



Carbon County Municipal Waste Management Plan

**Office of Planning & Development
Carbon County, Pennsylvania**

DRAFT
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TABLE OF CONTENTS

Acknowledgements

Glossary of Acronyms

CHAPTER 1 – INTRODUCTION.....	1-1
1.1. Background.....	1-1
1.2. Plan Requirements.....	1-1
1.3. Integrated Solid Waste Management.....	1-2
1.4. Stakeholder Engagement.....	1-4
1.5. Planning Goals.....	1-4
CHAPTER 2 – DESCRIPTION OF WASTE.....	2-1
2.1 Introduction.....	2-1
2.2 Municipal Solid Waste.....	2-2
2.3 Sewage Sludge.....	2-4
2.4 Construction/Demolition (C/D) Waste.....	2-5
2.5 Processed Medical Waste.....	2-6
2.6 Asbestos.....	2-6
2.7 Ash Residue.....	2-6
2.8 Residual Waste.....	2-6
CHAPTER 3 – DESCRIPTION OF FACILITIES.....	3-1
CHAPTER 4 – ESTIMATED FUTURE CAPACITY.....	4-1
CHAPTER 5 – RECYCLING.....	5-1
5.1 County Solid Waste System Overview.....	5-1
5.2 Recycling Requirements.....	5-2
5.3 Recycling Challenges and opportunities.....	5-2
5.4 Recycling Potential.....	5-3
5.5 Municipal Refuse and Recycling Programs.....	5-3
5.1.1 Residential Recycling.....	5-4
5.1.2 Commercial and Institutional Recycling.....	5-6
5.1.3 Residential and Commercial Recycling Quantities.....	5-7
5.1.4 Yard Waste and Leaf Collection.....	5-10
5.6 Recycling Program Environmental Benefits.....	5-11
5.7 Measures to Achieve 35 Percent Diversion.....	5-12
CHAPTER 6 – SELECTION & JUSTIFICATION.....	6-1
6.1 Introduction.....	6-1
6.2 Designated MSW Disposal Facilities.....	6-3
6.2.1 Location.....	6-3
6.2.2 Disposal Capacity Assurance.....	6-4

TABLE OF CONTENTS

6.2.3	In-Kind Disposal Services	6-4
6.2.4	Procedure to Add Designated Facilities	6-7
6.3	Materials Management & Diversion Strategies.....	6-7
6.3.1	Goals & Opportunities	6-7
6.3.2	Illegal Dumping.....	6-10
6.4	Funding Mechanisms.....	6-13
6.4.1	Municipal Solid Waste Service Contracts.....	6-14
CHAPTER 7 – PLAN IMPLEMENTING ENTITY.....		7-1
7.1	Carbon County Office of Planning & Development	7-1
CHAPTER 8 – PUBLIC FUNCTION		8-1
CHAPTER 9 – PLAN IMPLEMENTING DOCUMENTS.....		9-1
9.1	County Implementing Documents.....	9-1
9.2	Other Implementing Documents	9-1
CHAPTER 10 – ORDERLY EXTENSION.....		10-1
CHAPTER 11 – NON-INTERFERENCE		11-1
CHAPTER 12 – PUBLIC PARTICIPATION		12-1

List of Appendices

Appendix A – Disposal Capacity Documents
Appendix B – Ordinances
Appendix C – Solid Waste Advisory Committee (SWAC) Meeting Minutes
Appendix D – Plan Adoption and Resolution

List of Figures

Figure 1-1 U.S. EPA Waste Management Hierarchy	1-3
Figure 2-1 Carbon County Population Density (2010)	2-2
Figure 2-2 Historical Waste Generation (Tons).....	2-4
Figure 5-1 Historical Waste Disposed and Recycled (Tons).....	5-1
Figure 5-2 Breakdown of Reported Recyclable Material (2016)	5-9
Figure 6-1 Map of Designated MSW Disposal Facilities	6-4
Figure 6-2 Illegal Dump Sites Across the County	6-12

List of Tables

Table 2-1 Historical Waste Generation (Tons)	2-3
Table 2-2 Registered Septage Haulers (2018)	2-5
Table 2-3 Carbon County Municipal Wastewater Treatment Plants (2018)	2-5

TABLE OF CONTENTS

Table 3-1	Municipal Solid Waste Disposal Facilities	3-1
Table 4-1	Carbon County 2012-2016 Annual Averages	4-1
Table 4-2	Projected Population and Municipal Waste Quantities Requiring Disposal.....	4-2
Table 5-1	Recyclable Materials Available in Carbon County Municipal Waste Stream	5-3
Table 5-2	Mandated Curbside Recycling Collection.....	5-4
Table 5-3	Residential Refuse and Recycling Service Summary	5-5
Table 5-4	Residential Special Materials Service Summary	5-6
Table 5-5	Commercial/Institutional Recycling Service Summary.....	5-7
Table 5-6	Recyclable Material Diversion by Commodity (2016).....	5-8
Table 5-7	Recycled Tons by Municipality 2012 to 2016	5-10
Table 5-8	Municipal Yard Waste and Leaf Collection Programs (2018)	5-11
Table 5-9	Carbon County Recycling Environmental Benefits (2012 - 2016 Average).....	5-11
Table 6-1	Designated MSW Disposal Facilities	6-3
Table 6-2	- Carbon County Designated Disposal Facility Summary.....	6-5
Table 6-3	Carbon County In-Kind Services for MSW Management.....	6-6
Table 6-4	Materials Management & Diversion Opportunities.....	6-9
Table 6-5	Carbon County Illegal Dumping Characteristics.....	6-12
Table 6-6	Carbon County Illegal Dumping Strategies	6-12
Table 6-7	Solid Waste System Funding Alternatives.....	6-13
Table 6-8	Estimated Annual Plan Implementation Costs	6-14
Table 7-1	Plan Implementation Responsibilities.....	7-1
Table 9-1	Carbon County Plan Implementing Documents	9-1
Table 12-1	Carbon County SWAC Meeting Schedule	12-1

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SOLID WASTE ADVISORY COMMITTEE (SWAC)

Carbon County Commissioners

Wayne E. Nothstein, Chairman
Tom J. Gerhard, Vice Chairman
William J. O'Gurek, Member

Carbon County Office of Planning & Development (OPAD)

David Bodnar, Planning Director

Carbon County Geography Information Systems (GIS) Department

Jason Shelhammer

Carbon County Conservation District

Chris Storm

Carbon County Coalition of Governments (COG)

Franklin Township	Jason Frey	Borough of Weissport	Arland Moyer
Borough of Lehighton	Brenda Kreitz	Borough of Lansford	Jared Soto
Borough of Nesquehoning	Sam Kitchko	Borough of Beaver Meadows	Anthony Rusnock
Kidder Township	Bob Dobosh	Borough of Parryville	Cathy Hawk
Borough of Jim Thorpe	Jay Miller	Borough of Bowmanstown	Kara Scott

Planning Consultant

MSW Consultants, LLC.

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GLOSSARY OF Acronyms

<i>Abbreviation</i>	Explanation
<i>CY</i>	Cubic Yard
<i>C/D</i>	Construction and Demolition
<i>DCNR</i>	Department of Conservation and Natural Resources
<i>EPA</i>	Environmental Protection Agency
<i>E-Waste</i>	Electronic Waste
<i>GHG</i>	Greenhouse Gas
<i>GPD</i>	Gallons per Day
<i>GVW</i>	Gross Vehicle Weight
<i>HDPE</i>	High Density Polyethylene
<i>HHW</i>	Household Hazardous Waste
<i>ICW</i>	Infectious and Chemotherapeutic Waste
<i>KAB</i>	Keep America Beautiful
<i>KPB</i>	Keep Pennsylvania Beautiful
<i>LDPE</i>	Low Density Polyethylene
<i>MGD</i>	Million Gallons per Day
<i>MRF</i>	Material Recovery Facility
<i>MSW</i>	Municipal Solid Waste
<i>MTCE</i>	Metric Tons of Carbon Equivalent
<i>MTCO2E</i>	Metric tons of Carbon Dioxide Equivalent
<i>OCC</i>	Old Corrugated Containers
<i>ONP</i>	Old Newspaper
<i>OPAD</i>	Office of Planning & Development
<i>O&M</i>	Operation and Maintenance
<i>PADEP</i>	Pennsylvania Department of Environmental Protection
<i>PBR</i>	Permit by Rule
<i>PEC</i>	Pennsylvania Environmental Council
<i>PET</i>	Polyethylene Terephthalate
<i>PP</i>	Polypropylene
<i>PS</i>	Polystyrene
<i>RFP</i>	Request for Proposal

<i>Abbreviation</i>	<i>Explanation</i>
<i>RMW</i>	Regulated Medical Waste
<i>SOI</i>	Solicitation of Interest
<i>SWAC</i>	Solid Waste Advisory Committee
<i>MWMP</i>	Municipal Waste Management Plan
<i>TPY</i>	Tons per Year
<i>WARM</i>	Waste Reduction Model (EPA)
<i>WM</i>	Waste Management
<i>WTE</i>	Waste-to-Energy
<i>WWTP</i>	Wastewater Treatment Plant

CHAPTER 1 – INTRODUCTION

1.1. BACKGROUND

Carbon County is required by state law to develop a Municipal Waste Management Plan (Plan) and to update its Plan every 10 years. The Plan serves as an important guidance document that establishes Carbon County's goals and objectives for solid waste management, including strategies and programs for responsible management of municipal solid waste (MSW) and recyclable materials in accordance with Pennsylvania requirements. This Plan is being developed through Carbon County's Office of Planning & Development (OPAD). Currently, the OPAD does not operate solid waste collection or processing programs or facilities, rather it works cooperatively with municipalities in Carbon County to advance proper materials management, obtain and report recycling data, and to implement the Plan in accordance with State law.

This document updates the 2009 Carbon County Plan and will be submitted to the Pennsylvania Department of Environmental Protection (PADEP) for review and approval. The OPAD, the Board of County Commissioners, municipal representatives, the Carbon County Council of Governments (COG), and the County GIS Department contributed to shape Plan outcomes and to develop Plan goals and strategies.

1.2. PLAN REQUIREMENTS

Municipal waste management primarily entails collection, transportation, disposal and processing, as regulated under the Solid Waste Management Act, Act 97 of 1980 (Act 97). Carbon County is required by Act 97 and the Pennsylvania Municipal Waste Planning, Recycling and Waste Reduction Act, Act 101 of July, 28 1988, as amended, and Chapter 272 of the PA. Code 25, to implement a County Plan. This Plan adheres to the "Guidelines for the Development and Implementation of County Municipal Waste Management Plan Revisions", Document Number 254-2212-504 (2009). The primary purpose of the Plan per regulations is to:

- (1) Ensure the county has sufficient processing and disposal capacity for its municipal waste for at least 10 years.
- (2) Ensure a full, fair and open discussion of alternative methods of municipal waste processing or disposal.
- (3) Ensure maximum feasible waste reduction and recycling of municipal waste or source separated recyclable material.
- (4) Shift the primary responsibility for developing and implementing municipal waste management plans from municipalities to counties.
- (5) Conserve resources and protect public health, safety and welfare from the short and long-term dangers of transportation, processing, treatment, storage and disposal of municipal solid waste.

Plans must be updated every 10 years and are classified by PADEP as either:

Non-substantial Plan Revision: Standard revisions to address a new 10-year planning period including updates to: waste and recycling program descriptions, waste generation data including waste diversion to recycling, waste projections and estimated disposal capacity requirements, and securing (via contract(s)) adequate disposal capacity for county-generated MSW over the 10-year planning period. Public participation includes Solid Waste Advisory Committee

CHAPTER 1 - INTRODUCTION

(SWAC) meetings. A non-substantial plan revision will be deemed approved within 30 days of receipt by PADEP, unless PADEP responds in writing.

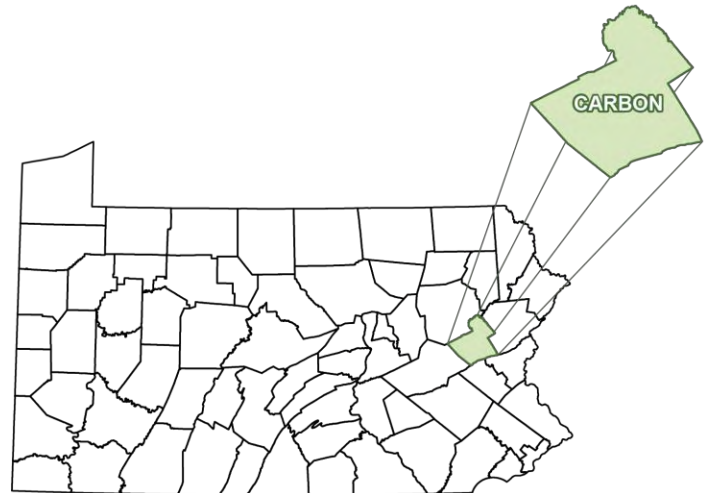
Substantial Plan Revision: This determination is made when 1) a county eliminates an in-county recycling program that results in reduced recycling volume, or 2) a county adds municipal waste streams not originally included in its existing Plan. Substantial updates require additional public participation and involvement for Plan ratification due to changes to previous solid waste management conditions. The public comment period for a substantial plan revision is 90 days. The governing body of the county shall adopt the Plan within 60 days of the end of the public comment period. Within 10 days of Plan adoption, the Plan must be sent to the municipalities for ratification.

This Plan update covers the planning period 2019 – 2029 and is considered a **Substantial Revision**. The basis for this determination was discontinuation of County-operated public recycling drop-off sites in 2015. The network of public drop-off sites for recyclables was eliminated due to increasing program costs and volatile market conditions for recyclable commodities.

1.3. INTEGRATED SOLID WASTE MANAGEMENT

Pursuant to Pennsylvania requirements and as described in this Plan, the County is obligated to perform administrative tasks associated with the County’s solid waste system and Plan implementation. The County “integrated waste management system” (IWMS) functions at a regional scale and relies on in-county and out-of-county collectors and processors. The IWMS is influenced by the activities of waste generators, collectors and processors.

The County’s MSW is managed primarily through landfill disposal and recyclables processing, with smaller quantities diverted to organics processors for composting or grinding. Essential operations of the solid waste system include collection, transportation and processing/disposal as described below:



- **Collection.** The collection of municipal waste is performed by the private and public sector. The County, municipalities and private sector waste collectors determine collection methods and containers used at the collection point. County and municipal ordinances, along with Act 101 of 1988 and other solid waste regulations and market conditions influence municipal waste collection and service levels.
- **Transportation.** The transportation of municipal and residual waste generated in Pennsylvania to processing or disposal facilities is regulated by PADEP and the Pennsylvania Department of Transportation (PennDOT) under the Waste Transportation Safety Act (Act 90). Waste haulers, including companies who transport construction and demolition (C&D) wastes, roofing material, landscape wastes, and companies transporting significant quantities of materials from manufacturing operations are subject to regulation.

CHAPTER 1 - INTRODUCTION

- **Processing/Disposal.** Public and private operators of municipal waste transfer, processing and disposal facilities in Pennsylvania must have permits from PADEP to build, operate, expand, and close facilities. Landfills, waste-to-energy facilities, compost facilities and recyclables processors require permits. Pennsylvania counties and local municipalities are required to direct waste to permitted disposal or processing facilities.

The U.S. EPA, PADEP, and Commonwealth Court support an integrated approach where waste reduction and avoided costs are prioritized. This approach is illustrated in Figure 1-1 below, which shows the U.S. EPA Waste Management Hierarchy.

Figure 1-1 U.S. EPA Waste Management Hierarchy



Source: U.S. EPA

Carbon County manages MSW through application of the following hierarchy of management and best practices to the extent practical and feasible:

- **Source Reduction** – Avoiding waste through waste elimination and/or reuse practices.
- **Recycling/Composting** – Recovering materials and then processing or converting materials, eventually to new or different products.
- **Avoided Cost** – Through the practices of source reduction, recycling, and composting Carbon County’s solid waste management avoids the costs associated with solid waste collection, transportation, and disposal at landfill. In addition to avoided landfill tip fees, the IWMS avoids operating costs by diverting recoverable material to local markets, and providing services to capture special materials like appliances, tires, and electronics that become very expensive to recover after improper disposal (i.e., illegal dumping).

CHAPTER 1 - INTRODUCTION

- **Energy Recovery** – Some County non-recyclables may be converted into useable heat, electricity, or fuel after delivery to waste-to-energy facilities or landfills. Energy recovery processes may include combustion, gasification, pyrolysis, anaerobic digestion, and landfill gas (LFG) recovery.

The County's role within an integrated waste management system aligns with PADEP guidelines and Commonwealth Court guidance that supports county involvement in solid waste management systems as part of protecting public health, safety and welfare including responsibly managing solid waste system costs.

1.4. STAKEHOLDER ENGAGEMENT

Updating this Plan required engagement of many Carbon County stakeholders to shape the planning process and to guide outcomes and initiatives established in this Plan relating to proper and efficient management of solid wastes in Carbon County over the 10-year planning period. Stakeholder input was valuable for identifying challenges, priorities, goals and strategies to improve solid waste management in Carbon County. Stakeholders involved in this planning process included:

- **Solid Waste Advisory Committee (SWAC)** including representation from:
 - Carbon County Planning Department
 - Carbon County Geographic Information System (GIS) Department
 - Conservation District
 - Local municipalities including Council of Government (COG)
 - Private businesses, including companies involved in waste management services
- **County Commissioners**

1.5. PLANNING GOALS

The goals for this Plan over the 10-year planning period are to:

1. Advance socially, economically, and environmentally responsible materials management;
2. Protect Carbon County's natural resources; and
3. Promote the health, safety and welfare of Carbon County citizens and businesses.

This Plan identifies the challenges, opportunities and strategies for solid waste management in Carbon County and provides a roadmap for integrated waste management over the next 10 years.

CHAPTER 2 – DESCRIPTION OF WASTE

2.1 INTRODUCTION

In Pennsylvania, waste originating from residential, municipal and institutional establishments, construction and demolition activities, medical waste from health care facilities, biosolids, ash residue, asbestos, and sewage sludge from municipal wastewater treatment fall within the regulatory framework of municipal solid waste (MSW). This Chapter describes the historic and current quantities of County-generated MSW and residual waste. These quantities represent the basis for estimating the annual tons of MSW requiring management and disposal over the 10-year planning period under this Plan (2019 – 2029). The County is also required to take in to consideration the volume of residual waste when securing adequate disposal capacity. Recycled MSW that is diverted from the disposed waste stream is also part of the equation. The material definitions listed below are from Title 25, PA Code, Chapter 271.

- **Municipal Solid Waste (MSW)** – 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 chapter from a municipal, commercial or institutional water supply treatment plant, waste water treatment plant or air pollution control facility.
- **Recycled MSW** – Materials separated, collected, and/or recovered from the municipal waste stream for sale or reuse including metals, glass, paper, plastics and other materials which would otherwise be disposed or processed as municipal waste.
- **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).
- **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.
- **Sewage Sludge** – Liquid or solid sludges or other residues from a municipal sewage sludge collection or treatment system; and liquid or solid sludges and other residues from a septic and holding tank pumping from commercial, institutional, or residential establishments. Sewage sludge that has been treated to meet pollutant and pathogen requirements for land application and surface disposal (e.g., land-applied as fertilizer) is referred to as “biosolids”.
- **Construction/Demolition (C/D) 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, (ii)

CHAPTER 2 – DESCRIPTION OF WASTE

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

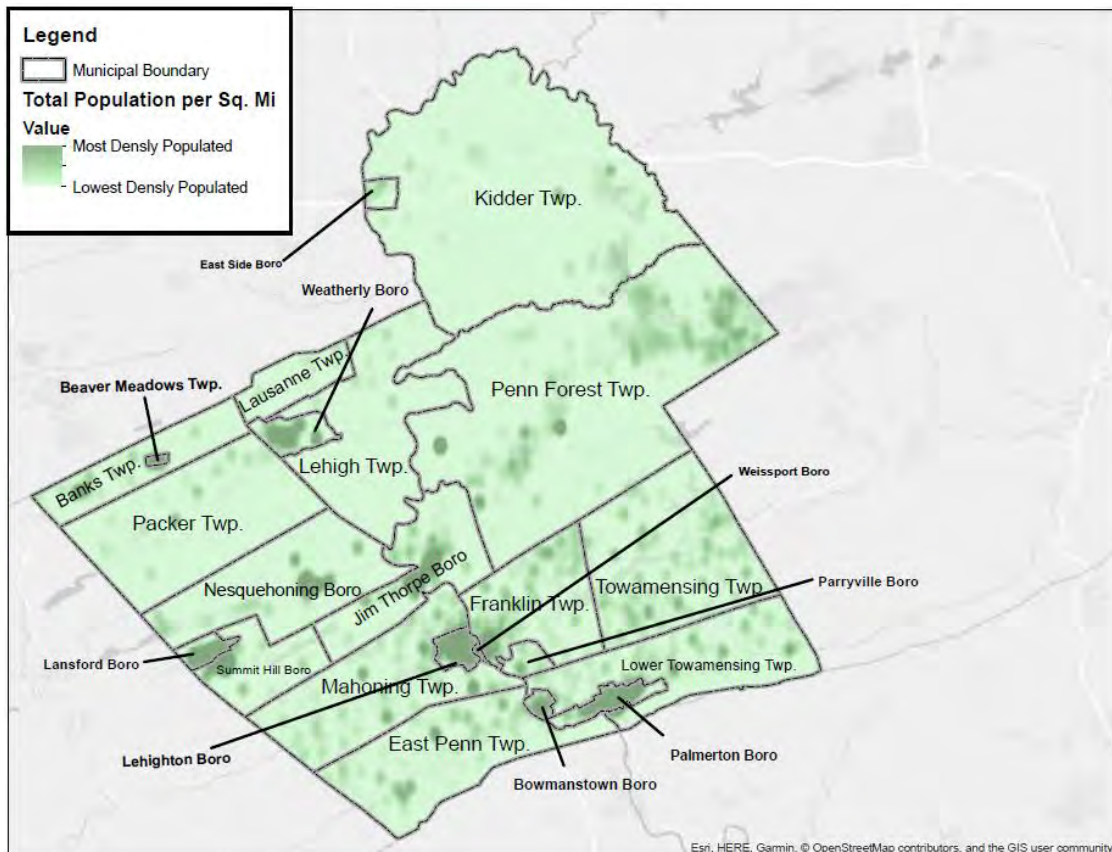
- **Processed Medical Waste** - Regulated medical and chemotherapeutic municipal and residual waste generated in the diagnosis, treatment, immunization or autopsy of human beings or animals, in research pertaining thereto, in the preparation of human or animal remains for interment or cremation, or in the production or testing of biologicals. 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.
- **Ash Residue** – Powdery residue left after the burning of a substance.
- **Asbestos** – A heat-resistant fibrous silicate mineral that can be woven into fabrics and is used in fire-resistant and insulating materials such as brake linings.

These waste streams within Carbon County are further described in the following sections.

2.2 MUNICIPAL SOLID WASTE

Carbon County’s municipal waste stream is generated by residences, businesses, institutions, and industries. Waste generation rates usually correlate to population and commercial density – more people and businesses equates to higher waste generation. Figure 2-1 illustrates the current residential population density for Carbon County.

Figure 2-1 Carbon County Population Density (2010)



Source: Carbon County GIS (CCGIS). U.S. Census Population Data

CHAPTER 2 – DESCRIPTION OF WASTE

Table 2-1 presents the five-year historical population and municipal waste disposal data for Carbon County from 2012 through 2016, including the five-year average by waste category. Carbon County’s population has decreased annually since 2012. On average, Carbon County generates approximately 36,000 tons of MSW annually, and a little over 6,400 tons of this material is diverted to recycling. The per capita waste generation rate averaged 0.56 tons per year (tpy), or 3.07 pounds per day (ppd).

Table 2-1 Historical Waste Generation (Tons)

	2012	2013	2014	2015	2016	Average
Waste Generation (tons) ^{[1][2]}						
Municipal Solid Waste (MSW)	34,478	23,691	21,026	27,744	28,176	27,023
Recycled MSW	6,526	6,530	5,655	5,602	7,943	6,451
Sewage Sludge	1,265	1,147	884	754	1,119	1,034
C/D Waste	914	1,645	1,421	1,509	1,735	1,445
Processed Medical Waste	0	0	192	0	0	38
Ash Residue	0	0	0	0	0	0
Asbestos	2	31	16	2	42	19
Residual Waste	779	471	204	1,045	933	686
Total Solid Waste Generation ^[3]	43,963	33,515	29,397	36,656	39,947	36,696
Total MSW Generation (tons) ^[4]	43,184	33,044	29,193	35,611	39,014	36,009
Population ^[5]	64,951	64,713	64,418	63,960	63,594	64,327
<i>Per-capita MSW Generation (tpy)</i>	0.66	0.51	0.45	0.56	0.61	0.56
<i>Per-capita MSW Generation (ppd)</i>	3.64	2.80	2.48	3.05	3.36	3.07

[1] Source: PADEP County Waste Destination Reports.

[2] Source: County Municipal Recycling Reports.

[3] Includes all waste components (all municipal waste types plus residual wastes)

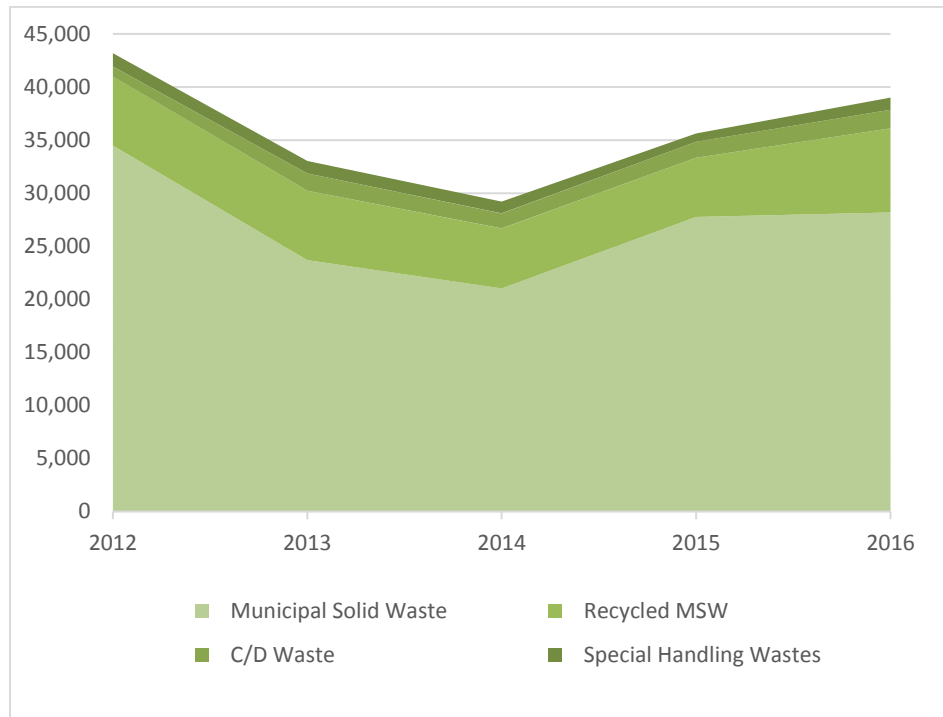
[4] Includes municipal waste, sewage sludge, C/D waste, processed medical, ash residue, and asbestos but excludes residual waste.

[5] Source: U.S. Census Bureau.

Figure 2-2 presents the 2012 – 2016 historical waste generation in graphical format. Special handling wastes include sewage sludge, asbestos, processed medical waste and ash residue (no tonnage reported). A five-year average waste generation is used for planning purposes. Although annual quantities for disposed solid waste have fluctuated up and down, the quantities for sewage sludge, C/D waste, and recycling have remained fairly consistent over the five-year period. The reasons for the fluctuations in disposed solid waste are unclear and may be attributed to inconsistent reporting.

CHAPTER 2 – DESCRIPTION OF WASTE

Figure 2-2 Historical Waste Generation (Tons)



2.3 SEWAGE SLUDGE

Human waste and waste water exiting residential and commercial establishments is referred to as sewage sludge or septage depending on the collection method. Sewage sludge is classified as special handling waste. Pennsylvania landfills are required to report the quantity of sewage sludge disposed. Based on reported sewage sludge disposal for 2012 through 2016 shown in Table 2-1, Carbon County disposes an average of 1,000 tons of dewatered sewage sludge annually. PADEP does not require reporting of septage or biosolids.

Carbon County is very rural but is serviced by networks of sewer systems and waste water treatment plants (WWTP) in more densely populated areas. The remaining communities rely on in-ground septic systems, subject to local zoning and installation requirements. In-ground septic systems are pumped periodically and transported to WWTPs or treated and then land applied as biosolids to agricultural lands as fertilizer. Table 2-2 lists the residential septage transporters operating in Carbon County and the reported annual gallons pumped by the hauler, which may include Carbon County or surrounding areas. None of the septage haulers actively operating in Carbon County land-apply biosolids.

CHAPTER 2 – DESCRIPTION OF WASTE

Table 2-2 Registered Septage Haulers (2018)

Company	Municipality of Registration	Average Annual Gallons	Land Application
Allied Septic Corporation	Jim Thorpe	3,000,000	No
Barbosa Sewer & Drain Inc.	Towamensing	250,000	No
Discount Septic	Penn Forest	360,000	No
George's Sewer & Drain Cleaning, LLC	Franklin	750,000	No
Hercules Liquids	Towamensing	50,000	No
Stoney Ridge Septic Service	Lower Towamensing	730,000	No

Source: PADEP

Some trailer parks, senior care facilities, commercial and industrial facilities pre-treat septage on-site, transporting sewage sludge off site for final disposal. Septage primarily recovered from septic tanks is transported to WWTPs in and around Carbon County. Dewatered raw sewage or “cake” is disposed in landfills. With decreasing population, there has been no significant wastewater treatment facility expansion in the County in recent years. Table 2-3 list the seven municipally operated WWTPs in Carbon County.

Table 2-3 Carbon County Municipal Wastewater Treatment Plants (2018)

Carbon County WWTPs
Beaver Meadows WWTP
Bowmanstown Borough WWTP
Central Carbon Municipal Authority WWTP
Jim Thorpe WWTP
Nesquehoning Regional STP
Palmerton Borough WWTP
Weatherly WWTP

Source: PADEP

2.4 CONSTRUCTION/DEMOLITION (C/D) WASTE

Based on reported C/D waste quantities for 2012 through 2016, Carbon County disposes an average of 1,400 tons of C/D waste per year (Table 2-1). The majority of C/D waste is delivered to Grand Central Sanitary Landfill and Chrin Brothers Sanitary Landfill, both located in Northampton County.

Improper disposal of C/D waste is a problem in Carbon County. A portion of contractors, residents, and visitors discard C/D waste in dump sites, on abandoned residential and commercial properties, or other locations. Strategies for preventing C/D waste dumping and/or increasing diversion to recycling are discussed in Chapter 5.

CHAPTER 2 – DESCRIPTION OF WASTE

2.5 PROCESSED MEDICAL WASTE

Processed medical waste includes regulated medical and chemotherapeutic wastes. Medical wastes are primarily generated by hospitals. Smaller quantities are generated from nursing homes, clinics, dental and medical offices. PADEP licenses and maintains records of active medical waste transporters operating in Pennsylvania. Medical waste generators are not required to report waste quantities to Carbon County. As a result, Carbon County waste destination reports have little to no disposal data. Each medical facility makes individual arrangements for handling transportation, treatment and disposal and are highly regulated by state and federal laws. The largest medical facilities in Carbon County include the Palmerton and Gnadon Huetten hospitals in Lehigh, under the St. Luke's University Health Network/Blue Mountain Health System partnership.

2.6 ASBESTOS

Annual quantities of disposed County-generated asbestos have fluctuated over the past five years with a low of two tons and high of 42 tons. The annual average of asbestos disposal is 19 tons, and represents only 0.1 percent of County MSW, excluding residual waste.

2.7 ASH RESIDUE

Ash residue, including ash resulting from the incineration of regulated medical wastes and asbestos, shall be managed as special handling waste. No tonnages of County-generated ash residue have been reported for Carbon County over the past five years.

2.8 RESIDUAL WASTE

Residual waste is waste generated as a by-product of an industrial process and is not regulated under this Plan. Annual average quantity of disposed County-generated residual waste was 700 tons from 2012 to 2016.

CHAPTER 3 – DESCRIPTION OF FACILITIES

This Chapter identifies the facilities currently responsible for processing and disposal, processing and transfer of municipal solid waste (MSW) generated in Carbon County¹. There are no MSW processing or disposal facilities located within Carbon County. Environment Awareness Corp., Inc., commonly referred to as “Tamaqua Transfer”, is located in Schuylkill County and serves as a primary consolidation facility for County-generated MSW and recyclable materials. Tamaqua transfer manages approximately 45,000 tons of MSW and recyclables annually according to PADEP transfer facility reports. Approximately 15,000 tons of County-generated are managed by Tamaqua annually.

Carbon County does not direct MSW to one or more processing facilities. Therefore, the distribution of county-generated MSW is market driven and highly variable in any given year. According to PADEP Waste Destination Reports, most County-generated MSW is disposed at the Commonwealth Environmental Systems (CES) and Grand Central Sanitary Landfill. Most construction and demolition waste (C&D) are processed by Grand Central Sanitary Landfill, Chrin Brothers Sanitary Landfill, and Commonwealth Environmental Systems. Sewage sludges are processed at Grand Central Sanitary Landfill and Western Berks Community Landfill. Most residual waste is processed at the Grand Central Sanitary Landfill. Residential curbside recyclables and drop-off recyclables are primarily managed by County Waste and J.P. Mascaro & Sons and are transferred to processing facilities located outside of the County. Table 3-1 lists the disposal facilities processing Carbon County MSW.

Table 3-1 Municipal Solid Waste Disposal Facilities

Commonwealth Environmental Systems 99 Commonwealth Road Hegins, PA 17938 Schuylkill County	Alliance Sanitary Landfill, Inc. 398 South Keyser Avenue Taylor, PA 18517 Lackawanna County
Grand Central Sanitation Landfill, Inc. 1963 Pen Argyl Road Pen Argyl, PA 18072 Northampton County	Tullytown Resource Recovery Facility 200 Bordentown Rd. Tullytown, PA 19007 Bucks County
Keystone Sanitary Landfill P. O. Box 249, Dunham Drive Dunmore, PA 18512 Lackawanna County	Conestoga Landfill Harvey and Shiloh Rd. Morgantown, PA 19543 Berks County
Chrin Brothers Sanitary Landfill 635 Ind. Drive Easton, PA 18042 Northampton	

Note: Facilities accepting less than five tons of waste annually are not listed.

¹ [List of PA Municipal Waste Landfills and Resource Recovery Facilities](#)

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CHAPTER 4 – ESTIMATED FUTURE CAPACITY

This Chapter presents the estimated amount of County MSW requiring landfill disposal for the planning period (2019-2029), with consideration of diversion to recycling. Waste and recycling projections are valuable to the ongoing planning and management of the County municipal solid waste system. MSW projections in this chapter are based on U.S. EPA waste trend data, County recycling reports, PADEP waste destination reports, and Pennsylvania State Data Center (population data).

Table 4-1 presents the national per capita waste generation rate, in pounds per day (ppd), based on the U.S. EPA’s Sustainable Materials Management time series¹. Carbon County’s waste generation rate is markedly lower than the national average. Given the County’s rural nature and its relatively light commercial and industrial sector (i.e. a service and tourism-based economy vs. manufacturing) and institutional activity, the low per capita generation rate is reasonable. The total waste generation includes municipal solid waste, recycled materials, sewage sludge, processed medical waste, C/D waste, ash residue and asbestos, and excludes residual waste.

Table 4-1 Carbon County 2012-2016 Annual Averages

Total MSW Generation (tons)	36,009
Population	64,327
Daily Per Capita MSW Generation (ppd)	3.07
2015 EPA Daily Per Capita Waste Generation (ppd)	4.48

Table 4-2 presents the projected population growth and the quantity (tons) of MSW requiring disposal for the 10-year planning period (2019 – 2029), using data projections from 2017 and 2018. Carbon County is projected to need disposal capacity for a total of 320,000 tons of MSW during the planning period, including C/D waste and special handling waste, but excluding residual waste. Recycled MSW quantities are not included in this calculation; it is assumed County recycling and waste reduction will remain near the 19 percent annual waste diversion rate.

Considering population trends and U.S. EPA waste generation trends from 1997 to 2015, County generation rates are forecasted to decrease gradually over the planning period. Per capita generation is projected to decrease from 3.07 (2017) to 2.99, by the end of the planning period (2029); a reduction of 2.7 percent. Table 4-2 waste projections benefit solid waste planning and help assure the County secures sufficient disposal capacity with one or more permitted landfills for the 10-year planning period.

¹ U.S. EPA. Advancing Sustainable Materials Management: 2015 Fact Sheet, Assessing Trends in Material Generation, Recycling, Composting, Combustion with Energy Recovery and Landfilling in the United States, July, 2018.

CHAPTER 4 - ESTIMATED FUTURE CAPACITY

Table 4-2 Projected Population and Municipal Waste Quantities Requiring Disposal

	2017 ^[3]	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Demographics													
County Population ^[1]	64,327	64,546	64,765	64,986	65,207	65,428	65,651	65,874	66,098	66,323	66,548	66,774	67,001
Waste Generation (tons) ^[2]													
Municipal Solid Waste (MSW)	27,023	26,963	26,903	26,843	26,783	26,723	26,663	26,604	26,544	26,484	26,424	26,364	26,304
Sewage Sludge	1,034	1,031	1,029	1,027	1,024	1,022	1,020	1,018	1,015	1,013	1,011	1,008	1,006
C/D Waste	1,445	1,441	1,438	1,435	1,432	1,429	1,425	1,422	1,419	1,416	1,413	1,409	1,406
Processed Medical Waste	38	38	38	38	38	38	38	38	38	38	38	37	37
Ash Residue	0	0	0	0	0	0	0	0	0	0	0	0	0
Asbestos	19	19	19	19	19	19	18	18	18	18	18	18	18
Recycled MSW	6,451	6,437	6,423	6,408	6,394	6,380	6,365	6,351	6,337	6,322	6,308	6,294	6,280
Residual Waste	686	685	683	682	680	679	677	676	674	673	671	670	668
Total MSW Generated ^[4]	36,009	35,929	35,850	35,770	35,691	35,612	35,533	35,454	35,376	35,297	35,219	35,141	35,063
<i>Carbon County Per-capita MSW Generation (ppd)</i>	3.07	3.06	3.05	3.05	3.04	3.03	3.03	3.02	3.01	3.01	3.00	2.99	2.99
MSW Recycling Rate ^[5]	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%
Net MSW Requiring Disposal	29,558	29,493	29,427	29,362	29,297	29,232	29,168	29,103	29,039	28,975	28,911	28,847	28,783
<i>Disposed Lbs./Capita</i>	2.52	2.50	2.49	2.48	2.46	2.45	2.43	2.42	2.41	2.39	2.38	2.37	2.35

[1] Source: Pennsylvania State Data Center.

[2] Calculated based on percent change in EPA per-capita generation rate.

[3] The 2012-2016 population and waste generation averages were used for 2017 projections.

[4] Excludes residual waste.

[5] Calculated based on MSW and Recycled MSW generation (excludes C/D waste, special handling wastes and residual waste).

CHAPTER 4 - ESTIMATED FUTURE CAPACITY

Important observations about the projected disposal capacity for Carbon County include:

- **Impact of Recycling on Disposal Capacity Requirements:** Recycling efforts in Carbon County decrease annual landfill disposal requirements by approximately 6,400 tons per year. Residential, commercial, municipal, and institutional recycling programs reduce landfill-bound waste, thus reducing disposal costs (e.g., landfill tip fees).
- **Future Disposal Capacity Needs:** Carbon County requires disposal of about 29,000 tons per year over the 10-year Planning period.
- **Potential for Variation in Disposal Capacity:** Unforeseen conditions including solid waste market fluctuations, national and regional economic trends and incidents, natural and manmade disasters, and State legislation may impact actual waste generation rates.
- **Low County Generation Rates:** Carbon County waste generation rates are low and anticipated to remain low with minimal change in population, minimal commercial/industrial generation, and projections follow the national trend of gradually decreasing per capita waste generation.

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CHAPTER 5 – RECYCLING

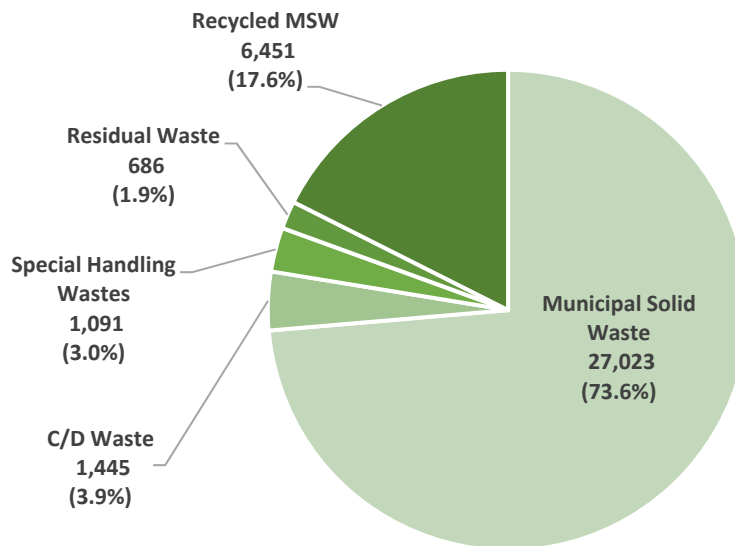
5.1 COUNTY SOLID WASTE SYSTEM OVERVIEW

This Chapter introduces Carbon County’s waste management system, estimates potential recycling, describes the existing recycling programs in Carbon County, and identifies measures to advance waste diversion toward Pennsylvania’s mandated 35 percent recycling goal.

Residential recycling in Carbon County is provided via municipal collection, municipal collection contracts with private haulers, or self-subscription by residents. Commercial recycling is offered primarily through private subscription contracts between local businesses and private waste haulers, with a few municipalities offering commercial collection. Due to increasing costs and liability from volatile recycling markets and operating risks, the County discontinued the County-operated network of public drop-off sites for recyclables in 2015. The County dissolved its Solid Waste Department and amended its waste disposal contracts. Under this Plan update, the County no longer collects the \$4.00 per ton “Sustainability Fee” from designated disposal facilities that supported County-operated recycling programs. The majority of waste disposal and recyclables processing occurs out-of-County. This Plan acknowledges a shift away from County-operated recycling programs, while defining the County’s role as Plan administrator.

Figure 5-1 reflects the distribution of disposed municipal solid wastes, residual waste, special handling waste, and recycled MSW based on a five-year historical average (2012 – 2016). In any given year, the County’s residential, commercial and institutional establishments combined to divert from 16 to 22 percent of their total municipal solid waste to recycling, including composting. “Special handling wastes” are aggregated and include sewage sludge, processed medical waste, asbestos, and ash residue (no tonnage reported).

Figure 5-1 Historical Waste Disposed and Recycled (Tons)



CHAPTER 5 - RECYCLING

5.2 RECYCLING REQUIREMENTS

Act 101 of 1988 (Act 101) establishes requirements for residential and commercial recycling in the Commonwealth. The law delegates specific duties to counties and municipalities and includes provisions to protect the interests of private sector scrap and recycling operations. Act 101 emphasizes county responsibility to ensure that proper waste management policies and practices are developed and implemented and requires recycling data to be reported by the counties to PADEP. The County is required to develop and implement a Plan that demonstrates the County will strive to attain 35 percent diversion to recycling.

Act 101 also directs local municipalities (e.g., boroughs, townships and cities) to implement waste reduction and diversion programs. Municipalities with populations of 10,000 or more, and those with 5,000 or more and a population density of greater than 300 people per square mile, are required to implement curbside recycling programs, including the regular collection of at least three (3) recyclable materials, plus leaf waste at least once in the spring and once in the fall. Within Carbon County, only Lehighton Borough and Palmerton Borough are mandated to provide curbside recycling, but many of the municipalities implement voluntary curbside and/or drop-off recycling programs.

5.3 RECYCLING CHALLENGES AND OPPORTUNITIES

Recycling in rural Carbon County is challenging when compared to suburban and urban areas. Limited materials volume and long transportation distances to recyclables processors combine to increase collection and processing costs. “Hard-to-recycle” items including materials with market value (e.g., appliances) that can be sold for scrap, become very costly to manage when they are illegally dumped.

The County has a small tax base and the General Fund is prioritized to focus support on important social services to benefit local communities, residents and businesses. These limitations ultimately mean that implementing programs for proper waste management and recycling programs is very challenging. Despite the economic barriers, local municipalities play an active role in shaping and providing cost-effective and responsible materials management, particularly for the residential sector. Recycling activities in Carbon County include:

- 20 of 23 municipalities either execute contracts with a single waste hauler or provide municipal curbside waste collection or for curbside refuse or refuse and recycling services.
- Beyond the collection of traditional residential recyclables (e.g. bottles, cans, mixed paper), a number of the municipalities provide programs for special materials including leaves and yard waste, bulky items, appliances, and electronics.
- The Carbon County Council of Governments (COG) are convened to apply cooperative purchasing strategies and economies of scale to leverage procurement processes for goods and services and to establish best practices. Cooperation among COG charter members can be leveraged to enhance the quality and level of solid waste services provided throughout Carbon County and its municipalities.

Municipal involvement in waste management presents significant opportunities to advance and sustain responsible collection, transportation, disposal and recycling practices for County-generated materials. Individual efforts and cooperation among municipalities can assure that the level of residential (and commercial) waste services provided support proper materials management and are compatible with Plan initiatives.

5.4 RECYCLING POTENTIAL

Almost 50 percent of Carbon County’s municipal solid waste stream is comprised of materials that are considered recyclable and compostable. However, many factors influence the types and quantities of material that can be feasibly and economically diverted from disposal. Factors influencing waste diversion or recycling rates can include:

- Level of involvement by local and county governments;
- Costs (e.g., fees, revenues, grant funding, etc.);
- Recyclables collection and hauling service levels; and
- End-market/user conditions and access;
- Implementing mechanisms (e.g., waste contracts, public collection, private collection, ordinances, regulations, etc.).

Table 5-1 shows the percent of the municipal waste stream by material and the potential tons available for recovery. Tonnage estimates for each material are based on the 36,009 tons of municipal solid waste generation projected for 2017. Table 5-1 shows an estimated 17,517 tons of recyclable material could potentially be diverted from disposal annually. The quantity of recyclables in the waste stream is roughly 3 times greater than the average annual recycling tonnage (~6,400 tons).

Table 5-1 Recyclable Materials Available in Carbon County Municipal Waste Stream

Material	% of MSW ^[1]	Tons in MSW
Glass (Clear and Colored)	4.4%	1,584
Aluminum Cans	0.5%	195
Steel and Bimetallic Cans	0.8%	302
Newsprint	2.9%	1,062
Office Paper	1.8%	631
Corrugated Paper	11.8%	4,248
Plastic (PET, HDPE only)	2.9%	1,057
Yard Waste	13.3%	4,789
Tires	1.4%	495
Appliances	2.6%	921
Wood	6.2%	2,233
Totals	48.6%	17,517

[1] U.S. EPA. Advancing Sustainable Materials Management: 2014 Tables and Figures Assessing Trends in Material Generation, Recycling, Composting, Combustion with Energy Recovery and Landfilling in the U.S. December 2016.

5.5 MUNICIPAL REFUSE AND RECYCLING PROGRAMS

Direct involvement by municipalities in proper waste collection and recycling is integral to the success of Carbon County’s integrated waste management system.

CHAPTER 5 - RECYCLING

5.1.1 RESIDENTIAL RECYCLING

Table 5-2 presents the distribution of voluntary and mandated curbside recycling programs among County municipalities. The municipalities of Banks, Lehighton and Palmerton are mandated to provide curbside recycling programs. Ten (10) additional municipalities provide voluntary curbside recycling while 10 municipalities do not have curbside recycling programs.

Table 5-2 Mandated Curbside Recycling Collection

Municipality	Mandated	Voluntary	None
Banks			•
Beaver Meadows		•	
Bowmanstown		•	
East Penn		•	
East Side			•
Franklin			•
Jim Thorpe		•	
Kidder			•
Lansford		•	
Lausanne			•
Lehigh			•
Lehighton	•		
Lower Towamensing			•
Mahoning		•	
Nesquehoning			•
Packer		•	
Palmerton	•		
Parryville		•	
Penn Forest			•
Summit Hill		•	
Towamensing			•
Weatherly			•
Weissport		•	
Population Totals	16.7%	34.8%	48.5%

Table 5-3 summarizes refuse and recycling services provided by or available in the 23 municipalities within Carbon County. Three (3) municipalities operate “public” residential

CHAPTER 5 - RECYCLING

curbside waste collection programs, 17 municipalities execute municipal contracts with a private waste hauler, and three (3) municipalities have private subscription where residents are responsible for securing solid waste collection services. Curbside single stream and dual-stream recycling programs often include the collection of mixed paper, #1 and #2 plastic bottles and jugs, aluminum and tin cans, and clear, brown and green glass bottles and jars. Other services include curbside leaf collection, yard waste services, and drop-off recycling. Table 5-4 presents the special materials services available to residents by municipality.

Table 5-3 Residential Refuse and Recycling Service Summary

Municipality	Refuse			Recycling			
	Public	Municipal Contract	Private Subscription	Single Stream Recycling	Dual Stream Recycling	Leaves & Yard Waste	Drop-Off Recycling
Banks	•						•
Beaver Meadows		•		•			
Bowmanstown		•		•		•	•
East Penn			•	•			•
East Side		•					
Franklin	•						•
Jim Thorpe		•		•			
Kidder		•				•	•
Lansford		•				•	
Lausanne		•		•			
Lehigh		•					•
Lehighton		•		•		•	
Lower Towamensing		•					
Mahoning			•		•	•	
Nesquehoning		•					
Packer		•		•			
Palmerton		•		•		•	•
Parryville		•		•			
Penn Forest			•				•
Summit Hill		•		•			
Towamensing	•						•
Weatherly		•				•	•
Weissport		•		•			
Population Totals	15.3%	59.0%	25.7%	39.2%	6.6%	37.6%	51.7%

CHAPTER 5 - RECYCLING

Table 5-4 Residential Special Materials Service Summary

Municipality	Freon Appliances	Non-Freon Appliances	Bulky Items	Tires	Electronics	HHW	None
Banks		•	•				
Beaver Meadows			•				
Bowmanstown			•				
East Penn			•				
East Side		•	•				
Franklin			•			•	
Jim Thorpe	•	•	•				
Kidder		•	•	•			
Lansford		•	•				
Lausanne			•				
Lehigh			•				
Lehighton	•	•	•	•	•	•	
Lower Towamensing			•				
Mahoning							•
Nesquehoning			•	•	•		
Packer			•				
Palmerton		•	•		•	•	
Parryville		•	•	•			
Penn Forest							•
Summit Hill			•	•	•		
Towamensing			•				
Weatherly	•	•	•			•	
Weissport				•			
Population Totals	19.6%	40.2%	78.1%	22.6%	26.5%	27.1%	21.3%

5.1.2 COMMERCIAL AND INSTITUTIONAL RECYCLING

Commercial and institutional recycling in the County is primarily conducted between local businesses and private waste haulers. Some commercial and institutional recycling is governed at the local municipal level through ordinances that require commercial recycling and/or waste collection contracts that include recycling services at commercial establishments. Table 5-6 summarizes commercial/institutional recycling efforts. Six (6) municipalities report commercial or institutional recycling is available to at least some businesses.

CHAPTER 5 - RECYCLING

Table 5-5 Commercial/Institutional Recycling Service Summary

Municipality	Commercial Yes	Recycling No
Banks		•
Beaver Meadows		•
Bowmanstown		•
East Penn	•	
East Side		•
Franklin		•
Jim Thorpe	•	
Kidder	•	
Lansford		•
Lausanne		•
Lehigh		•
Lehighton	•	
Lower Towamensing		•
Mahoning	•	
Nesquehoning		•
Packer		•
Palmerton		•
Parryville		•
Penn Forest		•
Summit Hill		•
Towamensing		•
Weatherly	•	
Weissport		•
Population Totals	33.6%	66.4%

5.1.3 RESIDENTIAL AND COMMERCIAL RECYCLING QUANTITIES

Based on reported data for 2016, the recycling rate for Carbon County was 22 percent, the highest recycling rate recorded during the last five years. Table 5-6 shows reported Act 101 eligible recyclable materials diverted from Carbon County’s municipal waste stream in 2016. Residential recycling (3,009 tons) and commercial recycling (3,031 tons) quantities are similar.

CHAPTER 5 - RECYCLING

Table 5-6 Recyclable Material Diversion by Commodity (2016)

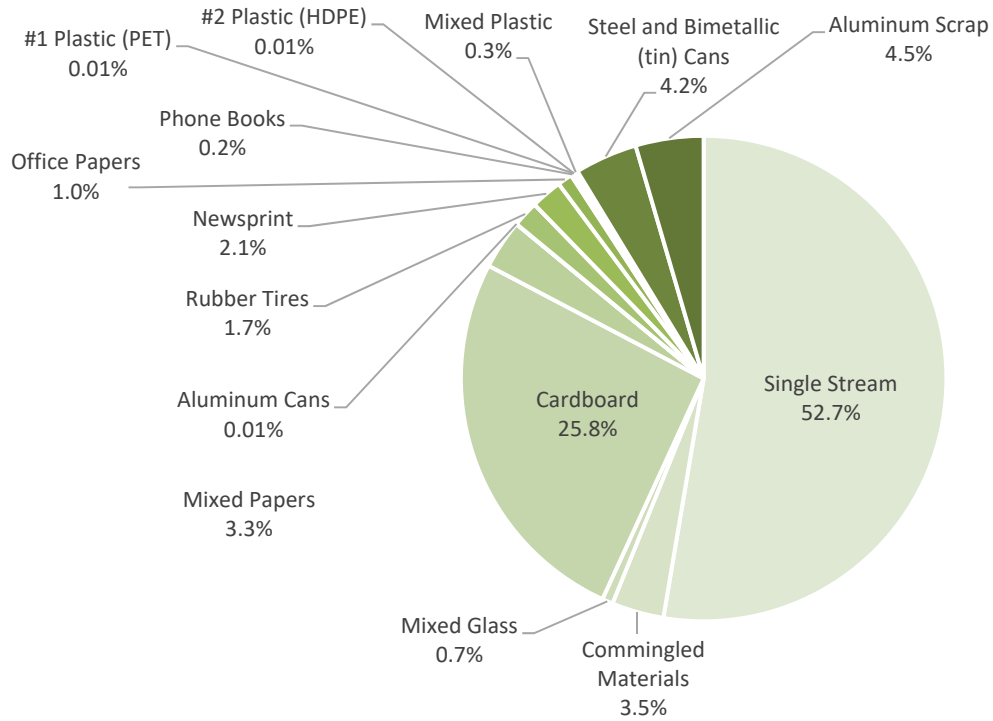
Material Name	Residential (tons)	Commercial (tons)	Total (tons)
Single Stream (SS1)	2,513	667	3,180
Commingled Materials (XXX)	210	0	210
Mixed Glass (GL2)	43	0	43
Cardboard (CO1)	36	1,525	1,561
Mixed Papers (PA3)	191	7	198
Aluminum Cans (AA1)	1	0	1
Rubber Tires (MO1)	15	90	105
Newsprint (PA2)	0	126	126
Office Papers (PA4)	0	60	60
Phone Books (PA6)	0	13	13
#1 Plastic (PET) (PL1)	0	0.5	0.5
#2 Plastic HDPE (PL2)	0	1	1
Mixed Plastic (PL7)	0	16	16
Steel and Bimetallic (tin) cans (FO2)	0	252	252
Aluminum Scrap (AA2)	0	273	273
Totals	3,009	3,031	6,039

Source: 2016 PADEP – Carbon County Recycling Report

Figure 5-2 shows the reported quantities and breakdown of recyclable materials for each commodity that were diverted from the municipal solid waste stream in 2016. The majority of recyclables are captured in single stream recycling.

CHAPTER 5 - RECYCLING

Figure 5-2 Breakdown of Reported Recyclable Material (2016)



Source: 2016 PADEP – Carbon County Recycling Report

Recycling tonnage by municipality or program is shown in Table 5-7 below. Data includes both commercial and residential tonnages. Note that not all municipalities provide annual reports.

CHAPTER 5 - RECYCLING

Table 5-7 Recycled Tons by Municipality 2012 to 2016

Municipality	2012 (Tons/yr)	2013 (Tons/yr)	2014 (Tons/yr)	2015 (Tons/yr)	2016 (Tons/yr)
Banks Township	-	-	48	59	61
Beaver Meadows Borough	-	23	24	45	18
Bowmanstown Borough	30	58	60	102	75
Carbon County (County-Wide Data)	1,649	613	27	44	4
East Penn Township	77	79	110	102	142
East Side Borough	-	-	-	-	-
Franklin Township	-	233	269	223	258
Jim Thorpe Borough	418	397	397	442	473
Kidder Township	-	138	126	109	377
Lansford Borough	109	126	120	249	208
Lausanne Township	-	-	-	-	-
Lehigh Township	-	28	49	47	48
Lehighon Borough	276	350	359	286	407
Lower Towamensing Township	-	91	152	155	164
Mahoning Township	1,645	1,192	1,556	982	1,603
Nesquehoning Borough	-	109	210	207	869
Packer Township	0	22	33	27	50
Palmerton Borough	534	671	645	598	539
Parryville Borough	-	-	-	16	21
Penn Forest Township	-	255	267	263	273
Summit Hill Borough	122	103	118	116	133
Towamensing Township	118	190	194	175	297
Weatherly Borough	-	-	97	104	21
Weissport Borough	-	-	-	-	-
Totals	4,978	4,677	4,860	4,351	6,039

Source: 2016 PADEP – Carbon County Recycling Report

5.1.4 YARD WASTE AND LEAF COLLECTION

Municipally operated compost facilities under five-acres are required to comply with PADEP Guidelines for Yard Waste Compost Facilities, Document Number: 254-5403-100 (1997, revised January 2009). Most yard wastes in Carbon County are not recovered for processing at permitted disposal facilities or compost sites. Table 5-8 summarizes yard waste and leaf collection program data obtained via survey in 2018. Yard waste recovery includes

CHAPTER 5 - RECYCLING

municipal leaf vacuum service, resident drop-off sites, and private operations (e.g., construction, landscaping, wood mills, etc.). The County owns a leaf vacuum truck that is shared among municipalities. There are no registered land application sites (e.g., farms) accepting leaves in the County.

Table 5-8 Municipal Yard Waste and Leaf Collection Programs (2018)

Municipality	Curbside Leaf Collection	Drop-off Site	Yard Waste Compost Facility
Banks		•	
Bowmanstown	•	•	
Jim Thorpe	•		•
Kidder	•		
Lansford	•		
Lehighton	•		•
Palmerton	•	•	•
Weatherly	•		•
Population Totals	38.4%	11.7%	27.9%

5.6 RECYCLING PROGRAM ENVIRONMENTAL BENEFITS

By recycling we ensure the proper disposal of materials which conserves landfill space, saves natural resources, reduces energy and gas resources used in materials manufacturing, all which help to reduce greenhouse gas emissions. Additionally, the County’s waste management system helps to minimize illegal dumping, prevent community blight, protect waterways and preserve land and property values, thus reserving these economic resources for community development, including enhancing tourism and recycling programs.

Using Carbon County’s five-year average (2012-2016) waste and recycling data in the U.S. EPA Waste Reduction Model (WARM), Table 5-9 summarizes the environmental benefits of county, municipal and commercial recycling activities in recent years.

Table 5-9 Carbon County Recycling Environmental Benefits (2012 - 2016 Average)

Benefit	Metric
Quantity Recycled	6,451 tons
Net Reductions in Greenhouse Gas Emissions	2,177 Metric Tons of Carbon Equivalent (MTCE) 7,984 Metric Tons of Carbon Dioxide Equivalent (MTCO2E)
Net Energy Savings	79,879 Million BTUs (British Thermal Unit)

Source: U.S. EPA Waste Reduction Model (WARM)-Version 14. March 2016.

CHAPTER 5 - RECYCLING

5.7 MEASURES TO ACHIEVE 35 PERCENT DIVERSION

Based on the reported disposal and recycling quantities for 2016, Carbon County's recycling rate is currently 22 percent. As detailed in Table 5-1 above, almost 50 percent of the County's waste stream is composed of recyclable materials, indicating opportunities for additional recycling. Carbon County will continue to pursue cost-effective programs to increase the diversion rate toward the Pennsylvania recycling goal (35 percent) and offer expanded disposal and recycling services to residents and businesses. To capture an increased portion of recyclables in the disposed waste stream, the County will prioritize the following planning and implementation initiatives:

- Continue to encourage additional efforts by municipal programs in recycling collection and composting the organic fraction of the waste stream, specifically the yard waste component.
- Expand drop-off collection systems in municipalities currently using these programs and encourage other municipalities to implement drop-off programs.
- Improve municipal solid waste contracts to encourage the inclusion of recycling services, including difficult-to-recycle items (e.g., appliances, electronics, HHW).
- Utilize the COG to create cooperative and economically beneficial purchasing strategies and procurement processes for goods and services, including cooperative arrangements to advance proper management of waste and diversion to recycling.
- Increase recycling at commercial businesses and institutions and aggressively pursue recycling statistics from the commercial/industrial sectors that often go unreported.
- Support municipal recycling and organics collection and composting education programs.
- Promote environmental benefits including reduction in greenhouse gas emissions and clean waterways by improving recycling and organics collection in municipalities.

CHAPTER 6 – SELECTION & JUSTIFICATION

6.1 INTRODUCTION

This Chapter justifies the selection of the municipal waste management system in Carbon County and describes strategies and initiatives to encourage responsible management of County-generated MSW. Important activities and considerations related to the solid waste management system and planning over the 10-year period include:

MSW System and Market: The MSW system is a combination of public and private services, programs and collectors who deliver solid wastes and recyclables to private processors and disposal locations outside of the County. Carbon County does not operate collection, transportation, or processing infrastructure or equipment for municipal solid waste or recyclables. The private and public collectors, MRFs, transfer facilities, scrap yards, and other markets have capacity to manage County-generated MSW, including recyclables. The arrangements among public and private market participants including waste generators, collectors, processors, municipalities and private businesses are expected to continue over the 10-year planning period. The MSW System includes these elements:

- **County Administration:** Through education, data collection, recycling reporting, and assistance to municipalities and stakeholders, the County encourages proper recovery and diversion of materials to final and intermediate markets including transfer facilities and out-of-county MRFs. The County shall continue its administrative role of the MSW system by advancing initiatives in this Plan as feasible. Plan implementation activities broadly include:
 - 1) Recycling data collection and annual reporting to PADEP;
 - 2) solid waste and recycling education;
 - 3) provision of resources and guidance to municipalities;
 - 4) encouraging new material diversion programs and additional recycling when it is economically feasible;
 - 5) encouraging proper MSW management by businesses and institutions including recycling and provision of recycling data for annual reporting to PADEP;
 - 6) Plan revisions (every 10 years or as required by PADEP);
 - 7) executing Plan implementation documents, including the County solid waste ordinance and disposal capacity agreements; and
 - 8) advancing initiatives identified in the Plan.

- **Townships & Boroughs:** Most local municipalities manage the proper collection and disposal of residential waste through municipal contracts with private waste haulers. For residential collection of MSW, including curbside and drop-off programs for recyclables, the specific diversion programs implemented shall continue to be developed primarily by local municipalities. The boroughs of Lehighton and Palmerton are mandated to provide curbside recycling and are expected to continue curbside collection of MSW including recyclables in accordance with Act 101 of 1988.

CHAPTER 6 – SELECTION AND JUSTIFICATION

- **Commercial, Municipal, and Institutional Establishments:** County businesses are expected to continue to manage MSW independently using private haulers and/or self-haul to local and regional processors and disposal locations.
- **Construction and Demolition Waste:** Private arrangements and C/D collection, disposal and recycling are expected to continue, and adequate processing capacity is available.
- **Yard Waste:** Yard waste collection includes a combination of public and private collection with processing (e.g., brush grinding) primarily performed by the private sector on-site. The two mandated communities will continue to collect leaves and other yard wastes at curbside in accordance with Act 101 of 1988. The current system has sufficient capacity to manage yard waste over the next ten 10 years.
- **Biosolids:** Carbon County biosolids and septage will continue to be managed through the combination of wastewater treatment facilities, on-site treatment systems, and septage haulers. This activity includes the treatment of liquid biosolids and proper disposal of dewatered biosolids that are primarily landfilled. Designated disposal facilities in this Plan demonstrate capacity to accept biosolids annually, and over the 10-year planning period. No alternative programs or infrastructure is being considered to manage biosolids.
- **Regulated Medical Waste:** Regulated medical waste including infectious and chemotherapeutic waste shall continue to be managed by the private sector, primarily through on-site and/or off-site incineration. No alternative programs or infrastructure is being considered to manage regulated medical waste.
- **Ash and Asbestos:** The County shall continue to rely on the current system for managing ash and asbestos, which requires generators to properly dispose this material at a permitted disposal facility. The current system has sufficient capacity to manage ash and asbestos over the next 10 years.

Significant Reduction in County Funding for MSW Management and Recycling: Due to escalating costs, limited staff resources, and unpredictable solid waste market conditions, Carbon County no-longer operates drop-off recycling programs. The County Solid Waste Department dissolved in 2015. Plan implementation responsibility is now under the Carbon County Office of Planning & Development (OPAD). County disposal capacity agreements were amended in 2015, and the \$4.00 per ton Sustainability Fee that generated roughly \$100,000 annually to fund County-operated recycling programs is no longer collected. It was determined that reinstating the Sustainability Fee was not feasible nor is it feasible for the County to develop and operate MSW (or recyclables) collection, transfer or processing facilities.

Open, Fair and Competitive Solicitation for Disposal Capacity: Through open solicitation for MSW disposal capacity, the County secured adequate disposal capacity to manage its MSW over the 10-year planning period. Disposal Capacity Agreements shall be appended to the Plan within one year of Plan approval. Waste haulers operating in the County retain the choice to select waste transfer and final disposal facilities. Individual municipalities may negotiate directly with transfer or disposal facilities to secure competitive tip fees and waste services.

Fulfill County and Public Need: This planning process openly involved the public including participation by the Solid Waste Advisory Committee (SWAC) to confirm solid waste management priorities are aligned with public interests. This Plan supports initiatives to protect the health, safety and welfare of Carbon County, its residents and stakeholders through responsible solid waste management practices.

CHAPTER 6 – SELECTION AND JUSTIFICATION

6.2 DESIGNATED MSW DISPOSAL FACILITIES

6.2.1 LOCATION

Carbon County successfully executed disposal capacity agreements (Appendix A) with seven (7) out-of-County landfills. Each disposal facility presented in Table 6.1 agreed to accept all or part of the annual MSW (tons) generated in Carbon County over the 10-year planning period (2020 – 2030). The physical locations of the designated disposal facilities are presented in Figure 6-1. The location of municipal recycling programs is presented in Chapter 5.

“Tamaqua Transfer”, owned by Environment Awareness Corp., Inc., is located in Schuylkill County and is expected to continue to serve as a primary consolidation and transfer facility for County-generated MSW.

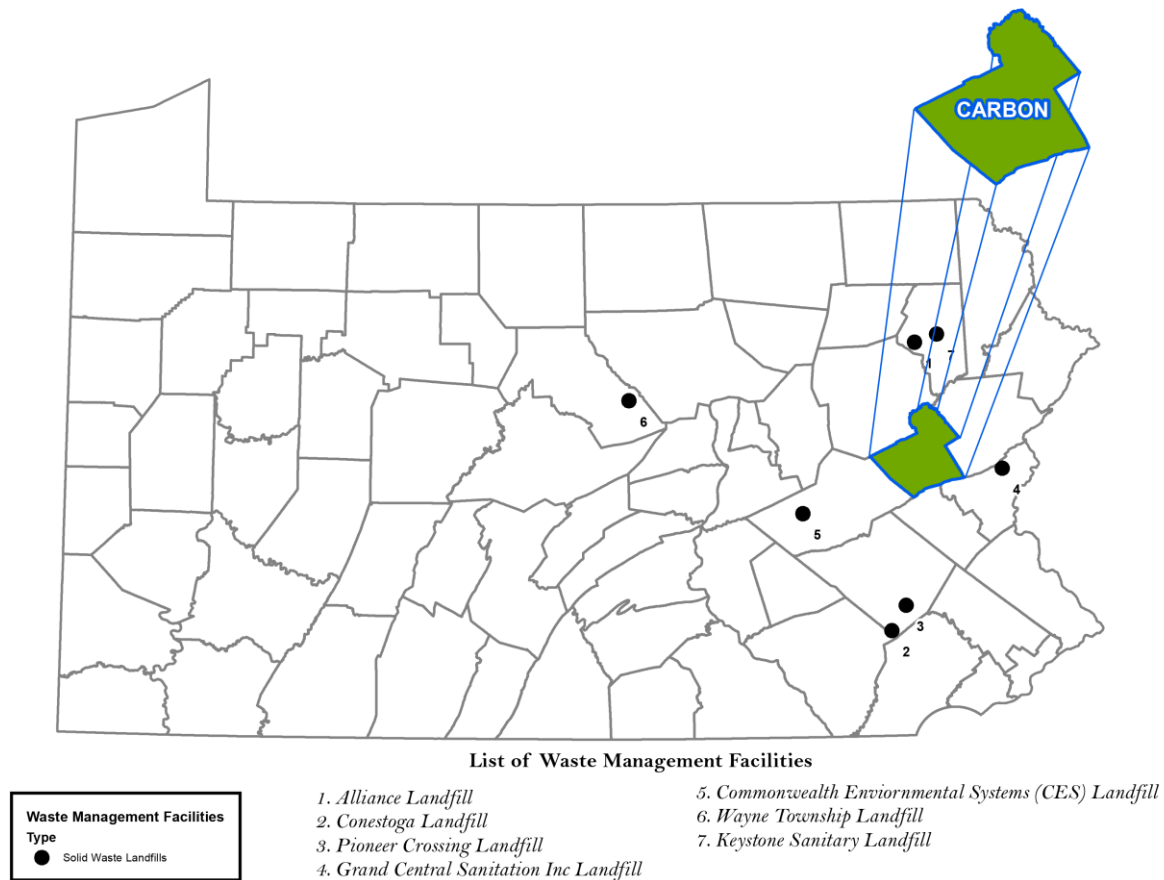
Table 6-1 Designated MSW Disposal Facilities

Facility	County	Location ^[1]
Alliance Sanitary Landfill	Bucks	398 South Keyser Ave. Taylor, PA 18517
Commonwealth Environmental Systems (CES)	Schuylkill	99 Commonwealth Road Hegins, PA 17938
Conestoga Landfill	Berks	420 Quarry Road Morgantown, PA 19543
Grand Central Sanitary Landfill	Northampton	910 W Pennsylvania Ave. Pen Argyl, PA 18072
Keystone Sanitary Landfill	Lackawanna	249 Dunham Drive Dunmore, PA 18512
Pioneer Crossing Landfill	Berks	727 Red Lane Road Birdsboro, PA 19508
Wayne Township Landfill	Clinton	15 Landfill Lane McElhattan, PA 17748

[1] Location refers to the address of the processing site, not administrative offices.

CHAPTER 6 – SELECTION AND JUSTIFICATION

Figure 6-1 Map of Designated MSW Disposal Facilities



6.2.2 DISPOSAL CAPACITY ASSURANCE

Table 6-2 summarizes information regarding the designated disposal facilities, including the approximate distance from Carbon County, accepted materials, available permitted capacity (tons), and years remain until facility closure. As shown in Table 6-2, the seven (7) designated disposal facilities have a combined total capacity exceeding 8 million tons annually, and over 65 million tons of capacity over the 10-year planning period. The disposal capacity secured via solicitation and disposal contracts far exceeds County-MSW disposal requirements estimated at 29,000 tons annually.

Disposal tip fees shall continue to vary based on market conditions and are expected to remain within the not-to-exceed limits established in the executed disposal capacity agreements. Haulers collecting County-generated wastes shall dispose of MSW at the disposal facilities designated in the Plan.

6.2.3 IN-KIND DISPOSAL SERVICES

Carbon County's Request for Proposals (RFP) to secure MSW disposal capacity included a request for in-kind services to support the County's integrated solid waste management system (IWMS). The request highlighted the value of illegal dumping prevention and cleanup and asked respondents to offer in-kind services and free disposal to reduce certain cost associated with managing illegal dump waste and items requiring special handling (e.g., tires, household hazardous waste, electronics, etc.). Table 6-3 summarizes the in-kind services provided by regional landfills that have been incorporated within executed disposal capacity agreements.

CHAPTER 6 – SELECTION AND JUSTIFICATION

Table 6-2 - Carbon County Designated Disposal Facility Summary

Disposal Facility	Approx. Distance To Facility	Accepted Materials ^[1]	Annual Disposal Capacity Commitment to Carbon County (tons) ^[2]	10-Year Capacity Available to Carbon County (tons) ^[2]	Estimated Years Remaining Until Closure
Alliance Sanitary Landfill (Bucks Co.)	35	MSW, Shredded tires	1,438,200	14,382,000	77 ^[3]
Commonwealth Environmental Systems (Schuylkill Co.)	47	MSW, RW, IC, C/D, SS, BW	1,230,250	12,302,500	19
Conestoga Landfill (Berks Co.)	70	MSW, RW, I, IA, C/D, SS, BW	1,599,470	15,994,700	18
Grand Central Sanitary Landfill (Berks Co.)	33	MSW, RW, IA, C&D, SS, BW	838,750	8,387,500	10
Keystone Sanitary Landfill (Lackawanna Co.)	52	MSW, RW, C/D, SS, BW	2,124,250	5,969,143	4 ^[4]
Pioneer Crossing Landfill (Berks Co.)	70	MSW, RW, C/D, SS, BW	483,600	4,836,000	14
Wayne Township Landfill (Clinton Co.)	117	MSW, RW, IC, C/D, SS	376,800	3,768,000	26
TOTALS			8,091,320	65,639,843	168

[1] Waste Types: M - Municipal, R- Residual, SS - Sewage Sludge, C/D – Construction/Demolition, IC - Infectious/Chemotherapeutic, A - Asbestos, IA - Incinerator Ash, BW – Bulky. Accepted materials may include incidental quantities of specific waste types delivered mixed with MSW.

[2] Calculations for available permitted capacity are based on daily permitted averages and the annual operating days, which vary by facility.

[3] Permitted capacity for Alliance Landfill will last an estimated 77 years at the current average rate of 1,000 TPD.

[4] Permit expansion plans are on file with the PADEP that, pending approval, would extend landfill disposal capacity beyond 10-years.

CHAPTER 6 – SELECTION AND JUSTIFICATION

Table 6-3 Carbon County In-Kind Services for MSW Management

Disposal Facility	Owner	Facility Distance (Miles)	Materials Accepted ⁽¹⁾ (at no charge)	Annual Maximum Donated (tons)	10-Year Maximum Donated (tons)	Other In-kind Services Offered
Alliance Sanitary Landfill (Bucks Co.)	Waste Management	35	MSW, Bulky Waste, Residential C&D, Shredded tires.	500	5,000	Education technical assistance upon request by Carbon County.
Commonwealth Environmental Systems L.P. (CES) (Schuylkill Co.)	Keystone Landfill, Inc./L&D Management, Inc.	47	MSW, Bulky Waste, Residential C&D, Scrap Metal ⁽²⁾	30	300	Contributes 500 TPY free disposal under KPB. Offered to support separate Carbon County cleanups.
Conestoga Landfill (Berks Co.)	Republic Services	70	None	0	0	Did not provide in-kind services and did not donate disposal capacity.
Grand Central Sanitary Landfill (Northampton Co.)	Waste Management	33	MSW, Bulky Waste, Residential C&D, Shredded tires	500	5,000	Education technical assistance upon request by Carbon County.
Keystone Sanitary Landfill (Lackawanna Co.)	Keystone Sanitary Landfill Company	52	MSW, Bulky Waste, Residential & Demolition C/D, Scrap Metal	30	300	Contributes 500 tons of free disposal under KPB. Shall consider Carbon County cleanups separately.
Lehigh Valley Recycling Transfer Station	Lehigh Valley Recycling, Inc., (J.P. Mascaro & Sons)	23	MSW, Scrap Metal ⁽²⁾	20	200	Case-by-case consideration of staging and hauling containers.
Pioneer Crossing Landfill (Berks Co.)	J.P. Mascaro & Sons, Inc.	68-70	MSW, Scrap Metal ⁽²⁾	20	200	Case-by-case consideration of staging and hauling containers.
Wayne Township Landfill (Clinton Co.)	Clinton County Solid Waste Authority	117	MSW, Tires, Scrap metal ⁽²⁾ .	50	500	Upon request, shall provide Technical assistance on recycling program implementation.
TOTAL DONATED TONS⁽³⁾				630	6,300	

(1) Accepted materials qualifying for free disposal include illegally disposed, non-hazardous MSW unless otherwise specified by the disposal facility. For some materials (e.g., tires and electronics), disposal facilities may accept limited incidental quantities mixed with illegal dump waste. Eligibility assumes administrative involvement by Carbon County regarding deliveries of illegal dump waste to the disposal facility.

(2) Scrap metal includes appliances that do not contain freon or have had the freon removed and include removal sticker or certificate. Clean, separated scrap metal will be accepted at no charge, and the weight of clean scrap metal will not count against the donated tons allocated to Carbon County for illegal dump waste disposal.

(3) The total donated tons are less than the totaled amount in the columns because Waste Management and J.P. Mascaro donated a "combined" amount of disposal capacity for multiple facilities.

CHAPTER 6 – SELECTION AND JUSTIFICATION

6.2.4 PROCEDURE TO ADD DESIGNATED FACILITIES

Haulers, disposal facilities, and/or municipalities have the option to petition to use a disposal or processing facility for County-generated MSW other than those designated through an executed Disposal Capacity Agreement with Carbon County as established under this Plan revision. Any facility added to the Plan using this procedure below may accept County-generated MSW in accordance with the negotiated Disposal Capacity Agreement.

1. The entity shall submit a written petition to the County Commissioners to be included in the Plan as a designated disposal facility.
2. Within fifteen (15) working days of receiving the petitioning, the County will forward a copy of the solicitation documents to the facility requested for inclusion in the Plan.
3. Upon receipt of the completed solicitation documents by the County Commissioners from the facility, the County will review and provide a response (approval or denial) to the facility within 20 working days.
4. For any approved designated facility to be added to the Plan, the County will mail an executed Disposal Capacity Agreement to be dually executed and returned to the County Commissioners.
5. Upon receipt of a fully executed Disposal Capacity Agreement, the County will notify all County municipalities and PADEP that an additional designated facility has been added to the Plan as a non-substantial Plan revision. The Disposal Capacity Agreement shall be provided to PADEP and attached to the Plan.

6.3 MATERIALS MANAGEMENT & DIVERSION STRATEGIES

6.3.1 GOALS & OPPORTUNITIES

This section describes materials management opportunities and realistic strategies that may be advanced during the 10-year planning period to improve the performance of the Carbon County municipal waste management system. Materials management strategies are not limited to diversion programs for recyclables and can include responsible collection of handling of solid wastes destined for disposal. Planning goals for materials management include:

- **Enhance collection and management of landfill-bound MSW** including the recovery of materials requiring special handling (electronics, HHW, tires, bulk items) that are often disposed illegally.
- **Advance economically feasible MSW collection, reduction and diversion programs** that reduce costs through efficiency, market competition, and avoided disposal fees.
- **Strengthen public and private partnerships** to promote efficient, cost effective and environmentally responsible materials management.
- **Implement illegal dumping prevention and cleanup strategies**, particularly to preserve the natural and scenic areas of Carbon County that attract visitors that are vital to tourism and the County economy.
- **Encourage cooperation and resource sharing among local municipal governments, the COG, County, and strategic partners** to promote proper solid waste management and environmental stewardship.

CHAPTER 6 – SELECTION AND JUSTIFICATION

- **Raise public and stakeholder awareness** and improve education regarding County-specific solid waste system challenges, opportunities, and solutions to preserve and protect Carbon County’s natural environment and resources.

The selection of preferred materials management and diversion strategies take in to account these County solid waste system characteristics:

- Rural areas with low housing and business density underscore the value of leveraging economies of scale to overcome elevated material collection and transportation costs.
- The County’s natural resources and historic setting are primary draws for visitors and tourism is vital to the County economy. However, transient populations create seasonal variations in waste generation and can contribute to improper disposal. The preservation of the natural beauty of the Pocono Mountains, Lehigh River, Lehigh Gorge, Lehigh Gorge Scenic Railway, and other natural and historic features requires enhanced MSW management given the prevalence of illegal dumping and littering.
- The Townships and boroughs, more than the County, are directly involved in the provision of solid waste services through collection and processing service contracts, or by owning and operating MSW collection programs. These contracts present the greatest opportunity to shape cost effective waste collection programs that provide comprehensive services for County-generated MSW.

CHAPTER 6 – SELECTION AND JUSTIFICATION

Table 6-4 Materials Management & Diversion Opportunities

Material Management & Diversion Opportunities	Description
Program Standardization	Streamline County and municipal materials management program implementation and education by standardizing key program elements such as: materials definitions, list of targeted recyclables, targeted items requiring special collection (e.g., electronics), implementation documents (e.g., ordinances and contracts), and education materials, etc.
Improve Municipal Collection Contracts for Solid Waste Services	Through cooperation among the County, COG, individual municipalities and other stakeholders, continually improve solicitation documents and contracts between municipalities and hauling entities and/or material processors. The strategic approach includes leveraging competitive procurement to secure an appropriate level of <u>essential MSW collection and processing services</u> that meet public needs at an equitable cost. Evaluate cooperative bidding on behalf of multiple municipalities to improve economies of scale. Encourage municipalities using private subscription service to enter contracts with a hauler, and possibly piggyback on solicitations from other jurisdictions.
Enhance Recovery of Items Requiring Special Handling	Expand/improve materials recovery programs for e-Waste, tires, HHW, scrap metal and other materials requiring special handling. Opportunities include provision of special item collection within municipal collection contracts, COG and/or County-administered contracts for special item collection (e.g., collection events). Costs may be offset by user fees that may be set based on weight or charged per item (e.g., \$20 per TV).
Leverage Public-Private Partnerships & Stakeholder Engagement	Leverage public-private partnerships to improve the performance of the County solid waste system. Engage key stakeholders in solid waste topics, share resources, and pursue volunteers, in-kind services and donations to address solid waste management challenges. Partners may include environmental groups (e.g. Conservation District, Carbon County Environmental Education Center, Game Commission, hunting clubs, COG, private companies, and foundations).
Public & Stakeholder Education	Improve the effective delivery of solid waste information to the public and stakeholders via standardized messaging that targets solid waste priorities and initiatives. Establish platforms (e.g., resource area on County website and regular meetings) to share information and to discuss challenges, opportunities and implementation strategies.
Illegal Dumping Prevention/Cleanup	Form partnerships with non-profit illegal dumping organizations including PEC, KPB, and or KAB to secure the technical, financial, and a supply resources need to support litter prevention and cleanup. Utilize the “free disposal” offered by area landfills to reduce costs. Aim for the cleanup of at least one dump site per year, and the County, municipalities, and COG should work cooperatively to determine the highest priority sites.
COG Role in MSW Management	Evaluate opportunities for the COG to support proper MSW management and to lower solid waste management costs for member municipalities. Opportunities include resource sharing and cooperation among municipalities to improve solid waste implementing documents (e.g., educational pieces, solid waste contracts, ordinances, etc.).

CHAPTER 6 – SELECTION AND JUSTIFICATION

6.3.2 ILLEGAL DUMPING

This Plan includes careful consideration of illegal dumping activities in Carbon County, its associated impacts and costs, and measures to prevent illegal disposal and to clean up litter and illegally dumped materials. Protecting natural resources and preserving the aesthetics of natural areas has heightened value to Carbon County since the natural features are primary attractions for tourists that are vital to the County economy. Littering, illegal dumping, and improper solid waste management can help cause these environmental risks and economic impacts:

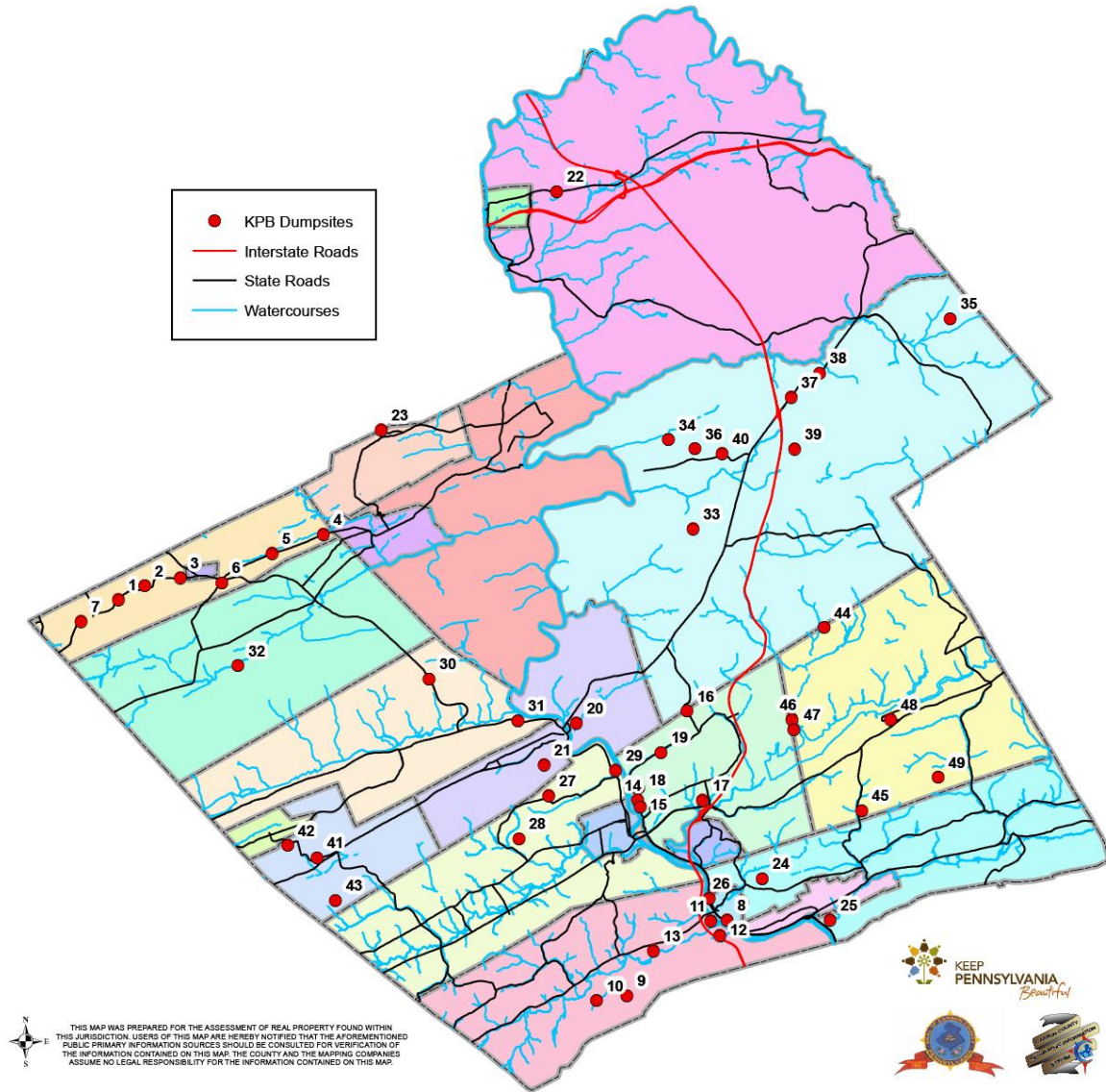
- Degrade surface water, groundwater, and drinking water
- Impact environmentally sensitive areas and habitats (e.g., wetlands)
- Lowers residential, commercial, and public property value including diminishing the real and perceived value of lands and public space attractions.
- Reduce local collection, hauling, disposal, equipment, and recycling business opportunities. Reduce tourism by impacting the aesthetic value and public perception of County rails to trails, parks, the Lehigh Canal, and popular tourist locations.
- Transfers the economic burden associated with cleanup to the host municipalities and/or the private property or business impacted by improper disposal.

In 2012, Keep Pennsylvania Beautiful (KPB) conducted an illegal dumping survey which identified 49 dumpsites in Carbon County. Illegal dumping data, including coordinate data of dumpsite locations was provided by KPB to support this Plan's development. Table 6.5 characterizes illegal dumping activity based on KPB's illegal dumping study. Dump sites on farms and private land were not surveyed. The Figure 6-2 map illustrates the distribution of the dump sites across the County. Contributing factors for dumping behavior and activity include socioeconomic factors, and solid waste market conditions including services provided to customers and accessibility to processing. Generally, access to collection and processing programs for the materials that are commonly found in dumpsites (e.g., electronics, tires, bulk items, and household hazardous wastes) are relatively limited and/or left up to the customer to secure the service as a separate, often high fee. Most residential curbside collection contracts have minimal provisions for collection of items requiring special handling.

Carbon County does not have staff to assume direct responsibilities for illegal dump site prevention, cleanup and enforcement. Contingent on the availability of supporting technical and financial resources, Table 6-6 presents illegal dumping prevention and cleanup strategies to be advanced over the 10-year planning period.

CHAPTER 6 – SELECTION AND JUSTIFICATION

Figure 6-2 Illegal Dump Sites Across the County



CHAPTER 6 – SELECTION AND JUSTIFICATION

Table 6-5 Carbon County Illegal Dumping Characteristics

49 visible dumpsite locations are located across the County containing and estimated 127 tons of material.
48 of 49 dumpsite were “active” or used recently.
94 percent of dumpsite were located in rural areas.
10 of 11 townships within the County contain illegal dumpsites.
Four of 12 boroughs within the County contain illegal dump sites.
Most prevalent materials include: household trash, household hazardous waste, contractor waste and tires.
2,052 tires were documented. Note: The non-visible tires beneath waste were not counted.
C&D, yard wastes, recyclables, white goods, electronics, televisions, furniture, mattresses, vehicle parts and batteries were the prevalent items found in dumpsites.
96 percent of the dump sites were visible from the roadway
Many dump sites were located in wetlands or near waterways. 11 dumpsites were directly in waterways.
The statewide average cost per clean-up is \$2,947, or an average \$619/ton of waste and debris accounting for county and municipal staff, equipment, volunteer labor, and the cost of landfill disposal.

Table 6-6 Carbon County Illegal Dumping Strategies

Strategy	Description
Partnerships	Expand public and private partnerships including affiliations with organizations involved with dumping prevention and cleanup (e.g. Keep PA Beautiful, Keep America Beautiful, and Pennsylvania Environmental Council KPB, PEC, collection, hauling and disposal facilities, and local businesses. Leverage the resources available from these organizations to prevent and cleanup illegal dumpsites.
Education/Awareness	Improve illegal dumping awareness through ongoing education. Standardize core messaging across County stakeholders including environmental groups, tourism businesses, local governments, businesses and stakeholders.
In-kind Services	As administered by the County in coordination with its municipalities, leverage the in-kind services and free disposal secured via the executed disposal capacity agreements to prevent and cleanup dump sites. Dumpsite cleanups should be prioritized based on environmental risk, activity, cost, and cleanup benefit. Leverage free disposal allocated to residential C&D to include the demolition of blighted houses on a case by case basis in coordination with the landfills offering this service.
Curbside Collection	Enhance curbside MSW collection services to include the collection of items requiring special handling (e.g., tires, household hazardous waste, electronics, bulk items, whitegoods, and residential C&D).
Enforcement	Encourage prevention and enforcement by garnishing support from local agencies (e.g., District Court, PA Fish and Boat Commission, PA Game Commission, police and County Sheriff Department, COG).
GIS Analysis/Tracking	Utilize the County Geographic Information System (GIS) to characterize dump site locations and conditions, monitor dumpsite activity, track cleanup status, and support stakeholder education.
Ordinances	Evaluate local municipal and county ordinances to include provisions to address illegal dumping.

CHAPTER 6 – SELECTION AND JUSTIFICATION

6.4 FUNDING MECHANISMS

Table 6-7 summarizes County municipal solid waste system funding alternatives that were reviewed with the SWAC during Plan development and evaluated in detail in the previous Plan. Since the County does not own or operate MSW collection or processing equipment, the funding priority includes assuring the County can fulfill its Plan implementation obligations over the 10-year planning period.

Administrative responsibilities for Plan implementation are primarily performed by the County Recycling Coordinator. Salaries and benefits for County staff are paid through the General Fund. Act 101, Section 903 Recycling Coordinator Grants provide 50 percent reimbursement of eligible Recycling Coordinator salary and expenses. The annual Recycling Coordinator expense is based on the hours allocated to Recycling Coordinator duties. Based on year 2017 and 2018 data, the Carbon County Recycling Coordinator annual expense is conservatively \$5,000, or a \$2,500 out-of-pocket County expense assuming the 50% grant reimbursement.

Table 6-7 Solid Waste System Funding Alternatives

Funding Mechanism	Description
Waste Management Millage	A tax assessed to property owners based on a percentage of a residential property value to fund annual County waste management programs and Plan administration costs. The expressed millage rate is multiplied by the total taxable value of the property to arrive at the property taxes due.
Utility Billing	Establishing a local utility or piggybacking on a local utility like sewer/water to charge user fees to waste generators, or residential and/or commercial customers. Solid waste charges can be added to existing utility bills and the User Fee established for materials management is determined by the County. Establishing a new solid waste billing system can be complex and expensive.
Non-Ad Valorem Tax Assessment	Tax assessed based on the area of a property or the number of units. The levying authority sets the non-ad valorem assessment based on establishing a justified cost of the service provided to the property. The non-ad valorem tax is a reliable revenue source that can be allocated equitably.
Solid Waste Service Contracts	MSW collection, hauling, and/or processing contracts, often resulting from a competitive procurement process. Leverage procurement to improve economies of scale. manage competition. reduce costs and even recover revenue. Solicitations (e.g. bids) shall clearly define service requirements and be structured to fairly distribute risks among involved parties.
County-Owned Transfer Facility	Constructing a County-owned transfer facility designated for all County-generated waste via waste flow control ordinance. The transfer facility tip fees, adjusted to cover operating costs and County solid waste programs (plus disposal fees), would serve as a primary funding mechanism. This high-cost and complex alternative is not feasible at this time given market conditions and County priorities.
Sustainability Fee	A fee assessed by a County included within disposal capacity agreements executed by disposal facilities. The revenue remitted to the County by one or more disposal facilities is calculated based on a per-ton-fee established by the County that is multiplied by the MSW tons disposed. Reimplementing this fee is not feasible considering County priorities, solid waste markets, and resistance by disposal facilities to execute agreements requiring fee recovery without a guaranteed commitment of tons.

CHAPTER 6 – SELECTION AND JUSTIFICATION

Table 6-8 Estimated Annual Plan Implementation Costs

Expense Item	Estimated Annual Expense	Estimated 10 -year Cost	Estimated Grant Reimbursement (%) ⁽¹⁾
Recycling Coordinator	\$5,000	\$50,000	50%
Education	\$1,000	\$10,000	0%
10-year Plan Revision	\$7,500	75,000	80%

(1) Act 101 Recycling Grants are currently available to offset grant-eligible costs for the County Recycling Coordinator and development of the subsequent Plan revision. Recycling education costs are generally not reimbursed, however, Recycling Coordinator education efforts and costs for education for special programs including household hazardous waste collections are available.

6.4.1 MUNICIPAL SOLID WASTE SERVICE CONTRACTS

Most local jurisdictions (townships and boroughs) contract with private haulers to collect MSW and one municipality collects MSW. Therefore, the local jurisdictions assume a significant portion of the financial burden and responsibility for solid waste services and program implementation. County townships and boroughs have a significant opportunity to improve competitive procurement processes and resulting contracts for solid waste services. Financial (and operational) benefits from effective municipal procurement include reduced costs for solid waste customers, comprehensive collection, recycling and disposal service provision, reduction of improper disposal, and establishing equitable user fees to offset costs.

CHAPTER 7 – PLAN IMPLEMENTING ENTITY

7.1 CARBON COUNTY OFFICE OF PLANNING & DEVELOPMENT

The Carbon County Office of Planning & Development (OPAD), and/or other offices or departments that may be designated by the County Commissioners, shall be responsible for Plan implementation including the completion of subsequent Plan revisions. The legal authority for OPAD is derived from the County Code and the Board of Carbon County Commissioners. Plan implementation requirements for counties are established by Act 101 of 1988 and guidance documents prepared and periodically updated by PADEP. Planning initiatives and strategies developed to support Plan implementation during this 10-year planning period (2010 – 2020) were developed with input from the SWAC. Plan implementation functions under the responsibility of OPAD and the County Commissioners are presented in Table 7-1.

Table 7-1 Plan Implementation Responsibilities

Implementation Item	Function
Municipal Waste Management Plan	Advance planning initiatives identified in the Plan, including feasible recycling alternatives that reduce disposal costs. Complete Plan revisions as required.
County Municipal Waste Ordinance	Administer the County Municipal Waste Ordinance.
Public Education	Provide ongoing public education in accordance with Act 101 of 1988 to promote responsible disposal and materials recovery, resource conservation and material diversion (e.g., recycling, composting) including proper handling of items requiring special handling).
Stakeholder Engagement	Encourage stakeholder engagement and education including resource development and sharing among municipalities, COG, and stakeholders (businesses, environmental groups, etc.).
Funding	Allocate resources to support Plan implementation including funds to support the County Recycling Coordinator and Plan administrative functions. As needed, pursue grants to offset costs. Leverage the in-kind services and donated disposal capacity provided within Disposal Capacity Agreements.
Data Collection and Reporting	Complete annual recycling reports as required under Act 101 of 1988. Administer recycling data collection from municipalities and commercial and institutional establishments. Encourage data collection best practices, including disposal and recycling data provision by haulers within residential curbside collection contracts.
Illegal Dumping Prevention/ Cleanup	Encourage dumping prevention through education, stakeholder engagement, and resource sharing. Monitor illegal dump site and roadside litter activity. Leverage “free” disposal capacity secured during this Plan in coordination with stakeholders including local businesses, environmental groups, and affiliates (e.g., KPB, KAB, PEC) to secure volunteers, supplies, and resources for dumping prevention and cleanups.

CHAPTER 7 – PLAN IMPLEMENTING ENTITY

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CHAPTER 8 – PUBLIC FUNCTION

If the County determines waste processing or disposal is to be a public function and the County proposes to own or operate a municipal processing or disposal facility, the Plan shall describe these activities in accordance with Title 25, Chapter 272.230 of the PA Code. Carbon County does not own or operate MSW processing or disposal facilities. It is the position of Carbon County that the suitable method of processing and disposal for MSW continues to be the use of multiple disposal facilities. The Office of Planning & Development (OPAD), or other office or department designated by the County Commissioners shall retain the responsibility of execution and oversight of Disposal Capacity Agreements. Recyclables processing continues to be available through an open market comprised of public and private MRF's and small processors. The private sector shall continue to be responsible for the processing and disposal of sewage sludge, septage and regulated medical waste including infectious and chemotherapeutic waste via on-site processing and off-site processing and disposal.

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CHAPTER 9 – PLAN IMPLEMENTING DOCUMENTS

9.1 COUNTY IMPLEMENTING DOCUMENTS

The documents governing MSW management in association with this Plan are collectively referred to as “Plan Implementing Documents”. In accordance with Title 25, Chapter 272.231 and Chapter 272.245, the Plan shall include ordinances, contracts and other requirements used to ensure disposal capacity is available to process or dispose County-generated MSW over the 10-year planning period. The County does not own or operate MSW processing or disposal facilities, does not have contracts with other parties to use processing facilities (except designated facilities in this Plan), and does not direct waste to specific facilities via flow control ordinances or other legal instruments. Implementing documents under the responsibility of the County for Plan implementation are included in Table 9-1.

Table 9-1 Carbon County Plan Implementing Documents

Implementing Document	Description
County Waste Management Ordinance	An ordinance specifying persons/entities transporting County-generated MSW shall deliver waste to County-designated disposal facilities over the 10-year planning period. Waste haulers may use any of the designated facilities identified in the Plan.
Disposal Capacity Agreements	Contracts executed between the Carbon County Board of Commissioners and the owner/operators of permitted MSW disposal facilities to assure
Plan Resolution	Resolution executed by County Board of Commissioners marking the adoption of the completed Plan.

Final and/or executed County Plan implementing documents shall be submitted to PADEP within one year of Plan approval and appended to the Plan.

9.2 OTHER IMPLEMENTING DOCUMENTS

Additional Plan implementing documents may be developed during the 10-year planning period. Carbon County, its municipalities, or other entities shall exercise their respective authorities for the development, adoption and execution of documents deemed necessary to carry forth solid waste management obligations and to implement this Plan. Examples include: municipal solid waste ordinances, solid waste contracts, and affiliation agreements with environmental groups and other stakeholders.

CHAPTER 9 – PLAN IMPLEMENTING DOCUMENTS

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CHAPTER 10 – ORDERLY EXTENSION

This Plan has been updated using demographic information approved by the Carbon County Office of Planning & Development (OPAD) and builds upon planning concepts in the previously approved Plan. Demographic data, solid waste data, and knowledge of the Carbon County solid waste system has been applied to assure this Plan provides for the orderly extension of municipal waste management programs aligned with the needs of Carbon County. This Substantial Plan Revision Plan has been developed in accordance with Act 101 of 1988 and Title 25, Chapter 272 of the PA Code, and PADEP guidance. This Plan does not conflict with any state, regional, or local plans.

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CHAPTER 11 – NON-INTERFERENCE

In accordance with Act 101 of 1988, counties must ensure county municipal waste management plans shall not interfere with the design, construction, operation, financing or contractual obligations of any municipal waste processing, disposal, or resource recovery which is part of a complete municipal waste management Plan submitted to PADEP. There are no processing or disposal facilities in Carbon County and this Plan will not affect any facility design, construction, operation, financing or any contractual obligations that may exist for any existing or proposed MSW processing or disposal facility.

This Plan does not restrict the use of remaining permitted capacity, or capacity resulting from facility expansion. Carbon County shall not interfere with the efforts of existing disposal or processing facilities to secure arrangements to process or dispose MSW from customers with MSW originating outside Carbon County provided these arrangements do not conflict with the executed Disposal Capacity Agreements associated with this Plan.

CHAPTER 11 – NON-INTERFERENCE

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CHAPTER 12 – PUBLIC PARTICIPATION

Public participation was an essential component of Plan development. Input from individual, the Solid Waste Advisory Committee (SWAC), and stakeholders directly and indirectly influenced planning information, concepts, strategies and initiatives proposed for the 10-year planning period. Public participation shaped realistic, implementable and cost-effective Plan initiatives compatible with the existing system. The SWAC was formed by soliciting for representation via email and letter correspondence to the groups listed below. The Carbon County Coalition of Governments (COG) played an important role and engaged municipal representatives by hosting SWAC meetings as part or regularly scheduled COG meetings. Table 12-1 show the SWAC meeting schedule.

- (1) All classes of municipalities within the county.
- (2) Citizen organizations.
- (3) Industry.
- (4) Private solid waste industry (in County).

Table 12-1 Carbon County SWAC Meeting Schedule

Meeting	Date
SWAC (1)	12-17-18
SWAC (2)	03-27-18
SWAC (3)	06-26-18
SWAC (4)	01-22-19
Public Hearing	Xx-xx-19

Key elements of the Public Participation included input, engagement, and shared resources among the following:

- Solid Waste Advisory Committee (SWAC)
- Carbon County Board of Commissioners
- Carbon County Coalition of Government (COG)
- Carbon County Geographic Information Systems (GIS) Department
- Public and private disposal facilities
- Keep Pennsylvania Beautiful (KPB)

Important outcomes from public participation efforts included:

- Open discussion at SWAC meetings guided the selection and justification of the integrated waste management system.
- The SWAC weighed in on preferred and realistic materials management strategies and highlighted the importance of reducing illegal dumping through the development of programs to manage items requiring special handling.

CHAPTER 12 – PUBLIC PARTICIPATION

- The SWAC and municipalities were provided quarterly status reports and given the opportunity to review and comment on draft Plan chapters and completed draft Plan.
- Involvement by County staff and the County Commissioners to negotiate with disposal facilities.





11875 High Tech Avenue, Suite 150, Orlando, FL 32817
800.679.9220 | www.mswconsultants.com