Fossil Fuel Dependency

Domestic reliance on foreign oil, geopolitical unrest, and the prospect of future fuel shortages has inspired intense public dialogue and research into the potential for alternative energies. Municipal solid waste is among the best sources of feedstock for producing bio-renewable energy and other commodities in high demand. By generating electrical power or steam, waste-to-energy avoids carbon dioxide (CO₂) emissions from fossil fuel based electrical generation. Every ton of municipal solid waste processed in a waste-to-energy facility avoids the mining of one third ton of coal or the importation of one barrel of oil. For York County’s municipal solid waste processed at the Center, this represents nearly 95,000 tons of coal or nearly 287,000 barrels of oil.

Energy Conservation from Material Recovery

Another effect of modern municipal solid waste combustion with energy recovery is the benefit of material recovery. The recovery of ferrous and nonferrous metals from municipal solid waste by waste-to-energy is more energy efficient than production from raw materials. Recycling metals also avoids CO₂ emissions that would have been emitted if virgin materials were mined and new metals, such as steel were manufactured. Metal processors recover approximately 18,000 tons of metal annually from the York County Resource Recovery **Center's combustion ash residue.** Brass, aluminum, copper and other base metals are the common metals that can be recovered and recycled. The remaining 145,000 tons of ash can be used in the construction and maintenance of landfills and as an aggregate in construction. Modern Landfill has PADEP approvals for the beneficial use **of the Center's ash residue as an alternative to the soil required for daily cover of the working face of the landfill.**

Eliminating Methane Gas Emissions

The USEPA has stated that waste-to-energy plants produce **electricity with "less environmental impact than almost any other source of electricity."** Numerous studies commissioned by the USEPA and other independent sources have determined that nearly one ton of carbon dioxide emissions is avoided for every ton of trash processed by a waste-to-energy facility rather than discarded conventionally. Modern waste-to-energy operations such as the York County Resource Recovery Center use state of the art air emission control technology to protect air quality.

The USEPA now recognizes a **fourth "R" in the traditional "reduce, reuse, recycle"** waste management hierarchy, RECOVER.

The York County Resource Recovery Center is representative of this component.

After reduction, reuse, and recycling efforts in York County occur, the Center recovers energy from the remaining municipal waste stream.

The Center not only generates substantial amounts of electricity, but also reduces energy consumption, which would be used to mine virgin materials by recovering metals from the resulting ash.

The waste-to-energy combustion process not only reduces carbon dioxide, it also effectively avoids all potential methane emissions from landfills. Biogenic material (material of biological origin), such as paper, food scraps and yard waste, typically constitutes a little over 50% of the municipal solid waste stream. When biogenic materials are disposed in a landfill, they decompose into nearly equal portions of carbon dioxide and methane gas. US EPA models claim that methane is twenty-one times more potent as a GHG than carbon dioxide. The Intergovernmental Panel on Climate Change (IPCC), an independent panel of scientific and technical experts that shared the Nobel Peace Prize with Al Gore, has determined that combusting the biogenic fraction of municipal solid waste results in a greenhouse gas (GHG) reduction when compared to landfill disposal. **Considering the credentials and views of its members, IPCC's findings are an indication of the future importance that waste-to-energy will play in global efforts to minimize climate change.** York County is already contributing to those goals.

Future Improvements and Enhancements to the Center

Further assurance that the Resource Recovery Center will be able to provide sufficient **processing capacity for York County's municipal solid waste is the multi-phased** site improvement project, which will be initiated in the immediate future. Many of the improvements will serve to control operating costs. Enhancements to the Center will include better traffic control measures to segregate the inbound and outbound flow of large commercial packer trucks from public access vehicles. Larger tipping areas to accommodate transfer trailers and the installation of additional scales will also ensure a safer and more controlled traffic pattern. Enlarged parking areas, and better access to the **maintenance area and visitor's center also support the traffic safety plans.** The consolidation of the various drop-off collection areas for yard waste, recycling and specialty collections is planned to provide a better user experience.

New sources and applications of the resources necessary to operate the Center are also being considered. Water and fuel are two major issues, which have been reviewed. During one phase of the site improvement project, the Center will likely convert from fuel oil to natural gas to initiate the combustion process. A smaller fuel oil tank will be installed to provide for other equipment needs. In addition, through the cooperative efforts of the York Water Company, the ability to tap into a new water main for emergency purposes will become a reality. The storage and use of storm water run-off for a variety of operational applications that require non-potable water is also planned.

One of the most significant operational issues for any combustion oriented waste-to-energy facility is the volume of ash residue that is produced. New processes are being explored with the intent of increasing the amount of metals that can be recovered from the ash, while reducing the cost of residuals management.

The site improvement project is expected to be a considerable expense. However, the ultimate result is anticipated to be a safer and more efficient operation which can facilitate future expansion. The return on investment, over the long term, will serve to control future operational costs. Thus, local residents and businesses will experience stable tipping fees, which directly fund the operation of the Center.

Summary

As has been demonstrated since the York County Solid Waste and Refuse Authority opened the Center in 1989, through its continued operation, York County will realize ongoing benefits. Not only does the Center provide a reliable method of managing the municipal solid waste generated in York County for the next 25 years, but it also provides processing capacity to neighboring counties. The technology used at the Center already serves to reduce the impact of greenhouse gases and minimize climate change. It also reflects the **nation's goals of** energy independence based on greater utilization of domestic renewable sources. The revenues generated by the operation of the Center support the local economy by providing employment opportunities. Additionally, the Center provides the funds that make the **Authority's comprehensive educational programs and special collection services** possible.

Based on past success, it makes sense for the County to continue with the Resource Recovery Center as its choice for the management of processible municipal solid waste. The Plan recommends this course of action. It also provides for adjustments to the Center and the way specific materials are managed based on future unforeseen conditions and observations made by the Authority.

CHAPTER SEVEN

York County Solid Waste and Refuse Authority



Administration and Oversight

During the current planning process, goals and objectives were established to ensure that responsible solid waste management is practiced in York County. Programs, policies, and procedures were reviewed and appropriate revisions were recommended. Legal mechanisms were developed or amended to ensure that the recommendations could be executed. Specific objectives were designed with implementation targeted in phases during the twenty-five-year period encompassed by the Plan.

Under the provisions of Act 101, the responsibility for the Plan's content and implementation ultimately falls to the York County Board of Commissioners. However, the Act does provide the County with the choice to delegate those duties to another representative or organization. Chapter 7 identifies the administrator and enforcer of the Plan and outlines the associated responsibilities.

Agent of the County

The York County Solid Waste and Refuse Authority was established in 1971. Since then it has assumed the responsibility for developing municipal solid waste management policies and programs on behalf of the County. In this role, the Authority ensures that the recommendations resulting from the planning process are put into action and in turn, enforced.

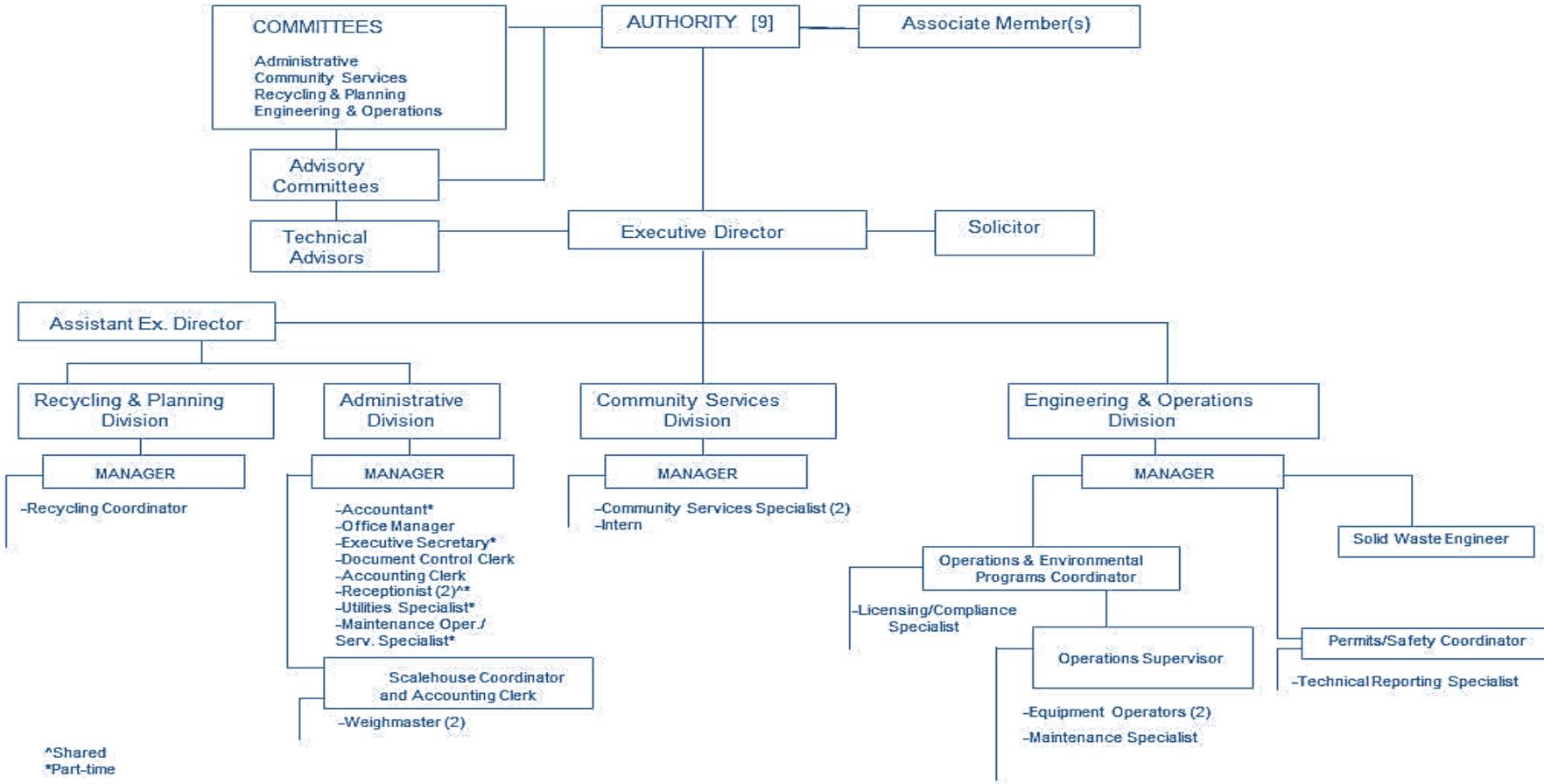
Successful Plan implementation is reliant on the continued involvement of all stakeholders. Both the County and the Authority are sensitive to the individual and collective needs and positions of the municipalities regarding solid waste and recycling issues. Programs and services are designed to complement and support local efforts. By collaborating with private sector service providers, the Authority has played an essential role in building a comprehensive waste management infrastructure throughout the entire County.

Overview of the Solid Waste Authority

Nine individuals, each appointed by the York County Board of Commissioners, serve as the Board of Directors and provide governance to the Authority. Appointees represent different geographic and demographic sectors of the County. The Board provides vision, approves policies, maintains sufficient personnel and resources to support the operation, and monitors the financial health of the organization. Figure 7-1 illustrates the organizational structure of the Authority.

Figure 7-1 York County Solid Waste and Refuse Authority Organizational Chart

York County Solid Waste Authority



Rev.: 4/13

Authority Mission Statement:

Facilitate responsible solid waste management.

Goals:

1. Using appropriate assessment tools, ensure that continuing solid waste management needs are met.
2. Lead efforts to optimize environmental benefits from the management of solid waste.
3. Provide or facilitate the availability of relevant long-term solid waste management programs and infrastructure that consider waste reduction, reuse, recycling, waste-to-energy and landfilling.
4. Actively participate in the legislative and regulatory process at the federal, state and local levels.
5. Attract, retain, motivate and continually improve the Authority in the pursuit of our Mission and Goals.
6. Promote service and responsiveness to our customers, community and other interested parties.

Without question, the single most important function of the Authority is to provide a responsible outlet for municipal waste generated in York County through the operation of the York County Resource Recovery Center. An added benefit is the valuable source **of energy resulting from the Center's combustion units.** Community outreach and communication regarding solid waste and recycling issues is an important function of this organization. Program development and technical assistance is another vital service.

Staffing

The Authority maintains a staff of 25. The employees serve differing functions including: operation of the facility, community services, regulatory compliance, forecasting and administration. Following is a brief description of the management staff, their roles and responsibilities.

Executive Management Team

A full time Executive Director serves as the primary administrator of the York County Solid Waste and Refuse Authority. This individual reports to the Board of Directors. The Executive Director ensures that the guidelines and recommendations set forth in the Plan are implemented according to schedule. The Executive Director is responsible for the staff and oversees the day-to-day services and operations of the Authority. **As the Authority's liaison to the County the Executive Director must regularly communicate with the Commissioners and a variety of related state and federal departments and agencies.** The Executive Director is responsible for regulatory compliance and related issues and must keep the Board and the staff informed of regulations that impact the operation of the Authority. **The Executive Director serves as the Authority's liaison with the PADEP and maintains communications with the Department's South central Regional Office. It is important for the Executive Director to keep abreast of pending legislative initiatives and USEPA and PADEP policy changes that could affect the County, the municipalities and the Authority.**

An Assistant Executive Director serves as the fiscal planner and controller of the organization. The Assistant Executive Director prepares financial statements, collaborates with the Executive Director in preparation of the annual budget, establishes procurement policies, and monitors the receivables process. Outside contractors are engaged to perform many of these functions including; consulting, legal and financial services. It is the duty of both the Executive Director and also the Assistant Executive Director to ensure the performance and cooperation of these vendors.

Engineering and Operational Management

The Engineering and Operations Manager is the primary point person with the **Authority's operating contractor Covanta** York Renewable Energy. The Engineering and Operations Manager is responsible for **monitoring the contractor's safety and** regulatory compliance performance safety and regulatory compliance and operations of the facility, as well as ensuring that the facility and equipment are maintained in good operating condition. In addition, this individual prepares, and maintains reports, permit applications, and related documents that must be submitted to the PADEP. Because the goals of the York County Solid Waste Management Plan place emphasis on flow control, eliminating illegal dumping and deterring improper disposal there is a need for an enforcement program. The Engineering and Operations Manager provides supervision of the field and enforcement staff.

Community Services

The Community Services Manager serves as the face of the Authority on all public outreach and awareness related issues. Through attendance at community and civic functions and timely announcements in the media, the Community Services Manager promotes the activities and operations of the Authority. The Community Services Manager interacts directly with civic groups, youth organizations, schools, local municipalities, and individual York County residents. Educational tours and programs **are conducted on premise at the Authority's facilities as well as off premise at a variety** of events and locations throughout the County. In addition to implementing this proactive outreach strategy, the Community Services Manager establishes protocols for handling inquiries and the resolution of community concerns.

Planning and Recycling

Tracking, monitoring, and forecasting the solid waste and recycling activities within York County falls under the responsibilities of the Planning and Recycling Manager. This individual oversees the process of securing data from businesses and municipalities, which is necessary to file the annual report required by the DEP and Act 101, Section 904 Performance Grant applications. The Planning and Recycling Manager is responsible for development of the York County Municipal Solid Waste Management Plan and other feasibility studies. Coordination and execution of special collection events, as well as technical assistance for the development of new service offerings and pilot projects are also part of the duties. The Planning and Recycling Manager also serves as a business development agent for the Authority and solicits transporters, municipalities and businesses to deliver waste for processing at the Center.

Board and Staff Professional Development

A combined strong management team and volunteer board of directors is an essential component to maintaining organizational effectiveness. It is important for not only the staff, but also the board of directors to attend and participate in professional development seminars, webinars, and trade association meetings. Reading and reviewing industry related articles and publications are also useful. Periodically, training should go beyond industry topics and focus on leadership, fiscal responsibility, and strategic planning.

National and State Resources

With greater competition for funding and other sources of revenue on the horizon, a Board and staff knowledgeable in industry trends, new technology, and applications creates a stronger Authority with the best mix of services for York County residents and businesses.

The South-central Regional Office of the PADEP hosts roundtables on a periodic basis. These meetings serve as a good source of information on state, and local issues. Participation fosters a regional peer-to-peer network and develops a solid working relationship with the Department.

The Professional Recyclers of Pennsylvania (PROP) supports the needs and interests of counties and municipalities. PROP provides continuing education opportunities and up to date information on solid waste, composting and recycling. The organization also advocates for legislation and policies that support solid waste programs and mandates. **Therefore, the staff's membership and active participation in PROP is a benefit to the Authority.**

The Keystone Chapter of the Solid Waste Association of North America (SWANA) hosts mini technical seminars and an annual fall conference that provide opportunities to keep abreast of regulatory changes and to network with PADEP officials and industry experts.

Organizations such as the County Commissioners Association of Pennsylvania, the Pennsylvania State Association of Township Supervisors, the Pennsylvania Municipal Authorities Association, and the Pennsylvania Association of Boroughs all actively advocate for issues relevant to the Authority. Each offers seminars, web sites and other mechanisms that provide board members with networking and learning opportunities.

The Executive Director and other staff members occasionally attend national conferences to obtain a more global perspective on solid waste and recycling issues. The North American Waste-to-energy Conference, WasteCon and the National Recycling Coalition Congress and Exposition are all worthwhile events.

Fiscal Responsibility

It is incumbent on the Authority to be fiscally responsible in its operations and programs. The Authority is fully reliant on self-generated sources of revenue. Income is tied directly to a fee for service system. Thus, the Authority does not benefit from or receive York County tax dollars. Operating funds for the Authority come primarily from fees charged to process waste that is delivered to the facility and from the generation and sale of electricity. Gross annual revenues are approximately \$44 million. These monies must be used to cover not only the costs of current operations, but also ongoing maintenance and repairs. Eventually, replacements and upgrades to the combustion units will be necessary, or based on future conditions, investments made in alternative technologies. Therefore, a fair portion of the annual income must be reserved in preparation for these inevitable and significant expenditures.

This self-sufficiency enables the Authority to contain the cost of waste management in York County. The current tipping fee (cost of disposal) for York County waste is \$59 per ton at the York County Resource Recovery Center. Although the Authority generates sufficient revenue to sustain its operation, it does occasionally seek additional funding, through the Act 101, Section 902 grant program, for various recycling related projects on behalf of or to benefit local municipalities.

Each year an independent accountant audits the financial records and prepares a report, which is presented to the board of directors. In addition, the Executive Director and Assistant Executive Director review and assess the financial status of Authority and prepare an annual budget, which is presented to the board for approval. The budget details program expenses and all sources of revenue. It also offers projections for any pending changes and other issues of concern.

Operating revenue and operating expense summaries are submitted monthly to the **board. The Authority's conservative fiscal management has resulted in consistently affordable disposal costs in York County. Since the inception of the Center, few rate increases have been implemented, while the Authority's programs and services have expanded.** The 2010 York County tipping fee of \$56 per ton is highly competitive when compared to those in the surrounding region; particularly for WTE services.

CHAPTER EIGHT

Public & Private Sector Functions



Complementary Roles

In York County, there is a friendly coexistence of public and private sector services. Clearly, the public sector is the dominant, but not exclusive waste disposal provider. The private sector primarily controls waste collection and recycling, and some portion of the disposal. This arrangement has successfully served the needs of the County for multiple decades. It is expected to continue throughout the planning period. This chapter summarizes the operational role of local government in municipal solid waste management. It describes the functions and assets of both County and municipal entities. Future plans are also discussed.

County Level Facilities and Functions

The York County Solid Waste and Refuse Authority fulfills the public function on behalf of the County. The Authority plays an important role in the advancement of solid waste management technologies and processes that capture the greatest value from the waste stream and minimize land disposal. The Authority owns real estate, processing equipment, vehicles, and other related items. These purchases were made possible by revenues generated by the York County Resource Recovery Center and the power resulting from its operation.

The construction and operation of the Center represents the long standing history of public sector control and management of locally generated municipal solid waste. This major investment of public funds was approved pending the closure of the York County Sanitary Landfill, which had previously served the disposal needs of the County. The Authority engages a private contractor, Covanta York Renewable Energy LLC., to conduct the day-to-day operations of receiving and converting solid waste-to-energy. However, it also **employs a full staff that fulfills the County's responsibilities under the provisions of Act 101 and the mission statement of the organization.** A variety of services are provided on a countywide basis.

The Authority supports the efforts of private industry through open communication, education, and enforcement of proper waste management practices.

Municipal Level Facilities and Functions

With two exceptions, municipalities in York County do not utilize public works crews to collect and transport municipal solid waste or recyclables. Only Hanover and Wrightsville Boroughs implement their own collection systems. Hanover also operates a transfer station that receives, consolidates and transports municipal solid waste for disposal. In some municipalities, public workers do collect leaves, leaf waste and yard debris. These materials are sometimes chipped and mulched for use on public grounds or distributed to local residents. The details of every equipment purchase are unknown, however, at least a portion of the items used for this purpose were funded, in part by PADEP Act 101, Section 902 grants. Fairview Township is the only

municipality that currently operates a compost site. There are no public sector material recovery facilities.

Future Programs and Facilities

Based on the public sector's current investment in the major component of the municipal solid waste infrastructure, there is no reason to believe that the role of the County and its agent the York County Solid Waste and Refuse Authority will change during this planning period. The Plan's implementation schedule earmarks certain materials and processes for feasibility studies and research projects. New processes or methods of managing waste materials that may result from the recommendations of those studies would only serve to complement the Authority's existing operation. There is no indication from any of the municipalities that interests or plans exist to enter the collection and/or processing arena. It is anticipated that these roles will not change during the Plan's implementation period.

CHAPTER NINE

Implementation & Enforcement



Purpose and Need

Rules and regulations help residents, businesses and service providers understand their roles and responsibilities in municipal solid waste management. Such requirements are valuable deterrents to illegal waste management practices and are useful in resolving conflicts and disputes regarding solid waste issues. Those who participated in the developmental discussions and forums, expressed the need to have effective tools and mechanisms to implement and enforce the goals and objectives set forth in the Plan.

Although counties were granted greater authority by Act 101, local ordinances, contracts and other legal documents serve to empower YCSWA, the implementing **entity, to enforce York County’s policies. The tools designed for implementation of this Plan** are discussed in the following narratives. The documents are provided in separate sections of the Appendices, with the specific location noted below.

During the Plan implementation period, forms and guidelines, as well as other documents may be developed and revised over time to simplify and improve the procedures associated with implementation. However, these changes will not alter the legal or contractual content of the Plan.

County Flow Control Ordinance

The County drafted the Flow Control Ordinance to ensure compliance with the flow control provisions of the Plan. The ordinance requires those collecting processible municipal waste in York County to transport it to the York County Resource Recovery Center. The Authority regularly reviews the waste destination data available from the Pennsylvania Department of Environmental Protection (PADEP) on its website to identify municipal waste facilities accepting York County municipal waste that are not **designated in York County’s approved Plan**. Once identified, the County will contact the facility in an attempt to determine the waste transporter(s) delivering York County waste to the facility. If unsuccessful in obtaining resolution through the transporter and/or facility, the County will request assistance from PADEP in resolving the transportation of waste to a non-designated facility.

The ordinance is located in Appendix C.

Municipal Waste Disposal Capacity Agreement

The Authority maintains an agreement with Republic Services for Modern Landfill to accept the non-processible waste from York County. Modern Landfill also provides capacity for by-pass waste when necessary. The contract is located in Appendix B. A contingency back-up commitment is also provided in Appendix B from the Lancaster County Solid Waste Management Authority.

Delegation Agreement

When the York County Municipal Solid Waste Management Plan was developed, the Board of Commissioners of York County exercised their authority to assign to another party, the roles and responsibilities provided to them under Act 101. At that time, in a formal agreement, they delegated the duties for implementing the Plan to the York County Solid Waste and Refuse Authority. The Delegation Agreement remains in effect throughout this Plan. It is included in Appendix D.

York County Solid Waste and Refuse Authority Approval of the Plan

Upon recommendations from the York County Planning Commission and the Municipal Waste Advisory Committee the Plan was approved by the Authority. An excerpt of the meeting minutes that contains the motion to approve the Plan is provided in Appendix C.

CHAPTER TEN

Future Impact



Continuity of Programs and Services

The York County Solid Waste and Refuse Authority, on behalf of the County, worked together with representatives from the city, boroughs and townships, agencies and institutions, as well as the waste and recycling industry to ensure that revisions to the Plan are reasonable. It is expected that any recommendations resulting from the Plan will be implemented in a seamless non-disruptive fashion. Basic programs and services in place at the time when the Plan was developed are expected to continue.

Changes or additions in program structure, services, or policies are designed to provide a smooth transition for all stakeholders.

Guidance and Administration

The York County Solid Waste and Refuse Authority retains its leadership role for County level municipal solid waste management issues. The Authority has a clear focus on its role and capabilities. Both public and private stakeholders experience a high level of outreach and support. It is anticipated that the goals and objectives of the Plan will be attained based on the strength of these relationships.

Universal Participation in Collection Services

One of the primary recommendations of the Municipal Waste Advisory Committee was the growth and implementation of mandatory participation by residents and businesses in municipal waste and recycling collection. Intergovernmental cooperation **is expected in order to attain this objective over the course of the Plan's** implementation period. An improvement in general public health and safety resulting from the decrease in illegal dumping and littering is expected to occur.

Materials Management

Developing options for the diversion of organics and construction and demolition materials will provide environmental benefits and business opportunities. The availability of disposal alternatives has the potential to provide long-term costs savings to residential and commercial municipal waste generators. In addition to the expected benefits of recycling, the use of organics, plastics and wood waste to produce alternative energy is an added consideration. All of these provide economic development opportunities for public and private interests.

Environmental Concerns in Disaster Management

The Plan supports the County's overall efforts in disaster management planning. **The Authority's participation in the process assures that solid waste management issues** will be given serious consideration. Significant improvements to current practices are anticipated. The implementation of such a disaster debris recovery program will not

interfere with municipal operations. It will complement them by reinforcing the expectations of the community for public services during such events and demonstrating the value of conservation and environmental protection.

Status Review

A five year review process is planned to assess the validity of assumptions and recommendations, which resulted from the planning process. If significant discrepancies or changes in the operational or regulatory environment exist, then a process to revise the Plan will be initiated.

CHAPTER ELEVEN

Business of Waste Management



Mutual Needs and Obligations

In Pennsylvania, all counties are required by Act 101 to secure disposal capacity and demonstrate **methods to attain the state's recycling goals. These issues are commonly** addressed during the development of a municipal solid waste management plan. **Similar requirements are common throughout the nation. Today's state of the art** disposal facilities require a considerable investment to design, permit, construct, and operate. Based on the economies of scale, it is unreasonable to think that every county would meet its capacity obligations with either its own disposal facility or one operating within its borders. Therefore, to ensure proper management and disposal, it is often necessary for waste to move across county and state lines. These same issues apply to the processing and marketing of recyclable commodities. This chapter demonstrates how the York County Solid Waste and Refuse Authority protects its own investment in municipal solid waste management without interfering with the opportunities of the local waste and recycling industry or interfering with the needs of other counties.

Shared Access to Capacity

The York County Solid Waste and Refuse Authority has a long-standing commitment **to manage the municipal waste generated within the County's borders to the fullest** extent possible at the Resource Recovery Center. To the degree that certain materials cannot be managed at the Center, the Authority has established alternative provisions. The York County Municipal Solid Waste Management Plan, through the County Solid Waste Ordinance 89-4, directs transporters to deliver all York County processible municipal solid waste to the Center. Modern Landfill has contractual commitments guaranteeing disposal capacity to the Authority for unprocessable and by-pass waste.

As discussed previously in this document, certain non-processible, but special handling wastes, can be disposed/processed at any appropriately permitted facility, located in or out of the County or state, which can accept the materials. Although York County manages the bulk of its municipal solid waste at a local public sector owned and operated facility, it does send biosolids, residual, construction/demolition and regulated medical waste to disposal and processing facilities located in other counties, and in some instances other states. Likewise, the County uses privately operated material recovery facilities to process and market recyclable commodities, which are ultimately transported elsewhere, including out of state, and out of the country.

The same approach was utilized in other counties' plans. Therefore, depending on the origin and category, in south central Pennsylvania, many forms of waste flow naturally through a network of transporters and facilities with no local, state, or national boundaries. Both the York County Resource Recovery Center and Modern Landfill accept waste from other Pennsylvania counties. Each facility has entered into long term agreements, which share a secured portion of their capacity with one or more

counties. Some amount of waste also comes from local, regional and/or out of state businesses and industries equally in need of an environmentally sound disposal option. Recyclables from other counties are also transported to York County facilities for processing.

Cooperation and Commitments

To manage a portion of its waste, York County relies on the cooperation of other counties and states, which permit the operation of disposal facilities in their jurisdictions. It also relies on a global economy to provide markets, which sustain its recycling programs. In return, the York County Solid Waste and Refuse Authority and the County respect the contractual obligations of the local existing facilities. **In addition, the County understands the operator's need to design, finance, and construct** reasonable expansions to meet the required capacity commitments. Therefore, to the extent that such activities are in compliance with the provisions of the York County Municipal Solid Waste Management Plan and any related agreements, the County will not interfere with the normal operational and regulatory process involved with such expansions. Additionally, the County will not inhibit the free enterprise of the facilities nor prevent them from generating the necessary profits to support those projects.

CHAPTER TWELVE

Public Participation



A Plan Tailored to the Local Community

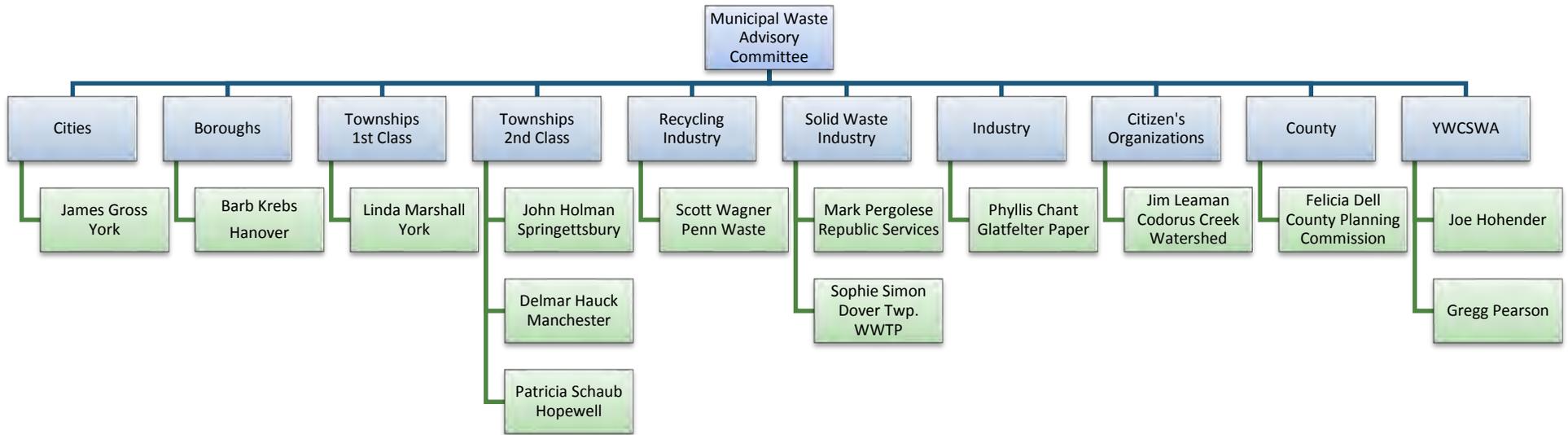
Soliciting input from a wide spectrum of individuals and organizations that will be affected directly or indirectly by solid waste management decisions is an essential part of the planning process. It is expected that elected officials, regulatory agencies, enforcement officers and quasi-governmental organizations will play a role. However, the opinions and ideas of citizens, businesses, industries, service providers, and municipalities are key in assessing public awareness and motivation, along with service needs.

A variety of technical, operational and financial issues tend to surface as plans are developed. Equipment, processes and funding mechanisms may be needed to resolve these problems. Of equal, if not greater importance are political and personal concerns that often dictate or limit the regulatory framework and/or the types of services made available. Regardless of the locale, solutions to municipal solid waste management must meet four basic and simple criteria. Plans, policies and programs should be realistic, easily implemented, cost effective, and enforceable. Public participation ensures to a greater degree that this will occur. Chapter 12 summarizes the stakeholder experience in the development of the York County Municipal Solid Waste Management Plan. It outlines the criteria for advisory committee member selection. It highlights the agenda topics, the information presented, discussions and reactions to the data, and the comments and suggestions offered.

Selection and Appointment of Participants

To develop a Plan that would meet the needs of the local community, the York County Solid Waste and Refuse Authority Board of Directors recognized the importance of obtaining feedback from sources outside of the organization. To facilitate this valued interaction with local stakeholders, the Municipal Waste **Advisory Committee (MWAC) was established. One of the Authority's Directors** and one staff member were assigned as liaisons. The Authority appointed twelve individuals to serve on the Committee. Essential in the selection process was that members would represent a balance of specific interests within the County. Local government representatives were selected from specific classes of the political **jurisdictions, including the County. Because York County's demographics and** needs vary based on geography, care was taken to select municipal representatives from a cross section of the traditional planning sectors of the County. In addition to public sector representation, individuals from environmental interest groups, private waste and recycling industry companies, and local industry all served as members on the committee. Figure 12-1 lists the members and their affiliations.

Figure 12-1 York County Municipal Waste Advisory Committee



Presentations and Discussions

A series of meetings were scheduled on a periodic basis during the development of the Plan. Each meeting focused on one or more related issues found throughout the required structure of the planning document. Topics included demographics of the County, national and local trends on municipal waste composition, generation, recovery and disposal, strengths and weaknesses in the infrastructure, energy recovery, and issues that deserved further investigation **during the planning period. Meetings were facilitated by the Authority's Manager of Recycling/Planning and the Project Consultant.**

Most meetings included presentations by the Project Consultant on findings resulting from analyses of local data. Explanations of current and pending issues, regulatory constraints, new technologies and opportunities were offered to prompt group discussion. The Project Consultant addressed comments and questions from the group. Staff and Directors observing in attendance were often called upon to clarify data, policies and operational methods.

The MWAC was encouraged to be interactive and to freely express opinions, suggestions, and offer background information based on their representative stakeholder category. Pre and post planning opinions were solicited from the MWAC to determine what influence, if any, knowledge and interpretation of the reported data along with exposure to new concepts and ideas had on their final views and suggestions. In fact, one entire meeting consisted of a roundtable discussion in which the MWAC commented on their assessment of the information, prioritized perceived issues, and outlined their vision for future solid waste management objectives for York County.

Immediate Issues and Expectations

MWAC participants were open and forthcoming with their views. They offered support for the current programs and services implemented by the York County Solid Waste and Refuse Authority. There was consensus on the need to sustain the current system of flow control. Energy recovery was favored as a method of waste management.

The Committee made observations and expressed their concerns on certain prevailing conditions, specifically intolerance for illegal dumping, littering and open burning. A common thread in the discussions was the roles and responsibilities of elected officials to adopt and enforce policies that protect the environment, and ensure public health and safety. Policy related views focused on the need to require all residents to utilize commercial waste collection services, or those provided by public employees. The MWAC favored municipally contracted services with mandatory participation. The ability to include recycling collection as part of a bundled service package was considered desirable. With

the continued prevalence of single stream recycling, the Committee reinforced the need for larger capacity recycling containers, particularly those suited for automated collection. Different ways to finance the purchase and distribution of the containers were suggested.

The need for universal bid/contract language to ensure a fair and open competitive bidding environment was discussed at length. The need to provide clear interpretations of the lowest responsible bidder and to define the financial securities, and legal ramifications for failing to meet certain performance expectations was voiced. Operational needs were considered to be specific to each community. To complement the proposed improvements in service contract specifications, MWAC also suggested the need to develop ordinances, which define the responsibilities of residents to participate and pay for waste management and recycling services.

Future Research and Studies

MWAC participants expressed their visions of the types of new programs and concepts that should be implemented or at a minimum investigated. They also offered suggestion for improvements to current programs and services. Planning for disaster debris management was targeted as an essential tool for the County. It was suggested that studies were warranted to determine improved methods for construction & demolition waste management and its potential for energy recovery and/or recycling. With the increasing proportions of plastics in municipal solid waste, studies were suggested to determine the feasibility of implementing new technologies to attain the highest value for these recovered materials. The segregation of food waste and other organics and their use as feedstock for energy recovery in digesters was another suggested topic for consideration and analysis during the planning period.

Documentation of the Meetings

Recorded minutes of the Municipal Waste Advisory Committee meetings and comments received from municipalities, PADEP and the general public during the review process, along with responses are included in Appendix F.

Outcome

The comments and concerns of the MWAC were given serious consideration as the Plan was drafted. To the fullest extent possible they have been incorporated into the final recommendations included in Chapter 5. Many of the ideas were suitable to address in the near term. Others require the involvement and cooperation of decision makers not **within the Authority's realm of powers and responsibilities**. In these instances a stepwise process is outlined to inform, assist and support those who can determine and act on those changes.

APPENDIX A

Definitions



The following words, terms and acronyms are commonly used in discussions of municipal solid waste management and recycling. Throughout this plan, those words, terms and acronyms have the following meanings, unless the context clearly indicates otherwise:

Abatement—The restoration, reclamation, recovery and the like of a natural resource adversely affected by the activity of a person, permittee or municipality.

Access road—A roadway or course providing access to a municipal waste processing or disposal facility, or areas within the facility, from a road that is under Federal, Commonwealth or local control.

Act—The Solid Waste Management Act (35 P. S. §§ 6018.101—6018.1003).

Agricultural utilization—The land application of sewage sludge for its plant nutrient value or as a soil conditioner as part of an agricultural operation.

Agricultural waste—Poultry and livestock manure, or residual materials in liquid or solid form generated in the production and marketing of poultry, livestock, fur bearing animals, and their products, if the agricultural waste is not hazardous. The term includes the residual materials generated in producing, harvesting and marketing of agronomic, horticultural and silvicultural crops or commodities grown on what are usually recognized and accepted as farms, forests or other agricultural lands.

Aluminum—Refers to cans comprised of 100% aluminum.

Association—A corporation, partnership, limited liability company, business trust or two or more persons associated in a common enterprise or undertaking.

Autoclave—A pressure vessel in which infectious waste is disinfected using high temperature steam, directly or indirectly, to maintain specified temperatures for retention times consistent with the waste being processed.

Beneficial use—Use or reuse of residual waste or residual material derived from residual waste for commercial, industrial or governmental purposes, where the use does not harm or threaten public health, safety, welfare or the environment, or the use or reuse of processed municipal waste for any purpose, where the use does not harm or threaten public health, safety, welfare or the environment.

C&D— Construction Demolition Waste

Chemotherapeutic waste—Waste resulting from the production or use of antineoplastic agents used for the purpose of inhibiting or stopping the growth of malignant cells or killing malignant cells. The term does not include waste containing antineoplastic agents that are hazardous wastes under Chapter 261a (relating to identification and listing of hazardous waste) and 40 CFR Part 261 (relating to identification and listing of hazardous waste) to the extent that Part 261 is incorporated in § 261a.1 (relating to incorporation by reference, purpose and scope).

Clean fill—Uncontaminated, nonwatersoluble, nondecomposable inert solid material used to level an area or bring the area to grade. The term does not include material placed into or on waters of this Commonwealth.

Closure—The date on which a municipal waste processing or disposal facility permanently ceases to accept waste, and access is limited to activities necessary for postclosure care, maintenance and monitoring.

COG — Council of Governments

Collateral bond—A penal bond agreement in a sum certain, payable to the Department, executed by the operator and supported by the deposit with the Department of cash, negotiable bonds of the United States, the Commonwealth, the Turnpike Commission, the General State Authority, the State Public School Building Authority or a Commonwealth municipality, Commonwealth bank automatically renewable and assignable certificates of deposit or irrevocable and standby Commonwealth bank letters of credit.

Collection contractor—The definition from section 203 of the Small Business and Household Pollution Prevention Program Act (35 P. S. § 6029.203) is incorporated by reference.

Collection event—The definition from section 203 of the Small Business and Household Pollution Prevention Program Act is incorporated by reference.

Commercial establishment—An establishment engaged in nonmanufacturing or nonprocessing business, including, but not limited to, stores, markets, office buildings, restaurants, shopping centers and theaters.

Commercial infectious or chemotherapeutic waste facility—A facility that processes infectious or chemotherapeutic waste not generated primarily onsite. The term includes facilities where one of the following exists:

- (i) Of the waste processed, less than 50% on a monthly average was generated onsite.

Greater than 50% of the waste processed on a monthly average is not generated from entities that are wholly-owned by the owner of the waste processing facility.

Community activities—Events sponsored in whole or in part by a municipality, or conducted within a municipality and sponsored privately, which include, but are not limited to, fairs, bazaars, socials, picnics and organized sporting events that will be attended by 200 or more individuals per day.

Composting—The process by which organic solid waste is biologically decomposed under controlled anaerobic or aerobic conditions to yield a humus-like product.

Composting facility—A facility using land for processing of municipal waste by composting. The term includes land thereby affected during the lifetime of the operations, including, but not limited to, areas where composting actually occurs, support facilities, borrow areas, offices, equipment sheds, air and water pollution control and treatment systems, access roads, associated onsite or contiguous collection, transportation and storage facilities, closure and postclosure care and maintenance activities and other activities in which the natural land surface has been disturbed as a result of or incidental to operation of the facility. The term does not include a facility for composting residential municipal waste that is located at the site where the waste was generated.

Composting pad—An area within a general composting facility where compost or solid waste is processed, stored, loaded or unloaded.

Construction/demolition waste—Solid waste resulting from the construction or demolition of buildings and other structures, including, but not limited to, wood, plaster, metals, asphaltic substances, bricks, block and unsegregated concrete. The term does not include the following if they are separate from other waste and are used as clean fill:

(i) Uncontaminated soil, rock, stone, gravel, brick and block, concrete and used asphalt.

Waste from land clearing, grubbing and excavation, including trees, brush, stumps and vegetative material.

Construction/demolition waste landfill—A facility using land exclusively for the disposal of construction/demolition waste. The term includes land affected during the lifetime of the operations, including, but not limited to, areas where disposal activities actually occur, support facilities, borrow areas, offices, equipment sheds, air and water pollution control and treatment systems, access roads, associated onsite or contiguous collection, transportation and storage facilities, closure and postclosure care and maintenance activities and other activities in which the natural land surface has been disturbed as a result of or incidental to the operation of the facility.

Construction material—The engineered use of municipal waste as a substitute for a raw material or a commercial product in a construction activity, if the waste has the same engineering characteristics as the raw material or commercial product for which it is substituting. The term includes the use of municipal waste as a roadbed material, for pipe bedding and in similar operations. The term does not include valley fills, the use of municipal waste to fill open pits from coal or other fills or the use of municipal waste solely to level an area or bring the area to grade when a construction activity is not completed promptly after the placement of the solid waste.

Container—A portable device in which waste is held for storage or transportation.

Corrugated paper—A structural paper material with an inner core shaped in rigid parallel furrows and ridges.

DEP— Department of Environmental Protection

Department—The Department of Environmental Protection of the Commonwealth, and its authorized representatives

Disinfection—The treatment or processing of infectious waste so that it poses no risk of infection or other health risk to individuals handling or otherwise coming into contact with the waste. The term includes autoclaving; dry heat, gas or chemical disinfection; radiation and irradiation; and incineration.

Disposal—The deposition, injection, dumping, spilling, leaking or placing of solid waste into or on the land or water in a manner that the solid waste or a constituent of the solid waste enters the environment, is emitted into the air or is discharged to the waters of this Commonwealth.

Disposal area—The part of the site where disposal is occurring or will occur.

EPA—The United States Environmental Protection Agency.

Eligible entity—The definition from section 203 of the Small Business and Household Pollution Prevention Program Act is incorporated by reference.

Environmental protection acts—The act, The Clean Streams Law (35 P. S. §§ 691.1—691.1001), the Municipal Waste Planning, Recycling and Waste Reduction Act (53 P. S. §§ 4001.101—4001.1904), the Hazardous Sites Cleanup Act (35 P. S. §§ 6020.101—6020.1305), the Low-Level Radioactive Waste Disposal Act (35 P. S. §§ 7130.101—7130.906), the act of July 13, 1988 (35 P. S. §§ 6019.1—6019.6), known as the Infectious and Chemotherapeutic Waste Disposal Law, the Air Pollution Control Act (35 P. S. §§ 4001—4015), the Surface Mining Conservation and Reclamation Act (52 P. S. §§ 1396.1—1396.31), the Noncoal Surface Mining Conservation and Reclamation Act (35 P. S. §§ 3301—3326), the Dam Safety and Encroachments Act (32 P. S. §§ 693.1—693.27), and other State or Federal statutes relating to environmental protection or the protection of public health, including statutes adopted or amended after April 9, 1988.

Environmental Stewardship and Watershed Protection Act—27 Pa.C.S. §§ 6101—6113.

Facility—Land, structures and other appurtenances or improvements where municipal waste disposal, processing or beneficial use is permitted or takes place.

Feasibility study—A study which analyzes a specific municipal waste processing, recycling or disposal system to assess the likelihood that the system can be successfully implemented, including, but not limited to, an analysis of the prospective market, the projected costs and revenues of the system, the municipal waste stream that the system will rely upon and various options available to implement the system.

Final closure—The date after which no further treatment, maintenance or other action is or will be necessary at a municipal waste processing or disposal facility to ensure compliance with the act and this article.

Friable asbestos containing waste—Waste containing more than 1% asbestos by weight that hand pressure can crumble, pulverize or reduce to powder when dry. The term also includes nonfriable asbestos containing waste, which is rendered friable during management.

General composting facility—A composting facility other than an individual backyard composting facility or yard waste composting facility operating under § 271.103(h) (relating to permit-by-rule for municipal waste processing facilities other than for infectious or chemotherapeutic waste; qualifying facilities; general requirements).

General permit—Except as provided in Subchapter J (relating to beneficial use of sewage sludge by land application), a regional or Statewide permit issued by the Department for a specified category of beneficial use or processing of solid waste, the terms and conditions of which allow an original applicant, a registrant and a person or municipality that obtains a determination of applicability, to operate under the permit if the terms and conditions of the permit and certain requirements of this article are met.

Generator—A person or municipality that produces or creates a municipal waste.

Hazardous waste—Garbage, refuse or sludge from an industrial or other waste water treatment plant; sludge from a water supply treatment plant or air pollution control facility; and other discarded material, including solid, liquid, semisolid or contained gaseous material resulting from municipal, commercial, industrial, institutional, mining, or agricultural operations, and from community activities; or a combination of the above, which because of its quantity, concentration or physical, chemical or infectious characteristics may do one of the following:

(i) Cause or significantly contribute to an increase in mortality or increase in morbidity in either an individual or the total population.

(ii) Pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of or otherwise managed.

The term does not include coal refuse as defined in the Coal Refuse Disposal Control Act (52 P. S. §§ 30.51—30.101). The term does not include treatment sludges from coal mine drainage treatment plants, disposal of which is being carried on under and in compliance with a valid permit issued under The Clean Streams Law (35 P. S. §§ 691.1—691.1001). The term does not include solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges which are point sources subject to permits under section 402 of the Federal Water Pollution Control Act (33 U.S.C.A. § 1341) or source, special nuclear or byproduct material as defined by the Atomic Energy Act of 1954 (42 U.S.C.A. §§ 2011—2284).

HDPE—High Density Polyethylene

HHW— Household hazardous waste

High-grade office paper—Bond, copier, letterhead or mimeograph paper typically sold as “white ledger” paper; and computer paper.

Household hazardous waste— Waste generated by a household that could be chemically or physically classified as a hazardous waste under the standards of Article VII (relating to hazardous waste management).

For the purpose of this definition, the term “household” includes those places described as “households” in 40 CFR 261.4(b)(1) (relating to exclusions).

ICW— Infectious Chemotherapeutic Waste

Incinerator—An enclosed device using controlled combustion for the primary purpose of thermally breaking down solid waste, and which is equipped with a flue as defined in § 121.1 (relating to definitions).

Incorporating—Injecting sludge beneath the surface of the soil or mixing sludge with the surface soil.

Industrial establishment—An establishment engaged in manufacturing or processing, including, but not limited to, factories, foundries, mills, processing plants, refineries, mines and slaughterhouses.

Infectious waste— (i) General. Municipal and residual waste which is generated in the diagnosis, treatment, immunization or autopsy of human beings or animals, in research pertaining thereto, in the preparation of human or animal remains for interment or cremation, or in the production or testing of biologicals, and which falls under one or more of the following categories:

(A) Cultures and stocks. Cultures and stocks of infectious agents and associated biologicals, including the following: cultures from medical and pathological laboratories; cultures and stocks of infectious agents from research and industrial laboratories; wastes from the production of biologicals; discarded live and attenuated vaccines except for residue in emptied containers; and culture dishes, assemblies and devices used to conduct diagnostic tests or to transfer, inoculate and mix cultures.

(B) Pathological wastes. Human pathological wastes, including tissues, organs and body parts and body fluids that are removed during surgery, autopsy, other medical procedures or laboratory procedures. The term does not include hair, nails or extracted teeth.

(C) Human blood and body fluid waste.

(I) Liquid waste human blood.

(II) Blood products.

(III) Items saturated or dripping with human blood.

(IV) Items that were saturated or dripping with human blood that are now caked with dried human blood, including serum, plasma and other blood components, which were used or intended for use in patient care, specimen testing or the development of pharmaceuticals.

(V) Intravenous bags that have been used for blood transfusions.

(VI) Items, including dialysate that have been in contact with the blood of patients undergoing hemodialysis at hospitals or independent treatment centers.

(VII) Items saturated or dripping with body fluids or caked with dried body fluids from persons during surgery, autopsy, other medical procedures or laboratory procedures.

(VIII) Specimens of blood products or body fluids, and their containers.

(D) Animal wastes. Contaminated animal carcasses, body parts, blood, blood products, secretions, excretions and bedding of animals that were known to have been exposed to zoonotic infectious agents or nonzoonotic human pathogens during research (including research in veterinary schools and hospitals), production of biologicals or testing of pharmaceuticals.

(E) Isolation wastes. Biological wastes and waste contaminated with blood, excretion, exudates or secretions from:

(I) Humans who are isolated to protect others from highly virulent diseases.

(II) Isolated animals known or suspected to be infected with highly virulent diseases.

(F) Used sharps. Sharps that have been in contact with infectious agents or that have been used in animal or human patient care or treatment, at medical, research or industrial laboratories.

(ii) Mixtures.

(A) The term also includes materials identified under subparagraph (i) that are mixed with municipal and residual waste, including disposable containers.

(B) The term also includes mixtures of materials identified in subparagraph (i) with quantities of radioactive waste not subject to regulation.

(iii) Exceptions. The term does not include the following:

(A) Wastes generated as a result of home self-care.

(B) Human corpses, remains and anatomical parts that are intended for interment or cremation, or are donated and used for scientific or medical education, research or treatment.

(C) Etiologic agents being transported for purposes other than waste processing or disposal pursuant to the requirements of the United States Department of Transportation (49 CFR 171.1—190), the Department of Transportation (67 Pa. Code Part I) and other applicable shipping requirements.

(D) Samples of infectious waste transported offsite by Commonwealth or United States government enforcement personnel during an enforcement proceeding.

(E) Body fluids or biologicals which are being transported to or stored at a laboratory prior to laboratory testing.

(F) Ash residue from the incineration of materials identified in subparagraphs (i) and (ii) if the incineration was conducted in accordance with § 283.402 (relating to infectious waste monitoring requirements). The ash residue shall be managed as special handling municipal waste.

(G) Reusable or recyclable containers or other nondisposable materials, if they are cleaned and disinfected, or if there has been no direct contact between the surface of the container and materials identified in subparagraph (i). Laundry or medical equipment shall be cleaned and disinfected in accordance with the United States Occupational Safety and Health Administration Requirements in 29 CFR 1910.1030 (relating to blood borne pathogens).

(H) Soiled diapers, which do not contain materials identified in subparagraph (i).

(I) Mixtures of hazardous waste subject to Article VII (relating to hazardous waste management) and materials identified in subparagraph (i) shall be managed as hazardous waste and not infectious waste.

(J) Mixtures of materials identified in subparagraph (i) and regulated radioactive waste shall be managed as radioactive waste in accordance with applicable Commonwealth and Federal statutes and regulations, including, but not limited to, § 236.521 (relating to minimum requirements for classes of waste).

Mixtures of materials identified in subparagraph (i) and chemotherapeutic waste shall be managed as chemotherapeutic waste in accordance with this article.

Institutional establishment—An establishment engaged in service, including, but not limited to, hospitals, nursing homes, orphanages, schools and universities.

Land application—Agricultural utilization or land reclamation of solid waste. The term does not include the disposal of solid waste in a landfill or disposal impoundment.

Land disposal—The land application of sewage sludge for purposes other than agricultural utilization or land reclamation.

Landowner—The person or municipality in whom legal title to the surface of the land is vested.

Land reclamation—The land application of sewage sludge for its plant nutrient value or as a soil conditioner, in order to establish vegetative growth or restore or enhance the soil.

Leachate—A liquid that has permeated through or drained from solid waste.

Leaf composting facility—A facility for composting vegetative material, including leaves, garden residue and chipped shrubbery and tree trimmings. The term does not include a facility that is used entirely or partly for composting grass clippings.

Leaf waste—Leaves, garden residues, shrubbery and tree trimmings, and similar material, but not including grass clippings.

Liquid waste—A waste that contains free liquids as determined by Method 9095 (paint filter liquids test), as described in the EPA's "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (EPA Publication No. SW-846).

Management—The entire process, or a part thereof, of storage, collection, transportation, processing, treatment and disposal of solid wastes by a person engaging in the process.

Marketed—The transfer of ownership of recyclable materials for the purpose of recycling the materials into a new product or use.

Maximum daily volume—The maximum daily volume limit that is permitted to be received for disposal at the facility on an operating day.

Mobile infectious waste processing facility—An infectious waste processing unit which is moved from one waste generation site to another for the purpose of onsite processing of a generator's infectious waste. The term refers to any processing activity designed to disinfect infectious waste in accordance with § 284.321 (relating to infectious waste monitoring requirements) to render the waste noninfectious. The term does not include any permanently placed waste processing units.

MRF— Materials Recovery Facility

MSW— Municipal solid waste

MWAC— Municipal Waste Advisory Committee

Municipality—A city, borough, incorporated town, township, county or an authority created by any of the foregoing.

Municipal recycling program—A source separation and collection program for recycling municipal waste or source-separated recyclable materials, or a program for designated drop-off points or collection centers for recycling municipal waste or source-separated recyclable materials, that is operated by or on behalf of a municipality. The term includes a source separation and collection program for composting yard waste that is operated by or on behalf of a municipality. The term does not include a program for recycling construction/demolition waste or sludge from sewage treatment plants or water supply treatment plants.

Municipal waste—Garbage, refuse, industrial lunchroom or office waste and other material, including solid, liquid, semisolid or contained gaseous material resulting from operation of residential, municipal, commercial or institutional establishments and from community activities; and sludge not meeting the definition of residual or hazardous waste under this section from a municipal, commercial or institutional water supply treatment plant, waste water treatment plant or air pollution control facility.

Municipal waste disposal or processing facility—A facility using land for disposing or processing of municipal waste. The facility includes land affected during the lifetime of operations, including, but not limited to, areas where disposal or processing activities actually occur, support facilities, borrow areas, offices, equipment sheds, air and water pollution control and treatment systems, access roads, associated onsite or contiguous collection, transportation and storage facilities, closure and postclosure care and maintenance activities and other activities in which the natural land surface has been disturbed as a result of or incidental to operation of the facility.

Municipal waste landfill—A facility using land for disposing of municipal waste. The facility includes land affected during the lifetime of operations including, but not limited to, areas where disposal or processing activities actually occur, support facilities, borrow areas, offices, equipment sheds, air and water pollution control and treatment systems, access roads, associated onsite and contiguous collection, transportation and storage facilities, closure and postclosure care and maintenance activities and other activities in which the natural land surface has been disturbed as a result of or incidental to operation of the facility. The term does not include a construction/demolition waste landfill or a facility for the land application of sewage sludge.

Municipal waste management plan—A comprehensive plan for an adequate municipal waste management system in accordance with Chapter 272, Subchapter C (relating to municipal waste planning).

Municipal Waste Planning, Recycling and Waste Reduction Act—53 P. S. § § 4000.101—4000.1904.

NPDES—National Pollutant Discharge Elimination System

Normal farming operations—The customary and generally accepted activities, practices and procedures that farms adopt, use or engage in year after year in the production and preparation for market of poultry, livestock and their products; and in the production, harvesting and preparation for market of agricultural, agronomic, horticultural, silvicultural and aquicultural crops and commodities; if the operations are conducted in compliance with applicable laws, and if the use or disposal of these materials will not pollute the air, water or other natural resources of this Commonwealth. The term

includes the storage and utilization of agricultural and food process wastes for animal feed, and the agricultural utilization of septic tank cleanings and sewage sludges, which are, generated offsite. The term also includes the management, collection, storage, transportation, use or disposal of manure, other agricultural waste and food processing waste on land where the materials will improve the condition of the soil, the growth of crops or in the restoration of the land for the same purposes.

OCC— Old corrugated cardboard

ONP— Old newsprint

Onsite—The same or geographically contiguous property owned or leased or used by a generator or waste management facility, which may be divided by public or private right-of-way, if the entrance and exit between the properties is at a crossroads intersection, and access is by crossing, as opposed to going along the right-of-way. Noncontiguous properties owned or leased by the same person or municipality but connected by a right-of-way under the control of the person or municipality and to which the public does not have access, are also considered onsite property. A facility that does not meet the requirements of this definition is an offsite facility.

Operate—To construct a municipal waste management facility in anticipation of receiving solid waste for the purpose of processing or disposal; to receive, process or dispose of solid waste; to carry on an activity at the facility that is related to the receipt, processing or disposal of waste or otherwise affects land at the facility; to conduct closure and postclosure activities at a facility.

Operator—A person or municipality that operates a municipal waste processing or disposal facility.

Owner—The person or municipality who is the owner of record of a facility or part of a facility.

PAYT— Pay as you throw. A method of charging for waste collection that is based on incremental volume.

Pennsylvania Used Oil Recycling Act—58 P. S. §§ 471—480.

Permit—A permit issued by the Department to operate a municipal waste disposal or processing facility, or to beneficially use municipal waste. The term includes a general permit, permit-by-rule, permit modification, permit reissuance and permit renewal.

Permit area—The area of land and water within the boundaries of the permit, which is designated on the permit application maps as approved by the Department. The area includes the areas, which are or will be affected by the municipal waste processing or disposal facility.

Permit-by-rule—A permit which a person or municipality is deemed to have for the operation of a facility or an activity upon compliance with § 271.102 or § 271.103 (reserved).

Person—An individual, partnership, corporation, association, institution, cooperative enterprise, municipal authority, Federal Government or agency, State institution and agency—including, but not limited to, the Department of General Services and the State Public School Buildings Authority—or another legal entity which is recognized by law as the

subject of rights and duties. In the provisions of this article pertaining to a fine or penalty, the term includes the officers and directors of a corporation or other legal entity having officers and directors.

PET—PolyethyleneTeraphthalate

Plan revision—A change that affects the contents, terms or conditions of a Department approved plan under the Municipal Waste Planning, Recycling and Waste Reduction Act.

Pollution—Contamination of air, water, land or other natural resources of this Commonwealth that will create or is likely to create a public nuisance or to render the air, water, land or other natural resources harmful, detrimental or injurious to public health, safety or welfare, or to domestic, municipal, commercial, industrial, agricultural, recreational or other legitimate beneficial uses, or to livestock, wild animals, birds, fish or other life.

Postclosure—Activities after closure which are necessary to ensure compliance with the act and this article, including application of final cover, grading and revegetation; groundwater, surface water and gas monitoring; erosion control and gas control; leachate treatment, and abatement of pollution or degradation to land, water, air or other natural resources.

Post consumer material—A product generated by a business or consumer which has served its intended end use, and which has been separated or diverted from solid waste for the purposes of collection, recycling and disposition. The term includes industrial byproducts that would otherwise go to disposal or processing facilities. The term does not include internally generated scrap that is commonly returned to industrial or manufacturing processes.

Principal shareholder—A person or municipality that owns, holds or controls at least 5% of the stock of a publicly held corporation or at least 10% of the stock of a privately held corporation.

Processing—Technology used for the purpose of reducing the volume or bulk of municipal or residual waste or technology used to convert part or all of the waste materials for offsite reuse. Processing facilities include, but are not limited to, transfer facilities, composting facilities and resource recovery facilities.

Project development—Activities required to be conducted prior to constructing a processing or disposal facility that have been shown to be feasible, including, but not limited to, public input and participation, siting, procurement and vendor contract negotiations, and market and municipal waste supply assurance negotiations.

Reasonable expansion—A municipal waste landfill that meets the following:

(i) The facility represents growth of an existing permitted municipal waste landfill to land, which is contiguous to the existing landfill.

(ii) The contiguous land meets one of the following:

(A) The land is owned in fee by the owner of the municipal waste landfill.

(B) The land is subject to an irrevocable option exercisable within 1 year of one of the following:

(I) If the land is located in a county that will be submitting a plan under § 272.211(a) (relating to general requirement), the date that the first written notice of plan development is given under § 272.203 (relating to notice to municipalities).

(II) If the land is located in a county that had a plan approved under § 272.211(b), the date that the first written notice of proposed revision of the approved plan is given under § 272.203.

(iii) The contiguous land contains the same geological features as are present at the existing municipal waste landfill.

(iv) A complete permit application for the expansion is filed with the Department within 1 year of one of the following:

(A) If the land is located in a county that will be submitting a plan under § 272.211(a), the date that the first written notice of plan development is given under § 272.203.

(B) If the land is located in a county that had a plan approved under § 272.111(b), the date that the first written notice of proposed revision of the approved plan is given under § 272.203.

Recycling—The collection, separation, recovery and sale or reuse of metals, glass, paper, plastics and other materials which would otherwise be disposed or processed as municipal waste.

Recycling facility—A facility employing a technology that is a process that separates or classifies municipal waste and creates or recovers reusable materials that can be sold to or reused by a manufacturer as a substitute for or a supplement to virgin raw materials. The term does not include transfer facilities, municipal waste landfills, composting facilities or resource recovery facilities.

Recycling Fund—The fund established under section 706 of the Municipal Waste Planning, Recycling and Waste Reduction Act (53 P. S. § 4000.706).

Related party—A person or municipality engaged in solid waste management that has a financial relationship to a permit applicant or operator. The term includes a partner, associate, officer, parent corporation, subsidiary corporation, contractor, subcontractor, agent or principal shareholder of another person or municipality, or a person or municipality that owns land on which another person or municipality operates a municipal waste processing or disposal facility.

Remaining available permitted capacity—The remaining permitted capacity that is actually available for processing or disposal to the county or other municipality that generated the waste.

Remaining permitted capacity—The weight or volume of municipal waste that can be processed or disposed of at an existing municipal waste processing or disposal facility. The term includes weight or volume capacity for which the Department has issued a permit under the act. The term does not include a facility that the Department determines, or has determined, has failed and continues to fail to comply with the act, the regulation thereunder, an order issued thereunder or permit conditions.

Residential septage—Liquid or solid material removed from a septic tank, cesspool or similar treatment works that receives only waste or wastewater from humans or household

operations. The term includes processed residential septage from a residential septage treatment facility. The term does not include liquid or solid material removed from a septic tank, cesspool, portable toilet, Type III marine sanitation device or similar treatment works that receives either commercial wastewater or industrial wastewater and does not include grease removed from a grease trap at a restaurant.

Residual waste—Garbage, refuse, other discarded material or other waste, including solid, liquid, semisolid or contained gaseous materials resulting from industrial, mining and agricultural operations; and sludge from an industrial, mining or agricultural water supply treatment facility, wastewater treatment facility or air pollution control facility, if it is not hazardous. The term does not include coal refuse as defined in the Coal Refuse Disposal Control Act (52 P. S. §§ 30.51—30.66). The term does not include treatment sludges from coal mine drainage treatment plants, disposal of which is being carried on under and in compliance with a valid permit issued under The Clean Streams Law (35 P. S. §§ 691.1—691.1001).

Resource recovery facility— (i) A processing facility that provides for the extraction and utilization of materials or energy from municipal waste.

(ii) The term includes a facility that mechanically extracts materials from municipal waste, a combustion facility that converts the organic fraction of municipal waste to usable energy and a chemical and biological process that converts municipal waste into a fuel product.

(iii) The term includes a facility for the combustion of municipal waste that is generated offsite, whether or not the facility is operated to recover energy.

(iv) The term includes land affected during the lifetime of operations, including, but not limited to, areas where processing activities actually occur, support facilities, borrow areas, offices, equipment sheds, air and water pollution control and treatment systems, access roads, associated onsite or contiguous collection, transportation and storage facilities, closure and postclosure care and maintenance activities and other activities in which the natural land surface has been disturbed as a result of or incidental to operation of the facility.

(v) The term does not include:

(A) A composting facility.

(B) Methane gas extraction from a municipal waste landfill.

(C) A separation and collection center, drop-off point or collection center for recycling, or a source separation or collection center for composting leaf waste.

A facility, including all units in the facility, with a total processing capacity of less than 50 tons per day.

Salvaging—The controlled removal or recycling of material from a solid waste processing or disposal facility.

Sewage sludge—Liquid or solid sludges and other residues from a municipal sewage collection and treatment system; and liquid or solid sludges and other residues from septic and holding tank pumpings from commercial, institutional or residential

establishments. The term includes materials derived from sewage sludge. The term does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator, grit and screenings generated during preliminary treatment of sewage sludge at a municipal sewage collection and treatment system, or grit, screenings and nonorganic objects from septic and holding tank pumpings.

Sharps—Broken glass that has been in contact with pathogenic organisms, hypodermic needles and syringes to which a needle can be attached, with or without the attached needle, suture needles, disposable razors, Pasteur pipettes, scalpel blades, blood vials, needles with attached tubing, culture dishes, suture needles, slides, cover slips and other broken or unbroken glass or plastic ware.

Site—The area where municipal waste processing or disposal facilities are operated. If the operator has a permit to conduct the activities, and is operating within the boundaries of the permit, the site is equivalent to the permit area.

Small business—A commercial establishment producing hazardous waste in amounts not regulated under the Resources Conservation and Recovery Act of 1976 (42 U.S.C.A. §§ 6901–6986). For acutely hazardous wastes under 40 CFR 261.33, incorporated in § 261a.1, the term means commercial establishments producing less than 220 pounds per calendar month. For all other hazardous wastes, the term means commercial establishments producing less than 2,200 pounds per calendar month.

Small Business and Household Pollution Prevention Program Act—35 P. S. §§ 6029.201–6029.209.

Soil additive or soil substitute—Municipal waste which is beneficially used at specified loading or application rates, to replace soil that was previously available at the site, to enhance soil properties or to enhance plant growth. The term does not include structural fills, construction material, valley fills or the use of municipal waste to fill open pits from coal or noncoal mining or the disposal of coal ash.

Solid waste—Waste, including, but not limited to, municipal, residual or hazardous wastes, including solid, liquid, semisolid or contained gaseous materials.

Solid Waste Abatement Fund—The fund established under section 701 of the act (35 P. S. § 6018.701).

Source reduction—The reduction or elimination of the quantity or toxicity of residual waste generated, which may be achieved through changes within the production process, including process modifications, feedstock substitutions, improvements in feedstock purity, shipping and packing modifications, housekeeping and management practices, increases in the efficiency of machinery and recycling within a process. The term does not include dewatering, compaction, reclamation or the use or reuse of waste.

Source separated recyclable materials—Materials that are separated from municipal waste at the point of origin for the purpose of recycling. The term is limited to clear glass, colored glass, aluminum, steel and bimetallic cans, high-grade office paper, newsprint, corrugated paper, plastics and other marketable grades of paper.

Special handling waste—Solid waste that requires the application of special storage, collection, transportation, processing or disposal techniques due to the quantity of material

generated or its unique physical, chemical or biological characteristics. The term includes dredged material, sewage sludge, infectious waste, chemotherapeutic waste, ash residue from a solid waste incineration facility, friable asbestos containing waste, PCB containing waste and waste oil that is not hazardous waste.

Stabilized sewage sludge—Sewage sludge that has been treated to reduce odor potential and the number of pathogenic organisms. Treatment methods include anaerobic and aerobic digestion, composting, lime stabilization and chlorine stabilization.

Storage—The containment of any waste on a temporary basis in such a manner as not to constitute disposal of the waste. It shall be presumed that the containment of waste in excess of 1 year constitutes disposal. This presumption can be overcome by clear and convincing evidence to the contrary.

Surety bond—A penal bond agreement in a sum certain, payable to the Department, executed by the operator and a corporation licensed to do business as a surety in this Commonwealth and approved by the Department, and which is supported by the guarantee to payment on the bond by the surety.

Thermal processing—A method, technique or process, excluding incineration and autoclaving, designed to disinfect infectious waste by means of exposure to high thermal temperatures through methods such as ionizing radiation or electric or plasma arc technologies.

Transfer facility—A facility which receives and processes or temporarily stores municipal or residual waste at a location other than the generation site, and which facilitates the transportation or transfer of municipal or residual waste to a processing or disposal facility. The term includes a facility that uses a method or technology to convert part or all of the waste materials for offsite reuse. The term does not include a collecting or processing center that is only for source-separated recyclable materials, including clear glass, colored glass, aluminum, steel and bimetallic cans, high-grade office paper, newsprint, corrugated paper and plastics.

Transportation—The offsite removal of solid waste at any time after generation.

Treatment—A method, technique or process, including neutralization, designed to change the physical, chemical, or biological character or composition of waste to neutralize the waste or to render the waste nonhazardous, safer for transport, suitable for recovery, suitable for storage or reduced in volume. The term includes an activity or processing designed to change the physical form or chemical composition of waste to render it neutral or nonhazardous.

Unrecognizable infectious waste—All components of the waste have been processed to produce indistinguishable and unusable pieces smaller than 3/4 of an inch, except that all sharps must be smaller than 1/2 inch. The term does not mean compaction or encapsulation except through:

(i) Processes such as thermal treatment or melting, during which disinfection and destruction occur.

(ii) Processes such as shredding, grinding, tearing or breaking, during or after disinfection occurs.

Processes that melt plastics and fully encapsulate metallic or other sharps and seals waste completely in a container that will not be penetrated by untreated sharps.

Used oil—A petroleum-based or synthetic oil which is used in an internal combustion engine as an engine lubricant, or as a product for lubricating motor vehicle transmissions, gears or axles which, through use, storage or handling has become unsuitable for its original purpose due to the presence of chemical or physical impurities or loss of original properties.

USEPA— United States Environmental Protection Agency

Waste—A material whose original purpose has been completed and which is directed to a disposal, processing or beneficial use facility or is otherwise disposed of, processed or beneficially used. The term does not include source separated recyclable materials, material approved by the Department for beneficial use under a beneficial use order issued by the Department prior to May 27, 1997, or material which is beneficially used in accordance with a general permit issued under Subchapter I or Subchapter J (relating to beneficial use; and beneficial use of sewage sludge by land application) if a term or condition of the general permit excludes the material from being regulated as a waste.

Waste oil—Oil refined from crude oil or synthetically produced, used and as a result of the use, contaminated by physical or chemical impurities. The term includes used oil.

Waste reduction—Design, manufacture or use of a product to minimize weight of municipal waste that requires processing or disposal, including, but not limited to:

(i) Design or manufacturing activities which minimize the weight or volume of materials contained in a product, or increase durability or recyclability.

The use of products that contain as little material as possible, are capable of being reused or recycled or have an extended useful life.

White Goods— Major appliances such as stoves, refrigerators, freezers, dishwashers, etc.

WWTP— Waste Water Treatment Plant

Yard waste—Leaves, grass clippings, garden residue, tree trimmings, chipped shrubbery and other vegetative material.

Yard waste composting facility—A facility that is used to compost leaf waste, or leaf waste and grass clippings, garden residue, tree trimmings, chipped shrubbery and other vegetative material. The term includes land affected during the lifetime of the operation, including, but not limited to, areas where composting actually occurs, support facilities, borrow areas, offices, equipment sheds, air and water pollution control and treatment systems, access roads, associated onsite or contiguous collection and transportation activities, and other activities in which the natural surface has been disturbed as a result of or incidental to operation of the facility

Sources

PA Title 25. ENVIRONMENTAL PROTECTION Article VIII. MUNICIPAL WASTE
CHAPTER 271. MUNICIPAL WASTE MANAGEMENT—GENERAL PROVISIONS

APPENDIX B

Disposal Agreements



FACILITY DISPOSAL SERVICES AGREEMENT

by and among

YORK COUNTY SOLID WASTE AND REFUSE AUTHORITY

and

REPUBLIC SERVICES OF PENNSYLVANIA, LLC

and

REPUBLIC SERVICES, INC.

January 1, 2001

TABLE OF CONTENTS

ARTICLE I	DEFINITIONS	6
ARTICLE II	CONDITIONS PRECEDENT	13
SECTION 2.1	CONDITIONS PRECEDENT GENERALLY	13
SECTION 2.2	CONDITIONS PRECEDENT	13
(a)	<u>Agreements</u>	13
(b)	<u>Insurance</u>	13
ARTICLE III	TERM AND EFFECT	13
SECTION 3.1	TERM	13
SECTION 3.2	EFFECT	13
ARTICLE IV	OPERATOR'S OBLIGATIONS	14
SECTION 4.1	GUARANTEED DISPOSAL CAPACITY; ACCEPTANCE OF FACILITY ACCEPTABLE WASTE; EXPANSION	14
(a)	<u>Guaranteed Capacity</u>	14
(a)	<u>Guaranteed Capacity</u>	14
(b)	<u>Expansion</u>	14
(b)	<u>Expansion</u>	14
SECTION 4.2	ACCEPTANCE OF RESIDUE	14
SECTION 4.3	PAYMENT FOR SERVICES	15
SECTION 4.4	FACILITY OPERATIONS	15
SECTION 4.5	REJECTION OF FACILITY UNACCEPTABLE WASTE; RIGHT OF INSPECTION	15
SECTION 4.6	PERMITS	15
SECTION 4.7	WEIGH SCALES	15
ARTICLE V	AUTHORITY'S OBLIGATIONS	16
SECTION 5.1	DELIVERY OF BYPASS AND CENTER UNACCEPTABLE WASTE	16
SECTION 5.2	DELIVERY OF RESIDUE	16
SECTION 5.3	COUNTY PLAN REVISIONS	16
SECTION 5.5	FACILITY UNACCEPTABLE WASTE DELIVERIES TO THE FACILITY	17
(a)	<u>Facility Unacceptable Waste</u>	17
(b)	<u>Mixed Loads</u>	17
SECTION 5.6	FACILITY UNACCEPTABLE WASTE ORIGINATING AT THE CENTER	17
(a)	<u>Removal of Facility Unacceptable Waste</u>	17
(b)	<u>Emergency Response</u>	18
SECTION 5.7	FACILITY UNACCEPTABLE WASTE NOT ORIGINATING AT THE CENTER	18
ARTICLE VI	FEEES	18
SECTION 6.1	DISPOSAL FEE PAYMENTS	18
(a)	<u>Facility Disposal Fee</u>	18
(b)	<u>Monthly Adjustment</u>	18
(c)	<u>Operator Disposal Fee</u>	19
SECTION 6.2	CONSTRUCTION AND DEMOLITION MATERIALS; BENEFICIAL USE MATERIALS	19
SECTION 6.3	BILLING AND PAYMENT OF MONTHLY INVOICE	19
(a)	<u>Payment Dates</u>	19
(b)	<u>Calculation of Invoices</u>	19
(c)	<u>Interest on Late Payments</u>	19

ARTICLE VII	COMPLIANCE WITH LAWS AND INDEMNIFICATION	19
SECTION 7.1	COMPLIANCE WITH LAWS	19
SECTION 7.2	INDEMNIFICATION BY OPERATOR	19
(a)	<u>Indemnification by the Operator</u>	19
(b)	<u>No Limitation</u>	20
SECTION 7.3	INDEMNIFICATION BY THE AUTHORITY	20
(a)	<u>Indemnification by the Authority</u>	20
(b)	<u>No Limitation</u>	20
ARTICLE VIII	UNFORESEEN CIRCUMSTANCES	21
SECTION 8.1	EFFECT OF UNFORESEEN CIRCUMSTANCE	21
(a)	<u>Excuse for Nonperformance</u>	21
(b)	<u>Notice of Unforeseen Circumstance</u>	21
SECTION 8.2	MITIGATION	21
SECTION 8.3	NO LIABILITY FOR UNFORESEEN CIRCUMSTANCES	21
ARTICLE IX	DEFAULT, TERMINATION, AND REMEDIES	21
SECTION 9.1	EXCLUSIVE REMEDIES	21
SECTION 9.2	EVENTS OF DEFAULT BY OPERATOR	22
SECTION 9.3	REMEDIES OF THE AUTHORITY	22
(a)	<u>Specific Performance</u>	23
(b)	<u>Damages</u>	23
(c)	<u>Termination upon Bankruptcy or Insolvency</u>	23
SECTION 9.4	EVENTS OF DEFAULT BY AUTHORITY	23
SECTION 9.5	REMEDIES OF OPERATOR	24
(a)	<u>Termination</u>	24
(b)	<u>Damages</u>	24
(c)	<u>Termination Upon Bankruptcy or Insolvency</u>	24
SECTION 9.6	PAYMENT AFTER TERMINATION	24
(a)	<u>Final Payment</u>	24
ARTICLE X	INSURANCE	25
SECTION 10.1	INSURANCE	25
(a)	<u>General Liability Insurance</u>	25
(b)	<u>Automobile Insurance</u>	25
(c)	<u>Worker's Compensation Insurance</u>	25
(d)	<u>Excess Liability Coverage</u>	26
(e)	<u>Environmental Impairment Liability Insurance</u>	26
SECTION 10.2	NOTICE OF CANCELLATION	26
ARTICLE XI	FURTHER AGREEMENTS	26
SECTION 11.1	ENVIRONMENTAL INDEMNIFICATION	26
SECTION 11.2	ALTERNATIVE LANDFILL CAPACITY	26
SECTION 11.3	REPUBLIC GUARANTEE	27
ARTICLE XII	MISCELLANEOUS	27
SECTION 12.1	NOTICE	27
SECTION 12.2	WAIVER	28
SECTION 12.3	GOVERNING LAW	28
SECTION 12.4	AMENDMENT AND MODIFICATION	28
SECTION 12.5	SEVERABILITY	28
SECTION 12.6	ENTIRE UNDERSTANDING OF THE PARTIES	28
SECTION 12.7	ASSIGNMENT	28

SECTION 12.8 THIRD PARTIES	29
SECTION 12.9 EXECUTION IN COUNTERPARTS	29
SECTION 12.10 HEADINGS	29
SECTION 12.11 NONDISCRIMINATION	29
SECTION 12.12 CERTIFICATION OF UNDERSIGNED	29

FACILITY DISPOSAL SERVICES AGREEMENT

This Facility Disposal Services Agreement ("Agreement") is entered into as of this 1st day of January, 2001, by and among The York County Solid Waste and Refuse Authority (the "Authority"), Republic Services, Inc. ("Republic") and Republic Services of Pennsylvania, LLC (the "Operator")

WHEREAS, the Authority entered into a Disposal Services Agreement, dated July 19, 1990, among the Authority, Modern Trash Removal of York, Inc. ("Modern") and Waste Management of Pennsylvania, Inc. ("WMI-PA") (the "Original Agreement"), and

WHEREAS, the parties to the Original Agreement entered into a Memorandum of Settlement Understanding and Amendment Agreement, dated as of April 19, 1995, (the "MOU"), and

WHEREAS, the Modern Landfill, located at Windsor and Lower Windsor Townships, (the "Facility"), is currently owned by WMI-PA and, at the time of execution of the Original Agreement and the MOU, was owned by WMI-PA; and

WHEREAS, WMI-PA and Waste Management Disposal Services of Pennsylvania, Inc. ("WMDS-PA"), both of which shall hereinafter be referred to collectively as "Waste Management", are obligated to the Authority, pursuant to the terms of the Center Disposal Services Agreement ("Center Disposal Services Agreement"), as hereinafter defined, to deliver Center Acceptable Waste to the Center, in satisfaction of the obligations pertaining specifically thereto and as specified in the Original Agreement and the MOU; and,

WHEREAS, Waste Management, Operator and Republic have agreed to certain terms and conditions whereby Republic's subsidiary, the Operator, has assumed responsibility for conducting day-to-day operations at the Facility, and whereby ownership of the Facility will ultimately be transferred to the Operator and/or Republic; and

WHEREAS, in accordance with the provisions of the Original Agreement, Waste Management has requested that the Authority consent to the assignment to the Operator of certain rights and obligations with respect to the Facility, as such rights and obligations are set forth in the Original Agreement and the MOU; and

WHEREAS, Waste Management and the Authority have reached agreement as to the terms and conditions upon which Center Acceptable Waste will be delivered to the Center pursuant to the Center Disposal Services Agreement; and

WHEREAS, the Authority, Waste Management and Republic have entered into the Consent to Assignment, as hereinafter defined; and

WHEREAS, the Authority, Republic and Operator are desirous of entering into this Agreement to provide for disposal capacity at the Facility

NOW, THEREFORE, in consideration of the mutual obligations and premises herein specified, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereby agree as follows:

ARTICLE I DEFINITIONS

It is understood that the following words and phrases as used in this Agreement shall have the following meaning:

"Alternative Disposal Site" means any duly licensed or permitted alternative disposal facility designated by Operator to fulfill its obligations pursuant to this Agreement to provide landfill capacity during periods of reduction or cessation of disposal operations at the Facility in accordance with Section 4.1 and Section 11.2 herein.

"Applicable Laws" means all Environmental Laws and obligations and requirements imposed by permit, constitution, charter, ordinance, resolution, court order or understanding, or other binding authority, which has been or shall be enacted, adopted, promulgated, issued, enforced, or entered into, relating to this Agreement, the Operator, the Authority, the Facility or the Center.

"Authority" means the York County Solid Waste and Refuse Authority, a body corporate and politic organized and existing under the laws of the Commonwealth of Pennsylvania, with offices at 2700 Blackbridge Road, York, Pennsylvania.

"Back-Up Landfill Capacity" means the obligation of Waste Management, pursuant to Section 11.2(a) of the Center Disposal Services Agreement, to provide for landfill capacity at facilities other than the Facility, if the Facility is not available for disposal services, and if Republic fails to perform such obligation under Section 11.2.

"Beneficial Use Program" means all activities by or on behalf of the Authority for the recovery, re-use, recycling or other beneficial applications of Residue generated by the Center. The term Beneficial Use Program shall not be construed to include the direct delivery of Residue to the Facility by, or on behalf of, the Authority.

"Beneficial Use Material" means material remaining, if any, following treatment of Residue in a Beneficial Use Program that is delivered to the Facility by a York County Hauler. However, in no event shall Beneficial Use Material mean or include Facility Unacceptable Waste.

“**Billing Period**” means the period during which the Operator provided disposal services pursuant to this Agreement, which period shall be the basis for invoices for such disposal services issued by the Operator in accordance with the provisions of Section 6.3.

“**Business Day**” means each Monday, Tuesday, Wednesday, Thursday, Friday and Saturday that is not a Legal Holiday.

“**Bypass Waste**” means any processible waste that is also Center Acceptable Waste, which the Authority diverts from the Center, and which the Authority causes to be delivered to the Facility, due to the occurrence of any total or partial outage, or any scheduled or unscheduled maintenance, or any reduction or cessation in processing capacity at the Center, which waste would have been processed but for the occurrence of such outage, maintenance or reduction in processing capacity at the Center.

“**Center**” means the York County Resource Recovery Center and shall include the buildings and all equipment located, or to be located, on the Center site.

“**Center Acceptable Waste**” means that portion of waste containing materials or substances that are generally discarded or rejected as spent, useless, worthless or in excess to their owners at the time of such discard or rejection that are permitted to be processed at the Center pursuant to Applicable Laws. Center Acceptable Waste includes, but is not limited to, material collected and disposed of as part of the normal collection of municipal and residential waste (excluding Hazardous Waste), commercial and industrial waste that is also Special Waste that can be processed safely without adversely affecting operation and maintenance of the Center and which Special Waste has been specifically approved for processing under Applicable Laws, as well as wood, lumber, tree limbs, ties, logs and trees, if such objects are not more than six (6) feet long and/or six (6) inches in diameter.

“**Center Disposal Fee**” means the amount per ton fee charged by the Authority for processing Center Acceptable Waste at the Center that originates within the County, as such amount is from time to time revised by the Authority.

“**Center Unacceptable Waste**” means materials or substances that are generally discarded or rejected which are not Center Acceptable Waste for reasons which include, but are not necessarily limited to, the following: (i) the material is predominantly non-combustible; (ii) the material is not permitted for processing at the Center pursuant to Applicable Laws; (iii) processing of the material at the Center would pose an unreasonable risk of violation of Applicable Laws or harm to the Center or Center personnel. Examples of Center Unacceptable Waste include metal furniture and appliances, concrete rubble, non-combustible building debris, rock, gravel and other non-combustible earthen materials, large automotive vehicle parts, trailers, wire, cable, untreated sewage, Infectious Waste, Hazardous Waste, explosives, radioactive materials which are source, special nuclear or by-product material as defined by the Atomic Energy Act of 1954 (42 U.S.C. Section 2011, et seq., and regulations set forth in 10 C.F.R Part 40), and any waste that

the Center is precluded from accepting pursuant to any governmental plan, including the County Plan, governing operation of the Center

"Change in Law" means (i) the enactment, adoption, promulgation or modification after the Effective Date of any federal, Commonwealth, County, or other local law, ordinance, code, rule, regulation or any final binding change in the interpretation thereof, or (ii) the imposition of any material conditions on the issuance or renewal of any permit necessary to operation of the Center or the Facility after the Effective Date, or any change in the interpretation thereof after the Effective Date. This definition shall not be deemed to include the failure of renewal or issuance of any permit necessary for Republic to meet its obligations to provide disposal capacity at the Facility or to provide Back-Up Landfill Capacity.

"Commonwealth" means the Commonwealth of Pennsylvania and any appropriate administrative, contracting or regulatory agencies and offices.

"Consent to Assignment" means that certain agreement, as set forth in Schedule 1, to the Center Disposal Services Agreement whereby the Authority consents to the assignment by Waste Management of certain rights and obligations with respect to the Facility to Republic and/or the Operator.

"Construction and Demolition Material" means solid waste resulting from the construction or demolition of buildings and other structures, including but not limited to plaster, metals, asphaltic substances, bricks, block and unsegregated concrete. The term also includes wood when mixed with any of the above material. The term does not include the following if they are separate from other waste and are used as clean fill: (i) uncontaminated soil, rock, stone, gravel, unused brick and block, and concrete; (ii) waste from land clearing, grubbing and excavation, including trees, brush, stumps, and vegetative material.

"County" means York County, Pennsylvania.

"County Plan" means the York County Solid Waste Management Plan Revision, as approved pursuant to the provisions of Section 501(b) of the Municipal Waste, Planning, Recycling, and Waste Reduction Act, 53 P.S. §§ 4000.101 et seq., in existence at the time of commencement of this Agreement and as amended, supplemented, revised or replaced any time thereafter.

"Current Permitted Disposal Rate" means the maximum daily and monthly rates of delivery of Municipal Waste and/or Facility Acceptable Waste that can be received and disposed of at the Facility under permits issued pursuant to Applicable Laws, which permits are in effect as of the Effective Date.

"Current Permitted Capacity" means that area or portion of the Facility site specified in any permits issued pursuant to Applicable Laws, which permits are in effect as

of the Effective Date, within which Municipal Waste and/or Facility Acceptable Waste may be deposited for disposal, and excluding any areas or portions of the Facility that are not permitted to receive such materials as of the Effective Date.

"Disposal Fee" means the amount of Fifty-one dollars (\$51.00), payable to the Operator in accordance with Section 6.1 for each ton of Bypass Waste and Center Unacceptable Waste which is delivered to the Facility.

"Effective Date" means the date upon which all of the conditions precedent specified in Section 2.2 have been satisfied in accordance with the provisions of Section 2.1.

"Environmental Laws" means all applicable laws, directives, rules, ordinances, codes, guidelines, regulations, governmental, administrative or judicial orders or decrees or other legal requirements of any kind, including common law, whether currently in existence or hereafter promulgated, enacted, adopted or amended, relating to safety, preservation or protection of human health and the environment (including, but not limited to, ambient air, surface water, groundwater, land, or subsurface strata), and/or relating to the handling, treatment, transportation or disposal of waste, including, without limitation, any matters related to releases and threatened releases of materials and substances into the environment.

"Environmental Losses" means any and all fines, penalties, judgments, costs, liabilities, damages, losses or expenses (including, without limitation, sampling, monitoring or remediation costs, reasonable legal, consultants' or engineering fees and disbursements, costs of defense and interest expenses) for which either party may be liable pursuant to Environmental Laws arising out of, or in connection with the operation of the Facility.

"Events of Default" have the meanings specified in Section 9.2 with respect to the Operator and/or Republic, and the meanings specified in Section 9.4 with respect to the Authority.

"Facility" means the Modern Landfill, located at Windsor and Lower Windsor Townships, in York County, Pennsylvania.

"Facility Acceptable Waste" means Center Unacceptable Waste, Residue, Bypass Waste, Special Waste, Beneficial Use Material and Construction and Demolition Material, that is delivered to the Facility by York County Haulers, or delivered to the Facility by or on behalf of, the Authority; provided, however, that any such waste is permitted to be disposed of at the Facility under Applicable Laws.

"Facility Unacceptable Waste" means materials or substances that are generally discarded or rejected which are not Facility Acceptable Waste for reasons which include, but are not necessarily limited to, the following: (i) the material is not permitted for disposal at the Facility pursuant to Applicable Laws; or (ii) disposal of the material at the

Facility would pose an unreasonable risk of violation of Applicable Laws or harm to the Facility or Facility personnel. Examples of Facility Unacceptable Waste include untreated sewage, Infectious Waste, Hazardous Waste, explosives, radioactive materials which are source, special nuclear or by-product material as defined by the Atomic Energy Act of 1954 (U.S.C. Section 2011, *et seq.*, and regulations set forth in 10 C.F.R. Part 40), and any waste that the Facility is precluded from accepting pursuant to any governmental plan, including the County Plan.

"Hazardous Waste" means (i) any waste which is defined or regulated as a toxic or hazardous waste under federal or Commonwealth law, or under rules, regulations, policies or guidelines issued in relation thereof, as they may be amended from time to time, including, but not limited to: (1) the Resource Conservation and Recovery Act of 1976 (42 U.S.C. Section 6901 *et seq.*, as amended by the Hazardous and Solid Waste Amendments of 1984) and the regulations contained in 40 C.F.R. parts 260-281; (2) the Toxic Substances Control Act (15 U.S.C. Section 2601 *et seq.*) and the regulations contained in 40 C.F.R. Parts 761-766; or (3) the Pennsylvania Solid Waste Management Act, 35 P.S. Section 6018.101 *et seq.* and the regulations thereunder, (ii) radioactive materials which are source, special nuclear or by-product material as defined by the Atomic Energy Act of 1954 (U.S.C. Section 2011, *et seq.*, and regulations set forth in 10 C.F.R. Part 40); or (iii) any other material which, if accepted or processed at the Center, would cause the Center to be regulated as a Hazardous Waste disposal facility. If any governmental agency or unit having appropriate jurisdiction shall determine after the Effective Date that any wastes which were not, as of the Effective Date, considered toxic or hazardous waste are in fact hazardous waste, then such reclassified substances shall be Hazardous Waste for the purposes of this Agreement as of the effective date of any such determination.

"Infectious Waste" means Municipal Waste and Residual Waste that is defined as infectious waste by regulations promulgated pursuant to the Pennsylvania Solid Waste Management Act, 25 Pa. Code § 271 *et seq.* If any governmental agency or unit having appropriate jurisdiction shall decide after the Effective Date that any waste which was not, as of the Effective Date, considered to be infectious, is in fact infectious, then all such reclassified waste shall be considered to be Infectious Waste.

"Legal Holidays" means the York County legal holidays which are: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Eve (one-half day), Christmas Day, and New Year's Eve (one-half day). The Operator shall have the right to modify the days considered to be within the meaning of this definition by prior written notice to the Authority.

"Municipal Agreements" means those agreements between the Authority and any York municipality or township, which provide for the delivery of Center Acceptable Waste originating within the County to the Center, which agreements are in effect on the Effective Date, as same may be modified or extended; and those agreements between the Authority and Swatara Township, between the Authority and Highspire Borough, and

between the Authority and McSherrystown Borough, which are in effect on the Effective Date, as same may be modified or extended. If, after the Effective Date, the Authority enters into any agreement with a municipality, township or other political subdivision providing for the processing and disposal of Center Acceptable Waste at the Center which originates within said contracting entity's jurisdiction, then such agreement shall be a Municipal Agreement for purposes of this Agreement as of the effective date of such agreement.

"Municipal Waste" means garbage, refuse, industrial lunchroom or office waste and other material, including solid, liquid, semisolid or contained gaseous material resulting from operation of residential, municipal, commercial or institutional establishments and from community activities, and sludge not meeting the definition of Residual Waste, Special Waste, or Hazardous Waste from a municipal, commercial or institutional water supply treatment plant, waste water treatment plant or air pollution control facility.

"Operator Disposal Fee" means the amount payable to the Authority by the Operator for the disposal of Center Acceptable Waste delivered to the Center pursuant to Section 5.4, which amount shall be equal to twenty-six dollars (\$26.00) per ton of Center Acceptable Waste delivered to the Center by, or on behalf of, the Operator for calendar years 2001 through 2003. Said amount shall be increased each year for the next two (2) succeeding calendar years, commencing in 2004 and including calendar year 2005, by an amount equal to one dollar and fifty cents (\$1.50) per ton of Center Acceptable Waste.

"Receiving Time" means the hours of operation of the Facility during which Facility Acceptable Waste will be accepted, which are 6:00 a.m. through 4:00 p.m., Monday through Friday, and 6:00 a.m. through 10:00 a.m. on Saturday.

"Residual Waste" means garbage, refuse, other discarded material or other waste, including solid, liquid, semisolid or contained gaseous materials resulting from industrial, mining and agricultural operations and sludge from an industrial, mining or agricultural water supply treatment facility, wastewater treatment facility or air pollution control facility, if it is not Hazardous Waste. The term does not include coal refuse as defined in the Coal Refuse Disposal Control Act or treatment sludge from coal mine drainage treatment plants, disposal of which is being carried out under and in compliance with a valid permit issued under The Clean Streams Law.

"Residue" means fly ash, bottom ash, siftings or other waste residue, or any mixture thereof, produced by the Center as a result of processing Center Acceptable Waste and Special Waste, that is delivered to the Facility by a York County Hauler, and which was not directed by the Authority to a Beneficial Use Program. However, in no event shall Residue mean or include Facility Unacceptable Waste.

"Residue Disposal Fee" means the amount payable by the Authority for the disposal of Residue at the Facility, which amount shall be equal to twenty-six dollars

(\$26.00) per ton of Residue delivered to the Facility by, or on behalf, of the Authority, for calendar years 2001 through 2003. Said amount shall be increased each year for the next two (2) succeeding calendar years, commencing in 2004 and including calendar year 2005, by an amount equal to one dollar and fifty cents (\$1.50) per ton of Residue. The Residue Disposal Fee thereafter shall be governed by the terms of Section 5.2 herein.

"Special Waste" means either Facility Acceptable Waste or Center Acceptable Waste that may be accepted for disposal at the Facility, or for processing at the Center, respectively, only with prior, specific review and approval by PADEP, and only with prior specific review and approval by the Operator with respect to the Facility, or by the Authority with respect to the Center.

"Unforeseen Circumstances" means any act, event, or condition, that may reasonably be expected to have, a direct material adverse effect on the rights or the obligations of the parties under this Agreement, or a direct material adverse effect on the Facility or the Center or the operation of the Facility or Center, or the delivery or disposal of Facility Acceptable Waste at the Facility, or the delivery or processing of Center Acceptable Waste at the Center, if such act, event or condition is beyond the reasonable control of, and without the fault of, the party relying thereon as justification for not performing an obligation or complying with any condition required of such party under this Agreement. Such acts, events or conditions may include, but shall not be limited to, (i) acts of God, landslides, lightning, earthquakes, nuclear radiation, hurricanes, tornadoes, severe weather, fires, explosions, floods, acts of a public enemy, war, blockades, insurrections, riots or civil disturbances; (ii) labor disputes, strikes, work slowdowns or work stoppages; (iii) the suspension, termination, interruption, denial or failure of renewal or issuance of any permit, license, consent, authorization, or approval essential to the operation of the Facility or Center, provided, that such act or event shall not be the result of the willful or negligent action or inaction of the party relying thereon and that neither the contesting in good faith of any such order nor reasonable failure to so contest shall be construed as a willful or negligent action or inaction of such party; and (iv) orders, injunctions, and/or judgments of any federal, state or local court, administrative agency or governmental body, or other entity, if not the result of (x) willful or negligent action of the party relying thereon or (y) failure to act in accordance with this Agreement (provided, however, that the contesting in good faith by such party of any such order and/or judgment shall not constitute or be construed to constitute a willful or negligent action or inaction of such party).

"Waste Management" means, collectively, WMDS-PA and WMI-PA.

"WMDS-PA" means Waste Management Disposal Services of Pennsylvania, Inc.

"WMI-PA" means Waste Management of Pennsylvania, Inc.

"York County Hauler" means collectors and transporters of Center Unacceptable Waste and, if applicable, Beneficial Use Material, any of which is generated

in the County, that deliver such waste to the Facility for disposal pursuant to the County Plan. In the event that the Authority arranges for the delivery of Residue or Bypass Waste to the Facility, then any third party delivering such material to the Facility on behalf of the Authority shall also be deemed to be a York County Hauler.

ARTICLE II CONDITIONS PRECEDENT

Section 2.1 Conditions Precedent Generally.

All rights, obligations and liabilities of the parties hereunder shall be subject to the satisfaction of the conditions precedent set forth in Section 2.2 on or before December 31, 2000 (the "Effective Date").

Section 2.2 Conditions Precedent.

The obligations of the parties hereunder shall be subject to the following conditions precedent:

(a) Agreements. The Authority, Waste Management and the Parent, as defined by the Center Disposal Services Agreement, shall have entered into the Center Disposal Services Agreement and the Consent to Assignment;

(b) Insurance. The certificates of insurance coverage required by Article X, in a form acceptable to the Authority, shall have been delivered to the Authority.

ARTICLE III TERM AND EFFECT

Section 3.1 Term.

The term of this Agreement shall be from January 1, 2001, and shall continue in full force and effect through the earlier of (i) December 31, 2016, or (ii) the date upon which the Current Permitted Capacity at the Facility has been fully utilized.

Section 3.2 Effect.

The parties recognize and agree that the Original Agreement and the MOU will be terminated and shall have no further force and effect as of the Effective Date. Accordingly, it is the intent of the parties that the rights and obligations of the parties hereto pertaining to operation and maintenance of the Facility, providing for guaranteed capacity at the Facility or Alternate Disposal Site, and providing for environmental indemnification shall, as of the Effective Date, be governed by the terms of this Agreement.

ARTICLE IV
OPERATOR'S OBLIGATIONS

Section 4.1 Guaranteed Disposal Capacity: Acceptance of Facility Acceptable Waste: Expansion.

(a) Guaranteed Capacity. The Operator hereby guarantees, under the terms and conditions set forth in this Agreement, to provide disposal capacity at the Facility within the Current Permitted Capacity for all Center Unacceptable Waste and Bypass Waste generated in the County during the term of this Agreement. If the Facility ceases operation, or is no longer permitted to accept and dispose of Facility Acceptable Waste prior to the full utilization of the Current Permitted Capacity, then the Operator shall be obligated to provide for sufficient disposal capacity for such materials throughout the remaining term of this Agreement at Alternative Disposal Site. The Operator shall provide such disposal services at Alternative Disposal Sites for the Disposal Fee specified in this Agreement. Additionally, to the extent that York County Haulers and/or the Authority incur any increased costs of transportation for delivery of Facility Acceptable Waste to said Alternative Disposal Site, then the Disposal Fee shall be reduced to reflect any such increase in transportation costs, or, in the alternative, the Operator and any York County Hauler, and/or the Authority, may agree that the Operator shall reimburse any such York County Hauler, and/or the Authority, for said increased costs of transportation. The Authority and/or any York Hauler shall receive a mutually agreed upon rate per mile, inclusive of manpower costs, equal to the prevailing rate at that time, for each additional mile necessary to travel to and from the Center to the Alternative Disposal Site.

(b) Expansion. It is the mutual understanding and agreement of the parties that the Current Permitted Capacity is sufficient to meet the Operator's guarantee of disposal capacity at the Facility, as specified in Section 4.1(a). Accordingly, the Operator hereby agrees that it will not seek to expand the Current Permitted Capacity, nor will the Operator seek to increase the Current Permitted Disposal Rate, without the prior written consent of the Authority. The parties agree that the Authority will not seek, nor will the Authority be entitled to, as a condition to any consent to expansion of the Facility's Current Permitted Capacity and/or Current Permitted Disposal Rate hereunder, the payment of a host County fee during the term of this Agreement. It is further understood and agreed that if the Authority does not provide such consent, such lack of consent shall not be deemed to be a breach of any obligation of the Authority under this Agreement. If the Authority agrees to an expansion of the Current Permitted Capacity, or agrees to an increase in the Current Permitted Disposal Rate, such agreement shall not be deemed to preclude the Authority from formally commenting on any such proposed expansion or increase under Applicable Laws.

Section 4.2 Acceptance of Residue.

Subject to the requirements of Applicable Laws, the Operator may commingle Residue delivered to the Facility by or on behalf of the Authority with other Facility Acceptable Waste delivered to the Facility for disposal.

Section 4.3 Payment for Services.

The Operator shall remit payment on all invoices submitted by the Authority for services provided pursuant to Section 5.4 and 6.1(b) herein, in accordance with the provisions of Section 6.3.

Section 4.4 Facility Operations.

Throughout the term of this Agreement, the Operator agrees to (i) operate the Facility in compliance with all Environmental Laws, (ii) provide equipment, material and personnel sufficient to dispose of Center Unacceptable Waste and Bypass Waste at the Facility, and (iii) keep the Facility open for receiving waste during the Receiving Time. The Operator may, from time to time, modify the Receiving Time at the Facility, provided, however, that any such modification in the Receiving Time shall not be effective until thirty (30) days following the date upon which the Operator provides written notice thereof to the Authority. The foregoing to the contrary notwithstanding, the parties may, by mutual agreement, modify the Receiving Time during periods of temporary curtailment or extension of operating hours at the Facility.

Section 4.5 Rejection of Facility Unacceptable Waste: Right of Inspection.

The Operator shall not be obligated to accept delivery of Facility Unacceptable Waste. The Operator shall have the right to inspect and reject any deliveries to the Facility by York County Haulers that constitute Facility Unacceptable Waste, as provided by Sections 5.5 and 5.6. The Authority shall have the right to inspect the Facility during normal operating hours provided that any such inspection does not unreasonably interfere with normal Facility operations.

Section 4.6 Permits.

The Operator shall be responsible for obtaining and maintaining, throughout the term of this Agreement, all permits that are necessary for the operation of the Facility and to meet Operator's obligations hereunder.

Section 4.7 Weigh Scales.

The Operator shall maintain the weigh scales at the Facility in accordance with Applicable Laws. The Operator shall weigh all loads of Center Unacceptable Waste, Bypass Waste and, if applicable, Residue delivered to the Facility pursuant to this Agreement and shall record the weight of all such deliveries and shall provide accountings of such deliveries with its invoices. The Operator shall prepare and deliver an itemized

invoice in accordance with Section 6.1 for the disposal of Facility Acceptable Waste originating at the Center on a monthly basis.

ARTICLE V AUTHORITY'S OBLIGATIONS

Section 5.1 Delivery of Bypass and Center Unacceptable Waste.

The Authority shall, throughout the term of this Agreement, deliver, or cause to be delivered to the Facility, all Center Unacceptable Waste originating at the Center, and all Bypass Waste. The Authority shall, in the exercise of its authority under the County Plan, designate the Facility as an approved disposal site for Center Unacceptable Waste generated within the County, provided, however, that Center Unacceptable Waste and Bypass Waste is Facility Acceptable Waste.

Section 5.2 Delivery of Residue.

The Authority may deliver, or cause to be delivered to the Facility, any portion of the Residue that is not utilized by the Authority in a Beneficial Use Program. If any Residue is delivered to the Facility for disposal by, or on behalf of the Authority, then the Authority shall be obligated to pay the Operator the Residue Disposal Fee. The parties hereby agree that the Residue Disposal Fee shall be applicable only through the calendar year of 2005, and the parties agree, in good faith, to enter into discussions to determine the applicable per ton disposal fee for such deliveries, if any, after December 31, 2005. If the parties cannot agree to any such extension, then no further deliveries of Residue to the Facility, as contemplated by this Section 5.2, shall occur unless and until such discussions between the parties are successfully concluded.

Section 5.3 County Plan Revisions.

If the Authority approves any expansion of the Facility's disposal capacity pursuant to the provisions of Section 4.1(b), and if the parties mutually agree as to the basis of any such expansion, then the Authority shall take such steps as are necessary to revise the County Plan to reflect such additional available capacity at the Facility and to submit such County Plan revision to the review and approval process required by Applicable Laws. The Authority agrees to support approval of any such County Plan revisions.

Section 5.4 Center Acceptable Waste Deliveries to the Center.

The parties agree that, on a daily basis, there may be periodic instances wherein the Operator cannot dispose of Center Acceptable Waste at the Facility that originates outside of the County due to the fact that any such disposal would be in excess of the Current Permitted Disposal Rate. In such instance, the Operator may, prior to end of any Business Day, request that the Authority process such Center Acceptable Waste at the Center.

during normal operating hours. The Authority shall have no obligation to accept any portion of such Center Acceptable Waste, but may, at its discretion and only to the extent of available processing capacity at the Center, agree to process such periodic deliveries of Center Acceptable Waste at the Center. If Center Acceptable Waste is delivered to the Center pursuant to this Section 5.4, then the Operator shall be obligated to pay the Authority the Operator Disposal Fee in accordance with Section 6.1(e). The parties hereby agree that the Operator Disposal Fee shall be applicable only through the calendar year of 2005, and the parties agree, in good faith, to enter into discussions to determine the applicable fee for such deliveries, if any, after December 31, 2005. If the parties cannot agree to any such extension, then no further deliveries of Center Acceptable Waste to the Center, as contemplated by this Section 5.4, shall occur.

Section 5.5 Facility Unacceptable Waste Deliveries to the Facility.

(a) **Facility Unacceptable Waste.** The Authority shall, in the exercise of any authority that is permissible under the County Plan, require that Facility Unacceptable Waste that originates within the County shall be disposed of at permitted locations other than the Facility. The Operator shall be entitled to reject any deliveries of any such Facility Unacceptable Waste to the Facility.

(b) **Mixed Loads.** If any delivery of waste to the Facility by York County Haulers is comprised of Facility Acceptable Waste and Facility Unacceptable Waste, then the Operator shall be entitled to determine that the entire delivery constitutes Facility Unacceptable Waste if the Facility Unacceptable Waste cannot be segregated from Facility Acceptable Waste through the reasonable efforts of the Operator.

Section 5.6 Facility Unacceptable Waste Originating At The Center.

(a) **Removal of Facility Unacceptable Waste.** If the Authority delivers or causes to be delivered Facility Unacceptable Waste to the Facility which originated at the Center, the Operator may elect to: (i) reject acceptance of such Facility Unacceptable Waste; or (ii) if the Operator, in the exercise of reasonable care, was unable to determine that such delivery was comprised of Facility Unacceptable Waste prior to its acceptance at the Facility, provide prompt written notice to the Authority of any such delivery. The Operator shall provide the Authority with a reasonable opportunity to remove such Facility Unacceptable Waste from the Facility, and to transport the material to a duly licensed and permitted facility authorized to dispose of such Facility Unacceptable Waste, all in accordance with Applicable Laws. If the Authority elects to take such action, it shall be required to do so within a reasonable period of time as is necessary and appropriate to ensure continued and safe operation of the Facility, including without limitation the preservation of the health and safety of the Facility's employees. If the Authority fails to take such action in a timely manner, taking into account the health and safety of the Operator's employees, then the Operator shall be authorized, as agent for the Authority, to remove and transport such material to a duly licensed and permitted site authorized under Applicable Laws to dispose of such material. If the Operator undertakes such

action, then the Authority shall be obligated to reimburse the Operator for the Operator's direct and indirect costs incurred which arise out of the Operator's removal, transport and disposal of such Facility Unacceptable Waste as part of the normal Billing Period invoice.

(b) Emergency Response. Notwithstanding the foregoing, the Operator shall not be required to notify the Authority of its obligation to remove, transport and dispose of Facility Unacceptable Waste which originated at the Center in emergency situations where, in the reasonable, good faith judgment of the Operator, a delay in such removal and disposal as a result of such notice and response from the Authority would constitute a hazard to the Facility, or to any person on or about the Facility. The Operator shall, however, use all reasonable efforts to provide such notice to the Authority prior to undertaking any such emergency action. The Operator and the Authority shall cooperate, in good faith, to remove, transport and dispose of such Facility Unacceptable Waste in accordance with Section 5.6(a).

Section 5.7 Facility Unacceptable Waste Not Originating At the Center.

The Authority shall not be responsible to the Operator for any costs incurred by the Operator for the removal, transport and disposal of Facility Unacceptable Waste originating in the County, but not at the Center, that was delivered to the Facility by a York County Hauler.

**ARTICLE VI
FEES**

Section 6.1 Disposal Fee and Residue Disposal Fee Payments.

(a) Facility Disposal Fee and Residue Disposal Fee. The Operator shall be paid the Disposal Fee for each ton of Center Unacceptable Waste and Bypass Waste delivered to the Facility for disposal during the term of this Agreement and the Residue Disposal Fee for each ton of Residue delivered to the Facility for disposal during the term of this Agreement. York County Haulers delivering Center Unacceptable Waste which does not originate at the Center, shall be invoiced by the Operator directly, and shall be required to pay an amount equal to the Center Disposal Fee for each ton of such material, subject to the provisions of Section 6.1(b). The Authority shall be invoiced by the Operator directly, and shall pay the Operator the Disposal Fee for each ton of Center Unacceptable Waste that originates at the Center, and for each ton of Bypass Waste and Residue, that is delivered to the Facility for disposal.

(b) Monthly Adjustment. To the extent that the Center Disposal Fee exceeds the Disposal Fee, then the Operator shall retain the Disposal Fee and shall remit to the Authority, on a monthly basis, an amount equal to (i) the Center Disposal Fee minus the Disposal Fee, times (ii) the sum of (1) the number of tons of Center Unacceptable Waste which did not originate at the Center that were delivered to the Facility by York County

Haulers during said Billing Period, plus (2) the number of tons of Bypass Waste that were delivered to the Facility by York County Haulers during said Billing Period.

(c) Operator Disposal Fee. If Center Acceptable Waste is delivered to the Center pursuant to Section 5.4, then the Operator shall be obligated to pay the Authority the Operator Disposal Fee for disposal services provided during each Billing Month.

Section 6.2 Construction and Demolition Materials: Beneficial Use Materials.

The Operator may, at its sole discretion, set the rate to be charged for disposal of Construction and Demolition Material, and Beneficial Use Materials.

Section 6.3 Billing and Payment of Monthly Invoice.

(a) Payment Dates. Each party shall submit an invoice to the other party for amounts owed under this Agreement applicable to each Billing Period, which invoice shall be payable on or before the thirtieth (30th) day of the Billing Period following the Billing Period in which said invoice was received by either party.

(b) Calculation of Invoices. Each invoice for disposal services by the Operator shall be calculated and prepared in compliance with the provisions of Section 6.1.

(c) Interest on Late Payments. All payments to be made by either party which are outstanding after the applicable due date, shall bear interest at the rate of one and one-half percent (1.5%) per month, calculated from the date upon which any such payments are due and payable.

**ARTICLE VII
COMPLIANCE WITH LAWS AND INDEMNIFICATION**

Section 7.1 Compliance with Laws.

The parties shall comply with all Applicable Laws throughout the term of this Agreement.

Section 7.2 Indemnification by Operator.

(a) Indemnification by the Operator. The Operator shall and does hereby agree, as of the Effective Date, to indemnify, save harmless and defend the Authority, the County, and their respective officers, members and their subcontractors, agents and employees ("Authority Indemnified Parties") from the payment of any sum or sums of money to any person whomsoever on account of claims or suits arising out of bodily injury, including death, personal injury or damage to property caused by the Operator, or by its respective employees, agents or subcontractors, which are in any way attributable to the performance, or failure to perform, of any obligation of Operator under this

Agreement, including (but without limiting the generality of the foregoing), all claims for service, labor performed, materials furnished, provisions and supplies, injuries to persons or damage to property, liens, garnishments, attachments, claims, suits, costs, attorneys' fees, costs of investigation and of defense. It is the intention of this paragraph to solely relieve the Authority from responsibility for any and all such claims, liabilities, actions, demands, judgments, suits or liens, of any nature and character, in any way attributable to or asserted against the Authority singly, or against the Authority and Operator jointly. In the event the obligation of Operator to indemnify hereunder shall arise by reason of the sole negligence of the Authority and/or the sole negligence of the Authority Indemnified Parties, then and only then, Operator shall not be liable under the provisions of this paragraph.

(b) No Limitation. In any and all claims against the Authority Indemnified Parties by any employee of Operator, any of its subcontractors, or anyone for whose acts any of them may be liable, the indemnification obligation under Section 7.1(a) shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for Operator, or any of its subcontractors under the worker's compensation acts, disability benefit acts or other employee benefit acts of the Commonwealth.

Section 7.3 Indemnification by the Authority.

(a) Indemnification by the Authority. The Authority shall and does hereby agree, as of the Effective Date, to indemnify, save harmless and defend Operator and Republic, their respective officers, subcontractors, agents and employees ("Republic Indemnified Parties") from the payment of any sum or sums of money to any person whomsoever on account of claims or suits arising out of bodily injury including death, personal injury, or damage to property caused by the Authority, its employees, agents or subcontractors or which are in any way attributable to the performance of, or failure to perform, any obligation of the Authority under this Agreement, including (but without limiting the generality of the foregoing), all claims for service, labor performed, materials furnished, provisions and supplies, injuries to persons or damage to property, liens, garnishments, attachments, claims, suits, costs, attorneys' fees, costs of investigation and of defense. It is the intention of this paragraph to solely relieve Republic and the Operator from responsibility for any and all such claims, liabilities, actions, demands, judgments, suits or liens, of any nature and character, in any way attributable to or asserted against Operator or Republic singly or Operator and/or Republic and the Authority jointly. In the event the obligation of Authority to indemnify hereunder shall arise by reason of the sole negligence of the Operator and/or the sole negligence of the Operator and/or Republic, then and only then, Operator shall not be liable under the provisions of this paragraph.

(b) No Limitation. In any and all claims against the Republic Indemnified Parties by any employee of the Authority, any of its subcontractors, or anyone for whose acts any of them may be liable, the indemnification obligation under Section 7.2(a) shall not be limited in any way by any limitation on the amount or type of damages,

compensation or benefits payable by or for the Authority or any of its subcontractors under worker's compensation acts, disability benefit acts or other employee benefit acts of the Commonwealth.

ARTICLE VIII UNFORESEEN CIRCUMSTANCES

Section 8.1 Effect of Unforeseen Circumstance.

(a) Excuse for Nonperformance. The failure of either party to perform any obligation under this Agreement due to an Unforeseen Circumstance shall not constitute a breach of any such obligation.

(b) Notice of Unforeseen Circumstance. Each party shall be obligated to provide prompt notice to the other party of the occurrence of an Unforeseen Circumstance and to specify the extent of any adverse effect of such event on the performance of the party's obligations under this Agreement. The party whose performance under this Agreement has been adversely affected shall provide prompt written notice as to when it anticipates the cessation of the effect of such Unforeseen Circumstances, as well as the actual cessation of such effect, to the other party.

Section 8.2 Mitigation.

Each party shall be obligated to take all reasonable steps to mitigate the adverse effects of any Unforeseen Circumstances. Whenever an Unforeseen Circumstance shall occur, the party claiming to be adversely affected thereby shall, as promptly as possible, eliminate the cause therefore, or mitigate, to the extent possible, the adverse effects thereof, and as soon as practicable, resume performance under this Agreement.

Section 8.3 No Liability for Unforeseen Circumstances.

Neither party shall be liable to the other for any failure or delay in performance of any obligation under this Agreement due to Unforeseen Circumstances.

ARTICLE IX DEFAULT, TERMINATION, AND REMEDIES

Section 9.1 Exclusive Remedies.

The remedies provided for in this Agreement that may be available to either party, are the exclusive remedies available for breach of either party's obligations under this Agreement. This Article IX shall govern termination of this agreement by either party for an Event of Default or due to an Unforeseen Circumstance.

Section 9.2 Events of Default by Operator.

The following shall constitute Events of Default by the Operator:

(a) the failure of the Operator to pay the Authority any amounts due under this Agreement within thirty (30) days after written notice from the Authority that continued failure of payment would constitute an Event of Default,

(b) either the Operator or Republic (i) being or becoming insolvent or bankrupt or ceasing to pay their debts as they mature or making an arrangement with or for the benefit of their creditors or consenting to or acquiescing in the appointment of a receiver, trustee or liquidator for a substantial part of their property, or (ii) being or becoming a party to a bankruptcy, winding up, reorganization, insolvency, arrangement or similar proceeding instituted by or against the Operator or Republic under the laws of any jurisdiction, which proceeding, if involuntary in nature, has not been dismissed within sixty (60) days, or (iii) taking any action approving of, consenting to, or acquiescing in, any such proceeding, or (iv) being a party to the levy of any distress, execution or attachment upon the property of the Operator or Republic which shall substantially interfere with the Operator's performance hereunder. If, within sixty (60) days of the date of an order for relief finding Operator or Republic insolvent or bankrupt, the Operator or Republic (1) assumes this Agreement; (2) promptly cures any failure to perform its obligations or any Event of Default arising under this Agreement for reasons other than the event set forth in this paragraph; (3) compensates or provides adequate assurance that it will promptly compensate the Authority for any amounts due under this Agreement; and (4) provides adequate assurance of future performance under this Agreement or under 11 U.S.C. § 365(b)(1)(c), or any successor provision of the Federal Bankruptcy Code then Operator shall be deemed to have cured the Event of Default and this Agreement shall continue in full force and effect. The foregoing provisions shall not prevent the Authority from requesting such other conditions of payment or adequate assurance of payment prior to assumption of this Agreement, as it deems reasonable and necessary;

(c) the assignment by the Operator of any or all of its rights or obligations under this Agreement to any successor in interest without the prior written consent of the Authority; or

(d) the failure of the Operator to perform any material obligation under this Agreement, only if such failure cannot be cured, or if such failure can be cured, it remains uncured for thirty (30) days after notice from the Authority to the Operator and Republic that such failure would constitute an Event of Default.

Section 9.3 Remedies of the Authority.

(a) Specific Performance If, within a period of thirty (30) days after the Operator and Republic have received notice from the Authority that an Event of Default has occurred, the Operator has neither remedied, nor commenced appropriate proceedings to dispute the existence of, the Event of Default, then the Authority may (i) initiate an appropriate legal action for specific performance against the Operator to compel the performance of the Operator's obligation(s) under this Agreement giving rise to such Event of Default, or (ii) terminate this Agreement upon ten (10) days written notice to the Operator, unless such Event of Default is cured within the ten (10) day period.

(b) Damages The Authority shall have the right to seek any available legal remedy, and to take any legal action or assert any legal remedy, and to take any legal action or assert any legal right available to the Authority, both at law or at equity, including specific performance if applicable, for the breach of an obligation to be performed by the Operator and/or Republic, or any event or default specified pursuant to the terms of this Agreement.

(c) Termination upon Bankruptcy or Insolvency An Event of Default described in Section 9.2(b) shall not require notice by the Authority as provided in Section 9.3(a)(ii), but may, at the Authority's election, terminate this Agreement forthwith upon written notice to Operator and Republic.

Section 9.4 Events of Default by Authority.

The following shall constitute Events of Default by the Authority:

(a) the failure of the Authority to pay the Operator any amounts due under this Agreement within thirty (30) days after written notice from the Authority that continued failure of payment would constitute an Event of Default

(b) The failure of the Authority to perform any material obligation under this Agreement, except that such failure shall constitute an Authority Event of Default only if such failure cannot be cured, or if such failure can be cured, it remains uncured for thirty (30) days after notice to the Authority from Operator that such failure would constitute an Event of Default;

(c) The Authority (i) being or becoming insolvent or bankrupt or ceasing to pay its debts as they mature or making an arrangement with, or for the benefit of, its creditors or consenting to, or acquiescing in, the appointment of a receiver, trustee or liquidator for a substantial part of its property, or (ii) being or becoming a party to a bankruptcy, winding up, reorganization, insolvency, arrangement or similar proceeding instituted by or against the Authority under the laws of any jurisdiction, which proceeding has not been dismissed within sixty (60) days, or (iii) taking any action approving of, consenting to, or acquiescing in, any such proceeding, or (iv) being a party to the levy of any distress, execution or attachment upon the property of the Authority which shall substantially interfere with the Authority's performance hereunder. If, within sixty (60) days of the date of an order for relief finding the Authority insolvent or bankrupt, the

Authority (1) assumes this Agreement; (2) promptly cures any failure to perform its obligations or any Event of Default arising under this Agreement for reasons other than the event set forth in this paragraph; (3) compensates or provides adequate assurance that it will promptly compensate Operator for any amounts due under this Agreement; and (4) provides adequate assurance of future performance under this Agreement under any applicable provision of federal or Commonwealth law, if so required, then the Authority shall be deemed to have cured the Event of Default and this Agreement shall continue in full force and effect. The foregoing provisions shall not prevent the Operator from requesting such other conditions to assumption of this Agreement, as it deems reasonable and necessary; or

(d) The assignment by the Authority of any or all of its rights or obligations under this Agreement to any successor in interest without the prior written consent of the Operator.

Section 9.5 Remedies of Operator.

(a) Termination. If, within a period of thirty (30) days after the Authority receives notice from Operator that an Event of Default has occurred, and the Authority neither remedies, nor commences appropriate proceedings to dispute the existence of, the Event of Default, then Operator may terminate this Agreement upon ten (10) days written notice to the Authority, unless such Event of Default is cured within the ten (10) day period.

(b) Damages. Operator shall have the right to seek any available legal remedy, and to take any legal action or assert any legal remedy, and to take any legal action or assert any legal right available to the Operator, both at law or at equity, including specific performance if applicable, for the breach of an obligation to be performed by the Authority, or any event or default specified pursuant to the terms of this Agreement.

(c) Termination Upon Bankruptcy or Insolvency. An Event of Default described in Section 9.4(b) shall not require notice by Operator as provided by Section 9.5(a), but may, at the election of Operator, terminate this Agreement forthwith upon written notice to the Authority.

Section 9.6 Payment After Termination.

(a) Final Payment. The Authority and the Operator shall reconcile all amounts then due and payable, including the payment of damages, if applicable under the terms of this Agreement, within thirty (30) days following the effective date of termination of this Agreement. Final payment in complete discharge of either party's obligations under this Agreement, except those obligations which specifically survive the termination of this Agreement, shall be made within thirty (30) following the date of any such final reconciliation of accounts due and payable.

ARTICLE X INSURANCE

Section 10.1 Insurance.

The Operator shall maintain the insurance coverage specified in this Article X protecting the Authority and the Operator and their officers, agents, and employees from and against any and all claims, injury, or damage to person or property, both real and personal, caused by the Operator's performance of its obligations under the terms of this Agreement.

(a) General Liability Insurance. Operator's general liability insurance shall have no less than the following minimum coverage:

Bodily Injury and Property Damage	\$1,000,000
Advertising and Personal Injury	\$1,000,000
General Aggregate	\$1,000,000
Medical Payments	\$ 10,000
Fire Damage Legal Liability	\$ 100,000

All forms should be written on an occurrence basis of the ISO 1991 form or such replacement forms as may be approved by the Commonwealth.

(b) Automobile Insurance. Operator shall maintain sufficient automobile insurance to protect the Authority and Operator and their officers, agents, and employees from and against any and all claims, injury, or damage to persons or property, both real and personal, caused by the operation of Operator's vehicles. Operator shall maintain the minimum policy limits.

Bodily Injury and Property Damage	\$1,000,000
Uninsured Underinsured Motorist	\$1,000,000
Medical Payments Coverage	\$ 10,000

The option to purchase physical damage coverage shall be at the discretion of Operator, however the Authority shall assume no liability for any such automobile and mobile equipment in the event of loss or damage to such equipment.

(c) Worker's Compensation Insurance. Operator shall provide worker's compensation insurance as required by the laws of the Commonwealth.

Statutory Coverage	
Bodily Injury Per Person	\$1,000,000 Per Accident
Bodily Injury Per Occurrence	\$1,000,000 Per Disease
Property Damage Per Occurrence	\$1,000,000 Aggregate

All such coverage shall be in accordance with the requirements of the Commonwealth. This policy shall include an Other States Endorsement, and a waiver of subrogation.

(d) Excess Liability Coverage

Per Occurrence	\$12,000,000
Aggregate	\$12,000,000

(e) Environmental Impairment Liability Insurance

On-site clean up	\$10,000,000
Third Party legal liability for on-site	\$10,000,000
Bodily injury	included
Property damage	included

All coverages specified above shall include pre-existing and new conditions.

Section 10.2 Notice of Cancellation.

All policies, with the exception of Worker's Compensation, shall include the Authority as an additional insured with respect to the performance of the Operator's obligations under this Agreement with forty-five (45) day notice of cancellation. Such notice of cancellation shall be provided to the Executive Director, York County Solid Waste & Refuse Authority.

**ARTICLE XI
FURTHER AGREEMENTS**

Section 11.1 Environmental Indemnification.

The Operator agrees to indemnify and hold harmless the County and the Authority, their respective officers, members and their subcontractors, agents and employees, from and against any and all liabilities, losses, damages, costs, expenses and disbursements, including reasonable attorneys fees and expenses, arising out of, or in connection with (i) any claim or loss caused by the Operator's violation of Environmental Laws, and (ii) any Environmental Losses.

Section 11.2 Alternative Landfill Capacity.

The Operator agrees to provide Alternative Disposal Site capacity for Center Unacceptable Waste and Bypass Waste throughout the term of this Agreement,

notwithstanding the closure or cessation of operations of the Facility, and consistent with its obligations specified in Section 4.1.

Section 11.3 Republic Guarantee.

Republic hereby guarantees that the Operator shall fully and faithfully perform each of its obligations specified under the terms of this Agreement. In the event that the Operator fails to perform any of its obligations specified in this Agreement, and if such failure of performance would constitute an Event of Default as defined in this Agreement, then Republic shall be obligated to take any and all actions necessary to compel, or otherwise require, the Operator to perform its obligations under this Agreement. It is the express intent of the parties that failure of Republic to meet its obligation to require the Operator to perform its obligations under the terms of this Agreement, shall constitute an Event of Default under this Agreement, in which case, the Authority may seek the remedies provided for by this Agreement against the Operator and Republic as joint and severally liable parties.

**ARTICLE XII
MISCELLANEOUS**

Section 12.1 Notice.

(a) All notices to, and correspondence with, the Authority concerning this Agreement shall be addressed to:

Executive Director
York County Solid Waste and Refuse Authority
2700 Blackbridge Road
York, PA 17402-7901
Phone (717) 845-1066
Facsimile (717) 843-1544

(b) All notices to, and correspondence with, the Operator concerning this Agreement shall be addressed to:

General Manager
Modern Landfill
4400 M.T. Pisgah Road
York, PA 17402
Phone (717) 246-2686
Facsimile (717) 244-5588

with a copy to Republic at -

General Counsel

Republic Services, Inc.
110 S.E. 6th Street, 20th Floor
Ft. Lauderdale, Florida 33301
Phone (954) 769-2400
Facsimile (954) 769-6411

Section 12.2 Waiver.

The waiver by either party of a default or breach by the other party of any provision of this Agreement shall not operate or be construed to operate as a waiver of any subsequent default or breach. The making or acceptance of a payment by either party with knowledge of the existence of a default or breach shall not operate or be construed to operate as a waiver of any subsequent default or breach.

Section 12.3 Governing Law.

This Agreement shall be governed by and construed in accordance with the laws of the Commonwealth of Pennsylvania.

Section 12.4 Amendment and Modification.

This Agreement shall not be amended or modified except by written instrument duly executed by each of the parties hereto.

Section 12.5 Severability.

If any provision of this Agreement is held to be invalid, illegal or unenforceable under present or future laws, such provisions shall be ineffective to the extent of such invalidity, illegality or unenforceability, but shall not serve to invalidate or render unenforceable any other term or provision hereof.

Section 12.6 Entire Understanding of the Parties.

This Agreement sets forth the entire understanding of the Parties hereto with respect to the transactions contemplated hereby and supersedes any and all previous agreements and understandings between or among the parties hereto regarding the subject matter hereof except to the extent specifically referenced herein, whether written or oral.

Section 12.7 Assignment.

This Agreement shall be binding upon and inure to the benefit of the parties hereto and their respective successors and permitted assigns. Neither this Agreement, nor any of the rights, interests, or obligations, hereunder shall be assigned by either party hereto without the prior written consent of the other, which shall not be unreasonably withheld. Any assignment by either party of the rights and obligations specified under this

Agreement without such prior written consent shall constitute an Event of Default hereunder. No waiver, amendment, or modification of this Agreement shall be valid and binding unless in writing and executed in the same manner as the execution of this Agreement.

Section 12.8 Third Parties.

Nothing in this Agreement, express or implied, is intended to confer any rights or remedies on any person other than the parties expressly named herein and their respective permanent successors, assigns and legal representatives.

Section 12.9 Execution in Counterparts.

This Agreement may be executed in counterparts, each of which shall be deemed to be an original, but all of which together shall constitute one and the same instrument.

Section 12.10 Headings.

Captions and headings in this Agreement are for ease of reference only and do not constitute a part of this Agreement.

Section 12.11 Nondiscrimination.

Neither party to this Agreement nor any other person acting on behalf of any party to this Agreement shall discriminate against any person because of race, sex, age, creed, color, religion, or national origin.

Section 12.12 Certification of Undersigned.

Each undersigned certifies that he or she is fully authorized to enter into the terms and conditions of this Agreement, and to execute and legally bind such party to this document.

Section 12.13 Survival.

Sections 7.2, 7.3, 9.3, 9.5, 9.6, and 12.3 shall survive the Term of this Agreement.

IN WITNESS WHEREOF, the Operator, Republic and the Authority have executed this Agreement on the day and year first written above.

ACKNOWLEDGMENT

By: Wagner
Secretary

YORK COUNTY SOLID WASTE
AND REFUSE AUTHORITY

By: John E. Lelke
Chairman

REPUBLIC SERVICES OF
PENNSYLVANIA, LLC

By: Jim O'Donnell

REPUBLIC SERVICES, INC.

By: Matthew O. Futz
Vice President

Amendment to Modern Landfill Disposal and By-Pass Agreement

2011 FACILITY DISPOSAL SERVICES AGREEMENT EXTENSION AND AMENDMENT

This 2011 Facility Disposal Services Agreement Extension and Amendment (the "2011 Amendment") is entered into as of this 21ST day of DECEMBER, 2011, by and among the York County Solid Waste and Refuse Authority (the "Authority"), Republic Services of Pennsylvania, LLC ("Operator"), and Republic Services, Inc. ("Republic").

WHEREAS, the Authority and Operator are desirous of extending and amending the Facility Disposal Services Agreement, dated as of January 1, 2001, (the "Facility Disposal Services Agreement") as amended by the First Amendment to Facility Disposal Services Agreement, dated as of January 1, 2006, (the "2006 Amendment"), and as further amended by the 2008 Amendment to Facility Disposal Services Agreement, dated as of October 15, 2008, (the "2008 Amendment"); and,

WHEREAS, it is the intent of the parties hereto that, except as otherwise expressly modified by this 2011 Amendment, the terms and conditions of the Facility Disposal Services Agreement shall remain in full force and effect and shall be fully enforceable in accordance with the terms thereof:

NOW, THEREFORE, in consideration of the mutual obligations and premises herein specified, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties agree as follows:

Article 1. Termination of Amendments. The 2006 Amendment and the 2008 Amendment are hereby terminated and shall have no further force and effect.

Article 2. Definitions. The following definitions shall be deleted and replaced, which replacement definitions shall read as follows:

"Beneficial Use Material" means material that remains following treatment of Residue in a Beneficial Use Program, which is delivered to a landfill for placement in the lined portion of the landfill including but not limited to use as daily cover. However, in no event shall Beneficial Use Material mean or include Facility Unacceptable Waste.

"Operator Disposal Fee" means the amount payable to the Authority by the Operator for the disposal of Center Acceptable Waste delivered to the Center pursuant to Section 5.4.

"Residue Disposal Fee" means the amount payable by, or on behalf of, the Authority for the delivery of Residue

{B0002480 6}

or Beneficial Use Material at the Facility, which amount shall be equal to twenty-five dollars (\$25.00) per ton of each such material, which amount shall be increased by the annual increase in the U.S. Department of Labor, Bureau of Labor Statistics Consumer Price Index for all Urban Consumers in the Philadelphia-Wilmington-Atlantic City, PA-NJ-DE-MD Regional Area ("CPI-U"), beginning with January 1, 2013, and then continuing each year until the term of this Facility Disposal Services Agreement expires; provided, however, that the total increase in said amount pursuant to this definition shall be limited to, and shall not exceed, four percent (4%) for any calendar year.

Article 3. Extension of Term. Section 3.1 of the Facility Disposal Services Agreement is hereby replaced in its entirety and shall read as follows:

Section 3.1 Term.

The term of this Facility Disposal Services Agreement shall hereby be extended, and shall continue in full force and effect through the earlier of (i) December 31, 2025; or, (ii) the date upon which the Current Permitted Capacity has been fully utilized.

Article 4. Section 4.7 of the Facility Disposal Services Agreement is hereby replaced in its entirety and shall read as follows:

Section 4.7 Weigh Scales.

The Operator shall maintain the weigh scales at the Facility in accordance with Applicable Laws. The Operator shall weigh all loads of Center Unacceptable Waste, Bypass Waste and, if applicable, Residue and Beneficial Use Material that are delivered to the Facility pursuant to this Facility Disposal Services Agreement and shall record the weight of all such deliveries and shall provide accountings of such deliveries with its invoices. The Operator shall prepare and deliver an itemized invoice in accordance with Section 6.3 for the disposal of Facility Acceptable Waste originating at the Center on a monthly basis.

Article 5. Section 5.1 of the Facility Disposal Services Agreement is hereby replaced in its entirety and shall read as follows:

{B0002480 6}

Section 5.1 Delivery of Bypass Waste and Center Unacceptable Waste

The Authority shall, throughout the term of this Facility Disposal Services Agreement, deliver or cause to be delivered to the Facility, all Center Unacceptable Waste which originates at Center. The Authority may, throughout the term of this Facility Disposal Services Agreement, deliver or cause to be delivered to the Facility, Bypass Waste. The Authority shall, in the exercise of its authority under the County Plan, designate the Facility as an approved disposal site for Center Unacceptable Waste generated within the County; provided, however, that Center Unacceptable Waste and Bypass Waste is Facility Acceptable Waste. In the event that Bypass Waste is delivered to the Facility, the Operator shall extend its normal operating hours to make the Facility available to receive any such Bypass Waste deliveries during the hours of 6:00 am through 4:00 pm daily, on a priority basis with respect to truck queue time.

Article 6. Section 5.2 of the Facility Disposal Services Agreement is hereby replaced in its entirety and shall read as follows:

Section 5.2 Delivery of Residue and Beneficial Use Material: Residue Disposal Fee.

(a) Delivery of Residue and Beneficial Use Material. The Authority shall, throughout the term of this Facility Disposal Services Agreement, deliver, or cause to be delivered to the Facility, any portion of the Residue not used by the Authority in a Beneficial Use Program, and all Beneficial Use Material.

(b) Residue Disposal Fee. If any Residue or Beneficial Use Material is delivered to the Facility by, or on behalf of the Authority, then the Authority shall be obligated to pay the Operator, or cause the Operator to be paid by a third party, the Residue Disposal Fee. If the Pennsylvania Department of Environmental Protection determines that the use of Residue or Beneficial Use Material as alternate daily cover is not counted against the Facility's daily waste limit, then the parties agree, in good faith, to mutually determine to what extent the Residue Disposal Fee will be adjusted to reflect any such change.

(c) Change in Law. Notwithstanding anything to the contrary set forth herein, if a Change in Law, including any change in

{B0002480 6}

any fees and taxes (excluding income taxes) applicable to the services the Operator performs hereunder, results in a change in the cost of the Operator's services provided to the Authority hereunder, then the Operator shall provide notice of such Change in Law to the Authority, along with the Operator's proposed adjustment to the prices charged the Authority for the services performed hereunder, and such adjustment shall take place and be effective thirty (30) days from the date the notice is received by the Authority; provided, however, that if the Authority arranges for delivery of Residue and/or Beneficial Use Material at a permitted facility located outside of Pennsylvania that is not subject to such Change in Law at a lower cost to the Authority, including transportation costs and tipping fee, the Authority may, at its discretion, elect to cause such Residue and/or Beneficial Use Material to be delivered to such alternate facility, and any obligation of the Authority to deliver Residue and/or Beneficial Use Material to the Facility under this Agreement shall cease and have no further force and effect.

Article 7. Section 5.4 of the Facility Disposal Services Agreement is hereby replaced in its entirety and shall read as follows:

Section 5.4 Center Acceptable Waste Deliveries to the Center.

The parties agree that, on a daily basis, there may be periodic instances wherein the Operator cannot dispose of Center Acceptable Waste at the Facility that originates outside of the County due to the fact that any such disposal would be in excess of the Current Permitted Disposal Rate. In such instance, the Operator may, prior to end of any Business Day, request that the Authority process such Center Acceptable Waste at the Center during normal operating hours. The Authority shall have no obligation to accept any portion of such Center Acceptable Waste, but may, at its discretion and only to the extent of available processing capacity at the Center, agree to process such periodic deliveries of Center Acceptable Waste at the Center. If Center Acceptable Waste is delivered to the Center pursuant to this Section 5.4, then the parties agree that, in the event of any such occurrence(s), the parties will, from time to time and in good faith, agree upon the price payable to the Authority by the Operator for such Center Acceptable Waste. If the parties cannot agree upon such price payable, then no further

{B0002480 6}

deliveries of Center Acceptable Waste to the Center, as contemplated by this Section 5.4, shall occur.

Article 8. Section 6.1(a) of the Facility Disposal Services Agreement is hereby replaced in its entirety and shall read as follows:

Section 6.1 Disposal Fee and Residue Disposal Fee Payments.

(a) Disposal Fee and Residue Disposal Fee. The Operator shall be paid the Disposal Fee for each ton of Center Unacceptable Waste and Bypass Waste delivered to the Facility for disposal during the term of this Agreement, and the Residue Disposal Fee for each ton of Residue or Beneficial Use Material delivered to the Facility during the term of this Facility Disposal Services Agreement. York County Haulers delivering Center Unacceptable Waste which does not originate at the Center, shall be invoiced by the Operator directly, and shall be required to pay an amount equal to the Center Disposal Fee plus the Act 90 \$4.00 per ton "Growing Greener" fee, for each ton of such material, subject to the provisions of Section 6.1(b). The Authority shall be invoiced by the Operator directly, and shall pay the Operator the Disposal Fee for each ton of Center Unacceptable Waste that originates at the Center and each ton of Bypass Waste. In the case of each ton of Beneficial Use Material or Residue that is delivered to the Facility, the Authority shall be invoiced directly, but the Authority may, at its option, cause a third party to pay said invoices to the Operator. If the Authority elects to cause a third party to pay said invoices to the Operator, and that third party does not remit payment to the Operator by the due date reflected on said invoice, the Operator shall provide written notice to the Authority, on or before the third (3rd) day following the date of such non-payment, of the third party's failure to make such payment, and the Authority shall pay said invoice to the Operator within thirty (30) days of receipt of Operator's written notice of the third party's failure to pay.

Article 9. Section 6.2 of the Facility Disposal Services Agreement is hereby replaced in its entirety and shall read as follows:

Section 6.2 Construction and Demolition Materials.

The Operator may, at its sole discretion, set the rate to be charged for disposal of Construction and Demolition Material.

{B0002480 6}

Article 10. The last sentence of Section 7.3(a) of the Facility Disposal Services Agreement is hereby replaced in its entirety and shall read as follows:

In the event the obligation of Authority to indemnify hereunder shall arise by reason of the sole negligence of the Operator and/or the sole negligence of the Operator and/or Republic, then and only then, the Authority shall not be liable under the provisions of this paragraph.

Article 11. Section 4.1(b) of the Facility Disposal Services Agreement is hereby deleted in its entirety.

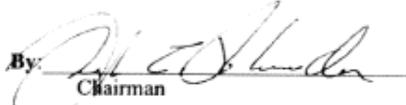
Article 12. Any capitalized term not otherwise defined herein shall have the meaning specified in the Facility Disposal Services Agreement.

[THIS SPACE INTENTIONALLY LEFT BLANK]

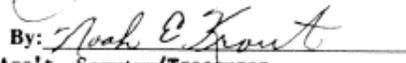
{B0002480 6}

IN WITNESS WHEREOF, the parties hereto have caused this 2011 Amendment to be executed by their duly authorized representatives as of the day and year first above written.

**YORK COUNTY SOLID WASTE
AND REFUSE AUTHORITY**

By: 
Chairman

Acknowledgement:

By: 
Ass't Secretary/Treasurer

Republic Services of Pennsylvania, LLC

By: 

Title: Authorized Agent

Republic Services, Inc.

By: 

Title: VP

{B0002480 6}

Emergency By-Pass Agreements

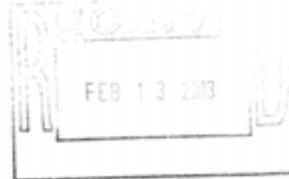


YORK COUNTY
SOLID WASTE AND REFUSE AUTHORITY

2700 Blackbridge Road, York, PA 17406-7901 Phone (717) 845-1066 Fax (717) 843-1544

February 7, 2013

Mr. Thomas Adams
Senior Manager
Lancaster County Solid Waste Authority
1299 Harrisburg Pike
P.O. Box 4425
Lancaster, PA 17604



Subject: Emergency By-pass Facility

Dear Tom:

The York County Solid Waste Authority (YCSWA) is preparing a Non-substantial Plan Revision to the York County Municipal Waste Plan required by Act 97 and Act 101. The YCSWA will continue to direct York County generated processible municipal waste to the York County Resource Recovery Center (YCRRC). It is projected the YCSWA has adequate processing capacity at the YCRRC for the duration of the Plan.

The Plan will also detail possible alternative disposal sites in the event that the YCSWA's YCRRC is off-line due to unforeseen circumstances. In case of significant down time at the YCRRC, YCSWA prefers to continue processing the County's municipal waste through waste-to-energy. To accomplish this, the YCSWA would like to list the Lancaster County Solid Waste Management Authority's Resource Recovery Facility (RRF) as the preferred emergency by-pass facility for York County's municipal waste. Terms for delivering waste by YCSWA to the RRF will be agreed upon at the time of need by the Lancaster Authority and YCSWA, and will be dependent on the available capacity at the RRF at that time.

Page 2
YC Plan - Lancaster emergency back-up
2/7/13

To authorize inclusion of the Lancaster RRF as the preferred emergency by-pass facility in the York County Municipal Waste Plan, please sign below on both originals and return one to me.

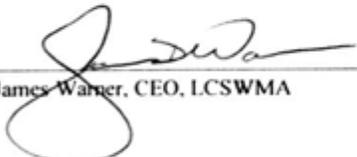
Sincerely,

Gregg Pearson
Mgr., Recycling & Planning Div.



David Vollero, Executive Director, YCSWA

2/7/13
Date



James Warner, CEO, LCSWMA

2-22-13
Date

APPENDIX C

Legal Mechanisms for Implementation



Flow Control Ordinance

ORDINANCE NO. 89-4

YORK COUNTY WASTE FLOW CONTROL ORDINANCE

WHEREAS, it is deemed by the Commissioners of York County, Commonwealth of Pennsylvania, to be in the best interest of the health, safety and welfare of the citizens of York County, that comprehensive planning of municipal waste management, collection and disposal be a public function controlled, implemented and managed by the County as provided herein; and

WHEREAS, the Commonwealth of Pennsylvania, pursuant to Section 102(b)(10) of the Municipal Waste Planning, Recycling and waste Reduction Act, Act of July 28, 1988, P.L. 101 (hereinafter referred to as "Act 101"), has shifted the primary responsibility for developing and implementing municipal waste management plans from municipalities to counties; and

WHEREAS, the York County Board of County Commissioners created the York County Solid Waste and Refuse Authority (hereinafter referred to as the "Authority"), as authorized by the Municipalities Authorities Act of 1945 (Act of 1945, P.L. 382, No. 164, hereinafter referred to as "Act 164"), for the purpose of implementing the York County Municipalities Solid waste Management Plan Update which was approved pursuant to the provisions of the Pennsylvania Solid Waste Management Act, (Act of July 7, 1980, P.L. 380, No. 97, hereinafter referred to as "Act 97"); and

WHEREAS, the Authority, pursuant to, and consistent with, the said York County Municipalities Solid Waste Management Plan, entered into municipal agreements with certain York County municipalities for waste disposal services; and

WHEREAS, the Authority has issued revenue bonds for the acquisition and construction of the York County Resource Recovery Center (hereinafter referred to as the "Center"), and has entered into an Amended and Restated Construction and Service Agreement, dated as of July 16, 1987, (hereinafter referred to as the "Agreement"), with Westinghouse Electric Corporation, for the construction, operation and maintenance of the Center; and

WHEREAS, on May 30, 1989, the Pennsylvania Department of Environmental Resources notified the County that the York County Municipalities Solid Waste Management Plan Update has achieved all necessary requirements for final "grandfather" approval under Section 501(b) of Act 101; and

WHEREAS, pursuant to Section 303(e) of Act 101, the County is authorized to require that all municipal waste generated within its boundaries shall be processed or disposed at a designated processing or disposal facility that is contained in the approved York County Municipalities Solid Waste Management Plan; and

WHEREAS, the County and the Authority have entered into an agreement, dated as of July 12, 1989, delegating to the Authority certain powers and responsibilities with respect to

municipal waste planning and implementation of the York County Municipalities Solid Waste Management Plan, as authorized by Section 303(d) of Act 101;

NOW, THEREFORE BE IT ORDAINED, by the Board of Commissioners of the County of York, Pennsylvania, and it is hereby ordained by authority of the same, as follows:

Section 1. Definitions. The following terms shall have the following meanings in this Ordinance:

"Acceptable Waste" means that portion of Municipal Waste which can be processed by the Center, consistent with the Plan and any rules, regulations, resolutions or standards adopted by the Authority pursuant to this Ordinance and the Delegation Agreement, that has characteristics such as that collected and disposed of as part of normal collection of Municipal Waste in the County.

"Center" means the York County Resource Recovery Center and shall include the buildings and all equipment associated therewith which are located on Blackbridge Road, Manchester Township in the County.

"County" means the County of York, Commonwealth of Pennsylvania.

"Delegation Agreement" shall mean that specific agreement between the County and the Authority, dated as of July 12, 1989, defining and delegating certain of the County's

municipal waste management and planning responsibilities to the Authority, as authorized by Act 101.

"Existing Contract" means any agreement or contract () fully executed and delivered and in effect, and (2) in reliance upon which, there has been a material change in position by any Person who is a party thereto, or beneficiary thereof, prior to the effective date of this Ordinance for the collection, disposal or transportation of Municipal Waste generated within the County.

"Municipal Waste" means any garbage, refuse, industrial lunchroom or office waste and other material, including solid, liquid, semisolid or contained gaseous material, resulting from operation of residential, municipal, commercial or institutional establishments and from community activities and any sludge not meeting the definition of residual or hazardous *waste* in Act 97 from a municipal, commercial or institutional waste supply treatment plant, wastewater treatment plant or air pollution control facility. The term does not include source-separated recyclable materials.

"Municipality" means a county, city, borough, incorporated town, township or home rule municipality.

"Person" means any individual, partnership, corporation, association, institution, cooperative enterprise, Municipality, municipal authority, Federal Government or agency, Commonwealth institution or agency (including, but not limited to, the Department of General Services and the

State Public School Building Authority), or any other legal entity whatsoever which is recognized by law as the subject of rights and duties. In any provisions of this Ordinance prescribing a fine, imprisonment or penalty, or any combination of the foregoing, the term "Person; shall include the officers and directors of any corporation or other legal entity having officers and directors.

"Plan means the York County Municipalities Solid Waste Management Plan Update approved pursuant to Act 97 and pursuant to Section 501(b) of Act 101, and any subsequent revisions, amendments or updates thereto which are approved pursuant to the provisions of Act 101.

"System" means the Municipal Waste management and disposal system for the County, including, without limitation, the Center, and any equipment, transfer stations, landfills, sludge disposal facilities, wastewater treatment facilities, recycling facilities, or composting facilities, whether publicly or privately owned or operated, which are, or will be, acquired, constructed and operated within the County and which are designated by the Authority pursuant to this Ordinance and the Delegation Agreement, and consistent with the Plan, as the specified processing, transfer or disposal site for any Municipal Waste, or any constituent thereof, which is generated or disposed of within the County.

"Unacceptable Waste" means that portion of Municipal Waste that is not Acceptable Waste and which is predominantly noncombustible and which cannot be processed by the Center, having such characteristics as specified in the Plan or in any rules, regulations, resolutions or standards adopted by the Authority, pursuant to this Ordinance and the Delegation Agreement.

Section 2. Operation by Licensed Collectors; Compliance; Fees.

(a) Licensing. Any Person engaged in the business of collecting, hauling or disposing of Municipal Waste generated in this County shall, prior to engaging in such business or activity, obtain a license for the specific purpose of conducting such business, which license shall be issued and administered by the County, as specified or required by the Plan. No Person who is required to be licensed by the County as specified by the Plan who is not duly licensed by the County to deliver Municipal Waste to the System for processing or disposal may collect, transport or dispose of Municipal Waste generated within the County.

(b) Compliance with Rules. Regulations and Ordinances. In carrying out activities relating to Municipal Waste collection, transportation or disposal within this County, all Municipal Waste collectors or transporters shall comply with all ordinances, resolutions, rules, regulations and standards pertaining to the collection, transportation and

disposal of Municipal Waste as may hereinafter be enacted by this County and all resolutions, rules, regulations and standards adopted by the Authority pursuant to this Ordinance and the Delegation Agreement.

(c) The County shall establish, and shall collect, a license fee to be paid by any Person applying for such license in accordance with the requirements of this Section 2. Section 3. Disposal at Designated Solid Waste Processing or Disposal Facilities.

(a) General. All Municipal Waste collectors and transporters shall deliver and dispose of all Municipal Waste, or any constituents thereof, generated within the County only at a transfer station or processing or disposal facility designated by this Ordinance, or designated by the Authority pursuant to this Ordinance and the Delegation Agreement, as such facility is reflected in the Plan.

(b) Processing of Acceptable Waste. Upon the effective date of this Ordinance, all collectors and transporters shall deliver and dispose of all Acceptable Waste collected within the County to the Hopewell Landfill operated by the Authority, or to an alternate disposal facility designated by the Authority, until the commercial operation date of the Center. On and after the commercial operation date of the Center, as certified by the Authority, all collectors and transporters shall deliver and dispose of all Acceptable Waste collected within the County to the Center

for processing, or to an alternate disposal or processing facility designated by the Authority during interruptions of operation of the Center, if any. No Acceptable Waste generated and collected within the County shall be delivered to any other disposal or processing facility in violation of this Section 3, whether or not any such disposal or processing facility may be located within or without the County.

(c) Disposal of Unacceptable Waste. All collectors and transporters operating in the County shall deliver and dispose of all Unacceptable Waste generated and collected within the County to the Hopewell Landfill operated by the Authority for disposal, until such time as the Authority shall direct that such Unacceptable Waste be delivered to an alternative disposal sites) consistent with the Plan.

(d) Recycling. This Ordinance shall not be construed to require that Municipal Waste or source-separated recyclable materials that would otherwise be recycled pursuant to the requirements of Act 101 be delivered to the Center, the Hopewell Landfill or any other Municipal Waste processing or disposal facility unless such Municipal Waste or recyclable materials are to be recycled at any recycling facility in accordance with the Plan or any municipal recycling program pursuant to Section 1501 of Act 101.

(e) Commercial Disposal Facilities. This Ordinance shall not be construed to require that Municipal Waste generated by any commercial operation in the County which is

exclusively disposed of by such commercial operation at an on-site captive commercial disposal facility, duly permitted to dispose of such Municipal waste, be delivered to any other processing or disposal facility.

Section 4. Implementation and Regulation.

(a) Authority Rules. The collection, transportation and disposal of Municipal Waste generated within the County shall be subject to such further rules, regulations, resolutions and standards as may from time to time be adopted by the Authority pursuant to this Ordinance and the Delegation Agreement in furtherance of implementation and enforcement of the Plan.

(b) Consistency of Rules, Regulations, Resolutions and Standards with Ordinance and Other Laws. No rules, regulations, resolutions or standards adopted by the Authority pursuant to applicable provisions of Commonwealth law and as authorized by the Delegation Agreement and this Ordinance, shall be contrary to or less stringent than the provisions of this Ordinance, the Plan, Act 97, Act 101 or any regulations adopted thereunder.

Section 5. Existing Contracts; Facilities.

(a) Non-interference with Existing Contract . Nothing contained in this Ordinance shall be construed to interfere with or in any way modify the provisions of any Existing Contract.

(b) New Contracts and Renewals Existing Contracts.

renewal of any Existing Contract upon the expiration of the original term thereof and no new contract for Municipal Waste collection, transportation, processing or disposal shall be entered into after the effective date of this Ordinance, unless such renewal or such contract shall conform to the requirements of the Plan, this Ordinance, and any rules, regulations, resolutions or standards promulgated by the Authority pursuant to this Ordinance and the Delegation Agreement, and shall further conform to any of the terms and conditions of licenses issued by the County pursuant to this Ordinance, as specified or required by the Plan.

No Person shall use or permit to be used any property owned or occupied by that Person within the County as a Municipal Waste processing or disposal facility, either for Municipal Waste generated within the County or elsewhere, unless such use authorized pursuant to the provisions of Act 101, and is consistent with, and is reflected in, the Plan.

Section 6. Unlawful Activities; Public Nuisance. It shall be unlawful for any Person to:

(a) violate, cause or assist in the violation of any provision of this Ordinance, or violate, cause or assist in the violation of any rule, regulation, resolution or standard promulgated by the Authority pursuant to this Ordinance and the Delegation Agreement, or any rule,

regulation, resolution or standard promulgated by the County consistent with this Ordinance and the provisions of Act 101 and the Plan;

(b) process, treat, transfer or dispose of, or cause to be processed, treated, transferred or disposed of, Municipal Waste, or any constituent thereof, which is collected within the County and which is subject to the provisions of this Ordinance, at any facility other than a processing or disposal facility which is consistent with, and is reflected in, the Plan as the designated processing, transfer, treatment or disposal facility for such Municipal Waste, or constituent thereof;

(c) collect Municipal Waste, or any constituent thereof, generated within the County without a valid license nor collection issued by the County as specified or required by the Plan; or

(d) hinder, obstruct, prevent or interfere with, the County, the Authority, or any of their personnel, agents or employees in the performance of any duty under this Ordinance, or in the performance of any duty of the Authority under the Delegation Agreement or in the performance of any duty in furtherance of the implementation and enforcement by the County or the Authority of this Ordinance or of the Plan.

Section 7. Penalties.

(a) Any Person who engages in unlawful conduct as defined in this Ordinance shall, upon conviction thereof, in

a summary proceeding before a district justice, be sentenced to pay a fine of not more than One Thousand Dollars (\$1,000) and not less than Twenty-Five Dollars (\$25), to be paid to the use of the County, with costs of prosecution, or to be imprisoned in the County jail for not more than ten (10) days, or both.

(b) Any Person who engages in unlawful conduct as defined

this Ordinance shall, in accordance with applicable provisions of the laws of the Commonwealth, be subject to the provisions of Act 101, Chapter 17, as such provisions with respect to enforcement and remedies may apply to any such unlawful conduct.

Section 8. Revocation of License. Upon finding that any Person has engaged in unlawful conduct as defined in Section 6 of this Ordinance, the County may, (a) revoke any license issued by the County to that Person and (b) deny any subsequent application by that Person or any Person who or which was, or who or which is, affiliated with, related to, or controlled by, any Person who was, at the time of commitment of such unlawful conduct, or any time thereafter, an officer, director, shareholder, partner, or joint venturer of, under contract with, employed by, or related or affiliated in any manner with such Person, for issuance of the license required by Section 2 hereof.

Section 9. Injunctions; Concurrent Remedies.

(a) Restraining Violations. In addition to any other remedy provided in this Ordinance, the County or the

Authority may institute a suit in equity where unlawful conduct or a public nuisance exists as defined in this Ordinance for an injunction to restrain a violation of this Ordinance or of any rules, regulations, resolutions or standards promulgated or issued by the County pursuant to this Ordinance, or issued by the Authority pursuant to this Ordinance and the Delegation Agreement.

(b) Concurrent Remedies. The penalties and remedies prescribed by this Ordinance shall be deemed concurrent. The existence or exercise of any remedy shall not prevent the County or the Authority from exercising any other remedy provided by this Ordinance or otherwise provided at law or equity.

Section 10. Construction. The terms and provisions of this Ordinance are to be liberally construed, so as best to achieve and to effectuate the goals and purpose hereof. This Ordinance shall be construed In pari pateria with Act 97 and Act 101.

Section 11. Municipal Ordinances. Pursuant to Section 304(d) of Act 101, the provisions of this Ordinance shall supersede the provisions of any municipal ordinance to the extent that the provisions of any such municipal ordinance are inconsistent with, or conflict with, the provisions of this Ordinance, except as otherwise provided by Section 502(0) of Act 101.

Section 12. Severability. If any sentence, clause, section or part of this Ordinance is for any reason found to

Section 13. Effective Date. This Ordinance shall become effective within 15 days of its adoption by the Board of Commissioners of York County.

be unconstitutional, illegal or invalid, such unconstitutionality, illegality or invalidity shall not affect or impair any remaining provisions, sentences, clauses, sections or parts of this Ordinance. It is hereby declared as the intent of the York County Board of Commissioners that this Ordinance would have been adopted had such unconstitutional, illegal or invalid sentence, clause, section

Enacted and/or part thereof had not been included herein.
ordained s 30th day of August , 1989.

Attest.

•Chief Clerk

COUNTY OF YORK

By: _____

By: King P. E. Fitch

By: Magistrate

Adoption of the York County Municipal Solid Waste Management Plan

The York County Solid Waste and Refuse Authority voted to adopt the York County Municipal Solid Waste Management Plan on November 20, 2013. The official motion and vote is shown below in an excerpt as it was documented in the minutes of that meeting.

-48-

York County Solid Waste and Refuse Authority
November 20, 2013

Administrative Committee - Mr. Paup

John Frey of Public Financial Management reported that seven bank proposals were received for the \$10,000,000 bank qualified loan. M & T Bank offered the lowest interest rate on both fixed interest rate of 1.94% and a variable rate option. A formal commitment letter has been received. This loan would be an 8-year loan.

Upon motion of Paup/Hoheneder, approval to accept the \$10,000,000 loan offer from M & T Bank, pending amended cap on the proposed prepayment premium of 5%. Motion carried.

Recycling and Planning Committee – Mr. Brenneman

Mr. Pearson recommends, based on previous approval by the York County Planning Commission and the MWAC Committee, that the Authority adopt the York County Municipal Solid Waste Management Plan. This plan ensures that York County has sufficient disposal capacity available through 2038. The Plan was reviewed by the Solicitor in October. Mr. Strickler reviewed and recognizes the fine job that has been accomplished. It is comprehensive and complete.

Upon motion of Brenneman/Krout, The Recycling and Planning Committee recommends adoption of the York County Municipal Solid Waste Management Plan Update and Revisions, November 2013 by the YCSWA and to send the documents to DEP for review and approval. Motion carried.

**Plan Revision Approval under the Municipal Waste Planning, Recycling
and Waste
Planning, Recycling and Waste Reduction Act of 1988, Act 101**

*Southcentral Region: Waste Management Program Manager, 909 Elmerton Avenue
Harrisburg, PA 17110-8200.*

The Department of Environmental Protection (Department) approved the York County Municipal Waste Management Non-Substantial Plan Revision ("Revision") on February 20, 2014. Key features of the revision include updated municipal solid waste calculations, updating population information, continued flow control to the county run incinerator, and ongoing recycling options. The Revision is a public document and may be viewed at the Southcentral Regional Office, at the address noted above. Questions concerning the approval of the Revision should be directed to Larry Holley, Department of Environmental Protection, Bureau of Waste Management, Division of Waste Minimization and Planning, P. O. Box 8472, Harrisburg, PA 17105-8472, (717)-787-7382, or to John Lundsted, Regional Planning and Recycling Coordinator, Waste Management Program, at the Southcentral Regional Office at (717) 705-4927.

Persons aggrieved by an action may appeal, under section 4 of the Environmental Hearing Board Act (35 P. S. § 7514) and 2 Pa. C.S. §§ 501—508 and 701—704 (relating to the Administrative Agency Law), to the Environmental Hearing Board, Second Floor, Rachel Carson State Office Building, 400 Market Street, P. O. Box 8457, Harrisburg, PA 17105-8457, (717) 787-3483. TDD users may contact the Environmental Hearing Board (Board) through the Pennsylvania Relay Service, (800) 654-5984. Appeals must be filed with the Board within 30 days of publication of this notice in the *Pennsylvania Bulletin*, unless the appropriate statute provides a different time period. Copies of the appeal form and the Board's rules of practice and procedure may be obtained from the Board. The appeal form and the Board's rules of practice and procedure are also available in Braille or on audiotape from the Secretary to the Board at (717) 787-3483. This paragraph does not, in and of itself, create any right of appeal beyond that permitted by applicable statutes and decision law.

For individuals who wish to challenge an action, appeals must reach the Board within 30 days. A lawyer is not needed to file an appeal with the Board.

Important legal rights are at stake, however, so individuals should show this notice to a lawyer at once. Persons who cannot afford a lawyer may qualify for free pro bono representation. Call the Secretary to the Board at (717) 787-3483 for more information.

APPENDIX D

Delegation & Authority



**AMENDED
AGREEMENT DEFINING MUNICIPAL WASTE MANAGEMENT,
DISPOSAL, AND RECYCLING RESPONSIBILITIES OF
THE YORK COUNTY SOLID WASTE AND REFUSE AUTHORITY
ON BEHALF OF THE COUNTY OF YORK**

THIS AGREEMENT made and entered into as of the 12th day of July, 1989, as amended on the 21st day of September, 1994, by and between York County, Pennsylvania (the "County") a political subdivision of the State of Pennsylvania, acting by or on behalf of its Board of County Commissioners, and the York County Solid Waste and Refuse Authority (the "Authority"), a municipal authority created by the County under the Municipality Authorities Act of 1945, 53 P.S. §§301-321.

Recitals:

WHEREAS, the County created the Authority to assume the responsibility of ensuring the adequate, proper and efficient long-term management for all municipal waste in the County;

WHEREAS, the County is empowered to delegate to another person all or some of its responsibilities for municipal waste planning and for implementation of the approved Municipal Waste Management Plan by Section 303(d) of the Municipal Waste Planning, Recycling and Waste Reduction Act (the "Act");

WHEREAS, Section 103 of the Act defines "person" to include a municipal authority;

WHEREAS, the County resolved on October 26, 1988 to delegate to the Authority its responsibility for public response regarding the revision of the Municipal Waste Management Plan Update (the "Plan");

WHEREAS, the County finds that delegation to the Authority of the power, obligations and authority granted to the County pursuant to the Act, as hereinafter specified, is in furtherance of the health, safety and welfare of the residents of the County and consistent with the intent of the legislature as reflected in the Act; and

WHEREAS, Section 303(d) of the Act provides for the Authority, as delegatee, to be jointly and severally responsible with the County for exercise of the powers granted thereunder;

WHEREAS, the County finds that the long-term interests of the residents of the County are better served by a waste management system that achieves maximum protection of the environment while at the same time encouraging efficient utilization of waste management facilities to reduce the fixed cost burden for County residents;

NOW THEREFORE, in consideration of the mutual premises set forth above, and the terms and conditions hereinafter set forth, the Authority and the County do hereby agree as follows:

ARTICLE I

General Delegation

A. Pursuant to the Municipal Authorities Act of 1945, 53 P.S. §303 (1980), the County created the Authority for the purpose of assuring adequate, proper and efficient long-term management for all municipal waste generated in the County and delegated to the Authority, which delegation is hereby reaffirmed and ratified, the following discretionary, nonobligatory, powers and functions:

1. To locate, acquire and operate or contract for the operation of, sites for municipal waste processing and disposal facilities throughout the County;
2. To act as the financing agency for the construction of new municipal waste disposal facilities and the purchase of equipment related thereto;
3. To act as a solid waste management policy formulating body, including providing assistance in the coordination of collection practices, consultation on the monitoring of the utilization of processing and disposal sites to ensure compliance with state standards, and recommendations on the closures of non-complying sites;
4. To provide on-going technical and financial advisory assistance to local governments, including periodically reviewing and revising the Solid Waste Management Plan in cooperation with the County Planning Commission and municipalities, developing a public education program aimed at encouraging community support for the Solid Waste Management Plan;
5. To set such rates, fees or charges with respect to any municipal waste processing and disposal facilities constructed by or on behalf of the Authority in order to assure that revenues generated by such disposal operations are sufficient to offset the costs thereof.

B. It is the intent of the County that the Authority shall exercise any and all powers and responsibilities and shall fulfill any other functions previously delegated to the Authority by the County, and that this Agreement is not intended, and shall not be construed, to limit or abrogate any general powers previously granted under the Municipal Authorities Act or under the Solid Waste Management Act, 35 P.S.A. Chapter 29A (Act 97);

C. It is the further intent of the County that the Authority shall have the power to draft recommended ordinances and to advise the County on any issues of a broad environmental nature deemed appropriate by the Authority.

ARTICLE II

Delegation of Authority Under the Municipal Waste Planning, Recycling and Waste Reduction Act; Planning Costs and Expenses

In order that the Authority shall be enabled to fulfill its function of ensuring the availability of adequate permitted processing and disposal capacity for all municipal waste generated within the jurisdiction of the County, consistent with, and pursuant to, the provisions of the Act, the County hereby delegates to the Authority the following specifically enumerated powers:

1. To prepare a Municipal Waste Management Plan consistent with Sections 501(b), 502 and 503 of the Act;
2. To file updates and amendments to the Plan as deemed necessary by the Authority or as required by law and to submit same for approval to the Pennsylvania Department of Environmental Resources ("PADER");
3. To implement the approved Plan, consistent with the requirements of Sections 501-504 of the Act, including any amendments, revisions or updates thereto;
4. To incorporate within any Municipal Waste Management Plan, prepared pursuant to the provisions of this Agreement and the Act, provisions for the processing and disposal of municipal waste generated outside of the County's boundaries;
5. To adopt resolutions, regulations and standards for the recycling of municipal waste or source separated recyclable material, where such regulations would not interfere with any municipal recycling program under Chapter 15 of the Act;
6. To prohibit the siting of additional resource recovery facilities within the County's geographical boundaries where any additional facility is inconsistent with the Plan, pursuant to §501(b) of the Act, but only to the extent that any such facility does not comply with the criteria set forth in Sections 502(c)(2) and 502(o)(1)(iii) of the Act;
7. To make recommendations to the County regarding the adoption by the County of ordinances regulating the processing and disposal of municipal waste consistent with Act 97 and the Plan, pursuant to the provisions of Section 303(c) of the Act;

8. To enter into contracts to implement any approved Municipal Waste Management Plan, pursuant to Section 506 and 513 of the Act;
9. To enforce any County requirement that all municipal waste (as defined in Section 103 of the Act) generated within the County's boundaries shall be processed or disposed at a designated processing or disposal facility that is contained in the approved Municipal Waste Management Plan pursuant to Section 501(a), (b) or (c) of the Act, and permitted by Pennsylvania DER under the Solid Waste Management Act. This subsection shall not apply to municipal waste going to existing or future on-site captive commercial disposal facilities used for the exclusive disposal of municipal waste generated by that commercial operation. The County shall not direct municipal waste or source-separated recyclable materials that would otherwise be recycled to any resource recovery facility or other facility for purposes other than recycling such waste.
10. To establish a site-specific post closure care trust fund for each municipal waste landfill operating within the County, as provided by Section 1108 of the Act, and to enter into the trust agreement for the administration of such funds for any costs and expenses associated with remedial measures and emergency actions with respect to such sites after site closure;
11. a. To make the following grant applications to PADER directly, or on behalf of the County as applicant, if approved by the County:
 - (i) applications for grants to cover the costs of preparing any modifications, revisions or updates to the Plan, or costs of preparing any Municipal Waste Management Plan, including the costs of studies, surveys, investigations, inquiries, research and analyses, and environmental mediation, pursuant to Section 9.01 of the Act;
 - (ii) applications for grants to cover the costs of feasibility studies and project development for municipal waste processing or disposal facilities pursuant to Section 9.01 of the Act;
 - (iii) applications for grants to develop and implement a municipal recycling program pursuant to Section 902 of the Act and to cover the costs incurred for the salary and expenses of a recycling coordinator pursuant to Section 903 of the Act; and
 - (iv) applications for grants for a Municipal Recycling Program performance grant pursuant to Section 904 of the Act.

- b. To prepare or assist and advise the County, as the County may request, in the preparation of any other grant application authorized by law with respect to municipal solid waste planning, transportation, processing, re-use, recycling or disposal.
 - c. The County hereby agrees to pay, or to reimburse the Authority, for all costs of preparation, or all costs for assistance in the preparation, of all grant applications.
12. To serve as the repository for any information, inspection reports, notification of PADER enforcement or emergency actions, all air and water quality monitoring data generated by PADER in reference to municipal waste landfills and resource recovery facilities within the County, and all reports on air and water quality monitoring data from every operator of a municipal waste landfill or resource recovery facility. This delegation shall only be effective if host municipalities within the County own, operate, or propose to own or operate a municipal waste landfill or resource recovery facility pursuant to Section 1101(d) of the Act;
13. To designate in writing two persons to be certified for enforcement purposes as inspections of municipal waste landfills and resource recovery facilities by PADER and to participate in a PADER training program. This authorization shall be effective only if host municipalities within the County own or operated their own municipal waste landfill or resource recovery facility, pursuant to Section 1102(c) of the Act; and
14. To negotiate, collect and administer a host county benefit fee amount and payment term with each municipal waste landfill or resource recovery facility that had a valid permit on the effective date of the Act or that receives a new permit or a permit that results in additional capacity from PADER after the effective date of the Act, pursuant to Section 1301(e) of the Act.

ARTICLE III

Delegation of Responsibilities Under the Municipal Waste, Planning, and Waste Reduction Act

The County hereby delegates the following responsibilities to the Authority to be performed as an integral part of its function of assuring the availability of adequate permitted processing and disposal capacity for the municipal waste generated within the County as provided by the Act:

1. Protection of Disposal Capacity. The Authority shall assume the negotiating role of the County under Section 1111 of the Act with those applicants designated by the Act to provide for the weight or volume of waste capacity that is to be reserved for the County. Upon agreement, the Authority shall notify PADER of the terms of the agreement and the agreed timeframe for utilization of the reserved capacity in writing.
2. Responsibility to Submit Annual Reports. To the extent that any municipal ordinances exist which require that operators of any recycling program forward to the Authority recycling information and data, the Authority shall be responsible under the Act to submit annual reports to PADER detailing the progress of planning efforts and the status of recycling programs in the County in the preceding year, as required by Section 303(f) of the Act. To the extent that such municipal ordinances empower the Authority to compel the dissemination of such information, the Authority shall exercise this power. If no such ordinances exist, the Authority shall fulfill this responsibility by providing PADER with all available information and by notifying PADER of any existing information deficiencies known to the Authority.
3. Responsibility to Ensure Future Availability. Pursuant to Section 513 of the Act, within one year following the approval of any Municipal Waste Management Plan by PADER, the Authority is hereby authorized and empowered to cause to be submitted to PADER copies of all rules, regulations, ordinances, executed contracts and other documents that are required to implement any approved Municipal Waste Management Plan.

ARTICLE IV

Efficient Use of Waste Management Facilities

In order to improve waste management facility efficiency and reduce the fixed cost burden of waste management for County residents, the Authority is authorized to receive for processing, disposal and/or combustion at any facility owned by the Authority municipal solid waste generated outside of the Commonwealth of Pennsylvania, as well as municipal solid waste generated within the Commonwealth of Pennsylvania but outside the geographic boundaries of York County, in amounts less than or equal to the portion of available

daily capacity at the York County Resource Recovery Center that the Authority determines is not needed for the management of municipal solid waste generated within the County.

ARTICLE V

Severability

If any provision of this Agreement shall, for any reason, be determined to be invalid or unenforceable, the invalidity or unenforceability of such provision shall not affect any of the remaining provisions of this Agreement, and this Agreement shall be construed and enforced as if such invalid and unenforceable provision had not been contained herein. In addition, in the event of a determination that a provision of this Agreement is invalid or unenforceable, the County and Authority will negotiate in good faith and agree to such amendments, modifications or supplements of or to this Agreement or such other appropriate actions as shall, to the extent practicable in light of such determination, implement and give effect to the intentions of the County and the Authority with respect to such provision.

ARTICLE VI

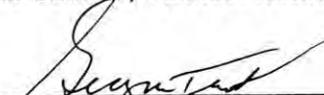
Term of Agreement

This Agreement shall continue in full force and effect unless terminated by the written agreement of the County and the Authority.

IN WITNESS WHEREOF, the County and the Authority have caused this Agreement to be executed in their respective names, caused their respective corporate seals to be affixed hereto, and have caused this

Agreement to be attested, all by their duly authorized officers and representatives. The County and the Authority have caused this Agreement to be dated as of the date first written above. The County and the Authority have caused this Amended Agreement to be dated as of the date written above.

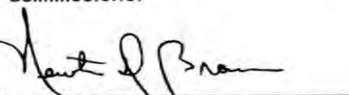
YORK COUNTY, PENNSYLVANIA

BY: 
George M. Frout,
President, Commission

ATTEST:


Allan M. Dameshek
Chief Clerk

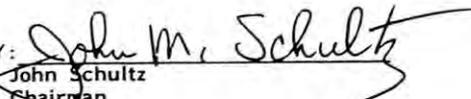
BY: 
Robert A. Minnich
Commissioner

BY: 
Newton D. Brown
Commissioner

YORK COUNTY SOLID WASTE
AND REFUSE AUTHORITY

ATTEST:


Bruce Bauman
Secretary

BY: 
John Schultz
Chairman

APPENDIX E

References & Acknowledgements



Background Materials

The following books, documents, articles and other publications were used as professional sources of information during the development of the Plan revisions.

A Guide to Nursing Facilities in York County. 2012. York County Area Agency on Aging. York, Pennsylvania

Alternatives to Disposal - Final Report. Santa Barbara County. 2003 Multi-jurisdictional Solid Waste Task Group. Santa Barbara, California

Anaerobic Outlook for MSW Streams. 2007 Maria Kelleher, Kelleher Environmental, Ontario, Canada for BioCycle Magazine, Emmaus, Pennsylvania

Construction & Demolition Debris Industry Study. 2007. Commissioned by The Massachusetts Department of Environmental Protection. Boston, MA

Construction & Demolition Waste Management in the Northeast in 2006. 2009. The Northeast Waste Management Officials' Association (NEWMOA) Boston, Massachusetts.

“Design Guidelines for Optimal Hospital Plastics Recycling” 2011. Healthcare Plastics Recycling Council. St. Paul, Minnesota

Evaluation of Emissions from the Open Burning of Household Waste in Barrels: Volume 1. Technical Report. 1997. Prepared for the United States Environmental Protection Agency

Farm Dumps: Problems and Solutions 2000. Prepared for the College of Agricultural Sciences Cooperative Extension Service, Penn State University by James W. Garthe and Jennifer L. Shufman. State College, Pennsylvania.

Green Hospital Pilot Compendium of Best Practices. 2008. The Health Care Improvement Foundation, Philadelphia, Pennsylvania

Handbook for the Collection, Transportation, Disposal and Land Application of Residential Septage in Pennsylvania. 2004. Pennsylvania Department of Environmental Protection, Harrisburg, Pennsylvania

Illegal Dump Survey of York County. 2010. Keep Pennsylvania Beautiful; (PA CleanWays), Greensburg, Pennsylvania

Municipal Solid Waste in the United States, 2001. Prepared for the United States Environmental Protection Agency by Franklin Associates, Prairie Village, Kansas

Municipal Solid Waste in the United States: Facts and Figures for 2010 Prepared for the United States Environmental Protection Agency by Franklin Associates, Prairie Village, Kansas

Municipal Waste Disposal Facility Annual Operation Reports. 2010 Pennsylvania Department of Environmental Protection, Bureau of Land Recycling and Waste Management. Harrisburg, Pennsylvania.

Pennsylvania County Data Book, York County. 2010 Pennsylvania State Data Center, Institute of State and Regional Affairs, Harrisburg, Pennsylvania

Pennsylvania Infectious and Chemotherapeutic Waste Plan. 1990 Prepared for the Pennsylvania Department of Environmental Resources by Jack Faucett Associates, Inc.

Pennsylvania LEED Certified and Registered Buildings. 2009. Pennsylvania Department of Environmental Protection and the U.S. Green Building Council. Harrisburg. Pennsylvania

Pennsylvania Licensed Infectious and Chemotherapeutic Waste Transporters Registration 2009. Pennsylvania Department of Environmental Protection, Bureau of Land Recycling and Waste Management. Harrisburg, Pennsylvania

Pennsylvania Licensed Infectious and Chemotherapeutic Waste Transporters Registration 2009. Pennsylvania Department of Environmental Protection, Bureau of Land Recycling and Waste Management. Harrisburg, Pennsylvania

Pollution Prevention Measures from Unwanted Pharmaceuticals. 2005. Gualtero, Sandra. Department of Earth and Environmental Engineering, Columbia University, New York, New York

Residential Open Burning in Pennsylvania. Fact Sheet. Pennsylvania Department of Environmental Protection, Bureau of Air Quality. Harrisburg, Pennsylvania

Saving Lives, Saving Earth, Saving Money. 2008 Jo Ciavaglia. Bucks County Courier Times, Levittown, Pennsylvania

Sewage Sludge and Septage Management in Pennsylvania. 1998 Pennsylvania Department of Environmental Protection, Harrisburg, Pennsylvania

Statewide Waste Composition Study. 2003. prepared for the Pennsylvania Department of Environmental Protection by R.W. Beck. Harrisburg, Pennsylvania.

Sustainability Roadmap for Hospitals. 2010. Prepared for the American hospital Association by the American Society for Healthcare Engineering (ASHE), the Association for the Healthcare Environment (AHE), and the Association for Healthcare Resource and Materials Management (AHRMM), Washington, D.C.

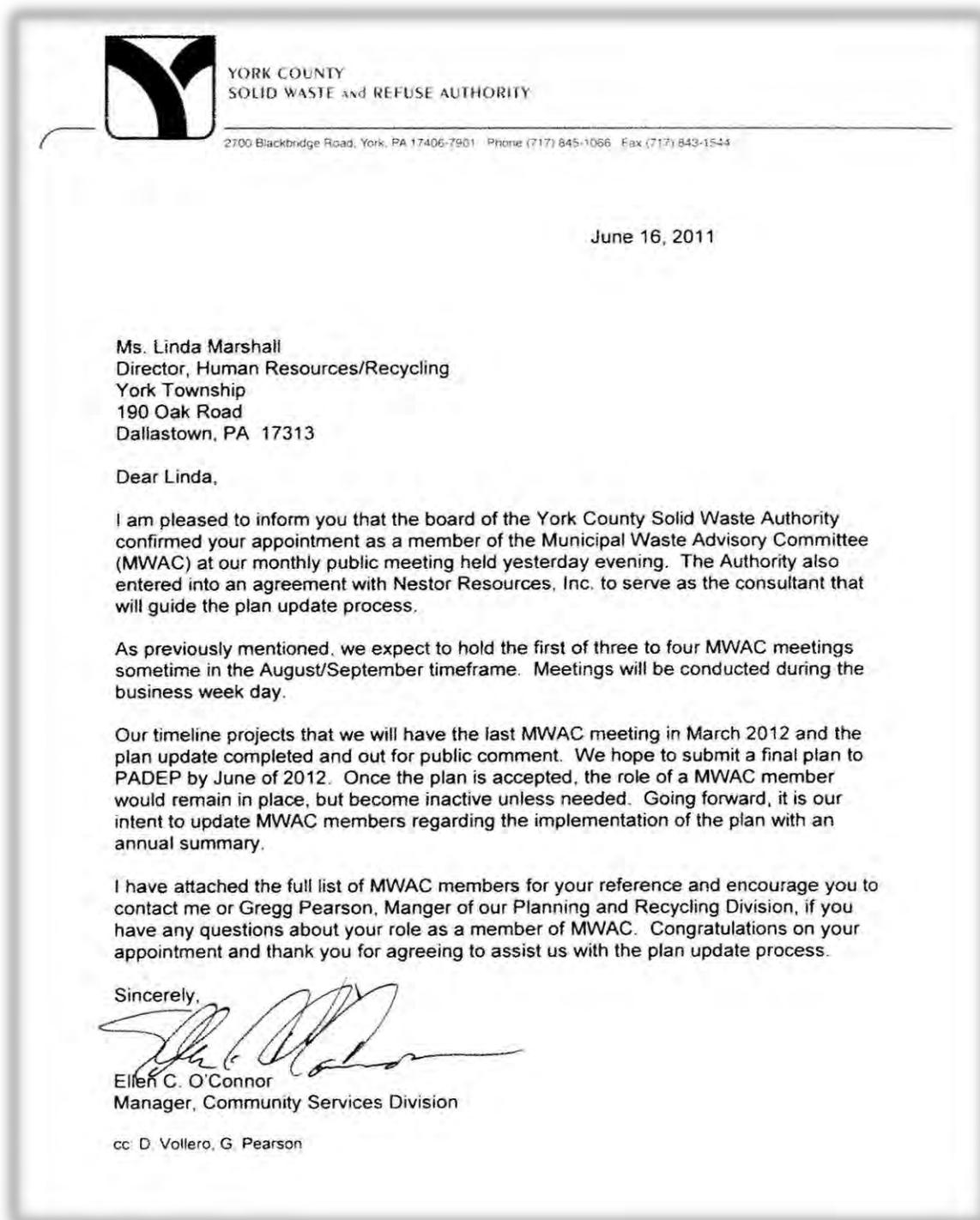
APPENDIX F

Stakeholder Input



Municipal Waste Advisory Committee Appointments

Figure F-1 Sample Appointment Letter



**York County Solid Waste Authority
Municipal Waste Advisory Committee**

<u>Name</u>	<u>Affiliation</u>	<u>Represent</u>
Linda Marshall, Human Resources Dir./Recycling Coordinator	York Township	Townships of the 1 st Class
James Gross, Public Works Director	City of York	Cities
John Holman, Manager	Springettsbury Township	Townships of the 2 nd Class
Delmar Hauck, Supervisor	Manchester Township	Townships of the 2 nd Class
Patricia Schaub, Manager	Hopewell Township	Townships of the 2 nd Class
Dave Baldwin, Supervisor	Dillsburg Borough	Boroughs
Scott Wagner, President	Penn Waste	Recycling Industry
Tim O'Donnell, Manager	Modern Landfill	Solid Waste Industry
Barb Krebs, Manager	Hanover Borough	Boroughs
Phyllis Chant, Environmental Director	Glatfelter Paper Co.	Industry
Jim Leaman, Chairman	Codorus Creek Watershed Assoc.	Citizen's Organizations
Sophie Simon, Manager	Dover Township WWTP	Solid Waste Industry
Felicia Dell, Director	York County Planning Comm.	At-Large Member
Joe Hoheneder, Board Member	YCSWA	Solid Waste Industry
Gregg Pearson, Mgr. Recycling/Planning	YCSWA	Solid Waste Industry

Appointed: 6/15/11

YORK COUNTY MUNICIPAL WASTE ADVISORY COMMITTEE

YCSWA MANAGEMENT CENTER

October 13, 2011

Meeting #1

MWAC MEMBERS IN ATTENDANCE:

Joseph Hoheneder, Chair YCSWA
Gregg Pearson, YCSWA
Linda Marshall, York Township
James Gross, City of York
John Holman, Springettsbury Township
Delmar Hauck, Manchester Township
Patricia Schaub, Hopewell Township
Scott Wagner, Penn Waste
Mark Pergolese, York Waste Disposal
Phyllis Chant, Glatfelter Paper Co.
Jim Leaman, Codorus Creek Watershed Assn.
Felicia Dell, York County Planning Commission

OTHERS IN ATTENDANCE:

Michele Nestor, Nestor Resources
Dave Vollero, Executive Director, YCSWA
Jerry Grim, Assistant Executive Director, YCSWA
Ellen O'Connor, YCSWA
Ed Heindel, Vice-Chairman, YCSWA

MWAC MEMBERS NOT IN ATTENDANCE:

Sophie Simon, Dover Township
Barbara Krebs, Hanover Borough

The first meeting of the York County Municipal Waste Advisory Committee began with a welcome to all of the committee members by YCSWA Chairman, Mr. Joe Hoheneder.

Mr. Hoheneder gave a history of municipal waste management and of the Advisory Committee in York County, including York County Plans of 1970, 1985 and 1991.

Michele Nestor of Nestor Resources presented an overview of the planning process to the committee. She explained Act 101 and many of its requirements from an historical context to familiarize the committee with the purpose of disposal capacity requirements, flow control, recycling, mandates and other issues. Part of the presentation clarified **the committee's role going forward and the anticipated timeline** and process. She will be analyzing data reflective compared to national trends. The main aspects of future meetings will be issues such as generation and composition, the recycling stream, program cost, market development and expansion.

Committee members were asked to give their ideas on the focus of the committee.

Linda Marshall (York Twp.).

Ms. Marshall finds the biggest challenge is education and recommends different types of outreach

Scott Wagner (Penn Waste)

Mr. Wagner's ideas for discussion include mandatory waste collection, mandatory recycling. There are several municipalities in York Co. that do not have a comprehensive recycling programs and he would like to see more effort put into this. He feels waste streams are changing along with negative growth and recycling education needs to be ramped up. York Co. should have an emergency disaster plan. He would like to see more education using the community access channel. Is York Co. getting its fair share of recycling fees? He would like to see standard specs used for mandatory waste collection.

Mark Pergolese (York Waste Disposal)

Mr. Pergolese includes the same concerns as Mr. Wagner since they are in the same industry. High on his list is mandatory collection and uniformity with bid specifications.

Jim Leaman (Codus Creek Watershed Association)

Mr. Leaman expressed his approval of waste-to-energy in York County and described his commitment to preserving the environment, particularly through his efforts with the Codorus Creek Watershed Association.

Felicia Dell (York Co. Planning Commission)

Jerry Grim (YCSWA) reported for Ms. Dell

Ms. Dell would like to see a study of strategic growth areas in the County as related to waste issues. She is also interested in ways the Plan can assist with cleanup efforts of the Chesapeake Bay Basin and promotion of alternative energy.

Pat Schwab (Hopewell Township)

Ms. Schwab would like to see more opportunities for HHW collections. She would like the county to have mandatory waste collection.

Jim Gross (City of York)

Mr. Gross is interested in continuing education and promotion and welcomes help.

Phyllis Chant (Glatfelter Paper Co.)

Ms. Chant lists Waste-to-energy, education and waste transportation costs.

It is anticipated there will be four or five meetings with the next meeting being early in 2012.

Gregg Pearson will make copies of Michele Nestor's power point presentation available for committee members

**YORK COUNTY MUNICIPAL WASTE ADVISORY COMMITTEE
YORK COUNTY SOLID WASTE AUTHORITY MANAGEMENT
CENTER
May 24, 2012
Meeting #2**

MUNICIPAL WASTE ADVISORY COMMITTEE (MWAC) MEMBERS IN ATTENDANCE:

Joseph Hoheneder, Chair YCSWA
Gregg Pearson, YCSWA
Linda Marshall, York Township
James Gross, City of York
Patricia Schaub, Hopewell Township
Ed Ward, Penn Waste (for Scott Wagner)
Mark Pergolese, York Waste Disposal
Phyllis Chant, Glatfelter Paper Co.
Jim Leaman, Codorus Creek Watershed Assn.
Felicia Dell, York County Planning Commission
Barbara Krebs, Hanover Borough

OTHERS IN ATTENDANCE:

Michele Nestor, Nestor Resources
Dave Vollero, Executive Director, YCSWA
Jerry Grim, Assistant Executive Director, YCSWA
Ellen O'Connor, YCSWA

MWAC MEMBERS NOT IN ATTENDANCE:

Sophie Simon, Dover Township
David Baldwin, Dillsburg Borough
Scott Wagner, Penn Waste
John Holman, Springettsbury Township
Delmar Hauck, Manchester Township

Gregg Pearson chaired and opened the second meeting of the Authority's MWAC.

Michele Nestor of Nestor Resources, the YCSWA's consultant for the Plan revision, presented a discussion that focused on:

- **Changing Characteristics of Municipal Waste from Generation through Recovery and Disposal**
 - The trend is to recover more waste for energy and dispose of less waste.
 - The EPA defines the changes in the composition of municipal solid waste.
 - The EPA does not include construction demolition waste as municipal waste in Pennsylvania.

- **National Trends and Future Implications**
 - The waste stream has changed.
 - Less municipal solid waste (MSW) is discarded per capita.
 - Generation of paper has decreased.
 - Recycling has increased.
 - 90% of municipal waste is recyclable

- **Commodities - Recover for Fuel and for Manufacturing Feedstock**
 - Prediction is that by 2020 there will be 34% less paper generated
 - Electronics collection

- **York County Historic and Current Disposal Patterns**
 - York County is consistent with the national average
 - 44% of waste is handled at the RRC

- **Local Recycling Programs and Performance**
 - York County has 18 Act 101 mandated municipalities
 - Commercial recycling is mandated
 - York County is above the national average in recycling post consumer materials
 - The majority of York County municipalities have recycling programs (62 have curbside and another 21 have drop off recycling either as a stand-alone program, or in conjunction with their curbside program).

- **Initial Observations and Suggestions**
 - York County residents will recycle given the opportunity

Residential improvements for consideration are:

- Supply larger recycling containers
- Lower bag limits
- Create consistency in waste ordinances & contract language
- Model ordinance language for participations and payments
- Evaluate drop-off interference on mandatory participation in curbside programs
- Encourage remaining municipalities to develop programs

Committee members questions included:

Felicia Dell (York Co. Planning Commission)

Ms. Dell asked if the YCSWA has a role in who has mandatory collection. Mr. Vollero stated that this is done through the municipalities. Ms. Dell also asked if there is an overall energy budget. There is not.

Pat Schaub (Hopewell Township)

Ms. Schaub would like to know if the county is requiring contracts. Ms. Dell and Mr. Vollero both answered no. In regard to contracts versus subscription, the goal is contracts.

Future MWAC discussions include:

- Commercial recycling
- School recycling
- Biosolids
- Disaster debris management
- Carpet recovery
- Construction demolition recovery
- Organic food waste recovery
- Material specific energy recovery evaluation
- New technologies

YORK COUNTY MUNICIPAL WASTE MANAGEMENT PLAN MUNICIPAL WASTE ADVISORY COMMITTEE MEETING MINUTES NOVEMBER 15, 2012

The Municipal Waste Advisory Committee (MWAC) Meeting was held on Thursday, November 15, 2012 at 10:00 a.m. at the York County Solid Waste and Refuse Authority's (YCSWA), Management Center in York, PA.

ATTENDANCE: Committee Members present: Phyllis Chant, Glatfelter; Felicia Dell, York County Planning Commission; James Gross, City of York; Del Hauck, Manchester Township; Barb Krebs, Hanover Borough; Jim Leaman, Codorus Creek Watershed Association; Linda Marshall, York Township; Pat Schaub, Hopewell Township; Sophie Simon, Dover Township WWTP; and Scott Wagner, Penn Waste. YCSWA Board of Directors present: Joe Hoheneder, Noah Krout, Ed Heindel and Fred Ritzmann. YCSWA Staff present: Jerry Grim, Ellen O'Connor, Gregg Pearson and Dave Vollero. Others in attendance were: Michele Nestor, Nestor Resources, Inc. and Kay Dougherty, recording secretary.

The meeting was called to order at 10:00 am. Mr. Pearson welcomed everyone to the third MWAC meeting. The YCSWA Board members and staff introduced themselves to the MWAC.

In order to have an interactive discussion of the findings and observations made by Nestor Resources, Inc., a progress report highlighting the current status of the York County Municipal Solid Waste Plan was distributed to the members for review prior to the meeting. The MWAC also received excerpts from a few of the chapters of the Plan.

Mr. Pearson called on Michele Nestor to give her presentation.

Ms. Nestor noted that the meeting would be conducted differently than the past two meetings, whereas she would like to have the meeting be interactive. During the first meeting discussions included the MWAC member's thoughts and visions for the County. Now that the MWAC has reviewed statistics and understand what is happening with the management of waste in the County, the focus of this meeting will be to revisit those discussions. She asked if the things that the committee discussed initially are still valid and if there are some different issues now. The Plan is coming together and progressing toward completion and she will be presenting highlights of the statistics and issues that came to the attention of Nestor Resources.

She opened discussion on waste disposal in York County and the overall system. She asked if there were any questions on the data that was distributed or how material is disposed. Since it has been 25 – 30 years since the County has been involved in waste planning and disposal, Ms. Nestor called on Mr. Hoheneder who is a long-term YCSWA Board Member to open the discussion.

Mr. Hoheneder said that the Authority was established 1971. There were some issues in the mid 80's when the landfill developed groundwater issues. A Plan was then developed. The Authority has managed York County's municipal solid waste for 41 years.

Ms. Nestor said not all counties step up to the plate and take responsibility for management of their municipal solid waste, but the YCSWA has a long history in the solid waste industry and particularly with waste-to-energy since the eighties.

She asked about how well the overall system has worked in the County and what benefits have been derived from the perspective of municipalities, citizens and businesses. She also asked the committee to identify any challenges in the system and make suggestions as to how they could be improved.

Ms. Chant said that the trash her company sends to the Waste-to-energy (WTE) facility is used as a fuel and has a beneficial use. Every year the company looks at the waste to see if there are new items that can be sent to the WTE facility. We know it will be used for energy rather than being sent to the landfill. That is a win-win situation.

Mr. Hauck said the ash that is produced at the WTE facility goes off-site to another facility for further processing. He asked if the recovered material (ash residue and metals) was documented.

Mr. Vollero said that the data showing MSW disposal sites provided to the committee does not capture that material, but that it is indeed documented.

Mr. Pearson agreed.

Ms. Nestor said the ash will be addressed when the full operation is discussed in the Plan. Due to regulations, the combustion ash is categorized by PADEP as Residual Waste.

Mr. Vollero said that all the ash residue from the combustion of waste at the York County Resource Recovery Center is currently reused in place of virgin soil as daily cover in a local landfill.

Mr. Pearson said there is about 20,000 tons per year of metal that is taken out of the ash residue and recycled.

Mr. Vollero said the total amount of ash residue generated annually is approximately 160,000 tons.

Mr. Hauck said that is a very significant number.

Mr. Hoheneder said at one time PADEP considered the ash as being recycled material and the County recycling rate at that time was 75%. Now PADEP has excluded the ash and the recycling rate is 32.58%.

Mr. Leaman said as a teacher of Environmental Science, his observation is that people view trash as “disgusting.” York County planned ahead for growth and that planning resulted in a WTE facility capable of handling our trash for many years. In addition we brought in a knowledgeable company to run the facility. That in itself is good planning.

Ms. Nestor said that the demographics have changed tremendously over the last 40 years and especially in the past 15 years with huge growth spurts. It is still moving forward but not at the same pace as in the past. These are changes that the facility itself needs to plan for as well as changes in the waste stream itself. She asked the committee to identify changes they think have happened to the way waste should be managed because of that population growth. Other questions she asked the group to consider include: “Do you think we are fully engaging the growth of the population in the different plans, are there areas in the county that are underserved, over served, or don’t have the right mix. Do you think we have a wide enough waste collection network in York County to address the needs of the growing population”?

Ms. Simon noted that at the Dover Township WWTP, they produce a product and the end product is called biosolids. Before it becomes biosolids it is called sludge. The public has a nasty connotation about sludge and biosolids and its potential environmental impacts. When she deals with farmers and residents regarding using biosolids as a soil amendment, it is beneficial that she can convey that the management of biosolids is scrutinized in the County not only by DEP, but also by YCSWA and the county Conservation District through the YCSWA Multi-Agency Biosolids Management Plan. This plan helps to lend credibility to the use of biosolids as a soil amendment.

She further stated that the YCSWA licenses WWTP sludge and septage haulers and tracks loads and documents that those loads are properly managed at the appropriate permitted facility. The licensing system has helped curtail illegal dumping of this material. The County residents may not be aware that this system is in place, but it does help the bottom line and affects the cost of treatment and disposal. It does benefit every resident.

Ms. Nestor said that she works with communities where you need to dig deep to get septage and biosolids information. In York County, it was readily available and well documented. The customers and the haulers know where the material goes and can get questions answered. That is very impressive because that is not the norm.

In other counties, construction/demolition materials are often one of the primary sources of illegal dumping, such as the small contractor who does a roofing job and dumps in a rural area just to get rid of it. In York County, haulers are recognized and identifiable. Nestor Resources did a cross check to see who was registered with the State and who was registered with the County and only found a few people who were not registered and they were new businesses.

Ms. Nestor said the illegal dump site survey conducted in York County produced a map showing the number of dump sites that exist countywide, but it is an observational study, not a scientific study. She asked for input on the map from the committee.

Ms. Dell said that she would like to see another map that would show whether the municipality has mandatory pickup or private subscription waste service to compare to the map provided. It would be another piece to inform the committee.

Ms. Nestor said that the YCSWA has developed that data. She added that she would also like to show the effectiveness of recycling contracts. There are a lot of similar recycling programs. Where there is no formal program, people are recycling and sometimes they are recycling when they have no trash collection.

Mr. Pearson said that there are eight or nine municipalities in the Country that have private subscription, meaning the municipality is not involved in hiring a waste hauler in any way. Each resident can hire the hauler that they want. Five of these nine municipalities are in the southeast portion of the county: Lower Windsor, Chanceford, Lower Chanceford, Fawn and Peach Bottom Townships. The YCSWA has met with the staff of each municipality in a group setting to encourage them to switch to a one-hauler collection system. Increasing recycling is the number one reason for the one-hauler system. It would certainly increase the amount of waste collected and it would not be mismanaged through illegal burning or dumping. In the western part of the county, Franklin, Washington and Paradise Townships are also using "private subscription."

Ms. Chant said that she goes to Franklin County all the time and they have a huge waste center that she uses on weekends. They take a lot of material.

Ms. Nestor said that Pennsylvania regulations do not allow for these "convenience centers," but they turn a blind eye in rural areas right now. These centers are not transfer stations but they do work well in rural areas. If a municipality could sell garbage bag tags to residents with no waste collection services,

it would provide the funding for such centers to be manned. They could also provide roll-offs and then residents can have access to proper waste disposal options. Such centers would be a place to get rid of waste and bulky items and could also be a site for recycling. These centers are very successful in Virginia and Maryland.

Ms. Chant said that the problem with that type of facility is it needs to be manned and organized.

Ms. Nestor said that it is an option to suggest to people.

Ms. Schaub asked if a municipality can be forced to contract with a single hauler and establish organized waste services. She said most residents want it but there are those who are the “vocal minority” who oppose it.

She added that Hopewell Township tried twice before succeeding to enact a single hauler system of waste collection and people came yelling at the Supervisors that they were taking away their right to choose their hauler. She said that if a higher authority forced them to do it, they would like that because then the supervisors could say that they were mandated to do it. Hopewell Township has very little illegal dumping since establishing a single hauler contract for trash service.

Mr. Pearson said that when you look at the illegal dump site map there are certainly a lot of dots in the southeast portion. Oddly enough, those other three municipalities in the western section that also do not have waste collection services have no dots. The results of this are somewhat odd and inconsistent. He further stated that regardless of the type of collection, private subscription, mandatory or voluntary, he did not believe the difference between those two is going to have a big impact on illegal dump sites since 80 – 90 percent of the people who have access to waste collection will participate.

Ms. Nestor said that there were constraints in doing the survey such as having to stay on public roads, avoiding hazards or gaining access to private property. For example, access to farms was difficult, but farmers that manage waste on their property are not illegal dumping. Farmers are allowed to do a certain amount of “waste management as part of their operations. In rural areas the children of farmers are choosing now to leave the farming operations and this is resulting in the discovery of buried waste on farms and associated environmental issues. What is needed is education to help farmers understand the environmental impacts of burning or burying waste on their land. A little education and planning upfront certainly would help with that. She noted that agricultural waste is not included in the current countywide Plan.

Mr. Hauck said that municipalities need to do a better job sharing information on how they manage their waste. Manchester Township is unique and has a system in place. Other municipalities should consider duplicating it.

Mr. Vollero noted that the Authority is planning to develop model waste ordinances for waste collection and uniform bid specifications for contracts.

Ms. Nestor said that some Counties hold a Municipal Round Table to discuss the different contracts, provide training and look at what works and what problems have been encountered. Those meetings can be held quarterly or twice a year, opening up a network to discuss specifications and contracts. This would also help as there is turn-over of managers and councils that do not know the bidding process.

Ms. Nestor said that LEED certification is an issue that you seeing brewing all over the country. Funding especially drives some of it along with municipal governments and economic development.

There are different levels of LEED certification. There is a level for buildings that exist, buildings that are going to be built and how they are operated. Recycled content material is required to be used and a

certain degree of construction waste itself must be recycled. Construction/Demolition waste is not something that was on the radar screen until recently. LEED certification is starting to drive that now. People who are not bidding on LEED certified projects because they either do not have an outlet or they are unaware how to do it.

Construction and Demolition (C&D) waste that can be recovered are things like wood, glass, brick and concrete. There are uses for that material; however, there is a challenge to recovering drywall.

Ms. Nestor asked the MWAC members what is done with their C&D material. Is there an extra cost to segregate this material, is there a sufficient amount of the material for outlets, and what can be done to divert the material from the WTE facility.

Ms. Chant said that you have to pay people to separate the material in order to have a record because you want to receive points for the building. It does pay to reuse.

Ms. Simon noted that during an old park renovation, they were able to find an outlet for all the wood and metal but the concrete footers went to Kinsley and were considered dirty. In addition, they could not take that and the rest went to the landfill. The treated wood could not be burned.

The big challenge is on renovation projects. It costs \$300 to \$500 a ton to separate the material. New construction is better able to recycle and separate. The challenge is on the smaller scale.

Mr. Wagner felt that LEED certification projects are not worth the hassle.

Ms. Chant said we have to educate the people – we are a throwaway society.

Ms. Nestor said that some municipalities and counties are initiating an incentive for recycling of C&D waste. For example, a permit may cost \$100 and there is a requirement that demonstrates that you have recycled materials and there might even be a quota attached. When the contractor comes back and demonstrates that the material went to a recycling facility, then a portion of the building permit fee will be refunded for the recycling that was done. Recycling C&D waste in this manner both recovers material and creates a business opportunity. She said in some states C&D materials are being diverted to for processing at WTE facilities and produce energy, rather than go to a landfill. She asked the MWAC if that is a doable system in York County? She noted you would not do it with all loads. You would not do it with demolition loads because they would be mostly brick and mortar but if the load consists of wood and cardboard does it make sense to divert that?

Mr. Wagner said some illegal dump sites could be eliminated by including C&D waste as part of a county comprehensive waste recycling and bulk item system. He agreed that making waste collection of any type mandatory can be very political and if it is going to be mandated it is going to have to come from a higher level. He noted that Manchester Township and the City of York have a proven system of success with the collection of bulk items and that has made a big difference.

Ms. Nestor said she agrees that where trash collection is mandatory the system works the best. Where it is voluntary you have a certain amount of people happy because they get a lower rate. It is a step and she congratulated those townships that have taken the steps and opened up that door. She spends a few nights a week trying to convince the public that organized collection is needed. Most municipal officials would prefer that mandated waste collection come from a “higher level.”

Mr. Pearson said that one or two of the municipalities currently using private subscription services are at the point of putting out a survey to residents to determine if they would agree to a single hauler contract system.

Mr. Wagner said that the bid for Codorus Township was \$23 per month. There is not a municipality in York County that is paying more than \$300 per year.

Mr. Pearson said that there is a big price difference between the one-hauler contract system and private subscription service.

Ms. Nestor went to every municipal website and compared it to the haulers to see their type of service.

Ms. Schaub asked if the private subscription has recycling service.

Mr. Wagner said they do not have recycling pick-up. They only have trash service and are paying more for less service.

Mr. Vollero said that is exactly what we emphasize when we talk to the municipalities and all the managers are interested.

Mr. Houck said he was happy to mention that Manchester Township cost per resident is \$146 a year.

Ms. Nestor asked how many municipalities in the county pay a hauler directly and how many are direct bill to residents.

Mr. Houck said he believes that Manchester Township is the only municipality that pays the contractor for his services and pays the Resource Recovery Center (YCSWA) for the rest.

Mr. Pearson said that there are 72 municipalities in York County. There are 12 municipalities that pay the Authority directly for accepting and managing their residential waste. How each municipality collects the money and how the hauler is involved all have different options.

Mr. Wagner said Penn Waste serves 67 municipalities and 30 are billed by Penn Waste. The larger municipalities who have sewer and water bills to send to customers and staff and mechanisms in place to invoice customers do so. Some municipalities do not have the means to invoice the customers.

Ms. Nestor said there are a large percentage of municipalities in York County that have at least some kind of waste collection service contract whether it is voluntary or not. It is at least a foot in the door and once the municipal supervisors can see that a majority of their residents participate in waste collection, it makes it easier to introduce the concept of a single hauler contract in the future.

Mr. Pearson said that the haulers get a lot of that credit because they go to municipalities throughout the year and try to promote a one-hauler system. We now have about eight municipalities who do not have contracts whereas ten years ago there were 15 municipalities.

Ms. Nestor said that when you look at recycling numbers across the state and throughout the world you are comparing apples and oranges because there are different rules and standards. In Europe a WTE facility counts for recycling. As a result, when you see reports that Europe has an 80% or 90% recycling rate it is because they count all the things that do not go in to the landfill. We have a couple of states that are looking into that. There is a lot of new technology out there to deal with materials that right now are considered for disposal that we see coming out of recycling centers. A lot of the residue goes right to the landfill. Now we are seeing energy benefits from that material being pelletized and sent to fuel cement kilns and coal-fired plants. And we see plastic material that is being recovered and turned into synthetic fuel and oil. That material in the past was discarded. Sometimes regulators tend to have a closed loop idea of recycling instead of asking "what else can we do with this?". She asked for discussion on how the general public feels about using materials for any good use especially energy recovery in any form. When should that take higher priority over recovering materials that may or may not have a market.

Mr. Wagner said that the current recycling markets and particularly recycling markets in our service area are amazing. York County municipalities have increased their recycling container size from 14 gallons to 32 gallon containers. Now Penn Waste sees three times more recycling and only one bag of trash. They are seeing all types of plastics such as laundry tubs, buckets, small slides and other miscellaneous plastics. Penn Waste takes all recyclables. They're pulling out everything that can be reused such as motor oil and oil filters. Glass is not separated because it was costing them \$100 per ton to separate.

Ms. Nestor asked Mr. Wagner if he would recover more if people had more capacity and could place material at the curb.

Mr. Wagner said absolutely. For example, Penn Waste is recovering increased tons of cardboard from the waste stream. That creates a challenge when you look at the numbers. There is still a lot of material out there.

He added that recycling education is key to collecting more recyclables. Penn Waste is putting a "recycling guidelines" insert in municipal newsletters and other municipalities are sending this information out with bills.

Mr. Wagner said that the State has cut the grant money and they are also robbing the \$2 per ton recycling fund.

Ms. Nestor said some municipalities transitioned to automated collection for recycling and the capital outlay was a challenge for a lot of towns. As a result, we have gotten creative. Since the grant money is going away there are ways to build the costs into the collection contracts. For example, the first hauler would buy the cart and that cost would be built into the cost of collection. When the contract was done, those carts become the property of the municipality. That way you do not have the continual swap out of containers. Also some cart manufacturers work directly with the municipalities to give them an extended payment program. That way when it goes into the bid, it might only be another 35 or 50 cents per month and they can ask the hauler to add it on to the bill. You need to get creative and think about the five to ten year period in a contract.

Ms. Marshall said that York Township ordered the 32-gallon larger containers and they include all the educational material with them. They will not be ordering any more of the smaller containers.

Ms. Nestor said the makeup of the residential stream is changing. At least 80% of the cardboard comes from the commercial sector but because of the internet and on-line shopping there is more cardboard in homes. There is office paper in people's homes because people now work out of their homes. What is shrinking is magazines along with first-class mail. Predictions are that by 2020, we are going to see 34% less paper than we did in 2008. That is a challenge for recyclers.

Ms. Chant said that The Clean Air Act is really tightening up the controls. Materials that they used to be able to burn now may not be able to be burned. She added that there were facilities that took used oil to burn but because of The Clean Air Act they may no longer take it. There are fewer markets. The regulations are tighter. Tires are another item. In the long run it may impact the waste stream because markets may not be there.

Ms. Nestor said it is a challenge. There are more plastics in the waste stream. If you think about your old recycling bin and how you could stack papers in it, now you have plastic that doesn't crush, doesn't fold such as big detergent bottles, so it may not weigh as much. However, it is volume that is what we are trying to recover. Large plastic containers and other lightweight items are more difficult to handle.

Ms. Nestor said that when you look at the growth of the county and then look at how many tons were disposed, they do not follow the same path. That is not different than the rest of the country. On a per capita basis, we are making less waste than we have in several years. It is change happening directly from the private sector. The Wal-Mart syndrome initiated a lot of this. They initiated it because internally they realized they were buying things that ending up costing them money to dispose of. So they put the challenge out to their suppliers that they did not want excess packaging. They wanted things they could send back. Wal-Mart now uses shrink wrapped pallets, concentrated detergents in smaller packaging and even water bottles. Now you have to be careful when you pick them up because the bottle weighs less. This affects the bottom line to the shareholders. The movement 20 or 30 years ago came from the regulatory sector, now they have taken a back seat to what the private sector is doing for their own bottom line in recovering materials. Now it is not only recovery – it is design. We are seeing the upfront people designing for remanufacturing and reassembly. Even computers are now refurbished. Americans waste 40% of the food that they buy. Those are the two things growing in the waste stream on a per capita basis food waste and plastics. Glass and metal have flat lined and we are recovering those materials anyhow. You can see the change in nature and the challenges and that is why the technology is changing. We may be seeing energy coming from different processes in the future

Ms. Nestor asked Mr. Wagner if he was seeing collection changes as a hauler.

Mr. Wagner said the industry trends and associated changes are dramatic. Even bottled water is shrink-wrapped and heading to “zero waste.” The hauling industry has competition from small independent haulers such as “1-800-GOT JUNK” and “Dirty Dog.” They strip out everything to recycle. Now you see one to two bags of trash and one to six bags of recycling.

Ms. Schaub asked about food waste.

Mr. Wagner said the food waste is being separated at places like Wal-Mart and goes to an animal food operation. Some material goes to farmers

Ms. Nestor said that when looking at large companies they invest in technology. They want to control their materials and are better at taking care of it.

Mr. Wagner said his company is working on ways to recycle tires.

Ms. Chant asked about recycling computers at the curb.

Ms. Nestor said beginning January 2013, haulers will not be allowed to collect certain electronic devices at the curb.

Mr. Pearson said that YCSWA, as well as all Pennsylvania disposal sites, cannot take “covered devices” such as televisions and computers for processing purposes.

Ms. Schaub said that municipalities do not know that.

Ms. O'Connor said that announcements have been made about the change.

Ms. Nestor said that it is the role of PADEP to make sure the public is informed. In past campaigns there would be ads like television announcements.

Mr. Wagner said Penn Waste does not see computers at the curb. They are being scavenged. They have also provided information to their customers about the changes to the law.

Mr. Wagner said that he receives information from Ms. O'Connor and the information is also on the website.

Ms. O'Connor said she has been doing communication about the new e-cycling law including correspondence to municipalities and haulers, print ads in the newspaper and online ads since August.

Ms. Nestor opened the discussion on disaster debris which is a hot topic across the country.

Ms. O'Connor said the County EMS invited the Authority, along with other key County stake holders, to develop a county-wide disaster debris management plan. Meetings are being held to put together a blueprint that municipalities can follow including: how do come up with pre-set contract agreements, where would disaster debris be taken, how would it be handled, would the material be source separated and if so where would that be done and how. The group hoped to get some contractual agreements in place with haulers and heavy equipment operators and others who would be need in response to the disaster. The purpose of the group is to help municipalities be organized, responsive and to recover their costs. The end result, hopefully, will be a plan that will be approved by FEMA. This will then enable a municipality to use this template to not only manage their disaster response but also recover their money.

Ms. Nestor said municipalities lose out on FEMA reimbursement if they do not have an organized plan that documents expenses.

Ms. Chant said that during Hurricane Irene the Governor and PADEP waived certain permit requirements in order to expedite clean-up efforts.

Ms. Dell said LEED certification was previously discussed. She asked if there is an overall energy balance sheet of what it takes to collect trash versus what is recovered at the WTE facility, keeping in mind alternative energy, fuel efficiency and air quality. What is the cost to collect the trash in an efficient manner?

Mr. Vollero said that Green House Gas studies have been done. Fuel cost is reduced if you are closer to the waste source and have a central location. There are specific numbers and sometimes it is on a material by material basis done by locale.

Ms. Nestor said that final review of the Plan will be in January, then the committee will be receiving the Plan in January or February for review and comment. Then the final version will go to DEP

Ms. Nestor stated that some of the things the committee emphasized included: they were in agreement that where there is organized waste collection, waste is managed more efficiently and properly; if a higher authority required trash pickup and recycling it would encourage municipalities to move forward with establishing single hauler waste contracts; recycling capacity could be made better; more sharing and networking between municipalities is needed; efforts to reduce illegal dumping should be implemented; there was a positive reaction to the development of a county-wide "boilerplate" disaster debris management plan and handling construction/demolition material might present challenges, but a portion of that waste stream could be diverted to the WTE facility.

ADJOURNMENT

The meeting adjourned at 11:45 am.

**YORK COUNTY MUNICIPAL WASTE MANAGEMENT PLAN
MUNICIPAL WASTE ADVISORY COMMITTEE MEETING MINUTES
NOVEMBER 19, 2013**

The Municipal Waste Advisory Committee (MWAC) meeting was held on Tuesday, November 19, 2013 at 10:00 am at the office of the York County Solid Waste Authority (YCSWA), York, PA.

ATTENDANCE: Committee members present: Phyllis Chant, Glattfelter; James Gross, City of York; Del Hauck, Manchester Township; Jim Leaman, Codorus Creek Watershed Association; Linda Marshall, York Township; Mark Pergolese, Republic Services; Sophie Simon, Dover Township WWTP; and Scott Wagner, Penn Waste. Staff present: Jerry Grim, Ellen O'Connor, Gregg Pearson and Dave Vollero. Others in attendance were: Michele Nestor, Nestor Resources, Inc. and Kay Dougherty.

The meeting was called to order at 10:00 am. Mr. Pearson welcomed everyone to the MWAC meeting. Introductions were made.

Mr. Pearson noted that all MWAC members received a copy of the Draft York County Municipal Solid Waste Management Plan Update and Revision for review. He thanked the committee for forwarding their comments on the Plan.

Mr. Pearson called on Michele Nestor who presented a power-point presentation.

Ms. Nestor said that today's meeting will include a review of the Plan and the next steps going forward. This meeting is to make sure the visions of the MWAC committee were included correctly and will include a chapter-by-chapter review of the Plan. Today's agenda will include:

- **Final Review Process**
- **MWAC Visions and Ideas**
- **Review Plan Components**
- **Present Recommendations**
- **Open Discussion and Comments**

Final Review Process

MWAC Recommendations – November 19, 2013

- YCSWA Board Approval – November 20, 2013

- PADEP Review/Comment/approval – December 2013 – January 2014

Comments: Ms. Nestor said that PADEP, according to the regulations, has 30 days to review the Plan. However, they may ask for an additional 30 days. It has been Ms. Nestor's experience that PADEP always asks for the additional time to review the Plan documents.

Ms. Chant noted that it has been her experience that PADEP usually asks for the additional time due to their workload.

MWAC Visions and Ideas

Flow Control

- Energy Recovery
- Universal Collection
- Uniform Contract Specifications
- Enforceable Ordinances
- Explore Future Technologies and Trends

Comments: The County does have flow control and because York County has a waste management/disposal facility, flow control is important. The County does have limitations in its flow control power regarding mandatory universal collection. There was a recommendation for uniform contract specification and ordinances that should mirror the contract.

Review Plan Components

- **Waste Stream Analysis – Chapter 1**, Sources, Types, Composition, Quantities, Historic Trends, Local Demographics and Regulatory Influences

Comments: The Committee looked at the different types of waste in York County and took a lot of time reviewing trends from both the county and the country to see how they apply. The first chapter addresses what is happening in the County now.

- **Waste Handling and Disposal – Chapters 2, 3, and 6**, Management of Various Waste Types, Catastrophic Events, Disposal Trends/Destination Facilities, Collection Infrastructure, Capacity vs. Needs and Undesirable Practices.

Comments: The need to plan for a catastrophic event and the need for a Disaster Debris Management Plan in the county was discussed. The York County Commissioners recently adopted a Disaster Debris Management Plan which is now part of the York County Planning Commission's Comprehensive County Plan. YCSWA representatives, along with York County Emergency Management and other key stakeholders, participated in developing the plan. A review of the current collection infrastructure was recommended, including residential, commercial, septage, green waste and some of the changes that have occurred over time in the way these items are managed. Demographics and how the Resource Recovery Center fulfills the needs for the County was discussed. Current capacity based on the Authority's current projections was reviewed. Even though the population has grown, waste generation seems to be on a downward slope and recyclable materials have accelerated. MWAC

members expressed some of the undesirable things that occur such as open burning, dumping and refusal of residential collection.

- ***Recycling and Waste Minimization – Chapter 4***, Economic and Environmental Benefits, Combined Efforts, Benchmarking and Performance Measures, Collection Practices/Trends, Programs for Special Materials and Opportunities

Comments: The County meets or exceeds Pennsylvania’s goals for recycling materials. There is a good participation and recycling rate but there is room for improvement. Some suggestions for other recyclable materials that could be introduced in the future include: carpeting, disaster debris and additional plastics. Introduction of larger recycling containers should be considered when appropriate by municipalities. Municipalities need to revisit their waste hauler contracts to see if they can broaden their services.

Ms. Chant said that her company did an audit of their site for illegal dumping. She was surprised how many old TV’s, oil cans and other debris were found on the property because York County does have a program to recycle old TV’s.

Ms. O’Connor said that Tom Smith is the coordinator of Keep York County Beautiful and Ms. O’Connor is representing YCSWA by serving on the organization’s advisory committee. Mr. Smith was tasked to identify illegal dump sites in York County and almost 300 illegal dump sites were found. There are likely more illegal dump sites that have not yet been reported.

Implementation Strategy – Chapters 5, 7, 8, 9, 10, and 11, Recommendations, Actions and Goals, Responsible Entity, Legal Mechanisms, and Impact on Local Constituents.

Comments: **Ms. Nestor** said that Chapter 5 contains recommendations resulting from the planning process, including discussions at MWAC meetings, input from the Authority staff and Board of Directors, and the consultant. The other chapters outline how the Authority, on behalf of the County, will ensure that the Plan is implemented. There are numerous mechanisms including ordinances, reporting and how those changes would impact the municipalities.

Present Recommendations

- ***Municipal Solid Waste Infrastructure***
- ***Municipal Services and Programs***
- ***Community Event Recycling Network***
- ***Disaster Debris Planning***
- ***Expanded Material Recovery***

Municipal Solid Waste Infrastructure

Comments: **Ms Nestor** said to make all these things happen, periodically the Authority will review the composition of the waste to insure there is still enough waste to support the facility. The Authority will be taking a look at new technologies. The Authority must also make sure they have enough finances and reserves to maintain operations.

Municipal Services and Programs

Comments: **Ms. Nestor** stated that the majority of MWAC members expressed the importance of some form of residential waste collection for all York County municipalities. Periodically, the Authority will have meetings with municipal officials to discuss residential waste hauling contracts and ordinances. The Authority will also be tasked with meeting one-on-one with each municipality on an on-going basis to discuss their program. This is already being done by the Authority. The message the committee is sending is that municipalities should have a waste collection ordinance that supports their residential waste contracts.

Staff spoke about mandated municipalities who must recycle at community events. Some of the municipalities do not have the equipment to make that happen easily. The Authority will try to coordinate this, perhaps by providing a how-to guide.

Ms. Chant said that at the Adams County wine festival there are volunteers to help with recycling efforts.

Mr. Wagner said that one thing that is not mentioned and is very critical is the actual cost for recycling and waste management. He led a discussion on the cost of trash and recycling disposal in York County. He stated that no resident pays over \$20 a month. Haulers are providing trash and recycling services for \$240 per year or less. Compared to any other service (water, sewer, cable, etc.) trash/recycling collection is a great deal in terms of cost. Compared to other areas in Pennsylvania, or nationwide, the cost for waste disposal is more costly.

Ms. Nestor said this was not mentioned in the Plan because it is a 25 year plan but it is something that can be discussed.

Disaster Debris Planning

Ms. Nestor said the committee spoke about the Disaster Debris Plan that was developed.

Ms. O'Connor said the Disaster Debris Plan has been adopted by the County. The Plan has recognized that the Authority provides capacity for certain waste streams.

Ms. Nestor said that past disaster records were not correctly kept by some municipalities and as a result, they lost out on FEMA money. Having the Authority as the coordinator was one of the things discussed as well as how much disaster debris can be diverted to the waste-to-energy facility, or for recycling.

Expanded Material Recovery

Comments: **Ms. Nestor** said that the Committee looked at the waste composition and the cost of capturing more materials for recycling. Areas they are falling short in the County are schools. School districts start recycling programs and promptly eliminate them because of the cost of collection. YCSWA offers free programming to schools to provide recycling education.

Ms. Chant said recently she visited Mother Se19ton School in Maryland, which is a green school. She did a presentation on waste disposal.

Ms. O'Connor said there are a number of green schools in York County. When schools need to do a renovation they will often take an opportunity to do the LEEDS program to build a "green school".

Ms. Nestor said hospitals and health care facilities do a good job with their medical waste. Unfortunately, there is material that could be recycled, mostly plastic packaging.

The Authority will also be doing more education of municipalities on how to promote the reporting of recycling data, especially from commercial establishments.

Mr. Vollero said that YCSWA is not capturing some of the recycling information. It is difficult to get some of the business to report. He said some municipalities are doing a great job.

Mr. Wagner said the commercial effort is not very good. Some other counties are very aggressive in that area.

Ms. Chant said getting the recycling report form to businesses does prompt them to report their recycling efforts.

Mr. Pearson said the Authority sends a model recycling report form to all the municipalities at the end of the year to get data. Some use the form and some do not.

Mr. Wagner said that some of the national firms have their recycling service provided by a national broker. They do not care about recycling—it is all about the price. With major chains there is contamination and it is all about price.

Open Discussion

Mr. Vollero thanked everyone for their participation. The Plan process took more time than expected and he thanked the MWAC members for their time and efforts.

Ms. Chant said the reason it took so long was because there was so much to consider. The Committee did not want to do anything haphazardly. She added that the way the process was presented, a little at a time, was the way to put together a 25 year comprehensive plan.

Mr. Vollero said that the Plan will be revisited from time-to-time as things change.

Ms. Nestor thanked the staff and the committee.

RECOMMENDATION

On motion by **Mr. Wagner**, second by **Ms. Chant** and unanimous vote, the MWAC recommended the Plan for approval by the Board of Directors of the York County Solid Waste Management Authority at their meeting scheduled for Wednesday, November 20, 2013.

ADJOURNMENT

The meeting adjourned at 11:05 am.

Public Review and Comment Process

The York County Solid Waste and Refuse Authority released the Draft Municipal Solid Waste Management Plan for a thirty day public review and comment period on October 10, 2013. In addition to the members of the Municipal Waste Advisory Committee, the public and each municipality was provided access to the Plan via the YCSWA web site. Printed copies were also distributed to each member of MWAC as well as to each member of the YCSWA Board of Directors.

Comments and Responses

Following are those comments which resulted from the review process along with responses from the Authority. In instances where multiple reviewers offered the same or similar comments, the commenter's general language has been consolidated into a single comment.

Comments:

I carefully read through the “York County Municipal Waste Management Plan - Update and Revision.” I must say it is very well organized, comprehensive, and well written.

The plan looks good and I enjoyed reading it. Lots of interesting facts and figures. Good job!

I reviewed the plan over the weekend – it is well done and comprehensive.

The Plan is very comprehensive and appears to cover all aspects of solid waste management.

The update really did not miss a thing. Great work!

Response:

On behalf of all of those who contributed to the development of the “York County Municipal Solid Waste Management Plan - Update and Revision,” the Authority acknowledges and appreciates the words of support from the public.

Comment:

Some minor typographical and/or formatting errors were identified.

Response:

The document has been revised to reflect those corrections.

Comment:

Portions of the Dover Township Wastewater Treatment Plant were omitted from Table 1-2.

Response:

Table 1-2 has been revised for the Dover Township Wastewater Treatment Plant to include Dover Township and also parts of Conewago, Manchester, and West Manchester Townships.

Comment:

Portions of the Penn Township Wastewater Treatment Plant were omitted from Table 1-2.

Response:

Table 1-2 has been revised for the Penn Township Wastewater Treatment Plant to include West Manheim Twp. and portions of Hanover Borough.

Comment:

Brush collection was omitted from the services provided by Penn Township public works crew.

Response:

Table 4-7 has been revised to reflect the full services provided by Penn Township.

Comment:

It was noted that the "York County Debris Management Plan" referenced in the "York County Municipal Solid Waste Management Plan - Update and Revision" was completed during the planning process.

Response:

The section "Recovering From a Disaster:" in Chapter 4 of the document has been updated to reflect that the "York County Debris Management Plan" is no longer in development, but in fact has been completed. Similarly, the section "Disaster Debris Planning and Coordination" in Chapter 5 was revised to indicate the "York County Debris Management Plan" is now complete.

Comment:

It was suggested that White Goods be more clearly defined.

Response:

A definition for "White Goods" has been added to Appendix A.

Comment:

It was suggested that a map might better illustrate the availability and types of waste and recycling collection services provided in each municipality throughout the County.

Response:

A countywide map showing the municipalities with an overlay of service types provided has been included in Chapter 4.

Comment:

It was suggested that current and future processing/disposal tipping fees as well as current waste collection rates be documented in the Plan.

Response:

The “York County Municipal Solid Waste Management Plan - Update and Revision” presents a snapshot in time used to evaluate the general status and conditions related to municipal solid waste management practices. The Plan covers a future period of 25 years. Ever changing market conditions such as supply and demand, the cost of fuel, labor, and equipment, and an evolving rate of waste generation and composition, make it impossible to predict costs 5, 10 or 25 years away. Therefore, fees and rates referenced today would not serve a useful purpose in the near future. The current gate rate for the Center is referenced in Chapter 7.

The Municipal Collection Programs and Services section of Chapter 5 was revised to demonstrate the affordability of waste and recycling collection services compared to other residential utilities and services.

Comment:

It was noted that batteries, fluorescent tubes and mercury containing devices are considered Universal Waste for commercial and industrial establishments, yet they are listed in Appendix G and discussed elsewhere in the Plan as part of the municipal waste stream. The reviewer questioned how these items were managed.

Response:

Many items regulated as hazardous waste when generated by business and industrial sources are included in the composition of municipal solid waste. When generated in residential settings, they can be disposed at a permitted municipal waste processing/disposal facility. If items are source separated from the municipal waste stream, they are managed as Household Hazardous Waste (HHW) in Pennsylvania. YCSWA conducts HHW collections to manage these materials. The

batteries referenced in the tables in Appendix refers to lead acid batteries, which are banned from disposal.

APPENDIX G

Recycling Tables and Assumptions



Calculating 2010 York County Recycling Quantities

OVERVIEW

This memo reviews the York County recycling program and compares the performance of the program to national figures. It includes a discussion of possible additional recyclable materials that may be considered in expanding the program.

Table 1 presents the recycled materials reported for 2008 through 2010 for York County. The figures were adjusted from actual reported values to account for materials included in the categories reported as commingled and single stream.

Table 1. Reported Materials Recycled

Material	2008 Adjusted tpy	2009 Adjusted tpy	2010 Adjusted tpy
Mixed Glass	4,808.59	4,778.51	5,167.16
Bimetal Cans	2,558.74	2,124.42	2,581.70
Aluminum Cans	1,260.00	1,088.18	1,970.76
Packaging Plastic #1 and #2	2,323.53	1,521.48	1,232.18
Packaging Plastic #3 through #7	553.46	1,205.42	1,433.20
Newspaper	9,601.91	7,894.29	10,839.18
Magazines	818.28	2,298.69	2,163.27
Phone Books	171.42	309.71	54.70
Office Paper	2,647.07	6,211.90	9,569.25
Mixed Papers	9,926.58	13,044.18	9,594.99
Cardboard	36,213.60	23,915.30	25,868.50
Cardboard from Single Stream	2,053.01	2,311.42	2,863.41
Yard Waste	16,387.10	19,623.40	14,157.90
White Goods	55.00	215.60	344.20
Tires	2,836.90	2,142.30	2,973.40

Table 2 presents an analysis of the York County municipal solid waste recycling quantities as compared to national figures based on the Franklin Study¹. Data for 2010, the most recent available is shown as well as average data for the period 2008 through 2010.

The Franklin Study is a periodic review of the national recycling activities that is conducted for and issued by the USEPA. These national figures were compared to York County on the basis of population. The first column in the table lists categories of materials in municipal solid waste (MSW) that are included in the York County

¹ U.S. Environmental Protection Agency. Municipal Solid Waste in The United States: 2010 Facts and Figures.

program. The next column entitled "Adjusted York 2010" presents the total quantity of materials reported as recycled in the county. The column "Expected 2010" presents the quantities of the materials expected to be recycled by residential and commercial entities in York County if recovered at the same rate as they are nationwide. The column "Percent of Expected 2010" compares the York County results to the expected results as a percentage. The next three columns show similar comparisons but are averaged for the three year period of 2008 through 2010.

It is worth noting that for some of the materials shown on the table, substantial quantities may be recycled through other means and not reported. For example, considerable amounts of corrugated cardboard and white goods are normally recycled directly by commercial entities. Not all of these materials may be reported.

Table 2. Actual Recycled versus Expected Recycled

Material:	Adjusted York 2010 tpy	Expected 2010 tpy	Percent of Expected 2010	Adjusted York Average 2008 - 2010 tpy	Average Expected 2008 - 2010	Percent of Expected 2008 - 2010
Glass Containers	5,167.16	4,405	117.29%	4,918.08	3,945	124.66%
Aluminum Cans	1,970.76	957	205.92%	1,439.65	917	157.04%
Bi Metal Cans	2,581.70	2,167	119.11%	2,421.62	1,901	127.39%
Plastic #3 thru #7	1,433.20	1,239	115.72%	1,064.02	913	116.49%
Plastic #1 and #2	1,232.18	1,098	112.24%	1,692.40	1,348	125.51%
All Plastic Packaging	2,665.38	2,336	114.08%	2,756.42	2,262	121.87%
Paper:						
Newspaper	10,839.18	9,951	108.93%	9,445.13	9,606	98.33%
Magazines	2,163.27	1,239	174.66%	1,760.08	1,029	171.00%
Telephone Books	54.70	0	0.00%	178.61	245	109.17%
Office-type Papers	9,569.25	5,756	166.24%	6,142.74	4,303	142.77%
Corrugated Boxes						
Corrugated Boxes*	2,863.41	3,475	82.40%	2,409.28	3,261	73.87%
Mixed paper	9,594.99	11,034	86.96%	10,855.25	10,017	108.37%
Total:	47,469.80	41,321	114.88%	42,326.87	37,291	113.51%
Total w/o Paper:	12,385.00	9,866	125.53%	11,535.77	9,025	127.83%
Total Paper:	35,084.80	31,455	111.54%	30,791.09	28,266	108.93%
* Corrugated shown is only that attributed to material collected as commingled or single stream. For additional quantities recycled directly see Table 1.						

Table 3 presents an estimate of potential York County municipal solid waste generation, recycling and disposal quantities as compared to national figures based on the Franklin Study data. The first column in the table lists items in municipal solid

waste (MSW) that could be included in the York County program. The items are listed as products rather than materials. Thus, many listed items are comprised solely of paper. Alternately, some items such as major appliances may contain plastic, glass and several types of metal.

Table 3. Expected York County 2010 MSW Quantities based on National Rates

Recycled Material by Category	Expected Total Generated tpy	Expected Total Recovered tpy	Expected Total Disposed tpy	2010 % of Total MSW	2010 % Recovered Nationally
Traditional Recyclable Items:					
Glass Containers	13,174	4,405	8,768	3.75%	33.44%
Aluminum Cans	1,928	957	971	0.55%	49.64%
Bi Metal Cans	3,237	2,167	1,070	0.92%	66.96%
Plastic #1 thru #7	19,254	2,336	16,917	5.48%	12.13%
Plastic #1 and #2	4,884	1,098	3,786	1.39%	22.48%
Paper:	0				
Newspaper	13,906	9,951	3,955	3.95%	71.56%
Magazines	2,238	1,239	999	0.64%	55.35%
Office-type Papers	7,403	5,756	1,647	2.11%	77.76%
Corrugated Boxes	40,886	34,750	6,136	11.63%	84.99%
Books	1,393	450	943	0.40%	32.32%
Standard Mail	6,108	4,293	1,816	1.74%	70.28%
Commercial Printing	3,490	3,251	239	0.99%	93.15%
Folding Cartons	7,699	2,308	5,391	2.19%	29.98%
Bags and Sacks	1,464	732	732	0.42%	50.00%
Subtotal Traditional Items:	122,180	72,596	49,584	34.74%	59.42%
Other Recyclable Items:					
Textiles	14,412	2,069	12,343	4.10%	14.36%
Carpeting	4,870	436	4,433	1.38%	8.96%
Furniture	15,229	14	15,214	4.33%	0.09%
Rubber Tires	7,305	2,590	4,715	2.08%	35.45%
Batteries	4,490	4,321	169	1.28%	96.24%
Major Appliances	5,658	3,673	1,984	1.61%	64.93%
Small Appliances	2,238	155	2,083	0.64%	6.92%
Consumer Electronics	3,434	915	2,519	0.98%	26.64%
Other Misc. Durables	25,855	676	25,179	7.35%	2.61%
Yard Waste	47,009	27,023	19,986	13.37%	57.49%
Steel Drums	619	493	127	0.18%	79.55%
Total Traditional and Others:	253,298	114,960	138,338	72.03%	45.39%
Wood Packaging	13,990	3,237	10,753	3.98%	23.14%
Food Scraps	48,923	1,365	47,558	13.91%	2.79%
Total of Recyclable Items:	316,210	119,562	196,648	89.92%	37.81%
Total Unrecyclable Items:	35,454	0	35,454	10.08%	0.00%
Total Municipal Solid Waste:	351,664	119,562	232,102	100.00%	34.00%

Municipal solid waste consists of everyday items such as product packaging, grass clippings, furniture, clothing, bottles, food scraps, newspapers, appliances, and batteries. It is generated by both residences and commercial entities. Several items are considered primarily generated and recycled from commercial rather than

residential sources, such as office paper, cardboard, major appliances, tires and rechargeable batteries. The latter of these items are often returned to commercial sources when new replacements are purchased by consumers. Considerable quantities are recycled through means other than municipal recycling programs.

Not included in the Franklin figures are materials that also may be disposed in landfills but are not generally considered MSW, such as construction and demolition materials, municipal wastewater treatment sludges, and non-hazardous industrial wastes such as coal ash, slag, etc.

In 2010 the Franklin Study estimated that 249.86 mtpy of municipal solid waste (MSW) was generated in the United States. Of this total 84.95 mtpy were estimated to have been recovered; a national rate of 34%. The remaining 164.91 mtpy were discarded. Based on a population of 309.05 million persons, MSW generation was 4.43 lbs/pers/day. Recovery was 1.51 lbs/pers/day. Based on an estimated 2010 population of 434,972 persons, proportional quantities for York County would be 351,664 tons of MSW per year generated, 119,562 recovered and 232,102 tons disposed. Table 3 presents a breakdown of the data for several material categories.

The column entitled "Expected Generation" presents the expected quantity of the item to be generated as waste in York County if it were produced at the same rate as it is nationwide. As shown, it is expected that York County residents generate 351,664 tons per year of MSW, if generated at the national rate. The columns entitled "Expected Recovery" presents the expected quantity of the item that would be recovered in York County if it were recycled at the same rate as it is nationwide. A breakdown of quantities expected to be generated by residential and commercial sources and other details of the various products are contained in the following parts of this memo. The third column presents the estimated quantity of material that would be disposed if it were at the same rate as it is nationwide. The final two columns present the percentage of total MSW that each item constitutes and the percentage recovery on a national basis.

TRADITIONAL RECYCLABLE ITEMS

Glass

The estimated annual quantity of waste glass generated nationally in 2010 was 11.53 mtpy. Of this, 9.36 mtpy of glass was in the form of clear and colored containers available for recycling; 3.13 mtpy were recovered. Glass containers constituted about 3.75% of the total municipal waste generated and were recovered nationally at the

rate of 33.44%. Residential sources generate about 81% of the glass containers contained in MSW

Based on population it is estimated that 13,174 tons of waste glass packaging were generated in 2010 in York County. If recycled at the national recycling rate, about 4,405 tons would be expected to be recovered. Based on recycling reports, the quantity of glass recycled in 2010 was estimated to be 5,167.16 tons, about 117% of the national norm.

Aluminum

The estimated annual quantity of waste aluminum generated nationally in 2010 was 3.41 mtpy. Of this 1.51 mtpy was contained in durable and nondurable goods and was not generally available for recycling. Thus, 1.90 mtpy of aluminum was in the form of packaging available for recycling; 0.68 mtpy were recovered. Aluminum packaging constituted 0.76% of the total municipal waste generated and was recovered nationally at the rate of 35.8%. Aluminum cans constituted 0.55% of the total municipal waste generated and was recovered nationally at the rate of 49.64%. Residential sources generate about 81% of the aluminum packaging contained in MSW.

Based on population it is estimated that 2,674 tons of waste aluminum packaging were generated in 2010 in York County. Of that, 1,928 tons were beer and soft drink cans readily suitable for recycling. If recycled at the national recycling rate, about 957 tons would be expected to be recovered. The quantity of aluminum recycled in the county in 2010 was estimated to be 1,971 tons, 206% of the national norm.

Bimetal

Bimetal refers to tin cans which are over 99% steel. Bimetal cans are included in the Franklin study in the category of ferrous metal wastes. The estimated annual quantity of ferrous metal wastes generated nationally in 2010 was 16.90 mtpy. Of this 14.16 mtpy was contained in durable and nondurable goods and not generally available for recycling. Thus, 2.74 mtpy of ferrous metal wastes is in the form of containers and other packaging. Included in this figure are 0.44 mtpy of steel drums and other steel packaging not included in residential recycling programs. The remaining 2.30 mtpy was available for recycling; 1.54 mtpy were recovered. This material constituted slightly less than 1.0% (0.92%) of the total municipal waste generated and was recovered nationally at the rate of 66.96%. Residential sources generate about 85% of the bimetal packaging contained in MSW.

Based on population it is estimated that 3,237 tons of waste bimetal cans were generated in 2010 in York County. If recycled at the national recycling rate, about 2,167 tons would be expected to be recovered. Based on recycling reports, the quantity of bimetal recycled in the county in 2010 was estimated to be 2,581.7 tons, about 119.11% of the national norm.

Plastic

The estimated annual quantity of plastic waste generated nationally in 2010 was 31.04 mtpy. Of this, 17.36 mtpy was contained in durable and nondurable goods and was not generally recycled. Plastics in packaging account for over 70% of all plastic recycled from municipal solid waste and 13.68 mtpy of plastic in the form of packaging was available for recycling. The amount recovered was 1.66 mtpy. Plastic packaging constituted 5.48% of the total municipal waste generated and was recovered nationally at the rate of 12.1%. Residential sources generate about 80% of the plastic contained in MSW.

Plastics #1 and #2 account for only about 30% of waste plastic in all MSW, but about 52% of waste plastic in containers and packaging. The quantity of Plastics #1 (PET) in waste packaging was 2.80 mtpy and for #2 (HDPE) was 4.62 mtpy. Thus, 7.42 mtpy of Plastic #1 and #2 in the form of packaging was available for recycling. Nationally, 1.32 mtpy of Plastics #1 and #2 are recovered from waste containers and other packaging, about 62% of the total plastic recovered from waste packaging. Recovery rates for Plastic #1 is 0.73 mtpy out of 3.53 mtpy generated, 25%. For Plastic #2, 0.59 mtpy is recovered of 5.21 mtpy generated, 11.3%. The average recovery rate for Plastic #1 and #2 is 15.1%.

Plastics #1 and #2 available for recycling are principally in the form of soft drink bottles and other food containers such as milk bottles. Based on population it is estimated that 4,884 tons of waste plastic #1 and #2 containers were generated in 2010 in York County. If recycled at the national recycling rate, about 1,098 tons would be expected to be recovered. Based on recycling reports, the quantity of plastic #1 and #2 containers recycled in 2010 was 1,232.18 tons, about 112.24% of the national norm.

The total mixed plastic #1 through #7 expected to be generated in York County in 2010 was 19,254 tons and the expected recovery was 2,336 tons. A total of 2,665.38 tons were reported to be recycled, about 114.08% of the national norm.

Paper

The estimated annual quantity of waste paper generated nationally in 2010 was 71.31 mtpy. This figure includes 33.62 mtpy of nondurable goods such as newspapers, magazines and other printed matter. Also included in this category are materials in a form that is not generally available for recycling, such as paper plates, towels, tissue, etc. A negligible amount of unrecyclable paper is also contained in durable goods. The other 37.68 mtpy of waste paper is waste packaging. The largest category of waste packaging is OCC, old corrugated cardboard, generated at a rate of 29.05 mtpy.

Paper accounts for about 29% of the total municipal solid waste generated in 2010 and 44.57 mtpy was recovered at a recovery rate of 62.5%. Residential sources generate about 40% of the total paper in municipal solid waste.

Newspaper. Included in this category is newsprint, newspaper inserts and other mechanical papers such as phone directories. Old newspaper is sometimes referred to as ONP. The estimated annual quantity of ONP generated nationally in 2010 was 9.88 mtpy. This material constituted 3.96% of the total municipal waste generated and 7.07 mtpy were recovered nationally, a rate of 71.6%. Residential sources generate about 85% of the ONP contained in MSW.

Based on population it is estimated that 13,906 tons of waste newspaper were generated in 2010 in York County. If recycled at the national recycling rate, about 9,951 tons would be expected to be recovered. The reported quantity recycled was 10,839 tons, about 108.93% of the national norm. Including an additional 54.7 tons of recycled phone books increases the total to 10,893.7 tons, 109.47% of the national norm.

Magazines. The estimated annual quantity of waste magazines generated nationally in 2010 was 1.59 mtpy. This material constituted about 0.6% of the total municipal waste generated and 0.88 mtpy were recovered nationally, a rate of 55.3%. Residential sources generate about 65% of the magazines contained in MSW.

It is estimated that 2,238 tons of waste magazines were generated in 2010 in York County. If recycled at the national recycling rate, about 1,239 tons would be expected to be recovered. The reported quantity recycled was 2,163.27 tons, about 174.66% of the national norm.

Office Papers. Office papers includes high quality office paper such as stationary, copy paper and computer paper. The estimated annual quantity of office paper generated nationally in 2010 was 5.26 mtpy. This material constituted 2.11% of the total municipal waste generated and 4.09 mtpy were recovered nationally, a rate of

77.76%. Residential sources generate about 25% of the office paper contained in MSW.

Based on population it is estimated that 7,403 tons of waste office paper were generated in 2010 in York County. If recycled at the national recycling rate, about 5,756 tons would be expected to be recovered. The reported quantity recycled was 9,569.25 tons, about 166.24% of the national norm.

Cardboard Boxes. Often referred to as old corrugated cardboard (OCC). Material included in this category is primarily cardboard boxes. Also sometimes included are folding cartons and paper bags. They were included in the mixed paper category in this analysis. The estimated annual quantity of OCC generated nationally in 2010 was 29.05 mtpy. This material constituted 11.63% of the total municipal waste generated and 24.69 mtpy were recovered nationally, a rate of 84.99%. Commercial sources generate about 90% of the OCC packaging contained in MSW.

Based on population it is estimated that 40,886 tons of waste OCC packaging were generated in 2010 in York County. If recycled at the national recycling rate, about 34,750 tons would be expected to be recovered. The quantity of OCC reported as recycled in 2010 was 25,869 tons. Another 2,863 tons were estimated to be included in material reported as single stream or commingled. Thus the total estimated OCC recycled in York County was 28,732 tons, 82.68% of the national norm.

Mixed Paper. Other recycled paper products can be grouped in two categories: non-durable goods and packaging. National recycling figures are available for individual items within these categories. Reported recycling data for York County combines these items into the single category of mixed paper.

Non-Durable Goods: Books, Standard Mail and Other Commercial Printing. The estimated annual quantity of discarded books generated nationally in 2010 was 0.99 mtpy, of which 0.32 mtpy was recycled, a rate of 32.3%. This material constituted 0.40% of the total municipal waste generated. Residential sources generate about 80% of the discarded books contained in MSW.

The estimated annual quantity of standard mail and other commercial printing generated nationally in 2010 was 6.82 mtpy, of which 5.36 mtpy was recycled, a rate of 78.6%. This material constituted 2.73% of the total municipal waste generated. Residential sources generate about 65% of the discarded mail and commercial printing contained in MSW.

Based on population it is estimated that 10,991 tons of books, standard mail and other commercial printing were generated in 2010 in York County. If recycled at the national recycling rate, about 7,994 tons would be expected to be recovered.

Packaging: Folding Cartons, Bags and Sacks. Other paper and paperboard packaging in municipal solid waste includes folding boxes (e.g., cereal boxes, frozen food boxes, some department store boxes), bags and sacks, wrapping papers, and other paper and paperboard packaging (primarily set-up boxes such as shoe boxes). The estimated annual quantity of these materials generated nationally in 2010 was 6.51 mtpy, of which 2.16 mtpy was recycled, about 30%. Residential sources generate about 65% of these materials that constitute 2.61% of the total municipal solid waste generated.

Based on population it is estimated that 9,063 tons of waste folding cartons, bags and sacks were generated in 2010 in York County. If recycled at the national recycling rate, about 3,040 tons would be expected to be recovered.

Total Mixed Paper Recycled. Based on population, the total estimated mixed paper generated in York County in 2010 was 20,154 tons. If recycled at the national recycling rate, about 11,034 tons would be expected to be recovered. The quantity of mixed paper reported as recycled in 2010 was 9,595 tons, including material reported as single stream or commingled. Thus the total estimated mixed paper recycled in York County was 86.96% of the national norm.

OTHER RECYCLABLE ITEMS

Data shown in the tables include items not typically included in municipal solid waste recycling programs. These materials are generated in significant quantities and include: clothing and textiles, carpeting, furniture, rubber tires, major appliances, small appliances, consumer electronics and yard waste. These materials are discussed in the following paragraphs.

Clothing and Textiles

The estimated annual generation rate of waste clothing, sheets, towels and similar textiles nationally in 2010 was 10.24 mtpy. Residential sources account for about 63% of the total generated. Clothing and textiles constituted 4.1% of the total municipal waste generated and an estimated 1.47 mtpy were recovered nationally, a rate of 14.36%.

Based on population it is estimated that 14,412 tons of waste clothing and textiles were generated in 2010 in York County. If recycled at the national recycling rate, about 2,069 tons would be expected to be recovered. There were 351.5 tons of textiles reported to be recycled in 2010; about 17% of the expected rate..

Carpeting

The estimated annual generation rate of waste carpeting nationally in 2010 was 3.46 mtpy. Residential sources account for about 80% of the total generated. Approximately 310 thousand tons were recycled. Discarded carpeting constituted 1.38% of the total municipal waste generated and was recovered nationally, a rate of 8.96%.

Based on population it is estimated that 4,870 tons of waste carpeting were generated in 2010 in York County. If recycled at the national recycling rate, about 436 tons would be expected to be recovered. None were reported to be recycled.

Furniture

The estimated annual generation rate of waste furniture nationally in 2010 was 10.82 mtpy. Residential sources account for about 80% of the total generated. Furniture constituted 4.33% of the total municipal waste generated. Only a negligible amount was recycled.

Based on population it is estimated that 15,229 tons of waste furniture were generated in 2010 in York County. If recycled at the national recycling rate, 14 tons would be expected to be recovered. The quantity reported to be recycled was 46.9 tons, 335% of the expected rate.

Rubber Tires

The estimated annual generation rate of waste rubber tires nationally in 2010 was 5.19 mtpy. Commercial sources are estimated to account for about 95% of the total generated. Tires constituted 2.08% of the total municipal waste generated and an estimated 1.84 mtpy were recovered nationally, a rate of 35.45%.

Based on population it is estimated that 7,305 tons of waste tires were generated in 2010 in York County. If recycled at the national recycling rate, about 2,590 tons would be expected to be recovered. The reported quantity recycled was 2,973.14 tons, about 115% of the national norm.

Major Appliances

The estimated annual generation rate of waste major appliances (white goods) nationally in 2010 was 4.02 mtpy. Commercial sources are estimated to account for about 90% of the total generated since retailers often retrieve old appliances as a service to customers when new appliances are delivered. These items constituted 1.61% of the total municipal waste generated and an estimated 2.61 mtpy were recovered nationally, a rate of 64.93%.

Based on population it is estimated that 5,658 tons of waste major appliances were generated in 2010 in York County. If recycled at the national recycling rate, about 3,673 tons would be expected to be recovered. The reported quantity recycled was 344.2 tons, about 9% of the national norm.

Small Appliances

The estimated annual generation rate of waste small appliances nationally in 2010 was 1.59 mtpy. Residential sources are estimated to account for about 95% of the total generated. These items constituted 0.64% of the total municipal waste generated and an estimated 0.11 mtpy were recovered nationally, a rate of 6.9%.

Based on population it is estimated that 2,238 tons of waste small appliances were generated in 2010 in York County. If recycled at the national recycling rate, about 155 tons would be expected to be recovered. None were reported to be recycled.

Consumer Electronics

The estimated annual generation rate of waste consumer electronics nationally in 2010 was 2.44 mtpy. Residential sources are estimated to account for about 80% of the total generated. This material constituted 0.98% of the total municipal waste generated and an estimated 0.65 mtpy were recovered nationally, a rate of 26.44%.

Based on population it is estimated that 3,434 tons of waste consumer electronic items were generated in 2010 in York County. If recycled at the national recycling rate, about 915 tons would be expected to be recovered. None were reported to be recycled.

Yard Waste

Yard waste includes grass clippings, brush and leaves. The estimated annual quantity of yard waste generated nationally in 2010 was 33.4 mtpy. This material constituted

13.37% of the total municipal waste generated and an estimated 19.2 mtpy were recovered nationally, a rate of 57.49%.

Based on population it is estimated that 47,009 tons of yard waste were generated in 2010 in York County. If recycled at the national recycling rate, about 27,023 tons would be expected to be recovered. However, it should be noted that the quantity of yard waste generated and recovered varies considerably. Factors such as climate, land use and distribution of urban, suburban and rural populations all contribute to yard waste quantities being more variable than other items contained in MSW.

Based on recycling reports, the quantity of yard waste recycled in 2010 was reported to be 14,157.9 tons, about 52.4% of the national norm.

UNRECYCLABLE ITEMS

Unrecyclable items include tissue paper and towels, paper and plastic plates and cups, trash bags, disposable diapers, etc. which are not normally recovered from MSW. Unrecyclable items account for about 10% of total MSW as generated and about 15% of MSW disposed, by weight. Based on population it is estimated that 35,454 tons of waste unrecyclable items were generated in 2010 in York County.

Table G-1 York County 2010 Total Recycled Materials Summary by Municipality

	Glass	Aluminum Cans	Bimetal Cans	Plastic # through #7	Plastic #1 and #2	Newspaper	Magazines	Telephone Books	Office Paper	Cardboard	Cardboard from Single	Mixed Paper	Yard Waste	White Goods	Tires	Wood Waste
County-wide Data	5.2	869.1	211.4	1.4	1.2	399.0	0.0	54.7	433.8	2,110.0	0.0	0.0	647.3	115.0	2,783.5	72.2
Carroll	92.0	19.7	44.6	37.6	22.6	126.5	15.8	0.0	86.3	332.4	44.2	140.3	0.0	0.0	32.0	0.0
Chanceford	36.2	7.6	17.2	9.8	8.7	13.1	1.6	0.0	7.6	1.9	4.6	14.5	0.0	0.0	0.0	0.0
Codorus	26.8	5.8	13.2	7.6	6.7	60.6	7.6	0.0	35.1	0.0	21.2	67.2	0.0	0.0	0.0	0.0
Conewago	36.4	7.9	17.9	10.3	9.1	82.3	10.3	0.0	47.6	0.0	28.8	91.3	0.0	0.0	0.0	0.0
Cross Roads	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dallastown	29.1	6.3	14.3	8.2	7.3	65.7	8.2	0.0	38.0	0.0	23.0	72.9	147.2	0.0	0.0	0.0
Delta	8.3	1.8	4.1	2.3	2.1	18.7	2.3	0.0	10.8	0.0	6.5	20.7	0.0	0.0	0.0	0.0
Dillsburg	50.2	10.9	24.7	14.1	12.5	113.4	14.1	0.0	323.5	27.1	39.6	125.8	136.5	0.0	0.0	0.0
Dover	14.4	3.1	7.1	4.0	3.6	32.4	4.0	0.0	18.8	0.0	11.3	36.0	0.0	0.0	0.0	0.0
Dover	128.9	28.0	63.4	36.2	32.1	283.5	35.3	0.0	164.1	98.3	99.1	314.5	190.0	0.0	0.0	870.0
East Hopewell	14.3	3.1	7.0	4.0	3.6	32.2	4.0	0.0	18.6	0.0	11.3	35.7	0.0	0.0	0.0	0.0
East Manchester	93.8	21.4	38.0	136.9	28.5	158.3	19.7	0.0	136.0	622.9	55.3	175.6	854.0	57.5	0.0	27.6
East Prospect	4.1	0.9	2.0	1.1	1.0	9.2	1.1	0.0	5.3	15.2	3.2	10.2	0.0	0.0	0.0	0.0
Fairview	182.3	47.8	129.2	64.5	45.4	425.0	57.1	0.0	231.6	1,359.6	139.8	443.9	1,535.0	0.0	0.0	1,778.3
Fawn	6.5	1.4	3.2	1.8	1.6	14.2	1.8	0.0	8.2	0.0	5.0	15.8	0.0	0.0	3.9	0.0
Fawn Grove	3.0	0.6	1.5	0.8	0.7	6.7	0.8	0.0	3.9	0.0	2.3	7.4	0.0	0.0	0.0	0.0
Felton	3.7	0.8	1.8	1.0	0.9	8.4	1.0	0.0	4.8	0.0	2.9	9.3	0.0	0.0	0.0	0.0
Franklin	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Franklintown	3.1	0.7	1.5	0.9	0.8	7.1	0.9	0.0	4.1	0.0	2.5	7.8	0.0	0.0	0.0	0.0
Glen Rock	17.3	3.8	8.5	4.9	4.3	38.5	4.8	0.0	22.3	1.8	13.4	42.7	20.0	0.0	0.0	0.0
Goldsboro	15.5	3.4	7.6	4.4	3.9	35.0	4.4	0.0	20.3	0.0	12.2	38.8	0.0	0.0	0.0	0.0
Hallam	27.1	5.9	13.3	7.6	6.8	61.1	7.6	0.0	35.4	0.0	21.4	67.8	0.0	0.0	0.0	0.0
Hanover	308.5	65.6	113.5	48.6	8.2	294.8	38.7	0.0	30.5	4,006.1	9.4	128.4	233.4	7.9	5.0	270.0
Heidelberg	23.8	5.2	11.7	6.7	5.9	53.8	6.7	0.0	31.1	0.0	18.8	59.6	0.0	0.0	0.0	0.0
Hellam	21.9	4.8	10.8	6.2	5.5	49.5	6.2	0.0	28.6	0.0	17.3	54.9	0.0	0.0	0.0	0.0
Hopewell	28.2	6.1	13.9	7.9	7.0	63.6	7.9	0.0	36.8	0.0	22.2	70.5	0.0	0.0	0.0	0.0
Jackson	60.3	13.1	29.7	17.0	15.0	136.0	17.0	0.0	78.7	10.4	47.5	151.0	0.0	0.0	0.0	0.0
Jacobus	12.7	2.8	6.3	3.6	3.2	28.7	3.6	0.0	16.6	0.0	10.0	31.8	0.0	0.0	0.0	0.0
Jefferson	5.2	1.1	2.5	1.5	1.3	11.7	1.5	0.0	6.8	0.0	4.1	12.9	0.0	0.0	0.0	0.0
Lewisberry	5.1	1.1	2.5	1.4	1.3	11.5	1.4	0.0	6.6	0.0	4.0	12.7	0.0	0.0	0.0	0.0
Loganville	10.4	2.3	5.1	2.9	2.6	23.5	2.9	0.0	13.6	0.0	8.2	26.1	0.0	0.0	0.0	0.0
Lower Windsor	17.7	4.4	8.7	5.0	4.4	40.1	5.0	0.0	23.2	36.4	14.0	44.5	40.0	0.0	0.0	0.0
Manchester	15.0	3.3	7.4	4.2	3.7	33.9	4.2	0.0	19.6	0.0	11.8	37.6	96.3	0.0	0.0	0.0
Manchester	372.8	80.2	181.4	103.7	91.9	945.0	74.3	0.0	344.8	1,422.7	208.2	661.1	341.0	0.0	0.0	41.5
Manheim	23.9	5.2	11.8	6.7	6.0	54.0	6.7	0.0	31.3	0.0	18.9	59.9	0.0	0.0	0.0	1.6
Monaghan	22.5	4.9	11.1	6.3	5.6	50.8	6.3	0.0	29.4	0.0	17.8	56.4	0.0	0.0	0.0	0.0
Mt. Wolf	15.0	3.3	7.4	4.2	3.7	33.9	4.2	0.0	19.6	0.0	11.8	37.6	0.0	0.0	0.0	0.0

Table G-1 (cont.) York County 2010 Total Recycled Materials Summary by Municipality

	Glass	Aluminum Cans	Bimetal Cans	Plastic #3 through #7	Plastic #1 and #2	Newspaper	Magazines	Telephone Books	Office Paper	Cardboard	Cardboard from Single Stream	Mixed Paper	Yard Waste	White Goods	Tires	Wood Waste
New Freedom	35.3	7.7	17.4	9.9	8.8	79.8	9.9	0.0	46.2	0.0	27.9	88.5	259.7	0.0	0.0	0.0
New Salem	3.1	0.7	1.5	0.9	0.8	7.1	0.9	0.0	4.1	0.0	2.5	7.8	20.0	0.0	0.0	0.0
Newberry	131.9	28.7	65.0	37.1	32.9	297.8	37.1	0.0	172.4	0.0	104.1	330.4	0.0	0.0	0.0	44.3
North Codorus	65.3	14.2	32.1	18.4	16.3	147.4	18.4	0.0	85.3	0.0	51.5	163.5	0.0	0.0	0.0	0.0
North Hopewell	17.5	3.8	8.6	4.9	4.4	39.5	4.9	0.0	22.9	0.0	13.8	43.8	0.0	0.0	0.0	0.0
North York	3.1	0.7	1.5	0.9	0.8	6.9	0.9	0.0	4.0	0.0	2.4	7.7	0.0	0.0	0.0	0.0
Paradise	3.3	0.7	1.6	0.9	0.8	7.5	0.9	0.0	4.3	0.0	2.6	8.3	0.0	0.0	0.0	0.0
Peach Bottom	4.3	0.9	2.1	1.2	1.1	9.7	1.2	0.0	5.6	0.0	3.4	10.7	0.0	0.0	0.0	0.0
Penn	340.1	201.2	161.2	182.1	81.7	465.2	418.5	0.0	3,687.8	3,794.4	21.0	462.9	528.0	0.0	26.0	59.0
Railroad	2.8	0.6	1.4	0.8	0.7	6.2	0.8	0.0	3.6	0.0	2.2	6.9	0.0	0.0	0.0	0.0
Red Lion	85.1	18.5	41.8	23.9	21.2	178.4	22.2	0.0	103.2	27.4	62.3	197.9	82.0	0.0	0.0	0.0
Seven Valleys	3.3	0.7	1.6	0.9	0.8	7.5	0.9	0.0	4.4	0.0	2.6	8.4	20.0	0.0	0.0	0.0
Shrewsbury	41.0	8.9	20.2	11.5	10.2	92.5	11.5	0.0	53.5	20.8	32.3	102.7	0.0	0.0	0.0	0.0
Shrewsbury	87.2	19.1	42.9	47.2	22.7	196.9	24.5	0.0	114.7	640.4	68.8	218.4	0.0	0.0	0.0	0.0
Spring Garden	293.4	63.0	142.5	81.4	72.2	438.1	54.6	0.0	374.6	943.5	153.1	486.0	1,031.5	0.0	0.0	27.6
Spring Grove	26.9	5.7	13.0	7.4	6.6	114.8	4.2	0.0	19.7	142.4	11.9	37.7	30.0	0.0	0.0	0.0
Springettsbury	349.6	76.6	172.2	163.1	88.6	789.3	98.5	0.0	687.2	3,104.2	275.8	880.0	2,226.4	0.0	0.0	1,324.4
Springfield	51.7	11.2	25.3	14.5	12.8	123.2	12.5	0.0	57.9	3.4	34.9	110.9	0.0	0.0	0.0	0.0
Stewartstown	13.0	2.8	6.4	3.7	3.3	29.5	3.7	0.0	17.1	0.0	10.3	32.7	0.0	0.0	0.0	0.0
Warrington	36.1	7.9	17.8	10.2	9.0	81.6	10.2	0.0	47.2	0.0	28.5	90.5	0.0	0.0	0.0	0.0
Washington	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wellsville	2.9	0.6	1.4	0.8	0.7	6.5	0.8	0.0	3.8	0.0	2.3	7.2	0.0	0.0	7.4	0.0
West Manchester	380.0	87.2	186.9	181.4	98.9	1,768.6	773.6	0.0	422.9	3,709.6	237.1	754.2	904.3	137.1	115.7	164.7
West Manheim	56.6	12.5	27.9	36.5	15.1	127.7	15.9	0.0	75.4	685.5	44.6	142.9	0.0	0.0	0.0	108.9
West York	37.0	8.1	18.2	10.4	9.2	83.6	10.4	0.0	48.4	20.8	29.2	92.8	0.0	0.0	0.0	0.0
Windsor	13.5	2.9	6.6	3.8	3.4	30.4	3.8	0.0	17.6	0.0	10.6	33.7	0.0	0.0	0.0	8.9
Windsor	160.8	34.8	78.8	58.2	39.9	315.3	39.3	0.0	190.0	525.8	110.2	349.8	749.2	0.0	0.0	0.0
Winterstown	7.3	1.6	3.6	2.1	1.8	16.5	2.1	0.0	9.6	0.0	5.8	18.3	0.0	0.0	0.0	0.0
Wrightsville	19.3	4.2	9.5	5.4	4.8	43.6	5.4	0.0	25.2	0.0	15.2	48.4	0.0	0.0	0.0	0.0
Yoe	9.2	2.0	4.5	2.6	2.3	20.8	2.6	0.0	12.1	0.0	7.3	23.1	0.0	0.0	0.0	0.0
York	886.4	188.0	425.8	243.2	215.7	783.2	97.6	0.0	453.2	507.1	273.6	868.9	1,239.2	26.7	0.0	0.0
York	308.2	67.0	151.6	138.7	76.8	694.9	86.6	0.0	419.6	1,698.6	242.8	771.2	2,827.0	0.0	0.0	300.0
York Haven	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yorkana	1.7	0.4	0.9	0.5	0.4	3.9	0.5	0.0	2.3	0.0	1.4	4.3	0.0	0.0	0.0	0.0
County Total:	5,218	2,136	2,748	1,890	1,233	10,836	2,164	55	9,569	25,869	2,864	9,594	14,158	344	2,974	5,099

Table G-2 York County Municipalities 2010 Total Recycled Materials Summary % of Expected

	Glass	Aluminum Cans	Bimetal Cans	Plastic # 3 through #7	Plastic #1 and #2	Newspaper	Magazines	Office Paper	Cardboard	Cardboard from Single Stream	Mixed Paper	Yard Waste	White Goods	Tires	Wood Waste
County-wide Data	0%	91%	10%	0%	0%	4%	0%	8%	7%	0%	0%	2%	3%	107%	2%
Carroll	152%	150%	150%	221%	150%	92%	93%	109%	77%	93%	93%	0%	0%	90%	0%
Chanceford	58%	56%	56%	56%	56%	9%	9%	9%	0%	9%	9%	0%	0%	0%	0%
Codorus	69%	69%	69%	69%	69%	69%	69%	69%	0%	69%	69%	0%	0%	0%	0%
Conewago	48%	48%	48%	48%	48%	48%	48%	48%	0%	48%	48%	0%	0%	0%	0%
Cross Roads	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Dallastown	70%	71%	71%	71%	71%	70%	71%	70%	0%	70%	70%	58%	0%	0%	0%
Delta	112%	112%	112%	112%	112%	112%	112%	112%	0%	112%	112%	0%	0%	0%	0%
Dillsburg	192%	193%	192%	192%	192%	192%	192%	947%	15%	192%	192%	85%	0%	0%	0%
Dover	70%	70%	70%	70%	70%	70%	70%	70%	0%	70%	70%	0%	0%	0%	0%
Dover	60%	60%	60%	60%	60%	58%	58%	58%	6%	58%	58%	14%	0%	0%	551%
East Hopewell	58%	58%	58%	58%	58%	58%	58%	58%	0%	58%	58%	0%	0%	0%	0%
East Manchester	127%	133%	104%	658%	154%	95%	95%	141%	118%	95%	95%	188%	93%	0%	51%
East Prospect	44%	44%	44%	44%	44%	44%	44%	44%	23%	44%	44%	0%	0%	0%	0%
Fairview	107%	129%	155%	135%	107%	111%	119%	104%	113%	104%	104%	147%	0%	0%	1424%
Fawn	21%	21%	21%	21%	21%	20%	20%	20%	0%	20%	20%	0%	0%	21%	0%
Fawn Grove	64%	64%	64%	64%	64%	64%	64%	64%	0%	64%	64%	0%	0%	0%	0%
Felton	72%	72%	72%	72%	72%	72%	72%	72%	0%	72%	72%	0%	0%	0%	0%
Franklin	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Franklintown	63%	63%	63%	63%	63%	63%	63%	63%	0%	63%	63%	0%	0%	0%	0%
Glen Rock	84%	84%	84%	84%	84%	82%	83%	82%	1%	82%	82%	16%	0%	0%	0%
Goldsboro	160%	160%	160%	160%	160%	160%	160%	160%	0%	160%	160%	0%	0%	0%	0%
Hallam	99%	99%	99%	99%	99%	99%	99%	99%	0%	99%	99%	0%	0%	0%	0%
Hanover	198%	194%	148%	111%	21%	84%	88%	15%	362%	8%	33%	24%	6%	5%	236%
Heidelberg	76%	76%	76%	76%	76%	76%	76%	76%	0%	76%	76%	0%	0%	0%	0%
Hellam	36%	36%	36%	36%	36%	36%	36%	36%	0%	36%	36%	0%	0%	0%	0%
Hopewell	51%	51%	51%	51%	51%	51%	51%	51%	0%	51%	51%	0%	0%	0%	0%
Jackson	79%	79%	79%	79%	79%	79%	79%	79%	2%	79%	79%	0%	0%	0%	0%
Jacobus	68%	68%	68%	68%	68%	68%	68%	68%	0%	68%	68%	0%	0%	0%	0%
Jefferson	69%	69%	69%	69%	69%	69%	69%	69%	0%	69%	69%	0%	0%	0%	0%
Lewisberry	138%	138%	138%	138%	138%	138%	138%	138%	0%	138%	138%	0%	0%	0%	0%
Loganville	82%	83%	83%	83%	83%	82%	82%	82%	0%	82%	82%	0%	0%	0%	0%
Lower Windsor	24%	27%	24%	24%	24%	24%	24%	24%	7%	24%	24%	9%	0%	0%	0%
Manchester	53%	53%	53%	53%	53%	53%	53%	53%	0%	53%	53%	56%	0%	0%	0%
Manchester	201%	199%	199%	199%	199%	226%	143%	142%	108%	142%	142%	30%	0%	0%	30%
Manheim	69%	70%	70%	70%	70%	69%	69%	69%	0%	69%	69%	0%	0%	0%	6%
Monaghan	84%	84%	84%	84%	84%	84%	84%	84%	0%	84%	84%	0%	0%	0%	0%
Mt. Wolf	106%	106%	106%	106%	106%	106%	106%	106%	0%	106%	106%	0%	0%	0%	0%

Table G-2 (cont.) York County Municipalities 2010 Total Recycled Materials Summary % of Expected

	Glass	Aluminum Cans	Bimetal Cans	Plastic #3 through #7	Plastic #1 and #2	Newspaper	Magazines	Office Paper	Cardboard	Cardboard from Single Stream	Mixed Paper	Yard Waste	White Goods	Tires	Wood Waste
New Freedom	78%	78%	78%	78%	78%	78%	78%	78%	0%	78%	78%	93%	0%	0%	0%
New Salem	42%	42%	42%	42%	42%	42%	42%	42%	0%	42%	42%	44%	0%	0%	0%
Newberry	85%	85%	85%	85%	85%	85%	85%	85%	0%	85%	85%	0%	0%	0%	39%
North Codorus	72%	72%	72%	72%	72%	72%	72%	72%	0%	72%	72%	0%	0%	0%	0%
North Hopewell	61%	62%	62%	62%	62%	61%	61%	61%	0%	61%	61%	0%	0%	0%	0%
North York	16%	16%	16%	16%	16%	16%	16%	16%	0%	16%	16%	0%	0%	0%	0%
Paradise	9%	9%	9%	9%	9%	9%	9%	9%	0%	9%	9%	0%	0%	0%	0%
Peach Bottom	9%	9%	9%	9%	9%	9%	9%	9%	0%	9%	9%	0%	0%	0%	0%
Penn	214%	582%	206%	407%	206%	129%	935%	1773%	336%	17%	116%	54%	0%	28%	50%
Railroad	97%	98%	97%	98%	97%	97%	97%	97%	0%	97%	97%	0%	0%	0%	0%
Red Lion	131%	131%	131%	131%	131%	122%	122%	122%	6%	122%	122%	21%	0%	0%	0%
Seven Valleys	63%	63%	63%	63%	63%	63%	63%	63%	0%	63%	63%	62%	0%	0%	0%
Shrewsbury	105%	105%	105%	105%	105%	105%	105%	105%	8%	105%	105%	0%	0%	0%	0%
Shrewsbury	133%	134%	133%	256%	138%	133%	133%	134%	137%	133%	133%	0%	0%	0%	0%
Spring Garden	229%	226%	226%	226%	226%	151%	151%	223%	104%	151%	151%	131%	0%	0%	29%
Spring Grove	122%	119%	119%	119%	119%	230%	68%	68%	91%	68%	68%	22%	0%	0%	0%
Springettsbury	129%	130%	129%	213%	131%	128%	129%	193%	161%	129%	129%	133%	0%	0%	663%
Springfield	98%	98%	98%	98%	98%	104%	84%	84%	1%	84%	84%	0%	0%	0%	0%
Stewartstown	61%	61%	61%	61%	61%	61%	61%	61%	0%	61%	61%	0%	0%	0%	0%
Warrington	78%	78%	78%	78%	78%	78%	78%	78%	0%	78%	78%	0%	0%	0%	0%
Washington	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Wellsville	117%	117%	117%	117%	117%	117%	117%	117%	0%	117%	117%	0%	0%	510%	0%
West Manchester	197%	208%	197%	335%	206%	406%	1427%	168%	271%	156%	156%	77%	85%	102%	116%
West Manheim	72%	73%	72%	165%	77%	72%	72%	73%	122%	72%	72%	0%	0%	0%	188%
West York	79%	79%	79%	79%	79%	79%	79%	79%	6%	79%	79%	0%	0%	0%	0%
Windsor	100%	100%	100%	100%	100%	100%	100%	100%	0%	100%	100%	0%	0%	0%	90%
Windsor	90%	90%	90%	116%	90%	78%	78%	81%	41%	78%	78%	68%	0%	0%	0%
Winterstown	113%	114%	114%	114%	114%	113%	114%	113%	0%	113%	113%	0%	0%	0%	0%
Wrightsville	82%	82%	82%	82%	82%	82%	82%	82%	0%	82%	82%	0%	0%	0%	0%
Yoe Township	89%	89%	89%	89%	89%	89%	89%	89%	0%	89%	89%	0%	0%	0%	0%
York City	199%	194%	194%	194%	194%	78%	78%	78%	16%	78%	78%	45%	7%	0%	0%
York Haven	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
York Township	109%	109%	109%	174%	109%	109%	109%	113%	84%	109%	109%	163%	0%	0%	144%
Yorkana	74%	74%	74%	74%	74%	74%	74%	74%	0%	74%	74%	0%	0%	0%	0%
County Total:	118%	223%	127%	153%	112%	109%	175%	166%	83%	82%	87%	52%	9%	115%	158%

York County School Districts School Recycling Program Potential

Table G-3 York County Schools Waste Generation and Recovery Potential

School District and Schools	Total Enrollment	Waste Generated tpy	Potential for Recovery tpy
Central York			
Central York High School	1,687	75.92	21.26
Central York Middle School	905	40.73	11.40
Hayshire Elementary School	589	26.51	7.42
North Hills Elementary School	631	28.40	7.95
Roundtown Elementary School	585	26.33	7.37
Sinking Springs Elementary School	702	31.59	8.85
Stony Brook Elementary School	568	25.56	7.16
District Total	5,667	255.02	71.40
Dallastown Area			
Dallastown Area Intermediate School	1,455	65.48	18.33
Dallastown Area Middle School	921	41.45	11.60
Dallastown Area SD	10	0.45	0.13
Dallastown Area Senior High School	1,869	84.11	23.55
Dallastown Elementary School	175	7.88	2.21
Leaders Heights Elementary School	166	7.47	2.09
Loganville-Springfield Elementary School	420	18.90	5.29
Ore Valley Elementary School	539	24.26	6.79
York Township Elementary School	495	22.28	6.24
District Total	6,050	272.25	76.23
Dover Area			
Dover Area Elementary School	315	14.18	3.97
Dover Area High School	1,038	46.71	13.08
Dover Area Intermediate School	590	26.55	7.43
Dover Area SD	1	0.05	0.01
Leib Elementary School	514	23.13	6.48
North Salem Elementary School	552	24.84	6.96
Weigelstown Elementary School	494	22.23	6.22
District Total	3,504	157.69	44.15

School District and Schools	Total Enrollment	Waste Generated tpy	Potential for Recovery tpy
Eastern York			
Canadochly Elementary School	436	19.62	5.49
Eastern York High School	752	33.84	9.48
Eastern York Middle School	605	27.23	7.62
Eastern York SD	10	0.45	0.13
Kreutz Creek Elementary School	375	16.88	4.73
Wrightsville Elementary School	405	18.23	5.10
District Total	2,583	116.24	32.55
Hanover Public			
Clearview Elementary School	231	10.40	2.91
Hanover Middle School	467	21.02	5.88
Hanover Public SD	20	0.90	0.25
Hanover Senior High School	478	21.51	6.02
Hanover Street Elementary School	245	11.03	3.09
Washington Elementary School	186	8.37	2.34
District Total	1,627	73.22	20.50
Northeastern York			
Conewago Elementary School	369	16.61	4.65
Mt Wolf Elementary School	209	9.41	2.63
Northeastern Middle School	562	25.29	7.08
Northeastern Senior High School	1,006	45.27	12.68
Northeastern York SD	32	1.44	0.40
Orendorf Elementary School	399	17.96	5.03
Shallow Brook Intermediate School	409	18.41	5.15
Spring Forge Intermediate School	491	22.10	6.19
York Haven Elementary School	289	13.01	3.64
District Total	3,766	169.47	47.45
Northern York			
Dillsburg Elementary School	383	17.24	4.83
Northern Elementary School	317	14.27	3.99
Northern High School	1,047	47.12	13.19
Northern Middle School	737	33.17	9.29
South Mountain Elementary School	489	22.01	6.16
Wellsville Campus	205	9.23	2.58
District Total	3,178	143.01	40.04

School District and Schools	Total Enrollment	Waste Generated tpy	Potential for Recovery tpy
Red Lion Area			
Clearview Elementary School	390	17.55	4.91
Larry J. Macaluso Elementary School	725	32.63	9.14
Locust Grove Elementary School	477	21.47	6.01
Mazie Gable Elementary School	412	18.54	5.19
N Hopewell-Winterstown Elementary School	309	13.91	3.89
Pleasant View Elementary School	447	20.12	5.63
Red Lion Area Junior High School	900	40.50	11.34
Red Lion Area Senior High School	1,689	76.01	21.28
Windsor Manor Elementary School	188	8.46	2.37
District Total	5,537	249.17	69.77
Southeastern			
Delta-Peach Bottom Elementary School	301	13.55	3.79
Fawn Area Elementary School	307	13.82	3.87
Kennard-Dale High School	943	42.44	11.88
South Eastern Middle School West	435	19.58	5.48
South Eastern Middle School-East	463	20.84	5.83
Stewartstown Elementary School	505	22.73	6.36
District Total	2,954	132.93	37.22
South Western			
Baresville Elementary School	505	22.73	6.36
Manheim Elementary School	237	10.67	2.99
Markle II Intermediate Sch	940	42.30	11.84
Park Hills Elementary School	543	24.44	6.84
South Western SD	18	0.81	0.23
South Western Senior High School	1,280	57.60	16.13
West Manheim Elementary School	574	25.83	7.23
District Total	4,097	184.37	51.62
Southern York County			
Friendship Elementary School	500	22.50	6.30
Shrewsbury Elementary School	575	25.88	7.25
Southern Elementary School	608	27.36	7.66
Southern Middle School	490	22.05	6.17
Susquehannock High School	1,003	45.14	12.64
District Total	3,176	142.92	40.02

School District and Schools	Total Enrollment	Waste Generated tpy	Potential for Recovery tpy
Spring Grove Area			
New Salem Elementary School	422	18.99	5.32
Paradise Elementary School	353	15.89	4.45
Spring Grove Area Intermediate School	604	27.18	7.61
Spring Grove Area Middle School	605	27.23	7.62
Spring Grove Area SD	9	0.41	0.11
Spring Grove Area Senior High School	1,189	53.51	14.98
Spring Grove Elementary School	645	29.03	8.13
District Total	3,827	172.22	48.22
West Shore			
Crossroads Middle School	634	28.53	7.99
Fairview Elementary School	217	9.77	2.73
Fishing Creek Elementary School	536	24.12	6.75
Mt Zion Elementary School	214	9.63	2.70
Newberry Elementary School	379	17.06	4.78
Red Land Senior High School	1,220	54.90	15.37
Red Mill Elementary School	596	26.82	7.51
District Total	3,796	170.83	47.83
West York			
Lincolnway Elementary School	484	21.78	6.10
Loucks Elementary School	245	11.03	3.09
Trimmer Elementary School	422	18.99	5.32
Wallace Elementary School	245	11.03	3.09
West York Area High School	964	43.38	12.15
West York Area Middle School	770	34.65	9.70
West York Area SD	11	0.50	0.14
District Total	3,141	141.35	39.58
York City			
Davis School	439	19.76	5.53
Devers School	503	22.64	6.34
Edgar Fahs Smith Middle School	676	30.42	8.52
Ferguson School	551	24.80	6.94
Goode School	525	23.63	6.62
Hannah Penn Middle School	908	40.86	11.44
Jackson School	408	18.36	5.14
Lindbergh Education Center	58	2.61	0.73

School District and Schools	Total Enrollment	Waste Generated tpy	Potential for Recovery tpy
York Suburban			
East York Elementary School	537	24.17	6.77
Indian Rock Elementary School	368	16.56	4.64
Valley View Center	448	20.16	5.64
York Suburban Middle School	688	30.96	8.67
York Suburban SD	46	2.07	0.58
York Suburban Senior High School	881	39.65	11.10
District Total	2,968	133.56	37.40
Charter Schools			
Crispus Attucks Youthbuild CS	109	4.91	1.37
York Co School of Technology	1,576	70.92	19.86
Helen Thackston Charter School	411	18.50	5.18
Lincoln Charter School	740	33.30	9.32
New Hope Academy Charter School	522	23.49	6.58
District Total	3,358	151.11	42.31

School District and Schools	Total Enrollment	Waste Generated tpy	Potential for Recovery tpy
Private Non-Public Schools			
Bairs Codorus Mennonite School	14	0.63	0.18
Bible Baptist Christ Academy	109	4.91	1.37
Blue Bird Meadow School	31	1.40	0.39
Cherry Ridge School	19	0.86	0.24
Christ Lutheran Child Dev Ctr	11	0.50	0.14
Christian School of York	167	7.52	2.10
Early Learning Center	27	1.22	0.34
Family Life Ministries International Academy	8	0.36	0.10
Garbers Mennonite School	54	2.43	0.68
Hanover Mennonite School	34	1.53	0.43
Hope Christian School of Hanover	66	2.97	0.83
Impact Academy	1	0.05	0.01
Kiddie Academy Child Care	10	0.45	0.13
Kralltown Mennonite School	34	1.53	0.43
Logos Academy	164	7.38	2.07
Missionary Bible Baptist Academy	15	0.68	0.19
Montessori Childrens House of York	59	2.66	0.74
New Freedom Christian School	27	1.22	0.34
New Story	19	0.86	0.24
Northwestern Human Services	7	0.32	0.09
Old Paths Christian Academy	6	0.27	0.08
Pleasant Hill Christian School	36	1.62	0.45
Red Lion Christian School	211	9.50	2.66
Rolling Ridge School	24	1.08	0.30
Shepherd's Fold	9	0.41	0.11
Shrewsbury Christian Academy	111	5.00	1.40
Singing Meadow Amish School	35	1.58	0.44
Small Steps Day Care School	18	0.81	0.23
St John Lutheran School	45	2.03	0.57
St Joseph School	136	6.12	1.71
St Joseph School	333	14.99	4.20
St Joseph School -Elementary	127	5.72	1.60
St Joseph School -Middle	67	3.02	0.84
St Patrick School	139	6.26	1.75
St Rose of Lima School	101	4.55	1.27
St Vincent DePaul School	93	4.19	1.17
Stillmeadow Nazarene CCC	10	0.45	0.13
Sunnyburn School	26	1.17	0.33
Temple Christian Academy	29	1.31	0.37
Tidings of Peace Christian School	32	1.44	0.40
TLC Montessori, Inc.	9	0.41	0.11
York Catholic High School	655	29.48	8.25
York Country Day School	176	7.92	2.22
York Seventh Day Adv School	28	1.26	0.35
District Total	3,332	149.94	41.98

York County Re-TRAC Reports 2010

County List by Total Tons from Each Waste Stream, Ordered Alphabetically, 2010

County	Residential Recycling	Residential Household Hazardous Waste	Residential Organics	Commercial Recycling	Commercial Organics	Total
Carroll	421.5			588.1	16.1	1,025.7
Chanceford	60.1			67.2		127.3
Codorus	251.7					251.7
Conewago	341.9					341.9
County-wide Data	364.2	768.8	719.5	19,972.1		21,824.7
Cross Roads						
Dallastown	267.3		147.2	39.8		454.3
Delta	77.7					77.7
Dillsburg	333.8		136.5	431.8		902.1
Dover (Borough)	101.7			33.2		134.8
Dover (Township)	1,093.9		1,060.0	189.5		2,343.4
East Hopewell	133.8					133.8
East Manchester	397.8	23.1	881.6	2,204.4		3,506.9
East Prospect	37.1			16.2		53.3
Fairview	1,480.4		1,594.2	1,925.5	1,719.1	6,719.3
Fawn	62.3			1.0		63.3
Fawn Grove	27.8					27.8
Felton	34.8					34.8
Franklin						
Franklintown	29.3					29.3
Glen Rock	159.8		20.0	2.3		182.1
Goldsboro	143.6			2.0		145.5
Hallam	192.9			61.0		253.9
Hanover	910.3	34.7	233.4	9,036.1	281.0	10,495.4
Heidelberg	223.4					223.4
Hellam	205.5			8,600.0		8,805.5
Hopewell	264.2					264.2
Jackson	519.4			56.3		575.7
Jacobus	119.1					119.1
Jefferson	48.5					48.5
Lewisberry	47.7					47.7
Loganville	97.8					97.8
Lower Chanceford						
Lower Windsor	132.6		40.0	70.8		243.4
Manchester (Borough)	129.1		96.3	11.7		237.1
Manchester (Township)	2,566.4		382.5	1,915.1		4,864.0
Manheim	224.5		1.6			226.0
Monaghan	211.1					211.1
Mt. Wolf	129.1			11.7		140.8
New Freedom	327.6		259.7	3.9		591.2

County	Residential Recycling	Residential Household Hazardous Waste	Residential Organics	Commercial Recycling	Commercial Organics	Total
New Salem	29.3		20.0			49.3
Newberry	938.2		44.3	299.1		1,281.6
North Codorus	579.1			33.2		612.2
North Hopewell	164.1					164.1
North York	17.9			10.7		28.7
Paradise	31.2					31.2
Peach Bottom	40.1					40.1
Penn	1,422.0	11.0	528.0	10,112.5	1,324.0	13,397.5
Railroad	25.9					25.9
Red Lion	561.4		82.0	220.2		863.6
Seven Valleys	31.3		20.0			51.3
Shrewsbury (Borough)	297.4			107.6		405.0
Shrewsbury (Township)	560.7			922.5		1,483.2
Spring Garden	1,041.6		1,059.1	2,251.3		4,352.0
Spring Grove	262.2		30.0	127.4		419.6
Springettsbury	1,642.8		2,741.8	10,706.2	826.2	15,917.0
Springfield	457.9					457.9
Stewartstown	122.4					122.4
Warrington	339.0					339.0
Washington						
Wellsville	27.0			53.1		80.1
West Manchester	1,210.0		1,068.9	9,992.5	2,248.0	14,519.4
West Manheim	502.2		108.9	738.5		1,349.6
West York	281.0			87.2		368.2
Windsor (Borough)	126.2		8.9			135.1
Windsor (Township)	1,257.4		749.2	716.0	17.5	2,740.1
Winterstown	68.6					68.6
Wrightsville	181.1					181.1
Yoe	74.0			12.7		86.6
York (City)	2,314.5		1,159.2	2,817.8	80.0	6,371.5
York (Township)	2,206.2		3,127.0	2,449.8		7,783.0
York Haven						
Yorkana	15.2			1.0		16.2
Total	28,997.4	837.6	16,319.7	86,898.9	6,511.9	139,565.5

2. Tonnage Transaction

Recycling Module Tonnages by Name, Sector, and Source, Ordered Alphabetically, 2010

Material Name	Residential Curbside	Residential Drop-off	Commercial Curbside	Commercial Drop-off	Total
#1 Plastic (PET) (PL1)			4.5		4.5
#2 Plastic (HDPE) (PL2)			16.2		16.2
#3 Plastic (PVC) (PL3)			0.1		0.1
#4 Plastic (LDPE) (PL4)			66.3		66.3
Aluminum Cans (AA1)	1.5	6.1	143.0	1,264.0	1,414.6
Aluminum Scrap (AA2)			616.0		616.0
Brass (N03)			56.7		56.7
Cardboard (C01)	54.5	997.7	24,816.3		25,868.5
Clear Glass (GL1)			0.1		0.1
Clothing and Textiles (MO3)	12.0	300.0	5.4	34.1	351.5
Commingled Materials (XXX)	703.6	135.2	1,919.2		2,758.0
Copper (N02)			101.7		101.7
Drum Plastic (DR1)			6.2		6.2
Drum Steel (DR2)			11.6		11.6
Ferrous Metals (F01)		5.7	22,185.8		22,191.5
Film Plastic (PL8)			122.4		122.4
Furniture and Furnishings (MO4)			46.9		46.9
Lead (N04)			3.0		3.0
Magazines (PA1)		154.3	988.3		1,142.7
Miscellaneous/Other Consumer Items (MIS)		9.5	203.8		213.4
Mixed Cans (MX2)		87.8	240.7		328.5
Mixed Glass (GL2)		289.1	16.6		305.7
Mixed Metals (MM1)	16.0		4,426.6		4,442.6
Mixed Papers (PA3)	0.1		502.5		502.6
Mixed Plastic (PL7)		5.0	130.2		135.2
Newsprint (PA2)		1,032.5	1,607.3		2,639.8
Nickel (N10)			17.6		17.6
Non Ferrous Metals (N01)			217.1		217.1
Office Papers (PA4)		8.0	4,817.9		4,825.9
Other Plastic (PL9)			191.9		191.9
Phone Books (PA6)		54.7			54.7
Rubber Tires (MO1)	3.9		2,969.6		2,973.4
Single Stream (SS1)	24,667.3	392.5	8,989.0		34,048.9
Stainless Steel (N05)			1,578.3		1,578.3
Steel and Bimetallic (tin) cans (F02)	9.3	16.5	119.9	8,144.0	8,289.8
White Goods (F03)	26.7	7.9	309.6		344.2
Wire/Cable (W01)			8.7		8.7
Totals	25,494.9	3,502.5	77,456.8	9,442.1	115,896.3

Household Hazardous Waste Module Tonnages by Name, Sector, and Source, Ordered Alphabetically, 2010

Material Name	Residential Curbside	Residential Drop-off	Total
Antifreeze (O02)		5.4	5.4
Batteries: Lead Acid (B01)		241.4	241.4
Batteries: Other Household Batteries (B02)		0.3	0.3
Catalytic Converters, Radiators (V01)		1.0	1.0
Computer Systems (CB1)		1.8	1.8
Consumer electronics (CR1)		300.5	300.5
Fluorescent Tubes & CFL (FL1)	0.7	1.5	2.2
Oil Filters (OL3)		26.0	26.0
Other: paints, varnishes, pesticides, etc. (HHW)	15.3		15.3
Used Oil (OL2)	186.6	57.0	243.6
Totals	202.7	635.0	837.6

Organics Module Tonnages by Name, Sector, and Source, Ordered Alphabetically, 2010

Material Name	Residential Curbside	Residential Drop-off	Commercial Curbside	Total
Food Waste (FW1)			3,574.8	3,574.8
Wood Waste (WW1)	1,099.6	1,242.2	2,757.1	5,098.9
Yard and Leaf Waste (Y01)	10,839.4	3,138.6	180.0	14,157.9
Totals	11,938.9	4,380.8	6,511.9	22,831.5

Figure 1.1 - Total Tons from Each Waste Stream

