Greene County

Final

Local Solid Waste Management Plan

Prepared For

Greene County

240 West Main Street

P.O. Box 485

Catskill, New York 12414

January 2022

Barton&Loguidice

Greene County, New York

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EXECUTIVE SUMMARY

The purpose of the Greene County Solid Waste Management Plan is to identify the path to be pursued for managing solid waste generated in Greene County during a ten-year planning period in an economical and environmentally sound manner that is consistent with the State's solid waste management policy. The initial year of this ten-year planning period will commence following approval of this Plan by the New York State Department of Environmental Conservation (DEC), which is expected to be 2021. The ten-year planning period will be 2021-2030.

The residents, businesses, industries, and institutions in Greene County currently produce approximately 152 tons of solid waste every day. This creates a need to develop a plan about how to increase recovery, to decrease disposal or incineration, and to reduce waste generation, now and in the future.

The purpose of the Local Solid Waste Management Plan (LSWMP) is to: 1) serve as a countywide framework for the coordination of solid waste management; 2) establish countywide solid waste goals and objectives -- including goals for waste reduction and recycling -- and a plan to monitor progress toward the goals; and 3) satisfy NYSDEC requirements for solid waste planning and comprehensive recycling analyses.

Greene County serves as the solid waste planning unit for all municipalities within the County. This LSWMP recognizes, however, that local municipalities, the New York State Department of Environmental Conservation (NYSDEC), private waste haulers, neighboring solid waste planning units, and private facility owners all play important roles in Greene County's current and future management of solid waste and recyclable materials.

The Solid Waste Management Act of 1988 established a State Solid Waste Management Policy. The policy defines the following solid waste management priorities in New York State:

- first, to reduce the amount of solid waste generated;
- second, to reuse material for the purpose for which it was originally intended or to recycle material that cannot be reused;
- third, to recover, in an environmentally acceptable manner, energy from solid waste that cannot be economically and technically reused or recycled; and
- fourth, to dispose of solid waste that is not being reused, recycled or from which energy is not being recovered, by land burial or other methods approved by the Department (from New York State Environmental Conservation Law (ECL) 27-0106.1).

NYSDEC (December 2010) issued a statewide SWMP, *Beyond Waste: A Sustainable Materials Management Strategy for New York*. It defines broad statewide objectives for waste reduction, reuse and recycling, waste-to-energy, landfilling, and special issues consistent with the State Solid Waste Management Policy. The quantitative goal of *Beyond Waste* is to reduce the amount of waste New Yorkers dispose by preventing waste generation and increasing reuse, recycling, composting and other

organic material recycling methods. Based on the data gathered and compiled for this LSWMP, the County has identified program strategies to work toward during a ten-year LSWMP planning period that is consistent with the State Solid Waste Management Policy. The strategies set forth below were identified with the goal of further enhancing the reuse and recycling of materials generated in Greene County and providing for the means to recover energy in an environmentally sound manner from solid waste that has not been reused or recycled. Each strategy and corresponding goal will be evaluated for feasibility and cost-effectiveness on an individual basis according to the implementation schedule included in Chapter 6.0.

Implementation Task #1 – Promote Waste Reduction Programs
Goal: Establish a waste reduction policy to increase waste reduction at County facilities and events.

Implementation Task #2 – Promote Reuse Programs
Goal: Promote reuse programs through education and outreach.

Implementation Task #3 – Expand Accepted Materials
Goal: Increase the types of materials accepted for recycling at the County's transfer stations and educate residents of proper recycling programs.

Implementation Task #4 – Increase Recycling at County Facilities & Events
Goal: Increase recyclables recovery at County owned and/or operated facilities.

Implementation Task #5 – Adopt Product Stewardship Framework
Goal: Shift government funded waste diversion program to one that relies on product stewardship, adopt product stewardship framework.

Implementation Task #6 – Support Composting Efforts and Promote Backyard Composting
Goal: Encourage composting to increase diversion of organics from the solid waste disposal stream through education and training. Construct a compost facility at the Catskill Transfer Station. *Promote backyard composting to divert more food waste from the solid waste disposal stream.*

Implementation Task #7 – Evaluate Pay-As-You Throw Program
Goal: Continue the PAYT program at transfer stations to potentially enhance the waste diversion effectiveness.

Implementation Task #8 – Improve Public Outreach and Education
Goal: Educate residents to increase recycling and waste diversion and reduce improper disposal of materials.

Implementation Task #9 – Improve Solid Waste and Recycling Data Collection
Goal: Obtain a more complete data set to assist with the implementation of the program strategies.

Implementation Task #10 – Improve C&D Debris Reduction
Goal: Evaluate the feasibility of including C&D recovery requirements on County projects.

Implementation Task #11 – Identify Private Sector Management and Coordination Opportunities
Goal: Assess the availability of funding opportunities or partnerships with private facilities or other organizations to assist the County in accomplishing the LSWMP implementation tasks.

Implementation Task #12 – Review Available Technologies
Goal: Evaluate alternative waste disposal technologies that are available to the County

Implementation Task #13 – Continue Existing Disposal Methods as Primary Disposal for Non-Recyclable/Non-Recoverable Waste
Goal: Continue to provide reliable, economical, and environmentally-sound outlets for County residents to dispose of all non-recyclable and non-recoverable waste.

Implementation Task #14 – Review County Local Solid Waste Management and Recycling Law
Goal: Conduct a review in order to ensure the local solid waste law is up to date.

ABBREVIATIONS

C&D	Construction and demolition debris
CH_4	Methane
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CRSWMP	Capital Region Solid Waste Management Partnership
EPA	United States Environmental Protection Agency
HDPE	High density polyethylene (plastic #2)
H_2	Hydrogen
HHW	Household hazardous waste
LSWMP	Local Solid Waste Management Plan
MBT	Mechanical-biological treatment
MSW	Municipal solid waste
MWC	Municipal waste combustor
NYCDEP	New York City Department of Environmental Protection
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSEG	New York State Electric & Gas
PAYT	Pay as you throw
PET	Polyethylene terephthalate (plastic #1)
RCA	Recoverable Container Act
RDF	Refuse derived fuel
SWMP	Solid Waste Management Plan
Sq Mi	Square miles
STP	Sewage treatment plant
UCRRA	Ulster County Resource Recovery Agency
WTE	Waste to energy
WWTF	Wastewater treatment facility
WWTP	Wastewater treatment plant

1.0 PLANNING UNIT DESCRIPTION

1.1. Size, Location, Population

1.1.1. Physical Setting

Greene County is located in southeast central New York State, just west of the Hudson River and South of Albany. Greene County is bounded on the north by Albany and Schoharie Counties, on the west by Delaware County, on the south by Ulster County, and on the east by Columbia County. The road network includes approximately 1,180 miles of roadways, about half of which are rural town roads. The remaining roadways are State and County highways, providing intraregional access in both a north-south and east-west direction. Route 87 is the major highway through the County, extending from Canada to Albany, where it turns into the New York State Thruway prior to intersecting Greene County. The New York State Thruway provides access to New York City, western New York State, and New England.

Greene County has a land area of 658 square miles with a population density of 75 people per square mile (sq mi). The County's population is approximately 82% rural, and approximately 18% characterized as suburban. The County is largely rural, consisting of mostly farmland, forested hills, and surface water bodies, including several lakes and the Hudson River.

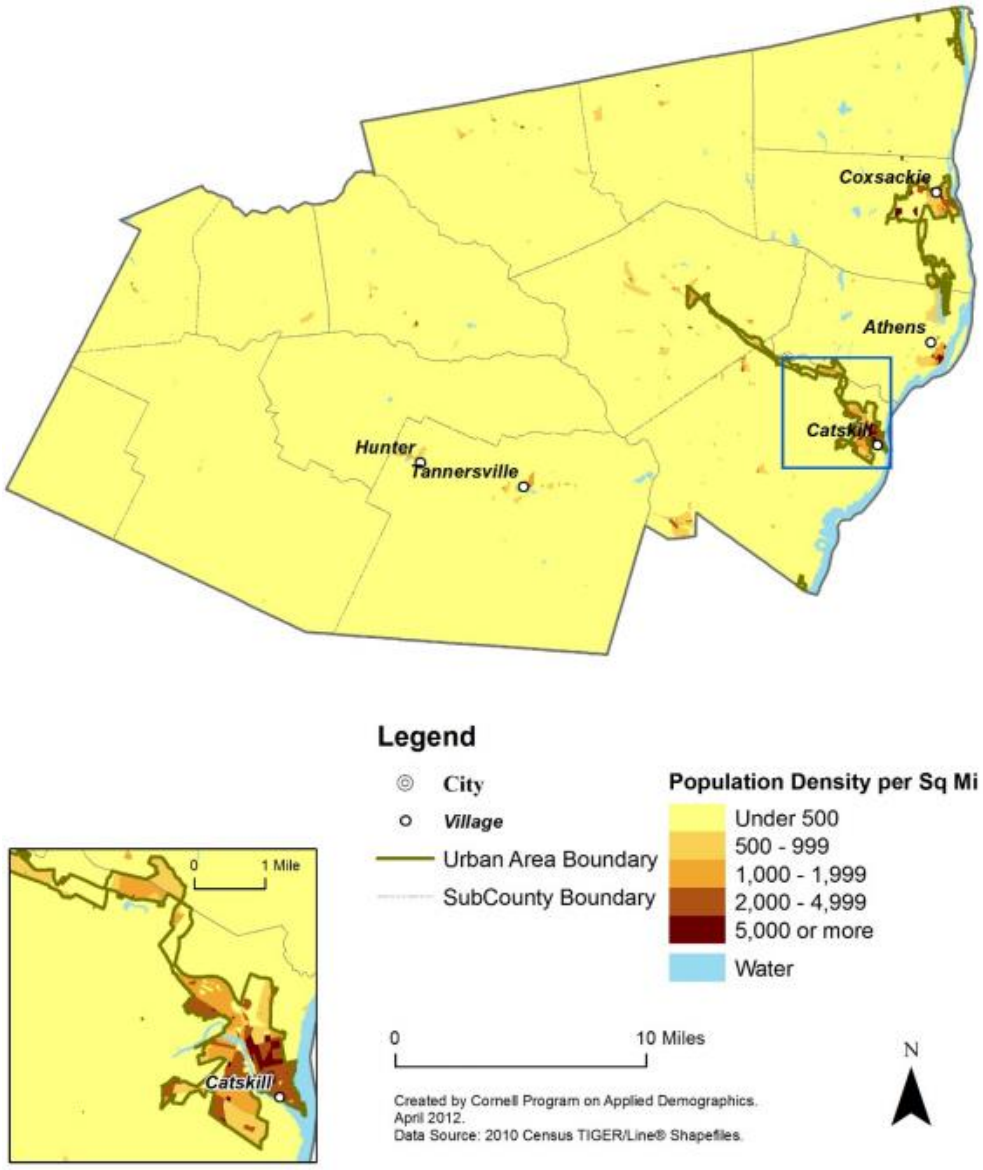
Greene County was founded in 1800, establishing Catskill as the County Seat. The County includes fourteen townships (Ashland, Athens, Cairo, Catskill, Coxsackie, Durham, Greenville, Halcott, Hunter, Jewett, Lexington, New Baltimore, Prattsville, and Windham) and five incorporated villages (Athens, Catskill, Coxsackie, Hunter, and Tannersville). A map displaying the County's municipal jurisdictions is presented in Figure 1-1.

Figure 1-1 – Municipalities in Greene County

Source: Cornell Program on Applied Demographics

The intensity of development and settlement patterns varies widely among different regions of the County. While much of the western portions of the County are rural or agricultural in nature with population densities at less than 500 people per square mile, the east, particularly the Towns of Athens, Catskill, Cairo, and Coxsackie, is quite suburban, dominated by single-family residential development, strip commercial, and a few apartment complexes. The two most densely populated areas of the County are the Village of Catskill and Village of Coxsackie, which have population densities of 1,962 and 1,332 people per square mile respectively. See Figure 1-2: 2010 Population Density in Greene County.

Figure 1-2 – 2010 Population Density in Greene County



Source: US Census Bureau and Cornell Program on Applied Demographics Data

1.1.2. Population and Number of Households in the Local Planning Unit[1,2]

According to the U.S. Census data for 2010, Greene County's population is approximately 49,221, and is distributed over 14 towns and 5 villages, with 17,100 households. The U.S. Bureau of Census published the following populations for the municipalities within Greene County for 2010.

Table 1-1 – Population By Municipality, 2010

Municipality	Population 2010
Town of Ashland	784
Town of Athens	4,089
Town of Cairo	6,670
Town of Catskill	11,775
Town of Coxsackie	8,918
Town of Durham	2,725
Town of Greenville	3,739
Town of Halcott	258
Town of Hunter	2,732
Town of Jewett	953
Town of Lexington	805
Town of New Baltimore	3,370
Town of Prattsville	700
Town of Windham	1,703
Village of Athens	1,668
Village of Catskill	4,081
Village of Coxsackie	2,813
Village of Hunter	502
Village of Tannersville	539

Greene County's population increased from 48,195 in 2000 to 49,221 persons in 2010, an increase of 1,026 persons. The population of Greene County is estimated to have peaked in 2020, at 49,572 persons. According to Cornell University's Program of Applied Demographics, the population of Greene County is estimated to be 49,192 in 2030 and is projected to decrease by 1,295 persons to 47,897 persons by the year 2040.

[1] U.S. Census, 2010.
[2] Cornell University's Program of Applied Demographics, 2010.

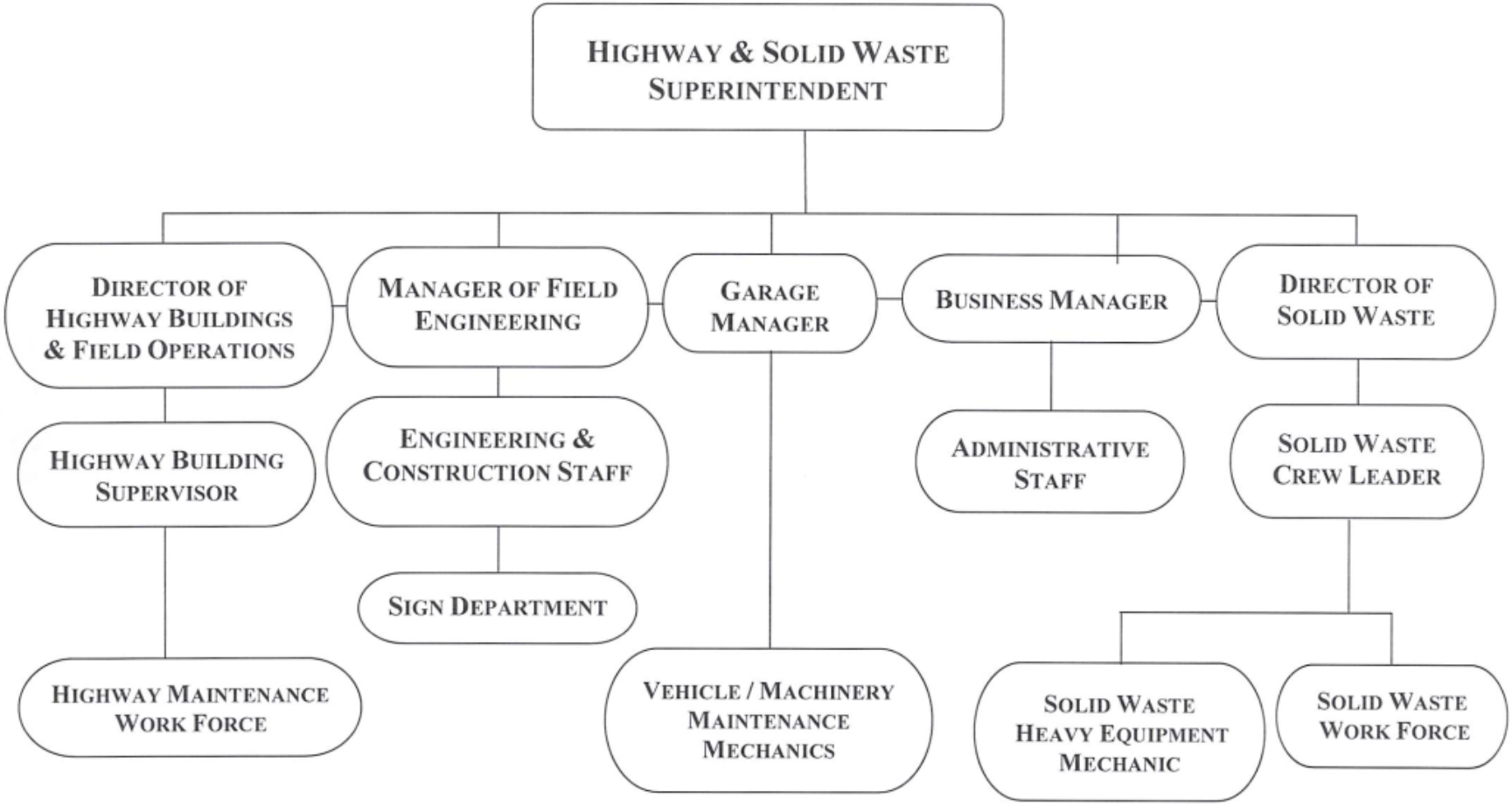
1.2. Planning Unit Members and Administrative Structure

The Planning Unit members consist of the 14 towns and 5 villages that make up the County. The membership of the Planning Unit has not changed since its inception. It is not anticipated that there will be any further changes of municipalities within the Planning Unit.

Greene County will draw upon its existing administrative structure to implement the programs and objectives outlined within this Plan. The Greene County Legislature ("legislature") is a thirteen member party made up of representatives of the municipalities in the County. The legislature is the legislative, appropriating, and policy determining body of the County.

Ultimately, the County is responsible for implementation of this Plan. The Highway Department, in addition to other duties and responsibilities, is charged with the operation of the County's solid waste and recycling facilities and with the implementation of this LSWMP. The County may delegate tasks to other partners as appropriate based on the nature of the contract, relationship, or partnership. Any such delegated task may be assigned with County oversight. Figure 1-3 depicts the administrative structure to be utilized for implementing the programs and objectives outlined in this Plan. Each entity has a role in the success of the solid waste management system including operations, administration, finance, outreach and education, enforcement, data collection and evaluation, and LSWMP updates and report. These are identified in Figure 1-3.

Figure 1-3 – LSWMP Administrative Structure



1.2.1. Neighboring Planning Units

Table 1-2 lists the neighboring planning units along with possible opportunities for inter-jurisdictional programs or issues that may impact implementation of the County's LSWMP and achievement of its goals. Further evaluation of these opportunities or potential impacts will be discussed in Chapter 5, and tasks will be included in the Implementation Schedule.

Table 1-2 – Potential Impacts or Opportunities with Neighbors That Could Affect LSWMP Implementation

Neighboring Planning Unit	Existing or Potential Inter-Jurisdiction Considerations/Impacts	Effects of Opportunities or Impacts to Implement the LSWMP
Ulster County Resource Recovery Agency (UCRRA)[3]	UCRRA's jurisdiction as a planning unit includes only Ulster County. UCRRA has two main transfer stations that it operates.	No known impacts on implementing the LSWMP.
Capital Region Solid Waste Management Partnership (CRSWMP)[4]	The City of Albany, acting as lead agent for the CRSWMP Planning Unit, operates a solid waste management system located in the City of Albany, Albany County, New York. As part of the solid waste management system, the City of Albany operates a landfill facility on Rapp Road within the city. This landfill is approaching capacity and has undergone restrictions to its incoming waste to prolong the capacity. This landfill is anticipated to be able to provide disposal capacity for the Planning Unit until the end of 2023 according to the Facility's 2019 Annual Report. In addition to the landfill facility, the municipalities that make up the Planning Unit typically operate resident's drop-off stations for those residents who do not contract with private waste and recycling collection companies.	Closure of the Rapp Road Landfill could potentially impact Greene County, but exact impacts are unknown at this time.
Schoharie County[5]	Schoharie County currently owns one transfer station in the Town of Cobleskill, which Casella operates. Generators and Haulers are not required to deliver waste to this transfer station; therefore, not all waste and recyclables pass through County facilities.	No known impacts on implementing the LSWMP.

[3] https://ucrra.org/wp-content/uploads/2020/06/UCRRA-LSWMP-Final.pdf
[4] http://www.capitalregionlandfill.com/
[5] https://www4.schohariecounty-ny.gov/PdfFiles/SolidWaste/FinalLSWMP.pdf

Neighboring Planning Unit	Existing or Potential Inter-Jurisdiction Considerations/Impacts	Effects of Opportunities or Impacts to Implement the LSWMP
Delaware County[6]	Delaware County currently operates a solid waste landfill, a materials recovery facility, and a solid waste and organics composting facility.	No known impacts on implementing the LSWMP.
Columbia County[7]	Columbia County currently has one transfer station, 7 convenience stations, and one recycling center. Residents can purchase a recycling permit to drop off recyclables at the county stations, or contract a hauler.	No known impacts on implementing the LSWMP.

1.2.2. Planning Unit Membership and Impacts on Implementing LSWMP

Table 1-3 includes a list of the planning unit members as well as conditions that pose a significant impact to implementing the LSWMP and achievement of the LSWMP goals. Currently, the members are not directly involved in preparing or implementing the plan; however the members contribute to the plan through their representation in the legislature and participation in the public review and comment period. Planning unit members could also play a significant role in the gathering of information and quantities of materials collected and recycled within the towns, at various businesses, schools, and other recycling facilities. The significant impacts are discussed further in Section 1.4 of this chapter. Additionally, more details related to organic waste management are provided in Table 2-4 in Chapter 2.

[6] http://www.co.delaware.ny.us/departments/sw/sw.htm
[7] https://sites.google.com/a/columbiacountyny.com/columbia-county-solid-waste/home

Table 1-3 – Planning Unit Membership

Municipal Member	Population Density – Character[8]	Unique Conditions or Issues[9,10]
Towns		
Ashland	32/sq mi - Rural	None noted.
Athens	142/sq mi - Rural	None noted.
Cairo	111/sq mi - Rural	Residents may bring leaves, brush, lawn clippings, etc. to the highway department year-round.
Catskill	183/sq mi - Rural	Catskill Transfer Station (primary county transfer station).
Coxsackie	232/sq mi - Rural	None noted.
Durham	55/sq mi - Rural	Town of Durham Recycling of only newspaper, plastic, cans, and bottles.
Greenville	96/sq mi - Rural	Residential drop-off that accepts most recyclables for free and household trash in 30 gallon bags for a fee.
Halcott	11/sq mi - Rural	Residential drop-off adjacent to Grange hall that is essentially labeled dumpsters.
Hunter	30/sq mi - Rural	Hunter Transfer Station (secondary county transfer station). In January 2021 the renovation of the Hunter Transfer Station was completed, increasing efficiency of material management.
Jewett	19/sq mi - Rural	None noted
Lexington	10/sq mi - Rural	None noted.
New Baltimore	78/sq mi - Rural	Residential recycling drop-off adjacent to the New Baltimore Highway Garage.
Prattsville	33/sq mi - Rural	None noted.
Windham	38/sq mi - Rural	Windham Transfer Station (secondary county transfer station)
Villages		
Athens	362/sq mi - Suburban	None noted.
Catskill	1,427/sq mi - Suburban	County Seat.
Coxsackie	1,082/sq mi - Suburban	Coxsackie Transfer Station (secondary county transfer station). The renovation plans for the Coxsackie Transfer Station are in the design phase.
Hunter	266/sq mi - Rural	Village provides curbside collection.
Tannersville	449/sq mi - Suburban	None noted.

[8] Census 2010 Summary File 1 (SF 1), U.S. Census Bureau

[9] Further evaluation will be completed as discussed in Chapter 5.

[10] Residential drop-off locations are listed in the town or village in which they are physically located, not by address.

1.3. Seasonal Variations and Unique Circumstances

There are several seasonal variations which occur within Greene County which could affect implementation of the LSWMP and achievement of its goals.

- Spring is a large cleanup time and influx of brush, downed trees, lawn debris, and scrap metal from residences. The impacts and effects of these wastes are discussed in Section 1.4.1.
- Summer brings the end of the school year for high schools, and brings with it cleanout wastes from lockers, equipment left behind, and wastes from any remodels or construction projects at schools, as well as agricultural clean ups. The impacts and effects of these wastes are discussed in Section 1.4.2.
- There are also many events held within the County during the year for which the County provides solid waste and/or recycling services as listed in Table 1-8. Additional events occur within the County that may generate significant quantities of waste. The impacts and effects of these events are discussed in Section 1.4.5.
- Summer also brings an increase of yard wastes, agricultural wastes and cleanups, as well as garden wastes which could all be composted. The impacts and effects of these wastes are discussed in Section 1.4.1.
- Fall brings the return of students to school. With this brings new electronics, books, etc. This also brings a larger amount of food wastes. All school wastes are managed by private haulers and no generation or recovery data is available. The impacts and effects of these wastes are discussed in Section 1.4.2.
- The Windham Ski Resort and Hunter Ski Resort are both open during the winter and are a seasonal source of commercial waste.
- There are public libraries within the County. Potential recycling options for waste/recyclable materials generated at libraries are discussed in Section 1.4.3.
- There are some small manufacturers, businesses, nursing homes, jail and other institutional facilities which manage their own waste and recyclables. Recycling activities and data for these facilities are unknown. Recycling programs and data collection will be discussed in the Alternative Technology Evaluation in Chapter 5. Tasks will be included in the Implementation Schedule to evaluate and implement new or improved recycling programs, including packaging and organics recovery, and to collect data.

1.4. Overview of Solid Waste Generation Sources within Greene County

The majority of Greene County's industrial, commercial, retail, institutional, and governmental facilities are located within the I-87 and State Routes 23, 23A, and 81 transportation corridors. Major employment centers within the County are concentrated in the Village of Catskill.

Greene County's economic base is relatively diversified. The extent and mix of an area's commercial and industrial base may affect solid waste disposal requirements. Ski centers and resorts are among the large industries in the County contributing to the solid waste stream. Similarly, large education institutions, such as the Catskill Central School District, tend to produce large quantities of paper wastes. Shopping plazas and medical office buildings are other types of establishments that generate large volumes of wastes.

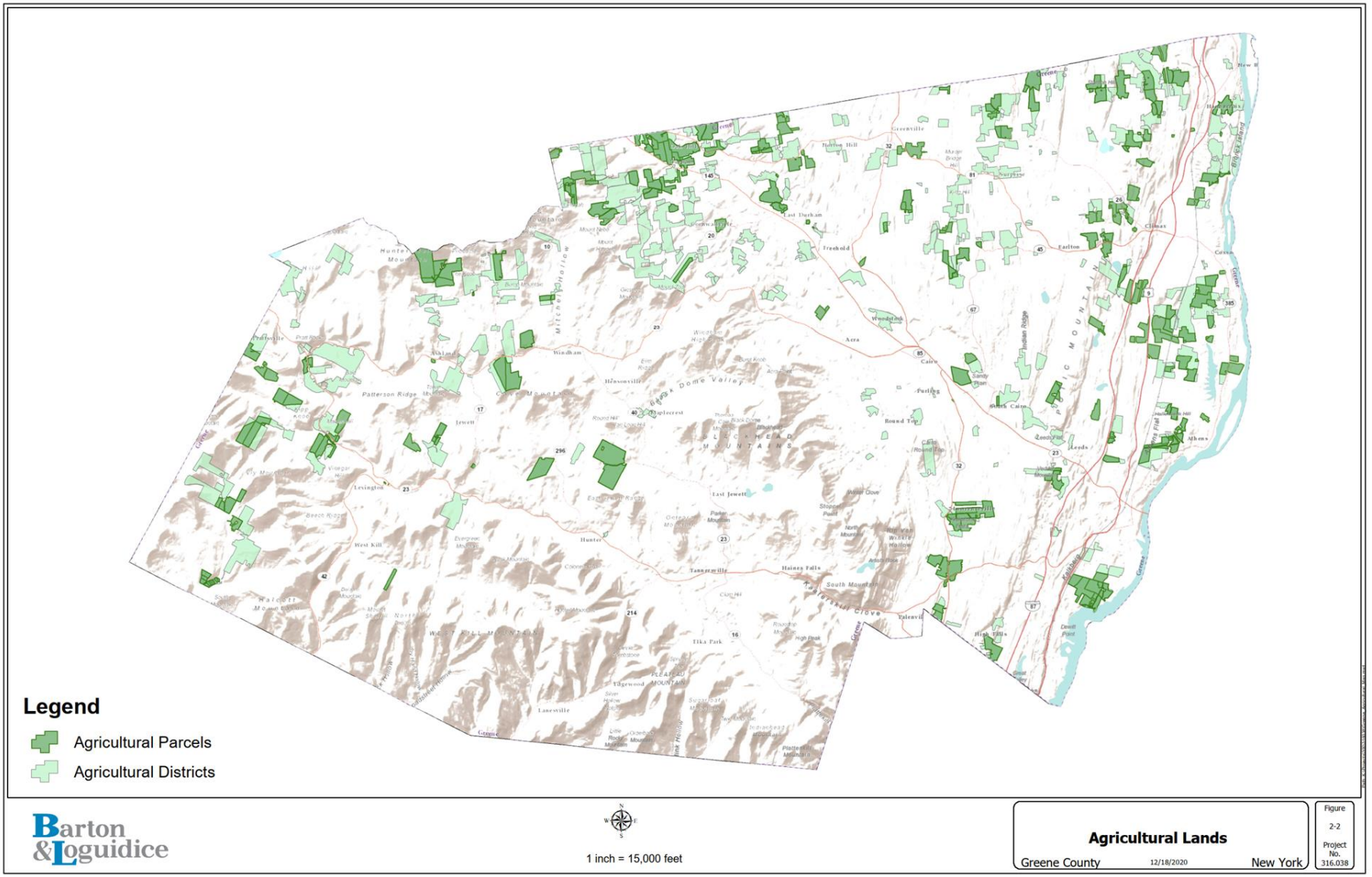
While a business' number of employees is not necessarily correlated with the volume of waste it generates, it is one metric by which to gauge a business' size. According to the NYS Department of Labor, the type of industry that employed the most individuals in Greene County in 2019 was service providing 57.8% of employment followed by government (11.6%) and leisure and hospitality (5.9%).

There are many natural, cultural, and historical amenities in the County that have contributed to a growth of tourism. Some of these amenities are seasonal, while others draw visitors throughout the year. Among the attractions in the County are the Lumberyard Center for Film and Performing Arts, the Bridge Street Theater, the Orpheum Theater & Performing Arts Center, the Kaaterskill Clove Experience, the Thomas Cole National Historic Site, the Bronck Museum, the Zadock Pratt Museum, Hunter Mountain Ski Resort, Windham Mountain Ski Resort, the Rip Van Winkle Golf Trail, Kaaterskill Wild Forest, Hunter-west Kill Wilderness, Indian Head Wilderness, North-South Lake, Dolan's Lake, and the Hudson River.

The unemployment rate peaked in 2010 at 9.1% and has been steadily declining to a rate of 4% in October of 2019. The number of employed jobs, which has stayed relatively constant for the past five years, was 19,251 in October of 2019.

A total of 202 active farms existed in the County in 2018. These farms occupied approximately 17,397 acres of the County's total land area, and the average farm size was 86 acres. A figure depicting active farmland is shown in Figure 1-4.

Figure 1-4 – Agricultural Lands in Greene County



1.4.1. Spring and Summer Residential and Agricultural Wastes

Table 1-4 lists seasonal residential and agricultural variations in waste, along with conditions and impacts that affect implementation of the LSWMP and achievement of its goals.

Table 1-4 – Impacts of Residential and Agricultural Wastes in the Planning Unit[11]

Source of Wastes	Unique Circumstance or Situation	Quantity/Quality Impacts	Impacts on LSWMP
Spring Residential Cleanup	Spring Cleanup	Seasonal influx of brush, downed trees, lawn debris, and scrap metal	Possible composting of organics; will need more data on types of material, and amounts to be composted.
Summer Growing Season	Seasonal	Yard and garden wastes. Agricultural organics and agricultural plastic wastes s, which have cleanliness and bulk issues for recycling	Possible composting of organics; will need more data on types of material, and amounts to be composted.

The possibility of recycling organics, such as by composting or anaerobic digestion, will be discussed in the Alternative Technology Evaluation in Chapter 5, and tasks will be included in the Implementation Schedule as appropriate.

1.4.2. Schools

Greene County is served by a large number of private institutions and community service facilities. The County's educational system consists of public, private, and parochial school systems, including elementary, middle, and high schools.

Table 1-5 lists the schools in the planning unit, along with conditions and impacts that affect implementation of the LSWMP and achievement of its goals. Information and data in the table will be revised throughout the Planning Period as more details become available.

[11] Information and data in table to be revised throughout the Planning Period as more details become available.

Table 1-5 – Impacts of Schools Within the Planning Unit

Source of Wastes	Unique Situation or Circumstances	Quantity/Quality Impacts	Impacts On LSWMP
Elementary and Secondary Schools			
Cairo-Durham Central School District	Summer cleanout/ construction. Seasonal food wastes from cafeterias. Private hauling of school wastes and recyclables.	Locker content left behind, C&D debris, and other wastes from end-of-school cleanouts. Influx of food wastes. Paper, books and electronics recycling.	May participate in education/outreach activities provided by Greene County. Lack of data available on waste generation, further information is needed.
Catskill Central School District	Same as above	Same as above	Same as above
Coxsackie-Athens Central School District	Same as above	Same as above	Same as above
Golboa-Conesville Central School	Same as above	Same as above	Same as above
Greenville Central School District	Same as above	Same as above	Same as above
Hunter-Tannersville Central School District	Same as above	Same as above	Same as above
Margaretville Central School District	Same as above	Same as above	Same as above
Onteora Central School District	Same as above	Same as above	Same as above
Ravena-Coeymans-Selkirk Central School District	Same as above	Same as above	Same as above
Windham-Ashland-Jewett Central School District	Same as above	Same as above	Same as above
Private Schools			
Grapeville Christian School	Same as above	Same as above	Same as above
Platte Clove School	Same as above	Same as above	Same as above

All of the schools within the planning unit generate various amounts and types of waste and recyclable materials, but specific details are unknown. Typically these schools contract with private haulers to manage the wastes and recyclables. Given that private haulers manage these materials, the types and quantities are not reported individually. Steps to improve the reporting of data to the planning unit will be discussed in the Alternative Technology Evaluation in Chapter 5. Tasks will be included in the Implementation Schedule to evaluate and implement new or improved recycling programs, including organics recovery, and to collect data.

1.4.3. Libraries

Table 1-6 lists the libraries in the planning unit, along with conditions and impacts that affect implementation of the LSWMP and achievement of its goals. Information in this table will be updated throughout the Planning Period as more detail becomes available.

Table 1-6 – Impacts of Libraries Within the Planning Unit

Source of Wastes	Unique Situation or Circumstances	Quantity/Quality Impacts	Impacts on LSWMP
D.R. Evarts Library - Athens	Periodic cleanouts. Private hauling of all library wastes.	Large amounts of books and magazines. Data unavailable.	Opportunity for libraries to coordinate a recycling management program among libraries or as a venue for education and outreach. Further evaluation needed.
Catskill Public Library	Same as above.	Same as above.	Same as above.
Greenville Public Library	Same as above.	Same as above.	Same as above.
Hunter Public Library	Same as above.	Same as above.	Same as above.
Heermance Memorial Library	Same as above.	Same as above.	Same as above.
Cairo Public Library	Same as above.	Same as above.	Same as above.
Vedder Library	Same as above.	Same as above.	Same as above.
Mountain Top Library - Tannersville	Same as above.	Same as above.	Same as above.
Windham Public Library	Same as above.	Same as above.	Same as above.
Palenville Branch Library	Same as above.	Same as above.	Same as above.
Barbara's Free Library	Same as above.	Same as above.	Same as above.
Chase Memorial Library	Same as above.	Same as above.	Same as above.

It is not known what these libraries are now doing with their wastes that they are generating. Possible recycling programs and data collection will be discussed in the Alternative Technology Evaluation in Chapter 5. This could include recycling programs for cardboard, outdated books and periodicals, and for materials generated from any events held at the library facilities. Tasks will be included in the Implementation Schedule to evaluate and implement new or improved recycling programs, and to collect data, as appropriate.

1.4.4. Jails, Institutions, Nursing Homes

Table 1-7 lists the jails, institutions and nursing homes in the planning unit, along with conditions and impacts that affect implementation of the LSWMP and achievement of its goals. Information in this table will be updated throughout the Planning Period as more detail becomes available.

Table 1-7 – Impacts of Jails, Institutions, Nursing Homes Within the County

Source of Wastes	Facility Type/Unique Situation or Circumstances	Quantity/Quality Impacts	Impacts On LSWMP
NYSDOC Greene Correctional Facility	Needs further evaluation.	Needs further evaluation.	Needs further evaluation related to existing disposal and recycling activities. Possible compost of food wastes.
Coxsackie Correctional Facility	Needs further evaluation.	Needs further evaluation.	Same as above.
Catskill Urgent Care	Medical facility	Unknown solid waste. Potential for high quantity of medical waste.	Same as above.
Greene Meadows Nursing Homes and Rehabilitation Center	Periodic cleanouts. Food wastes. Medical waste. No data available.	Unknown solid waste. Potential for high quantity of medical waste.	Same as above.
The Pines at Catskill Center for Nursing and Rehabilitation	Same as above.	Same as above.	Same as above.
The Eliot at Catskill	Same as above.	Same as above.	Same as above.
Home Sweet Home at Athens	Same as above.	Same as above.	Same as above.

It is not known what these institutions are doing with their wastes currently. Data needs to be collected as to what types of waste/recyclable materials they generate and where they are disposing/recycling of said materials. It also needs to be determined if they are able to compost any of their wastes such as food wastes. Possible recycling programs and data collection will be discussed further in Chapter 5.

1.4.5. Special Events within the Planning Unit

Table 1-8 lists the special events in the planning unit, along with conditions and impacts that affect implementation of the LSWMP and achievement of its goals. This data will be updated throughout the planning period as more information becomes available.

Table 1-8 – Impacts of Special Events Within the Planning Unit

Sources of Wastes	Unique Situation or Circumstances	Quantity/Quality Impacts	Impacts On LSWMP
The Greene County Youth Fair	Many vendors and activities with packaging, food waste, and/or recyclable drink bottles. Attendees may or may not care about recycling or waste diversion.	The County provides solid waste receptacles and services for this event.	There are many waste/recyclable materials that could be captured from these events. Possibility of composting organics and recycling of packaging. Data needed. Opportunity for education outreach to the community related to recycling and waste diversion.
Tap NY Wine and Beer Festival	Same as above.	Private hauler collects any waste generated	This event is a potential target for increasing waste diversion by providing recycling in addition to solid waste collection.
East Durham Irish Festival	Same as above.	Same as above.	Same as above.
Microbrew, Wine & Food Festival	Same as above.	Same as above.	Same as above.
Grey Fox Bluegrass Festival	Same as above.	Same as above.	Same as above.
Oktoberfest I & II	Same as above.	Same as above.	Same as above.
German Alps Festival	Same as above.	Same as above.	Same as above.
Radio Woodstock Mountain Jam Festival	Same as above.	Same as above.	Same as above.
Taste of Country Music Festival	Same as above.	Same as above.	Same as above.
Annual Town Cleanups	Annual events to provide solid waste collection for town cleanups.	County provides roll-offs and hauling for waste collected	This event will cause a seasonal influx in waste received at the County's Transfer Stations each year. These facilities will need to have the capacity to handle these larger waste volumes.
Household Hazardous Waste Day	Event held to collect HHW annually.	Approximately 67 tons of HHW were collected in 2019	Other recycling events could be co-located during these events. Opportunity for education outreach to the community related to recycling and waste diversion.

The potential of capturing recycling and wastes from special events could be increased dramatically. Currently, the County only provides solid waste collection services for the Greene County Youth Fair. The types of waste/recyclable materials are being generated, and how they are currently being managed at events needs to be investigated. Possible recycling programs and data collection will be discussed in the Alternative Technology Evaluation in Chapter 5. Tasks will be included in the Implementation Schedule to evaluate and implement new or improved recycling programs, including packaging and organics recovery, and to collect data.

1.5. Summary of Implementation of Previous LSWMP

The 1993 SWMP, developed by Greene County, set forth the details of the Solid Waste Management Program for the County including the specific plans and approach for receiving the solid waste generated, the operation of the mandatory recycling program, and providing solid waste disposal in compliance with local, State and Federal laws, rules and regulations.

Since 1993, the SWMP has served as the foundation for decision-making by the County, for its growing solid waste management and recycling efforts.

Greene County has submitted SWMP Compliance Reports to the NYSDEC through the initial planning period, documenting the progress made on achieving the goals and objectives of the 1993 SWMP. Throughout the planning period, several modifications have been made in response to planning and development in Greene County.

Since the 1993 SWMP, a new transfer station in Catskill, NY was constructed in 1995. This fourth transfer station served as a primary transfer station to which the other three secondary transfer stations' waste was brought, before it was hauled to out-of-county disposal facilities. However, a cost-benefit study was completed for the renovation of the three secondary transfer stations, which would upgrade them to primary transfer stations and allow for long-hauling directly to disposal destinations. The renovation of the Hunter Transfer Station was completed in January 2021, which now allows open top loading for long haul. The renovation plans for the Coxsackie Transfer Station are currently being designed at the time of this report. These renovations will allow waste to be long-hauled directly from each transfer station, rather than being transported to the Catskill Transfer Station in preparation for long-haul.

Greene County has not enacted flow control and currently has no desire to do so. An open market would be favorable to the County, as it does not have any landfills to be filled with county waste.

Greene County does not currently, and never has, required hauler licensing. This program would be difficult to enforce with limited staffing and funding.

Since the 1993 SWMP, Greene County began hosting annual HHW collection events at the County Highway Department. This program has proven to be successful and Greene County plans to continue these annual HHW collection events for the foreseeable future.

While the construction and operation of a yard waste compost facility in Catskill/Cairo and a mixed waste compost facility in the Northern area of the County were prescribed in the 1993 SWMP, neither of the compost facility projects progressed following the implementation schedule. Recently, the County has begun the design and permitting process of a composting facility co-located at the Catskill Transfer Station Site.

Overall, the County has implemented many of the items identified in the 1993 SWMP and will continue to provide local and economical solid waste management services to its residents.

1.6. Summary of Changes to the Planning Unit

The membership of the Planning Unit has not changed since its inception in 1993. The same towns and villages still remain a part of this Unit. It is not anticipated that there will be any changes of municipalities within the Planning Unit.

There have been no changes in schools being introduced to the planning unit. There has been a reduction in the number of operating farms within the unit since 1993. There has been some commercial growth, as well as some commercial businesses have left the planning unit, resulting in a difference in the types of waste received.

The retail businesses have increased within the planning unit. There are now many larger retail businesses located in the Catskill area, where there were only small retail shops in the original LSWMP. This increases the amount of packaging wastes generated as well as organics, or food waste, in the case of grocery stores. It is presently assumed that the large majority of these retail businesses recycle their own cardboard which is received in shipment of their products. This will need to be evaluated further to obtain current data.

At the time of the 1993 SWMP, there were two concrete manufacturers within the planning unit, which generated cement kiln dust needing disposal. However, since then both concrete manufacturers closed their facilities in the planning unit, so this waste stream no longer exists within Greene County. No other significant manufacturing businesses have started up in the planning unit since 1993.

2.0 SOLID WASTE AND RECYCLABLES QUANTITIES AND TYPES

This chapter provides information on the waste streams generated in Greene County based on self-reported data, data from county facilities made available through NYSDEC reporting, and estimates from the NYSDEC MSW composition projections.

2.1. Waste Types

Greene County's solid waste stream has five primary components: municipal solid waste (MSW), non-hazardous industrial waste, construction and demolition debris, municipal sewage treatment plant sludge/biosolids, and processed scrap metal (e.g., scrap vehicles) waste.

For the purposes of this LSWMP, MSW consists of waste generated in homes, businesses, institutions, and the commercial portion of waste discarded by industries. The residential component includes, but is not limited to, newspapers and magazines, corrugated cardboard, glass, metal, plastic containers, food waste, household goods including bulky items like furniture and appliances, textiles, and yard trimmings. The commercial waste stream tends to contain higher percentages of office paper, corrugated cardboard, and scrap metals. Commercial waste is the non-hazardous waste generated by businesses such as restaurants, retail stores, schools and hospitals, professional offices, and manufacturing facilities.

As a regulatory requirement, each solid waste management facility is required to submit annual reports to the NYSDEC. These annual reports provide information with regard to the quantities of materials managed and often identify the geographic locations where the waste materials were generated. The data from the NYSDEC annual reports is readily available and generally reliable. It can also be assumed that the materials collected and processed at recycling facilities in the County are being separated from the household, business, institutional and commercial wastes classified as MSW, and are considered to be another component of that waste stream. Due to the fact that these types of recyclables handling facilities must also compile annual reports to the NYSDEC, this data is also relatively easy to gather. Yard waste is a component of the waste stream that is difficult to quantify. Implementation of a plan to collect data and estimate MSW by material type, including estimating residential yard waste generation and recovery is further discussed in Chapter 5.

Non-hazardous industrial waste is typically generated by manufacturing facilities as a result of an industrial process and is made up of materials such as sludge, ash, drill cuttings and dust. At the time of the 1993 SWMP, there were two cement plants, Independent Cement Corporation and Lehigh Portland Cement, which both generated a significant amount of cement kiln dust that needed disposal. The Independent Cement Corporation plant has changed ownership twice since then, before permanently closing in 2012. The Lehigh Portland Cement plant closed in 1982, but by-products of the plant still needed disposal in 1993. Neither of these two cement plants generate cement kiln dust requiring disposal presently. The homogeneous nature and relatively large quantity of non-hazardous industrial wastes typically available can also make them useful as feedstocks for other processes or result in unique management methods.

Therefore, only partial data for the generation of these materials within the county is currently available. Implementation of a plan to collect data and estimate MSW by material type, including estimating industrial waste generation and recovery, considering these circumstances is further discussed in Chapter 6.

Construction and demolition (C&D) debris is generated by the residential, commercial, industrial, and institutional sectors and typically consists of wood, masonry, soil, land clearing debris, plumbing fixtures and other construction related items. For this specific analysis, asbestos debris and petroleum contaminated soil are also included in the C&D debris category. Many of the upstate New York landfills report C&D debris as a separate disposal stream, and therefore, the quantity disposed of from Greene County residents can be identified from those landfill annual reports. However, many of these materials can be recycled and reused (e.g., clean fill material, mulch, or recycled aggregate). Data from these types of operations and uses has been difficult to obtain. Implementation of a plan to collect data and estimate C&D debris generation and recovery, considering these circumstances is further discussed in Chapter 5.

As defined in the Part 360 regulations, biosolids are the accumulated semisolids or solids resulting from treatment of wastewaters from publicly or privately owned or operated sewage treatment plants. Biosolids does not include grit or screenings, or ash generated from the incineration of biosolids. Municipal treatment plants generate sludge/biosolids that require special handling and management.

Processed scrap metals are typically generated by commercial or industrial sectors, but in potentially large quantities which makes it worth monitoring. Data from these types of operations and uses is difficult to obtain. Implementation of a plan to collect data and estimate scrap metals generation in the County and recovery, considering these circumstances is further discussed in Chapter 5.

2.2. Availability of Generation and Recovery Estimates

2.2.1. Data Sources and Methodology

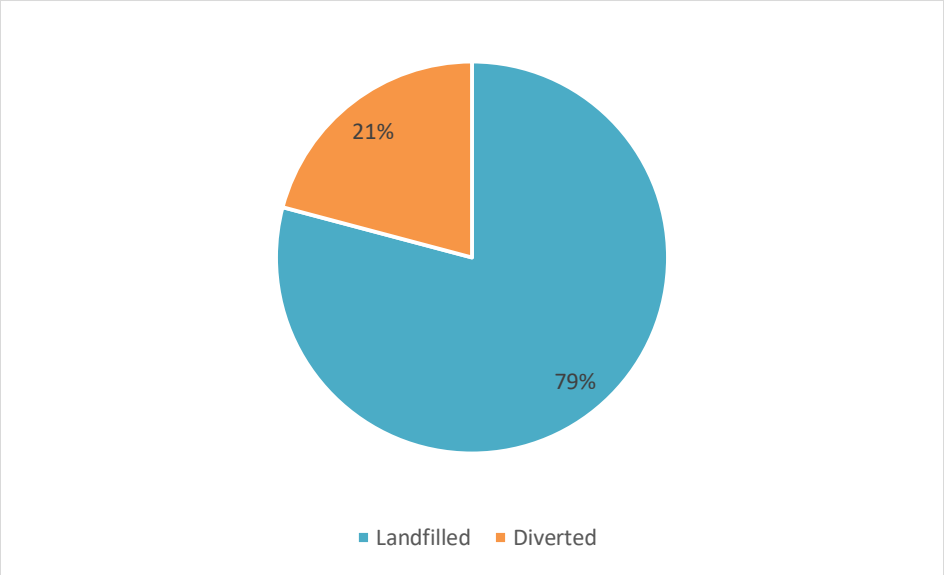
As discussed above, much of the following waste generation estimates were derived from available reports provided to the NYSDEC by transfer stations. Limitations associated with the data are as follows and will be considered when evaluating and implementing new or improved data collection efforts.

- **Incomplete data**: Data on the public sector solid waste management is often incomplete.
- **Inconsistent data:** Where data exists, different methods have been used from year to year and facility to facility to collect and categorize it.
- **Unavailable data:** Data on privately managed waste is generally unavailable.

2.2.2. Estimation of Total Waste Generation in Greene County

Based on annual reports submitted to the NYSDEC for 2019, Greene County residents and businesses generated approximately 90,948.71 tons of waste (including potentially recyclable materials) based on available data. Figure 2-1 shows the overall method of management for the waste. The fraction for each waste management sector was determined by analyzing annual tonnage reports for those facilities that reported accepting waste from Greene County. Based on the information available to interpret, the majority of the waste is landfilled (71,970 tons or 79 percent) while the remainder is Diverted (18,978.45 tons or 21 percent).

Figure 2-1 – Estimated Waste Management Methods in Greene County in 2019



Source: NYSDEC, Facility Annual Reports, 2019; Self-Reporting

Greene County has ten wastewater treatment facilities (WWTFs). Table 2-1 shows the method of sludge management utilized.

Table 2-1 – Municipal Sewage Sludge Generation and Management Summary[12]

Treatment Plant	Treatment Method	Dewatering Device	Tons/Year	Use/Disposal Method
Main STP	Aerobic Digestion	Drying Beds	Unknown	Landfill
Brick Row	Unknown	Unknown	Unknown	To another treatment plant
Cairo Sewer District	Post-Aeration	Unknown	Unknown	Unknown
Catskill SD #4	Anaerobic Digestion	Drying Beds	Unknown	Landspreading
Catskill WWTP	Unknown	Belt Filter Press	Unknown	Incineration
Coxsackie STP	Aerobic Digestion	Gravity Belt Thickener	Unknown	To another treatment plant
Hunter WWTP	Unknown	Unknown	Unknown	Unknown
New Baltimore SD	Aerobic Digestion	Drying Beds	Unknown	Scavenger
NYCDEP Tannersville	Unknown	Plate and Frame Press	Unknown	Landfill
Windham WWTP	Unknown	Unknown	Unknown	Unknown
Total Sewage Sludge Used/Disposed On-site			**Unknown**	
Total Sewage Sludge Landfilled			**418.49 Tons**	
Total Municipal Sewage Sludge Generated			**Unknown**	

The majority of the biosolids generated in Greene County are landfilled, and the data is available from the NYSDEC solid waste facility annual reports. The Albany Rapp Road Landfill reported 8.4 tons of biosolids from Greene County landfilled in 2019. Similarly, the Colonie Landfill reported 61.45 tons and the Ontario Landfill reported 348.64 tons of biosolids from Greene County. Unfortunately these reports do not provide the specific treatment plant from which these biosolids originate from.

[12] *Source: Descriptive Data of Municipal Wastewater Treatment Plants in NYS, Division of water, 2004*

The data in Table 2-1 above was generated from data gathered from the Division of Water's Descriptive Data of Municipal Treatment Plants in NYS (2004). While individual sewage sludge tonnage generated by each treatment plant are unknown, the total sewage sludge generated in Greene County and landfilled (418.49 tons) was calculated from 2019 landfill annual reports submitted to the NYSDEC.

A complete breakdown of waste generated as a whole for Greene County is not available due to the lack of comprehensive data available at this time. Tasks are included in the Implementation Schedule to investigate the implementation of a survey and reporting program as well as any other programs that might be useful and necessary to collect generation and recovery data in general accordance with this format. Table 2-2 provides a waste generation baseline, which will be expanded as data becomes more readily available and can be incorporated into future waste generation analysis.

Table 2-2 – Estimation of Total 2019 Waste Tonnage by Management Method

	Amount (Tons)	% of Management Method	% of Total Generation
Landfilled[13]			
MSW[14]	52,071.31	72%	57%
Construction and Demolition Debris	16,733.03	23%	18%
Sewage Sludge	418.49	1%	0%
Industrial	87.81	0%	0%
Beneficial Use Determination Material	2,659.62	4%	3%
Total	**71,970.26**	100%	79%
Diverted			0%
Composted Sewage Sludge	0	0%	0%
Land Applied Sewage Sludge	0	0%	0%
Composted Yard Waste	0	0%	0%
Recovered/Composted Food Scraps	0	0%	0%
Recycled	11,178.45	59%	12%
Processed Construction & Demolition Material	7,800.00	41%	9%
Vehicle Scrap Metal	0	0%	0%
Total	**18,978.45**	100%	21%
Total Waste Generation	**90,948.71**	100%	100%

2.2.3. Estimation of Potential MSW Recovery

As previously discussed, an incomplete set of disposal and recovery data is available for the County to compile and review; therefore, with the assistance of the NYSDEC's waste composition and recovery projection tool, the following section provides Greene County with an estimated MSW waste composition for future planning purposes. The complete tables are provided in Appendix A. MSW composition includes residential, commercial and institutional waste generators; consequently, for the purposes of this analysis, the following are excluded from the MSW composition estimates: separately managed C&D debris, several organics streams (biosolids, septage, agricultural materials, etc.), and scrap metal managed outside of the MSW management structures. Additionally, the quantities of containers (i.e., aluminum, glass and PET) collected as part of the Recoverable Container Act (RCA) are typically not reported to databases that are available to individual counties. Using the NYSDEC MSW composition tool, Table 2-3

[13] NYSDEC 2019 Facility Annual Reports

[14] Shaded categories are considered to be part of the MSW category, and will be utilized in the MSW composition analysis.

provides some assumptions as to the quantity of materials recovered as part of RCA in 2010.[15]

Table 2-3 provides a detailed estimate of materials that could be recovered or diverted from a waste disposal location if the appropriate programs were in place. These numbers are based on the actual total tons of MSW generated within the County, as reported in Table 2-2. Based on annual reports, Greene County diverted approximately 11,178.45 tons of material (18 percent) from the 52,071.31 tons of MSW generated from residential, commercial, and institutional generators in 2019[16].

However, not all of the categories tracked by the NYSDEC are populated for the 2019 recovery quantities due to the fact that not all categories are able to be accounted for individually. Several materials identified below are collected and recovered at the recycling centers or other similar facilities in Greene County; however, there are no mechanisms for gathering data for the individual materials at this time. Therefore, the NYSDEC MSW composition tool was applied to the actual waste generation totals to estimate quantities for more specific materials that are not tracked individually within waste streams.

[15] According to 2010 RCA data from the NYSDEC, 59% of deposit containers are recovered. Of the containers, 80% of Aluminum containers are deposits, 50% of glass containers are deposits, and 45% of PET containers are deposits.

[16] Excludes processed C&D, asbestos, industrial waste, sewage sludge, contaminated soil, beneficial use determination materials previously reported in Table 2-2.

Table 2-3 – Estimated MSW Recoverable Materials in Greene County

Material	Estimated MSW Tons Generated (2019)[17]	Estimated % of Total Tons Generated (2019)	Actual MSW Tons Diverted (2019)[18]	Actual % of Each Material Diverted (2019)
Newspaper	2,862	4.5%	2,242.35	78.4%
Corrugated Cardboard	5,086	8%	2,777.18	54.6%
Other Recyclable Paper (Total)	7,011	11.1%	3,137.14	44.7%
Other Compostable Paper	4,239	6.7%	0.00	0.0%
Total Paper	19,198	30.4%	8,156.67	42.5%
Ferrous/Aluminum Containers (Total)	1,402	2.2%	306.81	21.9%
Other Ferrous Metals	3,329	5.3%	360.66	10.8%
Other Non-Ferrous Metals (Total)	876	1.4%	275.03	31.4%
Total Metals	5,607	8.9%	942.50	16.8%
PET Containers	643	1%	341.07	53.1%
HDPE Containers	626	1%	294.33	47.0%
Other Plastic (3-7) Containers	122	0.2%	47.57	39.1%
Film Plastic	3,607	5.7%	0.00	0.0%
Other Plastic (Total)	3,851	6.1%	0.00	0.0%
Total Plastics	8,848	14%	682.98	7.7%
Glass Containers	2,540	4%	1,171.07	46.1%
Other Glass	288	0.5%	0.00	0.0%
Total Glass	2,829	4.5%	1,171.07	41.4%
Food Scraps	8,292	13.1%	0.00	0.0%
Yard Trimmings	2,958	4.7%	0.00	0.0%
Total Organics	11,250	17.8%	0.00	0.0%
Clothing Footwear, Towels, Sheets	2,710	4.3%	22.50	0.8%
Carpet	904	1.4%	0.00	0.0%
Total Textiles	3,614	5.7%	22.50	0.6%

[17] NYSDEC MSW Combined Composition Analysis and Projections
[18] 2019 NYSDEC Facility Annual Reports

Material	Estimated MSW Tons Generated (2019)[17]	Estimated % of Total Tons Generated (2019)	Actual MSW Tons Diverted (2019)[18]	Actual % of Each Material Diverted (2019)
Total Wood	2,735	4.3%	0.00	0.0%
C&D Materials	4,310	6.8%	0.00	0.0%
Other Durables	1,138	1.8%	0.00	0.0%
Diapers	1,125	1.8%	0.00	0.0%
Electronics	881	1.4%	60.62	6.9%
Tires	1,100	1.7%	74.91	6.8%
HHW	305	0.5%	67.20	22.1%
Fines	310	0.5%	0.00	0.0%
Total Miscellaneous	9,169	14.5%	135.53	2.2%
Total	63,250	100.0%	11,178.45	17.7%

2.2.4. Estimation of Potential C&D Waste Recovery

C&D debris can be assessed separately from MSW or industrial wastes. Using the NYSDEC's C&D debris composition and recovery projection tool, the following section provides Greene County with an estimated C&D debris composition for future planning purposes. The complete tables are included in Appendix A. According to NYSDEC, their analysis and the waste composition and recovery projection tool considers the variations in the C&D debris waste stream resulting from the construction, remodeling, repair and demolition of utilities, structures and roads and includes land clearing debris from both the building and infrastructure generating sectors. Variations within the building sector from new construction, renovation and demolition activities are considered from both the residential and non-residential generating sectors.

Based on the data reported in the NYSDEC 2019 Facility Annual Reports, Table 2-4, below, provides an overview of the tons of C&D debris that could be recovered or diverted from a waste disposal location if the appropriate programs were in place.

Table 2-4 – Estimated C&D Debris Recoverable in Greene County

Material	Estimated Components of C&D Debris Tons Generated per NYSDEC Model (2019)	% of Total C&D Debris Generated (2019)	Tons of C&D Debris Diverted per 2019 Data Obtained	
			Tons Diverted	% Diverted
Concrete/Asphalt/Rock/ Brick	8,275.3	31.9%	7,800	94.3%
Wood	4,684.5	18.0%	0	0%
Roofing	1,228.8	4.7%	0	0%
Drywall	985.8	3.8%	0	0%
Soil/Gravel	6,052.4	23.3%	0	0%
Metal	1,725.6	6.6%	0	0%
Plastic	118.4	0.5%	0	0%
Corrugated/Paper	834.7	3.2%	0	0%
Other	2,050.5	7.9%	0	0%
Total	25,956.0	100.0%	7,800	30.1%

Based on the quantities of potential divertible materials that were reported to the NYSDEC or estimated, Greene County diverted approximately 7,800 tons of material (30.1 percent) from the C&D disposal stream in 2019. Table 2-4, above, indicates that 25,956 tons of C&D materials is generated within the County from residential and non-residential construction, renovation or demolition projects. A task has been added to the Implementation Schedule to evaluate and implement data collection efforts. Chapters 3 and 5 describe the existing systems for recovering these materials as well as possible future programs during this planning period to increase the County's diversion rate.

3.0 EXISTING PROGRAM DESCRIPTION

The County owns and operates 4 transfer stations in the Towns of Catskill, Coxsackie, Hunter, and Windham. These facilities deliver their collected waste to the Dunn Mine and C&D Landfill in Rensselaer County or to the Seneca Meadows Landfill in Seneca County. The generators and haulers are not required to deliver waste to the County facilities and businesses may self-market their wastes. Recyclables, similarly, are not required to pass through the County facilities; however, recyclables delivered to County facilities must be source separated from other wastes and conform to Local Law No. 2 of 1991.

Given the rural nature of Greene County, a limited variety of collection services are used in the County to collect and transport solid wastes recycling centers/transfer stations. Methods include residential drop-off stations or private contracts. Greene County does not collect or transport materials from the source. In some cases, private haulers contract on an individual basis to collect and transport the waste and recyclables to a transfer station or disposal location of their choice. A summary of waste disposal activities by waste type follows.

3.1. Solid Waste Management Facilities

3.1.1. Landfill Facilities

Greene County currently does not own any active landfills.

There are six closed municipal landfills in Greene County: J&J Landfill (Closed 1980), Durham/Greenville Landfill (Closed 1980), Windham Landfill (Closed 1986), Prattsville Landfill (Closed 1986), Hunter Landfill (Closed 1992), and Catskill Landfill (Closed 1992). There are an additional two closed industrial waste landfills in Greene County: Lehigh Portland Cement Landfill and Independent Cement Landfill. There are landfills located outside of Greene County which are available for the disposal of MSW and C&D. Each of these out-of-county landfills accepted waste that was generated in Greene County in 2019. Other landfills also exist throughout New York State; however, they may have disposal restrictions or are located outside a reasonable service area to accept waste generated in Greene County. The out-of-county landfills accepting Greene County waste are summarized in Table 3-1.

Table 3- 1 – Out-of-County Solid Waste Landfills Servicing Greene County Waste[19]

Solid Waste Facility	Facility Address	Permitted Capacity (cubic yards)	Expected Site Life (years)	Waste Types Accepted [20]	Operating Status
Dunn Mine and C&D Landfill	209 Partition St. Ext., Rensselaer, NY 12144	8,062,300	12.1	Construction & Demolition Debris	Privately owned and operated by S.A. Dunn & Company
Seneca Meadows Landfill	1786 Salcman Road, Waterloo, NY 13165	12,458,109	4.9	Ash MSW Energy Recovery Fly; Construction & Demolition Debris; Non-petroleum Contaminated Soil; Sewage Treatment Plant Sludge; Industrial; MSW (Residential/Institutional & Commercial);Waste Tires; Treated RMW; Grit & Screenings; Asbestos (Friable & Non-Friable)	Privately owned and operated by Seneca Meadows, Inc.
Albany City Rapp Road Landfill	525 Rapp Road, Albany, NY 12205	706,778	3.8	Asbestos (Friable); Non-petroleum Contaminated Soil; Ash (WWTP Sludge); Construction & Demolition Debris; MSW (Residential/Institutional & Commercial)	Publicly owned and operated by the City of Albany Dept. of General Services
Town of Colonie Landfill	1319 Louden Road, Cohoes, NY 12047	9,720,522	19.3	Yard Waste; Construction & Demolition Debris; Petroleum Contaminated Soil; Industrial; Animal Carcasses; MSW (Residential/Institutional & Commercial)	Publicly owned by the Town of Colonie and privately operated by Capital Region Landfills
Chemung County Landfill	1488 County Road 60, Elmira, NY 14901	6,775,280	12.5	Construction & Demolition Debris; Industrial Waste; MSW (Residential/Institutional & Commercial); Sewage Treatment Plant Sludge	Publically owned by Chemung County and privately operated by Casella Waste Systems
Ontario County Landfill	1879 State Route 5 & 20, Stanley, NY 14561	7,858,583	8	Asbestos; Construction & Demolition Debris; Industrial Waste; Sewage Treatment Plant Sludge; MSW (Residential/Institutional & Commercial)	Publically owned by Ontario County and privately operated by Casella Waste Systems

[19] NYSDEC Annual Facility Reports, 2019

[20] https://data.ny.gov/Energy-Environment/Landfill-Solid-Waste-Management-Facilities-Map/afg5-7i6u

3.1.2. Transfer Stations or Residential Drop-Offs

Most residents that are either not served by or elect not to contract with a private hauler, deliver their waste to a transfer station owned by Greene County. Residents or commercial/institutional entities located within the County can drop off solid waste and recyclables to any County transfer station, regardless of which municipality they are located in; commercial/institutional entities that do not contract directly with a hauler must dispose of waste by weight at any County owned transfer station.

Greene County offers multiple options for waste disposal fees. Residents can pay per bag or item, or on a weight basis. The transfer station's individual pay per bag prices are included in Table 3-2. Residents may also elect to pay by weight for waste disposal.

Table 3-2 – Transfer Station Disposal Fees

Quantity	Cost
0-30 gallon bags	$2
30+ gallon bags	$4
31-55 gallon bags	$5
Per ton	$105 (Minimum $15)
20 lb propane tanks	$2
Tires up to 16" without rims	$3
Tires up to 16" with rims	$4
Tires over 16" without rims	$7.50
Furniture	$7.50
Appliances	$7.50

In addition to the four County-owned transfer stations, residential drop-offs are located around the County for residential use. These stations are located in the Towns of Cairo, Durham, Greenville, Halcott, and New Baltimore. Recyclables are collected at the transfer stations and sold to market. Recyclable materials accepted free of charge include; electronics, batteries, cans, household corrugated cardboard, paperboard, newspapers, glass, scrap metal, soft plastics, tires, magazines, glossy paper, 20 lb. propane cylinders, Salvation Army donations, office paper, and telephone directories.

A listing of the transfer station facilities in Greene County is presented in the following Table 3-3.

Table 3-3 – Active Transfer Stations in Greene County

Transfer Station Name	Owner/Operator	Facility Address	Disposal Destination	Infrastructure Components
Catskill Transfer Station	Greene County	183 Route 385 Catskill, NY 12414	Dunn Mine and C&D Landfill/ Seneca Meadows Landfill	Accepts MSW, C&D Debris and recyclables. Has truck scale.
Coxsackie Transfer Station	Greene County	88 Plank Rd Coxsackie, NY 12051	Dunn Mine and C&D Landfill/ Seneca Meadows Landfill	Accepts MSW, C&D Debris and recyclables. Has truck scale.
Hunter Transfer Station	Greene County	74 Hylan Rd Hunter, NY 12442	Dunn Mine and C&D Landfill/ Seneca Meadows Landfill	Accepts MSW, C&D Debris and recyclables. Has truck scale.
Windham Transfer Station	Greene County	105 Mitchell Hollow Rd Windham, NY 12496	Dunn Mine and C&D Landfill/ Seneca Meadows Landfill	Accepts MSW, C&D Debris and recyclables. Has truck scale.

The Greene-Del Sanitation & Recycling Inc, located in Prattsville, NY, provided C&D debris hauling services and a transfer station for drop-off, but was closed in Fall 2020.

3.1.3. Other Solid Waste Facilities

The Evergreen Disposal Corp Recyclables Handling and Recovery Facility (RHRF) is a privately-owned facility to which a significant portion of the recyclables collected curbside by private contractors in Greene County is brought. Located in South Cairo, the Evergreen Disposal Corp RHRF took in 21.71 tons of commingled paper and 9,514.78 tons of single-stream recyclables from Greene County in 2019. These recyclables are hauled to Sierra Processing in Albany, NY.

In addition to the Evergreen Disposal Corp RHRF, there is a yard waste composting facility located in Greene County: Halstead Processing. This yard waste composting facility is located in Coxsackie. While a permit is maintained for Halstead Processing, this facility was not operational in 2019. In 2020, Halstead Processing received 1,602.53 tons of grass clippings for composting from Omni Recycling of Babylon & Liotta Bros. This tonnage is not included in the Greene County waste generation tables, as it originated from outside of the County.

3.2. Out-of-County Waste

While it is not prohibited, none of the County facilities bring in significant quantities of out-of-County waste that are disposed of within Greene County.

3.3. Reduction, Reuse Recycle Programs

3.3.1. Residential Sector Recycling Facilities and Efforts

Table 3-3 provides a summary of the transfer stations that accept recyclables. Some materials accepted at transfer station locations are consolidated, baled, and shipped to their respective markets.

County Waste, who provides hauling services in the County, offers recycling. This service offered to residents allows for the collection of single-stream recyclables. Residents, however, must contract with a hauler for curbside pick-up to use these services.

Greene County provides a multi-stream recycling program for source-separated recyclables. Residents separate recyclable materials from solid waste, which allows the County to sell each commodity stream. Residential drop-off at transfer stations and recycling centers is currently the only collection system for recyclables offered by Greene County. Residents who elect not to hire a private hauler typically drop off recyclables at transfer stations across the County. The transfer stations do not charge for the acceptance of recyclables. Recycling flyers available to residents are provided in Appendix C for further information.

Other items collected for recycling include white goods/appliances and electronics. Bulky items such as appliances are accepted for a fee of $7.50 per item. Electronics are collected at the County-owned transfer stations for no charge.

The County is unable to track all the materials broken down by the NYSDEC composition spreadsheets; therefore, Chapter 5 includes solid waste management program strategies to address data collection, education, outreach and enforcement needs, etc., for each facility or program that manages residential recyclables generated in Greene County. The evaluations are to assess the effectiveness and/or needs of these facilities and programs and Greene County's activities related to them, to determine what improvements, partnerships, or other alternatives should be evaluated for implementation and what the resulting future recovery goals could be.

3.3.2. Commercial Sector Recycling Facilities and Efforts

On the commercial front, stores, hospitals, and medical office buildings are establishments that generate large volumes of waste and recyclable materials. These establishments may contract directly with a recycling operation to collect and manage their recyclables or they may utilize drop off stations or transfer stations.

Since there is no reporting requirement for these commercial entities, the quantities and types of waste/recyclable materials disposed or recovered in Greene County are difficult for the County track. Chapter 5 is intended to address the issue of the lack of data being reported by the various commercial entities. Additionally, Public Outreach and Education will include the commercial recycling sector. The evaluations are to assess the effectiveness and/or needs of these facilities and programs and Greene County's activities related to them, to determine what improvements, partnerships, or other alternatives should be evaluated for implementation and what the resulting future recovery goals could be.

3.3.3. Agricultural Sector Recycling Efforts

Agricultural operations across New York State have incorporated the management of food waste and other organic components of MSW into their organics management technologies. The most common practice is anaerobic digestion. Due to the rural nature of Greene County, there are many farms that may be using this technology or have the ability to expand their collections. According to the Pollution Prevention Institute's (P2I) Organic Resource Locator, the only existing organics recycling resource within Greene County is Halsted Processing in Earlton, NY, a yard waste compost site. Greene County will continue to monitor P2I's site and identify possible agricultural operations that are managing organic components of MSW.

3.3.4. C&D Debris Sector Processing Facilities and Efforts

Collection of C&D debris for processing is not provided by the County and collection must be contracted for independently with private haulers or contractors.

3.3.5. Institutional Recycling Efforts

Large institutions, such as local school districts, prisons, nursing homes, hospitals, and senior living complexes, tend to produce large quantities of paper wastes and food wastes. Section 1.4 in Chapter 1 provided an overview of several of these institutions. These institutions manage their own waste and recyclables. Greene County does not monitor or enforce recycling efforts at these facilities; however, most of these facilities would likely benefit from waste reduction and recovery efforts. There is no reporting requirement for these institutional entities, however, the quantities and types of waste disposed or recovered in Greene County is likely included in waste quantities reported from disposal and recycling facilities, just not available per individual institution. Section 5.9 is intended to address the issue of the lack of data from these various entities. Additionally, Public Outreach and Education will include the institutional recycling sector and how best to increase recycling efforts. The evaluations are to assess the effectiveness and/or needs of these facilities and programs and Greene County's activities related to them, to determine what improvements, partnerships, or other

alternatives should be evaluated for implementation and what the resulting future recovery goals could be.

3.3.6. Public Sector Recycling Efforts

Municipal recycling efforts in the Planning Unit revolve almost entirely around the County's program as discussed in Section 3.1.2. Although the County provides numerous recycling programs to residents through its transfer stations, the County does not currently have a formal policy in-place for waste reduction or recycling at County facilities and events or on County projects.

3.3.7. Industrial Facility Recycling Efforts

There are no large industrial facilities located within Greene County.

3.3.8. Public Space / Events Recycling Efforts

The County currently provides solid waste receptacles for the Greene County Youth Fair. Other public space and special event recycling efforts are currently handled individually by each event sponsor. The impacts of special events within the Planning Unit are provided in Table 1-8.

3.3.9. Processed Scrap Metal Recycling

According to research conducted by the US Environmental Protection Agency (EPA), recycling scrap metals can be quite beneficial to the environment. Using recycled scrap metal in place of virgin iron ore can yield[21]:

- 75% savings in energy
- 90% savings in raw materials used
- 86% reduction in air pollution
- 40% reduction in water use
- 76% reduction in water pollution
- 97% reduction in mining wastes

Any scrap metal generated that is not collected or processed by a County division is not monitored, however, it is likely that this material is being recycled due to the fact that the material has a monetary value.

[21] http://www.norstar.com.au/Recycling/Processing/Benefits.aspx

3.3.10. Public Education Efforts to Promote Recycling

Greene County recognizes the importance of educating the community on waste reduction, recycling and material recovery opportunities. To effectively manage these evolving programs, the County has recycling flyers at all of their transfer stations to hand out to customers. A copy of the recycling flyer is included as Appendix C.

The County also provides for public education through regularly updating solid waste and recycling information on the Greene County website.

3.3.11. Organic Wastes Diversion

Interest in organic waste diversion has increased over the last few years, particularly because it has the potential to divert a significant portion of the waste stream away from landfills. The composting process can be applied to yard waste, food waste, MSW, sewage sludge, non-hazardous industrial sludge, or some combination of these materials. According to the Cornell Waste Management Institute Compost Facilities Map, there are currently two organics compositing facilities located within Greene County. There is a compost facility located at the Greene Correctional Facility, in which food scraps from the prison are composted in turned windrows. The second compost facility is located at Sunrise Farms in the Town of Catskill; manure is composted in turned windrows. Due to the rural nature of the County, organic diversion is typically organized and performed by each household or a small community of people. To aid in organic waste diversion efforts, the County relies on educating and informing communities on how to properly compost organics.

3.3.12. Yard Trimmings

Yard waste composting is a feasible means of waste reduction that requires little technological sophistication and could ultimately reduce the quantity of solid waste disposal in the County. Much of the Planning Unit's service area is rural and, like other rural areas around the state and the country, residents tend to manage yard trimmings on their own property. Therefore, materials collected for centralized composting are lower than in suburban areas where yard trimmings tend to be handled centrally.

Currently, there are no County yard waste collection programs within Greene County. At this time there is no known data quantifying the amount that is collected and composted.

3.3.13. Food Scraps/Food Processing Waste/Food Banks

The County has eight towns participating in food pantries or mobile food pantries where the public can obtain quality food that would otherwise be landfilled. No large food banks or other sources of food scraps have been identified in the County.

3.3.14. Electronics Recycling

Greene County collects residential electronics year-round at all four County owned transfer stations. The transfer stations collect residents' TVs, monitors, computers and computer equipment, small electronics, VCRs/DVRs/DVD players, game consoles, and small-scale servers. In addition, the Town of Halcott accepts electronics at their residential recycling drop-off station.

3.3.15. Sharps Collection

The County collects sharps at eight kiosks in seven towns; there are two kiosks in the Town of Catskill. Approved sharps disposal containers are available to County residents free of charge.

3.3.16. Tire Handling

Tires are accepted at all four County owned transfer stations for a fee based on the tire size and the presence of rims, as detailed in Table 3-2.

3.4. Biosolids/Sewage Sludge Handling

According to surveys of local WWTFs, biosolids/sewage sludge generated in Greene County were managed as identified Table 2-1 in Chapter 2.

3.5. Management of Household Hazardous Waste

The County's HHW program includes both educational and collection components. Greene County voluntarily offers a public HHW collection event for County residents. In recent years this event has been very successful. Table 3-4 summarizes the quantities of HHW that was collected in 2019 during the annual household hazardous waste collection.

Table 3-4 – 2019 HHW Collected in Greene County

Material	Container/Size	No. Units	Estimated Tons
LP Aerosols	Y3 Box	3	*
Bulk Flammable Liquids	55 Gal	18	4.1
LP Paint Related Material	Y3 Box	58	48.8
LP Oxidizer	55 Gal	2	0.5
LP Pesticide Liquid	55 Gal	18	4.1
LP Flammable Solid	5 Gal	1	0.0
LP Pesticide Solid	55 Gal	10	2.3
LP Calcium Carbide	5 Gal	1	0.0
LP Corrosive Acidic	55 Gal	4	0.9
LP Corrosive Basic	55 Gal	25	5.7
LP Mercury	5 Gal	1	0.0
LP Fluorescent	LNFT	1898	*
Bulk Antifreeze	55 Gal	3	0.7
LP Organic Peroxide	5 Gal	1	0.0
Total		2,043	67.2

* Tonnage could not be estimated, but is expected to be negligible

3.6. Efforts to Enforce Local Disposal and Recycling Laws

The County's preferred method of encouraging residents and local businesses to adhere to local disposal and recycling laws is through education and outreach rather than enforcement. Since enforcement is difficult with the County's current resources, the County will continue to rely on education efforts directed towards recycling and proper disposal rather than implementing a punitive approach.

3.7. Volume-based Pricing Incentives

The residential transfer stations located throughout the County use a volume-based pricing mechanism. Residents using the pay per bag system are charged a flat fee per size of bag. The trash bag sizes range from 0-30 gallon and greater than 30 gallon barrel. Most recyclables are accepted at these facilities free of charge.

3.8. Recycling Market Agreements

All recyclables collected at the transfer stations are marketed by the County. Therefore, the county annually searches for improved recycling market agreements and will continue to monitor the general markets for recyclables.

3.9. Local Hauler Licensing

Currently, Greene County requires all haulers, businesses, landlords, and property management companies to obtain a hauler's permit in order to collect MSW or recyclables within the county. Although Greene County does not currently enforce this requirement, the program gives the County a potential future mechanism for tracking waste and recyclables brought to County owned facilities, impose penalties on haulers who do not follow facility guidelines, and track payments.

3.10. Recycling Data Collection Efforts

As demonstrated in the previous sections of this plan, Greene County's residents and commercial, industrial and institutional waste generators have outlets to divert their waste from disposal to reduction, reuse and recycling. However, unlike solid waste data that is reported to the NYSDEC annually, a complete set of waste diversion data is not readily available since much of it is not required to be reported by private entities to any agency (except for those facilities that must submit recycling reports to NYSDEC). At this time, the majority of the residential and light commercial recyclables data has been reported by the recycling centers and is summarized in Table 2-2 in Chapter 2. Private businesses within the County are not currently required to report the destinations of their recyclables. As referenced in Table 2-2 in Section 2, based on 90,948.71 tons of waste (including recyclable materials) generated within Greene County in 2019, 71,970.26 tons were disposed in landfills and 18,978.45 tons of materials were diverted either by composting or recycling. Consequently, Greene County's current overall waste diversion rate is estimated at 21%. When examining just the MSW component of the overall waste stream, the County's MSW diversion rate is estimated at 18% -- this excludes contaminated soil, sewage sludge, construction and demolition debris, processed scrap metal, and industrial waste. Since there is no reporting requirement for these entities, quantities and types of waste disposed or recovered in Greene County has not been made readily available to the County.

4.0 EXISTING ADMINISTRATIVE AND FINANCIAL STRUCTURE

4.1. Staff in Charge of Implementing New System

The County maintains control of its in-county transfer stations and is responsible for the implementation of the program strategies described in Chapter 5. Specifically, the Highway & Solid Waste Superintendent, Director of Solid Waste, and the Solid Waste Crew Leader will share these responsibilities, including facility operations, program administration, finances, outreach and education, data collection and evaluation, and LSWMP updates and reports. Although the County may not have direct financial or administrative responsibility for each item, they will bear the responsibility of working with municipalities, institutions, and private sector waste managers to address the implementation of the program strategies.

On a biennial basis, the County will assess the status of the implementation of these strategies and update them as necessary to continue to fulfill the County's needs. Please refer to Section 1.2 and Figure 1-3 for more detail on the administrative structure and Organization Chart of the Planning Structure.

4.2. Financial Structure

The county relies on revenues produced from disposal at and recyclables marketing from the county-owned transfer stations. This revenue does not cover the cost of operations, and the remainder of costs is covered by the County's general fund including insurance and maintenance costs. Should a capital investment be needed as a result of the LSWMP process, it would be assessed during the County's budget review process. For example, the Adopted 2022 Budget includes money for equipment purchases and the composting program that is expected to begin in 2022. Given the County's financial responsibilities, implementing additional program strategies to promote waste diversion and recovery as described in Chapter 5 will be difficult. Table 4-1 provides a summary for 2020-2022 for the Solid Waste division from the 2022 Adopted Budget.

Table 4-1 – 2020-2022 Solid Waste Division Budget

	2022 Adopted Budget	2021 Actual Budget	2020 Actual Budget
Revenue:			
Refuse & Garbage	$ 5,791,176.00	$ 4,581,905.65	$ 6,270,768.72
Single Source Recycling	$ 840,000.00	$ -	$ -
Sale of Recyclables	$ 80,000.00	$ 136,510.35	$ 118,651.45
Composting	$ 50,000.00	$ -	$ -
Gifts & Donations	$ -	$ 17,380.15	$ 20,454.65
Recycling Grant	$ -	$ 34,922.88	$ -
Total Revenues	*$ 6,761,176.00*	*$ 4,770,719.03*	*$ 6,409,874.82*

	2022 Adopted Budget	2021 Actual Budget	2020 Actual Budget
Expenses:			
Personal Services	$ 1,299,961.00	$ 965,067.94	$ 1,121,780.57
Equipment	$ 15,000.00	$ 136,164.28	$ 745,708.13
Equipment - Vehicles	$ 300,000.00	$ 455,862.25	$ 41,663.44
Contractual Expenses	$ 428,550.00	$ 279,573.28	$ 315,089.17
Contractual Expenses - Contract	$ 4,794,030.00	$ 3,572,597.79	$ 3,855,691.81
Employee Benefits	$ 678,160.00	$ 618,652.68	$ 619,024.39
Composting	$ 50,000.00	$ -	$ -
Total Expenses	*$ 7,565,701.00*	*$ 6,027,918.22*	*$ 6,698,957.51*

Source: November 17, 2021 Adopted 2022 Budget for Greene County

Having both operational and legislative staff involved in the implementation of program goals is a great benefit for the Planning Unit. In addition, owning and operating the majority of the in-county transfer stations facilitates implementation of certain initiatives. That being said, the development of four transfer stations and the investment of equipment to operate the programs are dependent on the revenue that is generated. Without the commitment of waste being delivered to the County facilities by private waste haulers and the inability to competitively bid larger volumes of waste for reduced tipping fees the County may be left in the position to pursue other ventures in an attempt to offset the rising expenditures.

4.3. Laws, Regulations or Ordinances

4.3.1. Local Law

In 1990, Greene County passed Local Law #3 (Source Separation Law) which required the segregation of recyclables, for which economic markets exist, from the waste stream. In 1991, the County enacted Local Law #2 (attached in Appendix B), which established a new Greene County Solid Waste and Recycling Law and repealed the prior law. In general, Local Law #2:

- establishes the management structure for the solid waste management system within the county;
- prohibits the mixing of recyclables with solid waste;
- establishes a waste hauler permit system; and,
- details prohibited disposal activities.

No new local laws, ordinances, regulations or amendments are expected to be needed to fully implement the LSWMP.

4.3.2. Waste Importation and Flow Control

Greene County does not currently have any laws limiting the export of solid waste and recyclables to or from Greene County.

4.4. Solid Waste Management Policies

Greene County does not currently have formal waste reduction or recycling policies across County-owned facilities. Although many departments within the County may employ waste management reduction practices on an office by office basis, such as recycling, these are not currently consistent across all County departments.

5.0 ALTERNATIVE TECHNOLOGY EVALUATION

The County evaluated various programs and technologies that could possibly enhance existing solid waste management program elements or add new program elements to the planning unit as alternative programs. While evaluation of the existing solid waste management system may be necessary during the planning period, no significant technology changes from existing solid waste management approaches are anticipated during the planning period. The County anticipates continuing the current integrated approach to solid waste services – providing diversion, recycling, and disposal opportunities for County residents. The alternatives listed within this section will be subject to a public comment period.

5.1. Waste Reduction Programs

Under the State Solid Waste Management Policy established in New York State's Environmental Conservation Law, Waste Reduction Programs are first in the hierarchy of waste management. Waste Reduction focuses on the prevention of solid waste generation through modifications in behavior and changes in products, packaging, and purchasing. For individuals, waste reduction is a change to consciously thinking about not creating waste or minimizing their waste. For product manufacturers, it is the design, manufacture, purchase, or use of materials to reduce the volume or toxicity before products are produced and eventually enter the waste stream.

Programs to incite waste reduction at the County level are difficult, as they primarily rely on changes to human behavior or manufacturing, two things that the County has very little control over. However, two possible mechanisms that the County could employ to achieve waste reduction are the implementation of waste reduction practices within County facilities and public education, to encourage changes in purchasing and consumption habits of County residents.

A low-cost method to encourage waste reduction within the County and to set an example for County residents would be the adoption of a County-wide waste reduction policy. This policy could include:

- An electronic documents policy to allow for the use of electronic documents where paper copies are currently required.
- A double-sided printing policy to save paper where paper copies are required.
- Standard document formatting policies that reduce margin width and unused space.
- The use of high efficiency hand dryers in all bathrooms at County facilities to eliminate paper towel waste.
- Changes in purchasing policy to eliminate the County purchase/use of disposable tableware in office buildings or other County facilities.
- Increasing the availability of recycling receptacles in County buildings and at County events.

The Administrative/Technical Impacts, Jurisdictional Impacts, and Selected Alternatives Identification can be found in more detail in Appendix D.

5.2. Reuse Programs

Reuse programs focus on everyday materials that have the potential to be reused for their original purpose or for a new purpose. Reuse programs allow products to be used to their full potential and also keeps these materials out of disposal facilities. Additionally, reusing products conserves natural resources and saves valuable landfill space. Antique shops, thrift stores and consignment shops all provide opportunities for reuse. The County plans to incorporate the promotion of existing reuse programs in their education and outreach programs.

The Administrative/Technical Impacts, Jurisdictional Impacts, and Selected Alternatives Identification can be found in more detail in Appendix D.

5.3. Recyclables Recovery Program

The main objective of a Recyclables and Recovery Program is finding solutions for beneficial reuse or recycling waste into new raw materials protects and preserves our environment by limiting our dependence on landfills, conserving natural resources and decreasing our community's environmental footprint. According to 2015 data from the EPA, the average person generates 4.5 pounds of trash every day. Of the waste generated, over 75% of waste is recyclable, but only 34% of it is recycled.[22]

5.3.1. Expansion of Accepted Materials

Sustainable diversion includes locating markets that, at the minimum, are long-term, consistent, safe (to human health and the environment), and economical. The County has always aggressively expanded its recycling/recovery program as emerging markets allow for sustainable diversion.

The County will continue to examine the County's waste stream annually to determine new items eligible for sustainable diversion through the County's recycling program. Examples include new materials or expansions of existing accepted materials, such as e-waste.

The Administrative/Technical Impacts, Jurisdictional Impacts, and Selected Alternatives Identification can be found in more detail in Appendix D.

[22] https://www.epa.gov/facts-and-figures-about-materials-waste-and-recycling/national-overview-facts-and-figures-materials

5.3.2. Recycling at County Facilities and Events

Greene County is interested in taking the initiative to promote recycling at county-owned facilities and in-county events. The County already provides waste collection services at the Greene County Youth Fair. Greene County will act as a model to other municipalities within the County to increase recycling at County facilities and by offering recycling services at additional in-county events where feasible. Greene County realizes that in order to increase recycling county-wide, their staff must be engaged to achieve this goal. Greene County staff will explore a plan or policy to increase recycling at county owned and/or operated facilities. Later in the planning period, the County will look into the feasibility of expanding this goal to public events, schools, institutions, etc. Given the lack of participation and information specified previously in Section 3, this task will be dependent upon the completion of data gathering program strategies. The implementation schedule in Section 6 provides an outline of the resources and subtasks necessary to increase recycling at county owned facilities.

The Administrative/Technical Impacts, Jurisdictional Impacts, and Selected Alternatives Identification can be found in more detail in Appendix D.

5.3.3. Product Stewardship

Product Stewardship is based on the concept that producers selling a product should be responsible for designing, managing, and financing a stewardship program that addresses the lifecycle impacts of their products, including end-of-life management. It is a nationwide undertaking to encourage government, at the State level, to implement product stewardship legislation based on the same framework principles in order to maintain a consistent starting point for nationwide implementation of a product stewardship policy. The New York Product Stewardship Council is working to implement the principles of product stewardship in New York State. Greene County intends to work together with the New York Product Stewardship Council to coordinate and participate in product stewardship initiatives locally. It is the intent of Greene County to review these product stewardship framework principles, and, if in the best interest of Greene County, adopt through a resolution.

The Administrative/Technical Impacts, Jurisdictional Impacts, and Selected Alternatives Identification can be found in more detail in Appendix D.

5.4. Organic Recovery Program

Each American disposes of about 460 pounds of organic waste annually; 100% of that waste can be composted[23]. Composting of organic materials from the solid waste stream not only provides

[23] https://www.epa.gov/facts-and-figures-about-materials-waste-and-recycling/national-overview-facts-and-figures-materials

a valuable benefit to nutrient deficient soils, but also reduces the amount of waste that ends up in landfills or incinerators. Other benefits of composting organic matter include the increase in beneficial soil organisms such as worms and centipedes, suppression of certain plant diseases, the reduced need for fertilizers and pesticides, prevention of soil erosion and nutrient run-off, and assistance in land reclamation projects.

In New York State, thousands of tons of organic waste materials are composted each year. These include treated sewage sludge, otherwise known as biosolids/sewage sludge from waste water treatment facilities (WWTFs); food waste residuals from industrial food processing facilities; food waste from recovery programs at hospitals, colleges, office buildings, and prisons; paper sludge; yard waste; and other organic waste materials.

According to NYSDEC records as of January 2021, there are 60 facilities permitted for composting in New York State. Of these, 30 compost biosolids/sewage sludge, 26 compost yard wastes, and 4 compost source-separated organics. An additional 124 active registered sites are operating within New York State to compost these materials. One registered yard waste composting facility, Halsted Processing, is located within Greene County.

Material resulting from the composting of biosolids/sewage sludge and yard waste is used primarily as an organic soil conditioner and partial fertilizer. It is applied to agricultural lands, recreational areas such as parks and golf courses, mined lands, highway medians, cemeteries, home lawns and gardens.

Greene County plans to construct a permitted compost facility adjacent to the Catskill Transfer Station. This facility will accept both food waste and yard waste. The product of this compost facility will either be used for landscaping of County facilities, donated, or sold to help fund the composting program.

5.4.1. Food Waste Management

While composting of all organic waste can be an effective method of low technology recycling that can significantly reduce the stream of waste destined for a disposal facility, collection of these materials on a household basis can prove both difficult and expensive. Another method for removal of these wastes from the disposal waste stream is to implement a backyard composting program, through which residents are provided information regarding the methods of backyard composting. It is anticipated that many residents are already participating in a backyard composting program of their own; however, this task would allow for the program to become more formalized and allow residents to share information amongst themselves. The County plans to explore potential partnerships with local organizations to provide or subsidize compost bins for residents with additional education efforts to increase backyard composting in the County.

Based on the estimates calculated for this plan, there is a potential to divert nearly ten thousand tons of organics from the MSW waste stream on an annual basis by increasing backyard composting efforts. With the implementation of this task during the planning period, it is anticipated that the diversion rates will increase. Additionally, with the gathering of data proposed as part of this Plan, the diversion percentages are expected to increase based on better reporting. The implementation schedule in Chapter 6 provides an outline of this implementation task.

The Administrative/Technical Impacts, Jurisdictional Impacts, and Selected Alternatives Identification can be found in more detail in Appendix D.

5.4.2. Yard Waste Management

The Planning Unit's service area is primarily rural, with some more populous areas in the villages. Like other rural areas around the state and the country, residents tend to manage yard trimmings on their own property. Through educational outreach, Greene County encourages, as the first step in the hierarchy of yard waste management, that residents and businesses implement grass-cycling (leaving their grass clippings on the lawn), and/or backyard composting for yard waste management. The implementation schedule in Chapter 6 provides a year by year breakdown of the different steps necessary to undertake this task.

The Administrative/Technical Impacts, Jurisdictional Impacts, and Selected Alternatives Identification can be found in more detail in Appendix D.

5.5. Develop or Improve Local and Regional Markets for Recyclables Program

The County actively evaluates the demand for markets and pursues opportunities as appropriate economically. On an annual basis, the County assesses recycling markets and vendors to ensure that outlets exist for materials accepted through the County's recycling program and to assess additional materials for acceptance. If these market opportunities become available, acceptance of these materials will be incorporated into the recycling program as discussed above. However, the County has limited influence over regional markets to improve recycling. As such, no further tasks related to market improvement are possible at this time.

5.6. Enforcement Programs

The County has identified areas in which the existing Solid Waste and Recycling Law could be improved to adequately ensure that waste is disposed of or recycled in accordance with state and local regulations. However, in the County's extensive solid waste management history and expertise, training and education of residents is far more effective than enforcement actions. Due to the County's limited resources to provide enforcement at every County facility, the County has opted to enhance existing training and education programs to improve recycling and

promote proper waste disposal during this planning period. For more information, see Section 5.8 – Education and Outreach Programs.

5.7. Incentive Programs

Incentive programs within a solid waste management system are programs used to promote or encourage specific actions by the community to increase the success of programs the landfill is trying to integrate. Currently, the County transfer stations have a Pay-As-You-Throw (PAYT) fee for customers bringing their own residential waste directly to the transfer station.

In areas where PAYT is an option for waste collection, residents are charged a fee for municipal solid waste collection based on the amount of waste they dispose of. According to the Environmental Protection Agency (EPA), this concept creates a direct economic incentive to recycle more and to generate less waste. PAYT programs allow residents to treat waste collection as a utility and pay only for the service they actually use. Most communities that use a PAYT program operate municipal hauling and charge their residents a fee per bag or per can of waste. In a small number of communities, residents are billed based on the weight of their trash. All of these variations on the PAYT programs allow residents to pay less for waste disposal if they recycle more and throw away less waste.

Another type of PAYT program allows customers to select the appropriate number or size of containers for their standard weekly disposal amount. The bag program allows customers to purchase bags, or some other indicator such as a sticker or tag, and dispose of waste in these specially marked bags. The price of each bag or sticker incorporates the cost disposal of the waste; the cost of collection and transportation would be the responsibility of the generator, whether the bags are picked up by a private hauler or self-hauled to a County transfer station. The more bags customers use the more they are paying for waste collection and vice versa.

Hybrid PAYT programs vary greatly from community to community. An example of a hybrid program would be offering residents a limited collection (e.g., a limit of five bags per week) with any additional bags being bought at a per bag fee from the municipality, hauler, etc. In this type of program, the initial cost of service is often billed to the residents in the form of taxes or quarterly bills through the municipality or hauler. Weight based programs are another option and use a modified scale located on the waste collection trucks and charge customers based on the actual pounds of garbage set out for disposal. On board computers record weights by household and customers are billed on this basis. Based on the County's existing infrastructure, a weight based program would not be easily implemented.

As with any program, there are advantages and disadvantages. Some of the advantages and disadvantages of the PAYT programs are listed below:

Advantages:

- PAYT programs are a fair way to charge customers. Customers who dispose of more waste pay a higher cost than those who recycle more and dispose of less waste.
- PAYT programs do not place restrictions on customer choices. Customers are not prohibited from putting out additional garbage, but those who want to dispose of more garbage will pay a higher fee.
- PAYT programs are generally inexpensive to implement. They may also help prevent overuse of solid waste services.
- PAYT programs encourage waste reduction in the form of recycling, composting, and source reduction.
- PAYT programs can be implemented in a variety of sizes and types of communities, with a broad range of collection methods.
- PAYT programs offer environmental benefits by reducing the amount of waste sent to a landfill and recycling more of the products used by residents.

Disadvantages:

- PAYT programs may raise concerns regarding illegal dumping or contamination of recycling streams.
- PAYT programs can be a concern for large poor families who cannot afford to pay for the amount of waste they dispose.
- Implementing PAYT programs (e.g., purchasing of stickers, cans, bags, etc., retrofitting waste trucks, employee reassignment, etc.) can prove challenging.
- Budgeting expected revenues can be difficult during the initial years of implementing a PAYT program (e.g. estimated bag or sticker purchases).

As discussed previously, Greene County has a mechanism for PAYT disposal for residents at the transfer stations and will continue to offer this option. The County plans to optimize their PAYT program. Chapter 6 – Implementation Schedule provides the milestones through the planning period that are anticipated to evaluate this task.

The Administrative/Technical Impacts, Jurisdictional Impacts, and Selected Alternatives Identification can be found in more detail in Appendix D.

5.8. Education and Outreach

Public outreach and education regarding waste diversion programs and responsible disposal of special wastes has been identified as a key component of solid waste management programs in New York State. Raising the awareness of reduce, reuse and recycle has been a goal of the NYSDEC since the first Earth Day in 1970. To reach audiences, numerous programs and events

have been organized. The NYSDEC's Recycling Outreach and Education program is available to other communities to help them spread the word. Without education none of the recovery programs or technologies will be successful.

Greene County is dedicated to education and believes that this is best accomplished, and provides the greatest benefit, when practiced in partnership with the community, since impacts and benefits of management decisions reach across property boundaries. Waste streams that could experience higher diversion rates through further public education efforts have been identified. Specifically, the areas that should receive the most focus initially are:

- Reuse Programs
- Recycling at County Facilities and Events
- Backyard Composting
- Yard Waste Composting
- Food Scrap Composting at Institutions and/or Large Commercial Generators (also the Food Donation and Food Scraps Recycling Law, which goes into effect January 1, 2022)
- HHW Collection Events
- C&D Debris Diversion Opportunities
- Mercury Containing Materials Disposal Options
- E-waste Management Options
- Pharmaceuticals Management (NYS Drug Take-Back Law)
- Paint Stewardship
- Foam packaging ban

The County continues to establish and implement a recycling educational outreach program. The program is aimed at educating residents and commercials haulers regarding what commodities can be recycled through the County facilities and the process by which these materials see new life.

During this planning period, the County will evaluate its current and potential education methods for promoting the Greene County Solid Waste and Recycling Law. The County will evaluate the feasibility of adding recycling education at public events, specifically in the areas where they can team with local companies and not for profit agencies to encourage the recycling of specific waste streams.

Providing information to generators regarding options for implementing recycling programs, as well as providing resources for in-house training programs, may also offer a valuable method for increasing diversion rates in these types of facilities. The Implementation Schedule in Section 6.0 provides the milestones through the planning period that are anticipated to evaluate this task.

The Administrative/Technical Impacts, Jurisdictional Impacts, and Selected Alternatives Identification can be found in more detail in Appendix D.

5.9. Data Collection and Evaluation Efforts

The County has a recycling program, with many materials being mandatory to recycle. While the County offers recycling options, the Facility Annual Reports produced by the County consistently report recycling percentages below what would be expected. It is the County's belief that this is due to the fact that reported recycling numbers are based solely on the materials that are handled through the County's solid waste management system. Large recyclables producers such as vehicle dismantling facilities, and even private recyclables collection companies, may ship recyclable products directly to the end user for a profit, bypassing the intermediate recycling facilities. As a result, these materials are not being accounted for in the County's recycling reports.

The County will consider undertaking several recycling data surveys over the course of the planning period, which will be distributed to various generators in the County in order to compile a more complete set of recycling data. These surveys will be used to help assess what materials could be available for use in new programs such as organics composting and C&D material recycling. The survey will most likely be conducted in stages, with the largest waste producers being contacted first. The groups of generators could include: (1) retail businesses (groceries, restaurants, stores); (2) industries; (3) schools and institutions; (4) libraries, jails and nursing homes; (5) the public sector and special events. Survey recipients would be asked for data such as: recyclable material (metals, plastic, and paper) produced per year, organic material produced per year, C&D material produced per year, and current disposal/recycling methods. Intermediate facilities such as confidential paper shredding services may also be contacted to determine how much material they receive from Greene County. This information will then be compiled to help the County more accurately determine the actual recycling rate within the County, which recycling efforts are most effective, and which new recycling methods would be most prudent for the County to pursue. If response rates are low, the County will consider enforcement of the hauler licensing and reporting component of the law to obtain better data.

In addition to generator data, solid waste management facility data could be collected as well. For every facility/program that manages MSW, biosolids/sewage sludge, C&D debris, processed scrap metal, and/or industrial waste generated in Greene County, requested information would include information regarding:

- capacity/expected life,
- service areas, and
- operating status.

For Planning Unit owned facilities/programs information would include:

- infrastructure/components,
- age,
- operating dates,
- size,
- regulatory status,
- partnerships/ opportunities,
- contracts,
- improvements or changes, and
- resources/needs/costs.

Undertaking this data collection program would require significant County resources, including staff time that is already limited. The County will examine potential partnerships with interested citizen groups to assist with data collection and analysis.

The Administrative/Technical Impacts, Jurisdictional Impacts, and Selected Alternatives Identification can be found in more detail in Appendix D.

5.10. C&D Debris Reduction

There are currently no upstream or downstream separation requirements/regulations for C&D waste in Greene County. While there are many materials in the C&D waste stream that have potential reuse/recycling options, low tipping fees at landfills can make the sorting of these materials into desirable components cost-prohibitive. Reducing and recycling C&D materials conserves landfill space, reduces the environmental impact of producing new materials, creates jobs, and can reduce overall building project expenses through avoided purchase/disposal costs. Options for C&D debris diversion from traditional disposal consist of upstream and downstream diversion.

Diverting C&D debris from the waste stream either as upstream or downstream diversion has benefits as well as drawbacks. Some benefits are:

- Potential revenue to developers and contractors from the sale of recoverable and recyclables
- Potential revenue to processors from the sale of processed C&D
- Decrease in the amount of waste for disposal

Upstream diversion of C&D is the act of separating recoverable materials for recycling or reuse at a construction, demolition or remodeling job site. These materials are then processed and transported to an end market which keeps them from being disposed of in landfills. Separating C&D provides an opportunity for the contractor to save money on disposal costs and sometimes

the materials can be reused by the contractor on future or current projects. Some of the common materials that are recycled or reused from new construction projects are wood, metal, drywall and cardboard. Contractors are faced with decisions when determining if it is economically efficient to recycle C&D debris. Separating the debris will require additional staging areas for separate containers and additional labor, increasing costs, and in turn extending the duration of construction. Lastly, the contractor's ultimate decision is to decide if the material has any economic value. Some cities and counties have passed ordinances mandating source separation of recoverable C&D materials at the job site to ensure that there is a decrease in the amount of waste disposed of in landfills. The County could potentially enact such an ordinance or law, or add provisions to demolition projects on a case-by-case basis.

Some potential drawbacks to the enactment of such an ordinance, were the County to entertain this action, are an increase in the County staff time and costs to develop diversion program and to monitor and enforce C&D debris separation. It is estimated that, due to the financial benefits of diverting materials where recycling outlets and project constraints allow, a majority of contractors are already implementing this practice where feasible and the County simply does not have the data for reporting. Enforcement by the County would only result in forcing contractors to divert more cost intensive materials for which local recycling outlets likely do not exist, increasing construction costs and/or making it impossible for contractors to comply. For this reason, this does not represent a feasible use of County resources at this time, but may provide an opportunity in the future.

Downstream diversion of C&D is the act of separating materials at a central collection point, such as a landfill, transfer station, or processing facility and identifying the recoverable materials. In order to determine the feasibility of implementing downstream diversion, one must initially determine what comprises the largest portion of the C&D waste brought to the landfill, then determine if there are available markets in the region for recycling or reuse of the material.

According to the NYSDEC's database of active registered or permitted facilities, there is one registered C&D processing facility located in Greene County: Evergreen Disposal Corp. An additional three out-of-county C&D processors accept C&D generated from Greene County: Bonded Concrete Hudson Plant 7 in Columbia County, Greene-Del Sanitation & Recycling Inc. in Delaware County, and County Waste Transfer Corp. in Rensselaer County.

According to the NYSDEC's "Construction and Demolition Debris Combined Composition Analysis and Projections" found in Appendix A, the top three components of the C&D waste stream are determined to be concrete/asphalt/rock/brick, wood, and soil/gravel. Any material stream that is lucrative to recover or easy to separate is likely already captured in upstream diversion of C&D. The remainder of the materials listed in Appendix A are very minor percentages and are likely not economically feasible to separate into their multiple recyclable components.

When considering the downstream diversion program, the County must evaluate the overall economic impact of incorporating this program into their municipal bids. There would be capital and operational expenses associated with this additional practice on County projects. In addition, viable recycling outlets for the minor components of the C&D waste stream may not be available, therefore making the implementation of this program not practical. As such, the County will monitor potential partnering opportunities with existing C&D processing facilities to facilitate C&D reduction and/or diversion programs. The County will contemplate incorporating C&D debris recovery requirements into municipal bids if and when such a policy becomes feasible.

The Administrative/Technical Impacts, Jurisdictional Impacts, and Selected Alternatives Identification can be found in more detail in Appendix D.

5.11. Private Sector Management and Coordination Opportunities

Opportunities for teaming up with private sector entities will be monitored by Greene County to provide additional services that may not be possible otherwise. Due to required participation by third parties, these opportunities may be difficult for the County to come by, however, the County will continue to pursue and assess potential collaborations throughout the planning. These collaborations could include potential waste reduction, diversion, or funding opportunities that arise in the County through private industry or other organizations.

The results of data gathered as part of Implementation Item No. 9 could aid the County in identifying potential partners and/or opportunities for additional programs.

The Administrative/Technical Impacts, Jurisdictional Impacts, and Selected Alternatives Identification can be found in more detail in Appendix D.

5.12. Review of Available Technologies

Currently, a majority of the waste generated within the County is disposed of at solid waste landfill facilities. The County will stay up to date on alternative waste disposal technologies and if a technology presents itself that is promising the County would further evaluate it. Alternative waste disposal technologies that are available to the solid waste disposal markets are described in detail below.

5.12.1. Waste-to-Energy (Combustion/Incineration)

A waste-to-energy (WTE) facility is a solid waste management facility that combusts wastes to generate steam or electricity and reduce the volume of MSW requiring disposal by 80-90 percent. These facilities are sometimes referred to as resource recovery facilities or Municipal Waste Combustors (MWC). Newer technology allows higher efficiency heat recovery from the combustors, increasing energy production potential.

Although the total volume of MSW requiring disposal is reduced, a secondary disposal method such as landfilling would be required for the ash. If Greene County initiated the permitting, construction and operation of their own WTE facility within the County, high construction and operations and maintenance costs as well as uncertainty in energy sales revenues, would result in higher disposal costs per ton than landfilling. For example, a 600 ton per day WTE facility capital cost could be in the range of $160 million with an average per ton cost of $92/ton. With the economy of scale for processing a reduced tonnage rate, construction and operation of a WTE facility would not be economically feasible for the County.

There are currently ten active WTE facilities in the State; however, none have been permitted or constructed in the State in the past 20 years. It should be noted that there no active WTE facilities in Greene County or the counties bordering Greene County. The region overall has had little appetite for thermal treatment of waste. As such, a WTE facility is not a viable option for solid waste management in Greene County.

5.12.2. Pyrolysis/Gasification

Pyrolysis systems use a vessel which is heated to temperatures of 750°F to 1,650°F, in the absence or near absence of free oxygen. The temperature, pressure, reaction rates, and internal heat transfer rates are used to control pyrolytic reactions in order to produce specific synthetic gas (syngas) products. These syngas products are composed primarily of hydrogen (H_2), carbon monoxide (CO), carbon dioxide (CO_2), and methane (CH_4). The syngas can be used in boilers, gas turbines, or internal combustion engines to generate electricity, or alternatively can be used in the production of chemicals. Some of the volatile components of MSW form tar and oil, and can be removed for reuse as a fuel. The balance of the organic materials that are not volatile, or liquid that is left as a char material, can be further processed or used for its adsorption properties (activated carbon). Inorganic materials form a bottom ash that requires disposal, although it is reported that some pyrolysis ash can be used for manufacturing brick materials. Under typical operations, the ash is landfilled.

Gasification is a similar process to pyrolysis, but which requires the partial oxidation of a feedstock to generate syngas. Oxygen must be provided for the reaction, but at a quantity less than is required for complete combustion. The primary syngas products are H_2 and CO with smaller quantities of CH_4 produced at lower temperatures. Similar to pyrolysis, the syngas product may be used for heating, electricity generation, fuel, fertilizers or chemical products, or in fuel cells. Byproduct residues such as slag and ash are produced and require disposal in a landfill.

Pyrolysis and gasification of MSW have too short a history in the United States for complete analysis of economic feasibility. There are currently about one hundred mixed MSW gasification plants in the world, primarily in Japan, that have a successful history of continuous operation. The capital cost of developing this technology for Greene

County is estimated to be at least 10% higher than conventional WTE plants. This conceptual estimate is based on a short history of pyrolysis/gasification development for MSW applications in the United States, a lack of established pyrolysis or gasification plants and the greater complexity of the technology. According to a recent EPA study[24] of pyrolysis and gasification technologies, the cost to process mixed MSW is approximately $90 per ton which is significantly higher than landfill disposal costs in New York State. There are no current full scale operational systems in New York State for MSW treatment. One plant for the pyrolysis of plastics, which has since closed, was previously located in Niagara Falls, NY and one gasification plant has been commissioned in Montgomery, NY using only portions of the MSW waste stream.

5.12.3. Plasma Arc Gasification

Plasma arc gasification is a waste treatment technology that uses electrical energy and the high temperatures created by an electrical arc gasifier. This arc breaks down waste primarily into elemental gas and solid waste (slag), in a device called a plasma converter. The process has been touted as a net generator of electricity, although this will depend upon the composition of input wastes. It will also reduce the volume of waste requiring land disposal.

There are currently 5 plasma arc gasification facilities in operation worldwide, which combine for a total design capacity of approximately 200 metric tons of waste per day. Many more facilities were planned or commissioned in the U.S., Canada, and the UK but ultimately failed due to funding issues.

The technologies outlined above do not present economically feasible options for Greene County at this time. Combustion/incineration is cost-prohibitive and pyrolysis/gasification and plasma arc gasification have not yet been proven for mixed MSW waste streams on a commercial scale in New York State. As such, these alternative technologies will not be contemplated further at this time.

5.12.4. Mixed Municipal Solid Waste Composting

Mixed MSW composting is typically an aerobic composting process that breaks down all organic portions of the waste into compost material. Waste is typically collected at the facility as a mixed stream. The process requires intense pre- and post-processing, treatment and sorting to remove inert materials such as plastic or glass, which diminish the quality of compost products. Some MSW composting facilities also accept biosolids/sewage sludge. Wastes are typically loaded into a rotating bioreactor drum for two to four days. Screening processes are used to separate unacceptable wastes, which are landfilled as process residue, from the raw compost which is stored in a

[24] State of Practice for Emerging Waste Conversion Technologies, USEPA Office of Research and Development, October 2012

maturation area for approximately one month to allow biological decomposition to occur.

Facilities such as this do not have a well-established track record in the United States. There are currently 13 mixed MSW composting facilities in operation in the United States, including one in Delaware County, New York. Typical issues associated with the reliable and cost effective operation of such facilities include quality of compost, retail/wholesale outlet for compost generated, disposal location for bypass material, and odors.

As mentioned above, Delaware County operates a mixed MSW composting facility, which has been successful as it relates to their needs. Their facility met the need of extending the life of their current landfill facility due to declining capacity and difficulty in siting a new landfill. This facility allowed the landfill to be operational for another 50 years. The cost of this facility was approximately $20 million, which includes a rather complex odor control component. The facility became operational in 2007, which serves a rural population of about 47,000 people. This facility handles approximately 100 tons per day of waste materials, consisting of a blend of MSW and biosolids. The mixed MSW composting facility is one part of Delaware County's integrated solid waste management system.

5.12.5. Mechanical/Biological Treatment

Mechanical-biological treatment (MBT) systems are similar to mixed MSW composting systems in that intense sorting is required as the first step in the waste treatment process. This is considered the mechanical phase of the treatment, where recyclable and non-organic materials are removed from the waste stream prior to the biological treatment. The biological treatment phase involves bio-drying of the remaining organic materials for production of refuse derived fuel, or RDF. RDF can be used in place of fossil fuel products, such as a replacement for coal in electricity production. According to a 2011 survey, there are currently over 330 active MBT systems in operation across Europe[25], with a majority of these facilities operating as pilot scale projects (exact numbers are not available).

To date, this technology has not been proven to be economically feasible within the United States for MSW management.

5.12.6. Anaerobic Digestion

Anaerobic digestion is a biological process by which microorganisms digest organic material in the absence of oxygen, producing a solid byproduct (digestate) and a gas (biogas). In the past, anaerobic digestion has been used extensively to stabilize sewage

[25] https://www.solidwastemag.com/feature/mechanical-biological-treatment-in-the-eu/

sludge, but is more recently under consideration as a method to process the organic fraction of MSW. In anaerobic digestion, biodegradable material is converted by a series of bacterial groups into methane and CO_2. In a primary step called hydrolysis, a first bacterial group breaks down large organic molecules into small units like sugars. In the acidification process, another group of bacteria converts the resulting smaller molecules into volatile fatty acids, mainly acetate, but also H_2 and CO_2. A third group of bacteria, the methane producers, or methanogens, produce a medium-Btu biogas consisting of 50-70% methane, as well as CO_2. This biogas can be collected and used for a variety of purposes including electricity production or converted to high BTU natural gas. Anaerobic digestion facilities are used extensively for the treatment of agricultural, wastewater sludge and organic wastes such as food wastes. Mixed MSW anaerobic digestion facilities are more common in foreign countries. There are currently over 200 MSW anaerobic digestion facilities operating across Europe. Many of these facilities are smaller scale projects, designed to provide treatment of wastes for small towns and villages. There are two such facilities in operation in Canada, each in the Toronto, Ontario area.

Specific to the United States, few mixed MSW anaerobic digestion facilities exist, as the technology has not proven economically feasible. An EPA study[26] estimates that waste processing costs using anaerobic digestion are close to $115 per ton of MSW, which is even higher than pyrolysis/gasification. At this time, only two commercially operational MSW anaerobic digestion facilities exist, both in Ohio. Several more facilities exist but accept only a portion of the MSW waste stream, such as source separated organics, food manufacturing industry waste, or a mixed agricultural/food waste. Many are still in a demonstration phase and are not fully operational. In New York State, there are many anaerobic digesters in operation in the wastewater and agricultural markets, with some anaerobic facilities being converted into mixed organic waste facilities. Two anaerobic digesters have been permitted in Region 9 by Quasar Energy Group. These systems will manage regional biomass residuals (organic waste) to produce electricity that would be sold to NYSEG. Under the regional biomass residual model, there is still the need to manage other portions of the waste stream that cannot be recycled. In addition, digestate and liquids from the anaerobic digester process must also be managed, which may be recycled, landfilled or processed at a wastewater treatment plant depending on their constituents.

5.12.7. Ethanol Production

Ethanol production from a mixed MSW waste stream requires an intensive sorting process as the first processing step. All recyclable and inert materials must be removed to produce an organic waste stream for ethanol production. This material is then

[26] State of Practice for Emerging Waste Conversion Technologies, USEPA Office of Research and Development, October 2012

chopped, fluffed, and fed into a hydrolysis reactor. The effluent of this reactor is mostly a sugar solution, which is prepared for fermentation. This solution is detoxified and introduced to a fermenter, in which microorganisms convert the sugar to ethanol and CO_2. Next, the solution is introduced into an energy-intensive process that combines distillation and dehydration to bring the ethanol concentration up to fuel grade (99%) ethanol. A solid residue of unfermented solids and microbial biomass is recovered through the anaerobic digestion process, and its marketability as a compost material depends on the purity of feedstock as well as its visual quality. Solid residues can be burned or gasified if alternative methods of reuse are not feasible. Various pilot scale facilities are operating in the United States and Europe, but many have reverted to more homogeneous feedstocks such as wastewater treatment sludge and food processing wastes, because obtaining the homogeneous input stream from mixed MSW has proven difficult.

5.12.8. Alternative Chosen

Based on the technologies discussed above, the continued landfilling of waste appears to be the only viable disposal option for any wastes that cannot be reduced, reused, or diverted. The in-county disposal facilities should be operated as integrated material management facilities, providing means for the reduction of prohibited items from within the waste stream disposed of within the facility to ensure ongoing protection of the environment. Should any of the other technologies discussed above be pursued in the future, further analysis and a separate environmental review process would be required to analyze the benefits and impacts of these technologies. In addition, should any of the other technologies discussed above be implemented, it is imperative that long term waste commitments be in place to undertake a full scale program within Greene County. At the time of this report, Greene County is evaluating the feasibility of a compost facility at the Catskill Transfer Station site. Greene County does not propose evaluating the feasibility of these other alternative waste disposal options any further during the 10 year planning period; however, Greene County does acknowledge that they are available and will keep abreast of their further development. If advances in the above technologies occur, the County will reassess these opportunities during the next planning period.

The Administrative/Technical Impacts, Jurisdictional Impacts, and Selected Alternatives Identification can be found in more detail in Appendix D.

5.13. Continue Existing Disposal Methods as Primary Disposal for Non-Recyclable/Non-Recoverable Waste

Since closure of the landfills in Greene County, the County-owned transfer stations transport waste to the Seneca Meadows Landfill or the Dunn Mine & C&D Landfill for disposal. While the prominent foci of this Plan is overall waste reduction and local recycling/reuse and composting programs, the region will still require a local, dependable facility for the disposal of all non-

recyclable and non-hazardous waste. The County will continue to study and assess improvements to existing disposal methods and new disposal methods through emerging technologies over the course of the planning period as an alternative to waste exportation or reliance on a privately-owned disposal facility.

5.14. Review County Local Solid Waste Management and Recycling Law

The County has begun to identify, internally, areas in which its existing recycling law could be strengthened in order to more adequately ensure that waste are disposed of according to plan. During the next planning period, the County intends to conduct an internal review of its law, as well as consult with outside sources, in order to ensure its local solid waste law is up to date. Specific items that the County intends to address include, but are not limited to:

- Update to administrative structure referenced in current local law
- Establish a mandatory recycling list
- Recycling at county owned facilities
- Recycling Compliance
- Hauler Licensing

These items, among others, will be considered during the law review process and implemented as the County deems prudent.

6.0 IMPLEMENTATION SCHEDULE

While some of the program enhancements outlined above are already in the planning stages, some will require a higher level of feasibility analysis, funding, and planning before implementation. For all of the implementation items, the expected impacts will be distributed throughout the entire planning period. The preliminary implementation schedule for the plan is outlined in Appendix E. As pursuit of implementing these proposed enhancements continues, and further information is gathered regarding the feasibility of implementing these programs, this schedule will be updated as needed via the biennial LSWMP Compliance Reports, which are planned to be issued by the County every 2 years per NYSDEC requirements. An example outline of an LSWMP biennial compliance report is included in Appendix F.

7.0 WASTE STREAM PROJECTIONS

Previous sections of this Plan discussed the quantities of waste generated, disposed and diverted from the waste stream. This section will present the projected MSW diversion rates as well as the projected C&D debris diversion rates for the duration of the planning period. Recycling rate projections were increased over the course of the planning period. These future waste generation projections are depicted in the tables provided in Appendix A.

As previously indicated, the data reported in this Plan was based on the best available data at the time this report was prepared. Future tasks to be considered in the Implementation Schedule include improving data gathering methods and reporting to improve upon the County's known data. With the help of improved data, the County will have a clearer picture of the programs that should be evaluated and implemented.

7.1. Anticipated Changes to the Local Planning Unit

Greene County has experienced a relatively consistent population increase over the past five decades. U.S. Census data reveals that Greene County's population steadily increased from 33,475 in 1970 to 49,221 in 2010. In 2019, the population was estimated to be 47,188 persons. The largest estimated municipal population change between 2000 and 2010 occurred in the Town of Halcott, which experienced an estimated population growth of 33.7% during that period, due to its low initial population. The Town of Greenville also experienced a large population growth at an estimated 12.8% gain. By contrast, the Towns of Lexington, Jewett, and New Baltimore experienced estimated population losses of 3.0%, 1.8%, and 1.4%, respectively, between 2000 and 2010. However, overall the County has been experiencing a consistent increase in population totaling a gain of 2.1% between 2000 and 2010.

Baseline population projections reflecting these historical trends have been developed and analyzed by Cornell University's Program of Applied Demographics, an affiliate of the U.S. Census Research Data Center network. Greene County's population projections indicate a continued increase in the County's total population from its present level to 49,572 in 2020. After 2020, Greene County's population projections indicate a decrease in the County's total population to 49,192 in 2030, and 47,897 in 2040[27]. The baseline population projections noted are not forecasts of future population size; they simply project population levels that would be expected if current life expectancy, birth, and net migration rates continue unchanged in future years.

7.2. Anticipated Changes to the Waste Stream

Over the course of the previous planning period, changes to the waste stream have occurred nationally, which includes local trends in Greene County as well. Consumers have moved towards a throw-away society where one-time use products are preferred for convenience sake

[27] https://pad.human.cornell.edu/profiles/Greene.pdf

as opposed to environmental concerns. Consumer products are quickly replaced with newer models or better versions. Household items, such as thermostats, electronics, batteries, contain harmful chemicals such as mercury, Freon, and heavy metals. Both proper disposal and diversion are keys aspects of solid waste management today. Education is an integral component to changing the solid waste management practices nationally, as well as locally.

Based on the declining population projection trends referenced in Section 7.1, it is the opinion of the County that the amount of waste produced within its borders will parallel the population's projected downward trend.

It is anticipated that with the implementation of this Plan, more data will be collected on the financial and partnership opportunities in the County for additional waste diversion programs to be made available to residents. This, in addition to better data capture for private facilities, should in turn increase the County's waste diversion percentage. Chapter 5 describes the various programs that will be made available to County residents and how these tasks and goals will be implemented.

8.0 PUBLIC PARTICIPATION

A draft of this Local Solid Waste Management Plan was issued for public comment on May 7th, 2021. A public meeting and overview presentation were held on May 19th, 2021. Public comments were received through July 3, 2021; however, no comments from the public were received.

Appendix A

Detailed Waste Composition Spreadsheets

Appendix A.1

Municipal Solid Waste
Combined Composition Analysis and Projections

Step 1. Planning Unit and Plan Period Selection

Please, select from the drop-down list the name of your **planning unit** and the **planning period** of your **LSWMP**. Be aware that a LSWMP must be developed for a **10-year period**, and that your selection will be replicated on each one of the following tabs.

Planning Unit	Greene County
Planning Period	2022-2031

Step 2. Waste Generation Rate

In order to project how the amount of waste generated in the planning unit will change over time, data regarding the current amount of waste generated by the planning unit is needed. This can be the total tons of waste generated by the planning unit in the current year **(Tons/yr)**, or this can be the estimated daily quantity of waste generated per person in the planning unit **(lb/person/day).** If both the total annual generation and the estimated generation rate per person are unknown, the state average for MSW generation rate can be used along with the planning unit's population to estimate the total amount of waste generated in the planning unit.

For this step, select **one** of the options that describes the known information about the planning unit. Enter the waste generated in Tons (MSW disposed & Recycled Materials) or the waste generation rate in lb/person/day) in the purple cell. If no data on the waste generated in the planning unit is available, choose the corresponding option from the list. The calculator will estimate the total amount of waste generated based on the state's average generation rate and the planning unit's population.

Greene County

The amount of waste generated (by all residents, institutions, etc.) in the planning unit will be based on what is known. If the MSW generation amount and the generation rate are unknown, the state average for MSW generation rate will be used.

- (●) I know the amount of MSW generated (Tons/year):
- ( ) The planning unit Average MSW Generation Rate (lb/person/day) is:
- ( ) The amount of MSW Generated and the planning unit Average MSW Generation Rate are unknown.

Enter tons disposed here: 52,071.31

Enter tons diverted here: 1,641.96

Step 3. Planning Unit Population - Projections & Municipal Solid Waste (MSW) - Projections

This tab will provide you with population projections and MSW generation projections for the planning period you had previously selected. It is recognized that Municipal Solid Waste (MSW) generation is reliant on population changes, hence, it is necessary to project both and identify their correlation.

In the first purple cell enter the total tons of MSW that was disposed in the year immediately before your plan period starts. For example: If the plan period is 2016-2026, the MSW disposed data should be from 2015.

Population Projection:

Calculations are determined by a linear regression based on the latest **census population data** and an **annual growth rate percentage** specific to the planning unit. If it is anticipated that the population is going to decrease overtime, the minus sign (-) will be used.

MSW Generation Projection:

The MSW generation rate (Lb/person/day) calculated on the previous tab from the **Waste Generation Rate** will serve as a start point for the planning period. On the calculator, three options are considered to anticipate the MSW generation over time, and one must be selected according to the goals of the planning unit:

First Option:

MSW generation **rate** does not change. Consequently, MSW generation fluctuates with the population of the planning unit. If the population increases, waste generation will rise as well, and vice versa.
By selecting this option, the planning unit is in **"status quo"**, meaning that is not making any improvements, and consequently is getting far from reaching the State's goal by 2030.

Second Option:

MSW generation **amount** remains the same, regardless of whether or not the planning unit's population changes.

Third Option:

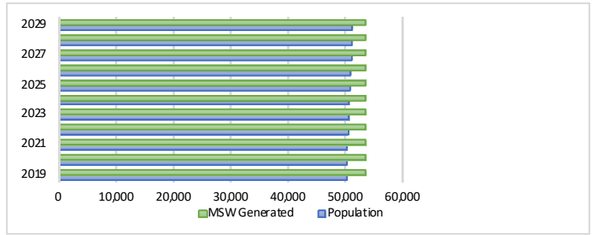
As a result of successfully implementing the Local Solid Waste Management Plan, MSW generation will be reduced by an annual factor of …
An **Annual Factor of Reduction (%)** should be calculated, defined, and selected by the planning unit. This factor will be the numerical representation of one of the planning unit's **goals** for the planning period. Once calculated, the Annual Factor of Reduction can be chosen from the drop down list provided.

Note:

• The graphic will display the Population and MSW Generation projections over the selected planning period. It has been designed to visualize the contrast of the final outcomes, based on the selections of each planning unit

Greene County — 2022-2031

Current Data	
2010 Population Census	49,221
2019 Population	50,159
2019 MSW Generated (Tons/yr)	53,713
2019 MSW generation rate (Lb/person/day)	5.69
2019 MSW Disposed (Tons/yr)	52,071
2019 MSW Diverted (Tons/yr)	1,642



Annual rate of population growth (%)	0.21%

Population Projection

2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
50,159	50,264	50,370	50,476	50,582	50,688	50,794	50,901	51,008	51,115	51,222	51,330	51,438

Forecasting future conditions… What do you expect to happen to the MSW generation rate over the next 10 year period plan?

- MSW generation rate does not change. Consequently, MSW generation fluctuates with the population of the planning unit, if the population increases, waste generation will rise as well, and vice versa.
- MSW generation amount remains the same, regardless of whether or not the planning unit's population fluctuates.
- As a result of successfully implementing the Local Solid Waste Management Plan, MSW generation will be reduced by an annual factor of …

Reduction Factor (per year)	1.0%

MSW Generation Projection

2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	
5.86	5.85	5.84	5.82	5.81	5.80	5.79	5.77	5.76	5.75	5.74	5.73	0.00	(Lb/person/day)
53,621	53,621	53,621	53,621	53,621	53,621	53,621	53,621	53,621	53,621	53,621	53,621	53,621	Tons/yr

MSW generation rate (Lb/person/day)	5.86

Step 4. Municipal Solid Waste (MSW) Detailed Composition Analysis

The next step is to *Identify the Materials Composition of the Waste Stream* based on population density, and demographic characteristics of the Planning Unit.
This tab will provide the PU with a more detailed estimate of the materials present in the waste stream, which could be crucial when prioritizing the initiatives and programs of the LSWMP.

The population density distribution has been calculated based on the 2010 Census data and will be auto populated when a planning unit is selected. The following parameters were used:

- Rural: <325 persons/mi^2
- Suburban: >325 and <5,000 persons/mi^2
- Urban: >5,000 persons/mi^2

Under **Density Population Distribution**, the user has the option to modify the percentage values for the **Sector** *(Residential and Commercial/Institutional)* based on land use and specific characteristics of each planning unit. For example: A rural population in Westchester County could be 64% Residential and 36% Commercial / Institutional, while in Wyoming County might be 50% Residential and 50% Commercial / Institutional.

The results are presented on the last right column under **MSW Materials Composition.** Be aware of color changes on the cells, whenever a category represents over 15% of the total waste generation, the cell will turn **red** to easily identify key categories of the waste stream. It will also facilitate the selection of initiatives, programs, and infrastructure for the solid waste management system.

Note: If no data exists, use the pre-populated information in the worksheet.

Greene County 2022-2031

			90.00%	10.00%	100.00%	50.00%	50.00%	100.00%	0.00%	0.00%	0.00%	
rial	Newspaper		5.20%	1.90%	4.87%	5.00%	1.90%	3.45%	6.60%	2.00%	0.00%	4.52%
	Corrugated Cardboard		6.60%	13.90%	7.33%	6.60%	13.90%	10.25%	6.90%	13.70%	0.00%	8.04%
	Other Recyclable Paper	Paperboard	3.20%	1.10%	2.99%	3.30%	1.00%	2.15%	3.60%	0.90%	0.00%	2.79%
		Office Paper	0.80%	3.80%	1.10%	0.90%	4.20%	2.55%	1.10%	5.80%	0.00%	1.45%
		Junk Mail	3.00%	0.70%	2.77%	3.20%	0.70%	1.95%	3.50%	0.70%	0.00%	2.57%
		Other Commercial Printing	1.70%	2.30%	1.76%	1.70%	2.40%	2.05%	2.30%	2.60%	0.00%	1.83%
		Magazines	1.10%	0.90%	1.08%	1.00%	0.80%	0.90%	1.10%	1.00%	0.00%	1.04%
		Books	0.50%	0.30%	0.48%	0.50%	0.30%	0.40%	0.60%	0.40%	0.00%	0.46%
		Paper Bags	0.50%	0.20%	0.47%	0.50%	0.20%	0.35%	0.60%	0.20%	0.00%	0.44%
		Phone Books	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.20%	0.00%	0.30%
		Poly-Coated	0.20%	0.30%	0.21%	0.20%	0.20%	0.20%	0.30%	0.20%	0.00%	0.21%
	Other Recyclable Paper (Total)		11.30%	9.90%	11.16%	11.60%	10.10%	10.85%	13.40%	12.00%	0.00%	
	Other Compostable Paper		6.80%	6.80%	6.80%	6.40%	6.40%	6.40%	6.80%	6.80%	0.00%	
	Ferrous/Aluminum Containers	Ferrous Containers	1.90%	1.00%	1.81%	1.20%	0.70%	0.95%	1.40%	0.70%	0.00%	1.60%
		Aluminum Containers	0.70%	0.40%	0.67%	0.60%	0.30%	0.45%	0.50%	0.40%	0.00%	0.62%
	Ferrous/Aluminum Containers (Total)		2.60%	1.40%	2.48%	1.80%	1.00%	1.40%	1.90%	1.10%	0.00%	
	Other Ferrous Metals		5.20%	5.40%	5.22%	5.00%	5.80%	5.40%	3.30%	3.70%	0.00%	
	Other Non-Ferrous Metals	Other aluminum	0.20%	0.30%	0.21%	0.20%	0.30%	0.25%	0.20%	0.30%	0.00%	
		Automotive batteries	0.80%	0.50%	0.77%	0.70%	0.40%	0.55%	0.20%	0.20%	0.00%	
		Other non-aluminum	0.50%	0.30%	0.48%	0.30%	0.40%	0.35%	0.40%	0.20%	0.00%	
	Total Metals		*9.30%*	*7.90%*	*9.16%*	*8.00%*	*7.90%*	*7.95%*	*6.00%*	*5.50%*	*0.00%*	
	PET Containers		1.10%	0.80%	1.07%	0.90%	0.80%	0.85%	1.20%	1.00%	0.00%	
	HDPE Containers		1.10%	0.60%	1.05%	0.90%	0.70%	0.80%	1.00%	0.70%	0.00%	
	Other Plastic (3-7) Containers		0.20%	0.10%	0.19%	0.20%	0.20%	0.20%	0.20%	0.20%	0.00%	
	Film Plastic		5.70%	5.90%	5.72%	5.50%	5.80%	5.65%	5.80%	5.80%	0.00%	
	Other Plastic	Durables	3.10%	3.20%	3.11%	3.00%	3.20%	3.10%	3.20%	3.30%	0.00%	
		Non-Durables	1.60%	1.80%	1.62%	1.60%	1.80%	1.70%	1.80%	1.90%	0.00%	
		Packaging	1.40%	1.10%	1.37%	1.40%	1.10%	1.25%	1.50%	1.10%	0.00%	
	Total Plastics		*14.20%*	*13.50%*	*14.13%*	*13.50%*	*13.60%*	*13.55%*	*14.70%*	*14.00%*	*0.00%*	
	Glass Bottles, Jars and Containers		4.10%	3.80%	4.07%	3.90%	3.80%	3.85%	4.30%	3.80%	0.00%	
	Other Glass (Flat glass, dishware, light bulbs, etc.)		0.50%	0.40%	0.49%	0.30%	0.40%	0.35%	0.40%	0.40%	0.00%	
	Total Glass		*4.60%*	*4.20%*	*4.56%*	*4.20%*	*4.20%*	*4.20%*	*4.70%*	*4.20%*	*0.00%*	
	Food Scraps		12.70%	13.30%	12.76%	12.90%	15.50%	14.20%	17.20%	25.20%	0.00%	
	Leaves and Grass / Pruning and Trimmings		3.10%	1.10%	2.90%	11.30%	9.10%	10.20%	4.20%	1.50%	0.00%	
	Total Organics		*15.80%*	*14.40%*	*15.66%*	*24.20%*	*24.60%*	*24.40%*	*21.40%*	*26.70%*	*0.00%*	
	Clothing Footwear, Towels, Sheets		4.60%	3.00%	4.44%	4.40%	3.20%	3.80%	4.80%	2.50%	0.00%	
	Carpet		1.40%	1.30%	1.39%	1.70%	1.40%	1.55%	1.70%	0.90%	0.00%	
	Total Textiles		*6.00%*	*4.30%*	*5.83%*	*6.10%*	*4.60%*	*5.35%*	*6.50%*	*3.40%*	*0.00%*	
	Total Wood (Pallets, crates, adulterated and non-adulterated wood)		*4.10%*	*9.00%*	*4.59%*	*2.90%*	*4.10%*	*3.50%*	*2.00%*	*3.50%*	*0.00%*	
	DIY - Construction & Renovation Materials		8.00%	7.60%	7.96%	3.80%	2.70%	3.25%	4.40%	3.80%	0.00%	
	Diapers		1.90%	1.10%	1.82%	2.10%	1.20%	1.65%	2.30%	1.10%	0.00%	
	Electronics		1.30%	1.40%	1.31%	1.60%	1.70%	1.65%	1.30%	1.30%	0.00%	
	Tires		1.80%	1.80%	1.80%	1.70%	1.40%	1.55%	0.50%	0.40%	0.00%	
	HHW		0.60%	0.00%	0.54%	0.60%	0.00%	0.30%	0.50%	0.00%	0.00%	
	Soils and Fines		0.60%	0.60%	0.60%	0.10%	0.20%	0.15%	0.10%	0.10%	0.00%	
	Other Composite Materials - Durable and/or Inert		1.90%	1.70%	1.88%	1.60%	1.50%	1.55%	1.90%	1.50%	0.00%	
	Total		*100.00%*	*100.00%*	*100.00%*	*100.00%*	*100.00%*	*100.00%*	*100.00%*	*100.00%*	*0.00%*	*100.00%*

Step 5. Municipal Solid Waste (MSW) Detailed Composition Analysis

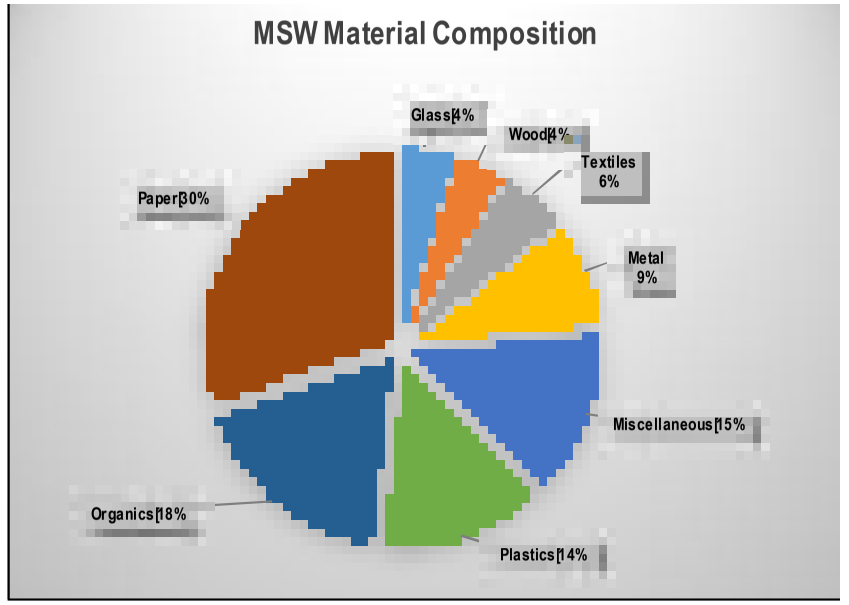
On this tab, the composition of the municipal waste stream will be estimated based on the amount of material generated in the planning unit and the state average of the different waste materials. A pie chart will be generated to clearly show the composition of the waste stream and to identify key categories of the waste stream for the planning unit.

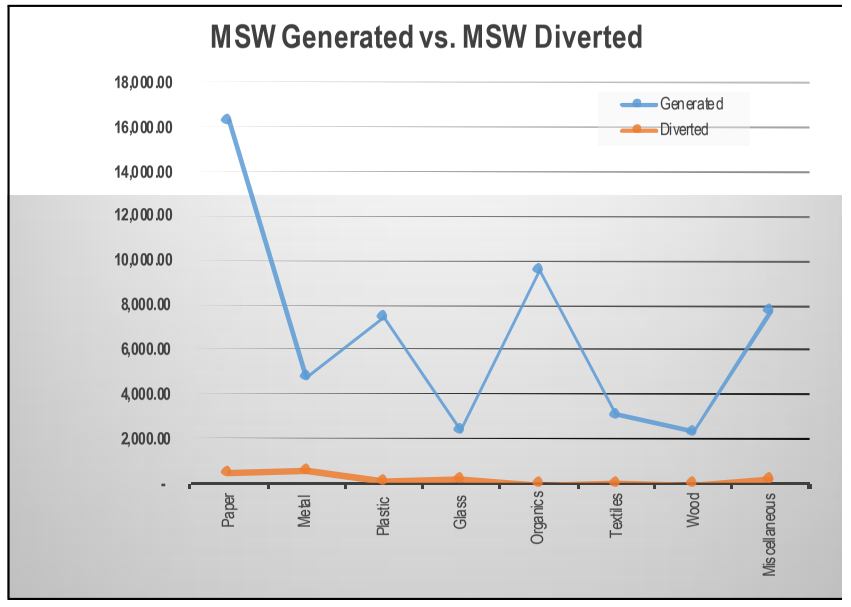
The total tons of MSW diverted per year will be auto populated based on previous data inputs, while the amount tons diverted for each material by category should be populated by the user. Purple cells should be used for amounts of diverted waste by type of material, and a totaled number by category (e.g. paper, metal) should be put in the green cells. After inputting the data, a graphic will be generated to show the MSW generation and diversion streams in Tons.

Make sure that the total amounts at the bottom of the page are consistent with the data you already put into the calculator. If the cell is highlighted in red, you should revise the amounts of diverted waste by category.

Greene County 2022-2031

		2019		
		MSW Materials Composition (%)	MSW Generated (Tons)	MSW Diverted (Tons)
	Material	100.0%	53,713	1,641.96
Paper	Newspaper	4.5%	2,430	0.00
	Corrugated Cardboard	8.0%	4,319	296.29
	Other Recyclable Paper (Total)	11.1%	5,954	226.86
	Other Compostable Paper	6.7%	3,600	0.00
	Total Paper	30.4%	16,303	523.14
Metal	Ferrous/Aluminum Containers (Total)	2.2%	1,191	49.92
	Other Ferrous Metals	5.3%	2,827	265.51
	Other Non-Ferrous Metals (Total)	1.4%	744	265.51
	Total Metals	8.9%	4,762	580.94
Plastic	PET Containers	1.0%	546	65.14
	HDPE Containers	1.0%	531	27.92
	Other Plastic (3-7) Containers	0.2%	103	0.00
	Film Plastic	5.7%	3,063	0.00
	Other Plastic (Total)	6.1%	3,270	0.00
	Total Plastics	14.0%	7,514	93.06
Glass	Glass Bottles, Jars and Containers	4.0%	2,157	219.60
	Other Glass (Flat glass, dishware, light bulbs, etc.)	0.5%	245	0.00
	Total Glass	4.5%	2,402	219.60
Organics	Food Scraps	13.1%	7,042	0.00
	Leaves and Grass / Pruning and Trimmings	4.7%	2,512	0.00
	Total Organics	17.8%	9,554	0.00
Textiles	Clothing Footwear, Towels, Sheets	4.3%	2,301	22.50
	Carpet	1.4%	768	0.00
	Total Textiles	5.7%	3,069	22.50
Wood	*Total Wood* (Pallets, crates, adulterated and non-adulterated wood)	4.3%	2,323	0.00
Miscellaneous	DIY Construction & Renovation Materials	6.8%	3,660	0.00
	Diapers	1.8%	955	0.00
	Electronics	1.4%	748	60.62
	Tires	1.7%	934	74.91
	HHW	0.5%	259	67.20
	Soils and Fines	0.5%	263	0.00
	Other Composite Materials - Durable and/or inert	1.8%	967	0.00
	Total Miscellaneous	14.5%	7,787	202.73
	Total	100.0%	53,713	1,641.96





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Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Projected MSW Generation (Tons/yr)	53,621	53,621	53,621	53,621	53,621	53,621	53,621	53,621	53,621	53,621	53,621	53,621
MSW Diverted (Tons/yr)	2,143	2,615	2,734	4,417	5,271	6,533	7,072	7,544	8,016	8,488	8,823	9,283

			2019			2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
	Material	MSW Materials Composition	MSW Generated (Tons)	MSW Diverted (Tons)	% MSW Diverted	% MSW Diverted	% MSW Diverted	% MSW Diverted	% MSW Diverted	% MSW Diverted	% MSW Diverted	% MSW Diverted	% MSW Diverted	% MSW Diverted	% MSW Diverted	% MSW Diverted	% MSW Diverted
		100.0%	53,713	1,642	3.1%	4.0%	4.9%	5.1%	8.2%	9.8%	12.2%	13.2%	14.1%	14.9%	15.8%	16.5%	17.3%
Paper	Newspaper	4.5%	2,430	0	0.0%	1.0%	2.0%	3.0%	4.0%	5.0%	11.0%	13.0%	14.0%	15.0%	16.0%	17.0%	18.0%
	Corrugated Cardboard	8.0%	4,319	296	6.9%	7.9%	8.9%	9.9%	10.9%	11.9%	21.9%	23.9%	24.9%	25.9%	26.9%	27.9%	28.9%
	Other Recyclable Paper (Total)	11.1%	5,954	227	3.8%	4.8%	5.8%	6.8%	7.8%	8.8%	13.8%	14.8%	15.8%	16.8%	17.8%	18.8%	19.8%
	Other Compostable Paper	6.7%	3,600	0	0.0%	1.0%	2.0%	3.0%	4.0%	5.0%	6.0%	7.0%	8.0%	9.0%	10.0%	11.0%	12.0%
	Total Paper	30.4%	16,303	523	3.2%	4.2%	5.2%	5.2%	7.2%	8.2%	13.8%	15.2%	16.2%	17.2%	18.2%	19.2%	20.2%
Metal	Ferrous/Aluminum Containers (Total)	2.2%	1,191	50	4.2%	5.2%	6.2%	7.2%	8.2%	9.2%	10.2%	11.2%	12.2%	13.2%	14.2%	15.2%	16.2%
	Other Ferrous Metals	5.3%	2,827	266	9.4%	10.4%	11.4%	12.4%	13.4%	14.4%	15.4%	16.4%	17.4%	18.4%	19.4%	20.4%	21.4%
	Other Non-Ferrous Metals (Total)	1.4%	744	266	35.7%	36.7%	37.7%	38.7%	39.7%	40.7%	41.7%	42.7%	43.7%	44.7%	45.7%	46.7%	47.7%
	Total Metals	8.9%	4,762	581	12.2%	13.2%	14.2%	14.2%	16.2%	17.2%	18.2%	19.2%	20.2%	21.2%	22.2%	23.2%	24.2%
Plastic	PET Containers	1.0%	546	65	11.9%	12.9%	13.9%	14.9%	15.9%	16.9%	21.9%	22.9%	23.9%	24.9%	25.9%	26.9%	27.9%
	HDPE Containers	1.0%	531	28	5.3%	6.3%	7.3%	8.3%	9.3%	10.3%	15.3%	16.3%	17.3%	18.3%	19.3%	20.3%	21.3%
	Other Plastic (3-7) Containers	0.2%	103	0	0.0%	0.5%	1.0%	1.5%	2.0%	2.5%	3.0%	3.5%	4.0%	4.5%	5.0%	5.5%	6.0%
	Film Plastic	5.7%	3,063	0	0.0%	0.5%	1.0%	1.5%	2.0%	2.5%	3.0%	3.5%	4.0%	4.5%	5.0%	5.5%	6.0%
	Other Plastic (Total)	6.1%	3,270	0	0.0%	0.5%	1.0%	1.5%	2.0%	2.5%	3.0%	3.5%	4.0%	4.5%	5.0%	5.5%	6.0%
	Total Plastics	14.0%	7,514	93	1.2%	1.8%	2.0%	2.0%	2.2%	2.4%	3.1%	3.2%	3.4%	3.5%	3.7%	3.8%	4.0%
Glass	Glass Bottles, Jars and Containers	4.0%	2,157	220	10.2%	11.2%	12.2%	13.2%	14.2%	15.2%	16.2%	17.2%	18.2%	19.2%	20.2%	21.2%	22.2%
	Other Glass (Flat glass, dishware, light bulbs, etc.)	0.5%	245	0	0.0%	1.0%	2.0%	3.0%	4.0%	5.0%	6.0%	7.0%	8.0%	9.0%	10.0%	11.0%	12.0%
	Total Glass	4.5%	2,402	220	9.1%	10.1%	11.1%	11.1%	13.1%	14.1%	15.1%	16.1%	17.1%	18.1%	19.1%	20.1%	21.1%
Organic	Food Scraps	13.1%	7,042	0	0.0%	1.0%	2.0%	3.0%	13.0%	18.0%	19.0%	20.0%	21.0%	22.0%	23.0%	24.0%	25.0%
	Leaves and Grass / Pruning and Trimmings	4.7%	2,512	0	0.0%	1.0%	2.0%	3.0%	13.0%	18.0%	19.0%	20.0%	21.0%	22.0%	23.0%	24.0%	25.0%
	Total Organics	17.8%	9,554	0	0.0%	1.0%	2.0%	3.0%	13.0%	18.0%	19.0%	20.0%	21.0%	22.0%	23.0%	24.0%	25.0%
Textiles	Clothing Footwear, Towels, Sheets	4.3%	2,301	23	1.0%	2.0%	3.0%	4.0%	5.0%	6.0%	7.0%	8.0%	9.0%	10.0%	11.0%	12.0%	13.0%
	Carpet	1.4%	768	0	0.0%	1.0%	2.0%	3.0%	4.0%	5.0%	6.0%	7.0%	8.0%	9.0%	10.0%	11.0%	12.0%
	Total Textiles	5.7%	3,069	23	0.7%	1.7%	2.7%	2.7%	4.7%	5.7%	6.7%	7.7%	8.7%	9.7%	10.7%	11.7%	12.7%
Wood	*Total Wood* (Pallets, crates, adulterated and non-adulterated wood	4.3%	2,323	0	0.0%	1.0%	2.0%	3.0%	4.0%	5.0%	6.0%	7.0%	8.0%	9.0%	10.0%	11.0%	12.0%
Miscellaneous	DIY Construction & Renovation Materials	6.8%	3,660	0	0.0%	1.0%	2.0%	3.0%	4.0%	5.0%	6.0%	7.0%	8.0%	9.0%	10.0%	11.0%	12.0%
	Diapers	1.8%	955	0	0.0%	1.0%	2.0%	3.0%	4.0%	5.0%	6.0%	7.0%	8.0%	9.0%	10.0%	11.0%	12.0%
	Electronics	1.4%	748	61	8.1%	9.1%	10.1%	11.1%	12.1%	13.1%	14.1%	15.1%	16.1%	17.1%	18.1%	19.1%	20.1%
	Tires	1.7%	934	75	8.0%	9.0%	10.0%	11.0%	12.0%	13.0%	14.0%	15.0%	16.0%	17.0%	18.0%	19.0%	20.0%
	HHW	0.5%	259	67	26.0%	27.0%	28.0%	29.0%	30.0%	31.0%	32.0%	33.0%	34.0%	35.0%	36.0%	37.0%	38.0%
	Soils and Fines	0.5%	263	0	0.0%	1.0%	2.0%	3.0%	4.0%	5.0%	6.0%	7.0%	8.0%	9.0%	10.0%	11.0%	12.0%
	Other Composite Materials - Durable and/or inert	1.8%	967	0	0.0%	1.0%	2.0%	3.0%	4.0%	5.0%	6.0%	7.0%	8.0%	9.0%	10.0%	11.0%	12.0%
	Total Miscellaneous	14.5%	7,787	203	2.6%	3.6%	4.6%	4.6%	6.6%	7.6%	8.6%	9.6%	10.6%	11.6%	12.6%	13.6%	14.6%

Step 7. Municipal Solid Waste (MSW) Generation and Diversion - Detailed Projections

The final result of the Population and Municipal Composition Calculator is presented on the last tab. This tab contains data for the current year regarding waste generated and waste diverted from disposal. This tab also shows the projected waste diversion percentages, and the amount of waste in tons these percentages will divert for recycling. Total amounts of waste diverted will be calculated for each material and each year of the planning period.

Greene County 2022-2031

				2019			2020			2021			2022			2023			2024			2025			2026			2027			2028			2029			2030			2031		
			MSW Materials Composition (%)	MSW Generated (Tons)	MSW Diverted (Tons)	% MSW Diverted	MSW generated (Tons)	MSW Diverted	% MSW Diverted	MSW generated (Tons)	MSW Diverted	% MSW Diverted	MSW generated (Tons)	MSW Diverted	% MSW Diverted	MSW generated (Tons)	MSW Diverted	% MSW Diverted	MSW generated (Tons)	MSW Diverted	% MSW Diverted	MSW generated (Tons)	MSW Diverted	% MSW Diverted	MSW generated (Tons)	MSW Diverted	% MSW Diverted	MSW generated (Tons)	MSW Diverted	% MSW Diverted	MSW generated (Tons)	MSW Diverted	% MSW Diverted	MSW generated (Tons)	MSW Diverted	% MSW Diverted	MSW generated (Tons)	MSW Diverted	% MSW Diverted	MSW generated (Tons)	MSW Diverted	% MSW Diverted
	Material		**100.00%**	**53,713**	**1,642**	**3.1%**	**53,621**	**2,143**	**4.0%**	**53,621**	**2,647**	**5%**	**53,621**	**3,151**	**5.9%**	**53,621**	**4,514**	**8.4%**	**53,621**	**5,764**	**10.8%**	**53,621**	**6,694**	**12.5%**	**53,621**	**7,265**	**13.5%**	**53,621**	**7,769**	**14.5%**	**53,621**	**8,273**	**15.4%**	**53,621**	**8,777**	**16.4%**	**53,621**	**9,281**	**17.3%**	**53,621**	**25,212**	**47.0%**
Paper	Newspaper		**4.52%**	2,430	0	0.0%	2,426	24	1.0%	2,426	49	2%	2,426	73	3.0%	2,426	97	4.0%	2,426	121	5.0%	2,426	267	11.0%	2,426	315	13.0%	2,426	340	14.0%	2,426	364	15.0%	2,426	388	16.0%	2,426	412	17.0%	536	97	18.0%
	Corrugated Cardboard		**8.04%**	4,319	296	6.9%	4,311	339	7.9%	4,311	382	9%	4,311	425	9.9%	4,311	468	10.9%	4,311	511	11.9%	4,311	942	21.9%	4,311	1,029	23.9%	4,311	1,072	24.9%	4,311	1,115	25.9%	4,311	1,158	26.9%	4,311	1,201	27.9%	4,215	1,216	28.9%
	Other Recyclable Paper	Paperboard	**2.79%**	1,496	0	0.0%	1,494	15	1.0%	1,494	30	2%	1,494	45	3.0%	1,494	60	4.0%	1,494	75	5.0%	1,494	90	6.0%	1,494	105	7.0%	1,494	119	8.0%	1,494	134	9.0%	1,494	149	10.0%	1,494	164	11.0%	536	64	12.0%
		Office Paper	**1.45%**	780	0	0.0%	779	8	1.0%	779	16	2%	779	23	3.0%	779	31	4.0%	779	39	5.0%	779	47	6.0%	779	55	7.0%	779	62	8.0%	779	70	9.0%	779	78	10.0%	779	86	11.0%	536	64	12.0%
		Junk Mail	**2.57%**	1,381	0	0.0%	1,378	14	1.0%	1,378	28	2%	1,378	41	3.0%	1,378	55	4.0%	1,378	69	5.0%	1,378	83	6.0%	1,378	96	7.0%	1,378	110	8.0%	1,378	124	9.0%	1,378	138	10.0%	1,378	152	11.0%	536	64	12.0%
		Other Commercial Printing	**1.83%**	983	0	0.0%	982	10	1.0%	982	20	2%	982	29	3.0%	982	39	4.0%	982	49	5.0%	982	59	6.0%	982	69	7.0%	982	79	8.0%	982	88	9.0%	982	98	10.0%	982	108	11.0%	536	64	12.0%
		Magazines	**1.04%**	557	0	0.0%	556	6	1.0%	556	11	2%	556	17	3.0%	556	22	4.0%	556	28	5.0%	556	33	6.0%	556	39	7.0%	556	44	8.0%	556	50	9.0%	556	56	10.0%	556	61	11.0%	536	64	12.0%
		Books	**0.46%**	247	0	0.0%	247	2	1.0%	247	5	2%	247	7	3.0%	247	10	4.0%	247	12	5.0%	247	15	6.0%	247	17	7.0%	247	20	8.0%	247	22	9.0%	247	25	10.0%	247	27	11.0%	536	64	12.0%
		Paper Bags	**0.44%**	237	0	0.0%	236	2	1.0%	236	5	2%	236	7	3.0%	236	9	4.0%	236	12	5.0%	236	14	6.0%	236	17	7.0%	236	19	8.0%	236	21	9.0%	236	24	10.0%	236	26	11.0%	536	64	12.0%
		Phone Books	**0.30%**	161	0	0.0%	161	2	1.0%	161	3	2%	161	5	3.0%	161	6	4.0%	161	8	5.0%	161	10	6.0%	161	11	7.0%	161	13	8.0%	161	14	9.0%	161	16	10.0%	161	18	11.0%	536	64	12.0%
		Poly-Coated	**0.21%**	111	0	0.0%	111	1	1.0%	111	2	2%	111	3	3.0%	111	4	4.0%	111	6	5.0%	111	7	6.0%	111	8	7.0%	111	9	8.0%	111	10	9.0%	111	11	10.0%	111	12	11.0%	536	64	12.0%
	Other Recyclable Paper (Total)		**11.08%**	5,954	227	3.8%	5,944	286	4.8%	5,944	345	6%	5,944	405	6.8%	5,944	464	7.8%	5,944	524	8.8%	5,944	821	13.8%	5,944	880	14.8%	5,944	940	15.8%	5,944	999	16.8%	5,944	1,059	17.8%	5,944	1,118	18.8%	2,579	511	19.8%
	Other Compostable Paper		**6.70%**	3,600	0	0.0%	3,594	36	1.0%	3,594	72	2%	3,594	108	3.0%	3,594	144	4.0%	3,594	180	5.0%	3,594	216	6.0%	3,594	252	7.0%	3,594	288	8.0%	3,594	323	9.0%	3,594	359	10.0%	3,594	395	11.0%	536	64	12.0%
	Total Paper		**30.35%**	16,303	523	3.2%	16,275	685	4.2%	16,275	848	5%	16,275	1,010	6.2%	16,275	1,173	7.2%	16,275	1,336	8.2%	16,275	2,246	13.8%	16,275	2,476	15.2%	16,275	2,639	16.2%	16,275	2,801	17.2%	16,275	2,964	18.2%	16,275	3,127	19.2%	7,866	1,888	24.0%
Metal	Ferrous/Aluminum Containers	Ferrous Containers	**1.60%**	860	36	4.2%	858	45	5.2%	858	53	6%	858	62	7.2%	858	70	8.2%	858	79	9.2%	858	87	10.2%	858	96	11.2%	858	105	12.2%	858	113	13.2%	858	122	14.2%	858	130	15.2%	2,784	451	16.2%
		Aluminum Containers	**0.62%**	331	14	4.2%	331	17	5.2%	331	20	6%	331	24	7.2%	331	27	8.2%	331	30	9.2%	331	34	10.2%	331	37	11.2%	331	40	12.2%	331	44	13.2%	331	47	14.2%	331	50	15.2%	2,784	451	16.2%
	Ferrous/Aluminum Containers (Total)		**2.22%**	1,191	50	4.2%	1,189	62	5.2%	1,189	74	6%	1,189	85	7.2%	1,189	97	8.2%	1,189	109	9.2%	1,189	121	10.2%	1,189	133	11.2%	1,189	145	12.2%	1,189	157	13.2%	1,189	169	14.2%	1,189	181	15.2%	2,784	451	16.2%
	Other Ferrous Metals		**5.26%**	2,827	266	9.4%	2,822	293	10.4%	2,822	322	11%	2,822	350	12.4%	2,822	378	13.4%	2,822	406	14.4%	2,822	434	15.4%	2,822	463	16.4%	2,822	491	17.4%	2,822	519	18.4%	2,822	547	19.4%	2,822	576	20.4%	5,572	1,192	21.4%
	Other Non-Ferrous Metals	Other aluminum	**0.22%**	118	0	0.0%	118	1	1.0%	118	2	2%	118	4	3.0%	118	5	4.0%	118	6	5.0%	118	7	6.0%	118	8	7.0%	118	9	8.0%	118	11	9.0%	118	12	10.0%	118	13	11.0%	536	64	12.0%
		Automotive batteries	**0.72%**	385	0	0.0%	384	4	1.0%	384	8	2%	384	12	3.0%	384	15	4.0%	384	19	5.0%	384	23	6.0%	384	27	7.0%	384	31	8.0%	384	35	9.0%	384	38	10.0%	384	42	11.0%	536	64	12.0%
		Other non-aluminum	**0.45%**	241	0	0.0%	240	2	1.0%	240	5	2%	240	7	3.0%	240	10	4.0%	240	12	5.0%	240	14	6.0%	240	17	7.0%	240	19	8.0%	240	22	9.0%	240	24	10.0%	240	26	11.0%	536	64	12.0%
	Other Non-Ferrous Metals (Total)		**1.38%**	744	266	35.7%	742	272	36.7%	742	280	38%	742	287	38.7%	742	295	39.7%	742	302	40.7%	742	310	41.7%	742	317	42.7%	742	324	43.7%	742	332	44.7%	742	339	45.7%	742	347	46.7%	19,680	9,387	47.7%
	Total Metals		**8.87%**	4,762	581	12.2%	4,754	627	13.2%	4,754	675	14%	4,754	723	15.2%	4,754	770	16.2%	4,754	818	17.2%	4,754	865	18.2%	4,754	913	19.2%	4,754	960	20.2%	4,754	1,008	21.2%	4,754	1,055	22.2%	4,754	1,103	23.2%	28,035	11,030	39.3%
Plastic	PET Containers		**1.02%**	546	65	11.9%	545	70	12.9%	545	76	14%	545	81	14.9%	545	87	15.9%	545	92	16.9%	545	120	21.9%	545	125	22.9%	545	130	23.9%	545	136	24.9%	545	141	25.9%	545	147	26.9%	6,934	1,937	27.9%
	HDPE Containers		**0.99%**	531	28	5.3%	530	33	6.3%	530	38	7%	530	44	8.3%	530	49	9.3%	530	49	9.2%	530	81	15.3%	530	86	16.3%	530	92	17.3%	530	97	18.3%	530	102	19.3%	530	107	20.3%	3,354	713	21.3%
	Other Plastic (3-7) Containers		**0.19%**	103	0	0.0%	103	1	0.5%	103	1	1%	103	2	1.5%	103	2	2.0%	103	9	9.2%	103	3	3.0%	103	4	3.5%	103	4	4.0%	103	5	4.5%	103	5	5.0%	103	6	5.5%	268	16	6.0%
	Film Plastic		**5.70%**	3,063	0	0.0%	3,058	15	0.5%	3,058	31	1%	3,058	46	1.5%	3,058	61	2.0%	3,058	440	14.4%	3,058	92	3.0%	3,058	107	3.5%	3,058	122	4.0%	3,058	138	4.5%	3,058	153	5.0%	3,058	168	5.5%	268	16	6.0%
	Other Plastic	Durables	**3.11%**	1,669	0	0.0%	1,666	17	1.0%	1,666	33	2%	1,666	50	3.0%	1,666	67	4.0%	1,666	83	5.0%	1,666	100	6.0%	1,666	117	7.0%	1,666	133	8.0%	1,666	150	9.0%	1,666	167	10.0%	1,666	183	11.0%	536	64	12.0%
		Non-Durables	**1.64%**	881	0	0.0%	879	9	1.0%	879	18	2%	879	26	3.0%	879	35	4.0%	879	44	5.0%	879	53	6.0%	879	62	7.0%	879	70	8.0%	879	79	9.0%	879	88	10.0%	879	97	11.0%	536	64	12.0%
		Packaging	**1.34%**	720	0	0.0%	719	7	1.0%	719	14	2%	719	22	3.0%	719	29	4.0%	719	36	5.0%	719	43	6.0%	719	50	7.0%	719	58	8.0%	719	65	9.0%	719	72	10.0%	719	79	11.0%	536	64	12.0%
	Other Plastic (Total)		**6.09%**	3,270	0	0.0%	3,264	16	0.5%	3,264	33	1%	3,264	49	1.5%	3,264	65	2.0%	3,264	82	2.5%	3,264	98	3.0%	3,264	114	3.5%	3,264	131	4.0%	3,264	147	4.5%	3,264	163	5.0%	3,264	180	5.5%	268	16	6.0%
	Total Plastics		**13.99%**	7,514	93	1.2%	7,501	136	1.8%	7,501	179	2%	7,501	222	3.0%	7,501	264	3.5%	7,501	672	9.0%	7,501	393	5.2%	7,501	436	5.8%	7,501	479	6.4%	7,501	522	7.0%	7,501	565	7.5%	7,501	608	8.1%	11,092	2,698	24.3%
Glass	Glass Bottles, Jars and Containers		**4.02%**	2,157	220	10.2%	2,154	241	11.2%	2,154	262	12%	2,154	284	13.2%	2,154	305	14.2%	2,154	327	15.2%	2,154	348	16.2%	2,154	370	17.2%	2,154	392	18.2%	2,154	413	19.2%	2,154	435	20.2%	2,154	456	21.2%	5,994	1,329	22.2%
	Other Glass (Flat glass, dishware, light bulbs, etc.)		**0.46%**	245	0	0.0%	244	2	1.0%	244	5	2%	244	7	3.0%	244	10	4.0%	244	12	5.0%	244	15	6.0%	244	17	7.0%	244	20	8.0%	244	22	9.0%	244	24	10.0%	244	27	11.0%	536	64	12.0%
	Total Glass		**4.47%**	2,402	220	9.1%	2,398	243	10.1%	2,398	267	11%	2,398	291	12.1%	2,398	315	13.1%	2,398	339	14.1%	2,398	363	15.1%	2,398	387	16.1%	2,398	411	17.1%	2,398	435	18.1%	2,398	459	19.1%	2,398	483	20.1%	6,530	1,394	21.3%
Organics	Food Scraps		**13.11%**	7,042	0	0.0%	7,030	70	1.0%	7,030	141	2%	7,030	211	3.0%	7,030	914	13.0%	7,030	1,265	18.0%	7,030	1,336	19.0%	7,030	1,406	20.0%	7,030	1,476	21.0%	7,030	1,547	22.0%	7,030	1,617	23.0%	7,030	1,687	24.0%	536	134	25.0%
	Leaves and Grass / Pruning and Trimmings		**4.68%**	2,512	0	0.0%	2,507	25	1.0%	2,507	50	2%	2,507	75	3.0%	2,507	326	13.0%	2,507	451	18.0%	2,507	476	19.0%	2,507	501	20.0%	2,507	527	21.0%	2,507	552	22.0%	2,507	577	23.0%	2,507	602	24.0%	536	134	25.0%
	Total Organics		**17.79%**	9,554	0	0.0%	9,537	95	1.0%	9,537	191	2%	9,537	286	3.0%	9,537	1,240	13.0%	9,537	1,717	18.0%	9,537	1,812	19.0%	9,537	1,907	20.0%	9,537	2,003	21.0%	9,537	2,098	22.0%	9,537	2,194	23.0%	9,537	2,289	24.0%	1,072	268	25.0%
Textiles	Clothing, Footwear, Towels, Sheets		**4.28%**	2,301	23	1.0%	2,297	45	2.0%	2,297	68	3%	2,297	91	4.0%	2,297	114	5.0%	2,297	137	6.0%	2,297	160	7.0%	2,297	183	8.0%	2,297	206	9.0%	2,297	229	10.0%	2,297	252	11.0%	2,297	275	12.0%	1,060	138	13.0%
	Carpet		**1.43%**	768	0	0.0%	766	8	1.0%	766	15	2%	766	23	3.0%	766	31	4.0%	766	38	5.0%	766	46	6.0%	766	54	7.0%	766	61	8.0%	766	69	9.0%	766	77	10.0%	766	84	11.0%	536	64	12.0%
	Total Textiles		**5.71%**	3,069	23	0.7%	3,063	53	1.7%	3,063	84	3%	3,063	114	3.7%	3,063	145	4.7%	3,063	176	5.7%	3,063	206	6.7%	3,063	237	7.7%	3,063	268	8.7%	3,063	298	9.7%	3,063	329	10.7%	3,063	359	11.7%	1,597	202	12.6%
Wood	***Total Wood* (Pallets, crates, adulterated and non-adulterated)**		**4.32%**	2,323	0	0.0%	2,319	23	1.0%	2,319	46	2%	2,319	70	3.0%	2,319	93	4.0%	2,319	116	5.0%	2,319	139	6.0%	2,319	162	7.0%	2,319	186	8.0%	2,319	209	9.0%	2,319	232	10.0%	2,319	255	11.0%	536	64	12.0%
Miscellaneous	DIY Construction & Renovation Materials		**6.81%**	3,660	0	0.0%	3,654	37	1.0%	3,654	73	2%	3,654	110	3.0%	3,654	146	4.0%	3,654	183	5.0%	3,654	219	6.0%	3,654	256	7.0%	3,654	292	8.0%	3,654	329	9.0%	3,654	365	10.0%	3,654	402	11.0%	536	64	12.0%
	Diapers		**1.78%**	955	0	0.0%	954	10	1.0%	954	19	2%	954	29	3.0%	954	38	4.0%	954	48	5.0%	954	57	6.0%	954	67	7.0%	954	76	8.0%	954	86	9.0%	954	95	10.0%	954	105	11.0%	536	64	12.0%
	Electronics		**1.39%**	748	61	8.1%	747	68	9.1%	747	75	10%	747	83	11.1%	747	90	12.1%	747	98	13.1%	747	105	14.1%	747	113	15.1%	747	120	16.1%	747	128	17.1%	747	135	18.1%	747	143	19.1%	4,881	981	20.1%
	Tires		**1.74%**	934	75	8.0%	933	84	9.0%	933	93	10%	933	103	11.0%	933	112	12.0%	933	121	13.0%	933	131	14.0%	933	140	15.0%	933	149	16.0%	933	159	17.0%	933	168	18.0%	933	177	19.0%	4,836	968	20.0%
	HHW		**0.48%**	259	67	26.0%	258	70	27.0%	258	72	28%	258	75	29.0%	258	77	30.0%	258	80	31.0%	258	83	32.0%	258	85	33.0%	258	88	34.0%	258	90	35.0%	258	93	36.0%	258	95	37.0%	14,465	5,494	38.0%
	Soils and Fines		**0.49%**	263	0	0.0%	263	3	1.0%	263	5	2%	263	8	3.0%	263	11	4.0%	263	13	5.0%	263	16	6.0%	263	18	7.0%	263	21	8.0%	263	24	9.0%	263	26	10.0%	263	29	11.0%	263	32	12.0%
	Other Composite Materials - Durable and/or inert		**1.80%**	967	0	0.0%	965	10	1.0%	965	19	2%	965	29	3.0%	965	39	4.0%	965	48	5.0%	965	58	6.0%	965	68	7.0%	965	77	8.0%	965	87	9.0%	965	97	10.0%	965	106	11.0%	536	64	12.0%
	Total Miscellaneous		**14.50%**	7,787	203	2.6%	7,773	280	3.6%	7,773	358	5%	7,773	436	5.6%	7,773	513	6.6%	7,773	591	7.6%	7,773	669	8.6%	7,773	746	9.6%	7,773	824	10.6%	7,773	902	11.6%	7,773	980	12.6%	7,773	1,057	13.6%	26,054	7,668	29.4%

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Population	50,159	50,264	50,370	50,476	50,582	50,688	50,794	50,901	51,008	51,115	51,222	51,330	51,438
MSW Generated (tons)	53,713.27	53,621	53,621	53,621	53,621	53,621	53,621	53,621	53,621	53,621	53,621	53,621	53,621
Per Capita MSW Generated (lbs/person/year)	2,142	2,134	2,129	2,125	2,120	2,116	2,111	2,107	2,102	2,098	2,094	2,089	2,085
MSW Diverted (tons)	1,641.96	2,143	2,647	3,151	4,514	5,764	6,694	7,265	7,769	8,273	8,777	9,281	25,212
Per Capita MSW Diverted (lbs/person/year)	65	85	105	125	178	227	264	285	305	324	343	362	980
MSW Disposed (tons)	52,071.31	51,477	50,973	50,469	49,107	47,856	46,927	46,356	45,852	45,347	44,843	44,339	28,409
Per Capita MSW Disposed (lbs/person/year)	2,076	2,048	2,024	2,000	1,942	1,888	1,848	1,821	1,798	1,774	1,751	1,728	1,105
Per Capita MSW Disposed (lbs/person/day)	5.69	5.61	5.55	5.48	5.32	5.17	5.06	4.99	4.93	4.86	4.80	4.73	3.03

Appendix A.2

Construction and Demolition Debris
Combined Composition Analysis and Projections

Step 1. Planning Unit and Planning Period Selection

Please, select from the drop-down-list the name of your **planning unit** and the **planning period** of your **LSWMP**. Be aware that a LSWMP must be developed for a **10-year period**, and that your selection will be replicated on each one of the following tabs.

Planning Unit	Greene County
Planning Period	2022-2031

Step 2. Construction & Demolition (C&D) Debris Material Composition Analysis

In order to Identify the Materials Composition of the C&D Debris waste stream, it is necessary to define the sources of the waste first.

Construction and demolition (C&D) Debris consists of waste that is generated during renovation, demolition or new construction of residential and non residential properties. It also includes the new construction and/or renovation of municipal infrastructure, such as roadways, park facilities, bike trails, bridges, etc. The user should estimate these values and enter them in the purple cells.

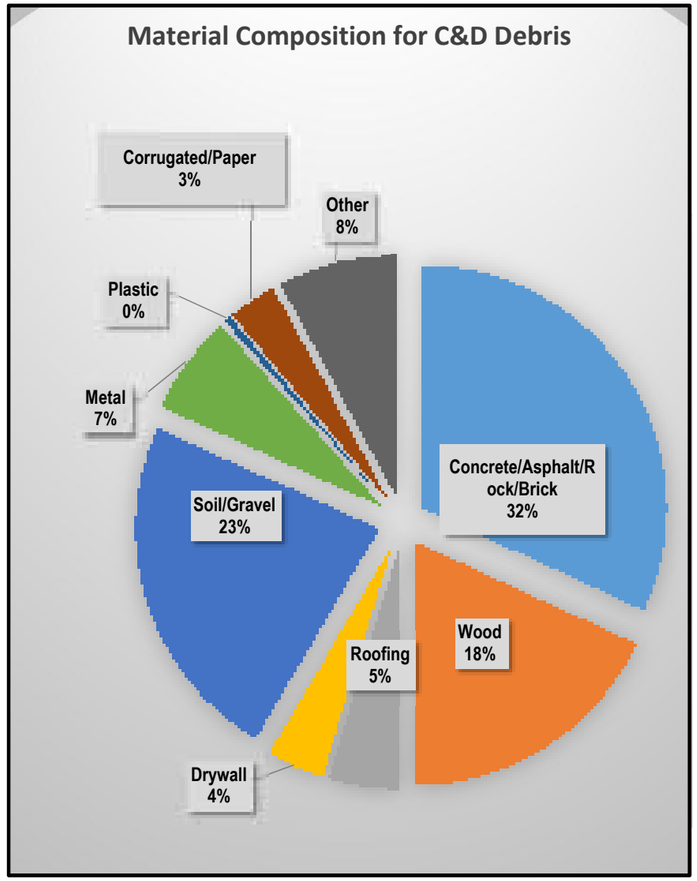
The results are presented on the last right column under C&D Debris Waste Stream Composition. Be aware of color changes on the cells, whenever a category represents over 15% of the total generation, the cell will turn **red** to easy identify key categories on the waste stream. It will also aid with the selection of isolated initiatives, programs, and infrastructure for the solid waste management system.

Note:

• The graphic displays the planning unit's C&D Debris generation data by material categories. It has been designed to help visualize the more representative categories of the waste stream.

		9.80%	16.10%	21.50%	18.08%	30.70%	19.10%	23.10%	26.86%	46.00%
		29.90%	19.10%	25.70%	25.22%	22.70%	12.40%	24.20%	20.94%	10.50%
		6.00%	22.00%	6.10%	9.26%	2.10%	21.20%	5.10%	6.52%	0.00%
		15.60%	7.90%	5.10%	7.76%	4.60%	6.40%	4.30%	4.90%	0.00%
		11.30%	7.10%	18.50%	14.78%	13.10%	6.50%	15.60%	12.28%	38.00%
		5.30%	11.30%	5.20%	6.44%	12.00%	15.50%	11.10%	12.52%	2.40%
		1.50%	0.70%	0.30%	0.62%	0.50%	0.70%	0.30%	0.50%	0.30%
		9.30%	2.90%	3.10%	4.30%	7.10%	4.60%	4.20%	6.02%	0.30%
		11.30%	12.90%	14.50%	13.54%	7.20%	13.60%	12.10%	9.46%	2.50%
	Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

4.73%
3.80%
6.65%
0.46%
3.22%
7.90%
100.00%



Step 3. Construction & Demolition (C&D) Debris Generation Projections

This step will estimate the amount of waste generated for each material based on the total amount of waste generated in that year. In the purple cells enter the amount of waste generated in the Planning Unit.
It will be a known amount for the first year, **2019** and an estimate of what will be generated for each year of the planning period, **2022-2031**

Greene County

2022-2031

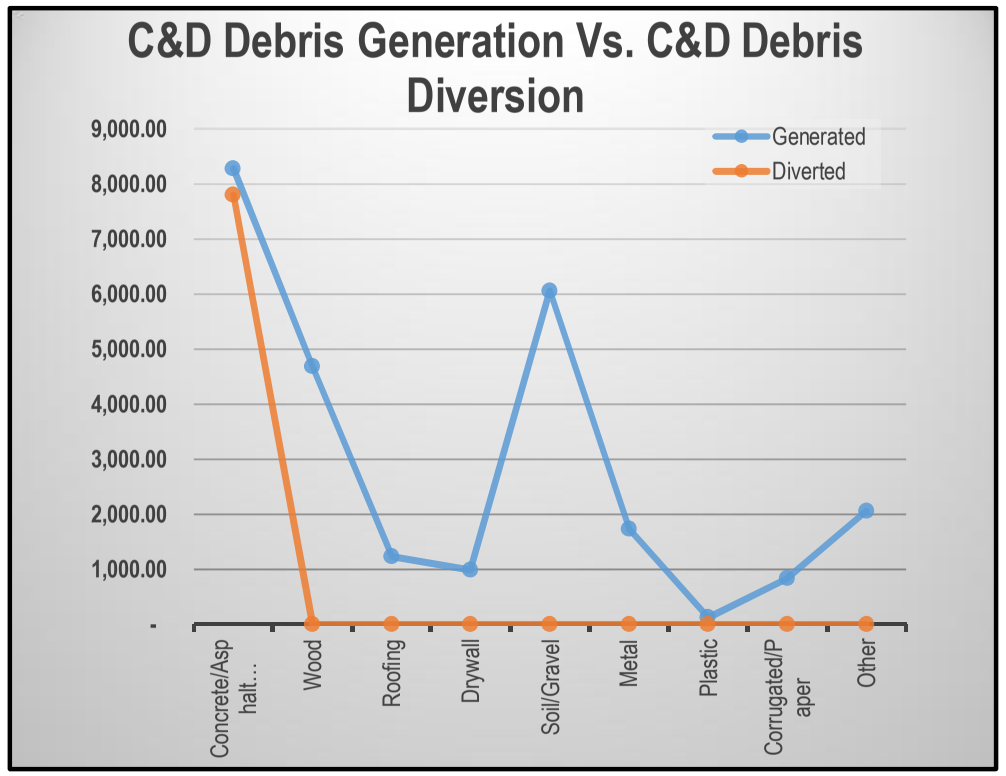
			2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
		C&D Debris Materials Composition (%)	C&D Debris Generated (Tons)	C&D Debris Generated (Tons)	C&D Debris Generated (Tons)	C&D Debris Generated (Tons)	C&D Debris Generated (Tons)	C&D Debris Generated (Tons)	C&D Debris Generated (Tons)	C&D Debris Generated (Tons)	C&D Debris Generated (Tons)	C&D Debris Generated (Tons)	C&D Debris Generated (Tons)	C&D Debris Generated (Tons)	C&D Debris Generated (Tons)
Materials	Concrete/Asphalt /Rock/Brick	31.9%	8,275.3	8,192.5	8,110.6	8,029.5	7,949.2	7,869.7	7,791.0	7,713.1	7,636.0	7,559.6	7,484.0	7,409.2	7,335.1
	Wood	18.0%	4,684.5	4,637.7	4,591.3	4,545.4	4,500.0	4,455.0	4,410.4	4,366.3	4,322.6	4,279.4	4,236.6	4,194.3	4,152.3
	Roofing	4.7%	1,228.8	1,216.5	1,204.3	1,192.3	1,180.3	1,168.5	1,156.9	1,145.3	1,133.8	1,122.5	1,111.3	1,100.2	1,089.2
	Drywall	3.8%	985.8	976.0	966.2	956.5	947.0	937.5	928.1	918.8	909.7	900.6	891.5	882.6	873.8
	Soil/Gravel	23.3%	6,052.4	5,991.9	5,932.0	5,872.7	5,813.9	5,755.8	5,698.2	5,641.3	5,584.8	5,529.0	5,473.7	5,419.0	5,364.8
	Metal	6.6%	1,725.6	1,708.3	1,691.2	1,674.3	1,657.6	1,641.0	1,624.6	1,608.3	1,592.2	1,576.3	1,560.6	1,545.0	1,529.5
	Plastic	0.5%	118.4	117.2	116.0	114.8	113.7	112.6	111.4	110.3	109.2	108.1	107.0	106.0	104.9
	Corrugated cardboard/Paper	3.2%	834.7	826.4	818.1	810.0	801.9	793.8	785.9	778.0	770.3	762.6	754.9	747.4	739.9
	Other	7.9%	2,050.5	2,030.0	2,009.7	1,989.6	1,969.7	1,950.0	1,930.5	1,911.2	1,892.1	1,873.2	1,854.5	1,835.9	1,817.6
	Total	100.0%	25,956.0	25,696.5	25,439.5	25,185.1	24,933.3	24,683.9	24,437.1	24,192.7	23,950.8	23,711.3	23,474.2	23,239.4	23,007.0

Step 4. Construction & Demolition (C&D) Debris Divertion Projections

Based on the total amount of C&D debris generated in the Planning Unit, which was entered in Step 3, this step will be used to calculate the % of this material that is diverted from the C&D debris waste stream. For this step, enter the amount of waste diverted for each material in the purple cells.

Greene County	2022-2031

		2019			
		C&D Debris Materials Composition (%)	C&D Debris Generated (Tons)	C&D Debris Diverted (Tons)	% C&D Diverted
Materials	Concrete/Asphalt /Rock/Brick	31.9%	8,275.3	7,800.0	94.3%
	Wood	18.0%	4,684.5	0.0	0.0%
	Roofing	4.7%	1,228.8	0.0	0.0%
	Drywall	3.8%	985.8	0.0	0.0%
	Soil/Gravel	23.3%	6,052.4	0.0	0.0%
	Metal	6.6%	1,725.6	0.0	0.0%
	Plastic	0.5%	118.4	0.0	0.0%
	Corrugated cardboard/Paper	3.2%	834.7	0.0	0.0%
	Other	7.9%	2,050.5	0.0	0.0%
Total		100.0%	25,956.0	7,800.0	30.1%



Step 5. Construction and Demolition (C&D) Debris Generation and Diversion Projections

This tab will be used to create goals for the amount of C&D debris the planning unit will divert for each year of the planning period. These goals will be entered as percentages, based on how much of the material generated that will be diverted for recycling or beneficial use. The diversion goal percentages will be entered in the purple cells for each material and each year of the planning period.

2022-2031

			2019			2020			2021			2022			2023			2024		
	C&D Debris Materials	C&D Debris Materials Composition (%)	C&D Debris Generated (Tons)	C&D Debris Diverted	% C&D Diverted	C&D Debris Generated (Tons)	C&D Debris Diverted	% C&D Diverted	C&D Debris Generated (Tons)	C&D Debris Diverted	% C&D Diverted	C&D Debris Generated (Tons)	C&D Debris Diverted	% C&D Diverted	C&D Debris Generated (Tons)	C&D Debris Diverted	% C&D Diverted	C&D Debris Generated (Tons)	C&D Debris Diverted	% C&D Diverted
Materials	Concrete/Asphalt /Rock/Brick	31.9%	8,275.3	7,800.0	94.3%	8,192.5	7,803.9	95.3%	8,110.6	7,807.0	96.3%	8,029.5	7,809.2	97.3%	7,949.2	7,810.6	98.3%	7869.7	7811.2	99.3%
	Wood	18.0%	4,684.5	0.0	0.0%	4,637.7	46.4	1.0%	4,591.3	91.8	2.0%	4,545.4	136.4	3.0%	4,500.0	180.0	4.0%	4455.0	222.7	5.0%
	Roofing	4.7%	1,228.8	0.0	0.0%	1,216.5	12.2	1.0%	1,204.3	24.1	2.0%	1,192.3	35.8	3.0%	1,180.3	47.2	4.0%	1168.5	58.4	5.0%
	Drywall	3.8%	985.8	0.0	0.0%	976.0	9.8	1.0%	966.2	19.3	2.0%	956.5	28.7	3.0%	947.0	37.9	4.0%	937.5	46.9	5.0%
	Soil/Gravel	23.3%	6,052.4	0.0	0.0%	5,991.9	59.9	1.0%	5,932.0	118.6	2.0%	5,872.7	176.2	3.0%	5,813.9	232.6	4.0%	5755.8	287.8	5.0%
	Metal	6.6%	1,725.6	0.0	0.0%	1,708.3	17.1	1.0%	1,691.2	33.8	2.0%	1,674.3	50.2	3.0%	1,657.6	66.3	4.0%	1641.0	82.0	5.0%
	Plastic	0.5%	118.4	0.0	0.0%	117.2	1.2	1.0%	116.0	2.3	2.0%	114.8	3.4	3.0%	113.7	4.5	4.0%	112.6	5.6	5.0%
	Corrugated /Paper	3.2%	834.7	0.0	0.0%	826.4	8.3	1.0%	818.1	16.4	2.0%	810.0	24.3	3.0%	801.9	32.1	4.0%	793.8	39.7	5.0%
	Other	7.9%	2,050.5	0.0	0.0%	2,030.0	20.3	1.0%	2,009.7	40.2	2.0%	1,989.6	59.7	3.0%	1,969.7	78.8	4.0%	1950.0	97.5	5.0%
	Total	100.0%	**25,956.0**	7,800.0	30.1%	**25,696.5**	7,979.0	31.1%	**25,439.5**	8,153.6	32.1%	**25,185.1**	8,323.9	33.1%	**24,933.3**	8,490.0	34.1%	**24,683.9**	8651.9	35.1%

Step 5. Construction and Demolition (C&D) Debris Generation and Diversion Projections

This tab will be used to create goals for the amount of C&D debris the planning unit will divert for each year of the planning period. These goals will be entered as percentages, based on how much of the material generated that will be diverted for recycling or beneficial use. The diversion goal percentages will be entered in the purple cells for each material and each year of the planning period.

2022-2031

			2025			2026			2027			2028			2029			2030			2031		
		C&D Debris Materials Composition (%)	C&D Debris Generated (Tons)	C&D Debris Diverted	% C&D Diverted	C&D Debris Generated (Tons)	C&D Debris Diverted	% C&D Diverted	C&D Debris Generated (Tons)	C&D Debris Diverted	% C&D Diverted	C&D Debris Generated (Tons)	C&D Debris Diverted	% C&D Diverted	C&D Debris Generated (Tons)	C&D Debris Diverted	% C&D Diverted	C&D Debris Generated (Tons)	C&D Debris Diverted	% C&D Diverted	C&D Debris Generated (Tons)	C&D Debris Diverted	% C&D Diverted
Materials	Concrete/Asphalt /Rock/Brick	31.9%	7,791.0	7,791.0	100.0%	7,713.1	7,713.1	100.0%	7,636.0	7,636.0	100.0%	7,559.6	7,559.6	100.0%	7,484.0	7,484.0	100.0%	7,484.0	7,484.0	100.0%	7,484.0	7,484.0	100.0%
	Wood	18.0%	4,410.4	264.6	6.0%	4,366.3	305.6	7.0%	4,322.6	345.8	8.0%	4,279.4	470.7	11.0%	4,236.6	466.0	11.0%	4,236.6	593.1	14.0%	4,236.6	593.1	14.0%
	Roofing	4.7%	1,156.9	69.4	6.0%	1,145.3	80.2	7.0%	1,133.8	90.7	8.0%	1,122.5	123.5	11.0%	1,111.3	122.2	11.0%	1,111.3	155.6	14.0%	1,111.3	155.6	14.0%
	Drywall	3.8%	928.1	55.7	6.0%	918.8	64.3	7.0%	909.7	72.8	8.0%	900.6	99.1	11.0%	891.5	98.1	11.0%	891.5	124.8	14.0%	891.5	124.8	14.0%
	Soil/Gravel	23.3%	5,698.2	341.9	6.0%	5,641.3	394.9	7.0%	5,584.8	446.8	8.0%	5,529.0	608.2	11.0%	5,473.7	602.1	11.0%	5,473.7	766.3	14.0%	5,473.7	766.3	14.0%
	Metal	6.6%	1,624.6	97.5	6.0%	1,608.3	112.6	7.0%	1,592.2	127.4	8.0%	1,576.3	173.4	11.0%	1,560.6	171.7	11.0%	1,560.6	218.5	14.0%	1,560.6	218.5	14.0%
	Plastic	0.5%	111.4	6.7	6.0%	110.3	7.7	7.0%	109.2	8.7	8.0%	108.1	11.9	11.0%	107.0	11.8	11.0%	107.0	15.0	14.0%	107.0	15.0	14.0%
	Corrugated /Paper	3.2%	785.9	47.2	6.0%	778.0	54.5	7.0%	770.3	61.6	8.0%	762.6	83.9	11.0%	754.9	83.0	11.0%	754.9	105.7	14.0%	754.9	105.7	14.0%
	Other	7.9%	1,930.5	115.8	6.0%	1,911.2	133.8	7.0%	1,892.1	151.4	8.0%	1,873.2	206.1	11.0%	1,854.5	204.0	11.0%	1,854.5	259.6	14.0%	1,854.5	259.6	14.0%
	Total	100.0%	24,437.1	8,789.8	36.0%	24,192.7	8,866.7	36.7%	23,950.8	8,941.2	37.3%	23,711.3	9,336.3	39.4%	23,474.2	9,242.9	39.4%	23,239.4	9,722.7	41.8%	23,007.0	9,722.7	42.3%

Appendix B

Copy of the Local Solid Waste and Recycling Law

Adopted April 17, 1991

COUNTY OF GREENE, NEW YORK

LOCAL LAW NO. 2 OF 1991

A LOCAL LAW mandating the separation of recyclable materials from other solid waste.

Be in enacted by the County Legislature of the County of Greene as follows:

SECTION I. SHORT TITLE

This Local Law shall be known as the Recycling Law.

SECTION II. AUTHORITY

This law is enacted pursuant to the authority granted to the Greene County Legislature by virtue of Section 120-aa of the General Municipal Law, Section 27-0711 of the Environmental Conservation Law and Section 226-b of the County Law.

SECTION III. INTENT

It is the intent of the legislature to mandate source separation recycling of solid waste by all generators and to provide for the collection of such source separation recyclables by solid waste haulers and in doing so to promote the safety, health and well-being of persons and property within the County of Greene, and to implement the express policy of the State of New York in encouraging solid waste volume reduction through recycling as articulated in General Municipal Law 120-aa and other applicable statute.

SECTION IV. DEFINITIONS

Acceptable Solid Waste means all solid waste which is not hazardous waste, designated recyclable material or unprocessible waste.

Superintendent means the Superintendent of Solid Waste of Greene County or his duly authorized representative.

County means the County of Greene.

Solid Waste Facility means any solid waste management or resource recovery facility employed beyond the initial solid waste collection process which is to be used, occupied or employed for or is incidental to the

transporting, receiving, storage, processing, or disposal of solid waste or the recovery by means of any material or energy product or resource therefrom including recycling centers, transfer stations, processing systems, resource recovery facilities, sanitary landfills, plants and facilities for composting or landspreading of solid wastes, secure land burial facilities, reprocessing and recycling facilities, surface impoundments and waste oil storage, incinerators, and other solid waste disposal, reduction or conversion facilities.

Hauler means a person engaged in the business of collecting or transporting solid waste.

Hazardous Waste means waste which appears on the list of hazardous waste promulgated by the Commissioner of the Department of Environmental Conservation pursuant to Section 27-0903 of the Environmental Conservation Law or special nuclear or by-product material within the meaning of the Atomic Energy Act of 1954 as amended.

Legislature means the Greene County Legislature.

Person means any natural person, partnership, association, joint venture corporation, estate, trust, county, town, village, improvement district, governmental entity or other legal entity.

Recyclables means any material designated, from time to time, by the County which is not hazardous waste and which is separated from the waste stream and held for its material recycling or reuse value.

Recycling or Recycled means any method, technique or process utilized to separate, process, modify, convert, treat or otherwise prepare solid waste so that its component materials or substances may be beneficially used or reused as raw material.

Solid Waste means all putrescible and non-putrescible solid wastes generated or originated within the County, including, but not limited to, materials, or substances discarded or rejected, whether as being spent, useless, worthless or in excess to the owners at the time of such discard or rejection or for any other reason, or are being accumulated, stored, or physically, chemically or biologically treated prior to being discarded, have served their intended use, or are a manufacturing by-product,

including solid waste materials, resulting from industrial, commercial and agricultural operations and from community activities, sludges from air or water pollution control facilities or water supply treatment facilities, rubbish, ashes, contained gaseous material, incinerator residue, demolition and construction debris and offal, but not including sewage and other highly diluted water-carried materials or substances and those in gaseous form, or hazardous waste as defined in this Local Law.

Source Separation means the segregation of recyclables from solid waste at the point of generation for separate collection, sale or other disposition.

Specified Solid Waste Facility or Facilities means a solid waste facility or facilities for certain solid waste specified in the rules and regulations promulgated pursuant to this Local Law.

Unprocessible Waste means (a) dirt, concrete and other non-burnable construction material and demolition debris; (b) refrigerators, washing machines and similar "white goods"; (c) large items of machinery and equipment, such as motor vehicles and major components thereof (e.g., transmission, rear ends, springs and fenders), agricultural equipment, trailers and marine vessels, or any other item of waste exceeding six feet in any one of its dimensions; and (d) liquid waste, large concentrations of plastics other than PET and HPDE containers, explosives, oil, sludges, highly inflammable substances, tires, ashes, contained gaseous materials, incinerator residue, and offal.

SECTION V. POWERS OF THE GREENE COUNTY LEGISLATURE

The Greene county Legislature shall:

A. Promulgate and publish rules and regulations for a County wide program to implement source separation of recyclables and encourage solid waste volume reduction and to maximize the opportunity for the reclamation and recovery of materials. These rules and regulations shall designate recyclables to be source separated and prescribe methods of source separation, and may reflect local differences in population density, accessibility and capacity of markets and facilities, collection practices and waste composition.

B. Revise, amend, promulgate and publish rules, regulations and orders necessary to carry out the purposes of this Local Law.

C. In promulgating rules and regulations under this Local Law, the Legislature shall seek input from commercial entities affected by this Local Law with the intent of preserving the economic viability of the private sector.

SECTION VI. DUTIES OF SUPERINTENDENT OF SOLID WASTE

The Superintendent is hereby authorized and directed to:

A. Define categories of solid waste, including acceptable solid waste, recyclables and unprocessible solid waste for delivery to Greene County facilities.

B. Specify the Greene County solid waste facilities which are available and to which all acceptable solid waste and/or designated recyclables may be delivered;

C. Prohibit delivery to or disposal of categories of solid waste at one or more specified Greene County solid waste facilities.

D. Issue permits as provided in Section IX.

E. Suspend or revoke permits as provided in Section XII.

F. Deny permit applications as provided in Section XII.

G. The Superintendent shall perform the administrative functions, powers and duties specified in this Local Law under the supervision of the Legislature and on behalf of the Legislature. He shall report periodically to the Legislature. Nothing in this Local Law divests the Legislature of such functions, powers and duties.

SECTION VII. SOURCE SEPARATION OF RECYCLABLES

A. General Requirements

All persons shall separate recyclables from other solid waste when preparing the same for transportation, collection, pickup, or removal by placing recyclables in one or more separate containers. It shall be a violation of this Local Law for any person to willfully place for collection any container which contains recyclables mixed with other solid wastes.

Recyclables delivered to a Greene County solid waste facility shall be prepared in accordance with all rules and regulations promulgated by the Legislature.

B. Requirements for Households

Wherever household collection of recyclables is available from a commercial or municipal hauler, persons choosing to use such collection services shall place their recyclables for collection properly separated, prepared, and containerized, and in accordance with any rules established by said commercial or municipal hauler.

Wherever household collection of recyclables is not available, or where persons choose not to use such collection service, persons wishing to dispose of recyclables must deliver or make arrangements to have them delivered properly separated and prepared, to a designated Greene County solid waste facility.

C. Requirements for Businesses, Industries and Institutions

Businesses, industries and institutions shall deliver or make arrangements with a business or municipal hauler to deliver recyclables, property separated and prepared, to a solid waste facility.

Although all businesses, industries and institutions disposing of waste at Greene County facilities must separate recyclables from other solid waste in accordance with the general provisions of this Local Law, they need not deliver or make arrangements with a hauler to deliver said recyclables to Greene County solid waste facilities when they have access to markets for recyclables which provide a material economic benefit compared to disposal at a Greene County solid waste facility; actually deliver or cause to be delivered recyclables to such markets on a regular basis; and can document access, material economic

benefit, and actual delivery with contracts, receipts, bills of lading, affidavits, letters of intention, or other suitable records indicating the facts.

D. Requirements for Persons Responsible for Third Party Solid Waste Removal

Any person, except haulers, responsible for the collection and removal of the solid waste and recyclables of another person household or any person who places waste containers in an area out of their control and for use by the general public shall:

1. label all containers,
2. provide recycling containers,
3. provide written recycling rules,
4. provide for the collection and removal of solid waste and recyclables, and
5. comply with any other rules and regulations promulgated by the Legislature for persons responsible for third party solid waste removal.

SECTION VIII. WASTE DELIVERY AND DISPOSAL

A. No Greene County solid waste facility shall receive acceptable solid waste generated or originated within the County except as permitted under this Local Law.

B. Recyclables shall not be commingled with other solid waste during collection, transportation or storage following collection. The Superintendent may order such exceptions as he determines are in the public interest.

C. Prior to acceptance by a Greene County solid waste facility, recyclable materials shall be separated and bundled as provided in the rules and regulations promulgated by the Legislature.

D. No hazardous waste may be delivered to a Greene County solid waste facility.

E. It shall be a violation of this Local Law for any person without authority of the County to collect, pick up, remove, or cause to be collected, picked up, or removed, any recyclables placed at a Greene County solid waste facility.

SECTION IX. REQUIRED PERMITS

No persons shall dispose of solid waste or recyclables at a solid waste facility owned by or contracted by Greene county without a solid waste permit issued by the County pursuant to Section X of this Local Law, provided that only persons who collect or handle solid waste for compensation shall be required to obtain a solid waste permit.

Persons engaged solely in recycling shall be required to obtain a recycling permit.

SECTION X. ISSUANCE AND CONDITIONS OF PERMITS

A. Permit Issuance

1. All permits must be obtained from the Superintendent and renewed annually.

2. All applications for permits shall be accompanied by the required permit fee as well as a fee for each vehicle used to access Greene County solid waste facilities with solid waste or recyclables by or on behalf of the permittee. Such fees shall be established by the Legislature. The failure to pay fees and charges as established from time to time by the Legislature shall constitute a violation of this Local Law.

3. A permit sticker shall be prominently displayed on each vehicle operated by or on behalf of the permittee as provided by County rules and regulations.

B. Conditions of Solid Waste Permit

Solid waste permits and renewals shall be subject to the following conditions:

1. All permittees must comply with this Local Law and regulations and orders promulgated pursuant to this Local Law.

2. All permittees must offer collection services for designated recyclables.

3. All permittees must maintain records of acceptable solid waste collected, transported or disposed of by the permittee by delivery to any Greene County solid waste facility. The permittee must have a record which includes the following information for each:

a. The town or village where the solid waste is generated;
b. The quantity of solid waste delivered;
c. The date of collection;
d. The date of delivery to a solid waste facility;
e. The solid waste facility which received the solid waste;
f. Any other records required by the State of New York or by the Superintendent.

4. Reports containing the information required in paragraph (3) of this section shall be compiled quarterly by the 20th day following the end of the quarter. They shall be delivered to the Superintendent upon request.

5. Permittees shall not knowingly deliver solid waste to a Greene County solid waste facility which has not been separated in conformity with the regulations promulgated by the County.

SECTION XI. ENFORCEMENT

A. Inspections and Appearance Tickets

1. All portions of vehicles and containers used to haul, transport or dispose of any category of solid waste, recyclables or hazardous waste shall be subject to inspection at any Greene County solid waste facilities. Containers placed at streetside for pick-up shall also be subject to inspection. These inspections are to ascertain compliance with this Local Law and County rules, regulations or order promulgated pursuant to this Local Law, by any police officer, peace officer or any duly authorized representative of the Greene County Department of Solid Waste Management. The County shall promulgate regulations establishing reasonable times and frequency of inspections sufficient to ensure compliance with the provisions of the Local Law.

2. Police officers, peace officers and duly authorized representatives of the Greene County Department of Solid Waste Management are hereby authorized and directed to issue appearance tickets for violations of rules and regulations promulgated pursuant to Section VI, or with the provisions of this Local Law.

B. Penalties

1. Civil Sanctions

Upon request of the Superintendent, the County may commence a civil action to enjoin or otherwise remedy any failure to comply with this Local Law or with rules, regulations and orders promulgated pursuant to this Local Law.

2. Criminal Penalties

In addition to the civil sanctions provided under this Local Law, willful failure to comply with rules and regulations promulgated pursuant to Section V, or with the provisions of this Local Law shall be a violation as defined in Section 55.10 of the Penal Law. Any person convicted of a violation shall be liable for a fine of up to $50.00 for the first violation, up to $100.00 for the second violation, up to $250.00 for the third violation, and up to $1,000.00 for any succeeding violations or imprisonment for a term of up to fifteen (15) days per violation, or both a fine and imprisonment.

3. Recovered Damages

Any penalties or damages recovered or imposed under this Local Law are in addition to any other remedies available at Local Law or equity.

SECTION XII. SUSPENSION OR REVOCATION OF PERMIT

A. When the Superintendent determines that a willful or repeated failure to comply with any permit condition may have occurred, he shall give notice to the holder of the permit of said failure. Upon notice and an opportunity to be heard, in accordance with the provisions hereinafter, the superintendent may suspend or revoke the permit.

B. The Superintendent shall notify the affected holder of the permit of the alleged failure in writing. The notice shall include:

1. A statement of the time, place of nature of the hearing.

2. A statement of the permit condition allegedly violated, referring to the pertinent local law, rule or regulation.

3. A short and plain statement of the alleged misconduct.

4. A statement advising the affected holder of the permit that his permit may be suspended or revoked.

The notice shall be personally served or sent by registered mail to the holder of the permit at the address provided by said person on the application for his permit, at least 10 days before the hearing date.

C. Hearings

1. Hearings shall be held before a neutral party designated by the County Administrator.

2. The holder of the permit may be represented by counsel at the hearing, and may offer evidence and cross-examine witnesses. The Superintendent, or his designee, will be present at the hearing, and may offer evidence and cross examine witnesses.

3. Within 20 days after the closing of the hearing, the hearing officer shall make a determination. The Superintendent will suspend or revoke the subject permit, or take other action, or take no action, in accordance with the determination of the hearing officer.

D. Reapplications

When a person or business who had a permit revoked reapplies for a permit,

1. The Superintendent will take into consideration the facts and circumstances of the revocation, including the willfulness, repetition and egregiousness of the applicant's previous misconduct, in his decision to deny or approve the re-applicant.

SECTION XIII. SEVERABILITY

If any clause, sentence, paragraph, section, or part of this title shall be adjudged by any court of competent jurisdiction to be invalid, such judgment shall not affect,

impair or invalidate the remainder thereof, but shall be confined in its operation to the clause, sentence, paragraph, section or part thereof involved in

the controversy in which such judgment shall have been rendered.

SECTION XIV. EFFECTIVE DATE

The provisions of this Local Law shall be effective immediately.

Section XV. REPEALING OF LOCAL LAW NUMBER 3 OF 1990.

Local Law Number 3 of 1990, adopted October 17, 1990 is hereby repealed.

Appendix C

Existing Educational Flyer

PLASTIC & METAL RECYCLING

(Must Be Empty and Clean)

ACCEPTED Plastic

BOTTLES, JUGS, TUBS, CAPS/LIDS with:

- ✓ **Bottles** ➡ drink, soap, etc.
- ✓ **Tubs** ➡ yogurt, butter, etc.
- ✓ **Jugs** ➡ milk, juice, etc.

ACCEPTED Metal

- ✓ **Aluminum Cans** ➡ beverages, etc.
- ✓ **CLEAN Aluminum** ➡ foil/Trays
- ✓ **Tin Cans** ➡ soup, etc.
- ✓ **Metal Lids** ➡ from jars

* No recyclables in bags - **KEEP LOOSE!**

NOT ACCEPTED Plastic

- ✗ **Plastic Bags/Film**
- ✗ **Auto Parts**
- ✗ **Black Plastic**
- ✗ **Plastic Toys**
- ✗ **Electronics**
- ✗ **Styrofoam**
- ✗ **Plastic Food**
- ✗ **Plastic Hangers**
- ✗ **Plant Pots**
- ✗ **Laundry Baskets**
- ✗ **Garden Hoses**
- ✗ **Scrap Metal/Pipes**
- ✗ **Tupperware**
- ✗ **Shelf-Stable Food Cartons**
- ✗ **Furniture/Fencing/Siding**

IF YOU ARE NOT SURE ABOUT AN ITEM

PLEASE ASK!

MIXED PAPER RECYCLING

ACCEPTED Paper

(All paper should be clean and dry)

- ✓ Newspapers
- ✓ Magazines/Catalogs
- ✓ Computer/Copy/Fax paper
- ✓ Writing/Ledger Paper
- ✓ Phonebooks
- ✓ Brown Bags
- ✓ Cereal/Tissue Boxes
- ✓ **Junk Mail** (including ads. Envelopes & coupons)
- ✓ **Wrapping Paper** (NOT foil/metallic)
- ✓ **Greeting Cards**
- ✓ **Paper Egg Cartons**
- ✓ **Books** (hardcovers must be removed)
- ✓ **Shredded Paper** (in clear bags)

NOT ACCEPTED

- ✗ Wax or Plastic-coated paper
- ✗ Pizza Boxes
- ✗ Food-contaminated Paper
- ✗ Wet Paper
- ✗ Paper Streamers/Tissue Paper
- ✗ Tissues/Napkins/Paper Towels

IF YOU ARE NOT SURE ABOUT AN ITEM

PLEASE ASK!

Greene County Transfer Stations

Catskill – Route 385, Catskill
Open Mon, Tue, Thu, Fri and Sat 7:30am to 3:30pm
Closed Wednesday and Sunday

Residential Drop-Off – Route 385, Catskill
Convenient drop-off for bagged waste & recyclables.

Coxsackie – Plank Rd, Coxsackie (across from the Greene County Correctional Facility)
Open Tue, Wed, Thu, Fri and Sat 7:30am to 3:30pm
Closed Sunday and Monday

Hunter – Hylan Rd, Hunter
Open Mon, Tue, Fri and Sat 7:30am to 3:30pm
Sun 8:00am to 3:30pm
Closed Wednesday and Thursday

Windham – County Route 21, Windham (Mitchell Hollow Rd)
Open Mon, Thu, Fri and Sat 7:30am to 3:30pm
Sun 8:00am to 3:30pm
Closed Tuesday and Wednesday

Recycling Centers

Newspaper drop-off containers and/or waste oil recycling centers are available in a number of communities throughout the county including; Athens, Cairo, Catskill, Coxsackie, Durham, Earlton, Greenville, Hunter, New Baltimore, Prattsville, South Cairo & Windham. Call 518-943-4600 for more information.

Sharps Disposal Program

The safe disposal of used sharps is an important health & safety issue. Sharps disposal kiosks are located at the follow locations: EmUrgent Care – Coxsackie, Greene County Office Bld – Catskill, Windham Pharmacy – Windham & CVS – Cairo.

How and What to Recycle

20 lb. Propane Cylinders – Accepted at all transfer stations for a fee.

Newspapers & Telephone Books – Newspapers are to be tied with cotton twine only, or put into brown paper bags.

Cans – Do not need to remove labels or flatten cans.

Corrugated Cardboard – Must be flattened and bound. Maximum size 3' X 3'. No wax-treated cardboard. Commercial residents should use the Catskill or Hunter Transfer Stations.

Pressed cardboard – Such as cereal and tissue boxes are now accepted at all transfer stations.

Deposit Containers – Such as soda cans and water bottles are now accepted at all transfer stations for donation to local non-profit organizations.

Glass Bottles & Jars – Must be clean with caps and plastic or metal neck-bands removed. Labels may be left on.

Scrap Metal – Accepted if less than 3' in length.

Appliances – Such as washing machines, dishwashers, etc. are accepted at all transfer stations for a fee.

Plastic Bottles (soft) – Such as milk, juice, soda, syrup, detergent, bleach, shampoo, etc. Must be clean with caps and plastic neck-bands removed. Crush when possible. All bottles must have a triangular recycling symbol with a 1, 2, 3 or 5 stamped on the bottom.

Car Batteries & Tires – Batteries are accepted at all transfer stations. Tires are accepted for a fee.

Electronics – Such as personal computers, televisions, printers, fax machines, cell phones, radios, VCR's, etc.

Waste Oil – Used oil from cars, trucks or other engines is accepted at oil recycling centers. Collect oil in a clean container. DO NOT mix oil with any other liquid. **ATTENTION!** Do not put waste oil into the garbage, landfill or pour onto the ground. It will seep into the ground contaminating drinking water and harming the environment.

Other Paper – Such as magazines, catalogs and other glossy papers should be tied with twine. Office paper, envelopes, computer paper and junk mail should be put into brown paper bags.

Textiles – Such as clothes, must be clean, dry and in reasonably good condition are accepted at all transfer stations.

What Not to Bring

Hard Plastics – Such as styrofoam, cottage cheese or yogurt containers, **Food Scraps & Yard Waste** – Such as compost matter, leaves or branches from your yard, **Contaminated Plastics** – Such as those used to transport waste oil, **Glass Products** – Such as clay pots and light bulbs, **Other Paper** – Such as carbon paper or blueprints.

Rev. 5-1-2021

For all other recycling questions call 518-943-4600.

Appendix D

Alternative Technology Evaluation

Implementation Item: 1

Title: Promote Waste Reduction Programs

Administrative/Technical Impacts:

Quantitative/Qualitative Impacts on Waste Stream:

The Waste Reduction Program is expected to reduce select MSW waste volumes by <5%.

Types and Sizing of Facilities or Program:

This program would not affect sizing of current facilities and there would be no infrastructure required by the County. Waste reduction allows the facilities within the planning unit to stay the same size; additional space for waste processing is not anticipated to be necessary.

Summary of Cost Data for Evaluation:

Waste reductions efforts are not expected to have a measurable cost to the County or residents.

Impact on Natural Resource Conservation, Energy Production and, Employment:

MSW reduction is expected to conserve natural resources. Energy production and job creation is not anticipated.

Jurisdictional Impacts:

Interest in Participation by Neighboring Planning Units:

Delaware, Schoharie, Albany, Columbia, and Ulster Counties could potentially participate with Greene County in the Waste Reduction Program. A consistent message between planning units could be useful in education efforts in communities near the county borders.

Alternatives Available with Participation by Neighboring Planning Units:

Activities associated with this program are not dependent on the participation of neighboring planning units.

Recommendations from Neighboring Planning Units:

N/A

Assessment of Environmental Justice Impacts:

According to the NYSDEC Environmental Justice Area Mapper, there are three potential environmental justice areas located in Greene County, in the Towns of Coxsackie and Catskill, and the Village of Catskill. There is no known or expected environmental justice impact in Greene County associated with waste reduction.

Selected Alternatives Identification:

Reasons for Being Chosen:

This alternative is a low-cost method for promoting waste reduction in accordance with the hierarchy of waste management identified in the State SWMP and the Solid Waste Management Act of 1988.

Expected Quantitative and Qualitative Impacts On:

Waste Reduction:

Expected to reduce MSW volumes by <5%.

Reuse:

Expected to enhance reuse by <5%.

Materials Recovery:

Expected to enhance materials recovery by 3% to 5%.

Participation in Recovery Opportunities:

Expected to enhance participation by <5%.

Product Stewardship:

No anticipated impact on product stewardship.

Economic, Administrative, or Partnership Benefits:

Expected to reduce expenses <5%.

Identification of Administrative, Contractual, and Financial Requirements for Implementation:

The existing administrative, contractual, and financial structure is sufficient to support ongoing and proposed waste reduction activities.

Identification of New or Modified Local Laws, Ordinances, or Regulations Required for Implementation:

None at this time.

Implementation Item: 2

Title: Promote Reuse Programs

Administrative/Technical Impacts:

Quantitative/Qualitative Impacts on Waste Stream:

The Promotion of Reuse Programs is expected to reduce select MSW waste volumes by <5%.

Types and Sizing of Facilities or Program:

This program would not affect sizing of current facilities and there would be no infrastructure required by the County. Reuse programs allow the facilities within the planning unit to stay the same size; additional space for waste processing is not anticipated to be necessary.

Summary of Cost Data for Evaluation:

Anticipated costs associated with this program are for additional educational efforts.

Impact on Natural Resource Conservation, Energy Production and, Employment:

Reuse of materials is expected to conserve natural resources. Energy production and job creation is not anticipated.

Jurisdictional Impacts:

Interest in Participation by Neighboring Planning Units:

Delaware, Schoharie, Albany, Columbia, and Ulster Counties could potentially participate with Greene County in the promotion of the Reuse Program. A consistent message between planning units could be useful in education efforts in communities near the county borders.

Alternatives Available with Participation by Neighboring Planning Units:

Activities associated with this program are not dependent on the participation of neighboring planning units.

Recommendations from Neighboring Planning Units:

N/A

Assessment of Environmental Justice Impacts:

Promoting reuse programs could increase the volume of donated items, which are less expensive and possibly more accessible to environmental justice areas.

Selected Alternatives Identification:

Reasons for Being Chosen:

This alternative is a low-cost method for promoting waste reduction in accordance with the hierarchy of waste management identified in the State SWMP and the Solid Waste Management Act of 1988.

Expected Quantitative and Qualitative Impacts On:

Waste Reduction:

Expected to reduce MSW volumes by <5%.

Reuse:

Expected to enhance reuse by <5%.

Materials Recovery:

Expected to enhance materials recovery by 3% to 5%.

Participation in Recovery Opportunities:

Expected to enhance participation by <5%.

Product Stewardship:

No anticipated impact on product stewardship.

Economic, Administrative, or Partnership Benefits:

Expected to reduce expenses <5%.

Identification of Administrative, Contractual, and Financial Requirements for Implementation:

The existing administrative, contractual, and financial structure is sufficient to support ongoing and proposed reuse promotion activities.

Identification of New or Modified Local Laws, Ordinances, or Regulations Required for Implementation:

None at this time.

Implementation Item: 3

Title: Expand Accepted Materials

Administrative/Technical Impacts:

Quantitative/Qualitative Impacts on Waste Stream:

If markets are available to add materials to the County's recycling program, the quantity of materials diverted due to increased availability of local outlets is expected to increase. This program may result in the diversion of toxic/hazardous components from the waste stream.

Types and Sizing of Facilities or Program:

Additional facility space for added materials is the only sizing criteria associated with this program. Educational programs may be implemented to educate the public on the additional recyclable materials.

Summary of Cost Data for Evaluation:

Anticipated costs associated with this program would be potential additional facility space and potential additional labor for processing materials. These costs will vary based on the type and quantity of additional materials, and could be significant.

Impact on Natural Resource Conservation, Energy Production and, Employment:

An increase of materials accepted at the transfer stations is expected to enhance natural resource conservation. No energy production or job creation are anticipated as a result of this proposed program.

Jurisdictional Impacts:

Interest in Participation by Neighboring Planning Units:

Delaware, Schoharie, Albany, Columbia, and Ulster Counties could potentially participate with Greene County in the proposed program, but is unlikely due to separate recycling programs operated by each planning unit.

Alternatives Available with Participation by Neighboring Planning Units:

Activities associated with this program are not dependent on the participation of neighboring planning units.

Recommendations from Neighboring Planning Units:

N/A

Assessment of Environmental Justice Impacts:

There is no known or expected environmental justice impact in Greene County associated with the proposed expansion of accepted materials at the transfer stations.

Selected Alternatives Identification:

Reasons for Being Chosen:

This selection of this alternative is based on economics. Additional materials can be integrated into the County's existing recycling program only if markets exist for the sale of collected materials.

Expected Quantitative and Qualitative Impacts On:

Waste Reduction:

Expected to increase recycling volumes by 5%.

Reuse:

Expected to enhance reuse by <5%.

Materials Recovery:

Expected to enhance materials recovery by <5%.

Participation in Recovery Opportunities:

Expected to enhance participation by <5%.

Product Stewardship:

No anticipated impact on product stewardship; however, depending on state legislation associated with materials covered under product stewardship legislation additional materials could be added to the existing program.TBD

Economic, Administrative, or Partnership Benefits:

Expected in increase operating costs for processing materials as well as revenues from selling additional recyclables.

Identification of Administrative, Contractual, and Financial Requirements for Implementation:

The existing administrative, contractual, and financial structure is sufficient to support the proposed reuse program.

Identification of New or Modified Local Laws, Ordinances, or Regulations Required for Implementation:

None at this time.

Implementation Item: 4

Title: Increase Recycling at County Facilities & Events

Administrative/Technical Impacts:

Quantitative/Qualitative Impacts on Waste Stream:

Increased recycling at County facilities and events program is expected to increase recycling efforts by up to 5% over the 10 year planning period. In addition the program could have ancillary benefits by providing education in the form of setting an example for proper waste reduction and diversion.

Types and Sizing of Facilities or Program:

There is no foreseen additional infrastructure needed to support this program. Minor items such as collection bins or educational materials could be required.

Summary of Cost Data for Evaluation:

Increased recycling at County facilities and events is expected to have no measurable cost to the County. Operation and maintenance costs for the County are expected to rise modestly in line with inflation.

Impact on Natural Resource Conservation, Energy Production and, Employment:

Increasing recycling efforts at County facilities and events is expected to enhance natural resource conservation. No energy production or job creation is anticipated as a result of this program.

Jurisdictional Impacts:

Interest in Participation by Neighboring Planning Units:

No participation by neighboring planning units is anticipated.

Alternatives Available with Participation by Neighboring Planning Units:

Activities associated with this program are not dependent on the participation of neighboring planning units.

Recommendations from Neighboring Planning Units:

N/A

Assessment of Environmental Justice Impacts:

No known or expected environmental justice impact within Greene County associated with increased recycling efforts is expected.

Selected Alternatives Identification:

Reasons for Being Chosen:

This program strategy was chosen as a relatively low-cost way for the County to lead by example in reducing waste generated and promoting recycling. This strategy can also act as a public education tool, to encourage County employees and residents to change purchasing and consumption behaviors.

Expected Quantitative and Qualitative Impacts On:

Waste Reduction:

Expected to increase recycling volumes by <5%.

Reuse:

Expected to enhance reuse activities by <5%.

Materials Recovery:

Expected to improve recovery of select materials by 5-10%.

Participation in Recovery Opportunities:

Expected to increase participation by <5%.

Product Stewardship:

No measurable impact on product stewardship is anticipated.

Economic, Administrative, or Partnership Benefits:

This program is expected to reduce direct expenses by >1%.

Identification of Administrative, Contractual, and Financial Requirements for Implementation:

Existing administrative, financial, and contractual structure is sufficient to support the proposed program.

Identification of New or Modified Local Laws, Ordinances, or Regulations Required for Implementation:

No new local laws, ordinances, or regulations are identified as necessary at this time.

Implementation Item: 5

Title: Adopt Product Stewardship Framework

Administrative/Technical Impacts:

Quantitative/Qualitative Impacts on Waste Stream:

Adoption of the product stewardship framework displays support for the implementation of State-wide product stewardship initiatives.

Types and Sizing of Facilities or Program:

There is no additional infrastructure needed to support this program.

Summary of Cost Data for Evaluation:

Product stewardship has the potential to decrease the costs of waste management and diversion efforts in the County by making producers responsible for disposal and/or diversion costs.

Impact on Natural Resource Conservation, Energy Production and, Employment:

Natural resource conservation, energy production, and job creation in the County is not anticipated as a result of this program.

Jurisdictional Impacts:

Interest in Participation by Neighboring Planning Units:

No participation by neighboring planning units is anticipated.

Alternatives Available with Participation by Neighboring Planning Units:

Activities associated with this program are not dependent on the participation of neighboring planning units.

Recommendations from Neighboring Planning Units:

N/A

Assessment of Environmental Justice Impacts:

No known or expected environmental justice impact within Greene County associated with product stewardship initiatives is expected.

Selected Alternatives Identification:

Reasons for Being Chosen:

Greene County has little to no influence over manufacturing, but could join other counties who have adopted this framework to pressure state lawmakers into further action on a state level. Additionally significant cost savings could occur with producers being responsible for the cost of disposal on items that municipalities were historically responsible for.

Expected Quantitative and Qualitative Impacts On:

Waste Reduction:

None anticipated.

Reuse:

None anticipated.

Materials Recovery:

No direct impacts to material recovery is anticipated, however, the end goal of supporting product stewardship measures could have significant impacts on material recovery.

Participation in Recovery Opportunities:

None anticipated.

Product Stewardship:

An increase in product stewardship initiatives could occur as a result of this program strategy.

Economic, Administrative, or Partnership Benefits:

As municipalities throughout the State adopt product stewardship framework, it is anticipated that this show of support could lead to legislative action at the State level.

Identification of Administrative, Contractual, and Financial Requirements for Implementation:

Existing administrative, financial, and contractual structure is sufficient to support the proposed program.

Identification of New or Modified Local Laws, Ordinances, or Regulations Required for Implementation:

No new local laws, ordinances, or regulations are identified as necessary at this time.

Implementation Item: 6

Title: Support Composting Efforts and Promote Backyard Composting

Administrative/Technical Impacts:

Quantitative/Qualitative Impacts on Waste Stream:

Supporting composting efforts could increase diversion from the County's solid waste management system by up to 500 tons per year. Promoting backyard composting through education and training programs and/or subsidizing compost bins for residents could increase organics diversion by several thousand tons per year.

Types and Sizing of Facilities or Program:

There are anticipated infrastructure needs and costs associated with permitting and constructing a compost facility at the Catskill Transfer Station site.

Summary of Cost Data for Evaluation:

Costs associated with the program include a new compost site at the Catskill Transfer Station, as well as public educational and training programs, and some or all of the cost for a bulk purchase of compost bins for residents to purchase.

Impact on Natural Resource Conservation, Energy Production and, Employment:

The proposed program is expected to provide for natural resource conservation. Energy production and job creation is not anticipated to be affected by the proposed program.

Jurisdictional Impacts:

Interest in Participation by Neighboring Planning Units:

Delaware, Schoharie, Albany, Columbia, and Ulster Counties could potentially participate with Greene County in the proposed program by sharing educational materials and/or bulk purchase of backyard composting bins for sale to residents at cost.

Alternatives Available with Participation by Neighboring Planning Units:

Activities associated with this program are not dependent on the participation of neighboring planning units.

Recommendations from Neighboring Planning Units:

Ulster County's successful compost program could be used as a model for Greene County.

Assessment of Environmental Justice Impacts:

No known or expected environmental justice impact in Greene County associated with this program.

Selected Alternatives Identification:

Reasons for Being Chosen:

Greene County has the potential to partner with other organizations to improve educational programs and promote residential composting to reduce organic waste disposal at minimal cost to the County.

Expected Quantitative and Qualitative Impacts On:

Waste Reduction:

Expected to reduce waste volumes by <5%.

Reuse:

Expected to enhance reuse <5%.

Materials Recovery:

Expected to improve recovery of select waste materials by >5%.

Participation in Recovery Opportunities:

Expected to enhance participation <5%.

Product Stewardship:

No measurable impact on product stewardship is anticipated.

Economic, Administrative, or Partnership Benefits:

These programs are not expected to result in economic or administrative benefits, although partnership with local organizations could potentially reduce program costs.

Identification of Administrative, Contractual, and Financial Requirements for Implementation:

Existing contractual structure is sufficient to support the proposed program. Partnerships will be sought out for the minor financial and administrative requirements that would be needed to support education and training programs.

Identification of New or Modified Local Laws, Ordinances, or Regulations Required for Implementation:

No new local laws, ordinances, or regulations are identified as necessary at this time.

Implementation Item: 7

Title: Evaluate Pay-As-You-Throw Program

Administrative/Technical Impacts:

Quantitative/Qualitative Impacts on Waste Stream:

Positive impacts due to financial incentives for waste reduction efforts are expected to increase material recovery. Negative impacts in the form of illegal dumping and potential contamination of recycling streams could occur with a PAYT program.

Types and Sizing of Facilities or Program:

Since the County currently operates a PAYT, in which residents can currently opt into an incentive-based waste disposal fee structure, the existing system is anticipated to accommodate a PAYT program.

Summary of Cost Data for Evaluation:

Expanding the PAYT program is expected to have no measurable cost to the County.

Impact on Natural Resource Conservation, Energy Production and, Employment:

This program has the potential to conserve natural resources due to incentivized waste reduction and diversion.

Jurisdictional Impacts:

Interest in Participation by Neighboring Planning Units:

No participation by neighboring planning units is anticipated.

Alternatives Available with Participation by Neighboring Planning Units:

Activities associated with this program are not dependent on the participation of neighboring planning units.

Recommendations from Neighboring Planning Units:

N/A

Assessment of Environmental Justice Impacts:

PAYT programs have the potential to impact poor communities who cannot afford to pay for the amount of waste they dispose of. This will be factored into the analysis for switchover to an expanded PAYT program.

Selected Alternatives Identification:

Reasons for Being Chosen:

Expanding the PAYT program to include residents who contract with a private hauler could further incentivize waste reduction.

Expected Quantitative and Qualitative Impacts On:

Waste Reduction:

Expected to increase waste reduction by >5%.

Reuse:

Expected to increase product reuse by >5%.

Materials Recovery:

Expected to increase material recovery by up to 15% but could increase recyclables contamination by <15%.

Participation in Recovery Opportunities:

No measurable impact on participation is expected.

Product Stewardship:

No measurable impact on product stewardship is expected.

Economic, Administrative, or Partnership Benefits:

Minor economic benefits may result from increased recyclables recovery.

Identification of Administrative, Contractual, and Financial Requirements for Implementation:

Additional administrative, contractual, and/or financial structure may be required to expand the County's existing PAYT system. It will also be more difficult to predict revenues for budgeting.

Identification of New or Modified Local Laws, Ordinances, or Regulations Required for Implementation:

No new local laws, ordinances, or regulations are identified as necessary at this time.

Implementation Item: 8

Title: Improve Education and Outreach

Administrative/Technical Impacts:

Quantitative/Qualitative Impacts on Waste Stream:

Continuation and improvement of current education and outreach efforts are anticipated to help maintain and enhance diversion efforts.

Types and Sizing of Facilities or Program:

No additional infrastructure is needed to support this program.

Summary of Cost Data for Evaluation:

An increase in administrative costs are anticipated with increased education and outreach.

Impact on Natural Resource Conservation, Energy Production and, Employment:

A staff member may be added to ensure the success of this program. No impacts to natural resource conservation or energy production are anticipated.

Jurisdictional Impacts:

Interest in Participation by Neighboring Planning Units:

Delaware, Schoharie, Albany, Columbia, and Ulster Counties could potentially participate with Greene County in the proposed program.

Alternatives Available with Participation by Neighboring Planning Units:

Activities associated with this program are not dependent on the participation of neighboring planning units.

Recommendations from Neighboring Planning Units:

N/A

Assessment of Environmental Justice Impacts:

There is no known or expected environmental justice impact in Greene County associated with this program.

Selected Alternatives Identification:

Reasons for Being Chosen:

In the County's solid waste management experience, education and outreach efforts are more effective in adjusting behaviors and compliance with the local solid waste and recycling law than enforcement actions.

Expected Quantitative and Qualitative Impacts On:

Waste Reduction:

Expected to increase waste reduction by 5%.

Reuse:

Expected to increase product reuse by <5%.

Materials Recovery:

Expected to improve materials recovery of select waste materials by <5%.

Participation in Recovery Opportunities:

Participation is expected to improve.

Product Stewardship:

No measurable impact on product stewardship is expected.

Economic, Administrative, or Partnership Benefits:

Minor economic benefits may result from increased recyclables recovery, but increased costs may result from expenses related to education efforts. Partnerships with other agencies, private companies, and/or citizen groups may be levied to assist with education and outreach.

Identification of Administrative, Contractual, and Financial Requirements for Implementation:

Additional administrative, contractual, and/or financial structure may be required to support additional education and outreach programs.

Identification of New or Modified Local Laws, Ordinances, or Regulations Required for Implementation:

No new local laws, ordinances, or regulations are identified as necessary at this time.

Implementation Item: 9

Title: Improve Solid Waste and Recycling Data Collection

Administrative/Technical Impacts:

Quantitative/Qualitative Impacts on Waste Stream:

Improved data collection will aid the County in determining where to enhance recycling or diversion efforts that could ultimately help the County achieve diversion goals by providing accurate information on current waste generation and diversion.

Types and Sizing of Facilities or Program:

No additional infrastructure is required. However, administrative staff may experience increased work load due to the additional data that is generated.

Summary of Cost Data for Evaluation:

Costs associated with the program include administrative labor for data gathering and analysis.

Impact on Natural Resource Conservation, Energy Production and, Employment:

No impacts to natural resource conservation, energy production, or employment are anticipated.

Jurisdictional Impacts:

Interest in Participation by Neighboring Planning Units:

Data sharing within neighboring planning units could improve understanding of the current management of solid waste in the region and potentially be useful for program development within neighboring counties.

Alternatives Available with Participation by Neighboring Planning Units:

Activities associated with this program are not dependent on the participation of neighboring planning units.

Recommendations from Neighboring Planning Units:

N/A

Assessment of Environmental Justice Impacts:

There is no known or expected environmental justice impact in Greene County associated with this program.

Selected Alternatives Identification:

Reasons for Being Chosen:

The County does not currently have available all of the data on waste generated in the Planning Unit, only data from County-run facilities. Collection of additional data will better inform the County on actual diversion rates and the potential for additional program implementation.

Expected Quantitative and Qualitative Impacts On:

Waste Reduction:

This program is not expected to reduce waste volumes.

Reuse:

No impact.

Materials Recovery:

No impact.

Participation in Recovery Opportunities:

This program is expected to increase the County's knowledge of current participation in recovery options provided in the County.

Product Stewardship:

No measurable impact on product stewardship is expected.

Economic, Administrative, or Partnership Benefits:

Additional administrative efforts will be required for data gathering and analysis. Partnerships with other agencies, private companies, and/or citizen groups may be levied to assist with data collection needs.

Identification of Administrative, Contractual, and Financial Requirements for Implementation:

Additional administrative resources will be required to implement the program.

Identification of New or Modified Local Laws, Ordinances, or Regulations Required for Implementation:

No new local laws, ordinances, or regulations are identified as necessary at this time.

Implementation Item: 10

Title: Improve C&D Debris Reduction

Administrative/Technical Impacts:

Quantitative/Qualitative Impacts on Waste Stream:

This program could result in the diversion of C&D debris from disposal facilities.

Types and Sizing of Facilities or Program:

Due to the prohibitive cost, a County-run C&D processing facility is unlikely to be pursued. The contemplation of including C&D recovery requirements in municipal bids would not require additional County-run facilities, since there is a private C&D processer located in Greene County.

Summary of Cost Data for Evaluation:

The cost to implement a C&D recycling facility would be upwards of $1 million. Operational costs have the potential to be very high due to the need for manual labor. Markets for materials are currently unknown. Costs on municipal bids may increase with the inclusion of a C&D debris recovery goal.

Impact on Natural Resource Conservation, Energy Production and, Employment:

Conservation of natural resources would be realized through reuse of natural materials.

Jurisdictional Impacts:

Interest in Participation by Neighboring Planning Units:

Participation by neighboring planning units would likely be required to make such a facility economically feasible; however, due to the large geographical size of the counties, interest by neighboring planning units is unlikely, making a centrally located facility infeasible.

Alternatives Available with Participation by Neighboring Planning Units:

Activities associated with this program are not dependent on the participation of neighboring planning units.

Recommendations from Neighboring Planning Units:

N/A

Assessment of Environmental Justice Impacts:

There is no known or expected environmental justice impact in Greene County associated with this program.

Selected Alternatives Identification:

Reasons for Being Chosen:

The County will contemplate the inclusion of a C&D waste reduction policy into its municipal bids, provided that the program is not cost-prohibitive.

Expected Quantitative and Qualitative Impacts On:

Waste Reduction:

This program is anticipated to reduce C&D disposal by <5%.

Reuse:

This program is expected to enhance C&D reuse by <5%.

Materials Recovery:

Expected to enhance C&D recovery by <5%.

Participation in Recovery Opportunities:

Not expected to impact participation.

Product Stewardship:

No measurable impact on product stewardship is expected.

Economic, Administrative, or Partnership Benefits:

Actions are expected to increase the costs of municipal bids by an unknown amount.

Identification of Administrative, Contractual, and Financial Requirements for Implementation:

Additional administrative and financial resources will be required for implementation of this program.

Identification of New or Modified Local Laws, Ordinances, or Regulations Required for Implementation:

No new local laws, ordinances, or regulations are identified as necessary at this time.

Implementation Item: 11

Title: Identify Private Sector Management and Coordination Opportunities

Administrative/Technical Impacts:

Quantitative/Qualitative Impacts on Waste Stream:

This program could result in the diversion of additional material streams not currently included in the County's recycling program.

Types and Sizing of Facilities or Program:

No additional infrastructure is required for this program.

Summary of Cost Data for Evaluation:

Partnering with other organizations will relieve some cost burden from the County for implementing LSWMP program strategies. More in-depth analysis of additional partners and funding sources will be explored during the planning period.

Impact on Natural Resource Conservation, Energy Production and, Employment:

MSW reduction and recycling is expected to conserve natural resources. Energy production and job creation is not anticipated.

Jurisdictional Impacts:

Interest in Participation by Neighboring Planning Units:

No participation by neighboring planning units is anticipated.

Alternatives Available with Participation by Neighboring Planning Units:

Activities associated with this program are not dependent on the participation of neighboring planning units.

Recommendations from Neighboring Planning Units:

N/A

Assessment of Environmental Justice Impacts:

There is no known or expected environmental justice impact in Greene County associated with this program.

Selected Alternatives Identification:

Reasons for Being Chosen:

The County must look for financial and administrative support in order to expand its current recycling programs and implement LSWMP program strategies.

Expected Quantitative and Qualitative Impacts On:

Waste Reduction:

Expected to reduce waste by <5%.

Reuse:

Expected to enhance reuse by <5%.

Materials Recovery:

Expected to enhance material recovery by <5%.

Participation in Recovery Opportunities:

Expected to increase participation by <5%.

Product Stewardship:

If the County identifies partners in industry or manufacturing, improvements to product stewardship are possible with this program.

Economic, Administrative, or Partnership Benefits:

Actions are expected to increase operational costs, but may be offset by partnering with the private sector to provide full or partial funding for additional programs.

Identification of Administrative, Contractual, and Financial Requirements for Implementation:

Additional administrative and financial resources will be required for implementation of this program.

Identification of New or Modified Local Laws, Ordinances, or Regulations Required for Implementation:

No new local laws, ordinances, or regulations are identified as necessary at this time.

Implementation Item: 12

Title: Review Available Technologies

Administrative/Technical Impacts:

Quantitative/Qualitative Impacts on Waste Stream:

No impacts are expected.

Types and Sizing of Facilities or Program:

No additional infrastructure is required for this review. However, new infrastructure may be needed as a result of this review, if the County decides to go ahead with an available technology. A separate analysis for each proposed technology would be required.

Summary of Cost Data for Evaluation:

Costs associated with the review include administrative labor for review of available technologies.

Impact on Natural Resource Conservation, Energy Production and, Employment:

Natural resource conservation, energy production, and job creation could be anticipated, depending on the results of the review.

Jurisdictional Impacts:

Interest in Participation by Neighboring Planning Units:

Participation by neighboring planning units would likely be required to make a new available technology economically feasible; however, due to the large geographical size of the counties, interest by neighboring planning units is unlikely, making a centrally located facility infeasible.

Alternatives Available with Participation by Neighboring Planning Units:

Activities associated with this program are not dependent on the participation of neighboring planning units.

Recommendations from Neighboring Planning Units:

N/A

Assessment of Environmental Justice Impacts:

There is no known or expected environmental justice impact in Greene County associated with this program.

Selected Alternatives Identification:

Reasons for Being Chosen:

Technologies are continuously being improved and tested, therefore, Greene County plans to periodically review technologies available to the County.

Expected Quantitative and Qualitative Impacts On:

Waste Reduction:

No quantifiable impacts are anticipated.

Reuse:

No quantifiable impacts are anticipated.

Materials Recovery:

No quantifiable impacts are anticipated.

Participation in Recovery Opportunities:

No quantifiable impacts are anticipated.

Product Stewardship:

No quantifiable impacts are anticipated.

Economic, Administrative, or Partnership Benefits:

Additional administrative efforts will be required for this review. Partnerships with other agencies, private companies, and/or citizen groups may be levied to assist with these needs.

Identification of Administrative, Contractual, and Financial Requirements for Implementation:

Existing administrative, financial, and contractual structure is sufficient to support the proposed review.

Identification of New or Modified Local Laws, Ordinances, or Regulations Required for Implementation:

No new local laws, ordinances, or regulations are identified as necessary at this time.

Implementation Item: 13

Title: Continue Existing Disposal Methods as Primary Disposal for Non-Recyclable/Non-Recoverable Waste

Administrative/Technical Impacts:

Quantitative/Qualitative Impacts on Waste Stream:

No impacts are expected.

Types and Sizing of Facilities or Program:

There is no additional infrastructure needed to support this program.

Summary of Cost Data for Evaluation:

The County will continue to collect fees from the disposal of waste at the County-owned transfer stations and the sale of recyclable material in order to pay for the disposal of waste at a non-County-owned facility.

Impact on Natural Resource Conservation, Energy Production and, Employment:

Natural resource conservation, energy production, and job creation are not anticipated.

Jurisdictional Impacts:

Interest in Participation by Neighboring Planning Units:

The waste generated in Greene County may require disposal through contracts with disposal facilities in neighboring planning units and/or in-county privately-owned disposal facilities.

Alternatives Available with Participation by Neighboring Planning Units:

Contracts with out-of-County disposal facilities will facilitate continued disposal of Greene County waste.

Recommendations from Neighboring Planning Units:

N/A

Assessment of Environmental Justice Impacts:

There is no known or expected environmental justice impact in Greene County associated with this program.

Selected Alternatives Identification:

Reasons for Being Chosen:

With the small amount of waste generated in Greene County, there is no economically viable option for an in-county landfill or alternative technology. As such, disposal at privately-owned or out-of-County facilities is the safest and most economical waste disposal option.

Expected Quantitative and Qualitative Impacts On:

Waste Reduction:

No quantifiable impacts are anticipated.

Reuse:

No quantifiable impacts are anticipated.

Materials Recovery:

No quantifiable impacts are anticipated.

Participation in Recovery Opportunities:

No quantifiable impacts are anticipated.

Product Stewardship:

No measurable impact on product stewardship is expected.

Economic, Administrative, or Partnership Benefits:

Expenses could increase under this scenario, as the cost for waste disposal will be impacted by markets rather than controlled by operational costs.

Identification of Administrative, Contractual, and Financial Requirements for Implementation:

Existing administrative, financial, and contractual structure is sufficient to support the proposed program.

Identification of New or Modified Local Laws, Ordinances, or Regulations Required for Implementation:

No new local laws, ordinances, or regulations are identified as necessary at this time.

Implementation Item: 14

Title: Review County Local Solid Waste Management and Recycling Law

Administrative/Technical Impacts:

Quantitative/Qualitative Impacts on Waste Stream:

This review could result in changes to the quality and quantity of materials collected at the County transfer stations.

Types and Sizing of Facilities or Program:

There is no additional infrastructure needed to support this review.

Summary of Cost Data for Evaluation:

Costs associated with the review include administrative labor for review of local solid waste management and recycling law.

Impact on Natural Resource Conservation, Energy Production and, Employment:

Natural resource conservation, energy production, and job creation are not anticipated.

Jurisdictional Impacts:

Interest in Participation by Neighboring Planning Units:

No participation by neighboring planning units is anticipated.

Alternatives Available with Participation by Neighboring Planning Units:

Activities associated with this review are not dependent on the participation of neighboring planning units.

Recommendations from Neighboring Planning Units:

N/A

Assessment of Environmental Justice Impacts:

There is no known or expected environmental justice impact in Greene County associated with this program.

Selected Alternatives Identification:

Reasons for Being Chosen:

The current local solid waste management and recycling law was approved in 1991 and has not been modified since then. There have been changes to the planning unit, waste generation characteristics, and technology.

Expected Quantitative and Qualitative Impacts On:

Waste Reduction:

This review is not expected to reduce waste volumes.

Reuse:

Expected to enhance reuse <5%.

Materials Recovery:

Expected to improve recovery of select waste materials by <5%.

Participation in Recovery Opportunities:

No measurable impact on participation is expected.

Product Stewardship:

An increase in product stewardship initiatives could occur as a result of this review.

Economic, Administrative, or Partnership Benefits:

This review is not expected to result in economic or administrative benefits.

Identification of Administrative, Contractual, and Financial Requirements for Implementation:

Existing administrative, financial, and contractual structure is sufficient to support the proposed review.

Identification of New or Modified Local Laws, Ordinances, or Regulations Required for Implementation:

The local solid waste management and recycling law may be modified after this review.

Appendix E

Implementation Schedule

Greene County - Implementation Schedule

Program Strategy	Year									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
	1	2	3	4	5	6	7	8	9	10
1) Promote Waste Reduction Programs	Evaluate current resource use and purchasing policies at County facilities and events.	Identify and assess targets for a waste reduction policy at County facilities and events, such as electronic document and printing policies or disposable tableware purchases.	Draft a preliminary waste reduction policy based on data collected in Years 1 and 2.	Receive feedback on waste reduction policy from stakeholders and institute final waste reduction policy.	Monitor program success against County diversion goals and identify/implement improvements, if any.					
2) Promote Reuse Programs		Identify existing reuse programs within the County.	Promote existing reuse programs in County's education and outreach programs.							
3) Expansion of Accepted Materials	On an annual basis, continue to evaluate potential markets for materials currently disposed of to instead be sustainably diverted. Implement any relevant disposal alterations, as necessary.									
4) Increase Recycling at County Facilities and Events	Evaluate current recycling procedures at County-owned facilities and events. If deemed appropriate, prepare, approve, and introduce a plan to increase recycling rates at County-owned facilities. Query County departments and/or event coordinators to identify target events to expand recycling services to, beginning with events for which the County provides solid waste services.			Update and modify the Plan to reflect successes and challenges.	Evaluate the feasibility of expanding recycling efforts to public events, schools, institutions, etc.			Share successes with municipalities within the County to encourage a similar program for increasing recycling efforts and waste reduction on the local level.		Update tasks for new 10 year planning period depending on progress.
	Evaluate data obtained as part of Implementation Task #10 to determine types and quantities of waste and recycling materials managed at public operated facilities, schools, libraries, public events.									
5) Support Product Stewardship Framework	Reach out to the New York Product Stewardship Council to learn more about Product Stewardship and Extended Producer Responsibility (EPR).	Review other NY communities that have passed a Product Stewardship resolution showing their support. Determine if passing a similar resolution in Greene County would be beneficial. Work with the NY Product Stewardship Council to draft a resolution that would fit the needs of Greene County.		Educate County staff and the County Legislature on the benefits of supporting the product stewardship initiative.If supported by the Legislature, pass a Product Stewardship resolution.	Support the NY Product Stewardship Council and remain educated on product stewardship initiatives.		Update tasks for new 10 year planning period depending on progress.			

Greene County - Implementation Schedule

<table>
<tr><th rowspan="3">Program Strategy</th><th colspan="10">Year</th></tr>
<tr><th>2022</th><th>2023</th><th>2024</th><th>2025</th><th>2026</th><th>2027</th><th>2028</th><th>2029</th><th>2030</th><th>2031</th></tr>
<tr><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th><th>9</th><th>10</th></tr>
<tr><td rowspan="6">6) Support Composting Efforts and Promote Backyard Composting</td><td colspan="2" rowspan="2">Collect data on current programs offered by different municipalities within the County.</td><td rowspan="2">Provide a summary of findings collected and post to Greene County website for residents to use.</td><td colspan="5">Continue to support educational and training partners and monitor existing educational and collection programs.</td><td colspan="2">Enhance yard waste composting education efforts by developing new potential partnerships (Task 13).</td><td>Update tasks for new 10 year planning period depending on progress.</td></tr>
<tr><td colspan="7">Update and modify the Plan to reflect successes and challenges.</td><td></td></tr>
<tr><td colspan="2">Design, permit, and construct a composting facility at the Catskill transfer station site.</td><td colspan="8">Monitor program success and identify/implement improvements, if any.</td></tr>
<tr><td colspan="10">Promote food donation to local food banks on the County's website.</td></tr>
<tr><td colspan="10">Promote the proper management of residential yard waste, such as backyard composting or "grass-cycling" initiatives, on the County's website.</td></tr>
<tr><td colspan="8">Identify training materials available on the NYSDEC and Cornell Cooperative Extension websites for assistance in developing training courses or locating backyard composting demonstration sites. Place links on Greene County's website for these training course materials.</td><td colspan="2">Update and modify the Plan to reflect successes and challenges.</td><td>Update tasks for new 10 year planning period depending on progress.</td></tr>
<tr><td rowspan="2">7) Pay-As-You Throw Program</td><td colspan="3">Re-evaluate the PAYT program and its fees to encourage incentive based diversion and waste reduction.</td><td rowspan="2">Implement any changes to the PAYT program and work with local haulers to promote the modified PAYT program to customers.</td><td colspan="5" rowspan="2">Monitor waste disposal numbers, customer behaviors, and other metrics to evaluate the effectiveness of the PAYT program.</td><td rowspan="2">Update tasks for new 10 year planning period depending on progress.</td></tr>
<tr><td colspan="3">Continue implementation of PAYT program at Transfer Stations.</td></tr>
<tr><td>8) Education and Outreach</td><td colspan="2">Evaluate current and potential education methods for promoting Greene County recycling and diversion programs.</td><td>Work with partners to establish and implement a recycling educational outreach program. The plan should expect the initial audience to be primarily residents.</td><td>Evaluate the feasibility of adding recycling education at public events.</td><td>Team with local companies and not for profit agencies to encourage recycling at public events.</td><td>Assess the effectiveness of the education plan and make necessary alterations.</td><td>Expand the educational plan to attendees at public events.</td><td colspan="2">Expand the education plan to include other groups, such as, municipalities, libraries, jails, institutions, and nursing homes. Add details related to product reuse and organics management to the education plan that would be most beneficial for these additional audience members</td><td>Update tasks for new 10 year planning period depending on progress.</td></tr>
</table>

Greene County - Implementation Schedule

Program Strategy	Year									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
	1	2	3	4	5	6	7	8	9	10
9) Improve Solid Waste & Recycling Data Collection	Consider a program to increase data collection. Assess what types of data and facilities will be targeted to best support the County's Implementation Tasks. Examine potential partnerships with interested citizen groups to assist with data collection.	If deemed necessary, prepare a survey template for distribution to waste generators.	Prepare and distribute surveys to **schools and institutions.**	Report survey results and recommendations. Utilize to implement other tasks or modify tasks. Follow up with interested generators to improve their waste diversion programs.	Prepare and distribute surveys to **libraries, jails, nursing homes, and the public sector (municipalities).**	Report survey results and recommendations. Utilize to implement other tasks or modify tasks. Follow up with interested generators to improve their waste diversion programs.	Prepare and distribute surveys to retail businesses **(groceries, restaurants, stores).**	Report survey results and recommendations. Utilize to implement other tasks or modify tasks. Follow up with interested generators to improve their waste diversion programs.	Prepare and distribute surveys to **industries and agricultural facilities.**	Report survey results and recommendations. Utilize to implement other tasks or modify tasks. Follow up with interested generators to improve their waste diversion programs.
	Reach out to the compost facilities located at the Greene Correctional Facility and at Sunrise Farms in Catskill, to gather information on the quantity of material they divert.	If deemed necessary, prepare a survey template for distribution to facilities or haulers that manage MSW, biosolids, C&D, processed scrap metal, and industrial waste.	Prepare and distribute surveys.	Report survey results and recommendations. Utilize to implement other tasks or modify tasks.	Prepare and distribute surveys.	Report survey results and recommendations. Utilize to implement other tasks or modify tasks.	Prepare and distribute surveys.	Report survey results and recommendations. Utilize to implement other tasks or modify tasks.	Prepare and distribute surveys.	Evaluated effectiveness of survey and update tasks for new 10 year planning period depending on progress.
10) Improve C&D Debris Reduction	Monitor C&D generation and processing quantities available through facility reporting and on County projects.					Assess the potential for inclusion of a C&D Debris Reduction requirement as part of County bids.	If deemed appropriate, attempt a "pilot program," and test out such a requirement on one or more County bids.	Assess the results of the pilot program and determine if it is feasible to implement on other County projects.	If appropriate, develop a County-wide policy for C&D Debris reduction on County projects.	Update tasks for new 10 year planning period depending on progress.

Greene County - Implementation Schedule

Program Strategy	Year									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
	1	2	3	4	5	6	7	8	9	10
11) Identify Private Sector Management and Coordination Opportunities	Investigate potential partnerships or similar programs with other organizations such as Soil & Water Conservation District, private solid waste management companies, and community organizations as other implementation items progress and needs for assistance are identified.									
12) Review Available Technologies		Monitor existing and potential available technologies.	Implement relevant technological changes to program, as necessary.		Monitor existing and potential available technologies.	Implement relevant technological changes to program, as necessary.		Monitor existing and potential available technologies.	Implement relevant technological changes to program, as necessary.	Update tasks for new 10 year planning period depending on any new information and resources available.
13) Continue Existing Disposal Methods as Primary Disposal for Non-Recyclable/Non-Recoverable Waste	Explore all feasible available disposal facilities. Pursue a new disposal contract or renew the existing disposal contract.	Whenever the disposal contract is near expiration, explore all feasible available disposal facilities. Then, either pursue a new disposal contract or renew the current disposal contract.								Update tasks for new 10 year planning period depending on any new information and resources available.
14) Review County Local Solid Waste Management and Recycling Law	Conduct internal review of Local Solid Waste Management and Recycling Law.		Update Local Solid Waste Management and Recycling Law.		Monitor and gather data related to modification of Local Solid Waste Management and Recycling Law.					
Optimal MSW Recycling Diversion Goals	21%	24%	26%	29%	30%	31%	32%	33%	33%	34%
Optimal C&D Diversion Goals	33%	34%	35%	36%	37%	37%	39%	39%	42%	42%

Notes:

1. The above implementation schedule includes tasks and subtasks. Details related to required resources to achieve the projected results can be found in each implementation task description in Chapter 5. The bulk of the tasks are expected to be undertaken in the earlier years of the planning period, and more detail will be added through compliance reports for all impending tasks as the planning period progresses.

2. It should be understood that these recycling diversion projections are intended for use as a planning tool only and as such are not a commitment of achievement by the County. As programs progress and new information becomes available, these projections are expected to evolve and require revision over time. Accordingly, to remain a valuable planning tool, it is expected these optimal rate projections will be updated or revised in each biennial compliance report along with the implementation schedule, as necessary.

Appendix F

Example Biennial Compliance Report Outline

Greene County
Local Solid Waste Management Plan

Compliance Report

Reporting Period:
January 1, 20XX - December 31, 20XX

April 20XX

Table of Contents

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