
2021 Municipal Solid Waste Management Plan

Luzerne County, Pennsylvania



Prepared for

Luzerne County

Solid Waste Management Department

200 North River Street

Wilkes-Barre, PA 18711

November 2021

**Thanks to the SWAC members who volunteered their time and input during the preparation of the
Luzerne County Municipal Solid Waste Management Plan.**

Brenda Davis - Purple Papers Eaters, Organization/Business
Beth DeNardi - Luzerne County, Government
Brett Dexter- Commonwealth Environmental Systems, LP, Waste and Recycling Industry
Heath Eddy- Luzerne County, Government
Butch Frati- Wilkes Barre City, Government
Sam Guesto- Hanover Township, Government
John Hambrose - Alliance Sanitary Landfill, Inc., Waste and Recycling Industry
David Hines - Pittston City, Government
Matthew Jones - Luzerne County, Government
Tom Kashatus - Citizen
Ryan Longfoot - Dallas Area Municipal Authority, Government
Mary Malone - Hazleton Chamber of Commerce, Organization/Business
Palmira Miller- Pennsylvania Environmental Council, Citizen
Eddie O'Neill- Luzerne County, Government
Chris Perry - Luzerne County Council, Vice Chair, Government
Michael Piepoli - Commonwealth Environmental Systems, LP, Waste and Recycling Industry
Kendra M. Raddle - Luzerne County Council Member, Government
Matt Vogue - Luzerne County Council Member, Government

Special thanks to the Pennsylvania Department of Environmental Protection who provided Act 101,
Section 901 grant funding for a significant portion of this project.

TABLE OF CONTENTS

EXECUTIVE SUMMARY ES-1

GLOSSARY OF TERMS GOT-1

ACRONYM LIST A-1

INTRODUCTION INT-1

CHAPTER 1 - DESCRIPTION OF WASTE 1-1

1.1 Purpose 1-1

1.2 Characteristics of Luzerne County 1-1

1.3 Residential, Commercial, and Institutional Fraction of the Municipal Waste Stream 1-3

1.4 Yard Waste and Recycling 1-3

1.5 Household Hazardous Waste 1-4

1.6 Covered Devices (Electronics) Recycling 1-5

1.7 Bulky Waste 1-5

1.8 Construction and Demolition Waste 1-6

1.9 Biosolids and Septage Waste 1-6

1.10 Regulated Medical and Chemotherapeutic Waste 1-6

1.11 Pharmaceutical Waste 1-7

1.12 Home Health Care Waste 1-7

1.13 Residual Waste 1-8

CHAPTER 2 - DESCRIPTION OF FACILITIES 2-1

2.1 Existing Waste Disposal Facilities 2-1

2.2 Existing Waste Transfer Stations 2-1

2.3 Consideration of Existing Facilities 2-3

CHAPTER 3 - ESTIMATED FUTURE CAPACITY 3-1

3.1 Future County Population Projections 3-3

3.2 Waste and Recyclables Projections 3-3

3.3 Per Capita Waste Disposal Rates 3-4

3.4 Future County Municipal Waste Generation for Disposal Projections 3-6

3.5 Possible Variations in Future Waste Generation for Disposal Projections 3-7

3.6 Securing Waste Disposal Capacity for Luzerne County 3-12

CHAPTER 4 - DESCRIPTION OF RECYCLING PROGRAM 4-1

4.1 The Materials Addressed by Act 101 4-1

4.2 Current In-County Recycling Efforts 4-4

 4.2.1 Residential Recycling 4-4

 4.2.2 Commercial Recycling Programs 4-5

 4.2.3 Historical County Recycling Tonnage Totals (2015 – 2019) 4-5

 4.2.4 Current County Recycling Program 4-6

 4.2.5 Other County Recycling Programs 4-6

4.3 Environmental Benefits of Recycling 4-8

4.4 Recycling Education Programs and Services 4-8

4.5 Measures for Continuing to Exceed the 35 Percent Recycling Goal4-9

CHAPTER 5 – SELECTION AND JUSTIFICATION.....5-1

5.1 Overview of Current Municipal Waste Management System.....5-1

5.2 Waste and Recyclables Management – Alternatives5-1

5.2.1 Waste and Recyclables Collection.....5-1

5.2.1.1 MSW Collection.....5-1

5.2.1.2 Recyclables.....5-2

5.2.1.3 Hauler Licensing or Oversight5-3

5.2.2 Waste Transportation and Disposal.....5-4

5.2.2.1 Transportation of MSW to Disposal Sites5-4

5.2.2.2 Transportation of Recyclables to Collection/ Processing Site.....5-4

5.2.2.3 Alternative Disposal Technologies5-4

5.3 Waste and Recycling System Recommendations.....5-8

5.3.1 Waste and Recyclables Collection Recommendations5-8

5.3.1.1 Recommendation C1 Contracted Waste/Recycling Collection.....5-8

5.3.1.2 Recommendation C2 Standardization of Recyclable Materials.....5-8

5.3.2 Waste and Recyclables Transportation.....5-9

5.3.2.1 Recommendation T1 Transfer of Waste5-9

5.3.2.2 Recommendation T2 Transfer of Recyclables.....5-9

5.3.3 Waste Disposal.....5-9

5.3.3.1 Recommendation D1 Waste Disposal Capacity5-9

5.3.4 Management and Sustainability of Programs.....5-9

5.3.4.1 Recommendation MS1 Responsibilities of Luzerne County5-9

5.3.4.2 Recommendation MS2 Support of Public/Private Partnerships –.....5-10

5.3.4.3 Recommendation MS3 Program Support and Funding Options5-10

5.3.4.4 Recommendation MS4 Municipal Ordinances5-10

5.3.4.5 Recommendation MS5 County Ordinances.....5-11

5.3.5 Yard and Food Waste/ Organics Composting5-11

5.3.5.1 Recommendation OC1 Operation of Compost Facilities5-11

5.3.5.2 Recommendation OC2 Food Waste Sharing Program for Luzerne County Residents in Need
.....5-11

5.3.6 Maintaining the 35% Recycling Rate.....5-12

5.3.6.1 Recommendation R1 Paper Shredding Events –.....5-12

5.3.6.2 Recommendation R2 Tire Collection Events -.....5-12

5.3.6.3 Recommendation R3 Electronics Recycling5-12

5.3.6.4 Recommendation R5 Education.....5-13

5.3.6.5 Recommendation R6 Fairs, Festivals, Colleges and Universities Waste and Recycling.....5-16

5.3.7 Biosolids and Septage5-16

5.3.7.1 Recommendation B&S1 Biosolids.....5-16

5.3.7.2 Recommendation B&S2 Septage5-17

5.3.8 Regulated Medical Waste and Home Health Waste.....5-17

5.3.8.1 Recommendation MW1 Regulated Medical Waste.....5-17

5.3.8.2 Recommendation MW2 Pharmaceutical Waste.....5-17

5.3.8.3 Recommendation MW3 Home Health Waste –.....5-17

5.3.9 Ash and Asbestos.....5-17

5.3.9.1 Recommendation AA1 Ash and Asbestos –.....5-17

CHAPTER 6 - LOCATION OF FACILITIES AND PROGRAMS.....6-1

6.1 Location of Disposal/Processing Facilities.....6-1

6.2 Yard Waste/Composting Program Locations.....6-2

6.3 Material Recovery Facility (MRF) Locations.....6-2

6.4 Petition Information for Non-Designated Facilities.....6-2

CHAPTER 7 - IMPLEMENTING ENTITY IDENTIFICATION.....7-1

CHAPTER 8 - PUBLIC FUNCTION.....8-1

8.1 Public Function.....8-1

8.2 County Ownership.....8-1

8.3 Revenues and Expenses.....8-2

CHAPTER 9 - COPIES OF ORDINANCES, RESOLUTIONS, AND IMPLEMENTING DOCUMENTS.....9-1

CHAPTER 10 - ORDERLY EXTENSION.....10-1

CHAPTER 11 - OTHER INFORMATION.....11-1

11.1 Marcellus Shale.....11-1

11.2 Illegal Dumping.....11-1

11.2.1 Issues and Causes.....11-1

11.2.2 Illegal Dump Surveys.....11-2

11.2.3 Causes of Illegal Dumpsites.....11-3

11.2.4 Illegal Dump Survey for Luzerne County.....11-3

11.2.5 Possible Solutions to Illegal Dumpsites.....11-4

CHAPTER 12 - NON-INTERFERENCE.....12-1

CHAPTER 13 - PUBLIC PARTICIPATION.....13-1

LIST OF FIGURES

Figure 1-1 Luzerne County Municipalities

Figure 1-2 Luzerne County Population Projections

Figure 3-1 Historic and Projected Populations for Luzerne County

Figure 3-2 Luzerne County Disposal/Recycling Per Capita Rates vs. National Per Capita Rates

Figure 4-1 Total Tons of Recyclables Processed, 2015 to 2019

LIST OF TABLES

Table 1-1 Luzerne County Residential, Commercial, and Institutional Waste and Recyclables Quantities for 2015-2019

Table 1-2 Luzerne County Residual Waste Tonnages for 2015-2019
Table 2-1 MSW Accepted at Landfills with Executed Contracts with Luzerne County
Table 2-2 Luzerne County Contracted Disposal Facilities
Table 2-3 Existing Permitted Transfer Stations in Luzerne County
Table 2-4 Existing Permitted Transfer Stations Located in Contiguous Counties
Table 3-1 Luzerne County MSW and C&D Accepted at Disposal Facilities
Table 3-2 Luzerne County Waste (By Waste Type) and Recyclables/Organics Disposed/Diverted 2015-2019
Table 3-3 Waste and Recycling Projections 2019-2030
Table 3-4 Waste Disposal Capacity Assurance
Table 4-1 MRFs Located in Luzerne County
Table 4-2 Luzerne County Yard Waste Composting Sites
Table 4-3 Municipal Recycling Programs

LIST OF APPENDICES

APPENDIX A SOLICITATION OF INTEREST FOR WASTE DISPOSAL CAPACITY ASSURANCE

- ❖ SOI AND SAMPLE DISPOSAL AGREEMENTS
- ❖ SOI PROOF OF PUBLICATION
- ❖ TABLE 1 - COMPLETENESS REVIEWS
- ❖ TABLE 2 - CEILING TIPPING FEES
- ❖ TABLE 3 - BACK UP DISPOSAL FACILITIES
- ❖ DRAFT RECOMMENDATIONS MEMORANDUM
- ❖ FINAL RECOMMENDATIONS MEMORANDUM
- ❖ PACKET FOR PETITIONING

APPENDIX B WASTE AND RECYCLING TONNAGES

- ❖ RE-TRAC REPORTS 2015-2019
- ❖ WASTE DESTINATION REPORTS 2015-2019

APPENDIX C RECYCLING INFORMATION

- ❖ WASTE COMPOSITION TABLES
 - STATE WASTE COMPOSITION TABLE
 - NATIONAL WASTE COMPOSITION TABLE
- ❖ RESIDENTIAL RECYCLING GUIDE

APPENDIX D CDRA INFORMATION

- ❖ HOUSE BILL 708
- ❖ CDRA DEFINITION
- ❖ CDRA OVERVIEW
- ❖ PADEP ELECTRONICS RECYCLING INFORMATION

APPENDIX E SAMPLE BID DOCUMENTS, ORDINANCES AND FORMS

- ❖ SAMPLE RECYCLING MUNICIPAL BID DOCUMENT
- ❖ SAMPLE WASTE AND RECYCLING MUNICIPAL BID DOCUMENT
- ❖ MODEL RECYCLING ORDINANCE

- ❖ MODEL SOLID WASTE AND RECYCLABLES ORDINANCE FOR DROP OFF COMMUNITIES
- ❖ MODEL SOLID WASTE AND RECYCLING ORDINANCE

APPENDIX F ORDINANCES AND REGULATIONS

- ❖ AN ORDINANCE OF THE COUNTY OF LUZERNE, PENNSYLVANIA, DESIGNATING PROCESSING AND/OR DISPOSAL FACILITIES; PROVIDING WASTE FLOW CONTROL REQUIREMENTS TO DIRECT MUNICIPAL WASTE TO DESIGNATED PROCESSING AND/OR DISPOSAL FACILITIES AND PROVIDING PENALTIES FOR VIOLATION OF THIS ORDINANCE

APPENDIX G PUBLIC PARTICIPATION

- ❖ SWAC MEETING #1
- ❖ SWAC MEETING #2
- ❖ SWAC MEETING #3
- ❖ SWAC MEETING #4
- ❖ SWAC MEETING #5
- ❖ PUBLIC HEARING #1
- ❖ PUBLIC HEARING #2

APPENDIX H PLAN FINALIZATION

- ❖ MUNICIPAL NOTIFICATION OF SWMP
- ❖ REVIEW PERIOD NOTIFICATION
- ❖ LUZERNE COUNTY FINAL ADOPTION RESOLUTION
- ❖ EXECUTED AGREEMENTS
- ❖ PADEP APPROVAL OF PLAN

EXECUTIVE SUMMARY

Background

The Municipal Waste Management Plan for Luzerne County is being undertaken in response to the Pennsylvania Department of Environmental Protection's (PADEP) mandate that Municipal Waste Management Plans be updated every ten years. The existing Municipal Waste Management Plan for the Region was adopted by the County in 2010 and approved by PADEP shortly thereafter. The disposal capacity agreements that were executed between the counties in the Region and multiple waste disposal facilities in accordance with the 2010 SWMPs generally expired on December 2020.

The major goals of this update are:

- Securing sufficient capacity for the disposal of municipal waste generated by residents, businesses and institutions within the Region for at least a ten-year period;
- Showing how the Region intends to continue to provide recycling opportunities for residents and businesses in an effort to maintain the thirty-five percent (35%) State recycling goal; and
- Developing a means to support expanded recycling for residents and businesses of the Region.

The Municipal Waste Management Plan Update for the County covers a term of ten years, from 2021 through 2030. The plan combines waste reduction, recycling of materials, and the transport of the remaining municipal waste to multiple disposal facilities contracted to accept the Region's municipal waste.

It is with the aforementioned three (3) primary goals, along with the PADEP planning mandate, that this update of the Municipal Waste Management Plan for Luzerne County was conducted.

Benefits of the Plan

The Municipal Waste Management Plan Update will provide the following benefits to the County, including its constituent municipalities, citizens, and businesses:

- Promote public health by reducing water and land pollution through proper waste disposal;
- Reduce air pollution and other environmental forms of environmental pollution through recycling efforts (as demonstrated through the EPA WARM Model);
- Reduce the amount (volume and weight) of municipal solid waste (MSW) to be disposed of in landfills through waste reduction and the recycling of materials and organics in the waste stream (i.e. household hazardous waste (HHW) and yard waste materials);
- Utilize best available, practical, cost-effective waste management technologies;
- Foster better communications on integrated waste management opportunities among the County, municipalities, residents and businesses, and the solid waste and recycling industry;
- Utilize the capabilities of private enterprise in accomplishing the desired objectives of an effective, comprehensive solid waste management system.

Major Features of the Plan

- Forty-one out of the seventy-six municipalities currently have residential access to (both public and private) recyclables collections (both curbside and drop-off).
- Waste disposal capacity assurance for ten-years through contracted waste and recyclables transfer stations and disposal sites (landfills).
- Ability for waste haulers operating in the County to utilize multiple disposal facilities, contracted with Luzerne County, for disposal of MSW.
- An established joint partnership with waste disposal facilities contracted with Luzerne County to support increased recycling activities over the ten-year planning period.

Goals of the Plan

The following summarizes the priority goals of the plan to be encouraged, explored, or maintained over the ten-year planning period:

- Assure waste disposal capacity over the ten-year planning period through long-term contracts;
- Assure the proper reporting of Luzerne County generated waste disposal through contracts;
- Encourage contracted collection of waste and/or recyclables;
- Encourage the development of spring and fall cleanup events in each municipality;
- Encourage municipal ordinances that govern the handling of waste and recyclables;
- Develop a County ordinance for the handling of waste and recyclables;;
- Continue to explore program support and funding options;
- Explore a food waste sharing program with institutions in the region;
- Explore opportunities to increase corrugated cardboard recycling in the region;
- Encourage construction and demolition waste diversion and source reduction;
- Maintain and expand continuing education programs to educate/re-educate residents on proper waste and recyclables management;

Waste Disposal Capacity Assurance

As stated previously, Luzerne County is required to secure sufficient capacity for the disposal of municipal waste generated from within its boundaries by residents, businesses, and institutions for a minimum ten-year period. A Solicitation of Interest (SOI) was developed to solicit interest from waste disposal and transfer station facilities and the execution of waste disposal agreements will secure disposal capacity over the ten-year planning period. The following facilities responded to the SOI and have executed agreements with Luzerne County.

Disposal Facilities:

- Alliance Sanitary Landfill
- Commonwealth Environmental Systems Landfill
- Grand Central Landfill
- Keystone Sanitary Landfill
- Pioneer Crossing Landfill
- Wayne Township (Clinton County) Landfill

Transfer Stations:

- Lehigh Valley Transfer Station
- Tamaqua Transfer and Recycling
- Waste Reduction & Recycling Transfer Station
- EIO Waste Solutions and Recycling

GLOSSARY OF TERMS

- A -

Act 101 – Statewide recycling in Pennsylvania began in 1988 with the Municipal Waste Planning Recycling and Waste Reduction Act (Act 101) that requires larger municipalities to recycle. The Act established a \$2-per-ton fee on all waste disposed at municipal waste landfills and WTE facilities established grants for local collection programs, public education, materials processing and composting facilities, equipment and technical training. Act 101 also requires each county to develop county plans to manage its own wastes and assure a minimum of ten years disposal capacity.

Agricultural Wastes – Domestic animal manure or residuals in liquid or solid form generated in the production of poultry, livestock, fur-bearing animals, and their products. Agricultural waste includes residuals generated in the production and harvesting but not of subsequent processing of all agricultural, horticultural, or aqua-cultural commodities. Agricultural waste does not include land clearing debris unless the cleared land is intended solely for agricultural purposes.

Ash – Residue from the burning of wood, solid waste, coal, and other combustible materials (also referenced as combustion ash).

- B -

Biosolids – Treated sewage sludge that is intended to be used as a fertilizer to improve and maintain productive soils and stimulate plant growth.

Bulky Item – Items whose large size or weight precludes or complicates their handling by normal collection, processing, or disposal methods. Many curbside programs handle bulky items such as furniture, mattresses, box-springs and similar items.

- C -

Closure – The cessation of operation of a solid waste management facility and the act of securing such a facility so that it will pose no significant threat to human health or environment.

Code of Federal Regulations (CFR) – Document containing the rules established in the Federal Register (FR) by the Executive Departments of the Federal Government.

Commercial Waste – Solid, non-hazardous waste generated by commercial establishments used mainly for the purposes of a trade or business or for the purpose of sport, recreation, education or entertainment.

Compact Fluorescent Lamp (CFL) – A fluorescent lamp designed to replace an incandescent light bulb. CFLs use one-fifth to one-third the electric power and last eight (8) to fifteen (15) times longer.

Compost – The product of composting.

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

Construction and 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 including the following if they are separate from other waste and are used as clean fill; uncontaminated soil, rock, stone, gravel, brick and block, concrete and used asphalt, waste from land clearing, grubbing and excavation, including trees, brush, stumps and vegetative material.

County – Luzerne County, Pennsylvania

- D -

Department – The Luzerne County Solid Waste Management Department. The Department’s mission statement is to ensure the delivery of an integrated, cost-effective, and environmentally sound solid waste management system, and to promote through assistance and education, sustainable community programs and policies throughout Luzerne County.

Department of Conservation and Natural Resources (DCNR) – Established July 1, 1995, is the agency responsible for maintaining and preserving the state’s parks and forests, providing information on the state’s natural resources and working with communities to benefit local recreation and natural areas.

Drop-Off Location – A facility or location primarily for residents to drop off recyclables.

- E -

Electronic Waste (or e-waste) – Discarded electrical or electronic devices. Many of these products can be reused, refurbished, or recycled. Common electronic products included computers, televisions, VCRs, stereos, copiers, and fax machines.

Environmental Protection Agency (EPA) – Federal agency responsible for providing regulations, guidance, and enforcement of solid waste management activities.

- F -

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

Fatal Flaw Analysis – An evaluation that may determine the viability of a project or endeavor by evaluating potential problems that may prevent the project or endeavor from moving forward. Aspects that may be evaluated during a fatal flaw analysis include, but are not limited to, permitting, environmental issues, zoning regulations, land development regulations, geologic conditions, costs, equipment needs, available markets, etc.

- G -

Grasscycling – The act of allowing grass clippings to remain on the lawn after mowing to return nutrients back to the soil

Ground Water – Water beneath the surface of the ground, within a zone of saturation.

- H -

Hazardous Waste – Solid waste, or a combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause, or significantly contribute to, and increase in mortality, or an increase in serious irreversible or incapacitating reversible illness, or may pose a substantial present or potential hazard to human health or the environment when improperly transported, disposed of, stored, treated, or otherwise managed. Does not fall under the definition of MSW.

Home Healthcare Waste – “Used sharps,” such as needles, syringes, lancets and other sharp objects, as well as soiled bandages, disposable sheets and gloves.

Household Hazardous Waste (HHW) – Waste generated by a household that may be chemically or physically classified as a hazardous waste under the standards of Article VII. For the purpose of this definition, the term “household” includes those places described as “households” in 40 CFR 261.4(b)(1).

- I -

Industrial Solid Waste – Means any liquid, gaseous, solid, or other waste substance, or combination thereof, resulting from any process of industry, manufacturing, trade or business; or the development of any natural resource, including agriculture.

Institutional Establishment – An establishment that engages in services, including, but not limited to, hospitals, nursing homes, orphanages, schools and universities.

- L -

Landfill – An engineered solid waste disposal facility, which is an area of land or an excavation where wastes are placed in a manner that minimizes public health and environmental hazards and is designed, installed, and operated according to the provisions of EPA (under CFR) and PADEP regulations; a solid waste disposal facility, which is an area of land or an excavation where wastes are or have been placed for disposal, for which a permit other than a general permit is required.

- M -

Material Recovery Facility (MRF) – A specialized plant that receives, separates and prepares recyclable materials for marketing to end-user manufacturers. The materials that come out of the MRF are clean, properly sorted and relatively free of impurities.

Municipal Landfill (also known as Sanitary Landfill) – A solid waste acceptance facility that is designed, built, and operated so that all types of waste generated by a community, except waste specifically prohibited by the regulations or a permit issued under the regulations, can be accepted.

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

Municipal Solid Waste (MSW) – Garbage, refuse, industrial lunchroom or office waste and other material, including solid, liquid (where applicable), semisolid, or contained gaseous material resulting from

operation of residential, municipal, commercial, or institutional establishments and from community activities; and sludge not meeting the definition of residual or hazardous waste under this section from a municipal, commercial or institutional water supply treatment plant, waste water treatment plant or air pollution control facility.

- O -

Organic Waste - Material that is biodegradable and comes from either a plant or animal.

- P -

Pennsylvania Department of Environmental Protection (PADEP) – The Department of Environmental Protection of the Commonwealth, and its authorized representatives.

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

Pharmaceutical Waste – Any waste that contains medicinal drugs that are expired, unused, contaminated, damaged or no longer needed, or wastes produced during the manufacture of pharmaceuticals.

Plan Update (also Plan Revision) – A change that affects the contents, terms or conditions of a Department approved plan under the Municipal Waste Planning, Recycling and Waste Reduction Act.

Plastic Film – A thin continuous polymeric material used to separate areas or volumes, to hold items, to act as barriers or as printable surfaces.

Processing Facility – A facility where solid waste or recycling materials are processed

Professional Recyclers of Pennsylvania (PROP) - An association of recycling professionals working to ensure that all recyclable materials in the Pennsylvania waste stream are optimally recycled. PROP uses a variety of programs and tools to connect, educate and inform their members and the recycling community to help them develop and maintain the skills, knowledge and ability needed to realize their vision.

- R -

Recycling – The collection, separation, recovery and sale or reuse of metals, glass, paper, plastics and other materials which would otherwise be disposed or processed as municipal waste.

Recycling Facility – A facility employing a technology that is a process that separates or classifies municipal waste and creates or recovers reusable materials that can be sold to or reused by a manufacturer as a substitute for or a supplement to virgin raw materials. The term does not include transfer facilities, municipal waste landfills, composting facilities, or resource recovery facilities.

Re-TRAC Connect (Re-TRAC) – Waste diversion software that sustainability professionals, including municipal and County recycling coordinators, trust to efficiently collect, manage, and analyze recycling and solid waste data. As of February 2018, County Recycling Coordinators are required to update and maintain Re-TRAC Connect with countywide and municipal recycling data.

Refuse – Synonymous with solid waste.

Regulated Medical and Chemotherapeutic Waste (RMW) – The portion of the waste stream that may be contaminated by blood, body fluids or other potentially infectious materials, thus posing a significant risk of transmitting infection.

Residential Waste – Mixed household wastes, including yard wastes, generated by the general population.

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. The term does not include treatment sludges from coal mine drainage treatment plants, disposal of which is being carried on under and in compliance with a valid permit issued under The Clean Streams Law.

Resource Conservation and Recovery Act (RCRA) – The Federal Law that provides guidelines and standards for the management of both hazardous (RCRA Subtitle C) and non-hazardous (RCRA Subtitle D) waste. More specifically for Subtitle C, RCRA gives EPA the authority to control hazardous waste from “cradle-to-grave.” This includes the generation, transportation, treatment, storage and disposal of hazardous waste. With respect to Subtitle D, RCRA sets forth a framework for the management of non-hazardous solid wastes (such as the disposal of MSW in landfills). For Subtitle D, EPA developed detailed technical criteria for solid waste disposal facilities, which includes specific provisions on location, operation, design, ground water and gas monitoring, corrective action, closure and post-closure care and financial assurance. These regulations are contained in the Code of Federal Regulations (40CFR), Parts 257 and 258. EPA delegates authority for oversight of Local and State-level solid waste programs to authorized State agencies.

Resource Recovery Facility – A processing facility that provides for the extraction and utilization of materials or energy from municipal waste. The term includes a facility that mechanically extracts materials from municipal waste, a combustion facility that converts the organic fraction of municipal waste to usable energy and a chemical and biological process that converts municipal waste into a fuel product.

- S -

Sanitary Landfill (also refer to Municipal Landfill) – an engineered method of disposing of solid wastes on land in a manner that minimizes public health and environmental hazards, and is designed, installed, and operated under strict regulations of the PADEP and the US EPA.

Sewage Sludge – Liquid or solid sludges and other residues from a municipal sewage collection and treatment system; and liquid or solid sludges and other residues from septic and holding tank pumpings from commercial, institutional or residential establishments. The term includes materials derived from sewage sludge. The term does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator, grit and screenings generated during preliminary treatment of sewage sludge at a

municipal sewage collection and treatment system, or grit, screenings and nonorganic objects from septic and holding tank pumpings.

Site – The area of land within the property boundaries of a solid waste management facility where one or more solid waste processing, resource recovery, recycling, storage, or disposal areas are located.

Solid Waste – Waste, including, but not limited to, municipal, residual or hazardous wastes, including solid, liquid, semisolid or contained gaseous materials.

Solid Waste Acceptance Facility – Any landfill, incinerator, transfer station, or processing facility whose primary purpose is to dispose of, treat, consolidate, or process solid waste.

Solid Waste Advisory Committee (SWAC) – A committee formed to revise the Municipal SWMP every ten years.

Solid Waste Management Plan (SWMP) – A comprehensive plan for an adequate municipal waste management system in accordance with Chapter 272, Subchapter C.

Solid Waste Processing Facility – A facility where a combination of structures, machinery, or devices are used to reduce or alter the volume, chemical characteristics, or physical characteristics of solid waste. This can include sorting for diversion of recyclables. In general, processes are performed either to remove recyclables or to reduce the volume that the waste occupies during transport or at final disposal (e.g., shredding). A wide variety of solid waste can be processed at these facilities. A typical solid waste processing facility accepts MSW, C&D, metals, wood waste, etc.

Source Reduction – The reduction or elimination of the quantity or toxicity of residual waste generated, which may be achieved through changes within the production process, including process modifications, feedstock substitutions, improvements in feedstock purity, shipping and packing modifications, housekeeping and management practices, increases in the efficiency of machinery and recycling within a process. The term does not include dewatering, compaction, reclamation, or the use or reuse of waste.

Special Handling Wastes – 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.

- T -

Transfer Facility – A facility that receives and processes or temporarily stores municipal or residual waste at a location other than the generation site, and which facilitates the transportation or transfer of municipal or residual waste to a processing or disposal facility. The term includes a facility that uses a method or technology to convert part or all of the waste materials for offsite reuse. The term does not include a collecting or processing center that is only for source-separated recyclable materials, including clear glass, colored glass, aluminum, steel and bimetallic cans, high-grade office paper, newsprint, corrugated paper and plastics.

- U -

Used Oil – A petroleum-based or synthetic oil that is used in an internal combustion engine as an engine lubricant, or as a product for lubricating motor vehicle transmissions, gears or axles that, through use, storage or handling has become unsuitable for its original purpose due to the presence of chemical or physical impurities or loss of original properties.

- W -

Waste – A material whose original purpose has been completed and which is directed to a disposal, processing or beneficial use facility or is otherwise disposed of, processed or beneficially used. The term does not include source separated recyclable materials, materials approved by the Department prior to May 27, 1997, or material which is beneficially used in accordance with a general permit issued under Subchapter I or Subchapter J if a term or condition of the general permit excludes the material from being regulated as a waste.

Waste Oil – Oil refined from crude oil or synthetically produced, used and as a result of the use, contaminated by physical or chemical impurities. The term includes used oil.

Waste Reduction – Design, manufacture or use of a product to minimize weight of a municipal waste that requires processing or disposal, including, but not limited to: design or manufacturing activities which minimize the weight or volume of materials contained in a product, or increase durability or recyclability; the use of products that contain as little material as possible, are capable of being reused or recycled or have an extended useful life.

Wastewater Treatment Plant (WWTP) – WWTPs remove most pollutants from wastewater so that it can be returned to the water cycle with minimal environmental issues or reused for various purposes. By-products from wastewater treatment plants, such as grit and sewage sludge must be disposed of properly.

White Goods – Discarded refrigerators, ranges, washers, water heaters, freezers, and other similar domestic and commercial appliances.

- Y -

Yard Waste – Vegetative matter from landscape maintenance or land clearing operations such as tree and shrub trimmings, grass clippings, leaves, trees brush and stumps.

Yard Waste Composting Facility – A facility that is used to compost leaf waste, or leaf waste and grass clippings, garden residue, tree trimmings, chipped shrubbery and other vegetative material. The term includes land affected during the lifetime of the operation, including, but not limited to, areas where composting actually occurs, support facilities, borrow areas, offices, equipment sheds, air and water pollution control and treatment systems, access roads, associated onsite or contiguous collection and transportation activities, and other activities in which the natural surface has been disturbed as a result of or incidental to operation of the facility.

ACRONYM LIST

BTU	British Thermal Unit	PROP	Professional Recyclers of Pennsylvania
B&L	Barton & Loguidice, DPC	PS	Polystyrene
CDRA	Covered Device Recycling Act	RFP	Request for Proposal
CFL	Compact Fluorescent Lamp	RMW	Regulated Medical and Chemotherapeutic Waste
CPU	Central Processing Unit	SOI	Solicitation of Interest
CRT	Cathode Ray Tube	SWAC	Solid Waste Advisory Committee
CY	Cubic Yard	SWMP	Solid Waste Management Plan
C&D	Construction and Demolition	TPY	Tons per Year
EPA	Environmental Protection Agency	UBC	Used Beverage Container
E-waste	Electronic Waste	WARM	Waste Reduction Model
GHG	Greenhouse Gas	WTE	Waste-to-Energy
GPD	Gallons per Day	WWTP	Wastewater Treatment Plant
GVW	Gross Vehicle Weight		
HDPE	High Density Polyethylene		
HHW	Household Hazardous Waste		
ICW	Infectious and Chemotherapeutic Waste		
LCSWMD	Luzerne County Solid Waste Management Department		
LDPE	Low Density Polyethylene		
MGD	Million Gallons per Day		
MRF	Material Recovery Facility		
MSW	Municipal Solid Waste		
MTCE	Metric Tons of Carbon Equivalent		
MTCO2E	Metric tons of Carbon Dioxide Equivalent		
OCC	Old Corrugated Containers		
ONP	Old Newspaper		
O&M	Operation and Maintenance		
PADEP	Pennsylvania Department of Environmental Protection		
PBR	Permit by Rule		
PDA	Personal Digital Assistant		
PET	Polyethylene Terephthalate		
PP	Polypropylene		

INTRODUCTION

Introduction to Luzerne County Solid Waste Management Plan

On July 28, 1988, the Pennsylvania Municipal Waste Planning, Recycling and Waste Reduction Act (Act 101) was enacted. This Act provided counties with the duty and primary responsibility to plan for the processing and disposal of municipal waste generated within their boundaries and required counties to develop and submit SWMPs to the Pennsylvania DER for approval by January 1991. Among other requirements, the Plan must provide for assured disposal capacity for the processing and disposal of municipal waste generated within the county for at least ten years.

In conformance with its powers and duties under Act 101, at the direction of the LCSWMD, a Department of the County, proceeded to fulfill its obligations under Act 101 to develop and implement a Municipal SWMP subsequent to municipal review and ratification.

The following timeline provides a summary of the prior Luzerne County SWMPs.

2001 Plan Update

Prepared by R.W. Beck Consultants in conjunction with the Luzerne County Department of Solid Waste Management for modification to the 1990 Plan, per Act 101 requirements to modify the SWMP every ten years. This update reflects information that has changed since the original plan. The following items were updated:

- Updated waste quantity data based on the State landfill destination reports
- Updated recycling quantities based on municipal and County recycling reports
- Updated waste projects for 2000 to 2010
- Identified recycling programs implemented from 1990 to 2000
- Selection of facilities to provide processing and/or disposal capacity for the next ten years
- Revisions to the County's Municipal Waste Management Ordinance
- Discussion of public participation during the update process.

2010 Plan Update

Prepared by MSW Consultants in conjunction with the Luzerne County Department of Recycling in modification to the 2001 Plan Update, per Act 101 requirements to modify the SWMP every ten years.

- Most waste collection and all waste disposal services will be managed by the private sector.
- Recyclables collected curbside are generally handled by the private haulers, or in some instances the municipality.
- Municipalities will manage the collection of recyclable materials from locations throughout the County
- Processing and disposal of C&D waste will be managed by the private sector.
- Other recyclables such as scrap metals, used oil, lead acid batteries and other non-Act 101 recyclable materials will be managed and marketed primarily by the private sector.
- Biosolids and septage will be managed by a combination of private and municipal entities.
- Infectious and chemotherapeutic waste will be managed privately.
- The County will host electronic waste and tire collection programs on an annual basis.

Given the expiration of the disposal agreements with the designated facilities on December 31, 2020 and its obligations under Act 101 to update the Plan on a regular basis, address the County's appropriate obligation under the Commonwealth's revised 35% recycling goal and to continue to provide for at least ten years of assured capacity, the LCSWMD, in the winter of 2018, initiated steps toward the development of the current Plan Revision.

2021 Plan Update

The purpose of the 2021 Plan Revision is to 1) provide for an additional ten years of disposal capacity to serve the needs of the County and its municipalities through an open, fair and competitive process, 2) address how the County will take steps to meet the statewide 35% recycling goal over time, 3) update relevant demographic data, waste generation and disposal trends and collection practices, and 4) develop goals and recommendations to support recycling in Luzerne County while investigating alternative funding for these programs.

To provide assistance in this effort, the LCSWMD will apply for a PADEP Municipal Waste Planning Grant under Act 101 to have Barton & Loguidice D.P.C. (B&L), a contracted consultant, provide recommendations to the County to address the issue of improving the county recycling program and increasing the rate of recycling within the County, while exploring funding opportunities to support these efforts.

At the LCSWMD's direction, the 2021 Plan Revision process was officially initiated via a meeting with PADEP on August 9, 2018 and a subsequent email to PADEP, where the Department agreed that the SWMP shall be non-substantial. A newly constituted SWAC was appointed in April 2019 and met for the first time on May 2, 2019 to assist the County and its consultants and legal counsel in this effort. In May 2020, the LCSWMD notified PADEP that the Plan would be a substantial revision.

This Plan Revision has been prepared so that the County can consolidate prior revisions in one comprehensive planning document that reflects the current Solid Waste Management System and the County's intended efforts in the next planning cycle to increase the opportunities for recycling within the County toward meeting the Commonwealth's 35% recycling goal.

CHAPTER 1 - DESCRIPTION OF WASTE

1.1 Purpose

The purpose of this chapter is to describe and determine the quantity of MSW generated in Luzerne County that will be managed by the system defined in this Plan. To estimate the quantity of present and projected municipal waste generated on an annual basis, current and historical quantity data was used, including:

- SWMP for Luzerne County (2010)
- PADEP Origin/County Waste Destination Reports for the period January 2015 through December 2019
- Luzerne County ReTRAC Reports for 2015 through 2019

This Plan updates Luzerne County's 2010 Plan, including all relevant and/or out-of-date information in the 2010 Plan. This Plan update follows the direction of "Guidelines for the Development and Implementation of County Municipal Waste Management Plan Revisions". It shall be noted that PADEP does not require every section to be updated and therefore, only a minimal survey of municipal waste generators was performed, as there has been little change in the County's municipal waste management system over the past decade.

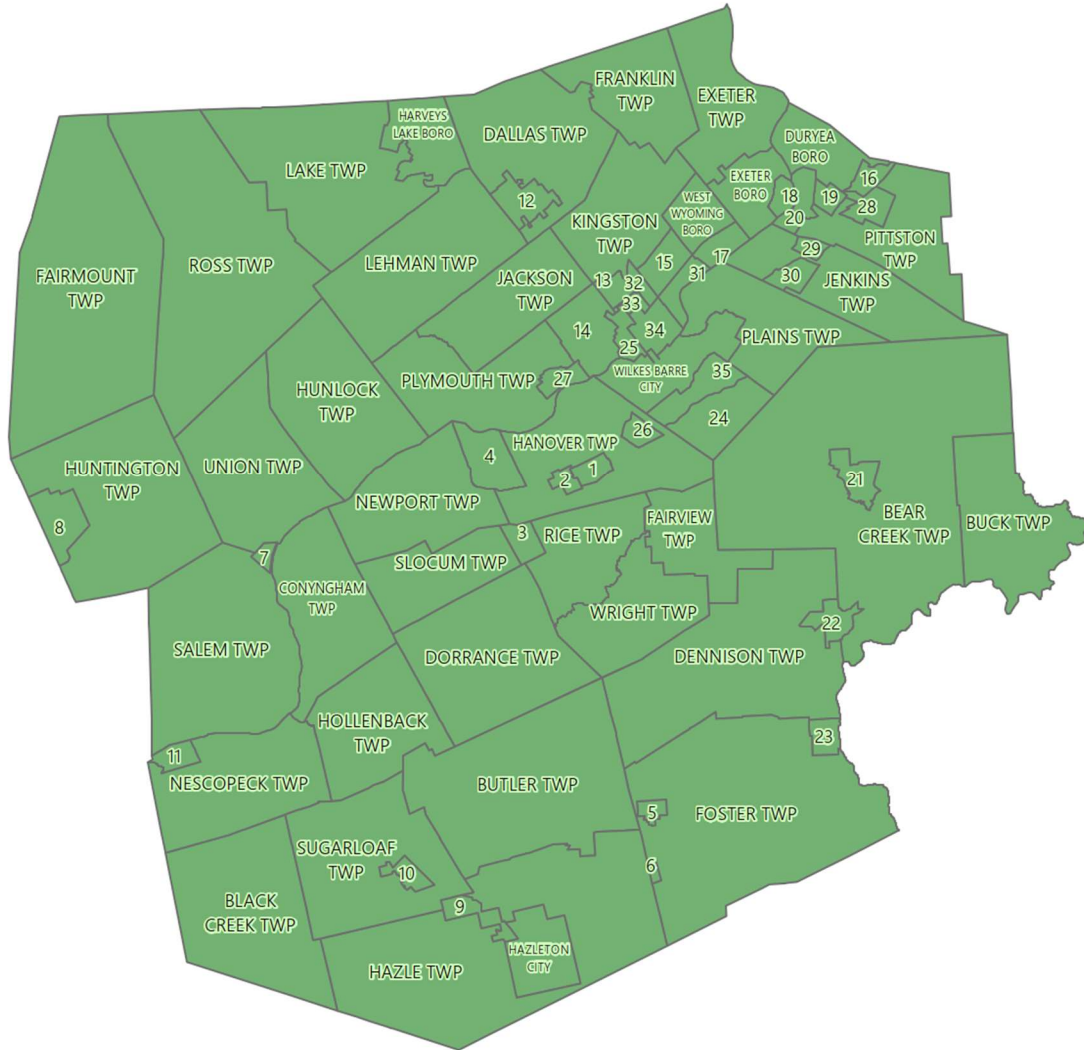
1.2 Characteristics of Luzerne County

Luzerne County is located in northeastern Pennsylvania and was known for producing anthracite coal in the 19th and 20th centuries. By the early 21st century, many factories and coal mines were closed. In recent years, the county has grown moderately with warehousing replacing manufacturing as the main industry.

Luzerne County had a 2019 population of 317,417 according to the U.S. Bureau of the Census and is 906 square miles in area. The County consists of seventy-six (76) municipalities that include four (4) cities, thirty-six (36) boroughs, and thirty-six (36) townships. The county seat and largest city is Wilkes-Barre with a 2019 US Census population of 40,766. Figure 1-1 shows Luzerne County and its municipalities.

The major transportation routes in the County are Interstate 80 (I-80), 81 (I-81) and 476 (I-476) and US Route 11. Luzerne County also has important state roads that include PA Routes 29, 92, 93, 115, 118, 239, 309, 315, 339, 415, 424, 437, 487, 502, 924, and 940.

Luzerne County Municipalities



- | | |
|--------------------------|-----------------------------|
| 1. SUGAR NOTCH BORO | 19. HUGHESTOWN BORO |
| 2. WARRIOR RUN BORO | 20. PITTSBURGH CITY |
| 3. NUANGOLA BORO | 21. BEAR CREEK VILLAGE BORO |
| 4. NANTICOKE CITY | 22. PENN LAKE PARK BORO |
| 5. FREELAND BORO | 23. WHITE HAVEN BORO |
| 6. JEDDO BORO | 24. LAUREL RUN BORO |
| 7. SHICKSHINNY BORO | 25. EDWARDSVILLE BORO |
| 8. NEW COLUMBUS BORO | 26. ASHLEY BORO |
| 9. WEST HAZLETON BORO | 27. PLYMOUTH BORO |
| 10. CONYNGHAM BORO | 28. DUPONT BORO |
| 11. NESCOPECK BORO | 29. YATESVILLE BORO |
| 12. DALLAS BORO | 30. LAFLIN BORO |
| 13. COURTDALE BORO | 31. FORTY FORT BORO |
| 14. LARKSVILLE BORO | 32. LUZERNE BORO |
| 15. SWOYERSVILLE BORO | 33. PRINGLE BORO |
| 16. AVOCA BORO | 34. KINGSTON BORO |
| 17. WYOMING BORO | 35. WILKES BARRE TWP |
| 18. WEST PITTSBURGH BORO | |



1.3 Residential, Commercial, and Institutional Fraction of the Municipal Waste Stream

The typical municipal waste portion of the County's solid waste stream consists of waste generated by residential (homes, apartments), commercial (offices, retail stores, restaurants, industrial lunchrooms and offices, etc.), institutional sources (municipal buildings, libraries, schools, etc.), and community events. This material does not include sewage sludge generated by on-lot septic systems and WWTPs, RMW generated mainly from hospitals and other medical institutions, ash material generated from municipal waste incinerators and other industrial processes, asbestos material generated from industrial processes and demolition projects, and construction and demolition material generated from building construction and/or demolition projects. Recyclables generated/diverted from municipal waste sources are also included in the tonnages reported below. Table 1-1 reports the total quantities of residential, commercial, and institutional waste processed or disposed of from Luzerne County sources from the years 2015 through 2019.

**Table 1-1
Luzerne County Residential, Commercial, and Institutional Waste
and Recyclables Quantities for 2015 – 2019 (in Tons)**

Type of Material	Year				
	2015	2016	2017	2018	2019
Residential, Commercial, and Institutional Waste*	219,584	211,622	225,468	244,283	254,483
Recyclables (diverted)**	165,510	160,273	135,908	137,662	138,171
Total:	385,094	371,895	361,375	381,945	392,654

* Tonnages obtained from PADEP Waste Destination Reports. Tonnages include typical MSW and C&D.

** Tonnages obtained from Re-TRAC Reports for Luzerne County for both residential and commercial recycling.

A review of Table 1-1 shows an increase in the reported amount of municipal waste disposed of by Luzerne County residents and businesses between 2015 and 2019. Based on this information, the 2018 waste and recycling tonnage totals were used to estimate the per capita waste disposal rate, in lieu of utilizing an average.



1.4 Yard Waste and Recycling

Yard waste materials are organics that readily decompose in either an agricultural land application process or a composting system. These materials are typically made up of grass, leaves and brush (i.e. small branches, twigs, etc.) from general yard maintenance. Yard waste does not include materials generated by tree removal, land clearing or home renovation projects.

Yard waste composting in Luzerne County is largely limited to programs initiated by the mandated municipalities to fulfill their obligation to collect yard waste separate from municipal waste, most specifically leaf material in the fall. As such, the County is not directly involved in this process. Municipalities within Luzerne may either own or operate a yard waste or compost facility or use other existing public or private facilities. In 2019, it was reported to Re-TRAC

that 25,829 tons of wood waste, leaf and yard waste from the residential sector and 25,448 tons of wood, leaf and yard waste from the commercial sector was diverted from a landfill and ultimately composted.

According to the PADEP, there are other options for composting leaf and yard waste if a compost drop-off or processing facility is not an option. Backyard composting and grasscycling are practices that residents can do at their own home. Grasscycling is a simple alternative to bagging grass clippings. Residents can simply leave the clippings on their lawn, where they break down in seven (7) to fourteen (14) days. Another option for recycling leaf and yard waste is backyard composting. A good mix of organic materials needed for successful composting consists of two parts “browns” (materials such as dead leaves that are high in carbon) and one part “greens” (such as fresh grass clippings and garden prunings that are high in nitrogen).



1.5 Household Hazardous Waste

According to the PADEP, HHW are those wastes produced in our households that are hazardous in nature, but are not regulated as hazardous waste, under federal and state laws. Each person in Pennsylvania produces an average of four (4) pounds of HHW each year. Included are such items as old paints and paint related products, pesticides, pool chemicals, drain cleaners, and degreasers and other car care products. Such consumer waste products, if carelessly managed can, and frequently do,

create environmental and public health hazards.

According to PADEP, the following is an outline for residents in any County in Pennsylvania on how to manage HHW material:

- The best method of managing HHW is to prevent its generation in the first place. This involves selecting the least toxic item for use and buying only the amounts necessary to complete the task.
- If the material is still useable (damaged/shelf life expired, etc.) check to see if others might be able to use it. Check with community groups to see if they can use the product.
 - If the material is not useable and/or if such “outlets” are not available, it may be taken to your community’s HHW collection program, if offered locally. Please contact local municipality to determine if a HHW program is offered. Such programs will ensure that your HHW is recycled or, otherwise, managed, in an environmentally preferable way, under the hazardous waste provisions of the law.
 - If you have used oil, take it to a used oil collection site.
 - Spent lead acid batteries can be returned to sellers. In Pennsylvania, dealers are required to take old batteries when new ones are purchased. Spent lead acid batteries may not be discarded in landfills.
 - Used oil and intact lead acid batteries from households are not considered hazardous wastes in Pennsylvania. However, they are frequently generated in households and are thus often grouped in the HHW category. They are also frequently included in HHW collection programs.

- If you must discard of the material, you may legally discard of it in your regular trash pick-up, provided:
 - You have read the label and complied with any disposal directions.
 - Liquids have either been allowed to evaporate (if water based) or absorbed (if non-water based) on some material such as vermiculite, cat litter, or sawdust, so that there are no freestanding liquids.
 - The remaining residue has been packaged to prevent leakage while the material is being transported to the disposal facility.
 - The material is placed out in small quantities, over several collection periods.

1.6 Covered Devices (Electronics) Recycling

According to PADEP, e-waste includes computers, monitors, televisions, audio equipment, printers, and other electronic devices. Consumer electronic products are characterized by rapidly evolving technology and a relatively short product life. Advances in technology for all electronic equipment soon renders them obsolete. The average lifespan of a computer is about three (3) to five (5) years. In 2016, the average household had ten (10) connected devices, which was estimated to increase to fifty (50) by 2020. This includes smartphones, tablets and consoles, as well as personal computers. According to a Nielsen report, the average American household had approximately three (3) televisions. According to manufacturers, a flat screen television has a lifespan between four (4) and ten (10) years when in active use.



Electronic equipment contains metals that, if not properly managed or contained, can become hazardous wastes. The “Covered Device Recycling Act” (House Bill 708), PA Act 108 of 2010, establishes a recycling program for certain covered devices; imposes duties on manufacturers and retailers of certain covered devices; provides for the powers and duties of PADEP including enforcement; establishes the Electronic Materials Recycling Account in the General Fund; and prescribes penalties for noncompliance. Information on the CDRA is presented in Appendix D.

In January 2013, a disposal ban on covered devices went into effect, after which no person was allowed to dispose of a covered device or any of its components with their municipal waste. Residents are now responsible for properly recycling covered devices.



1.7 Bulky Waste

Bulky wastes are those wastes that include household furnishings, and white goods or appliances such as stoves, refrigerators, washing machines, dryers, mattresses and box springs, rugs, lawn mowers, auto parts, etc. Some municipalities conduct bulky waste collection programs either weekly, monthly, semi-annually, annually or on an as-needed basis.

Most bulky wastes are disposed of at a solid waste facility or processed for resource recovery. The County illegal dump survey confirmed that hard-to-recycle items, such as C&D materials and tires, made up a significant portion of the waste at the identified 51 illegal dump sites in the County.



1.8 Construction and Demolition Waste

Typical C&D waste materials include lumber, drywall, metals, masonry (brick, concrete, etc.), carpet, plastic, pipe, rocks, dirt, paper, cardboard, or green waste, related to land development or construction type projects. The amount of C&D waste collected for disposal on an annual basis from Luzerne County sources has been relatively steady over the past five (5) years, averaging nearly 15,000 tons annually between 2015 and 2018.

No research has been done to determine the major components of the C&D waste stream in Luzerne County and the potential to recover some of these components for recycling. With the current volatile state of recycling and the difficulty finding end markets/uses for single stream C&D material, it was determined that further research of the C&D waste stream was not practical.

1.9 Biosolids and Septage Waste

The management of biosolids and septage waste in the County has changed little since the 2010 Plan as the County’s demographics and socio-economic factors have remained consistent. In the previous plan it was reported that management of septage will largely continue to be processed through wastewater treatment plants in the County.

At this time, sufficient capacity exists at the treatment plants to provide the necessary capacity required to ensure proper management of Luzerne County’s septage waste over the next ten year planning period.

1.10 Regulated Medical and Chemotherapeutic Waste

RMW, formerly known as ICW, is the portion of the waste stream that may be contaminated by blood, body fluids, or other potentially infectious materials, thus posing a significant risk of transmitting infection.

Under the PADEP regulations, RMW generated by hospitals, nursing homes, clinics, dental and medical offices are included as part of the municipal waste stream. Therefore, it is Luzerne County’s responsibility to ensure proper management of this portion of the municipal waste stream. In Luzerne County, each facility makes individual arrangements for handling and disposition of RMW.

In all nursing homes and hospitals, RMW collection and disposal is managed by outside contractors. To ensure the proper handling of this material by private haulers, PADEP requires that all vehicles used for the commercial collection of RMW generated in the County be permitted by PADEP.

To the County’s knowledge, no new facilities have come online since the 2010 Plan, nor have any existing facilities undergone expansion. Today, medical facilities continue to manage RMW effectively through arrangements with commercial contractors to safely transport, process and dispose of this material. However, home-generated sharps, pharmaceuticals and infectious wastes are not technically regulated

RMW, concerns over their safe and best disposal options remain and are addressed in this plan. See Section 1.12 for information on household pharmaceutical waste disposal.

1.11 Pharmaceutical Waste

Pharmaceutical wastes are those prescriptions or over-the-counter drugs from residential homes that are no longer needed or have expired. Per the EPA, these types of waste are not to be flushed down the toilet or drain unless the label or accompanying patient information specifically instructs you to do so. The EPA states that these types of wastes are to be returned to a drug take-back program or follow the following steps for household disposal:

- Take the prescription drugs out of their original containers. Liquid pharmaceuticals shall remain in the original container.
- Mix drugs with an undesirable substance, such as cat litter or used coffee grounds.
- Put the mixture into a disposable container with a lid, such as an empty margarine tub, or into a sealable bag.
- Conceal or remove any personal information, including Rx number, on the empty containers by covering it with permanent marker or duct tape, or by scratching it off.
- The sealed container with the drug mixture, and the empty drug containers, can now be placed curbside in your residential waste container.

There are currently sixteen (16) drug take back drop-off boxes in Luzerne County sponsored by the Pennsylvania Department of Drug and Alcohol Program, the Pennsylvania Commission on Crime and Delinquency and the Pennsylvania District Attorneys Association. The following items are **NOT** accepted at the drop-off boxes:

- Intravenous solutions
- Injectables, syringes, and needles (i.e. EpiPens)
- Hydrogen peroxide
- Compressed cylinders or aerosols (e.g. asthma inhalers)
- Iodine-containing medications
- Thermometers
- Alcohol and illicit drugs (i.e. marijuana, heroin, LSD, etc.)

To locate a drug take-back location, municipalities may refer residents to this website: <https://apps.ddap.pa.gov/gethelpnow/PillDrop.aspx>

1.12 Home Health Care Waste

Home health care wastes primarily consist of used “sharps”, such as needles, syringes, lancets, and other sharp objects, as well as soiled bandages, disposable sheets and gloves. The following outlines the steps recommended by the PADEP for disposal of home health care waste:

- Place all sharps in a puncture-resistant, hard plastic or metal container. An empty detergent bottle with a screw on cap or an empty coffee can will do. Close the container with its original lid and secure with heavy duty tape. Place the tightly sealed container in a paper bag and discard it with the household waste. Do not place this material with the recyclables.
- It is recommended to disinfect sharps with a solution of one (1) teaspoon of bleach in ½ gallon of water, prior to disposal.

- Place non-sharp home health care wastes in a doubled, securely fastened, opaque plastic trash bag before putting them in the trash can with other household wastes.
- Do not place this material with the recyclables.

1.13 Residual Waste

Luzerne County generates residual waste—that is, wastes (including sludges) generated by industrial, mining, agriculture, or water supply treatment facilities. While the County does not manage this waste for disposal, it bears mentioning because Luzerne County residual waste generators have disposed of 24,000 tons, on average, of residual waste annually since 2015. The total tonnage of residual waste disposed in 2019 (48,427 tons) represents approximately 14% of the overall total tonnage of waste disposed from Luzerne County for 2019 (335,384 tons). The majority of this waste stream was disposed of at three (3) disposal facilities, Alliance Landfill, Keystone Sanitary Landfill, and Commonwealth Environmental Systems Landfill, as well as other facilities accepting smaller tonnages. Disposal facilities, as part of the SOI process, were asked to include their guaranteed tonnage, to Luzerne County, for residual wastes and their not to exceed tipping fees, over the 10-year planning period. Table 1-2 lists the tonnage of residual waste generated in Luzerne County between 2015 and 2019.

Table 1-2
Luzerne County Residual Waste Tonnages for 2015 – 2019

Year				
2015	2016	2017	2018	2019
23,120	26,608	22,377	25,771	48,427

Source: PADEP Waste Destination Reports.

CHAPTER 2 - DESCRIPTION OF FACILITIES

This section describes the facilities that are currently being used to manage the MSW generated in Luzerne County.

2.1 Existing Waste Disposal Facilities

There are no waste disposal facilities located in Luzerne County. The following disposal facilities executed reserved capacity agreements with Luzerne County as part of the 2010 SWMP:

- Alliance Sanitary Landfill
- Commonwealth Environmental Systems (CES) Landfill
- Grand Central Sanitary Landfill
- Keystone Sanitary Landfill
- Phoenix Resources Landfill (residual waste only)
- Pioneer Crossing Landfill
- Wayne Township Landfill
- White Pines Landfill (residual waste landfill)

Table 2-1 lists the amount of MSW accepted at facilities with executed disposal capacity contracts with Luzerne County from 2015 – 2019. Municipal waste in Table 2-1 includes typical MSW, C&D waste, sewage sludge, RMW, ash and asbestos. Table 2-2 provides information on those facilities with existing waste disposal contracts with Luzerne County.

Table 2-1
MSW Accepted at Landfills with Executed Contracts with Luzerne County¹ (in Tons)

	2015	2016	2017	2018	2019
Alliance Sanitary Landfill	92,088	104,564	106,123	100,629	91,639
Commonwealth Environmental Systems (CES) Landfill	43,630	32,069	35,322	47,283	55,432
Grand Central Sanitary Landfill	106	68	72	70	22
Keystone Sanitary Landfill	113,374	91,448	86,057	91,100	108,080
Pioneer Crossing Landfill	0	0	0	0	0
Wayne Township (Clinton County) Landfill	723	18,673	31,289	39,457	31,200
Total	249,921	246,822	258,863	278,539	286,373

¹MSW includes typical municipal waste, C&D, Sewage Sludge, RMW, Ash and Asbestos

2.2 Existing Waste Transfer Stations

There is currently one (1) PADEP permitted municipal waste transfer station located in Luzerne County, Waste Reduction Recycling & Transfer, Inc. This facility and the service they provide are in Table 2-3. Additionally, there are four (4) transfer stations located near Luzerne County that may accept County waste. They are identified in Table 2-4.

**Table 2-2
Luzerne County Contracted Disposal Facilities**

	PADEP Permit Number	Permitted Capacity	Remaining Capacity (as reported in 2019 SOI)	Available Capacity through Expansion	Recyclable Materials accepted at on-site drop-off
Alliance Landfill (Waste Management of PA, Inc.)	100933	62,047,268 CY	27,711,030 CY		Office paper and tin and aluminum cans
Commonwealth Environmental Systems (CES) Landfill	101615	29,639,895 CY	10,923,821 CY		Plastic, Glass, Metal
Grand Central Landfill (Waste Management of PA, Inc.)	100265	27,173,576 CY	6,193,529 CY		Office paper, junk mail, newsprint, paperboard, corrugated cardboard, aluminum and tin cans, and rinsed plastic and glass bottles and jars
Keystone Sanitary Landfill, Inc.	101247	61,940,000 CY	14,138,307 CY		Clear glass, plastics, scrap metal
Pioneer Crossing Landfill (JP Mascaro & Sons)	100346	13,614,392 CY	4,421,507 CY		TotalRecycle – plastics, metals, glass, mixed paper
Wayne Township (Clinton County) Landfill	100955	4,195,355 CY	91,153 CY	13,000,000 CY	

Source: SOI responses submitted in 2019.

**Table 2-3
Existing Permitted Transfer Stations in Luzerne County**

Transfer Station	Description of Services Provided	Residential Access
Waste Reduction Recycling & Transfer, Inc. 2100 Sans Souci Parkway Hanover Township, PA 18706	The facility offers residential and commercial waste disposal and recycling and dumpster/roll-off rental services. The Transfer Station is open to the public and accepts municipal wastes, including C&D Debris, as well as metal and cardboard. The facility does not accept: mounted tires, batteries, appliances with Freon, paint, medical waste, asbestos, ash, liquids of any kind, gasoline, turpentine, waste oil, hydraulic fluids, acids, pool chemicals, drums, sealed containers, tar, human or animal remains	Yes

**Table 2-4
Existing Permitted Transfer Stations Located near Luzerne County**

Waste Transfer Station	Address	County
EIO Waste Solutions and Recycling	5312 PA Route 309 Harveys Lake, PA 18618	Wyoming County
Lehigh Valley Recycling Transfer Station	3942 Portland St Coplay, PA 18037	Lehigh
Tamaqua Transfer and Recycling Co.	244 E. Broad Street Tamaqua, PA 18252	Schuylkill
Ted Heaps Container Service	388 Jerseytown Road Millville, PA 17846	Columbia

2.3 Consideration of Existing Facilities

Section 272.224 of Title 25 of the Pa. Code mandates that the county plan must consider facilities that meet the definition of "existing facility". In Chapter 5 of the SWMP, the selection and justification of the municipal waste program is outlined. In order to minimize the effect on landfill capacity of reserving space for Luzerne County waste and to allow for flexibility for backup capacity, Luzerne County decided to use multiple disposal facilities. This action is also expected to help maintain competition in the area. Luzerne County's Plan is intended not to interfere with any existing facility's effort to find other customers or to expand their facilities.

This Page Intentionally Left Blank

CHAPTER 3 - ESTIMATED FUTURE CAPACITY

Luzerne County has seventy-six (76) municipalities that include four (4) cities, thirty-six (36) boroughs, and thirty-six (36) townships with a population of 317,417 persons (2019 Census). Over a recent five (5) year period (2015 – 2019), the majority of Luzerne County municipal wastes were transported to four (4) landfills. A listing of these disposal sites, along with the tonnages of Luzerne County MSW accepted each year between 2015 and 2019, are presented in Table 3-1. The four (4) disposal facilities that accepted the majority of Luzerne County MSW for disposal during this time are shaded in Table 3-1.

**Table 3-1
Typical MSW and C&D Accepted at Disposal Facilities (2015 – 2019) (in Tons)**

Site Name	County	Year ¹					
		2015	2016	2017	2018	2019	5 year total
Chrin Brothers Sanitary Landfill	Northampton	232	32	440	202	285	1,191
Grand Central Sanitary	Northampton	106	68	72	47	22	315
Alliance Sanitary Landfill	Lackawanna	77,753	82,488	89,985	83,505	79,005	412,736
Clinton County SWA-Wayne Twp. Landfill	Clinton	7,195	18,219	30,805	38,374	29,768	124,361
Lycoming County Resource Management	Lycoming	149	26	9	56	51	291
Keystone Sanitary Landfill	Lackawanna	99,051	80,953	76,360	81,036	99,191	436,591
Commonwealth Environmental System (CES) Landfill	Schuylkill	40,117	29,805	32,711	41,035	46,084	189,752
Fairless Landfill	Bucks	-	21	23	29	1	74
Covanta Delaware Valley	Delaware	-	-	8	-	-	8
Cumberland County Landfill	Cumberland	19	10	55	-	23	107
Tullytown Resource Recovery	Bucks	-	1	-	-	-	1
LCSWMA – Susquehanna Resource Management Complex	Dauphin	-	-	-	-	15	15
Modern Landfill	York	-	-	-	-	40	40
IESI Bethlehem Landfill	Northampton	1,439	-	-	-	-	1,439
Total		226,059	211,622	230,467	244,283	254,485	1,166,916

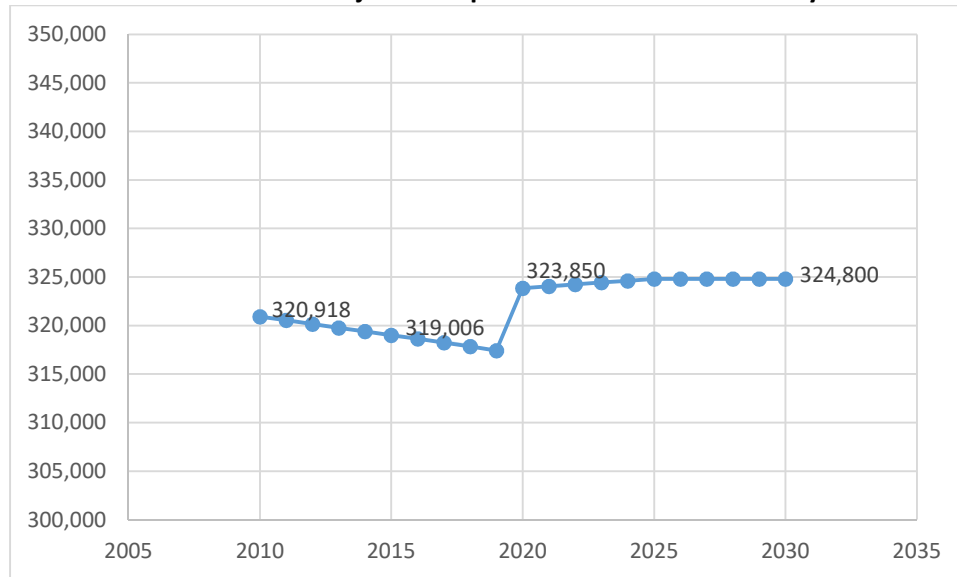
Source: PADEP Waste Destination Report.

¹ Tonnages include typical MSW and C&D material. Tonnages do not include residual, sewage sludge, RMW, Ash or Asbestos waste. Also does not include recyclable materials and organics that have been diverted from disposal through recycling and composting.

3.1 Future County Population Projections

Municipal waste generation is a function of a number of socio-economic factors, including population. Figure 3-1 shows the County population, based on the 2010 Census information and population estimates and forecasts for Luzerne County from 2020 through 2030.

Figure 3-1
Historic and Projected Populations for Luzerne County



Source: U.S. Census of Population, 2010.

Forecasts: Municipal Population Forecasts for Luzerne County

As Figure 3-1 illustrates, the County is forecast to have a no significant change in population over the 10-year planning period. Luzerne County's projected population from 2020 to 2030 is projected to increase by approximately 950 people.

3.2 Waste and Recyclables Projections

The three (3) primary sources of data used in making projections of the amount of municipal wastes generated for disposal in the seventy-six (76) municipalities of Luzerne County are: the population projections (Figure 3-1); Re-TRAC data on recyclables and organics diverted from disposal through recycling/ composting (Table 3-2), and; Luzerne County-generated tons of MSW disposed, taken from PADEP Waste Origin/Destination Landfill Summary Reports from 2015 through the year 2019 (Tables 3-1 and 3-2).

The estimates and projections of municipal waste disposed in Luzerne County, presented in Table 3-3, were computed by taking into consideration historic per capita waste and recycling disposal and diversion rates and applying these rates to the projected County population for years 2021 through 2030 (with some special considerations, that will be discussed in this chapter). Luzerne County has seen a steady increase in disposal of most types of MSW tonnage over the past few years. Based on the increase in tonnage, instead of taking an average disposal rate over the past five (5) years for these waste categories, B&L utilized the tonnage reported to PADEP for calendar year 2019. The per capita waste disposal rates were calculated for these waste categories by taking the net waste disposal tonnage data contained in the PADEP Waste Origin/Destination Reports for calendar year 2019 and dividing this tonnage by the

estimated population of Luzerne County during that time period, assumed for the purposes of these calculations to be the year 2019.

The calculated per capita disposal and diversion rates for each waste and recyclables category was then multiplied by yearly population projections for years 2021 through 2030, to estimate waste and recyclables tonnages disposed or diverted by Luzerne County over the planning period (with some special considerations/ adjustments). These waste and recyclables/organics projections, through year 2030, are presented in Table 3-3.

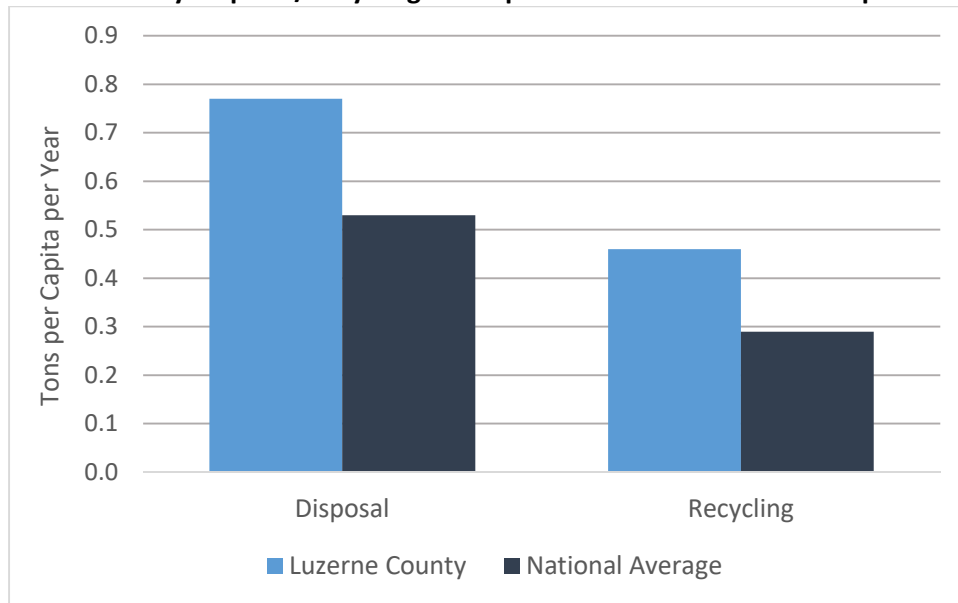
3.3 Per Capita Waste Disposal Rates

Between 2015 and 2019, it is estimated that Luzerne County generated an average of approximately 417,000 TPY of MSW (all categories) and recyclables/ organics, of which approximately 254,000 tons were reportedly landfilled each year.

Typical MSW disposed by Luzerne County residents, which includes residential, commercial, institutional, but not including recyclables/ organics diverted from disposal, has been steadily increasing over the past three (3) years, with 2019 having the highest disposal rate at approximately 246 TPY. Using the 2019 waste disposal tonnage and the estimated 2019 population of the County at 317,417, the **typical MSW per capita** rate for waste disposal was approximately **0.77 tons per capita per year**.

The national average per capita waste disposal rate is 0.53 tons per person per year or 2.9 pounds per person per day. This includes both landfilling and combustion with energy recovery. This data is based on the EPA’s most recently published Sustainable Materials Management Report, dated July 2018. The MSW evaluated by the EPA report includes residential waste and waste from commercial and institutional locations, such as businesses, schools and hospitals. Figure 3-2 below displays the average disposal and recycling rates for Luzerne County compared to national average rates.

**Figure 3-2
Luzerne County Disposal/Recycling Per Capita Rates vs. National Per Capita Rates**



The higher Luzerne County MSW per capita rate as compared to the national average makes sense when considering the amount of potential out-of-county university and college students that reside in Luzerne County for the majority of the year, but may be reported as residing in other counties. Additionally, the number of commercial, institutional and industrial facilities located in Luzerne County that generate typical MSW contribute to the higher per capita waste disposal rate when compared to the national average.

C&D disposal by Luzerne County generators was approximately 8,500 tons in 2019. Based on the estimated 2019 County population and the 2019 C&D disposal tonnage, the per capita waste disposal rate for C&D was **0.03 tons per capita per year**.

Sewage sludge (the fraction that is dewatered and landfilled, but excluding land-applied liquid sludge) disposal by Luzerne County generators was approximately 31,000 tons in 2019. Based on the estimated 2019 County population and the 2019 sewage sludge disposal tonnage, the per capita waste disposal rate for sewage sludge was **0.1 tons per capita per year**.

RMW disposal by Luzerne County generators was approximately 300 tons in 2019. Based on the estimated 2019 County population and the 2019 RWM disposal tonnage, the per capita waste disposal rate for RWM was **0.001 tons per capita per year**.

The ash residue component of special municipal solid wastes disposed by Luzerne County generators was approximately 0 tons in 2019, therefore, the per capita waste disposal rate for ash was **0.00 tons per capita per year**.

The asbestos component of special municipal solid wastes disposed by Luzerne County generators was approximately 800 tons in 2019. Based on the estimated 2019 County population and the 2019 asbestos disposal tonnage, the per capita waste disposal rate for asbestos was **0.003 tons per capita per year**.

Non-hazardous industrial waste (residual wastes) tonnages are not a component of municipal wastes, and this plan deals with municipal wastes as defined by Act 101 of 1988. However, it is noted that residual waste generated within Luzerne County and disposed in 2019 was approximately 48,400 tons. Based on the estimated 2019 County population and the 2019 residual waste disposal tonnage, the per capita waste disposal rate for this waste material was **0.15 tons per capita per year**. Residual waste makes up a significant fraction of the overall waste generated and disposed in Luzerne County, therefore future generation of residual wastes in Luzerne County is included in the waste projection tables.

**Table 3-2
Luzerne County Waste and Recyclables/ Organics Disposed/Diverted 2015 – 2019 (in Tons)**

Waste Type	Year				
	2015	2016	2017	2018	2019
Residential, Commercial, and Institutional MSW	204,564	195,286	209,636	233,179	246,075
C&D	15,020	16,336	15,831	11,104	8,409
Recyclables & Organics Diverted	165,510	160,273	135,908	137,662	138,171
SUBTOTAL - Typical MSW, C&D, Recyclables/ Organics	385,094	371,895	361,375	381,945	392,655
Recycling Diversion	43%	43%	38%	36%	35%
Sewage Sludge	31,275	30,572	30,501	31,110	31,384
RMW	296	285	269	274	261
Ash Residue	0	0	0	0	0
Asbestos	2,322	4,928	3,205	3,174	828
TOTAL – All Categories of Municipal Waste + Recycling	418,987	407,680	395,350	416,503	425,128
Residual Waste	23,120	26,608	22,377	25,771	48,427
TOTAL – Municipal Waste, All Types + Recycling/ Organics + Residual Waste	442,107	434,288	417,727	442,274	473,555

Sources: PADEP Waste Origin/Destination Reports; Re-TRAC Reports.

3.4 Future County Municipal Waste Generation for Disposal Projections

Table 3-3 presents the annual MSW waste generation for disposal and recyclables diversion estimates/projections for the County, from 2021 through 2030. These projections are tied to the population projections from Figure 3-1 and the per capita waste disposal figures developed in Section 3.3 of this chapter. The total waste generated in Luzerne County requiring disposal is calculated to increase slightly over the 10-year planning period, due to a steady increase in the County's population over the 10-year planning period.

Municipal wastes that are not diverted/ recycled must be processed/ disposed. It is believed that the average per capita waste disposal rates for the multiple fractions of MSW generated (described in Section 3.3) is a valid basis for projecting future waste disposal tonnages.

Special Handling Waste categories of MSW (those that require special handling provisions), including sewage sludge, RMW, ash residue, and asbestos, are projected to increase slightly in combined disposal capacity need over the 10-year planning period ranging from approximately 32,500 TPY in 2021 to 33,200 TPY in 2030.

When considering the disposal capacity needs for Luzerne County's MSW, and when procuring this disposal capacity through a SOI, it was prudent to consider the need to accommodate approximately 385,000 TPY of MSW disposal capacity, which accounted for some additional allowance for disposal of currently diverted recyclables and organics (all categories of municipal waste), and provided for

contingencies over the 10-year planning period from 2021 to 2030. Conservative disposal capacity requirements were included in the SOI for Disposal Capacity, further discussed in Section 3.6.

3.5 Possible Variations in Future Waste Generation for Disposal Projections

The primary variables that may affect actual MSW waste generation/ disposal tonnages in Luzerne County in the future are:

- Population loss or gain
- Changes in recycling activities and opportunities in Luzerne County
- Changes in foreign markets for recyclables exportation
- Changes in product packaging trends
- Increases in waste reduction programs (source reduction strategies)
- Addition of non-mandated municipality recycling programs and drop-off facilities
- Increases in recyclable materials recovery rates
- Expansion of materials diverted/ recycled
- Development of new technologies
- Economic factors; the Plan's waste generation for disposal estimates reflect a stable level, but not growth, in commercial/ business development

Product packaging is still very sensitive to the demands of the marketplace in relation to consumer convenience, consumer manufacturing protection, and retail theft, which, in turn, are in response to the pressures and demands of current day society. Product tampering and the attendant lawsuits have resulted in increased packaging of some food and medicinal products. Retail theft contributes to over packaging of smaller items, the blister pack being an outgrowth of this societal problem. This product packaging tendency along with a forecast of increases in "disposable" health care items and online purchasing will tend to offset waste reduction programs. Although an increase in waste disposal from this type of product packaging has not been accounted for in the projections, it is worth mentioning and worth accounting for when evaluating disposal capacity over the 10-year planning period.

E-commerce is on the rise and with it, comes increased cardboard. There is no denying that companies such as Amazon have grown over the past ten years. Their growth has directly influenced the amount of cardboard recycled on a residential level annually in the U.S. over the past ten years. Residents are interested in receiving goods at an accelerated pace and with the ease of shopping online using a phone or a tablet, it is not anticipated that online shopping will slow over the 10-year planning period, if anything, it's forecasted to grow. Companies are making efforts to reduce cardboard packaging and over packaging of products to reduce the amount of material received by the consumer. These efforts are beneficial, but while these efforts are being implemented, it is important to consider cardboard recycling as part of the 10-year planning process.

The challenges of increased curbside cardboard recycling is the space available to collect this material in the collection vehicles. If cardboard recycling continues to increase at the curb, haulers may be forced to increase collection frequency, which may increase the cost to residents to provide this service. Additionally, many communities that are still utilizing the bins for recyclables collection, versus a cart system, may see the increased need to move to a cart based system.

The County's recycling activities and programs have been consistent over the past few years. The recycling program throughout the County currently consists of drop-off locations; curbside collection conducted by

the private/public sector and periodic HHW, municipal e-waste, paper shredding, and tire collection events. The County is interested in exploring options, during this planning process, to sustain their current recycling programs offered to residents of the County, as well as offer additional recycling opportunities. The SWMP takes into account that the recycling programs offered in Luzerne County are dependent on funding, political will, and public private partnerships that may be implemented over the course of the 10-year planning period.

In July 2017, China announced a series of new restrictions on imported materials, including an outright ban on 24 different categories of recyclable materials to be phased out by the end of 2017. This was a result of the National Sword 2017 Program that called for investigations of shipments of recyclables at the port, including weighing and X-raying. In China's filing with the World Trade Organization, they expressed a desire to protect human health and safety. According to their data, the vast majority of the solid recyclables it accepted were contaminated with dirty material, which can't be recycled, and even dangerous compounds, like mercury, which can compromise any recycling operation. Though 24 materials were banned, the most impactful to the United States is plastic and unsorted waste paper. It is estimated that 70% of the recycling material sent to China by the US is mixed paper. Some of the outcomes of this ban have been:

- Utilization of other Countries for exportation of this material
- Limiting the types of materials collected in the current recycling programs
- The increased diversion to landfill of intended recycling loads due to high levels of contamination
- Moving towards a concentration on quality (i.e. cleanliness) of the recycling stream versus quantity

Any of these variations may cause the estimated waste tonnage requiring disposal to fluctuate up or down over the ten year planning period.

In response to the "China Ban", the waste industry has seen the following reactions in the Commonwealth of Pennsylvania by some of the larger for-profit recyclers:

- Removal of items from the recycling streams (i.e. mixed paper, glass, etc.)
- Fine assessment for high contamination rates and/or materials in the recyclable stream that were banned (i.e. fines assessed for plastic bags in the recycling drop-off containers)
- Increase to service charges and/or surcharge fees (i.e. pull costs are increased to service drop-off locations)

It is envisioned over the ten year planning period, if the China Ban remains in place or the quality of material is held at a higher standard, recycling programs will see a larger concentration on the type of material and quality of material being recycled by haulers and processors. This may result in increased program costs, reduction of materials accepted, renegotiated management of drop-off locations, increased contract costs for waste services to offset recycling program costs, continued fine assessments, etc. Although the recycling market is highly variable at the moment, there are some promising advancements that may alleviate some of the issues with mixed paper. Several large paper manufacturers in China have reportedly bought existing or defunct paper mills in the United States. It is hoped that these purchases will allow the opportunity to once again utilize the large amount of mixed paper collected in the United States.

This Page Intentionally Left Blank

**Table 3-3
Waste and Recycling Projections, 2019 – 2030 (In Tons)**

Waste Type	Year											
	2019 Historical	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
County Population	317,417	323,850	324,042	324,234	324,426	324,618	324,810	324,808	324,806	324,804	324,802	324,800
Typical MSW, C&D and Recyclables												
Estimated MSW (including C&D, not including recyclables) Requiring Disposal	254,484	259,641	259,795	259,949	260,103	260,257	260,411	260,409	260,408	260,406	260,404	260,403
Estimated Recyclables & Organics Diverted	138,171	140,971	141,055	141,138	141,222	141,306	141,389	141,388	141,387	141,387	141,386	141,385
Total MSW, including C&D, and Recyclables	392,655	400,612	400,850	401,087	401,325	401,562	401,800	401,797	401,795	401,792	401,790	401,787
Recyclables Diversion, as a % of MSW (including C&D) + Recycling	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%
Special Handling Waste												
Estimated Sewage Sludge Generated	31,384	32,020	32,039	32,058	32,077	32,096	32,115	32,115	32,115	32,115	32,114	32,114
Estimated ICW Generated	261	279	279	279	279	280	280	280	280	280	280	280
Estimated Ash Generated	0	0	0	0	0	0	0	0	0	0	0	0
Estimated Asbestos Generated	828	844	845	845	846	846	847	847	847	847	847	847
Total - All Categories of Special Handling Waste	32,473	33,144	33,163	33,183	33,203	33,222	33,242	33,242	33,242	33,241	33,241	33,241
Total - Municipal Waste, All Types + Recycling/Organics	425,128	433,756	434,013	434,270	434,527	434,785	435,042	435,039	435,036	435,034	435,031	435,028
Total - All Categories of Municipal Waste (Net of Recycling)	286,957	292,785	292,958	293,132	293,305	293,479	293,653	293,651	293,649	293,647	293,645	293,644
Estimated Residual Waste Generated	48,427	49,409	49,438	49,467	49,496	49,526	49,555	49,555	49,554	49,554	49,554	49,553
Total - Municipal Waste, All Types + Recycling/Organics + Residual Waste	473,555	483,165	483,451	483,737	484,024	484,310	484,597	484,594	484,591	484,588	484,585	484,582
MSW + Special Handling Waste + C&D	286,957	292,785	292,958	293,132	293,305	293,479	293,653	293,651	293,649	293,647	293,645	293,644
MSW + Special Handling Waste + C&D + Residual	335,384	342,193	342,396	342,599	342,802	343,005	343,208	343,206	343,203	343,201	343,199	343,197

Source: 2020-2030 B&L estimated waste projections, 2019 PADEP waste destination reports and Re-TRAC Reports

This Page Intentionally Left Blank

3.6 Securing Waste Disposal Capacity for Luzerne County

Historically, Luzerne County's Municipal Waste Management Plan has provided that municipal waste from the county will be delivered to disposal sites based on:

- 1) Their listing as designated sites in the county municipal waste plan, secured through contracts with the county, and
- 2) Prevailing market conditions. Haulers have been free to take municipal waste from a given municipality to any disposal site of their choosing, as long as the site is designated in the county's plan.

Under Act 101, each county in Pennsylvania must secure municipal waste (MSW) disposal capacity to meet its needs for the next ten (10) years. There are a number of ways in which this requirement can be met. In Luzerne County, the County Council have elected for this Plan Update to secure the minimum disposal capacity requirement at multiple disposal facilities.

A SOI for Disposal Capacity Assurance was prepared and distributed to facilities that are currently contracted with Luzerne County, as well as those facilities that took municipal solid wastes generated in Luzerne County over the past two (2) years, as well as those facilities that requested a copy of the SOI as part of the advertisement outreach. Refer to Appendix A for a copy of the SOI, a copy of the advertisements placed in the local paper (Times Leader), Waste Advantage and the PA Bulletin, and the evaluation of the SOIs received. Six (6) disposal facilities responded to the SOI to provide disposal services to Luzerne County, for a maximum period of ten years. The SOI stated that the County may require a combined municipal waste disposal capacity of up to 385,000 TPY of municipal waste (including residential/commercial/institutional waste, recyclables (if not diverted), C&D waste, RMW, asbestos, sewage sludge and other "special handling" waste) during the 10-year planning period.

Based on B&L's current waste projections (Table 3-3), Luzerne County is projected to generate for disposal, from the waste categories of residential/ commercial/ institutional MSW, C&D waste, sewage sludge, RMW, ash residue, and asbestos a combined total need of approximately 259,000 tons in 2021; adding in residual waste disposal needs, this total need is approximately 291,000 tons in 2021. The equivalent projections for year 2030 are 260,000 and 292,000 TPY of disposal needs, respectively.

This process to secure MSW disposal capacity was conducted in the fall of 2019 using a Solicitation of Interest (SOI) and subsequent submittal forms. Disposal capacity and ceiling tipping fees were solicited for conventional MSW (from residential, commercial, and institutional sources), as well as for sewage sludge (in dewatered cake form), asbestos, incinerator ash, regulated medical waste (RMW), and construction and demolition Waste (C&D) disposal.

The SOI also asked for respondents to indicate their willingness to further discuss, apart from disposal capacity assurance, ways in which the facility may continue a public/private partnership for the sustainability of recycling and integrated waste management in Luzerne County.

The SOI also requested waste transfer stations handling municipal wastes from Luzerne County to respond and agree to 1) manifest all municipal waste handled by original county of waste origin, and to 2) deliver any Luzerne County municipal waste only to processing/ disposal facilities approved in the Plan Update.

Submission packages were received in September 2019, and were reviewed in accordance with evaluation criteria outlined in the SOI. A total of six (6) waste disposal facilities and four (4) waste transfer stations responded to the SOI or requested inclusion in the plan.

All respondents agreed to accept waste at their facilities for a total of ten (10) years. Not all facilities agreed to accept all fractions of MSW, including special handling wastes; however, among multiple facilities, the needs of Luzerne County were met. Additionally, all respondents to the SOI confirmed that they are properly permitted to accept municipal waste.

All of the transfer station respondents agreed to the terms of the SOI.

Appendix A contains Table 1 and Table 2, which outline the SOI responses from the waste disposal and processing facilities, as well as the ceiling tipping fees provided by the waste disposal facilities, and Table 3, which lists the proposed backup disposal facility for each submittal.

All respondents' submission packages were reviewed and considered complete by B&L, the SWAC and the Luzerne County Solid Waste Management Department, upon further consideration/ clarification of the submissions and SOI requirements. A review memorandum, contained in Appendix A, documents a summary of all submittals and the facilities that were recommended for inclusion in the Plan Update, based on review, discussion, and recommendation by the SWAC. The selected facilities are listed in Chapter 6 of the Plan Update.

The SWAC has chosen to recommend to the County Council contracting with six (6) disposal sites, along with four (4) transfer stations. Factors considered were proximity to Luzerne County, use of the primary existing facilities currently used by the private sector haulers, and the need to contract with multiple sites in order to provide for acceptance of all categories of municipal wastes. The details related to those selections are presented in Chapter 6 and in Appendix A. The six respondents will provide more than the required minimum municipal waste disposal capacity assurance by Luzerne County for the next ten (10) years.

The facilities selected through the SOI process will enter into a waste disposal capacity agreement fully aware of the amount of waste they have to accept and the ramifications this may have on the life of their facilities and their permit status. Disposal facilities are also aware that they may receive limited amounts of waste or no waste at all from Luzerne County sources as explicitly stated in the agreement.

It is the intent of the county to enter all new waste transfer and waste disposal agreements with selected facilities no later than December 31, 2020 to coincide with the expiration of the current contract agreements. At that time, copies of the executed transfer and disposal contracts will be placed in Appendix H of this Plan Update.

The MSW and sewage sludge tonnage guaranteed from the respondent disposal facilities to the SOI is shown in Table 3-4. Based on the projected needs, the SOI respondents guaranteed tonnage is adequate to meet the MSW disposal needs of the County during the 10-year planning period. Chapter 6 contains a summary of the results of the SOI and the decisions made regarding selection of processing/ disposal sites.

**Table 3-4
Waste Disposal Capacity Assurance (In Tons)¹**

Facility	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Wayne Township (Clinton County) Landfill	32,760	32,760	32,760	32,760	32,760	32,760	32,760	32,760	32,760	32,760
Keystone Sanitary Landfill	132,000	132,000	132,000	132,000	132,000	132,000	132,000	132,000	132,000	132,000
Commonwealth Environmental Systems (CES) Landfill	130,000	130,000	130,000	130,000	130,000	130,000	130,000	130,000	130,000	130,000
Alliance Sanitary Landfill	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
Grand Central Sanitary Landfill	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
Pioneer Crossing Landfill	65,000	65,000	65,000	65,000	65,000	65,000	65,000	65,000	65,000	65,000
Total Disposal Capacity Assurance for MSW, C&D, and Special Handling Waste	509,760	509,760	509,760	509,760	509,760	509,760	509,760	509,760	509,760	509,760
Total Disposal Capacity Assurance for Sewage Sludge Only	12,525	12,525	12,525	12,525	12,525	12,525	12,525	12,525	12,525	12,525
Total Disposal Capacity Assurance for MSW, C&D, Sewage Sludge and Special Handling Waste	522,285	522,285	522,285	522,285	522,285	522,285	522,285	522,285	522,285	522,285
Projected Generation For Disposal (MSW, C&D, Special Handling Waste, and Recyclables)	432,889	433,146	433,402	433,659	433,915	433,912	433,910	433,907	433,904	433,902

Projected Recyclables Diverted	141,055	141,138	141,222	141,306	141,389	141,388	141,387	141,387	141,386	141,385
Projected Capacity Needs for MSW, C&D, and Special Handling Wastes (Net of Recycling)	291,834	292,007	292,180	292,353	292,526	292,524	292,522	292,521	292,519	292,517
Capacity Needs Met	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

¹ The facilities that committed to sewage sludge disposal capacity include; Clinton County Landfill, Keystone Sanitary Landfill, CES Landfill, Alliance Landfill, Grand Central Landfill and Pioneer Crossing Landfill.

CHAPTER 4 -DESCRIPTION OF RECYCLING PROGRAM

This chapter describes the recycling activities taking place in Luzerne County, the goals for recycling over the ten (10) year planning period and the impact of recycling on the amount of municipal waste requiring disposal/processing capacity.

4.1 The Materials Addressed by Act 101

Newsprint – Newsprint or newspaper is primarily generated in the residential sector. Post-consumer waste newspaper is called “old newspaper” or “ONP”. ONP can be recycled back into newsprint. It can also be made into cellulose insulation, animal bedding, mulch, low-grade copy and computer paper, and paperboard. Paperboard is a trade term that includes all cardboard types, such as corrugated cardboard and tablet backings, as well as the paper lining on gypsum wallboard. ONP can also be shredded and used as a bulking agent in composting wet organic wastes, such as sludge, manure, or food waste. The amount of newsprint generated has declined due to changes in the newspaper industry and increased online readership.



Corrugated Paper – Corrugated paper, sometimes referred to in the recycling industry as “old corrugated containers” or “OCC”, composed primarily of corrugated cardboard boxes, also comprises a significant portion of the municipal waste stream. The majority of it is generated in the commercial sector, although growth in on-line shopping has resulted in

increased OCC from growing use of shipping boxes for home deliveries. Recovery of OCC is conducted by the commercial waste generators and private haulers, and is now collected in many residential curbside collection programs to reduce disposal costs and potentially earn modest sales revenue. Recovered OCC is mixed with virgin pulp to make new corrugated cardboard. It can also be used in the manufacture of other types of paperboard.

High Grade Office Paper – High grade paper includes computer print-out, office papers, and ledgers. Most of it is found in the commercial sector, particularly in office buildings, where it can comprise the majority of the office’s waste stream. Computer printout and white ledger can be made back into high grade paper. However, to make bright white paper requires that the recycled fiber be supplemented with a large percentage



of virgin pulp. A common use is in the manufacture of tissue products such as paper towels and toilet paper. High grade paper is also used to make paperboard.



Mixed Paper – Mixed paper refers to a mixture of the above three types of waste paper plus other waste papers such as junk mail, phone books, magazines, cereal and pizza boxes. Roofing

material and boxboard manufacture are traditional uses of mixed paper, and for the production of low grade tissue and toweling products.

Glass – Although glass is found in a variety of forms and colors (e.g. clear, green and amber) in the municipal solid waste stream, container glass (i.e. bottles and jars) is the most commonly recyclable type of glass. The majority is generated in the residential sector. Waste container glass can be melted and mixed with virgin glass ingredients to make new container glass. In recent years, it has become more difficult to market recovered glass.

Steel and Bimetal Cans – There are two types of steel cans: tin-coated cans commonly known as “tin cans” and “bimetal” beverage cans. Bimetal cans have a coated steel body and aluminum ends. Bimetal beverage cans are easily mistaken for aluminum cans.

Aluminum Cans – Aluminum cans or used beverage cans (UBC) are among the most easily recoverable aluminum products. Aluminum cans are very readily reprocessed into new aluminum sheet. Other products containing aluminum, such as cookware, use a different type of aluminum and are not accepted at recycling centers since the different varieties are not readily substitutable. The cost savings from using scrap aluminum rather than virgin inputs has provided for a strong scrap aluminum market.

Plastics – Plastic is a generic term that defines a wide variety of materials that are made up of one or a combination of plastic resins. The two (2) most common, recyclable types of plastic are PET (Polyethylene terephthalate - #1) and HDPE (high density polyethylene - #2). PET (#1) is most commonly used to produce soft drink bottles. HDPE (#2) is most commonly used to produce milk and water containers, colored and opaque detergent bottles, and motor oil containers.

Plastic bags and plastic wraps make up the category “plastic film.” Plastic film is thin polyethylene plastic used for wraps, packaging, or commercial/retail use bags. It’s sometimes called stretch film. Plastic film may be labeled with a #2 HDPE or #4 LDPE marking. Plastic film includes everything from grocery and bread bags to shrink wrap and paper towel film, while items such as pre-washed salad mix bags and frozen food bags are often considered non-recyclable plastic film. Although plastic bag recycling is prevalent at many grocery store chains, plastic film is not always collected with the plastics bags.

Yard and Leaf Waste – Mandated municipalities are required to separate yard and leaf waste from other municipal waste. Also, since September 26, 1990, PADEP regulations do not allow any waste disposal facility to accept shipments comprised primarily of yard and leaf wastes unless a separate composting facility has been provided. Organic materials can be ground into mulch, or processed to create compost, and has been proven to be beneficial in many municipal, residential and agricultural applications, while removing a substantial quantity of waste stream material from landfill disposal.

Other Recyclable Materials Not Specifically Addressed by Act 101 – Large appliances or “white goods” can be shredded and the steel separated for recycling. Some scrap dealers in the county accept white goods. In addition, many appliance stores will accept appliance trade-ins when selling a new appliance or pickup of an old appliance for a fee.



Provided markets can be found, various other types of materials in the municipal waste stream can be recycled. Tires, used motor oil, and automotive batteries are examples of recyclable items that pose disposal problems. Used tires can be retreaded, shredded and processed into crumb rubber for use in rubber products, or they can be used to produce a durable ingredient in the production of asphalt. Alternatively, tires can be shredded and burned as a source of fuel. Garages and local tire retailers in the county that sell tires offer to properly dispose of tires for a fee. Residents are responsible for transporting the tires to the facility.

Residents are encouraged to visit Luzerne County’s website for up-to-date information on county collection events: <https://www.luzernecounty.org/324/Recycling-Department>.

A program, founded in 2012, that encourages the recycling of textiles, as well as other accessories and household goods is the Give Back Box® program. Many retailers currently participate in this program, such as Amazon and Overstock, just to name a few. When residents receive packages from a participating retailer, they can pack their shipping box with donation items, such as clothing and household goods, print a free shipping label from the website listed below and send their donations to one of several participating charities. The charities stock their shelves with the donations and the revenues help fund its mission of helping people. The charities also recycle every box that arrives at their facilities. The Give Back Box program has created a new method of waste diversion for retailers by not only creating a secondary use for the shipping box and guaranteeing that it will be recycled, but also by helping clear out closets and recycle even more textiles and household goods. More information on this program can be found at the following location: www.givebackbox.com

Other programs have also been implemented by companies such as H&M and J.Crew, to recycle clothing, textiles and other products. Additionally, the Blue Jeans Go Green program collects denim across the country and upcycles it into Ultratouch Denim Insulation, providing a portion to communities in need each year. Since launching in 2006, Blue Jeans Go Green has diverted over 1,200 tons of denim from landfills, collected over 2.5 million pieces of clothing and produced over 4.8 million square feet of insulation.

Household Hazardous Waste and E-waste

The primary outlet for residential e-waste disposal are municipality sponsored collection events. For certain HHW, disposal is available through private entities within the County. Residents should contact their local municipality for more information.

Household Hazardous Waste



HHW is defined as automotive batteries, used motor oil, antifreeze, car care products, CFL bulbs and fluorescent tubes, latex paint, oil based paints, oil based paint cleaners, adhesives, gasoline, diesel, kerosene, pesticides, herbicides, insecticides, pool chemicals, drain cleaners, acids, mercury, etc. that are generated at the residential level.

Currently, there are no facilities in Luzerne County that accept all of these materials.

The metal in automotive batteries and the polypropylene plastic case are recyclable. Used motor oil can be refined to produce heating fuel, industrial lubricants and even new motor oil. Automotive batteries, oil filters, and automotive fluids, such as antifreeze, used oil, etc. may be taken at many of the local auto stores. Many of these same locations may accept automotive batteries at no cost to the resident or the resident can sell their automotive battery to a scrap yard. Per Section 1510 (c) of Act 101, a retailer that sells lead acid batteries is required to accept used lead acid batteries equal to the number of new lead acid batteries purchased so anyone that buys a new lead acid battery can recycle their old one in this way.

At the present time, CFL and fluorescent bulbs are accepted by some home improvement stores.

E-Waste

Electronic waste contains metals that, if not properly managed or contained, can become hazardous wastes. The “Covered Device Recycling Act” (House Bill 708), PA Act 108 of 2010, established a recycling program for certain covered devices; imposed duties on manufacturers and retailers of certain covered devices; provided for the powers and duties of PADEP including enforcement; established the Electronic Materials Recycling Account in the General Fund; and prescribed penalties for noncompliance. Information on the CDRA is presented in Appendix D.



4.2 Current In-County Recycling Efforts

There are 76 municipalities within Luzerne County. Of the 76 municipalities, 14 are required by Act 101 to collect at least three of the following materials: clear glass, colored glass, plastics, aluminum, steel and bi-metallic cans, high grade office paper, and newsprint. The remaining 62 municipalities in the County are not yet mandated to implement a recycling program: however, many have taken the initiative to do so, even without a mandate.

Current recycling activities within Luzerne County have a significant impact on the amount of solid waste being disposed of by the County. A total of approximately 138,000 tons of Luzerne County recyclable material was reportedly diverted from the waste stream and recycled in 2019.

This section provides an overview of the County’s current recycling efforts as they relate to the collection of curbside materials from residential and commercial establishments as well as from municipalities that have implemented drop-off programs for their residents.

4.2.1 Residential Recycling

In Luzerne County, both curbside and drop-off recycling programs are handled by the municipality with various educational assistance and other guidance provided by the County. Per §272.411 of the PA Code, a municipality that has a population of more than 5,000 but less than 10,000 persons and which has a population density of more than 300 per square mile, must establish and implement a source separation and collection program for recyclable materials. Municipalities which fall within these specific demographic criteria are referred to as “mandated municipalities”. The 2010 U. S. Census figures indicate that there are fourteen (14) municipalities within the County with greater than 10,000 people or with greater than 5,000 people and with a population density greater than 300, thus mandated to implement recycling programs. Another 39 municipalities, while not technically mandated, still have a curbside recycling program in place. Eight (8) municipalities may trigger the population thresholds requiring them to implement a recycling program during this planning horizon. These municipalities include Duryea

Borough, Edwardsville Borough, Fairview Township, Jackson Township, Larksville Borough, Jenkins Township, West Hazleton Borough, and West Pittston Borough.

In 1993, the Luzerne County Solid Waste Management Department (LCSWMD) developed both a residential recycling guide and a commercial/institutional sector recycling guide. According to the residential recycling guide, coupled with an update provided by the Department of Solid Waste and the 2019 Re-TRAC report, 54 municipalities within the County have some sort of recycling program in place.

Table 4-3, located at the end of this chapter, lists the municipalities in Luzerne County, the type of residential recycling program used in each municipality in 2019, and the materials collected by the program. The future recycling program will continue to use the existing municipal recycling programs and encourage the use of local businesses for the management of hard-to-recycle materials.

4.2.2 Commercial Recycling Programs

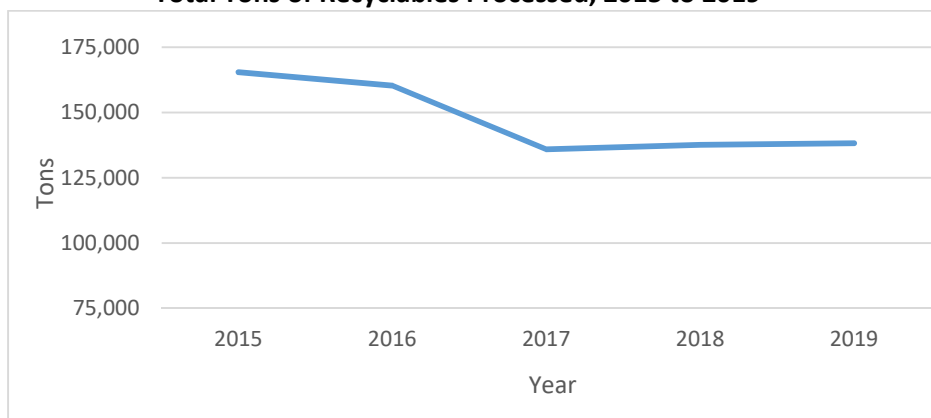
Commercial, municipal and institutional establishments within a mandated municipality are required to recycle aluminum, high-grade office paper and corrugated paper in addition to other materials chosen by the municipality. Businesses which wish to start up a recycling program can contact the County Recycling Coordinator, or their local municipality for assistance.

In 2019, according to Re-TRAC, commercial businesses within Luzerne County recycled approximately 37,000 tons. As shown in Table 3-3, the County’s recycling rate was 35% in 2019. The recycling rate is calculated by dividing the recyclables tonnage total for both the residential and commercial sector (as reported to Luzerne County) by the total tons of MSW, C&D and recyclables disposed for a given year (from PADEP Waste Destination Reports and recyclables tonnage reports submitted to the County).

4.2.3 Historical County Recycling Tonnage Totals (2015 – 2019)

Figure 4-1 below shows a graph of recycling activities (total tons recycled) between 2015 and 2019 in the County from both the residential and commercial curbside and drop-off programs. As noted, the amount of material has decreased throughout the last five (5) years.

**Figure 4-1
Total Tons of Recyclables Processed, 2015 to 2019**



Per Capita Recyclables Diversion Rate

As presented in Table 3-3, the recycling rate for Luzerne County in 2019 was 35%. The average recycling rate over the past five years was 40%. The amount of material recycled or otherwise diverted from disposal in Luzerne County peaked in 2014 at over 190,000 tons, but slowly decreased annually through 2017, before increasing slightly in 2018. The majority of recyclables collection and processing in Luzerne County is managed by the private sector, thus requiring municipalities and/or the County to obtain the recycling tonnages from private industry for accurate reporting.

Based on the estimated population density in 2019 for the County, the per capita diversion rate for recyclables and organics, reported to Luzerne County, is approximately **0.44 tons per capita per year**. The national average per capita recyclables diversion rate is 0.29 tons per capita per year (1.6 pounds per capita per day). Based on the data over the past several years, Luzerne County residents are recycling more than the national average annually.

The recycling projections calculated in Table 3-3 were computed based on the per capita recyclables/organics diversion rate of 0.44 tons per capita per year and the estimated population density for that given year.

4.2.4 Current County Recycling Program

In 2019, the residential curbside program (recyclables and organics) reported diverting 43,560 tons of material, while the residential drop-off programs (recyclables and organics) diverted approximately 4,389 tons of material from the landfills.

The LCSWMD and the County Recycling Coordinator are striving to enhance the recycling programs in Luzerne County to address in- and out-of-County residents' needs. The LCSWMD, in coordination with the Luzerne County SWAC members, have compiled a list of initiatives, goals and programs that may be developed in order to try to enhance and sustain the recycling programs. These programs, efforts and goals are included in Chapter 5.

In summary, recycling programs and practices in Luzerne County are overall successful, which is reflected in the amount of residents with convenient access to recycling collection and the recycling rate of the County. However, SWAC members have expressed a need for more recycling of hard-to-recycle items such as HHW material and e-waste.

Table 4-3 lists the recyclable materials that are accepted in each municipality either through their curbside and/or drop-off program.

4.2.5 Other County Recycling Programs

In addition to the municipal curbside and drop-off collection programs for recyclables and organic waste, the county oversees or promotes a telephone book and magazine recycling program, a municipal electronics (e-waste) recycling program, and a tire collection program. The County recycling education program assists municipalities by providing funding to support their education programs, helping them recycle more and improve the overall quality of the material collected.

Luzerne County also provides residents with a recycling guide that provides the names of corporations and local businesses that will accept hard to recycle items, such as used oil or antifreeze, for either recycling or proper disposal. The list of participating businesses may be found in the County's Residential Recycling Guide located on the County's website:

<https://www.luzernecounty.org/919/Residential-Recycling-Guide>

Recyclables Processing Facilities

There are currently two (2) MRFs located in Luzerne County, according to PADEP’s website and LCSWMD information. They are listed in Table 4-1 below.

**Table 4-1
MRFs Located in Luzerne County**

Facility	Open to the General Public	What Forms of Materials are Accepted	Materials Accepted
Municipal Recovery 495 Stanton Street Wilkes-Barre, PA 18702	Yes	Single stream, commingled and source separated	Aluminum and tin cans, cardboard, magazines, newspaper and office paper, 3 colors of glass, plastics #1 and #2
GFL Environmental (formally Northeast Cartage and Recycling Solutions) 50 Breaker Road Hanover Township, PA 18704	No	Single stream and dual stream	Aluminum and steel cans, fiber (aseptic/gable top cartons, cardboard, magazines, milk cartons, newspaper, office paper, paperboard, phone books), glass (clear, amber and green), plastics (PET, HDPE, PVC, LDPE, PP, PS)

Source: Luzerne County 2020 and PADEP

Organics Management Facilities in Luzerne County

There are currently six (6) public and private yard waste composting and recycling facilities located in Luzerne County. Table 4-2 lists these facilities and their location.

**Table 4-2
Luzerne County Yard Waste Composting Sites**

Facility
Greater Pittston Regional Compost Facility 67 Garden Road Kingston Borough 455 Church Street
Dallas Area Municipal Authority 3337 State Route 118 Earth Conservancy 461 West Kirmar Parkway (State Road 3004)
West Wyoming Borough 926 Shoemaker Avenue Wright Township Mt. Top Area Council of Govt. – MACOG off Oak Hill Drive

Source: Luzerne County 2019

Additionally, a resource for both the LCSWMD and municipalities may be surrounding County Recycling Coordinators and PADEP Regional Planning Coordinators. Up to date contact information is maintained on PADEP’s website at the following location:

<http://www.dep.pa.gov/Business/Land/Waste/Recycling/Municipal-Resources/Pages/Recycling-Coordinators-Corner.aspx>

4.3 Environmental Benefits of Recycling

The benefits of recycling stem from four (4) sources: the value of the recyclable material in its reuse; the reduction in the waste requiring collection, transportation, processing, and disposal; the reduction in raw materials required to manufacture new products; and the energy saved in processing the raw materials to the point of manufacturing use. The reuse value of the material is reflected in its market price, although, the average recyclables net market value (after transportation and processing) is often close to zero; the chief financial benefit of recycling for consumers is usually the avoided cost of disposal.

B&L performed an EPA WARM model computer evaluation, which estimates the impacts and benefits of recycling activities on our environment based on Luzerne County's 2019 Recycling Report Summary. The WARM model calculates various savings based on the tonnages of materials recycled. Appendix C contains the result tables of the EPA WARM model evaluation.

The County's 2019 total recycling efforts provided environmental benefits that were the equivalent of the following estimated resource consumption savings and pollution reductions:

- A net reduction in GHG emissions by 166,799 MTCO₂E or 45,490 MTCE;
- A reduction in the net energy consumption by 937,167 million BTUs;
- Conserving 161,303 barrels of oil;
- Conserving 7,543,321 gallons of gasoline;
- Reducing the annual emissions from 35,116 average passenger cars on the road (based on the equivalent amount of energy and fuel used by a passenger car each year and the average GHG emissions released by a passenger car per year);

4.4 Recycling Education Programs and Services

The LCSWMD created a residential recycling guide in a continuing effort to promote recycling within the residential sector. The guide was intended to aid County residents as to where and how certain materials can be recycled. Funding for the publication was provided by the Pennsylvania Department of Environmental Protection and other County partners (public/private partnerships). The residential guide provides a listing of recycling guidelines, a listing of various materials and where they can be recycled, a table detailing which materials can be recycled curbside by the individual participating municipalities, and a list of recycling companies and haulers. A copy of the residential recycling guide can be found in Appendix C.

In addition to the residential recycling guide, the LCSWMD developed a similar industrial recycling guide to promote recycling efforts from the commercial and industrial sectors. The guide is divided into two sections. The first section provides an alphabetical listing of materials that can be recycled. The second section provides an alphabetical listing of recyclers included in the guide. A copy of the industrial recycling guide is located in Appendix C.

In addition to the residential and commercial recycling guides, the following services are provided by the Solid Waste Management Department:

- Coordinating municipal e-waste program and paper shredding events

- Coordinating and overseeing tire recycling collection events
- 902 and 904 Grant Application Assistance
- Assistance for Enhancing or Starting Recycling Programs
- Evaluating Waste Collection Programs
- Recycling Marketing Assistance
- Assistance with Recycling Education Programs
- Conducting Industry Recycling Reviews
- Assisting with the Recycling Annual Report
- Conducting Annual Visits to Municipalities for education and to assist in program improvements

4.5 Measures for Continuing to Exceed the 35 Percent Recycling Goal

Upon reaching the 25% recycling goal specified in Act 101 in 1997, the Governor's Office established a new goal of 35% recycling to be achieved by 2003. As indicated in Table 3-3, the recycling rate in Luzerne County has averaged over 35% in the last five (5) years. As such, Luzerne County has reached the state goal of 35%.

A trend in packaging has occurred away from heavier glass and metal containers to lighter, thinner-walled plastics and aluminum. This is a positive trend in source (tonnage) reduction, but also results in a lighter tonnage (and therefore, lower weight-based "percent recycled" tonnage) being recycled. Thus, the actual "percent recycled" rate (i.e. 35%) is becoming of less importance than just taking steps to optimize recycling, where practical. Even maintaining a 35% recycling rate over time may require increased recycling of lighter materials.

In an effort to maintain recycling, Luzerne County may want to focus on strategies designed to expand or supplement existing recycling programs and to improve current data collection efforts. Luzerne County shall support and promote recycling programs such as the municipal e-waste and tire collection programs, whenever feasible. Furthermore, Luzerne County will continue to provide advice to municipalities developing or expanding programs such as the establishment of yard waste collection (woody materials), food waste collection, or establishing a recyclables drop-off facility.

Luzerne County has a significant number of universities and colleges, all of which have a constant attendance of in and out of County residents. Over the 10-year planning period, it is recommended to outreach to these entities to develop recycling programs/tonnage reporting that can easily be recreated year after year. Establishing successful source reduction and recycling programs at the universities and colleges will aid in increasing the recycling rate of the County. Additionally, assuring proper reporting of this material to the County is an important part of the program's success.

The unfortunate perception in the past has been that recycling is "free". The reality is that recycling costs money. In a curbside system, it costs money to obtain the containers used to collect recyclables curbside, it costs money to collect and transport those recyclables to a transfer station or MRF, and it costs money to process this material at these facilities. It also costs money to dispose of the contamination that must be removed from the recycling stream (often more prevalent in single stream systems). At the end of the process, there is money to be made through the sale of the recyclables, but the recycling market is highly fluctuating and the value of the material is ever changing. This same model holds true for drop-off recycling. Additionally, recycling requires employees and space to process and sort this material. These factors often deter Counties from collecting and processing their own recyclables. Luzerne County largely relies on the private sector to collect and process recyclables from the County residents and businesses,

due to economic and logistic factors. As noted in Chapter 5, it is recommended that future recycling programs be offered at an appropriate rate to cover the costs associated with the service.

There are currently no regulations in place that require waste disposal facilities or haulers to provide a certain level of recycling to in- and out-of-county residents, other than the requirement that the facility must contain a drop-off which collects at least three (3) Act 101 materials. Any regulations regarding recycling service at a County or municipal level typically come from Ordinances or Contracts developed by the entity.

Luzerne County will continue to support and educate municipalities to further develop cost-effective programs, as well as, work with the commercial establishments and the solid waste industry to increase the residential and commercial diversion rate throughout the counties in an effort to continue to meet and exceed the Pennsylvania recycling goal of 35%.

**Table 4-3
Municipal Recycling Programs (as of 2019)**

MUNICIPALITY	2019 POPULATION	MANDATED	PROGRAM *	CARDBOARD	OFFICE PAPER	MIXED PAPER	BROWN GLASS	CLEAR GLASS	GREEN GLASS	ALUM. CANS	METAL CANS	NEWSPAPER	PLASTICS #1 & #2	PLASTICS #1-#7	YARD WASTE	GRASS
Ashley Borough	2,723	No	CS	X		X	X	X	X	X	X	X	X	X	X	X
Avoca Borough	2,629	No	DO	X	X	X	X	X	X	X	X	X	X	X	X	
Bear Creek Township	2,761	No	DO	X			X	X	X	X	X	X	X			
Black Creek Township	2,078	No	DO	X	X	X				X	X		X			
Borough of Bear Creek Village	249	No	CS	X			X	X	X	X	X	X	X			
Borough of Hughestown	1,349	No	CS	X		X	X	X	X	X	X	X	X	X	X	X
Borough of Shickshinny	813	No														
Buck Township	432	No														
Butler Township	9,943	No	DO			X	X	X	X	X	X	X	X	X		
City of Nanticoke	10,312	Yes	CS	X		X	X	X	X	X	X	X	X	X	X	
City of Pittston	7,802	Yes	CS	X		X	X	X	X	X	X	X	X	X	X	
City of Wilkes-Barre	40,766	Yes	CS	X		X	X	X	X	X	X	X	X	X	X	X
Conyngham Borough	1,867	No														
Conyngham Township	777	No														
Courtdale Borough	716	No	CS	X		X	X	X	X	X	X	X	X	X		
Dallas Borough	2,792	No	CS	X	X	X	X	X	X	X	X	X	X	X	X	X

*CS – curbside, DO- drop-off

**Table 4-3
Municipal Recycling Programs (as of 2019) – Continued**

MUNICIPALITY	2019 POPULATION	MANDATED	PROGRAM*	CARDBOARD	OFFICE PAPER	MIXED PAPER	BROWN GLASS	CLEAR GLASS	GREEN GLASS	ALUM. CANS	METAL CANS	NEWSPAPER	PLASTICS #1 & #2	PLASTICS #1-#7	YARD WASTE	GRASS
Dallas Township	9,269	Yes	CS	X	X	X	X	X	X	X	X	X	X	X	X	X
Dennison Township	1,118	No	DO	X			X	X	X	X	X	X	X			
Dorrance Township	2,235	No	DO	X	X	X	X	X	X	X	X	X	X	X		X
Dupont Borough	2,683	No	CS	X	X	X	X	X	X	X	X	X	X	X	X	X
Duryea Borough	4,852	No	CS	X		X	X	X	X	X	X	X	X	X	X	X
Edwardsville Borough	4,723	No	CS	X		X	X	X	X	X	X	X	X	X	X	
Exeter Borough	5,541	Yes	CS	X	X	X	X	X	X	X	X	X	X	X	X	X
Exeter Township	2,349	No	CS	X		X	X	X	X	X	X	X	X	X		
Fairmount Township	2,359	No														
Fairview Township	4,516	No														
Forty Fort Borough	4,041	No	CS	X		X	X	X	X	X	X	X	X	X	X	
Foster Township	3,467	No	CS	X			X	X	X	X	X	X	X			
Franklin Township	1,760	No	CS	X			X	X	X	X	X	X	X			
Freeland Borough	3,424	No	DO	X		X	X	X	X	X	X	X	X	X	X	
Hanover Township	10,824	Yes	CS	X	X	X	X	X	X	X	X	X	X	X	X	X
Harveys Lake Borough	2,774	No	CS	X		X	X	X	X	X	X	X	X	X	X	
Hazle Township	9,556	No	CS	X			X	X	X	X	X	X	X			
Hazleton City	24,794	Yes	CS	X		X	X	X	X	X	X	X	X	X	X	
Hollenback Township	1,193	No														
Hunlock Township	2,402	No														

**Table 4-3
Municipal Recycling Programs (as of 2019) – Continued**

MUNICIPALITY	2019 POPULATION	MANDATED	PROGRAM*	CARDBOARD	OFFICE PAPER	MIXED PAPER	BROWN GLASS	CLEAR GLASS	GREEN GLASS	ALUM. CANS	METAL CANS	NEWSPAPER	PLASTICS #1 & #2	PLASTICS #1-#7	YARD WASTE	GRASS
Huntington Township	2,216	No														
Jackson Township	4,639	No	DO	X		X	X	X	X	X	X	X	X	X		
Jeddo Borough	92	No														
Jenkins Township	4,542	No	CS	X		X	X	X	X	X	X	X	X	X	X	X
Kingston Borough	12,812	Yes	CS	X	X	X	X	X	X	X	X	X	X	X	X	
Kingston Township	6,898	Yes	CS	X	X	X	X	X	X	X	X	X	X	X	X	X
Lafin Borough	1,438	No	CS	X		X	X	X	X	X	X	X	X	X	X	X
Lake Township	2,027	No	DO	X	X	X	X	X	X	X	X	X	X	X		
Larksville Borough	4,385	No	CS	X	X	X	X	X	X	X	X	X	X	X		
Laurel Run Borough	509	No														
Lehman Township	3,501	No	DO	X	X	X	X	X	X	X	X	X	X			
Luzerne Borough	2,812	No	CS	X		X	X	X	X	X	X	X	X	X	X	
Nescopeck Borough	1,544	No														
Nescopeck Township	1,151	No														
New Columbus Borough	227	No														
Newport Township	5,343	Yes	CS	X		X	X	X	X	X	X	X	X	X	X	

**Table 4-3
Municipal Recycling Programs (as of 2019) – Continued**

MUNICIPALITY	2019 POPULATION	MANDATED	PROGRAM*	CARDBOARD	OFFICE PAPER	MIXED PAPER	BROWN GLASS	CLEAR GLASS	GREEN GLASS	ALUM. CANS	METAL CANS	NEWSPAPER	PLASTICS #1 & #2	PLASTICS #1-#7	YARD WASTE	GRASS
Nuangola Borough	677	No														
Penn Lake Park Borough	308	No	CS	X			X	X	X	X	X	X	X			
Pittston Township	3,382	No	CS	X	X	X	X	X	X	X	X	X	X	X	X	
Plains Township	9,663	Yes	CS	X		X	X	X	X	X	X	X	X	X	X	
Plymouth Borough	5,794	Yes	CS	X		X	X	X	X	X	X	X	X	X	X	
Plymouth Township	1,789	No														
Pringle Borough	941	No	CS	X	X	X	X	X	X	X	X	X	X		X	X
Rice Township	3,557	No	DO	X			X	X	X	X	X	X	X			
Ross Township	2,908	No														
Salem Township	4,196	No	DO	X			X	X	X	X	X	X	X			
Slocum Township	1,091	No														
Sugar Notch Borough	962	No	DO	X			X	X	X	X	X	X	X			
Sugarloaf Township	3,952	No														
Swoyersville Borough	5,009	Yes	CS	X		X	X	X	X	X	X	X	X	X	X	X
Union Township	2,012	No														

**Table 4-3
Municipal Recycling Programs (as of 2019) – Continued**

MUNICIPALITY	2019 POPULATION	MANDATED	PROGRAM*	CARDBOARD	OFFICE PAPER	MIXED PAPER	BROWN GLASS	CLEAR GLASS	GREEN GLASS	ALUM. CANS	METAL CANS	NEWSPAPER	PLASTICS #1 & #2	PLASTICS #1-#7	YARD WASTE	GRASS
Warrior Run Borough	581	No	CS	X			X	X	X	X	X	X	X		X	
West Hazleton Borough	4,355	No	CS	X	X	X	X	X	X	X	X	X	X	X		
West Pittston Borough	4,761	No	CS	X		X	X	X	X	X	X	X	X	X	X	
West Wyoming Borough	2,676	No	DO	X		X	X	X	X	X	X	X	X	X		
White Haven Borough	1,100	No	CS	X		X	X	X	X	X	X	X	X	X	X	
Wilkes-Barre Township	2,895	No	CS	X		X	X	X	X	X	X	X	X		X	
Wright Township	5,629	Yes	DO	X	X	X	X	X	X	X	X	X	X	X	X	
Wyoming Borough	3,011	No	CS	X		X	X	X	X	X	X	X	X	X	X	X
Yatesville Borough	611	No	CS	X		X	X	X	X	X	X		X	X		

Source: 2010 US Census; American FactFinder and Luzerne County Recycling Guide 2019

This Page Intentionally Left Blank

CHAPTER 5 – SELECTION AND JUSTIFICATION

The purpose of this chapter is to describe the process used to select and recommend components to the overall waste management system for Luzerne County, and to provide justification for the selections and recommendations. Per PADEP regulations, the County must ensure that the recommended system(s) provides the required capacity needed to properly process/ dispose of all municipal waste generated within its boundaries over the next ten (10) years. This chapter examines available and realistic processing and disposal alternatives for municipal waste; determines the compatibility of these alternatives with the existing waste and recycling systems in the county; and makes recommendations for future adjustments to those systems.

5.1 Overview of Current Municipal Waste Management System

Processing and disposal of MSW is handled by private waste haulers for the vast majority of municipalities in Luzerne County. The private sector handles the consolidation and shipping of mixed recyclables, collected curbside at privately operated transfer stations, as well as managing the processing and marketing of recyclables handled through their facilities. Processing and recycling/disposal of C&D waste is generally handled by the private sector. Biosolids (sewage sludge) and septage are mainly managed by a combination of wastewater treatment plants and private landfills, and regulated medical waste is managed privately through contracted collection and ultimate disposal at privately operated facilities.

Forty-one (41) municipalities in Luzerne County currently have access to curbside collection of recyclables.

There are fifteen (15) municipal and four (4) privately owned yard waste composting facilities in Luzerne County.

5.2 Waste and Recyclables Management – Alternatives

The following section briefly highlights waste collection, transfer, processing and disposal system alternatives that currently are or can be made available to Luzerne County. This section focuses on alternatives that have specific compatibility or that show particular promise within Luzerne County's waste management system that was described earlier in this chapter. Waste management alternatives that were not considered technically or financially feasible in Luzerne County have not been included.

5.2.1 Waste and Recyclables Collection

5.2.1.1 MSW Collection

There are four (4) basic methods for the collection of MSW (residential/commercial/institutional refuse) that are practical in this region.



Municipal Collection - Municipalities can provide refuse collection services to their residents using municipal employees and equipment.

Contracted Collection - Municipalities can contract via a public bidding procedure with a private waste hauler to provide refuse collection services to their residents (and typically institutions and small businesses as well.) This results in one waste hauler collecting from all residents along a collection route.



waste collection companies collecting on the same route.

Subscription Collection - Individual households and businesses can each contract directly with a private waste hauler for refuse collection services, with limited or no municipal involvement. This often results in multiple waste vehicles from different



Self-Haul - Residents and businesses can self-haul wastes to a transfer station or disposal site.

Due to the capital costs associated with municipal collection, it is not recommended that a municipality changes from subscription or contracted collection to municipal collection, unless a municipality has the capabilities in place, i.e. staff and vehicles. Those municipalities that currently offer municipal collection may continue to offer this service to their residents, though a financial evaluation of the program is recommended annually to ensure the cost to residents covers the disposal, processing, operation and maintenance costs associated with this type of system.

Self-haul may be utilized by residents throughout the county, regardless of the current collection system in the municipality. Often times residents utilize self-haul when disposing of larger bulk items, such as furniture and appliances, or when performing large home clean-up projects.

5.2.1.2 Recyclables

The collection methods for recycled materials are similar to the collection methods for residential waste. Recycled materials can be collected curbside through municipal collection, contracted collection, subscription collection, or by self-haul to central locations through drop-off/ transfer collection. The basic details of these collection methods are described above.

Regarding curbside collection of recyclable materials, three methods can be used: source-separated, dual-stream, and single-stream.

Source-separated recycling requires the resident to separate multiple streams of recycling at the curb, i.e. there may be a separate container for plastics, glass, paper and metal. This method makes processing much simpler and inexpensive, and tends to result in a cleaner recyclable material collected (which improves market value). Often this type of program has lower participation and material recovery and higher collection costs.

Dual-stream recycling, also known as commingled recycling, is similar to source-separated recycling, with the recyclables commonly separated into two categories: bottles/ cans and paper fiber. Dual-stream recycling typically has the same benefits as source-separated recycling, but the collection method is slightly different. For example, cans, glass and plastics may go in one container while paper fiber (cardboard, newspaper, etc.) go in another. This method of recycling often has lower processing costs and less contamination, but also may have lower participation and material recovery.

Single-stream recycling collects all of the recyclable materials in a single container at the curb. Some of the benefits of single-stream collection are ease of separating in the home, higher residential participation rates, higher quantities recycled, increased collection efficiency and the ease in which a municipality can incorporate small businesses and multi-family units into the program. Some of the disadvantages of single-stream recycling include lower recyclable material quality and market revenues, higher capital processing costs, decreased quality control at the curb, increased product contamination, and the potential to have to dispose of more material due to the contamination factor. Both dual-stream and single-stream collections require access to materials processing facilities in the region that can receive and further process the collected recyclables.

There are many factors to consider when selecting a recycling program, such as what types and size of containers to give residents, what materials to collect, what type of truck will best suit the collection program, what types of recyclables processing infrastructure is available in the area, how the recycling program will be funded (i.e. include in a subscription cost, pay through local taxes, fund through a pay-as-you-throw program, etc.) These considerations may be dependent on the type of waste collection program used.

5.2.1.3 Hauler Licensing or Oversight

In June 2002, Pennsylvania approved amendments to the existing solid waste management statutes (adopted as PA Act 90) that, among other provisions, established a statewide waste transportation safety program, including a licensing program for all waste haulers doing business in Pennsylvania. Any waste hauler with a GVW (gross vehicle weight) of over 17,000 pounds and trailers with a registered gross vehicle weight greater than 10,000 pounds that transports municipal or residual waste to a waste processing or disposal facility in Pennsylvania must have a valid Waste Transporter Authorization issued by PADEP. This program is administered by the State and prohibits counties or municipalities from implementing any new municipal waste or residual waste transportation authorizations or licensing programs. (Note – since the Act 90 program relates to licensing of larger waste vehicles, it leaves open the possibility of establishing a separate local licensing program for waste vehicles with less than a 17,000 pound GVW). Based on this legislation, all larger haulers doing business within Luzerne County need to meet the requirements of the State program. Hauler data collected from the State program is available on PADEP’s website at:

<https://www.dep.pa.gov/BUSINESS/LAND/WASTE/SOLIDWASTE/MUNICIPAL-RESIDUAL-WASTE--TRANSPORTATION/Pages/default.aspx>

It is up to individual counties to monitor waste hauling and disposal activities. The law prohibits processing and disposal facilities from accepting waste from regulated waste transportation vehicles that do not have a valid authorization.

Some counties in the Commonwealth continue to register (as opposed to licensing) haulers, usually with a minimal (or no) fee, to help ensure that basic information on the haulers, the municipalities served and the materials collected, is reported to the county or municipality regularly. Luzerne County does not currently have a hauler registration. Individual municipalities interested in establishing a hauler registration and/or licensing program for smaller haulers may contact the State for recommendations for the program.

5.2.2 Waste Transportation and Disposal

5.2.2.1 Transportation of MSW to Disposal Sites

Under Act 101, it is the responsibility of each municipality to provide for the proper collection and transportation of municipal waste generated from within their municipal borders to disposal facilities. A “disposal” facility in this context can be a regional transfer station, a landfill, a waste-to-energy facility, or another type of permitted processing, drop-off or disposal facility. All municipal solid waste generated within Luzerne County must be transported to a duly permitted processing/ disposal facility, with larger haulers duly licensed by the State as required by Act 90.

5.2.2.2 Transportation of Recyclables to Collection/ Processing Site

As with MSW, recyclables can be transported in three (3) ways to a collection/ processing facility or intermediate market: directly by residents and businesses, by waste haulers, or by municipalities. A “collection/processing” facility in this context includes a drop-off site, a transfer station, a materials recovery facility (MRF), or other suitable facility. Ultimately, the goal is for all segregated recyclables to be shipped to markets for reuse, or reused locally (such as inert materials for use as pipe bedding or aggregate).

Drop-off recycling sites can supplement curbside collection, and in areas where no curbside collection exists, provide the only opportunity for recycling. Drop-off recycling sites can enable a municipality to expand their current recycling program by enabling them to accept a broader range of materials from their residents than a hauler may collect. Typically, rural municipalities are not mandated to recycle under Act 101, and thus haulers may not offer curbside recyclables collection. Drop-off locations can provide residents the opportunity to recycle when their hauler does not offer it.

Segregated recyclable materials, such as those collected at the municipally operated drop-off locations throughout Luzerne County, can be hauled directly to intermediate brokers or processors/ markets. Quantity, cleanliness and purity of the material, lack of contamination, and length of contract and contract terms are often factors that affect the prices paid (or owed) for recyclable materials delivery.

5.2.2.3 Alternative Disposal Technologies

There are several alternative waste disposal technologies, in addition to landfilling, being utilized across the world. Some of these technologies include:

- Anaerobic Digestion

- Gasification
- Composting



Anaerobic Digestion

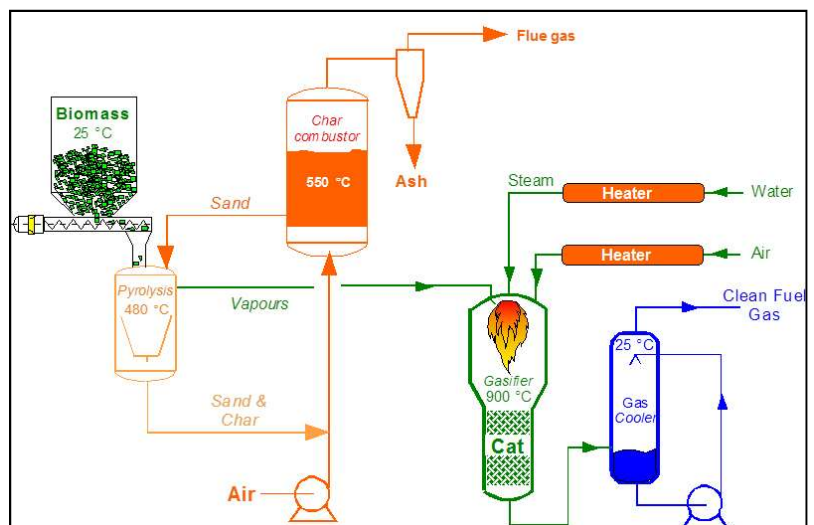
Anaerobic digestion is a process by which microorganisms break down biodegradable material in the absence of oxygen. Anaerobic digestion is often used to treat biodegradable waste and sewage sludge. The photo to the left illustrates anaerobic lagoons and generators at the Cal Poly Dairy in the United States. Anaerobic digestion produces a biogas, consisting of methane, carbon dioxide and trace amounts of other gases. This biogas can be utilized as a renewable energy source. With new technological approaches that have lowered the

capital costs of this type of system, anaerobic digestion has gained increased interest in the past few years.

If the County were interested in exploring anaerobic digestion, the feedstock available must be evaluated in order to determine if the project is financially viable. Almost any organic material can be processed with anaerobic digestion, but if biogas production is the intent, the level of putrescibility is important to the success of the system. Feedstocks can include biodegradable waste materials, such as waste paper, grass clippings, leftover food, sewage and animal waste. Woody wastes are the exception, because they are largely unaffected by digestion. At this time, the County does not foresee exploring a County owned and operated anaerobic digester, but this may be a technology to continue to evaluate over the ten (10) year planning period, in conjunction with wastewater treatment plants and/or farms in the area.

Gasification

Gasification is a process that converts organic or fossil fuel based carbonaceous materials into carbon monoxide, hydrogen, and carbon dioxide. This is achieved by reacting the material at high temperatures, without combustion, with a controlled amount of oxygen and/or steam. The resulting gas mixture is called syngas and can be used as a fuel source.



Feedstocks for this process include wood pellets and chips, waste wood, plastics and aluminum, municipal solid waste, refuse-derived fuel, agricultural and industrial wastes, sewage sludge, switch grass, discarded seed corn, corn stover and other crop residues.

One of the biggest challenges of gasification is achieving a positive gross electric efficiency. A large amount of power consumption is needed in the waste preprocessing, the consumption of large amounts of pure oxygen and gas cleaning. Additionally, this system requires servicing frequently to clean the reactors. This down time affects the financial gains of the system. In the US, in 2011, a plasma system delivered by PyroGenesis Canada Inc. was tested to gasify municipal solid waste, hazardous waste, and biomedical waste at the Hurlburt Field Florida Special Operations Command Air Force Base. The plant, which cost \$7.4 million to construct, was closed and sold at a government liquidation auction in May 2013. The opening bid was \$25, the winning bid was sealed. At this time the County does not intend to pursue a gasification system at the County level to manage MSW, due to the infancy of the technology when used for this material on a large scale. If this technology were to evolve over the ten (10) year planning period, it may be considered on a smaller scale in partnership with local farmers, wastewater treatment plants and commercial businesses.



Composting

Composting is an aerobic method of decomposing organic solid waste, such as leaves, grass, and food scraps into a fertilizer material. Composting requires carbon, nitrogen, oxygen and water. The feedstock for composting is most often placed in piles, also called windrows. These windrows are then turned, either mechanically or by hand depending on the size, which provides a sufficient supply of oxygen and moisture. As the windrows are turned, the feedstock breaks down into the compost or fertilizer material.

Composting has been around since the early Roman Empire and is a successful process. Composting at a municipal or county level can be highly beneficial to communities with large population densities because often large population densities equals smaller footprints for residential homes, reducing or limiting a resident's ability to do backyard composting. One of the most important things to consider when evaluating a municipal or county operated compost facility is location. There are offset requirements in the Commonwealth that will restrict the location of a compost facility and there may be similar restrictions at a municipal level as well. Additionally, compost facilities require space to process the incoming feedstock and properly turn the windrows. The world's largest municipal co-composter for MSW is the Edmonton Composting Facility in Edmonton, Alberta, Canada, which turns 220,000 tons of MSW and 22,500 dry tons of sewage sludge per year into 80,000 tons of compost. The facility is 416,500 square feet. The compost operations are conducted inside a stainless steel building.

Once a composting facility is established, collection of the material may also be evaluated. Communities with access to a compost facility will often provide residents with optional curbside collection of leaves, grass and yard debris (with size restrictions). Residents are often encouraged to drop this material off at the compost facility as well, especially when bringing larger material.



Although curbside collection of yard and leaf waste has been largely successful across the Commonwealth, curbside collection of food waste is relatively new. A study conducted by BioCycle in 2017 found 148 curbside collection programs and 67 drop-off programs for residential food waste collection across the country. States like California, Washington, Minnesota, Illinois and Vermont had the most communities with access to residential curbside

food waste collection. When the same data was evaluated for number of households with access to curbside collection, states such as New York, Texas and Colorado joined the list. This study also considered communities with access to drop-off food waste collection programs. The states with the most food waste drop-off programs include Massachusetts, Minnesota, Maine, Connecticut, and Colorado. The states with the largest number of households with access to drop-off programs includes New York, Minnesota, Colorado, North Carolina and Massachusetts.

Most of the curbside food waste collection programs are administered by the Counties, rather than individual communities. Curbside programs are classified as either standard, opt-in, or mandatory. Standard means that organics collection is offered curbside alongside trash and recycling, with no extra steps needed for residents to participate. Opt-in programs require residents to sign up to receive food waste collection service. Mandatory programs require all residents to participate. Programs are also characterized by their scale of service, pilot, partial, full-scale single family dwelling, or full-scale all. Pilot programs often serve a small community or portion of a community to test the collection program prior to implementation on a larger scale. Partial programs are utilized prior to full roll-out. Full-scale single family and full-scale all are fully established programs. The difference is in the types of households serviced. Full-scale single family only serves single family dwellings, whereas full-scale all services every single household, including multifamily dwellings.

The materials most often collected in a curbside program include: fruit and vegetable scraps, meat, fish, and dairy. Most programs also accept paper bags and uncoated food-soiled paper. There are few programs currently accepting compostable plastic products.

A growing phenomenon is food waste drop-off locations. The programs surveyed as part of this study all noted that these locations started within the past three (3) years (2015 – 2017). The types of drop-off locations varied from 24/7 access to weekly availability in conjunction with farmers markets. Some are located at transfer stations or recycling centers, where residents can bring their food scraps along with their household recyclables. Like the curbside programs, the majority of the drop-off programs accept fruit and vegetable scraps, meat, fish, and dairy. Additionally, the majority of



drop-off programs accept uncoated food-soiled paper, paper bags, and compostable plastic bags. The majority of drop-off programs do not accept yard trimmings.

Composting programs have been widely successful for both yard and leaf waste as well as food waste. There are a number of composting operations already active in Luzerne County. An option for these existing programs is to consider a food waste drop-off component over the ten (10) year planning period.

5.3 Waste and Recycling System Recommendations

The overarching goal of the 2021 Luzerne County Municipal Solid Waste Plan Update is to offer an integrated program of waste management and recycling programs to the residents and businesses of Luzerne County that:

- Is efficient
- Is affordable
- Protects the environment
- Maximizes the availability of practical recycling and waste reduction opportunities, and
- Is sustainable in the long term.

The following measures are components of this recommended integrated waste and recyclables management program for Luzerne County.

5.3.1 Waste and Recyclables Collection Recommendations

5.3.1.1 Recommendation C1 Contracted Waste/Recycling Collection – The availability of cost-effective waste and recyclables collection services is recommended. Municipal bid collection services have been shown in Luzerne County and other areas of Pennsylvania to be cost-effective and to provide an opportunity to include recycling, bulky waste pickup, and other services to be bundled with waste collection services in the bid package. Bidding often results in competitive pricing. While this is currently a local municipal decision, this Plan Update recommends that municipalities consider bidding for contract services as a means to expand services, provide services to all residents, and ensure competition for cost-effective services. It is recommended that municipalities with contracted collection and those interested in contracted collection include in their request for bids, options that require haulers to provide pricing for services such as curbside recyclables collection, curbside HHW collection, curbside e-waste collection, pay-as-you-throw options, etc. It is also recommended as part of this Plan Update that all contracts for waste and/or recycling include a mandatory requirement for haulers to provide education to residents, quarterly, through flyers, electronic mail and website content, that describe recycling opportunities, materials accepted, waste minimization techniques, grasscycling, backyard composting, etc. This material shall be required to be approved by Luzerne County Solid Waste Management Department prior to distribution. A template bid document for municipal bidding of services is provided in Appendix E.

5.3.1.2 Recommendation C2 Standardization of Recyclable Materials – It is a recommendation of this Plan Update that Luzerne County support the standardization of recyclable materials collected within the county. It is recommended that the County foster discussion between municipalities and local waste haulers and material recovery facilities (MRFs) to collect the same recyclables materials curbside across the county, as well as standardize the materials accepted at drop-off facilities. Once the standard list of materials is established, it is recommended that this list be distributed to all

municipalities and required to be utilized when developing a contract for recyclables collection. This recommendation will allow Luzerne County to develop educational material that may be used in all municipalities, therefore saving time and money. It will also aid in educating residents on the materials that can be recycled based on current market conditions and over time result in a cleaner recyclables stream.

5.3.2 Waste and Recyclables Transportation

5.3.2.1 Recommendation T1 Transfer of Waste – The Plan Update supports the continued reliance largely on the private sector for waste hauling services, including the option of waste transfer to take the county’s municipal waste to out-of-county disposal sites. The Plan Update recommends the County enter contracts with private transfer stations that responded to the SOI to provide waste transfer services and recordkeeping in accordance with the Plan Update.

5.3.2.2 Recommendation T2 Transfer of Recyclables – The private sector largely provides recyclables transfer services for materials that it either collects or that are dropped off to its system. Some municipalities also collect recyclables through drop-offs. The Plan Update recognizes the variety of public and private sector means used to collect and transport recyclables to processors, and to intermediate and end-markets. As the term of this Plan Update is ten years, Luzerne County recognizes that the recycling infrastructure within the county may change significantly by the end of that term. Luzerne County, therefore, reserves the option to explore and implement a greater role in the recycling system if the circumstances make such a change to be in the best interests of their recycling program. Until that time, Luzerne County will continue to rely on the currently utilized public and private sectors for the collection and transportation of recyclable materials.

5.3.3 Waste Disposal

5.3.3.1 Recommendation D1 Waste Disposal Capacity – The Plan Update calls for all municipal waste generated in the county, including Special Handling Waste, to be disposed at duly-permitted disposal sites for these wastes by the state in which they are located that have entered contracts with Luzerne County. To meet the minimum requirements of municipal waste capacity assurance, and for related reasons explained in Chapters 5 and 6, this Plan Update recommends the county enter contracts with at least the six (6) SOI respondents to assure disposal capacity over the ten (10) year planning period. Additional facilities may be considered based on disposal capacity needs, current acceptance of Luzerne County waste, and their proximity to the county.

5.3.4 Management and Sustainability of Programs

5.3.4.1 Recommendation MS1 Responsibilities of Luzerne County – In order to implement the recommendations in this Chapter, it is important to ensure stakeholders in Luzerne County has an understanding of the goals and initiatives of the Plan Update. In order to do this, it is recommended that Luzerne County Solid Waste Department conduct meetings with appropriate county staff, County Council, municipal officials, etc. to discuss the “goals” of the Plan Update, short term and long term. During this meeting, Luzerne County can address questions from the staff and ensure all parties in attendance know where to go for information on recycling and solid waste.

5.3.4.2 Recommendation MS2 Support of Public/Private Partnerships – The county may support public/private partnerships by encouraging municipalities to partner with private entities to provide services to their residents. Additional ideas for increasing public/private partnerships in Luzerne County are included in this section under various recommendations.

5.3.4.3 Recommendation MS3 Program Support and Funding Options

Luzerne County currently provides several recycling and waste management programs for the residents and businesses in Luzerne County. These programs are possible due to a public/private partnership that was established previously with several disposal facilities that service the County. As part of this Plan Update, funding alternatives were included in Chapter 8 that may supplement the public/private partnership or may be required to be implemented if the public/private partnership were to dissolve during the ten-year planning period.

This Plan Update recommends Luzerne County initiate further discussions with disposal facilities to maintain the public/private partnership over the ten (10) year planning period. Additionally, it is recommended that the County considers other methods of sponsorship and grant funding opportunities to further support and expand the programs in the County.

5.3.4.4 Recommendation MS4 Municipal Ordinances – Enacting an ordinance at the municipal level ensures that residents, commercial entities, waste and recycling haulers, disposal facilities and processors work together to meet the goals of the municipality and County. This ordinance becomes the governing document for how waste and recyclables are handled in the municipality. This Plan includes draft ordinances in Appendix F.

Though these ordinances can be as comprehensive as the municipality deems necessary, it is suggested that new municipal ordinances consider inclusion of the following:

- Language on the residential and commercial management of waste and recyclables. This shall:
 - Prohibit the illegal disposal of waste and recycling material.
 - Define what illegal disposal means, i.e. disposal of waste material at a location that has not been deemed appropriate for this use or disposal of waste material at a location other than your residence.
 - Specify that burning or backyard burying of waste and/or recyclable materials is also considered illegal disposal.
 - Require that commercial entities in the municipality recycle. You may specify in the ordinance what materials must be recycled, such as corrugated cardboard and office paper or all Act 101 materials.

- Language that requires waste and recycling haulers to deliver materials to those facilities outlined in the most recent Luzerne County Municipal SWMP or specify a facility as part of the ordinance (as long as that facility is part of the Luzerne County SWMP).
 - Require the haulers to provide education to residents on a semi-annual basis and/or when collection practices change.
 - Require the types of education, i.e. door hangers and website content, or a newsletter, magnet, and website content, etc.

- Language that requires disposal and processing facilities to be included in the Luzerne County Municipal SWMP if accepting material from Luzerne County.

- Require these entities to report tonnage totals to the municipality on a quarterly basis.
- *Voluntary Residential Curbside Recycling Collection* –Where a municipality does not require curbside recycling, this Plan Update recommends that “optional curbside recycling” be required via municipal adoption of an ordinance that requires any subscription hauler operating within the municipality to provide curbside recycling services to a customer that requests it. This may be at an additional cost to the customer or the municipality may require that fully integrated service be the standard service offered by the hauler. A template ordinance to implement this recommendation is included in Appendix E.

5.3.4.5 Recommendation MS5 County Ordinances – A county ordinance for waste and recycling is very similar to the municipal ordinances described above. The largest difference is the county ordinance, once approved and recorded, is applicable for all municipalities in the county, eliminating the need for individual municipal waste and recycling ordinances. If a county ordinance for waste and recycling were to be considered over the ten-year planning period, the county shall consider including language on:

- Illegal dumping
- Open burning of waste and recyclables
- Restrictions on where waste can be taken when generated within the county (i.e. to a designated disposal facility listed in the Plan)
- Education requirements for waste haulers operating in the county (may also be done through a registration program)
- Reporting requirements for haulers, disposal and processing facilities accepting county waste
- Enforcement actions for offenders of the ordinance
- A fine structure to coincide with the enforcement section

5.3.5 Yard and Food Waste/ Organics Composting

5.3.5.1 Recommendation OC1 Operation of Compost Facilities – It is recommended that the municipalities currently operating a municipal compost facility maintain these facilities. It is recommended that Luzerne County offer support through education programs for these facilities, when available. At this time, it was determined that development of a county operated compost facility is not financially feasible, but may be considered over the ten year planning period if funding becomes available.



5.3.5.2 Recommendation OC2 Waste Food Sharing Program for Luzerne County Residents in Need – Many communities across the Commonwealth of Pennsylvania are becoming part of a bigger movement to reduce waste food and feed the hungry. These programs connect businesses, institutions, and residents that have food waste with residents in need. Oftentimes these programs work through an app program on a smart phone or device. Both the entities that have excess food

and the residents in need join the app program. When an entity has excess food, they simply post what they have, how much, and where they are located and residents who have signed up for notifications through the app program will be notified that the food is available. This has proven quite successful for entities that host catered events and don't want to waste the leftover food. But this program can also incorporate supermarkets, bakeries, delis, restaurants, businesses and corporations, hotels, colleges, hospitals, and so much more.

It is a recommendation of this Plan Update that Luzerne County assist municipalities on these types of programs and potentially establish a partnership with local entities that have excess food to provide this food to residents in need. This can be accomplished by using an existing app program, such as OLIO, and a phased program. The first phase includes outreach to entities in the county to join the program and educating them on the type of food that can be donated, how to use the program, benefits, etc., while the second phase includes reaching out to residents and students to join the program and educating them on how to use the program.

5.3.6 Maintaining the 35% Recycling Rate

5.3.6.1 Recommendation R1 Paper Shredding Events – Luzerne County has seen great success with their annual paper shredding events. Residents and SWAC members commented on their interest in seeing this program continued throughout the ten-year planning period. Luzerne County intends to maintain the current paper shredding events as funding allows.

5.3.6.2 Recommendation R2 Tire Collection Events - Luzerne County has seen great success with their annual tire collection events. Residents and SWAC members commented on their interest in seeing these events continued throughout the ten-year planning period. Luzerne County intends to maintain the current tire collection program.



5.3.6.3 Recommendation R3 Electronics Recycling – In order to address the recovery of electronics that are now required to be recycled under the Covered Device Recycling Act (Act 108 of 2010), Luzerne County has established a funding support program for those municipalities that conduct an e-waste collection event. Municipalities must register and be approved to receive funding support from the County, prior to holding the collection event. More information on this program may be found by contacting the Luzerne County Recycling

Coordinator.

This Plan Update also encourages municipalities in Luzerne County that currently contract for municipal waste collection and for those municipalities that consider this option in the future, to include an option in the bid document, when requesting bids for a new contract/term, for curbside collection of electronics. This will require the waste hauler to bid on this portion of the waste collection contract. Additionally, a separate bid may be developed that separates e-waste curbside collection from curbside collection of MSW and recyclables, thus allowing entities that only collect e-waste to bid on this portion of the requested service. Depending on the cost to residents for this

service, a municipality may decide whether or not to include this option in their waste and/or recycling collection contract.

Additionally, it is recommended that municipalities with contracted service include an option in their bid documents that requires the bid respondent to establish a residential drop-off location for electronic material. A municipality may offer a drop-off location as part of the bid documents (i.e. municipal building, drop-off center, etc.) thus only requiring the respondent to propose a price for permitting the location, outfitting the location in accordance with State and Federal regulations, and operating and maintaining the location over the course of the contract. This option may result in longer contract terms, i.e. 5-10 year contracts instead of 3 year contracts. Requiring the respondents to provide a drop-off location for e-waste material will allow residents from apartment, condo, and townhome complexes, as well as residents from mobile home parks (if not included in the curbside service route), and possibly collegiate students and faculty in some cases to recycle electronic material more conveniently. This requirement may be a collaboration opportunity between existing haulers and existing e-waste recyclers in Luzerne County.



Lastly, it is recommended that the county support a standard sticker notification program to be utilized by haulers operating within the county. This sticker will be placed on e-waste (mainly televisions) placed curbside for disposal. The sticker would include a generic educational message such as: *“This item has been banned from landfills as of January 2012 and cannot be collected curbside as part of your waste collection. Do not dispose or dump this item, it’s illegal. To properly recycle this item, please call 1-800-821-7654.”*

It is recommended that this sticker be purchased in bulk by the municipalities and distributed to the haulers operating in the municipality. Grant funding through PADEP may be available for the purchase of these stickers. The cost of the stickers may be distributed evenly to the haulers operating within the municipality as part of a registration program. Haulers shall be obligated to utilize these stickers either through a municipal hauler registration program, a county ordinance, a municipal ordinance, and/or municipal contracts.

5.3.6.4 Recommendation R5 Education – This Plan Update recognizes that education of the public on proper waste management and recycling is crucial to the success of a growing, sustainable integrated waste and recycling programs in Luzerne County. The continuation and expansion of such educational efforts by the public and private sectors are recommended in this Plan Update. Support from both municipal and private sector partners is crucial for a sustainable educational effort.

Some educational programs that may be implemented/expanded during the planning period include:

- Implementation of a mobile app to notify residents of waste and/or recycling related programs and events. The notifications to residents may include paper shredding and tire collection event information, municipal e-waste collection events, etc.
- Newsletter distribution (electronic and/or hard copy). Again, there are companies that offer their services to develop a newsletter to be distributed to selected recipients. This newsletter may be targeted at specific markets, i.e. commercial businesses, apartment complexes, single family residents, etc. The newsletters may be structured with information from recyclables



collected, service providers available, to source reduction strategies, and virtually everything in between. Oftentimes, these newsletters may be partially or completely funded through the sale of advertising in the newsletter. Additionally, many marketing companies will not only develop the newsletter, but obtain the advertising as well. This makes the newsletters virtually free for a municipality or county to generate, besides the potential cost of distribution. It is recommended that this type of service be managed at the municipal level as recipient information is more manageable and it is recommended that private participation is solicited in the development of a newsletter, whether it is verification of information, contribution of content, or funding from the sale of advertising space within the newsletter.

- **Social media presence.** It is recommended that Luzerne County increase their social media presence over the ten year planning period in regards to waste and recycling. It is recommended that the Solid Waste Management Department considers becoming more active on Facebook, Twitter and potentially adding an Instagram account, etc. to reach a larger audience and help spread information on waste and recycling activities in the county for minimal costs, as well as increase the presence of waste and recycling news on their current social media platforms.
- **Sector specific education.** Education shall be focused on reaching residents, students and businesses in the county. How these entities are best reached and the message that is conveyed to them is different.

Residents are often best reached with repetitive information that is short and doesn't get directly thrown in the trash (or recycling). This may include things like magnets for the refrigerator with a visual guide for recycling, monthly postcards that focus on one recyclable and one unacceptable item (as to not overwhelm the residents), utilization of municipal and/or county websites to promote the same message as the postcards, and utilization of municipal newsletters to also promote this educational campaign. Additionally, neighborhoods may designate recycling ambassadors that disseminate information to fellow residents, create specific education programs for their communities, develop social media campaigns, etc.

Students are typically transient in nature, recycling at school, at home, and possibly on the go. Since the programs may vary, developing education at the location of recycling is more beneficial. This may include stickers on the recycling receptacles that show pictures of items to be recycled, as well as an evaluation to ensure there are enough recycling receptacles on the school campus. Additionally, schools may benefit from developing recycling ambassadors that encourage fellow students to recycle. These ambassadors may create specific education programs that encourage student recycling, such as competitions, social media campaigns, presence at sporting and activity events, etc.

Commercial businesses often benefit from having a committee and/or leader that spearheads the education of others. Prior to developing educational material for the employees, it is beneficial for this committee to take an audit of the current waste stream

and/or recycling stream. What does the business produce the most of, i.e. office paper, plastic bottles, etc. Education may then be tailored to the business and the materials most utilized/expended by the employees. Education may include signage in the office, emails, and newsletters. Additionally, businesses may benefit from creating incentives for employees to participate in recycling. Due to the nature of businesses, it is important that these programs are reassessed frequently, as employee participation can fade over time and may be impacted by frequent employee turnover.

Generational education. Most advertising must be tailored to four distinct generations: Baby boomers, Gen X, Millennials and Gen Z. This is really the first time in history that different generations have to be marketed to so distinctly. Each generation has its own distinct patterns of behavior and preferences for engagement. Baby boomers and Gen X seem to still respond well to what is considered typical marketing strategies. Reaching these generations through newspapers, television and radio will most likely work well. Though the number of people reading newspapers overall has fallen drastically over the past several years, media, such



as TV and radio are still available for advertising. It is recommended advertising focus on advertising events such as municipal HHW and/or e-waste collection events, spring/fall cleanup days, etc. Utilize newspaper, TV and radio to advertise these events as well and possibly utilize all media streams to educate residents on waste and recycling in Luzerne County. This may include a running radio advertisement encouraging residents to visit Luzerne County's website or to pick up a recycling guide to learn more about recycling, or possibly a monthly or quarterly spot on the local news discussing waste and recycling initiatives in Luzerne County.

Millennials rely heavily on an online presence to find information when researching a topic. If a millennial is in need of information on recycling, they are more likely to go to the internet first. They are also likely to seek the advice of other millennials, so working towards having a steady number of millennials that retweet or share waste and recycling information posted by the county may be a goal of the Plan Update.

Lastly, Gen Z are digital natives, raised on tablets, smartphones, and social media. This generation responds well to opt-in text alerts, YouTube short videos, and repetitive exposure to the same message. They are more likely to gather information from peers and relatives, so reaching not only this demographic but the older demographics is beneficial.

Bilingual Education. Based on the population of Luzerne County, it may be beneficial to generate bilingual education. Oftentimes, education can be created in two languages, while utilizing one educational piece, thus saving time and money. It is recommended for the County to look at existing educational material to determine if it can easily be converted to a bilingual message. Additionally, it is recommended that any education created over the planning period, be created in a minimum of two languages to reach the greatest population possible. It is also recommended that municipalities consider creating education in multiple languages for their residents, based on their anticipated resident needs.

Lastly, it is a recommendation that any education required by private haulers and/or private facilities be provided to residents as needed. This requirement may be written in to new curbside collection contracts, agreements with the municipalities, registration programs, event sponsorship agreements, etc.

5.3.6.5 Recommendation R6 Fairs, Festivals, Colleges and Universities Waste and Recycling – Special events with over 250 anticipated participants are required to have recycling in mandated municipalities. Currently, this is not heavily enforced. The County can work with the municipalities to develop a registration program for those wishing to hold an event in a mandated community register the event with the municipality.

Special event coordinators shall be required to submit a registration to the municipality prior to the event taking place (a copy of this registration shall be sent to the county by the municipality). The registration can be rather simplistic, but it shall include at a minimum:

- Name of event
- Location of event
- Event coordinator information (name, telephone and email)
- Date of event
- Time of event
- Name of waste and recycling hauler
- Copy of contract with waste and recycling hauler (contract must include a requirement to submit waste and recycling tonnage receipts to event coordinator within 30 days of event)
- Proposed location of waste and recyclables receptacles at the event
- Processing facility for recyclables
- Registration Fee—a Check payable to the municipality, using either a flat fee in a specified amount, or one calculated based upon the estimated number of attendees. The Fee can be kept by the municipality to cover costs such as cleanup, or used as security to ensure the coordinator cleans up the site and or submits waste & recycling receipts once the event is completed.

If a municipality enacts a registration program for special events, it is recommended that the municipality also update or enact an ordinance that lists enforcement for failure to register an event.

It is also a recommendation of this Plan Update that non-mandated municipalities require special events with over 250 anticipated participants to recycle. Additionally, it is recommended that both mandated and non-mandated municipalities encourage smaller special events taking place to also recycle.

5.3.7 Biosolids and Septage

5.3.7.1 Recommendation B&S1 Biosolids – The county shall continue to rely on the current system for managing biosolids, which involves processing of wastewater at publicly-operated facilities and the handling of WWTP biosolids (i.e. sewage sludge) through landfilling, composting, or through otherwise recycling the materials back into a productive use (land application). The current system is sufficient to manage the biosolids generated from county sources over the next ten (10) years.

5.3.7.2 Recommendation B&S2 Septage – The county shall continue to rely on private haulers for the collection of septic tank pumpings (i.e. septage), for eventual disposal as treated biosolids as noted in Recommendation B&S1. As indicated with biosolids, the current system is adequate to handle the septage processing needs of the county over the next ten (10) years.

5.3.8 Regulated Medical Waste and Home Health Waste

5.3.8.1 Recommendation MW1 Regulated Medical Waste – The county shall continue to rely on the current system for managing regulated medical waste, which involves licensure of haulers through the State program and generators of this material often contracting with a private hauling company that transports this material to a permitted autoclave facility or disposal facility. The current system is sufficient to manage regulated medical waste generated from county sources over the next ten (10) years.

5.3.8.2 Recommendation MW2 Pharmaceutical Waste – The county shall continue to rely on the current system for managing pharmaceutical waste, which involves drug take back drop-off boxes sponsored by the Pennsylvania Department of Drug and Alcohol, as well as local companies that offer residents collection of this type of waste. The current system is sufficient to manage pharmaceutical waste generated from county residents over the next ten (10) years.

5.3.8.3 Recommendation MW3 Home Health Waste – The county shall continue to rely on the current system for managing home health waste, which encourages residents to ask a doctor if he or she will accept properly containerized sharps for safe disposal, contact a local hospital to see if it will accept sharps that have been properly secured in a container, check with a pharmacy to see if they sell specially designed containers for use by residents or mail-back containers, check with curbside and/or drop-off HHW events to see if they accept this type of material, or take advantage of at-home medical sharps disposal services without leaving their homes. If home health waste is prepared appropriately, it may be placed with the regular residential waste.

The current system is sufficient to manage home health waste generated from county residents over the next ten (10) years.

5.3.9 Ash and Asbestos

5.3.9.1 Recommendation AA1 Ash and Asbestos – The county shall continue to rely on the current system for managing ash and asbestos, which requires generators of this material to properly dispose of this material at a permitted disposal facility. The current system is sufficient to manage ash and asbestos generated from county sources over the next ten (10) years.

This Page Intentionally Left Blank

CHAPTER 6 - LOCATION OF FACILITIES AND PROGRAMS

This Chapter identifies the location of each municipal waste processing, disposal and recycling facility, which is anticipated to contract with Luzerne County.

6.1 Location of Disposal/Processing Facilities

There are no municipal waste disposal facilities currently located in Luzerne County. The County has decided for this SWMP it will allow municipal waste generated in Luzerne County to be taken, at the generator’s or hauler’s option (as appropriate), to any permitted waste processing or disposal facility in the Commonwealth of Pennsylvania or Out-of-State facility listed in this SWMP as a Designated Disposal Facility with a signed Agreement with the County.

With this approach, Act 101 still requires that the County must contract with at least one (1) processing/ disposal site to secure the minimum municipal waste disposal capacity needs of the County for the next ten years. To meet this minimum contracting obligation under Act 101, the County advertised a SOI. The SOI also solicited municipal waste transfer stations that handle Luzerne County’s municipal waste to agree to minimum procedures to comply with the SWMP, including proper reporting, waste manifesting, and delivery of Luzerne County’s municipal waste to processing/ disposal facilities approved in the SWMP.

A summary of the Submittals received in response to the SOI, and the results of the Submittal reviews by the County SWAC, including the selection of multiple sites for waste transfer and contractual waste disposal capacity assurance, are documented in a memorandum in Appendix A.

The disposal facilities listed below have entered, or are expected to enter, into contract agreements with Luzerne County to accept waste from Luzerne County for a period of ten (10) years. The facilities selected through the SOI process will enter into a waste disposal capacity agreement fully aware of the amount of waste they have to accept and the ramifications this would have on the life of their facilities and their permit status. Disposal facilities are also aware that they may receive limited amounts of waste or no waste at all from Luzerne County sources as explicitly stated in the agreement. Appendix A contains a copy of the draft disposal agreement from the SOI. Fully executed agreements will be in Appendix H when executed. Facilities identified below that do not finalize and execute contracts with the County will be removed from this list of Designated Disposal Facilities.

Disposal Facilities

- Alliance Sanitary Landfill
- Commonwealth Environmental Systems Landfill
- Grand Central Landfill
- Keystone Sanitary Landfill
- Pioneer Crossing Landfill
- Wayne Township (Clinton County) Landfill

Transfer Stations

- Lehigh Valley Transfer Station
- Tamaqua Transfer and Recycling
- Waste Reduction & Recycling Transfer Station
- EIO Waste Solutions and Recycling

These facilities were identified through the fair, open, and competitive procurement process discussed in Chapter 3 and will serve as the designated disposal facilities of Luzerne County generated waste for the next ten years. These facilities were also chosen based on the following perceived needs of the County over the 10-year planning period:

- The most geographically convenient
- The facilities most-used at the time the SWMP was drafted
- Multiple facilities are required to assure the disposal capacity for all types of “special handling” municipal wastes generated in the County (such as asbestos, ash, and RMW)

It is the intent of the County to enter all new waste disposal agreements with selected facilities no later than December 31, 2020. At that time, copies of the executed disposal contracts will be placed in Appendix H of this SWMP.

6.2 Yard Waste/Composting Program Locations

Currently, sixteen (16) municipalities in the county operate a yard waste compost facility under a yard waste composting permit-by-rule (PBR) or general permit. The yard waste composting sites are listed in Table 4.2.

6.3 Material Recovery Facility (MRF) Locations

There are currently four (4) material processing facilities (MRFs) located in Luzerne County, according to PADEP’s website. The MRFs are listed in Table 4-1.

6.4 Petition Information for Non-Designated Facilities

Haulers, disposal facilities, and/or municipalities have the option to petition the County to use another facility not designated in the SWMP, if that facility is legally permitted and operating within the provisions of its permit, and can provide the County with a 10-year capacity assurance for that portion of the waste stream expected to be generated in Luzerne County. Any disposal facilities added to the SWMP after the Plan is approved by the County Manager must pay all costs to revise the Plan and its documents as needed to include the respective facility. The procedure to add a facility is as follows:

- First, an entity must request from the LCSWMD a Petition Form to use a Non-Designated Facility, the form is shown in Appendix A.
- The LCSWMD will forward a Packet for Petitioning including Submittal Forms to the facility requesting addition to the Plan.
- Upon receipt of the completed Packet for Petitioning from the facility in question, the LCSWMD will review and respond to the information in the Form within thirty (30) days.

If all information is in order on the Submittal Forms, the LCSWMD will notify the hauler, disposal facility, or municipality whether it will be at liberty to use the facility for disposal of Luzerne County generated municipal waste.

Appendix A contains a complete packet with instructions to complete the process of petitioning to use a facility not designated in the SWMP. Again, the process is set-up to allow the County to monitor where County generated municipal waste is being disposed to minimize risk of liability and to guarantee disposal capacity at the facility for County generated municipal waste for at least ten years.

CHAPTER 7 - IMPLEMENTING ENTITY IDENTIFICATION

The LCSWMD is responsible for implementing this Plan and all future municipal waste planning and Plan revision efforts for Luzerne County. The legal authority for this office is derived from the County Code, the Luzerne County Council and the Luzerne County Manager. The function of this office involves the following principal activities:

- Administration of the Luzerne County Solid Waste Management Ordinance
 - The Waste Management Ordinance was rescinded by a recommendation of the Solid Waste Advisory Committee as part of the development of the 2010 Luzerne County SWMP.
 - As part of the 2021 Plan Update, the Luzerne County Solid Waste Management Ordinance will be revised and proposed to County Council for ratification.
- Coordination of Recycling
 - This function involves coordination among the mandated municipalities and providing assistance to all Luzerne County municipalities, private citizens, and agencies that wish to become involved in the recycling efforts of the County.
- Recycling Implementation
 - This function involves facilitating the implementation of municipal curbside and drop-off programs, as well as any special collection efforts within the County and education efforts.
- The County is responsible for:
 - Regulating the establishment, maintenance and operation of private solid waste collection, storage, transportation and disposal services.
 - Assisting communities in adopting, issuing and enforcing local rules and regulations.
 - Informing municipalities about changes in federal and state laws, rules and regulations that may affect or would affect solid waste management in the County or municipalities.
 - Providing technical assistance to municipalities in implementing municipal recycling and composting programs.
 - Providing technical assistance to commercial establishments and institutions in implementing recycling programs.
 - Operating any special waste collection projects sponsored by the County.
 - Planning and implementing County-wide programs to provide general education to the public about recycling and composting, and to provide information about the range of recycling opportunities throughout the County.
 - Continuing to promote recycling through school programs and with civic organizations.
 - Collecting and evaluating data on recycling and waste generation by municipality and County.
 - Collecting and evaluating data on recycling and waste generation by commercial, institutional and industrial establishments in the County.
 - Preparing required reports for submission to the PADEP.

More specifically, the LCSWMD oversees agreements executed (or to be executed) by the County to secure adequate disposal capacity for municipal wastes that will be generated within Luzerne County over the next ten years. The LCSWMD will also be responsible for exploring and implementing additional recycling programs and facilities as deemed necessary or as cost-effective and affordable opportunities arise in the future. The County's recycling program is administered by a full-time Recycling/Solid Waste Coordinator, who is a member of the LCSWMD staff.

The County is authorized under Act 101 to take any and all actions and to exercise all such powers as are necessary to design, develop, finance, construct, own, operate and manage a County-wide, assured long-term integrated solid waste management system that is environmentally safe, economical and uses proven technology. Such powers and actions include but are not limited to the power to promulgate rules, regulations, fees and penalties applicable to the collection, storage, transportation, processing, recycling and disposal of municipal waste generated, collected, stored, transported, recycled, processed or disposed of within the County.

These specifically include the power to:

- a. Develop, adopt, revise and implement a SWMP for the County.
- b. To maintain disposal contracts over the 10-year planning period.
- c. To approve or deny petitions to be added to the SWMP from disposal facilities.
- d. To approve or deny requests to use back-up facilities.
- e. To develop and implement an integrated municipal waste management system for the County to insure the proper collection, transportation, processing and disposal of all municipal waste generated within the County.
- f. Adopt ordinances, resolutions, regulations and standards for the processing and disposal of MSW, as long as it is not less stringent or in violation or inconsistent with Act 97 or Act 101.
- g. Require that all MSW generated within its boundaries shall be properly collected so as to insure it is processed and disposed at designated facilities contained in the County Plan.
- h. To administer and enforce a registration program for haulers and vehicles transporting waste collected within the County.
- i. To promulgate rules, regulations, fees and penalties applicable to the collection, storage, transportation, processing, recycling and disposal of municipal waste generated, collected, stored, transported, recycled, processed or disposed within the County.
- j. To prepare reports to the PADEP as required by Act 101.
- k. To apply for and receive grants under Chapter 9 of Act 101 to develop and implement the Plan.

Local governments also have implementing responsibilities; these include, but are not limited to:

- a. Implementation of mandates specified in Act 101 and the Plan.
- b. Inclusion in their bid specifications for collection services that stipulate materials designated by the municipality for inclusion in the municipal recycling program not be collected and disposed of with the municipal waste.
- c. Preparation of reports to the County as required by Act 101 and LCSWMD.
- d. Adoption of ordinances, resolutions, regulations and standards for the processing and disposal of MSW, as long as it is not less stringent or in violation or inconsistent with Act 97 or Act 101.
- e. Development and implementation of an integrated municipal waste management system for the municipality that conforms to the recommendations of the most recent County SWMP.

The County's 2020 operating budget for the Solid Waste Management Department is expected to be approximately \$505,800, which includes:

- Personnel and related expenses
- Office expenses
- Solid waste planning expenses
- Special waste collection programs, such as supporting municipal electronic waste and County tire collections

- Recycling education programs, including school programs
- Municipal Solid Waste Management Plan implementation

With the uncertainty of the future of Act 101 Recycling Fund (and its grant programs), it is important to ensure that sufficient funds are available to continue to fund these County responsibilities without grant assistance. Without such funding, the future of existing waste reduction and diversion operations is questionable.

The following time schedule is presented for the planning and implementation of the component parts of this Plan:

July 2020	Draft Substantial SWMP was released for a ninety (90) day for municipal review period. This includes: <ul style="list-style-type: none">• Notice in papers-twice in two consecutive weeks• Public Comment period open• One public hearing in that time• Copy to DEP, County Planning Department, Municipalities, County Health Department
October 2020	Municipal comment period ends
October 2020	Final SWMP submitted to the County Manager for draft ratification
December 31, 2020	Former Disposal Capacity Assurance Contracts with Luzerne County expire
January 2021	New Disposal Capacity Assurance Contracts with Luzerne County commence
January 2021	Final SWMP submitted to the County Council by the County Manager for final adoption, adopted plan sent to municipalities to ratify
April 2021	Adopted plan to be submitted to the PADEP for final approval
June 2021	Anticipate PADEP Plan approval

This Page Intentionally Left Blank

CHAPTER 8 - PUBLIC FUNCTION

8.1 Public Function

Luzerne County is the contractual signatory to the waste disposal capacity assurance agreements with other entities that were solicited under this SWMP. The LCSWMD will retain responsibility for implementation of disposal-related elements of the plan, including, but not necessarily limited to, execution and oversight of disposal capacity agreements. The LCSWMD may also apply for grant funding to help finance future planning and implementation efforts to promote and implement elements of this SWMP.

It is the position of the LCSWMD that the most suitable and cost-effective method of disposal of the municipal waste generated throughout Luzerne County is at multiple disposal facilities. In addition, it is the LCSWMD's position, at this time, that the waste transfer facilities serving Luzerne County meet the current waste transfer needs of the County. The majority of the waste transfer facilities and the waste disposal facilities identified for contracts with LCSWMD in this SWMP are currently owned and operated by the private sector. The LCSWMD and its municipalities reserve the right to consider a public option for waste processing, transfer and/or disposal in the future should the needs of the residents and the position of Luzerne County change.

The LCSWMD, and other municipalities within the County, reserve the option to own or operate recyclables processing facilities, recyclables drop-off facilities, materials transfer facilities, and/or composting facilities in the future if it becomes in the best interest of the residents of Luzerne County, or the individual municipalities to do so. Residents in municipalities throughout the County can benefit from consolidated efforts for the collection of municipal waste and recyclables, creation of composting facilities and special collection events.

8.2 County Ownership

Pursuant to Act 101, the public interest requires that waste collection, transport, storage, processing, disposal and recycling be a public function. Public function does not require County ownership or operation of equipment or facilities. Luzerne County does not currently own or operate disposal facilities (landfills) or processing facilities (transfer stations) at this time. The County, and/or the County's municipalities reserve the right to own a disposal and/or processing facility in the future if it meets the needs of the Luzerne County residents. The County and its municipalities reserve the right to lease, own and/or operate additional recycling, processing and/or disposal facilities in the future to meet the needs of Luzerne County and its residents and businesses as they may arise.

The County has determined, as part of this SWMP, that its obligation to provide for the processing and disposal of all municipal waste generated within the County continues to be best served by reliance on long-term Disposal Contracts with privately or publicly owned processing and disposal facilities. This approach meets the goals of the County in that it is:

- County-wide
- Long-term
- Assured
- Integrated
- Protective of public health and safety
- Environmentally safe

- Cost-effective

Through the planning process, the County has met its obligation to provide for long-term assured disposal capacity through a Waste Disposal Capacity SOI and subsequent Waste Disposal and Transfer Agreements.

By contracting with six (6) disposal facilities, the County has assured and confirmed sufficient disposal capacity and established ceiling tipping fees that are committed to the County through executed Agreements through 2030.

8.3 Revenues and Expenses

8.3.1 Solid Waste Management Plan

The development and implementation of the County SWMP as required by Act 101 is a complex and time consuming task that requires professional expertise in waste management, engineering, administration, law and finance. To fulfill its duties under Act 101, the county elected to engage the professional services of consultants, engineers, solicitors and SWAC members to advise the County with respect to Act 101 and prepare the SWMP.

While these activities are eligible for partial funding reimbursement from the PADEP under Act 101 grants, a portion of the cost of Plan development and a substantial portion of the cost of implementing the Plan must be borne by the County.

8.3.2 Waste and Recycling Management Services Funding

Luzerne County's Solid Waste Management Department currently provides several recycling and waste management programs for the residents and businesses in Luzerne County. These programs are currently possible due to a public/private partnership that was established previously with several disposal facilities that service the County. As part of this Plan Update, the following funding alternatives are provided that may supplement the public/private partnership or may be required to be implemented if the public/private partnership were to dissolve during the ten-year planning period.

Waste Millage

A millage rate is the amount per \$1,000 of assessed, improved property value that is used to calculate taxes on property to cover the municipality's annual operating costs. Millage rates are often found in personal property taxes, where the expressed millage rate is multiplied by the total taxable value of the property to arrive at the property taxes due.

Luzerne County could impose a waste management millage tax that would be charged to property owners based on a percentage of a residential property value. For example, if the fee is \$1.00 per \$1,000 in property value annually, a home valued at \$100,000 would be charged a waste management millage fee of \$100.

This program has little to no capital costs associated with setting it up, it can be implemented rather quickly, it would not substantially increase the County's current operating budget beyond a slight increase in administrative costs, and it can provide a sound, annual source of income for years to come. Conversely, this program is often met with low political will, as the idea of increasing or imposing a tax is often not favorable, it only provides income from residential sources and therefore should only be used to finance residential programs, versus commercial waste and recycling management programs and lastly,

since it is property value based, there is no control over the rate at which participants pay for their level of use of services, rather it is strictly based on assessed property value, which can be met with opposition.

In order to determine what the waste management millage fee would be for Luzerne County to cover the County's annual operating budget for residential solid waste and recycling services, a more in depth evaluation is required to determine the total assessed, improved property values within the County and evaluate that value per \$1,000 to establish a waste management millage tax.

Utility Billing

This option relies on user fees that are assessed to residents and businesses for the waste and recycling management services offered by the municipality and/or County. It is often assessed as a utility bill, similar to water, wastewater or electric. The intent of the waste and recycling management user fee is to assess an equal fee to all residents and/or commercial businesses that covers the costs of the solid waste and recycling management services offered to them.

The user fees for the residential and commercial component of the solid waste and recycling management services would require a more in depth evaluation to determine the portion of the County's operational budget allotted for each service. Additionally, a more detailed analysis of waste generation at the residential and commercial level is recommended to more accurately determine waste generation projections for each source. Once the service budgets and waste generation tonnages are determined, an evaluation can be completed that compares the budgets to the waste generated and returns a user fee at both the residential and commercial level. This fee may also be assessed based on occupied households and licensed businesses. This fee is often charged to residents and commercial businesses on an annual basis, but could certainly be charged on a monthly, bi-monthly, or quarterly basis as well.

If residents are already receiving a utility bill from municipal or county government, this user fee can be added to the utility bill with little upfront costs or effort. If no utility bills are currently assessed at the municipal or County level, there will be some effort and costs associated with setting up this type of system. It is important to note that there will be effort annually to reassess the user fee based on the cost of waste and recycling management services. Although this system more accurately charges fees to residents and commercial businesses, the user fee is maintained for all residents, regardless of the level of services utilized.

Non-Ad Valorem Assessment

A non-ad valorem assessment is a method of taxation that uses the size of a unit (square footage) or the number of units to assess a fee for services. Non-ad valorem assessments are commonly used for streetlights and stormwater management projects in addition to waste and recycling management. Levying authorities are responsible for setting the non-ad valorem assessments. The assessment periods vary and do not have to be based on the calendar year, although they are usually completed on an annual basis. In regards to the collection of the fee, a non-ad valorem is considered a part of the tax bill and carries the same penalties for failure to pay as do the property taxes on a tax bill. However, unlike the ad valorem tax which is based on the assessed value of the property, the non-ad valorem special assessment is based solely on the benefit received by the property for the services rendered.

This option provides the County with a reliable revenue source and the participation levels tend to be high. Historically, as waste and recycling service charges increase, program participation decreases. In

this case, the service is already paid for under the special assessment system, so there tends to be an incentive to participate. In rural Pennsylvania, where burn barrels are still utilized, a non-ad valorem may be one option to reduce backyard burning and the negative side effects associated with it.

This option may require a waste generation study at the residential and commercial level, as well as a review or modification to the County and/or municipal ordinance, therefore there are some costs associated with implementing this option. This option may also take up to one year to implement due to the legal reviews required and the potential waste generation study. As with the options discussed above, this option is often viewed as a tax and therefore may face opposition from municipal and county government entities, but it is a highly equitable and technically sound method for charging customers based on rational generation rates.

Developing a Publically Owned Transfer Station

With the 2007 Supreme Court decision in the *United Haulers v Oneida-Herkimer County* case, regulatory flow control was confirmed to be lawful if all wastes are directed by local ordinance to a publicly owned waste management facility. Luzerne County does not currently own a waste and recyclables management facility, however, Luzerne County possesses the ability to develop a publically owned waste management system that includes infrastructure, if they so choose. Specifically, Luzerne County could consider constructing one (1) or more publically owned transfer stations which could subsequently be designated by ordinance as the required disposal location for all wastes generated in the County. This would enable the County to procure the most competitive disposal rate by (1) creating an attractively large waste stream from the standpoint of private landfill owners, and (2) extending the boundaries of landfills that are within economic transportation distance to receive County waste.

The capital costs associated with this option are anticipated to be in the millions and would require several components prior to implementation, such as a site evaluation to locate suitable land for the transfer station, a fatal flaw analysis on the property to ensure the waste and recycling activities can be conducted on the property, legal and engineering effort to work through local zoning, County flow control ordinances, and state permitting, engineering design of the facility, as well as bidding and construction efforts and costs, just to name a few. If this option were to be considered, it is recommended that the first step be to perform a detailed cost analysis on the development, operation and maintenance of such a facility to determine that the option is financially viable for the County. This option would take the longest to implement at anywhere from 5-10 years.

Exit the Recycling Business

In the event that a funding source cannot be achieved, the County would not be able to continue operating its special waste collection programs. If this scenario were to occur, the County would likely need to discontinue these recycling education and special waste collection services.

Public/Private Partnership

All of the SOI respondents indicated a willingness to further discuss ways to support the sustainability of the county's integrated waste and recycling programs in the future. The public/private partnership in place in Luzerne County with the public and private waste disposal facilities has been widely successful over the past ten (10) years and for that reason, the County is interested in maintaining that partnership moving forward.

Sponsorships and Grants

There are many opportunities throughout the year where Luzerne County municipalities may seek out sponsorship from waste and recycling haulers, disposal facilities and/or processors. As an example, a partnership was created between ClearStream Recycling Systems and Ad Bin Sponsorships that created an interchangeable advertising display that can be affixed to a ClearStream Recycling System container.

Utilizing Volunteers to Reduce Costs

Local groups and organizations may also offer support through volunteering at drop-off locations, helping with waste sorts, spreading education to residents and businesses regarding recycling, etc.

Grant Funding

One grant funding option available to municipalities and private businesses to fund the collection, processing, and communication projects that are intended to increase recycling access and rates is the Closed Loop Fund. The Closed Loop Fund is made up of consumer goods companies and retailers who are creating economic value by increasing recycling rates. The Closed Loop Fund provides no or low interest loans to municipalities and below market interest loans to private companies to develop local and recycling infrastructure. Their goal is to invest \$100 million in sustainable consumer goods, advanced recycling technologies and the development of the circular economy by 2020. In August 2018, the Closed Loop Fund partnered with the Pennsylvania Recycling Markets Center to help direct \$5 million in loans to support recycling in Pennsylvania. The current companies and retailers participating in this program are Walmart, Coca-Cola, PepsiCo, Procter and Gamble, Unilever, 3M, Dr. Pepper and Snapple, Keurig, Colgate Palmolive, Johnson & Johnson and Nestle. More information on this program can be found on their website at: <http://www.closedlooppartners.com/>

Another funding source for municipalities is The Recycling Partnership. They have various grant programs that often assist municipalities in implementing curbside recycling programs or converting a current bin/bag program to a cart based program.

Additionally, PADEP has grant funding opportunities for equipment purchases, educational programs, performance grant funding, planning exercises, HHW collection events and more.

Recycling Service Fee in Municipal Contracts

An additional option for funding recycling programs in Luzerne County is to include a recycling fee in contracts used by municipalities to solicit waste and recycling collection. If a hauler is unable to provide curbside recycling to residents of the municipality, a municipality may require, as part of the contract, that a hauler provide a fee (to be determined by the municipality) that may be used to provide recycling programs to the residents of that municipality, i.e. drop-offs.

This Page Intentionally Left Blank

CHAPTER 9 - COPIES OF ORDINANCES, RESOLUTIONS, AND IMPLEMENTING DOCUMENTS

A Waste Disposal Capacity SOI for municipal waste transfer and processing/ disposal services was advertised in the local newspaper (Times Leader), in Waste Advantage and in the PA Bulletin. Six (6) disposal facilities and four (4) transfer station facilities responded to the SOI and subsequent inquires. A sample copy of the SOI and supporting submittal forms are provided in Appendix A. The responses to the SOI are presented in Chapter 5.

Legal instruments for the control of Luzerne County's municipal waste stream are a requirement of Act 101 of 1988 which makes the County responsible for the proper disposal of the municipal wastes generated within its boundaries. The SWMP incorporates multiple implementation documents. It also offers many forms of template documents that can be used by municipalities to implement plan recommendations.

Incorporated within this SWMP are the following documents:

- Sample Municipal Waste Disposal Capacity Agreement (Appendix A)
- Samples of Various Forms of Municipal Bid Documents for Waste and Recyclables Collection and Disposal Contracting (Appendix E)

The following items are to be executed or approved within one year of the Plan Approval:

- Luzerne County Resolution (Appendix H)
- Municipal Waste Disposal Capacity Agreements (Appendix H)
- Luzerne County Municipal Solid Waste Management Ordinance (Appendix F)
- Municipal Recycling Ordinances (Appendix F)

In this SWMP, municipal waste collectors are permitted to deliver Luzerne County waste to any one of the designated waste disposal facilities listed within this SWMP who have entered into Disposal Capacity Agreements with the County. Chapter 6 contains a list of disposal facilities that have contracted with, or intend to contract with, Luzerne County for the transfer or disposal of Luzerne County's municipal wastes. These contracts provide certain assurances to Luzerne County and contain ceiling tipping fee pricing for various types of wastes throughout the 10-year planning period. Appendix A contains the ceiling tip fee pricing structures of the contracted disposal facilities (Table 2 - Detailed Summary of Responses).

The completed Plan and resolution will be submitted to PADEP for approval. Upon approval by PADEP, each municipality within the County will receive a copy of the completed Plan revision advising them of the County's adoption and PADEP's approval.

If additional implementing documents are necessary for full implementation of the Plan, Luzerne County and Luzerne County municipalities will exercise their respective authorities for the adoption and execution of any and all documents deemed necessary to carry forth its obligations and to implement this Plan.

This Page Intentionally Left Blank

CHAPTER 10 - ORDERLY EXTENSION

In the preparation of this SWMP, demographic information provided by the LCSWMD was used for an orderly extension of data in such a manner as to be consistent with the needs of the area. This plan has also taken into consideration applicable planning, zoning, population estimates, engineering and economics. The requirements of Act 101 and Chapter 272 of the PADEP Regulations have been followed in this SWMP process, including the requirements for a Non-Substantial Plan Revision, which PADEP has determined applies to this SWMP.

Existing waste disposal facilities that responded to the SOI and were deemed acceptable are used and made part of this SWMP. The contractual arrangements resulting from the Waste Disposal Capacity SOI for transfer and disposal services include facilities that currently handle the vast majority of municipal wastes generated by Luzerne County. The County will continue to offer technical support to municipalities with curbside recycling programs, composting sites in the County, as well as drop-off sites that accept a wide variety of conventional and hard-to-recycle materials in the County.

Continued use of existing processors by the commercial, institutional, and industrial sectors is also encouraged. Over the years, these sectors have been the main source of materials for the processors.

As this Plan is implemented, continued effort will be focused on providing for orderly extension of the system including management of construction and demolition waste, residual waste, sludge, septage, and RMW. To that end, every ten years, the County will perform a comprehensive review of its Plan and an analysis and description of the waste being generated in the County to ensure that the System is performing as planned and waste is being recycled and disposed consistent with the Plan and Act 101.

This Plan does not conflict with any state, regional, or local plans.

The County shall prepare and file revisions to this Plan as deemed necessary by the County and in the manner provided for by Section 501(c) of Act 101. The County shall continue to implement the SWMP for the remaining years following adoption of this Plan. The County will monitor its capacity assurance if necessary and as required under Act 101. The County's implementing documents are distinct from the Plan and may remain in effect beyond the 10-year planning period.

This Page Intentionally Left Blank

CHAPTER 11 - OTHER INFORMATION

11.1 Marcellus Shale

The Marcellus Shale Play is a geologic formation that is a source of natural gas located in deep (1-2 miles deep) shale deposits. It is being actively developed by scores of gas industries, thanks to drilling technology advances that make this gas development process technically feasible. These deep mine drilling operations generate drill cuttings and other residuals that currently require disposal in a proper landfill. The operations also require the handling of millions of gallons of chemically treated fracturing, or “frac”, water at each drill site. The subsequent handling of drill residuals (and in some cases, wastewater from the operations) is typically classified as residual waste. These wastes may influence the available capacity of municipal waste landfills that service Luzerne County, should those residual wastes displace landfill capacity that is needed for municipal waste disposal.

The Marcellus Shale drilling industry currently has no active gas wells in Luzerne County. However, the potential impact of this industry’s residuals on available municipal waste disposal capacity for Luzerne County cannot be ignored in this plan. Contracts for long-term disposal capacity of municipal waste generated in Luzerne County need to confirm that municipal waste disposal capacity is “set aside” for the County’s use, and will not be negatively impacted by Marcellus Shale residuals disposal needs. This fact underscores the need for the County to secure long-term MSW disposal capacity as part of this planning process. MSW disposal capacity assurance contracts will assure adequate capacity to meet Luzerne County’s needs over the 10-year planning period.

The following facilities responded to the SOI and stated that they either currently accept or are permitted to accept Marcellus shale residuals. Not all of these facilities currently accept this material and all of these facilities responded that acceptance of this material will not impact the facility’s ability to satisfy their commitment to Luzerne County:

- Alliance Sanitary Landfill
- Commonwealth Environmental Systems Landfill
- Keystone Sanitary Landfill
- Wayne Township (Clinton County) Landfill

11.2 Illegal Dumping

11.2.1 Issues and Causes

Like most counties in Pennsylvania, illegal dumping is prevalent in rural areas of Luzerne County. While most would view illegal dumps as eyesores, they also create significant concerns for public health and safety, property values, and the general quality of life. When ignored, these sites often become chronic dumping areas that pollute the soil, surface water, and groundwater. Preventing illegal dumping will require stakeholders of the County to address factors that contribute to this problem. Cleaning up existing dumps will require cooperation from residents, businesses, haulers, and disposal facilities in the area.

Some haulers will not service rural or isolated parts of the County, thus forcing residents to self-haul their waste to the nearest landfill or transfer station for proper disposal. In addition, some haulers will not collect waste that may be considered construction and demolition (C&D) waste generated at the residential level, because of remodeling and similar activities. These materials include items such as drywall, roofing, shingles, siding, lumber, bricks, and concrete. Other difficult-to-dispose-of items

such as tires, auto parts, appliances, and furniture often end up in illegal dumps. Proper disposal of these materials may require that the residents haul them to a disposal facility during operating hours (or rent a roll-off bin from the waste hauler), and pay to dispose of the waste, an inconvenience or expense that some wish to avoid.

Some homeowners in municipalities with individual subscription services may choose not to subscribe to a waste collection service, simply to save money, or to “share” a hauling service with neighbors or relatives at one house (a practice that is not technically allowed by most haulers). When it becomes a burden for homeowners to haul this material to a disposal facility, or when a contractor who has agreed to dispose of the material decides to avoid the cost of disposal, some of this waste may also be dumped illegally.

11.2.2 Illegal Dump Surveys

PA Cleanways is a nonprofit organization that empowers people to eliminate illegal dumping and littering in Pennsylvania through various education and environmental programs. PA Cleanways’ illegal dump surveys educate state, county, and local officials about the problem of illegal dumping and provide valuable data about the dumpsites and the community in which they reside to address the problem through cleanups, municipal waste collections, and recycling programs.

Illegal dumpsites pose a direct threat to the health and safety of humans and animals. Illegal dumping attracts disease-spreading rodents and mosquitoes by giving them a place to live and breed. West Nile Virus, carried by mosquitoes, has been a primary concern of environmental officials. Illegal dumps also can be a source of physical injury for humans and animals due to broken glass, rusty metals, and toxic substances. Methamphetamine labs, used to produce the illegal drug “crystal meth,” are becoming more and more common. The materials used to make the illegal drug are tossed along the roadside in illegal dumps, and are extremely toxic.

Illegal dumping pollutes our soil, surface and groundwater supplies, as well as the air we breathe if a site catches on fire. The emissions released by the burning of plastics and HHW can be extremely toxic. It is also ugly, and ruins the beauty of natural areas, including many public places such as community and state parks, state forests, and game lands.

Economically, illegal dumps are expensive to clean up. The estimated cost to clean up a site can be anywhere from \$600 to over \$1,000 per ton for cleanup and removal. Illegal dumpsites can also influence property values, can be a liability for property owners, and can affect property purchases and transfers. Tourism revenues also can be affected by illegal dumps. Donation of free disposal capacity by area landfills can help offset the cost of disposing of some of these materials.

The following areas were considered illegal dumpsites in Luzerne County:

- Areas of concentrated trash;
- Areas of scattered trash that:
 - Are not considered roadside litter (bottles, fast food wrappers, cans, etc.)
 - Appear to have new trash thrown on them occasionally (more than twice a year)
 - Appear to have new trash thrown on them occasionally, but cleanup maintenance is prevalent to prevent accumulation
- Areas containing only piles of yard waste (grass, leaves, branches, trees, etc.). These sites can often attract the dumping of other materials and can grow into major dumpsites, and

- Areas containing isolated or solitary items that may or may not be dumped on in the future.

11.2.3 Causes of Illegal Dumpsites

Municipal curbside trash collection is unavailable.

Because it is not mandated by the state, trash collection options are dependent on the city or municipal government. As many rural and small-town municipalities lack funding for mandatory trash collection, it is up to the resident to pay for trash collection. Communities that depend on private subscription for waste collection services have reported greater dumping problems. Inherent inefficiencies and associated higher costs exist in almost all private subscription systems because trucks must travel long distances between customers.

Recycling programs are unavailable or inconvenient.

Act 101 dictates that all communities with populations over 10,000, and densely populated municipalities between 5,000 and 10,000, have recycling programs. Communities that fall outside these parameters must opt for curbside or drop-off recycling programs on their own. Depending on the county, many or all of these communities do not have funding to support a curbside-recycling program. Curbside recycling communities have reported a lower incidence of residential waste dumping.

Disposal of construction and demolition debris (C&D).

C&D debris is a serious solid waste management issue because of the amount that is generated each year, along with the lack of convenient and/or affordable disposal options available. C&D debris is often found in illegal dumps and creates a compounded problem because some of the materials may be hazardous, such as wood that has been chemically treated or painted with lead-based paint, insulation containing asbestos, or shingles.

Shortage of enforcement.

Unfortunately, many communities cannot devote people and resources to effectively deal with illegal dumping. As a result, dumpers do not fear prosecution and have no reason to stop their habits.

Education.

Illegal dumping has been a learned habit for many. Prior to anti-dumping laws, it was common practice to use open town dumps, burn or bury trash, or dump in a convenient out-of-the-way area. Today, we know the harmful effects from illegal dumping. Education is fundamental to diminish the habits learned, and to teach the public proper and safe disposal practices.

Minimal funding opportunities.

Funds are needed to organize cleanups, educate the public, enforce regulations and cover other associated project costs. Because of limited funding for cleanups and abatement activities, these kind of events can be difficult to coordinate.

11.2.4 Illegal Dump Survey for Luzerne County

PA Cleanways conducted a survey of illegal dumpsites in Luzerne County in 2007. In this study, PA Cleanways identified 159 dumpsites containing an estimated total of 1,724 tons of waste. The 159 dumpsites were located in thirty-two (32) of the County's seventy-six (76) municipalities. These

dumpsites ranged in size from 0.13 to 500 tons of waste, with the majority of the sites (91%) containing 10 tons or less of waste.

Many dumpsites found in Luzerne County were widely spread out, had more than one concentrated dumpsite, and covered an area more than a mile long. However, for the purpose of this report, they were considered a single dumpsite.

The materials most commonly found in these illegal dumpsites hard to dispose of materials such as tires, white goods, and other bulky waste items. Seventy percent (70%) of sites contained either bulky items, electronics, or appliances. Seventy-five percent (75%) of sites contained tires. A total of 3,282 tires were itemized at sites. It should be noted that this only accounts for tires that were visible at the time, it is assumed that many more tires were present under buried trash or leaf litter. A positive note is that HHW was found in only 9 of 159 sites (6%).

Seventy-five percent (75%) of dump sites were located in rural areas. Twenty-one percent (21%) of the surveyed sites were in the vicinity of some sort of waterway or body of water. Six (6) of those sites had waste materials directly in the waterway itself. Only nine (9) of 159 sites (6%) had “No Dumping” signs present, but each of these sites was determined to be active. The data backed the idea that illegally dumped trash will attract more trash, considering that of the illegal dumpsites eighty-two percent (82%) were visible or partially visible from the road. In addition, ninety-six percent (96%) of dump sites were determined to be active sites based on their contents.

11.2.5 Possible Solutions to Illegal Dumpsites

Organize a cleanup.

Cleanups are an effective way to combat littering and illegal dumping. Cleanups help to build ownership, restore community pride, and send a message that dumping will no longer be tolerated.

Organize a special collection event.

Special on-day collection events are worthwhile. These special collection opportunities are very effective when routinely offered, such as each spring or fall as a community cleanup day, but are also successful when offered as community resources permit. These special collections commonly target hard-to-dispose of materials such as tires, appliances, scrap metal, computers, electronics, and household hazardous waste. Most of these items account for what is found in illegal dumps.

Physical deterrents.

The placing of guard rails or mounds of dirt at pull-off areas, as well as the planting of trees, can help provide a barrier that will limit accessibility to a site for future dumping.

Site monitoring and maintenance.

It is important to monitor a site after an area has been cleaned in order to watch for subsequent dumping or littering, to keep the site clean, and to report any incriminating evidence to the proper enforcement agency. Keeping the site clean makes it easier to spot new trash and discourages subsequent dumping, since trash attracts trash. Enforcement, with site monitor support, effectively decreases the incidents of dumping and littering. When word gets out that dumping activity will not be tolerated and violators will be caught and prosecuted, dumping decreases.

Community education.

Intentional illegal dumping and littering are social problems that require a shift in attitudes and practices. Education is the key to changing values, habits, and attitudes. Education programs should be tailored to inform the community and can take many forms such as school/community presentations, press releases, radio and newspaper ads, and publications.

Enforcement and existing laws.

Any improper disposal of trash is illegal and violators can be prosecuted. Numerous Pennsylvania agencies enforce laws addressing improper disposal of trash. The Pennsylvania General Assembly creates and enacts the littering and dumping laws. County and municipal governments create and enact ordinances that are specific within their local boundaries.

This Page Intentionally Left Blank

CHAPTER 12 - NON-INTERFERENCE

The Municipal Waste Planning, Recycling & Waste Reduction Act of 1988, Act 101 instructs that the County Plan must insure that it will not affect the design, construction, operation, financing or contractual obligations of any municipal waste landfill or resource recovery facility located in the County that meets certain criteria. This Plan will not affect any facility design, construction, operation, financing or any contractual obligations that may exist for any such facility.

This Plan does not substantially impair the use of the remaining permitted capacity, or the capacity that could be made available through reasonable expansion of existing facilities. The County will not interfere with, or attempt to interfere with, the efforts of existing facilities to find customers whose Municipal Waste does not comprise part of the Luzerne County tonnage.

This Page Intentionally Left Blank

CHAPTER 13 - PUBLIC PARTICIPATION

Luzerne County used a combination of means and methods to provide for public participation both in the preparation of and in the implementation of the 2021 SWMP. The existing SWMP for Luzerne County, ratified and adopted in 2010, and prepared through its own public participation process, was used as a basis for the 2021 SWMP. Changing conditions and updated information were evaluated and incorporated in the SWMP.

The LCSWMD reactivated the SWAC in the Spring of 2018 at the start of the planning process. This reconstituted committee, representing a wide variety of public waste and recycling industry, and environmental groups and agencies in the County, first met to discuss the SWMP on May 2, 2019 and has since met on October 24, 2019; May 7, 2020, September 9, 2020, October 5, 2020 and December 22, 2020 to provide feedback and input to the planning process. The SWAC has provided review and comment on draft plan materials, summary documents, and draft chapters of the SWMP as they were completed. Handouts and meeting notes from SWAC meetings are included in Appendix G.

B&L established and maintained a public information webpage to disseminate information on the project electronically to the SWAC and the public, and to provide information access to those who could not attend the SWAC meetings.

The draft 2021 Luzerne County SWMP was released for comments on May 22, 2020 to the SWAC members

July 6, 2020 the Draft Substantial SWMP was released, for a ninety (90) day for municipal review period begins. This includes:

- Notice in papers-twice in two consecutive weeks
- Public Comment period open
- One public hearing in that time
- Copy sent to PA DEP, County Planning Department, Municipalities, County Health Department

On September 9, 2020 a Public Hearing was held.

On October 5, 2020 a second Public Hearing was held.

On October 6, 2020, the municipal review period ended.

On December 22, 2020, the SWAC finalized the plan and requested the plan be submitted to the County Manager.

On January 12, 2021, County Council adopted the SWMP and the adopted plan was sent to the municipalities on January 21, 2021. Once the adopted plan is submitted to municipalities for final approval, they have ninety days (90) to act or ratify the plan. If a municipality does not act, it will be assumed to have ratified. When more than half of the municipalities, representing one half of the population ratify the plan, the County then submitted a copy of the plan to DEP within ten (10) days of ratification for approval.

On January 12, 2021, an Ordinance Designating Processing and Disposal Facilities was adopted by County Council.

The 2021 Luzerne County SWMP is anticipated to be sent to the PADEP in April 2021 for approval.

This Page Intentionally Left Blank