

**Chenango County**

**Local Solid Waste Management Plan**

**April 2019**

**Barton**  
**& Loguidice**

Chenango County

Local Solid Waste Management Plan

April 2019

Prepared For:

Chenango County  
Department of Public Works  
79 Rexford Street  
Norwich, New York 13815

Prepared By:

Barton & Loguidice, D.P.C.  
443 Electronics Parkway  
Liverpool, New York 13088

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## Introduction

The purpose of the Chenango County Solid Waste Management Plan is to identify the path to be pursued for managing solid waste generated in Chenango 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 2019. The ten-year planning period will be 2019-2028.

The residents, businesses, industries, and institutions in Chenango County currently produce hundreds of tons of solid waste every day. The question about how to increase recovery, to decrease disposal or incineration, and to reduce waste generation, now and in the future, creates the need for a plan such as this one.

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, recycling, and energy recovery -- and a plan to monitor progress toward the goals; and 3) satisfy NYSDEC requirements for solid waste planning and comprehensive recycling analyses.

Chenango 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 Chenango 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 Chenango 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 7.0.

**Implementation Task #1 – Evaluation of Source Separated Recycling Program**

*Goal: Provide County residents, businesses, and institutions with a recycling program that makes recycling easier and ultimately increases waste diversion.*

**Implementation Task #2 – Recycling at Public Facilities/Events**

*Goal: Increase recycling recovery efforts at schools, public facilities, libraries and special events.*

**Implementation Task #3 – Support Product Stewardship Legislation**

*Goal: Shift government funded waste diversion to one that relies on product stewardship.*

**Implementation Task #4 – County Wide Household Hazardous Waste (HHW) Collection**

*Goal: Increase collection rates and divert more HHW materials from disposal and wastewater facilities.*

**Implementation Task #5 – Proper Disposal of Unique Wastes**

*Goal: Removal of unique wastes from disposal and increase recovery efforts.*

**Implementation Task #6 – Product Reuse Collection and Distribution Programs**

*Goal: Promote product reuse to increase waste diversion.*

**Implementation Task #7 – Agricultural Plastics Recycling**

*Goal: Support the current and potential expansion of the agricultural plastics recycling program through the Chenango County Cornell Cooperative Extension.*

**Implementation Task #8 – Construction & Demolition Debris Recycling**

*Goal: Increase diversion of C&D or remodeling debris from the landfill.*



**Implementation Task #9 – Management of Organics**

*Goal: Increase diversion of food and yard waste requiring disposal.*

**Implementation Task #10 – Public Outreach and Education**

*Goal: Educate the public and private sector (including residents) about recycling and waste reduction or diversion opportunities.*

**Implementation Task #11 – Solid Waste and Recycling Surveys and Reporting**

*Goal: To obtain a more complete data set to assist with the implementation of the program strategies.*

**Implementation Task #12 – Amendments to County Local Solid Waste Management and Recycling Law**

*Goal: Align the County’s Solid Waste Management and Recycling Law with the County’s waste diversion and recovery goals.*

**Implementation Task #13 – Pay-As-You Throw (PAYT) Program**

*Goal: Evaluate the feasibility of PAYT programs during review/update of the local solid waste management law.*

**Implementation Task #14 – Continue Landfilling as Primary Disposal for all Non-Recyclable/Recoverable Waste**

*Goal: Maintain a reliable, environmentally-sound means of disposal for non-recyclable/non-recoverable waste generated within the County.*

**Implementation Task #15 – Submission of Biennial Compliance Reports**

*Goal: Submit biennial compliance reports to the Department.*

## Chapter 1 - Planning Unit Description

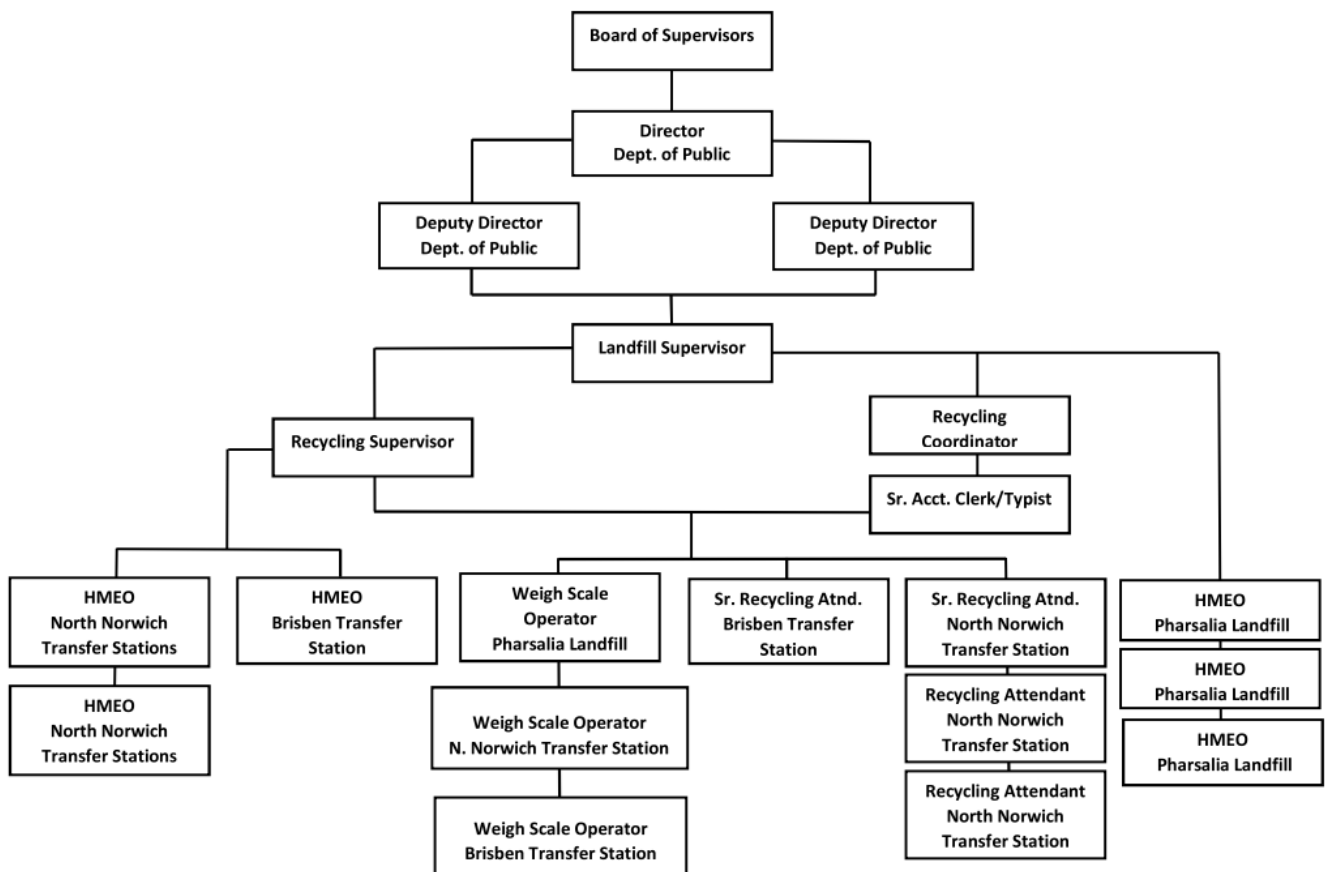
### 1.1 General Description of Chenango County Planning Unit

#### 1.1.1 Administrative Structure

Chenango County’s Solid Waste Department and original LSWMP originated in 1991. In 1999, Chenango County’s Solid Waste Department was incorporated into the Department of Public Works. This utilizes the highway department equipment and personnel when needed. The Director of Public Works is the Director of both the Waste Department and the Highway Department. There is a Landfill Supervisor onsite to oversee the operation of the Landfill. There is a Recycling Supervisor onsite to oversee the operation of the Transfer Stations. There is a Waste Management Program Assistant to coordinate and run the Recycling Program as the Recycling Coordinator.

**Figure 1- 1 - Chenango County Administrative Structure**

#### Chenango County LSWMP Administrative Structure



### 1.1.2 Physical Setting

Chenango County is located in the Appalachian uplands of south-central New York State. As shown on Figure 1-2, Chenango County is bordered by Madison County to the North; Delaware and Otsego Counties to the east; Broome County on the south and southwest; and Cortland County to the west. Chenango County has a land area of 897 square miles, predominantly rural in character, the County is approximately 68.9% rural based on population, with approximately 31.1% being suburban, with no large cities located within the County. Chenango County is located within an hour automobile drive from the urban cities of Syracuse, Utica, and Binghamton.

**Figure 1- 2 - Chenango County**



### 1.1.3 Economy

While still an active agricultural community, the amount of active farm production in Chenango County has reduced over the last 10 years. Chenango County though experiencing an increase in employment opportunities recently, has been in a depressed economic state for some time. Thirteen percent of Chenango County is comprised of land owned by New York State. The principal use of the State-owned lands is forest management areas and parks, both of which are open for various types of recreational activities.

There were 828 farms in Chenango County as reported by the 2012 USDA Census of Agriculture. The average acreage is 202 acres, with an average income of \$79,255 per farm. As reported by the 2012 USDA Census of Agriculture, sale of farm products totaled approximately \$65,934,000 in market value of products sold. This is an increase of \$15,000,000 since 1986 Census of Agriculture report. Crop sales account for \$14,722,000 or 22% of the total revenue, and livestock sales were other 78% of the total revenue.

The economy section is useful in developing and implementing a plan because it helps in understanding the changes in quantity and composition of the MSW generated and recovered since the implementation of the original plan and to anticipate changes that may occur during this planning period. These changes are discussed further in Section 1.5.

### 1.1.4 Population

Chenango County's current (2010) population is estimated to be approximately 50,477, and is distributed among 1 City, 8 villages, and 21 towns. Chenango County's population decreased from 51,800 in 1991 to 50,477 persons in 2010, a decrease of 1,323 persons. Chenango County is becoming less populated; the Census projections estimate the population of Chenango County to be 44,491 by the year 2030.

### 1.1.5 Infrastructure

Chenango County has 13 community water systems and 5 municipal sewage treatment plants. There are 17 school districts serving Chenango County, which has a governmental structure divided into 21 towns and the City of Norwich, which is the County Seat. Each of the 21 towns elects a Supervisor, and the City of Norwich, two Supervisors, for a two-year term, with the Villages represented by their town's Supervisor. Chenango County has the "home rule" style of government, with the vote of each Supervisor weighted based on the population which the Supervisor represents.

Due to the large number of members involved in the infrastructure of the many diverse towns, villages, and city located within the planning unit, it becomes difficult to develop a plan that will meet the needs of all members involved. Therefore, different programs may need to be considered and implemented for some members with unique circumstances, in discussions included in the Alternatives Evaluations in Chapter 5 and Solid Waste Management Program Strategies in Chapter 6.

#### 1.1.6 Transportation

The major highways servicing Chenango County consist of approximately 250 miles of the New York State Highway System. The State highways include Routes 8, 12, 26, 235 and Interstate 88 which traverse the County in a principally north-south direction; and Routes 23, 80, 220, and 206 which trend generally east-west. The County Highway System consists of 47 routes, traversing approximately 300 miles of the County, providing links with the State Highway System. The most traveled highways in the County system include County Route 16, 32, 33, 35, and 36. Town roads, used mainly for local traffic, account for about 1110 miles of improved and unimproved roads, and make most parts of the County readily accessible to vehicular traffic.

There is presently no regularly scheduled commercial airline servicing Chenango County. Charter air flight services are available through the Lt. Warren Eaton Airport in North Norwich.

The rail system within the planning unit is undergoing renovations and may be viable at some point in the future.

Transportation will need to be a consideration in the developing of the plan because of the planning unit's location in relationship to any interstates. The larger distances that must be traveled to the larger highways creates a problem when marketing the collected and processed recyclables, resulting in higher freight costs for shipping the products to market. This issue will be included in the discussion of marketing alternatives in the Solid Waste Management Program Strategies in Chapter 6, and tasks will be included in the Implementation Schedule for further evaluation.

## 1.2 Planning Unit Membership and Impacts on Implementing LSWMP

Table 1-1 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 involved in preparing or implementing the plan; however the members could play a significant role in the gathering of information and

numbers 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.

**Table 1- 1 - Planning Unit Membership**

Municipal Member	Role in LSWMP Preparation	Role in LSWMP Implementation	Unique Conditions or Issues <sup>1</sup>
<b>Towns</b>			
Afton, Town	None	Amnesty days, data collection, network with schools and education program	Small retail stores, grocery stores, special events.
Bainbridge, Town	None	Same as above	School, small retail stores, special events, grocery stores.
Columbus, Town	None	Same as above	Large Manufacturer, special events, small businesses.
Coventry, Town	None	Same as above	Small retail stores, farms, rural, special events.
German, Town	None	Same as above	Farms, very rural, special events.
Greene, Town	None	Same as above	Large Manufacturers, schools, small retail, grocery stores, special events.
Guilford, Town	None	Same as above	Schools, Farms, small retail, grocery stores.
Lincklaen, Town	None	Same as above	Farms, very rural.
McDonough, Town	None	Same as above	Small retail, rural, farms, state parks.
New Berlin, Town	None	Same as above	School, small retail, farms.
North Norwich, Town	None	Private Transfer Station, Amnesty days, data collection, network with schools and education program	Transfers recyclables out of Unit, small retail, farms, large manufacturing businesses.
Norwich, Town	None	Amnesty days, data collection, network with schools and education program	Large Manufacturers, School, Community College, BOCES, Jails, Nursing Homes, large retail, grocery stores, restaurants, special events.
Otselic, Town	None	Same as above	School, large manufacturer, farms, fish hatchery, small retail businesses.
Oxford, Town	None	Same as above	School, small manufacturers, Large Nursing Home, small retail, parks, grocery stores, restaurants.
Pharsalia, Town	None	Same as above	Farms, small businesses, special events.

<sup>1</sup> Further evaluation will be completed as part of Implementation Task #11 discussed in Chapter 6.

<b>Municipal Member</b>	<b>Role in LSWMP Preparation</b>	<b>Role in LSWMP Implementation</b>	<b>Unique Conditions or Issues<sup>1</sup></b>
Pitcher, Town	None	Same as above	Farms, small businesses, special events.
Plymouth, Town	None	Same as above	Farms, small businesses, special events.
Preston, Town	None	Same as above	Institutional Home, Farms, small businesses, special events, parks.
Sherburne, Town	None	Same as above	School, small businesses, large manufacturers, Farms, special events, grocery stores.
Smithville, Town	None	Same as above	Small retail stores, farms, rural, special events.
Smyrna, Town	None	Same as above	Large business, small retail businesses, grocery stores.
<b>Villages, City</b>			
Afton – Village	None	Same as above	School, small retail businesses, restaurants, large businesses, golf course, Agricultural businesses.
Bainbridge – Village	None	Same as above	Wastewater treatment plant.
Earlville – Village	None	Same as above	Part of village in Madison County, small retail businesses, restaurants.
Greene – Village	None	Same as above	Waste water treatment plant, small businesses, restaurants, grocery stores, school, special events. Large manufacturing plant.
New Berlin – Village	None	Same as above	Small businesses, school, restaurants, grocery stores.
Oxford – Village	None	Same as above	Waste water treatment plant, school, small businesses, grocery stores, bars, restaurants, Library, Park, special events.
Sherburne – Village	None	Same as above	Waste water treatment plant, special events, restaurants, small businesses, large businesses, grocery stores.
Smyrna – Village	None	Same as above	Grocery stores, small retail, special events.
Norwich – City	None	Same as above	Wastewater treatment plant, 3 schools, library, college, large industries, most populated area, with apartment housing, requiring more pickups.

### 1.3 Neighboring Planning Units

Table 1-2 lists the neighboring planning units along with conditions and the possible effects of these conditions that could impact implementation of our LSWMP and achievement of its goals.

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

Neighbor – Location	Existing or Potential Inter-Jurisdiction Considerations/Impacts	Effects of Opportunities or Impacts to Implement the LSWMP
Otsego County	Formerly a member of a 3 County Authority (MOSA). Otsego County recently withdrew from the MOSA Authority Contract. The Otsego County Department of Solid Waste & Recycling manages a countywide recycling program and the annual hazardous waste collection event, and administers a Solid Waste User Fee.	No known impacts on implementing the LSWMP.
Delaware County	Delaware County currently operates a solid waste landfill, a construction and demolition debris landfill, a mixed waste composting facility, and a materials recovery facility.	There could be the possibility of Chenango County collecting and shipping our planning unit's organics, and food wastes to Delaware County for composting. Could be a source of information for dual stream recycling collection.
Cortland County	Recently implemented flow control for solid waste. Owns and operates the Cortland County Landfill with an annual permit limit of 44,500 tons/year. Municipal single-stream MRF – according to annual report, only takes recycling from Cortland County.	Contracting with the MRF could be a beneficial option to Chenango County's marketing efforts. Single-stream recycling in Chenango County could increase revenues by increasing volumes.
Madison County <sup>2</sup>	Has flow control for solid waste and only accepts waste from Madison County residents and businesses. Owns and operates the Madison County Landfill with an annual permit limit of 60,000 tons/year. Also owns and operates three transfer stations that offer recyclables drop-off, yard waste composting, and brush chipping. Recyclable materials are processed at a dual stream MRF that is operated by the Madison County ARC and that is located on the County's landfill site. Private haulers are required to obtain a license from the County.	No known impacts on implementing the LSWMP.

<sup>2</sup> <http://www.madisoncountyrecycles.com/>



Broome County <sup>3</sup>	No flow control. Extensive recycling program available to residents and businesses. Owns and operates the Broome County Landfill with an annual permit limit of 232,000 tons/year, and a HHW facility that is open to Broome County and Tioga County residents. The County also operates a composting facility and two drop off sites for recyclables. Most, if not all, MSW from the County is disposed in the Broome County Landfill. Privately owned and operated recycling facilities are available in Broome County for use by local residents and businesses.	Potentially receives recyclables from Chenango County, which could decrease potential recycling revenue to Chenango County. Broome County contracts with the privately owned Taylors MRF, within the County to process their single stream recycling. The possibility of contracting with the Taylor MRF for Chenango County's recycling should be investigated. The alternative of contracting with this MRF and of implementing single stream recycling will be discussed in the Alternatives Evaluations in Chapter 5, and tasks will be included in the Implementation Schedule.
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#### 1.4 Seasonal Variations, Unique Circumstances, and Unique Situations

There are several seasonal variations which occur within Chenango County from time to time which could affect implementation of the LSWMP and achieving 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, and brings with it cleanout wastes from lockers, equipment left behind, and wastes from any remodels or construction projects at schools and colleges, as well as agricultural clean ups. The impacts and effects of these wastes are discussed in section 1.4.2.
- There are also many large events held within the County during the summer, including Gus Macker, County Fair, Town Fairs, Colorscape Chenango, Parks, Relay for Life. The impacts and effects of these events are discussed in Section 1.4.4.
- Summer also brings an increase of yard wastes, agricultural wastes and cleanups, garden wastes which could all be composted. The impacts and effects of these wastes are discussed in Section 1.4.1.
- Summer and early fall are when the waste water treatment plants bring their sludges to the landfill, which incurs the additional expense of managing the sludge and landfill gas.
- Fall brings the return of students to school and college. With this brings new electronics, books, etc. This also brings a larger amount of food wastes. All

<sup>3</sup> <http://www.gobroomecounty.com/solidwaste>

school and college 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.

- There are nine public libraries within the County, at least one of these libraries has a book sale several times a year and the unsold books are currently landfilled. There should be some type of recycling option for these wastes. All library wastes are managed by private haulers and no generation or recovery data is available, partial data is available for Guernsey Library. The impacts of and effects these wastes are discussed in Section 1.4.3.
- Winter is the slower season for wastes being brought to the landfill. This is due in part to the reduction of wastes from large scale events.
- There are a number of large manufacturers, small manufacturers, businesses, nursing homes, jails and other institutional homes which manage their own waste and recyclables. Recycling activities and data are unknown. Recycling programs and data collection, including hauler licensing and reporting, will be discussed in the Solid Waste Management Program Strategies in Chapter 6. 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.
- There is a private transfer station where most private haulers and businesses take their waste because the County facility requires source separation. This transfer station ships its waste to the County Landfill but ships its recyclables out of the County. This reduces potential revenue for marketing recyclables; however, the quantity of waste and recyclables is unknown. Options for generating recyclables revenue including flow control, single stream recycling, building a MRF or partnering with a neighboring MRF, and options for collecting data including hauler licensing and reporting will be discussed in the Solid Waste Management Program Strategies in Chapter 6, and tasks will be included in the Implementation Schedule.

#### 1.4.1 Spring and Summer Residential and Agricultural Wastes

Table 1-3 lists seasonal residential and agricultural variations in waste, along with conditions and impacts that affect implementation of our LSWMP and achievement of its goals.

**Table 1- 3 - Impacts of Residential and Agricultural Wastes Within The Planning Unit<sup>1</sup>**

Sources of Wastes	Condition/Location Types	Quantity/Quality Impacts	Effects of 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 plastics wastes and cleanups, which have cleanliness and bulky issues for recycling	Possible composting of organics will need more data on types of material, and amounts to be composted.

<sup>1</sup>Information and data in table to be revised as more details become available.

The possibility of recycling organics, such as by composting or anaerobic digestion, will be discussed in the Alternative Technology Evaluations in Chapter 5 and the Solid Waste Management Program Strategies in Chapter 6, and tasks will be included in the Implementation Schedule. Agricultural Plastics recycling and subtasks will be included in the Implementation Schedule.

#### 1.4.2 Schools

Table 1-4 lists the schools in the planning unit, along with conditions and impacts that affect implementation of our LSWMP and achievement of its goals.

**Table 1- 4 - Impacts of Schools Within The Planning Unit<sup>1</sup>**

Sources of Wastes	Number of Students	Condition/Location Types	Quantity/Quality Impacts	Effects of Impacts On LSWMP
Afton CSD	800 K-12 students	Summer cleanout/ construction. Seasonal food wastes from cafeterias. Wastes from events held at the schools. Private hauling of school wastes.	Locker content, equipment left behind, C&D need recycling plan implemented. Influx of food wastes. Paper, books and electronics recycling.	Possible organics composting, unknown wastes/ recycling currently being exported out of planning unit.
Bainbridge-Guilford CSD	To be determined during the planning period.	Same as above	Same as above	Same as above

Sources of Wastes	Number of Students	Condition/Location Types	Quantity/Quality Impacts	Effects of Impacts On LSWMP
Greene CSD	Approx. 1,070	Same as above	Same as above	Same as above
Unadilla Valley CSD	Approx. 900	Same as above	Same as above	Same as above
Norwich City CSD	See Note 2.	Same as above	Same as above	Same as above
Otselic Valley CSD	Approx. 370	Same as above	Same as above	Same as above
Oxford Academy CSD	Approx. 950	Same as above	Same as above	Same as above
Sherburne-Earlville CSD	Approx. 1,800	Same as above	Same as above	Same as above
Holy Family School	Approx. 86	Same as above	Same as above	Same as above
Valley Heights Christian Academy	Approx. 98	Same as above	Same as above	Same as above
Morrisville State College – Norwich Campus	To be determined during the planning period.	Same as above	Same as above	Same as above
BOCES-DCMO	Same as above	Same as above & HHW collected from schools	Same as above	BOCES collecting and removing HHW wastes from schools within the County, helps keep HHW out of waste stream.

<sup>2</sup> Stanford J. Gibson Primary School serves students in PreK-2 with an approximate enrollment of 540, while Perry Browne Intermediate School serves students in grades 3-5 with an enrollment of approximately 460 students. Norwich Middle School houses approximately 470 6th through 8th grade students. Norwich High School houses approximately 610 students in grades 9-12.

All the schools within the planning unit have highs and lows as to the quantity and kind of wastes they are generating, this needs to be investigated as to what recycling programs are being utilized, and what might be available to better reduce these fluctuations. Currently there is only one school, Sherburne-Earlville School, within the planning unit that brings their own waste to the County operated landfill, the rest of the schools within the planning unit hire private haulers to handle these waste for them and they are hauled out of the County, and amounts are not reported to the Chenango County Planning Unit. These situations need to be studied to remedy the non-reporting of wastes/recycling leaving the planning unit, and the possibility of recycling organics, and improving

the reporting of data to the planning unit will be discussed in and the Solid Waste Management Program Strategies in Chapter 6. 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 1-5 lists the libraries in the planning unit, along with conditions and impacts that affect implementation of our LSWMP and achievement of its goals.

**Table 1- 5 - Impacts of Libraries Within The Planning Unit<sup>1</sup>**

Sources of Wastes	Condition/Location Types	Quantity/Quality Impacts	Effects of Impacts On LSWMP
Afton Free Library	Periodic cleanouts. Private hauling of all library wastes: no data available.	Large amounts of books and magazines. Unknown regular waste.	Should be recycled. Need data.
Bainbridge Library	Same as above	Same as above	Same as above
Moore Library	Cleanouts/ Greene	Same as above	Same as above
New Berlin Library	Periodic Cleanouts	Same as above	Same as above
Guernsey Library	Cleanouts/Norwich	Large amounts of books and magazines.	Same as above
Oxford Library	Periodic Cleanouts	Large amounts of books and magazines	Same as above
Sherburne Library	Same as above	Same as above	Same as above
Smyrna Library	Same as above	Same as above	Same as above
S. New Berlin Library	Same as above	Same as above	Same as above

<sup>1</sup>Information and data in table to be revised as more details become available.

It is not known what these Libraries are now doing with their wastes that they are generating, with the exception of the Guernsey Library. The Guernsey Library located in the City of Norwich is currently landfilling all their wastes at the Chenango County Landfill. This includes the books left over from their book sales held periodically throughout the year. There is the possibility of capturing more wastes from these locations that is not being reported to the planning unit to date, such as cardboard that shipments are received in, outdated materials, and wastes from any events held at the facilities. Possible recycling programs and data collection will be discussed in the Solid Waste Management Program Strategies in Chapter 6. Tasks will be included in the Implementation Schedule to evaluate and implement new or improved recycling programs, and to collect data.

**Table 1- 6 - Impacts of Jails, Institutions, Nursing Homes Within The County<sup>1</sup>**

Sources of Wastes	Number Served	Condition/Location Types	Quantity/Quality Impacts	Effects of Impacts On LSWMP
Chenango County Jail	130-bed detention center	Periodic cleanouts. Food Wastes. No data available.	Unknown regular waste.	Should be recycled. Need data. Possible compost Food Wastes
CIT	To be determined during the planning period.	Same as above	Same as above	Same as above
City of Norwich Jail	Same as above	Same as above	Same as above	Same as above
NYS Vets Home	Same as above	Same as above	Same as above	Same as above
UHS Senior Living	Same as above	Same as above	Same as above	Same as above
Norwich Rehab. & Nursing Center	Same as above	Same as above	Same as above	Same as above
Valley View NH	Same as above	Same as above	Same as above	Same as above
Chenango Valley NH	Same as above	Same as above	Same as above	Same as above
Chase Memorial NH	Same as above	Same as above	Same as above	Same as above
Bida Adult Home	Same as above	Same as above	Same as above	Same as above
Preston Manor	Same as above	Same as above	Same as above	Same as above
Pratt-Newton Home	Same as above	Same as above	Same as above	Same as above

<sup>1</sup>Information and data in table to be revised as more details become available.

It is not known what these institutions are doing with their wastes currently. Data needs to be collected as to what types of wastes they have and where they are disposing of said wastes. 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 6.

#### 1.4.4 Special Events within the Planning Unit

Table 1-7 lists the special events in the planning unit, along with conditions and impacts that affect implementation of our LSWMP and achievement of its goals.

**Table 1- 7 - Impacts of Special Events Within The Planning Unit<sup>1</sup>**

Sources of Wastes	Condition/Location Types	Quantity/Quality Impacts	Effects of Impacts On LSWMP
County Fair - City of Norwich	Located at the County seat each year in August. Many vendors with packaging/ food waste, and recycling of drink bottles	Unknown what is done with the wastes generated at this event and what is recycled or total amounts generated.	There are many wastes that could be captured from these events. Possibility of composting organics and recycling of packaging. Data needed.
Gus Macker	Event held in the City of Norwich in July each year. Many vendors and patrons with packaging/ food wastes and recycling of drink bottles needed.	Unknown what is done with the wastes generated at this event and what is recycled or total amounts generated.	There are many wastes that could be captured from these events. Possibility of composting organics and recycling of packaging. Data needed.
Colorscape	Event held in the City of Norwich in July each year. Many vendors and patrons with packaging/ food wastes and recycling of drink bottles needed.	Unknown what is done with the wastes generated at this event and what is recycled or total amounts generated	There are many wastes that could be captured from these events. Possibility of composting organics and recycling of packaging. Data needed.
Parks	There are a few small parks within the planning unit.	It is believed that not much waste is generated at these facilities. It is unknown and needs to be investigated further.	There may be organics which could be composted. Possibility of recycling of packaging. Data needed.

<sup>1</sup>Information and data in table to be revised as more details become available.

The potential of capturing recycling and wastes from special events could be increased dramatically. It is unknown at this time if any wastes are being captured or recycled at these events which some of which are listed in the above table. It needs to be investigated as to what events are held when and where and what types of wastes are being generated and where they are going and how recycling is being handled. This area of wastes being generated has not been looked at by the planning unit before, and is not included in our expired plan.

Possible recycling programs and data collection will be discussed in the Solid Waste Management Program Strategies in Chapter 6. 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 Planning Unit Changes Since Previous Approved LSWMP**

The membership of the Planning Unit has not changed since its inception in 1991. The same towns, villages, and one small city 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 a few changes in schools and colleges being introduced to the planning unit. There is now a community college outreach campus located within the unit. There has also been a reduction in the number of operating farms within the unit since 1991. 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 impacts of schools and colleges and commercial establishments and related LSWMP tasks are addressed in Section 1.4.

The retail businesses have increased within the planning unit. There are now many larger retail businesses located in the Norwich 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 more 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. The impacts of retail businesses and related LSWMP tasks are addressed in Section 1.4.

Table 1-8 summarizes the changes to the planning unit since the last LSWMP and the impacts to be considered for this plan.



**Table 1- 8 - Impacts of Planning Unit Changes on LSWMP**

<b>Planning Unit Changes</b>	<b>Quantitative and Qualitative Impacts</b>	<b>Effects of Impacts on LSWMP</b>
Fewer Operating Farms	Less organics, less agricultural plastics	Less organics for possible composting
Large Retail businesses	More packaging materials	More recycling data needs to be collected
Fewer Manufacturing Businesses	Less wastes from manufacturing	Less waste generated, less recycling available for recycling
More Food Manufacturers	More Food Wastes, More sludges	Challenging wastes to be handled in the landfill, possibility of organics to be composted
More Sewer Treatment Plants	More sludges	More sludges to be handled at the landfill

There have been quite a few changes in the manufacturing businesses in the Planning Unit since the original Plan. Several businesses have left the area, and some have started up or expanded. They are very diverse in the type of manufacturing that is occurring. There is a need to investigate the waste types, amounts, and recycling that is currently ongoing at these businesses, as well as a data reporting system that needs to be developed and implemented to allow the Planning unit to utilize the LSWMP in an efficient manner and to keep it up to date. The impacts of manufacturers and related LSWMP tasks are addressed in Section 1.4.

There is also one zero waste facility within the Planning unit. This could be a great example for others to model their own programs on how to handle their wastes and recyclables created in the manufacturing process.

## **1.6 Relevant Historic Management Practices Related to Current Waste Management Method**

Prior to the enactment of the current solid waste regulations, most towns or villages within Chenango County managed their own solid waste through the operation of their own landfill. With the change in solid waste regulations, landfills were required to be self-contained, lined systems with a leachate collection system. The individual town or village operated landfills did not meet these requirements and therefore were capped and closed. Consequently, the County sited and built a landfill to manage waste generated within the County. Since the County's facility was built, there have been many changes and improvements in the different ways that wastes and recycling

can be managed. There have also been significant legislation changes that have changed the way in which wastes can be managed with regard to the environment.

Chenango County implemented a Source Separated Plan for recycling as part of the original LSWMP in 1991. Since the original Plan, little has been done to improve the recycling rate within the County besides adding additional items that are acceptable for recycling. In order to improve the recycling recovery rates, this LSWMP incorporates strategies for waste reduction and prevention. Recycling methods need to be improved to make recycling easier for the public to continue to improve the recycling rate for the Planning Unit. The current Source Separated process still works well for the residential public, but is labor intensive for the commercial haulers. Consequently, the majority of commercial haulers and businesses within the County are sending their recycling to privately-owned transfer stations or processing their own recycling, which results in the products being shipped out of the Planning Unit and not accounted for in the County diversion quantities or revenues.

**Table 1- 9 - Relevant Historic Management Practices Related to Current Waste Management Methods**

Historic Waste Management Method	Relation to Current Methods/ Meeting LSWMP Goals
Source Separating	Saved Money, Reduces ease of recycling for commercial haulers which incents them to go out of county, reduced county staff, loss of jobs within Planning Unit.
No flow control law – No reporting law	Allows waste and recycling to be taken out of the Planning Unit without data being given to Unit for amounts collected, will investigate flow control/reporting laws.
No law against burn barrels/open burning	With the implementation of the open burning law this has reduced the amount of burn barrels being utilized for getting rid of wastes. This should increase the amount of wastes being handled properly after the education of residents is accomplished.
No Enforcement Officer	This reduces the clout the Planning unit has when trying to obtain data on the amounts of wastes that are being disposed of within the Planning Unit.
Spot Marketing	Increased revenue from the sale of recyclables.

Possible recycling programs and data collection will be discussed in the Solid Waste Management Program Strategies in Chapter 6. Tasks will be included in the Implementation Schedule to evaluate and implement new or improved recycling programs and to collect data.

## Chapter 2 - Solid Waste and Recyclables Quantities and Types

This chapter provides information on the waste streams generated in Chenango County.

### 2.1 Waste Types

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

For the purposes of this study, MSW consists of residential-type waste generated in homes, businesses, institutions, and the commercial portion of waste discarded by industries. The residential component includes newspapers and magazines, 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 mixed waste generated by businesses such as restaurants, retail stores, schools and hospitals, professional office, 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 disposed 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 the Chenango County Recycling Facilities and other similar recycling facilities in the County are being separated from the household, business, institutional and commercial wastes classified as MSW, and can be considered to be another component of that waste stream. Due to the fact that these types of recyclable handling facilities must also compile annual reports to the NYSDEC, this data is also relatively easy to gather. Residential yard waste is a component of the MSW waste stream that is difficult to quantify. A subtask of the data collection task in Implementation Task #1 will be to collect data and estimate MSW by material type, including estimating residential yard waste generation and recovery.

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, and dust. According to annual reports submitted to NYSDEC, some portion of these materials are disposed of in local landfills; however, the homogeneous nature and large quantity of these wastes typically available can also make them useful as feedstocks for other processes or for disposal in monofill landfills. Therefore, only partial data for the generation of these materials within the county may be available. A subtask of the data

collection task in Implementation Task #11 will be to collect data and estimate industrial waste generation and recovery, considering these circumstances.

Construction and demolition debris (C&D) 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. Many of the area landfills report C&D waste as a separate disposal stream, and therefore, the quantity disposed of from Chenango County residents is easy to determine. 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 is difficult to obtain. A subtask of the data collection task in Implementation Task #11 will be to collect data and estimate C&D generation and recovery, considering these circumstances.

Municipal treatment plant sludge/biosolids is generated by a variety of facilities within the County. Much of this material is landfilled and the data is readily available from the annual reports to NYSDEC.

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. A subtask of the data collection task in Implementation Task #11 will be to collect data and estimate processed scrap metals generation and recovery, considering these circumstances.

## 2.2 Estimation of County Solid Waste Generation

### 2.2.1 Data Sources and Methodology

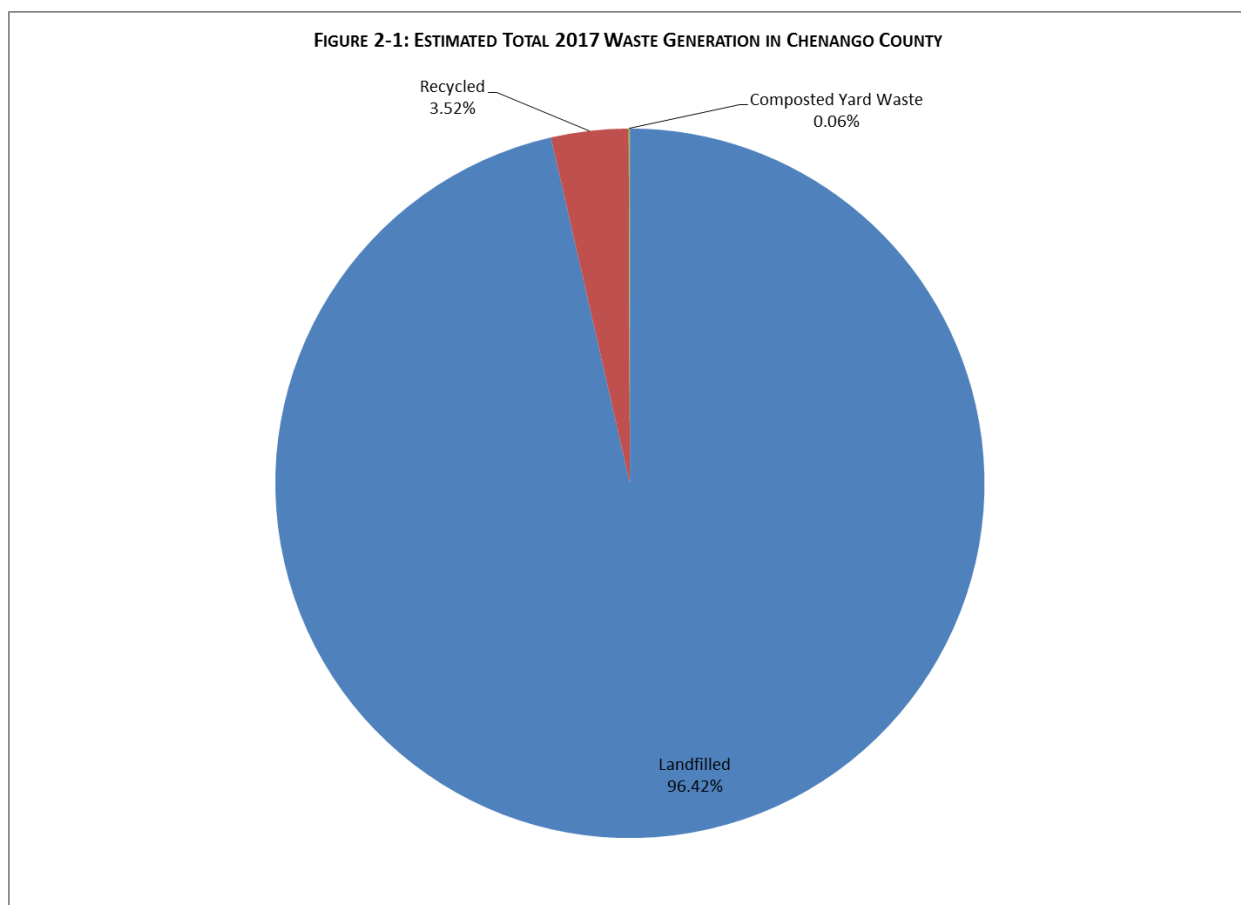
As discussed above, much of the following waste generation estimates were derived from available reports provided to the NYSDEC by permitted landfills, sewage treatment plants, and recycling centers. Limitations associated with the data are as follows and will be considered when evaluating and implementing new or improved data collection efforts as described in Implementation Task #11.

- **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 Chenango County Waste Generation and Management Methods

In 2017, based on annual reports submitted to NYSDEC, Chenango County residents and businesses generated approximately 57,699 tons of waste. 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 Chenango County. Based on the information available to interpret, the majority of the waste is landfilled (55,634 tons or 96.4 percent) while the remainder is recycled (2,032 tons or 3.5 percent) or composted (33 tons or 0.05 percent).

**Figure 2-1 - Estimated Total 2017 Waste Generation in Chenango County**



Source: NYSDEC, Facility Annual Reports, 2017; and NYSDEC

Chenango County has six municipal sewage treatment plants (STPs) or wastewater treatment plants (WWTPs). Table 2-1 shows the method of sludge management utilized.

**Table 2- 1 - Municipal Sewage Sludge Generation and Management Summary**

Treatment Plant	Treatment Method	Dewatering Device	Use/Disposal Method	Location
Bainbridge (V) WWTF	Aerobic Digestion	Screw Press	Landfill	Chenango County Landfill
Norwich (C) WWTP	Anaerobic Digestion	Drying Beds	Landfill	Chenango County Landfill
Oxford (V) STP	Aerobic Digestion	Belt Filter Press	Landfill	Chenango County Landfill
Sherburne (V) WWTP	Anaerobic Digestion	Drying Beds	Landfill	Chenango County Landfill
Smyrna (V) WWTS	Septic Tank	None	Landfill	Sent to Sherburne WWTP
Greene (V) WWTP	Anaerobic Digestion	Press	Landfill	Chenango County Landfill
<b>Total</b>				
<b>Total Municipal Sewage Sludge Generated 862 Tons</b>				

Source: Phone correspondence (May 2018) and Chenango County Landfill 2017 Facility Annual Report

Table 2-2 provides further detail on the types of waste managed through each method; however, a complete breakdown of waste generated as a whole for Chenango 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 2017 Waste Tonnage By Facility**

	<b>Amount (Tons)</b>	<b>Percentage of Tons Landfilled</b>	<b>% of Total Generation</b>
<b>Landfilled</b> <sup>1</sup>			
<i>Chenango County Landfill, Chemung County Landfill, Seneca Meadows Landfill, Ontario County Landfill, and Sunstream Corporation</i>			
MSW <sup>4</sup>	42,261	76	73.2
Construction and Demolition Debris <sup>2</sup>	7,505	13.5	13
Sewage Sludge	862.3	1.5	1.5
Industrial	5005.8	9.0	8.7
<b>Total</b>	<b>55,634</b>	<b>100.0</b>	<b>96.4</b>
<b>Diverted</b>		<b>% of Tons Diverted</b>	
Composted Sewage Sludge		0.00	<1
Composted Yard Waste <sup>4</sup>	33	1.6	<1
Recovered Food Scraps	0	0.0	0
Recycled <sup>3,4</sup>	2,032	98.4	3.1
Processed Construction & Demolition Material	0	0.0	0
<b>Total</b>	<b>2,065</b>		<b>3.6</b>
<b>Total Waste Generation</b>	<b>57,699</b>		

1. The NYSDEC 2017 Facility Annual Reports provided the tonnages landfilled at the various landfills.
2. For this analysis, C&D Debris includes: 682 tons of asbestos, 1,780 tons of construction & demolition debris, and 5,043 tons of contaminated soil.
3. The NYSDEC 2017 Facility Annual Reports for the Chenango County Landfill, the North Norwich Transfer Station, the Brisben Transfer Station, and the Adams/Wells Transfer Stations provided the tonnages recycled at the various recovery facilities.
4. Shaded categories are considered to be part of the MSW category, and will be utilized in the MSW composition analysis and projections (44,326 tons) in Table 2-3.

### 2.3 Estimation of Potential MSW Recovery

The sections above provided the data from reported waste generation and recovery estimates for the year 2017. As previously discussed, not all disposal and recovery data is available for the County; therefore, with the assistance of the NYSDEC's waste composition and recovery projection tool, the following section provides Chenango County with an estimated MSW waste composition for future planning purposes. The complete tables are included in Chapter 4. MSW composition includes residential, commercial and institutional waste generators including public spaces/events wastes; consequently, for the purposes of this analysis, we have

excluded the following from the MSW composition estimates: separately managed C&D debris, several organics streams (biosolids, septage, agricultural materials, etc.), industrial waste, medical and biohazardous materials, tires and scrap metal managed outside of the MSW management structures.

The following table provides an estimate based on the NYSDEC's assumptions of the total tons of MSW generated within the County that could be recovered or diverted from a waste disposal location if the appropriate programs were in place.

**Table 2- 3 - Estimated MSW Recoverable Materials in Chenango County**

Material	Estimated Tons Generated (2017)	% of Total	Actual Tons Diverted (2017)	% Diverted (2017)
Newspaper	1,662	3.8%	69	.7%
Corrugated Cardboard	4,314	9.7%	695	16.1%
Other Recyclable Paper	4,777	10.8%	153	3.2%
Other Compostable Paper	2,960	6.7%	0	0.00%
<b>Total Paper</b>	<b>13,713</b>	<b>30.9%</b>	<b>917</b>	<b>14.9%</b>
Ferrous/Aluminum Containers	841	1.9%	44	5.2%
Other Ferrous Metals	2,352	5.3%	250	10.6%
Other Non-Ferrous Metals (Total)	567	1.3%	0	0
<b>Total Metals</b>	<b>3,760</b>	<b>8.5%</b>	<b>294</b>	<b>7.8%</b>
PET Containers	416	0.9%	35	8.4%
HDPE Containers	384	0.9%	23	6.0%
Other Plastic (3-7) Containers	76	0.2%	10	13.2%
Film Plastic	2,544	5.7%	0	0.00%
Other Plastic	2,696	6.1%	520	19.3%
<b>Total Plastics<sup>2</sup></b>	<b>6,115</b>	<b>13.8%</b>	<b>578</b>	<b>9.5%</b>
Glass Bottles, Jars and Containers	1,745	3.9%	136	7.8%
Other Glass (flat glass, dishware, light bulbs, etc.)	188	0.4%	0	0.0%
<b>Total Glass</b>	<b>1,933</b>	<b>4.4%</b>	<b>136</b>	<b>7.0%</b>
<b>Total Wood (Pallets, crates, adulterated and non-adulterated wood)</b>	<b>2,364</b>	<b>5.3%</b>	<b>0</b>	<b>0.0%</b>
Food Scraps	5,892	13.3%	0	0.0%
Leaves and Grass/Pruning and Trimmings	2,085	4.7%	33	1.6%
<b>Total Organics</b>	<b>7,977</b>	<b>18.0%</b>	<b>33</b>	<b>0.4%</b>
DIY Construction & Renovation Materials	2,862	6.5%	0	0.0%



Material	Estimated Tons Generated (2017)	% of Total	Actual Tons Diverted (2017)	% Diverted (2017)
Diapers	711	1.6%	0	0.0%
Electronics	636	1.4%	92	14.5%
Tires	766	1.7%	0	0.0%
HHW	152	0.3%	0	0.0%
Soils and Fines	205	0.5%	0	0.0%
Other Composite Materials - Durable and/or inert <sup>3</sup>	770	1.7%	1	0.1%
<b>Total Miscellaneous</b>	<b>6,172</b>	<b>13.8%</b>	<b>93</b>	<b>1.5%</b>
<b>Total</b>	<b>44,326</b>	<b>100%</b>	<b>2,065</b>	<b>4.7%</b>

1. Excludes processed C&D, asbestos, industrial waste, sewage sludge, contaminated soil, beneficial use determination materials from Table 2-3.
  2. Recyclables reported as single stream have been included in the table as "Other Plastics" as the individual material composition is not available.
  3. Other Composite Materials consist of recycled batteries.
- Source: NYSDEC MSW Combined Composition Analysis and Projections, 2017 NYSDEC Facility Annual Reports.

Based on the quantities of diverted materials that were reported to the NYSDEC, Chenango County diverted approximately 2,065 tons of material (4.7 percent) in 2017. The table above indicates that 44,326<sup>4</sup> tons of MSW materials are available for diversion from residential, commercial and institutional generators. Not all the categories are populated for the 2017 actual recovery quantities due to the fact that not all categories are accounted for individually. Several materials identified above are collected and recovered at the recycling centers or other similar facilities in Chenango County; however, there are no mechanisms for gathering data for the individual materials at this time. Therefore, subtasks associated with Implementation Task #11 are included in the Implementation schedule to evaluate and implement data collection efforts. Chapter 3 and 6 describe the existing systems for recovering these materials as well as possible future program strategies during this planning period to increase the County's diversion rate.

## 2.4 Estimation of Potential C&D Debris Recovery

Construction and demolition (C&D) debris can be assessed separately from MSW or industrial wastes. By utilizing the NYSDEC's C&D debris composition and recovery projection tool, the following section provides Chenango 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

<sup>4</sup> Excludes processed C&D, asbestos, industrial waste, sewage sludge, contaminated soil, beneficial use determination materials previously reported in Table 2-2.

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 annual reports, the following table 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 Chenango County**

Material	Estimated Components of C&D Debris Tons Generated in 2017 per NYSDEC Model	% of Total C&D Debris Generated (2017)	Tons of C&D Debris Diverted per 2017 Data Obtained	
			Tons Diverted	% Diverted
Concrete/Asphalt/Rock/Brick	2,656.1	35.4%	0	0%
Wood	1,110.5	14.8%	0	0%
Roofing	369.9	4.9%	0	0%
Drywall	190.5	2.5%	0	0%
Soil/Gravel	2,042	27.2%	0	0%
Metal	443.6	5.9%	0	0%
Plastic	29.8	0.4%	0	0%
Corrugated/Paper	150	2.0%	0	0%
Other	512	6.8%	0	0%
<b>Total</b>	<b>7,504.8</b>	<b>100%</b>	<b>0</b>	<b>0%</b>

*Source: 2017 NYSDEC Facility Annual Reports and Appendix A.*

No data was reported to the NYSDEC for diverted C&D materials in 2017. The table above indicates that 7,504.8 tons of C&D materials could potentially be available for diversion 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 6 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.

## **Chapter 3 - Overview of Chenango County's Current Solid Waste Management System**

### **3.1 Current Solid Waste Management System**

Chenango County currently accepts solid waste and source separated recyclables from commercial and residential customers at three (3) locations operated by the County, which will be further discussed below. Alternatively, customers can choose to work with private haulers or transfer stations. The private transfer stations accept dual stream recyclables, which are transferred out of the county for processing.

Given the rural nature of Chenango County, a limited variety of collection services are used in the County to collect and transport solid wastes to landfills and recycling centers/transfer stations. Methods include residential drop-off or private contracts. Most entities transport their waste and recyclables directly to the landfill or transfer station for proper management by the County. Chenango 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. Municipalities at the town and village level do not make solid waste related decisions and are rarely involved in solid waste management decisions. A summary of waste disposal activities by waste type follows.

### **3.2 Solid Waste Management Facilities and Recovery Efforts**

Alternatives are discussed in Chapter 5 and subtasks are included in the Implementation schedule associated with Implementation Task #11 to begin collecting and evaluating data and information regarding capacity/expected life, service areas, operating status, and other issues to resolve/areas for improvement including data collection, education, outreach and enforcement needs, etc., for every facility/program that manages MSW, biosolids, C&D, processed scrap metal, and/or industrial waste generated in Chenango County. The evaluations are to assess the effectiveness and/or needs of these facilities and programs and Chenango 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. For Planning Unit owned facilities/programs, infrastructure/components, age, operating dates, size, regulatory status, partnerships/opportunities, contracts, improvements or changes, and resources/needs/costs/revenue/reference to economic analyses will also be compiled.

#### **3.2.1 Landfill Facilities**

Chenango County currently operates one (1) solid waste landfill within the County's borders, which began accepting waste in 1994. Prior to 1994, each town or village maintained their own landfill. With the inception of the solid waste

regulations, many of these landfills were not in accordance with the regulations; therefore, they were capped and closed and a County-owned landfill was sited and built to handle the wastes generated within the County. The County-owned landfill is located in the Town of Pharsalia on County Road 47. Since it opened, the landfill has accepted between 18,500 to 40,900 tons per year of waste material (excluding alternative daily cover) with the larger amounts being accepted in the last several years. Specific quantities were previously discussed in Chapter 2. The existing permit limit is 150 tons per day, and the remaining design capacity as of January 1, 2018 is approximately 1,864,265 cubic yards or an estimated site life of approximately 30.83 years at current disposal rate projections. All waste facilities permitted at the Chenango County Landfill are done in accordance with NYSDEC Part 360 regulations and any special conditions set forth in the Operating Permit issued by the NYSDEC. Municipal solid waste (MSW), asbestos waste, C&D debris, commercial/industrial waste, and sewage treatment plant sludge are accepted.

Additionally, other landfills, located outside of Chenango County, are available for the disposal of MSW. These out-of-County landfills are summarized below in Table 3-1.

**Table 3- 1 - Solid Waste Landfills Servicing Chenango County**

<b>Solid Waste Facility</b>	<b>Facility Address</b>	<b>Permitted Capacity (tons)</b>	<b>Expected Site Life (years)</b>	<b>Operating Status</b>
Broome County Landfill	RD4 Box 57A Knapp Road Binghamton, New York	9,666,666.67	38.67	Municipally Owned and Operated, No Flow Control
High Acres Landfill	425 Perinton Parkway Fairport, New York	41,672,510	29.83	Private
Ontario County Landfill	3555 Post Farm Road Seneca, New York	10,439,557.3	10.08	Municipally owned; Operated by Casella; No Flow Control; Expansion Permit application under review by NYSDEC.
Seneca Meadows Landfill	1786 Salcman Road Waterloo, New York	15,441,666.7	7.08	Private; Largest Landfill in NYS
Chemung County Landfill	4349 County Route 60 Fulton, New York	6,155,253.76	32.08	Municipally owned; Operated by Casella; No Flow Control; Expansion Permit application expected.

Source: NYSDEC Annual Facility Reports (2017)

Each of these out-of-county landfills accepted waste that was generated in Chenango County in 2017. 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 Chenango County.

### 3.2.2 Transfer Stations

Most residents and commercial/industrial entities that are either not served by or elect not to contract with a private hauler, deliver their waste and recyclables to a municipally or privately operated transfer station. A listing of the transfer station facilities in Chenango County is presented in the following Table 3-2.

**Table 3- 2 - Registered Transfer Stations in Chenango County**

Transfer Station Name	Facility Address	Disposal Destination	Age/ Expected Life	Infrastructure Components
<b>Chenango County Operated Facilities</b>				
North Norwich Transfer Station	6701 NYS Highway 12 Norwich, NY	Chenango County Landfill	>25 years	Recyclables are required to be Source Separated.
Brisben Transfer Station	Coutermarsh Road Brisben, NY	Chenango County Landfill	>25 years	Recyclables are required to be Source Separated.
<b>Privately Operated Facilities</b>				
Adams and Wells Transfer Station	NYS Route 12 North Norwich, NY	Chenango County Landfill (waste) A&W Recycling, Broome County (recyclables)	Unknown	Accept dual stream recyclables.

Source: NYSDEC Annual Facility Reports (2017)

As previously noted, no municipalities within Chenango County provide curbside collection services to their residents.

The North Norwich Transfer Station is the largest recycling facility that the County operates. The North Norwich Transfer Station processes about 75% of the recyclables for the County. The Brisben Transfer Station processes the other 25%. No recyclables processing is conducted at the Chenango County Landfill; instead, if any recyclables are received at the landfill, they are shipped to the North Norwich Transfer Station for processing and sale.

### 3.2.3 Existing Efforts to Recover Recyclables

In 1990 Chenango County passed a local law, resolution #216-90 making the County a source separated County, mandate recyclables, and voluntary recyclable (see Appendix B). The County operated facilities, including the Chenango County Landfill, also known as Pharsalia Landfill, currently accept the following materials that are required to be recycled under the current regulatory controls (source separation):

- HDPE plastic bottles and jugs,
- Newspaper,
- Corrugated cardboard, brown bags and boxboard,
- Glass containers,
- Metal food cans,
- Leaves and yard waste and brush,
- Wet cell batteries,
- Rechargeable batteries and button cell batteries, and
- Used motor oil and antifreeze.

Additionally, residents may voluntarily recycle the following items at the three (3) County operated facilities:

- PETE plastic bottles,
- Magazines and junk mail,
- Scrap metal,
- #3-7 plastic jugs, tubs, and lids,
- Plastic grocery bags,
- Office paper,
- Textiles,
- Computers and all electronics, and
- Fluorescent light bulbs and household batteries.

The Adams and Wells Transfer Station accepts similar items for recycling; however, they operate under a dual stream system.

The County currently uses self-dumping recycling bins, and box type recycling bins to hold the recyclables for storage prior to baling. This keeps the products separated into the different categories that the County markets. The County uses balers to bale all of the paper products, plastics and metal cans. The glass is stored in separate concrete bins until shipment. The scrap metal is

stored in the contractor's container until full and then pick up is arranged, and the container is replaced with an empty one. The bins are moved around with a bobcat loader and a forklift.

### 3.2.4 Residential Sector Recycling Facilities and Efforts

Table 3-2, above, provides a summary of the transfer stations that accept recyclables. The Chenango County operated facilities require source separation while the private facility operates using a dual stream system. There are no other known recycling facilities located within Chenango County.

Two basic systems currently exist in Chenango County for the collection of recyclables: curbside collection and residential drop off sites (i.e., transfer stations). Residents who elect not to hire a private hauler typically dispose of recyclables at their local transfer station. Transfer stations do not charge for the disposal of recyclables.

Bulk Items, which includes larger items such as appliances and televisions, are handled at the transfer stations. In most cases, scrap metal collection is free and collected in a separate container from other bulk items. Metal is one of the more highly valued recyclable materials.

Not all data is available for the residential recycling sector; therefore, Chapter 6 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 Chenango County. The evaluations are to assess the effectiveness and/or needs of these facilities and programs and Chenango 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.

### 3.2.5 Commercial Sector Recycling Facilities and Efforts

On the commercial front, shopping malls, hospitals, and medical office buildings are establishments that generate large volumes of waste. These establishments may contract directly with a recycling operation to collect and manage their recyclables or they may utilize the County operated transfer stations; however, they would be required to follow the same source separation requirements as residential customers.

Since there is no reporting requirement for these commercial entities, quantities and types of waste disposed or recovered in Chenango County has not been made readily available to the County. Implementation Task #11 in Chapter 6 is intended to address the issue of the lack of data being reported by

the various commercial entities. Additionally, Implementation Tasks 10 (Public Outreach and Education) and 12 (Amendments to the County's Local Solid Waste Management and Recycling Law) will include the commercial recycling sector. The evaluations are to assess the effectiveness and/or needs of these facilities and programs and Chenango 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.

### 3.2.6 Agricultural Sector Recycling Efforts

Chenango County is predominantly rural with 33% of the land used for agriculture. With nearly 200,000 acres of farmland within its borders, agricultural plastics represent a significant waste stream produced within the County. Pesticide containers and white bale wrap are the only agricultural plastics accepted as recyclables in Chenango County. The other agricultural plastics that farmers use, such as plastic baling twine, greenhouse plastics, and mulch film, are not currently included in the list of acceptable recyclables items in Chenango County. As such, many of these materials end up in the County landfill or buried at their point of origin. Implementation Task #7 in Chapter 6 is intended to address the issue of agricultural recycling and recovery efforts. The evaluations are to assess the effectiveness and/or needs of these facilities and programs and Chenango 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.

### 3.2.7 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. Implementation Task #8 in Chapter 6 looks at evaluating the need of these facilities and programs in Chenango County to determine what partnerships, or other alternatives should be evaluated for implementation and what the resulting future recovery goals could be.

### 3.2.8 Institutional Recycling Efforts

Large educational 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. Sections 1.4.2 and 1.4.3 in Chapter 1 provided an overview of several of these institutions. These institutions manage their own waste and recyclables. Chenango County does not monitor and enforce recycling efforts at these facilities; however, they would most certainly benefit from waste reduction and recovery efforts. Since there is no



reporting requirement for these institutional entities, quantities and types of waste disposed or recovered in Chenango County has not been made available to the County. Implementation Task #11 in Chapter 6 is intended to address the issue of the lack of data being reported by these various entities. Additionally, Implementation Tasks 10 (Public Outreach and Education) and 12 (Amendments to the County's Local Solid Waste Management and Recycling Law) 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 Chenango 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.

### 3.2.9 Public Sector Recycling Efforts

Municipal recycling efforts in the Planning Unit revolve almost entirely around the County's program. Although the recycling efforts are managed for the County by the County, Implementation Task #2 in Chapter 6 focuses on increasing recycling at public facilities, such as public schools, municipal spaces, and special events. Additionally, Implementation Tasks #10 and #11 will assist with the data gathering, public outreach, and educational components. It will be important to understand the current recycling efforts within the public sector before determining the appropriate plan of action and goals; therefore, Implementation Task #11 will be an integral part with gathering the necessary data to assess the current recycling programs at the public sector level. Once the existing recycling efforts are determined, a plan of action to reach out to public sector employees and community members will be developed through Implementation Task #2 to ultimately increase recycling efforts.

### 3.2.10 Industrial Facility Recycling Efforts

There are a number of industries located within Chenango County, such as Norwich Pharmaceutical, Chobani, Golden Artists, Unison, Raymond Corporation, Chenango Valley Pet Foods, Dunkel Egg Farm and Mid-York Press. Information related to industrial recycling efforts was unavailable at the time this report was completed. As discussed in Chapter 6, Implementation Task #11 will be pursued to gather more data in the way of surveys to industrial facilities within the County, which in turn will be tied to Implementation Task #10 associated with the public outreach and education at the industrial facility level.

The evaluations are to assess the effectiveness and/or needs of these facilities and programs and Chenango 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.

### 3.2.11 Public Space / Events Recycling Efforts

Public space and special event recycling efforts are currently handled by each municipality within the Planning Unit. Chenango County is the home of special events, such as Gus Macker, County Fair, Town Fairs, Colorscape Chenango, Parks and Relay for Life, that are attended by large crowds; and therefore, a plan for maintaining consistency among public spaces and events would be helpful. The impacts of special events within the Planning Unit are provided in Table 1-7 in Section 1.4.4 of this report. Implementation Task #2 contains some action items related to special events that are proposed to be considered during this planning period.

### 3.2.12 Processed Scrap Metal Recycling

According to research conducted by the US Environmental Protection Agency, recycling scrap metals can be quite beneficial to the environment. Using recycled scrap metal in place of virgin iron ore can yield<sup>5</sup>:

- 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

Processed scrap metal is not currently monitored by Chenango County; however, through implementation tasks discussed in Chapter 6, a method for gathering this information is proposed through Implementation Task #11. Once an understanding of how scrap metal is processed or managed in Chenango County, then the next step would be to implement an educational program (Implementation Item #10) to disseminate information regarding the benefits of scrap recycling and the opportunities available for processing scrap metal.

### 3.2.13 Public Education Efforts to Promote Recycling

The County currently has an active education program specifically for school age children. Presentations are given throughout the year with elementary school students focusing on the anti-burning laws and basic recycling, reduce, reuse campaign items. The presentations for high school and

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<sup>5</sup> <http://www.norstar.com.au/Recycling/Processing/Benefits.aspx>

college students contain more technical information related to the landfill, recycling, statistics, and the anti-burning law. All groups are typically offered tours of the North Norwich Transfer Station and the landfill.

The County's other public education efforts are primarily on the website and at the County-operated transfer stations. Subtasks associated with Implementation Task #10 are included in the implementation schedule for maintaining the website and other education efforts, including compiling information regarding private sector education efforts, to determine what additional education efforts should be implemented by Chenango County.

#### 3.2.14 Household Hazardous Waste Collection Efforts

The County currently hosts a household hazardous waste (HHW) collection event every other year. This event is open to all County residents by appointment. In addition, the County operates a latex paint exchange program, to assist County residents in dealing with household latex paint. Latex paint is a material that residents have typically brought to HHW events in large quantities looking for a disposal outlet; however, this material is not considered a HHW and disposing of it at the dedicated events is not cost effective or the best use of the resource. The County operates a latex paint exchange program from May 1 through September 30<sup>th</sup> at the Norwich Transfer Station. At this location, residents can drop off unwanted latex paint in sealed containers and/or select unwanted paint that has been left at the exchange for use.

#### 3.2.15 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, thereby achieving savings through reduced landfilling costs. The composting process can be applied to yard waste, food waste, MSW, sewage sludge, non-hazardous industrial sludge, or some combination of these materials. Alternatives are discussed in Chapter 5 and subtasks associated with Implementation Task #9 are included in the implementation schedule for evaluating and implementing recovery of these organics, including collecting data and information regarding organics generation and management in Chenango County, and investigating existing partnership opportunities such as supplying food waste and scraps to an existing anaerobic digestion or other composting facilities.

### 3.2.16 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.

The Cornell Cooperative Extension currently offers low cost backyard composting seminars for residents of Chenango County. The County proposes to further support these seminars through educational outreach and consider hosting additional seminars once it has sufficient sources to do so, which is further discussed in Implementation Item #9 in Chapter 6.

The City of Norwich is the only municipality within Chenango County that regularly provides for seasonal leaf and tree limb pick-up. Some villages offer seasonal leaf and tree limb pick up when staff and funds are available, while others encourage their residents to drop off their yard waste at the local transfer stations.

### 3.2.17 Food Scraps/Food Processing Waste/Food Banks

There are no known food waste collection programs or multi-user composting facilities within Chenango County. Food waste collection programs are not currently monitored by Chenango County; however, through implementation tasks discussed in Chapter 6, a method for gathering this information is proposed through Implementation Task #11. Once an understanding of how food waste is processed or managed in Chenango County, then the next step would be to implement an educational program (Implementation Item #10) to disseminate information regarding the benefits of food waste collection or composting programs.

### 3.2.18 Biosolids/Sewage Sludge Handling

According to NYSDEC records, biosolids generated in Chenango County were managed as identified in the following table, Table 3-3. Additional details related to these facilities are provided in Table 2-1 in Chapter 2.

**Table 3- 3 - Municipal Sewage Sludge Disposal Summary**

Facility Name	Disposal Destination
Bainbridge(V) WWTF	Chenango County Landfill
Greene (V) WWTP	Chenango County Landfill
Norwich (C) WWTP	Chenango County Landfill
Oxford (V) STP	Chenango County Landfill
Sherburne (V) WWTP	Chenango County Landfill
Smyrna (V) WWTS	Sent to Sherburne, which ultimately goes to Chenango County Landfill

### 3.3 Financial Structure

The County owns and operates three public facilities for waste management as described above. The operation of these facilities is subsidized through the collection of tipping fees for all non-recyclables at both the landfill and the transfer stations. The County also markets all recyclables and uses revenues (if any) to fund the solid waste management system. Any ancillary solid waste related programs such as the HHW collection events are funded through landfill tipping fees, or the general fund as needed. All other solid waste management facilities located within the County are privately funded through a similar collection of tipping fees.

### 3.4 Status of Existing Recovery Efforts

As demonstrated in the previous section, Chenango County's residents and commercial, industrial and institutional waste generators have various 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 Chapter 2, based on 57,699 tons of waste generated within Chenango County in 2017, 55,634 tons were disposed in landfills and 2,065 tons of materials were diverted either by composting or recycling. Consequently, Chenango County's current waste diversion rate is estimated at 3.6%, as depicted in Figure 2-1. Alternatively, the County's MSW diversion rate is estimated at 5.5% with the exclusion of contaminated soil, sewage sludge, construction and demolition debris, processed scrap metal, and industrial waste.

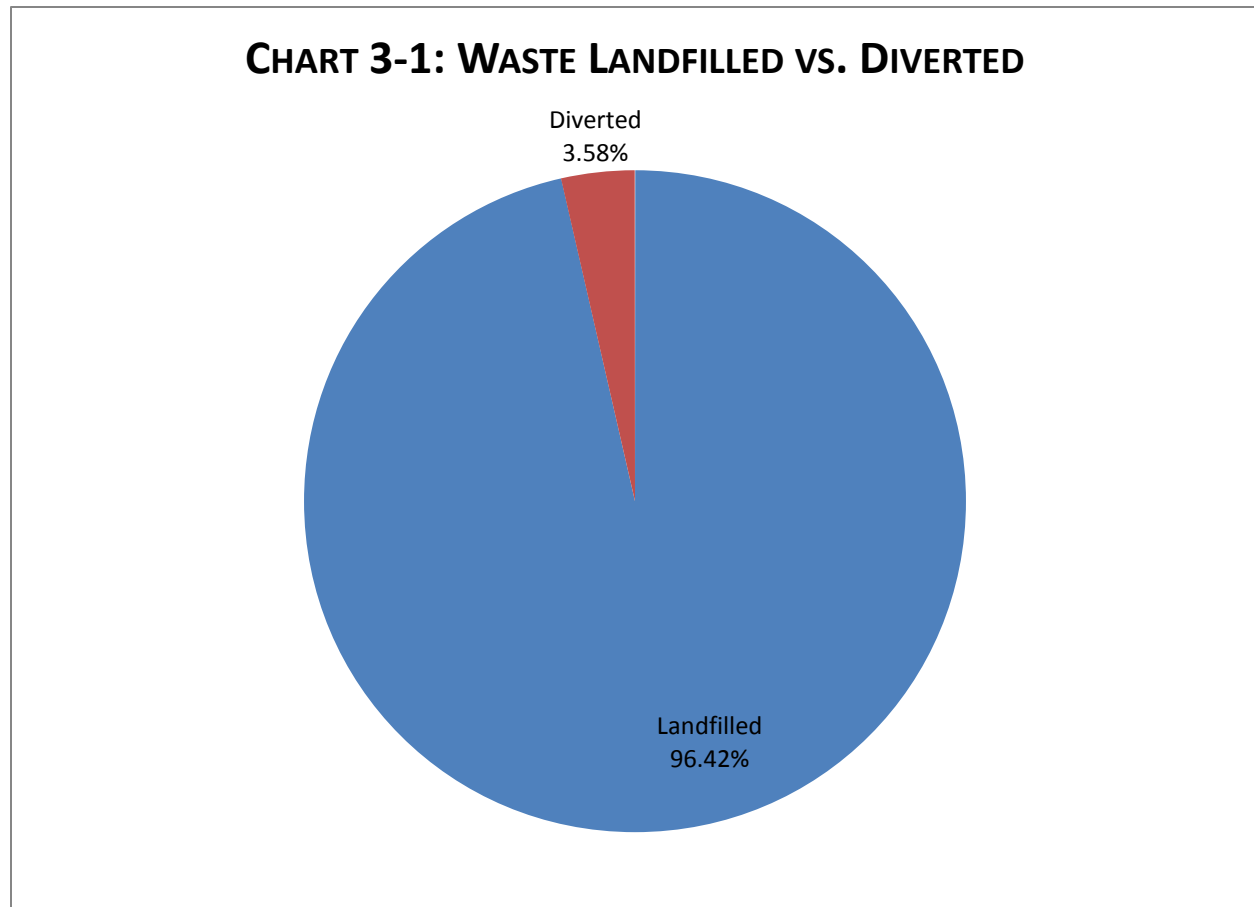
In comparison, the MSW diversion rates in surrounding counties are generally higher. Table 3-4, below, lists these diversion rates as reported in the LSWMPs prepared by those counties, as well as the overall New York State average, as reported

in *Beyond Waste*. As illustrated by the data in Table 3-4, Chenango County's calculated diversion rate is significantly lower than some of the neighboring counties, and slightly lower than others. There are many possible explanations for this discrepancy, the most likely of which is the lack of accurate data regarding the management of recyclables and organics outside of the County system. In addition, Delaware County and Broome County report exceptionally high diversion rates. In Delaware County this is due to the operation of a mixed MSW composting facility, through which all waste generated within the County is processed, with the compostable portion of the waste almost completely removed in the process. Broome County reports an exceptionally high metal recycling rate (almost one third of the generated waste stream) along with large quantities of yard waste and WWTP composting. This is likely due to the more urban nature of the County and the prevalence of public sewer access and yard waste collection services.

**Table 3- 4 - Reporting MSW Diversion Rates in Neighboring Counties**

County	Reported Percent Diversion (Reporting Year)
Chenango County	5.5% (2017)
Madison County	10% (2008)
Cortland County	12.25% (2012)
Otsego County	12.4% (2016)
Broome County	48% (2007)
Delaware County	65.7% (2018)
New York State Average	20% (2008)

Implementation Task #11 (Solid Waste and Recycling Surveys and Reporting) in Chapter 6 is intended to address the issue of the lack of data being reported by these various entities. Additionally, Implementation Tasks 10 (Public Outreach and Education) and 12 (Amendments to the County's Local Solid Waste Management and Recycling Law) will include the various recycling sectors and how best to increase recycling efforts. The evaluations are to assess the effectiveness and/or needs of these facilities and programs and Chenango 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.



*Source: NYSDEC, Facility Annual Reports, 2017*

### 3.5 Markets Discussion

Currently there are several markets for each type of recyclable material collected and processed for sale. The current process involves spot marketing each load as it becomes available, in this way the County is able to receive the highest current market prices as the loads become available.

The list of brokers buying products is updated on an ongoing basis. This keeps the prices for the recyclable products sold at the highest possible prices. There is a listing of Recyclable Markets on the Empire State Development web site that the County utilizes as necessary. Table 3-4 depicts the current markets that are available to the County by material type.

**Table 3- 5 - Current Markets Available in Chenango County**

<b>Recyclable Material Type</b>	<b>Market Outlet</b>	<b>Contact Info.</b>	<b>Processing Needed</b>
Paper – ONP	Canusa Hershman Recycling WM Recycle America	Randy Borruso (203) 315-3111 Mike Florio (716) 626-1700	Baling
Paper – OCC	Fox Run Canusa Hershman Recycling	Craig Reimer (845)-887-6022 Randy Borruso (203) 315-3111	Baling
Paper – OMG	Canusa Hershman Recycling	Randy Borruso (203) 315-3111	Baling
Metal	Wilkinson Salvage Upstate Shredding (Ben Weitsman)	Cliff Wilkinson (607) 764-8285 Adam Weitsman (607) 687-7777	None
Glass	Recycall Andela Products	John Farstler (315) 423-0768 Cynthia Andela (315) 858-0055	None
Plastic	WM Recycle America	Robert Comi (315)461-9323	Baling
Electronics	Sunnking	Cindy Jessop (585) 391-1506 (585) 402-2691 (cell)	None
Yard Waste	County Residents	N/A	Composting

Contracts with recycling markets are typically negotiated when the recyclables are ready for delivery and depend on factors such as quantities, degree of separation, degree of processing, shipping arrangements, length of contract, and market fluctuations. These factors are often negotiable; and buyers consider all the associated costs when developing a contract. In many cases, quantity, processing, and delivery requirements are flexible because buyers simply pay less for the products that suit their specifications less than ideally. Impurities in the delivered recyclables that exceed set percentage levels may be grounds for rejection of the entire load. Quality assurance is consequently of utmost importance, since brokers will contemplate accepting no further materials once contamination beyond acceptable limits is discovered.



## **Chapter 4 - Future Waste Generation Projections**

### **4.1 Solid Waste 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 municipal solid waste (MSW) diversion rates as well as the projected construction and demolition (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 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.

### **4.2 Anticipated Changes to the Local Planning Unit**

#### **4.2.1 Expected Residential Development**

Residential housing community development, such as senior living complexes, student houses and cul de sacs that have multiple residences in a group in a geographical area, may have an impact on solid waste and recycling programs within Chenango County. There are several of these small community areas currently under development throughout the Planning Unit.

#### **4.2.2 Proposed or Planned Commercial Development**

Expansion of the current community college located in Norwich will increase the need for residential services like dorms, and more apartments for students will create a need for some form of collection processes for trash and recyclables from multiple unit residences.

#### **4.2.3 Proposed or Planned Industrial Development**

Currently there are no known industries moving into the Planning Unit. If there is a loss of industry during the planning period, it will change the types of MSW received at the landfill and transfer stations. With less industrial waste the landfill will face new concerns about how to place the waste received. There will be less of a need for alternative daily cover to mix with the sludges.

#### 4.2.4 Special Conditions

The current economic slowdown and depth of possible recession has the potential to have major impacts on proposed or planned development within the County.

### 4.3 Anticipated Changes to the Waste Stream

It is anticipated that there will be a reduction in the waste stream due to the decrease in the population. It is anticipated there will be an increase in the recycling rate also reducing the amount of waste placed in the landfill.

## Chapter 5 – Alternative Technology Evaluation

The objective of the alternatives technology evaluation is to provide an overall summary of the alternatives available to Chenango County related to waste disposal and recycling technologies. Typically this section is reserved for evaluations of different disposal technologies; however, as with most local planning units, Chenango County will continue to rely on the traditional solid waste disposal technology of land burial. Consequently, NYSDEC has generated a reference document, known as “Generic Technology Assessment for Solid Waste Management” that may be utilized for completing the evaluation of available treatment or disposal technologies available outside of the Planning Unit. Section 5.1 below provides a general overview of the different disposal technologies that are available to the solid waste disposal markets, which the County will continue to monitor their successes and challenges throughout the planning period. Section 5.2 briefly discusses the different recovery options that the County may examine during the planning period to determine if their recyclables recovery efforts should be modified. The technologies summarized below will be evaluated for feasibility and cost effectiveness on an individual basis depending on staff and resource availability.

### 5.1 General Overview of Disposal Technology Options Available Landfilling

Chenango County has used landfilling as its method of solid waste disposal since at least 1994. The County-owned landfill is located in the Town of Pharsalia on County Road 47. Since it opened, the landfill has accepted between 18,500 to 40,900 tons per year of waste material (excluding alternative daily cover) with the larger amounts being accepted in the last several years. Specific quantities were previously discussed in Chapter 2. The existing permit limit is 150 tons per day, and the remaining design capacity as of January 1, 2018 is approximately 1,864,265 cubic yards or an estimated site life of approximately 31.83 years at current disposal rate projections. At these estimates, the existing landfill is estimated to run out of disposal capacity by the end of 2050. At that time, Chenango County waste would require management after the permitted airspace is completely consumed, and the County may need to pursue waste exportation or a landfill expansion.

Reductions in waste generation have reduced the economic viability of municipally-run solid waste management programs. Waste generation has decreased recently due to the poor economy and decreases in packaging on consumer goods. This in turn decreases the revenue to municipalities from tipping fees, which typically fund operations.

As Chenango County faces these economic challenges, considerations to alternative disposal options are becoming a critical next step in determining the future of the County's solid waste management practices. This LSWMP is intended to set up a framework for looking at the next ten years and providing available options to the County for solid waste management. Several of these options are briefly summarized below.

### **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 Chenango 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 in Chenango County. In addition, Chenango County maintains a landfill that has been permitted by the NYSDEC.

There are currently ten (10) active WTE facilities in the State; however, none have been permitted or constructed in the State in the past 20 years.

### **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<sub>2</sub>), carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>), and methane (CH<sub>4</sub>). The syngas can be utilized 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<sub>2</sub> and CO with smaller quantities of CH<sub>4</sub> 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 proper 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 Chenango 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, the relatively small amount of MSW generated in Chenango County, and the greater complexity of the technology. According to a recent EPA study<sup>6</sup> of pyrolysis and gasification technologies, the cost to process mixed MSW is approximately \$90 per ton which is significantly higher than landfill operational 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, located in Niagara Falls, NY, is commercially operational and one gasification plant has been commissioned in Montgomery, NY using only portions of the MSW waste stream.

### **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. 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 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

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<sup>6</sup> State of Practice for Emerging Waste Conversion Technologies, USEPA Office of Research and Development, October 2017

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.

### **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 10 plasma arc gasification facilities in operation in Japan and Taiwan, but only one that operates on a large scale (all others are < 50 TPD) and uses mixed MSW as its only feedstock. A small MSW facility (93 TPD) is in operation in Canada. In the United States, St. Lucie County in Florida obtained a permit to construct a large scale MSW plasma arc gasification facility, but due to vendor and funding issues this project was never implemented.

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

### **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. There are currently over 70 active MBT systems in operation across Europe, 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.

### **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 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<sub>2</sub>. 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 hydrogen (H<sup>2</sup>) and CO<sub>2</sub>. A third group of bacteria, the methane producers or methanogens, produce a medium-Btu biogas consisting of 50-70% methane, as well as CO<sub>2</sub>. 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 utilized 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<sup>7</sup> 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

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<sup>7</sup> State of Practice for Emerging Waste Conversion Technologies, USEPA Office of Research and Development, October 2017

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.

### **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 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<sub>2</sub>. 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.

### **Technology Assessment Conclusions**

Based on the technologies discussed above, Chenango County does not propose evaluating the feasibility of these alternative waste disposal options during the 10 year planning period; however, Chenango County does acknowledge that they are available and, should advances in the above technologies occur, the County will reassess these opportunities during the next planning period.

## **5.2 Alternative Programs for Recyclables, Organics, Waste Reduction and Reuse**

Similar to alternative waste technologies, there are various programs, legislation, or technology options for a communities waste reduction program. Below are a few of those options that are available.



## Single Stream Recycling

Single-stream recycling is a system that collects all paper fibers and commingled containers together in one collection truck. In a single-stream recycling system, the materials are commingled and no longer separated by the residents at the curb and hauled to the recycling facility in separate compartments in the collection vehicle. In single-stream, both the collection and the processing systems must be designed to handle this fully commingled mixture of recyclables.

The single-stream philosophy of recycling has firmly taken hold in many areas of the country where weather conditions and port access eased operational concerns. Hundreds of North American and European cities annually shift to single stream recycling. A 2005 R.W. Beck survey stated that 11 percent of the U.S. population with curbside recycling service was single-stream. By 2007, that number had increased to 50 percent according to the American Forest and Paper Association.

The advantages of a single-stream system are associated with slightly higher recycling rates and reduced collection costs. The disadvantages of the system are associated with initial capital costs for upgrading of the materials recovery facilities, higher sorting and processing costs, higher residual rates (i.e., non-processible material sent to the landfill), and higher contamination of recyclable paper, making the recovered material less marketable.

### Jurisdictional Impacts on Neighboring Planning Units

Cortland and Broome Counties each have a single stream recycling program. There is the potential that Chenango County could partner with one or both of these programs should a single stream recycling program be considered. A consistent method between planning units could be useful in education efforts in communities near the county borders.

### Assessment of Environmental Justice within Chenango County

According to the NYSDEC Environmental Justice Area Mapper, there is one potential environmental justice area located within Chenango County, within the City of Norwich. There is no known or expected environmental justice impact within Chenango County associated with single stream recycling.

## **Composting of Organic Waste (yard waste, food waste, biosolids)<sup>8</sup>**

Composting of organic materials from the solid waste stream not only provides 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

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<sup>8</sup> <http://www.dec.ny.gov/chemical/8798.html>

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 plants (WWTPs); 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.

Currently, there are sixty-four (64) facilities permitted for composting in New York State. Of these, twenty-six (26) compost biosolids/sewage sludge, thirty-four (34) compost yard wastes, and four (4) compost food and other mixed wastes.

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.

#### Jurisdictional Impacts on Neighboring Planning Units

Delaware County currently composts all organics generated within the county, however, this facility does not have the capacity to manage organics from Chenango County. According to the New York State Pollution Prevention Institute's Organic Resource Locator, there are no other large scale organics management facilities within the neighboring jurisdictions capable of managing Chenango County's organics. Although there may be potential for participation by neighboring jurisdictions (aside from Delaware County) in a facility located within Chenango County, the rural nature of the County and the areas along its borders would make a central facility impractical.

#### Assessment of Environmental Justice within Chenango County

If a centralized organics recovery facility were to be proposed within the City of Norwich, environmental justice impacts would have to be considered when locating such a facility. No such facility is proposed at this time.

## **Expansion of Mandatory Recyclable Materials**

In many communities, mandatory recyclables lists are outdated and do not align with the current recycling markets. In recent years communities are reviewing these lists.

### Jurisdictional Impacts on Neighboring Planning Units

If Chenango County and surrounding planning units were to pass consistent mandatory recycling lists, this may assist in compliance in the community through the use of common messaging across communities.

### Assessment of Environmental Justice within Chenango County

There is no known or expected environmental justice impact within Chenango County associated with expansion of mandatory recyclable materials.

## **Hauler Licensing**

To provide stricter oversight of the haulers responsible for collection of solid waste and recyclables, some communities opt to require hauling companies that collect, transport or dispose of discarded materials (garbage, recyclables or compostables) to be licensed by the municipality in which they are performing these services. Hauler licensing could allow municipalities to gain access to data on amounts of material collected and managed.

### Jurisdictional Impacts on Neighboring Planning Units

The County would need to determine if licensing would apply to haulers working within the County who might haul waste from within multiple jurisdictions and how the licensing requirements would apply and be managed across planning units.

### Assessment of Environmental Justice within Chenango County

There is no known or expected environmental justice impact within Chenango County associated with local hauler licensing.

## **Management of Household Hazardous Waste<sup>9</sup>**

Many common household products contain hazardous substances. These products become HHW once the consumer no longer has any use for them. Many communities have established programs to manage HHW. The impetus for starting a HHW program can come from the grassroots level, from local or state government agencies, from community groups, or from industry. The number of HHW collections in the United States has grown dramatically over the last decade. Since 1980, when

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<sup>9</sup> U.S. EPA Solid Waste and Emergency Response Household Hazardous Waste Management – A Manual for One-Day Community Collection Programs. August 1993

the first HHW collection was held, more than 3,000 collection programs have been documented in all 50 states.

Although programs vary across the country, most include both educational and collection components. Communities usually begin a HHW program by holding a single-day drop-off HHW collection. Organizing a collection event is an important first step in reducing and managing risks associated with HHW.

Some communities hold annual or semiannual collections, while others have established permanent HHW collection programs with a dedicated facility (open at least once each month) to provide households with year-round access to information and repositories for HHW. In addition, communities have initiated pilot programs for curbside pick-up by appointment, neighborhood curbside collection programs, and drop-off programs for specific types of HHW.

The efforts of communities across the country provide a wealth of experience for other communities beginning HHW management programs. As the number of these programs continues to grow, public awareness about HHW will also grow, and the environmental problems associated with improper storage and disposal of HHW are likely to decrease.

#### Jurisdictional Impacts on Neighboring Planning Units

There is the potential that the County could partner with adjacent planning units, such as Broome County, to participate in their established permanent HHW collection programs, in lieu of undertaking the capital expense of developing their own facility. This might help defray costs for the partnering planning unit as well as for Chenango County.

#### Assessment of Environmental Justice within Chenango County

There is no known or expected environmental justice impact within Chenango County associated with HHW collection programs.

### **C&D Debris Recovery**

There are currently no front- or back-end separation requirements/regulations for C&D waste (other than for LEED projects). While there are many materials in the C&D waste stream that have potential reuse/recycling options, low tipping fees at area landfills can make the division of these materials into desirable components cost-prohibitive. However, as commodity markets and quantities allow, contractors, residents and construction demolition companies separate materials (such as metals, masonry, asphalt, etc.) for profitable reuse and recycling. As with most post-consumer items, methods of C&D debris sorting usually happen at the source or at a

separation facility. Either option takes financial or operational resources that may or may not justify the end-product.

#### Jurisdictional Impacts on Neighboring Planning Units

There is no known potential for partnering with neighboring planning units for C&D debris recovery at this time, as the private sector is largely responsible for any such efforts currently being undertaken.

#### Assessment of Environmental Justice within Chenango County

There is no known or expected environmental justice impact within Chenango County associated with C&D debris recovery.

### **Flow Control Legislation**

Flow control legislation allows local governments to direct solid waste and/or recyclables to designated facilities to ensure a continuous source of revenue and eliminates the possibility that any portion of the municipality's waste stream could be diverted.

Thirty-five states (including New York) as well as the District of Columbia and the Virgin Islands directly authorize flow control, while four additional states authorize flow control indirectly through mechanisms such as local solid waste management plans or home rule authority. In New York, a municipality is usually specifically authorized by the State Legislature to adopt flow-control legislation. Unlike other states, New York explicitly states that flow control may cover source-separated recyclable materials. Currently, there are 37 municipalities in New York State (i.e., districts, towns, counties, authorities) authorized by the State Legislature to enact flow control legislation covering approximately 80 percent of the state's population. Although flow control is authorized, many municipalities or Planning Units do not enforce it.

#### Jurisdictional Impacts on Neighboring Planning Units

According to the data obtained from Facility Annual Reports submitted to the NYSDEC for neighboring landfill facilities, approximately 25% of the waste generated within Chenango County and disposed of at a landfill is sent to facilities outside of Chenango County. None of the receiving facilities are located in planning units immediately adjacent to Chenango County. If flow control were to be implemented, this would affect the planning units that these facilities are located in, as it would result in a reduction in waste disposed of at these facilities.

### Assessment of Environmental Justice within Chenango County

There is no known or expected environmental justice impact within Chenango County associated with flow control legislation.

#### **Pay-As-You-Throw**

In areas where Pay-As-You-Throw (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.

There are many variations to the PAYT program. The 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, often printed with special logos for different haulers, and dispose of waste in these specially marked bags. The price of each bag incorporates the cost of collection, transportation and disposal of the waste. The more bags customers use the more they are paying for waste collection and vice versa. The tag and sticker program allows customers to purchase tags or stickers, which are often specially marked for different haulers, and place these tags or stickers on their garbage bags. This program is similar to the bag program, only using tags and stickers instead of specialty bags.

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 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.

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.
- PAYT programs can be a concern for large poor families who cannot afford to pay for the amount of waste they dispose.
- PAYT programs can be hard to implement at first if communities are unwilling to embrace the change that the program requires.
- Implementing PAYT programs (e.g., purchasing of stickers, cans, bags, etc., retrofitting waste trucks, employee reassignment, etc.) can prove challenging.

Jurisdictional Impacts on Neighboring Planning Units

There are no known jurisdictional impacts on neighboring planning units at this time.

Assessment of Environmental Justice within Chenango County

As described above, pay as you throw programs have the potential to have impacts on low income communities in both positive and negative ways.

## **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.

Chapter 6, Solid Waste Management Program Strategies, will provide an overview of the subtasks anticipated to be undertaken during the course of this planning period to improve the County's waste diversion rate.

### Jurisdictional Impacts on Neighboring Planning Units

There is the potential to team with neighboring planning units to share the costs and personnel requirements for education and outreach programs; however, inconsistency in recycling and diversion programs can make this difficult.

### Assessment of Environmental Justice within Chenango County

There is no known or expected environmental justice impact within Chenango County associated with education and outreach programs.



## **Chapter 6 – Solid Waste Management Program Strategies**

Based on the data gathered and discussed in the preceding Chapters, the County has identified milestones to work toward during a ten-year LSWMP planning period. The milestones set forth below were identified with the goal of further enhancing the reuse and recycling of materials generated in Chenango County to reduce the quantity of materials being landfilled. Each milestone will be evaluated for feasibility and cost effectiveness on an individual basis according to the implementation schedule included in Chapter 7.0.

The NYSDEC's rules and regulations for Comprehensive Solid Waste Management Planning (Subpart 366-1 of 6NYCRR Part 366) require that all solid waste management plans provide for the management of solid waste within the planning unit for a minimum of a ten-year period. Since the County's current LSWMP has expired, the County proposes that this LSWMP planning period be for a 10-year period after NYSDEC approval of this document.

The County can address and report any changes to their solid waste planning efforts that take place over the 10-year planning period to the Department as part of the solid waste management plan biennial updates that Chenango County is required to prepare and submit to the Department every two years. An example outline of a compliance report is included in Appendix C for reference. A ten-year planning period would represent the most cost effective utilization of limited state and county resources, with no deleterious effects on the County's ability to plan for and implement environmentally sound solid waste management and recycling programs.

The County's ability to achieve many of the implementation goals described below will rely heavily on the availability of funding to complete the various tasks. The County anticipates applying for NYSDEC funding for a recycling coordinator in accordance with the schedule outlined in the recently promulgated 6NYCRR Part 369-3. If grants are not awarded or become unavailable, the County Board of Supervisors will work with a grant writer to research and obtain other grants to fund these programs. If no grants are found, the Board of Supervisors will determine where funding will come from out of the County budget to cover these costs.

### **6.1 Implementation Tasks to Increase Recyclables Recovery**

Throughout the past 20 years, the County has identified waste streams that have come to light as candidates for additional recycling programs. This can be either through a sudden increase in volume of certain materials (phone books and electronic waste), developing markets or the realization of the need to handle wastes in special ways (HHW).

Chenango County understands that various tasks will need to be completed to promote a successful recyclables recovery program. The following sub-sections summarize solid waste management program strategies that encourage greater waste diversion and more recycling.

### **Implementation Task #1 – Evaluation of Source Separated Recycling Program**

Source separated recyclables recovery program is the current recycling program in place, which requires the residents to sort their paper, plastics, glass, and metal. This has served Chenango County well since the opening of the Chenango County Landfill in 1994. The public has been educated to sort everything before bringing it to the landfill or transfer station (i.e., separate paper, plastic, glass and metal). The public takes a personal responsibility for their wastes by utilizing this program. It is also the cheaper program to run. It does not require as many employees or sorting equipment. As part of this planning period, Chenango County proposes to evaluate the existing recycling program and determine if a transition to dual stream or single stream would benefit the County's recycling program, increase diversion, and make recycling easier for their residents.

Chenango County is one of the few planning units that still supports a source separated recycling system. Given that residents and businesses are used to sorting their recyclables, it may be sensible to explore transitioning to a dual stream system where sorting is still necessary but not on the same labor intensive level as the existing system. In a dual stream system, residents usually combine all their food and beverage containers (aluminum and steel cans, glass jars and bottles, and some or all plastic bottles) in one bin, and they put their newspapers and/or mixed paper in another bin. The fiber is typically sent to market with little or no processing, and the containers go through a variety of automated sorting equipment and hand-picking before being baled or containerized and sent to the market. For the County to transition to a dual stream system, capital improvements would be required of the existing recycling facilities as well as additional labor force. Both of these items would require funding to be available.

Another option would be transitioning to single stream recycling. Single-stream recycling has been reported to improve recycling rates in the United States. The commingled materials are separated at the Materials Recovery Facility (MRF) through the use of magnets, screens, optical scanners and manual sorting. This option could be broken down into two (2) different options - the County maintaining the operation or partnering with a neighboring Planning Unit.

- Should the County continue to operate the County's recycling facilities, this option would require the County to build a new MRF that would be equipped with the necessary sorting lines and would require more labor for sorting and processing. An extensive educational program for county residents and

businesses would be required. Although this option would make recycling easier for the customer, it would be a large expense to the county and their taxpayers.

- Both Cortland County and Broome County have privately operated MRFs that operate under a single stream system. Should it become evident that single stream recycling is the direction the County should take, but the funding for their own facility is not available, negotiations with other facilities could be initiated. This option could potentially prohibit the County from seeing any revenues from the recovery marketplace and would be relying on another Planning Unit's solid waste management infrastructure to manage the County's recyclables stream.

Table 6-1 provides an overview of a management plan that outlines the resources necessary to complete an evaluation of the existing recycling program offered and determine if another option is more suitable for Chenango County. The Implementation Schedule in Chapter 7 also provides a year by year breakdown of the steps necessary to complete this task.

**Table 6- 1 - Implementation Task #1 - Management Plan**

<b>Evaluation of Existing Source Separated Recycling Program</b>	
<b>Management Plan</b>	<b>Details for Implementation</b>
Party Responsible for Implementation:	Chenango County
Resources Required:	Existing staff.
Milestones:	See Chapter 7 – Implementation Schedule for further details.
Estimated Cost:	Depends on selection of program.
Funding Opportunities Available:	Grant available from the NYSDEC to cover 50% of the salary of a recycling coordinator for Planning Units.
Potential Limitations:	Insufficient funding.
Goal:	Provide County residents, businesses, and institutions with a recycling program that makes recycling easier and ultimately increases waste diversion.

### **Implementation Task #2 - Recycling at Public Facilities/Events**

Chenango County currently participates in promoting recycling in local public schools through presentations. If financial and personnel resources allow, the County will continue this program in the local schools, as well as expanding into public facilities (such as municipal office buildings) and at special events (such as the Chenango County Fair, festivals), which were previously listed in Table 1-7.

Table 6-2 provides an overview of a management plan that outlines the resources necessary to implement recycling at public facilities. The Implementation Schedule in Chapter 7 also provides a year by year breakdown of the steps necessary to complete this task.

**Table 6- 2 - Implementation Task #2 - Management Plan**

<b>Increase Recycling at Public Facilities</b>	
<b>Management Plan</b>	<b>Details for Implementation</b>
Party Responsible for Implementation:	Chenango County, with assistance from Municipalities; Public Schools, Libraries
Resources Required:	Existing staff.
Milestones:	See Chapter 7 – Implementation Schedule for further details.
Estimated Cost:	\$25,000 - \$50,000/year
Funding Opportunities Available:	Grant available from the NYSDEC to cover 50% of the salary of a recycling coordinator for Planning Units.
Potential Limitations:	Insufficient funding.
Goal:	Increase recycling recovery efforts at schools, public facilities, libraries, and special events.

### **Implementation Task #3 – Support Product Stewardship Legislation**

Product Stewardship is based on the concept that all 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 State Product Stewardship Council (NYS PSC) works to implement the principles of product stewardship in New York State and the nation by:

- Developing and recommending workable product stewardship policies and providing educational tools to individuals, organizations, institutions, local governments, the state legislature and elected officials.
- Providing effective leadership and guidance on product stewardship initiatives.
- Coordinating and participating in product stewardship initiatives locally, regionally and nationally.
- Working with manufacturers and their trade associations to develop and implement workable product stewardship initiatives.
- Educating manufacturers, the public, elected officials and other decision makers on the benefits of product stewardship.

- Providing a forum for the exchange of information regarding existing and proposed product stewardship programs.
- Evaluating and, where necessary, recommending improvements to product stewardship programs once they are instituted.

It is the intent of Chenango County to adopt these product stewardship framework principles through a resolution. Table 6-3 provides an overview of a management plan that outlines the resources necessary to adopt product stewardship framework principles. The Implementation Schedule in Chapter 7 also provides a year by year breakdown of the steps necessary to complete this task.

**Table 6- 3 - Implementation Task #3 - Management Plan**

<b>Support Product Stewardship Legislation</b>	
<b>Management Plan</b>	<b>Details for Implementation</b>
Party Responsible for Implementation:	Chenango County with assistance from the NYS PSC
Resources Required:	Board of Supervisors support
Milestones:	See Chapter 7 – Implementation Schedule.
Estimated Cost:	Minimal
Potential Limitations:	1. Lack of supervisors support. 2. Lack of support from local manufacturers.
Goal:	Shift government funded waste diversion to one that relies on product stewardship

#### **Implementation Task #4 - County Wide Household Hazardous Waste Collection**

Although specific HHW generation data for the County is not easily obtainable, it is generally estimated that HHW makes up an average of 0.34% of the MSW waste stream. While this equates to a fairly minimal amount of material (147 tons per year in Chenango County), the high toxicity of this material makes it an important target for removal from the landfilled waste stream. The County continues to encourage a regional approach administered by the County to address the HHW collection. Every other year the County hosts a HHW Collection Day. The most recent event was held on September 23, 2017 at the Chenango County Highway Garage in Norwich. A pamphlet prepared by the County for educational purposes is included in Appendix D.

Over the course of the planning period, the County will examine the demand to determine if expanding the program to include additional HHW collection events would be beneficial. The County will also continue to work with the municipalities to evaluate the need to expand the program in the future with the consideration of a

centrally located permanent HHW facility. Of course, any of these programs will be administered on a basis consistent with the economic situation and the need.

The single collection events held by Chenango County have cost between \$25,000 and \$50,000 per event. The construction of a permanent HHW facility can range from approximately \$100,000 to \$2 million, depending of the level of service desired. The lowest cost facility would consist of material storage units only and would typically still be operated on an event basis with material being collected in a tent or a temporary location. The most expensive would consist of a building designed and constructed for the sole purpose of collection and storing HHW and would be opened multiple days a week, year round. The main benefits of permanent collection facilities are the reduction in disposal costs, the increase in collection quantities, and the flexibility and convenience provided to residents. During single collection events, all of the materials collected must be removed from the collection site for final disposal within 3 days of collection. HHW handling companies typically charge on a per drum basis, regardless of the quantity of material in the drum. This can lead to high disposal costs per ton of waste when partially filled drums are disposed of at full drum prices. Permanent collection facilities provide a permitted storage location where partially filled drums can be stored until the next collection event so that only the disposal of full drums is paid for. This can lead to savings of up to 30% off typical disposal costs.

Permanent collection facilities typically recover approximately 5-8% of the HHW waste stream due to the increase in availability and convenience to residents. The availability of storage on site also allows for the ability to collect materials from residents on an “emergency” basis. If residents contact the County with an emergency need of HHW disposal (such as clean out of a home destroyed by fire, purchase of a new home with unknown HHW material on site, or the clean out of a home of a deceased relative), the facility could be used to accept and store these materials until the next collection event.

Generally the cost of individual events is easier to absorb as opposed to the design and construction of a permanent facility. As described in Section 5.2, above, the potential to partner with Broome County for the use of their permanent HHW collection facility could also be considered. Madison County currently teams with a private HHW management facility located in Onondaga County to pay for the residents to drop off materials in Syracuse, the closest major city. There is the potential that Chenango County could develop a similar arrangement with the facility located in Broome County. It must be carefully evaluated as to whether the added convenience, increased recovery rate, and long-term disposal savings can justify the implementation of a permanent facility.

Table 6-4 provides an overview of a management plan that outlines the resources necessary to provide additional HHW collection opportunities. The Implementation Schedule in Chapter 7 also provides a year by year breakdown of the steps necessary to complete this task.

**Table 6- 4 - Implementation Task #4 - Management Plan**

<b>Provide additional HHW collection opportunities to County residents</b>	
<b>Management Plan</b>	<b>Details for Implementation</b>
Party Responsible for Implementation:	Chenango County DPW
Resources Required:	Capital for permanent HHW facility. Staff to assist with collection events if needed.
Milestones:	See Chapter 7 – Implementation Schedule.
Estimated Cost:	Capital: \$0 - \$2 million Operational: \$50,000 to \$80,000 per event
Funding Opportunities Available	NYSDEC HHW grant will cover up to half of permitting, design, and construction costs for permanent facility and half of operational costs if incurred by the County.
Potential Limitations:	1. Limited capital for initial implementation 2. Availability of cost share partners
Goal:	Increase collection rates and divert more HHW materials from disposal and wastewater facilities.

## Implementation Task #5 – Unique Wastes

### 6.1.1 Pharmaceutical Wastes

Until recently, consumers have been told to flush unwanted drugs. With technological advances and research, low levels of drugs are being found in our surface waters. We know that some drugs pass largely unaltered through our wastewater treatment plants and enter rivers and other waters. Drugs from health care facilities, pharmaceutical manufacturing facilities and farms can also find their way into the water.



In past years, the Drug Enforcement Administration has held nationwide take back initiative programs; however, in 2014 the DEA discontinued this program. Chenango County participated in the National Prescription Take-back Day in 2016. Table 6-5a below lists the facilities that participated in the 2016 event in Chenango County.

**Table 6- 5a - National Prescription Take-Back Day - Chenango County**

<b>Participants</b>	<b>Collection Sites</b>	<b>Location</b>	<b>City</b>
Chenango County Sheriff's Department	Afton Town Hall	204 County Rd 39	Afton
Chenango County Sheriff's Department	Otselic Fire Department	1577 St HWY 26	Otselic

Chenango County intends to track collection events within the County and nearby Counties and promote them around the County through educational activities. The NYSDEC's website also maintains a Household Drug Collection Schedule that can be referenced for nearby collection sites or programs.

#### 6.1.2 E-Wastes

Presently the County has a limited E-Waste Recycling program, which accepts electronics at the North Norwich and Brisben transfer stations, as well as the County landfill. Recently, the New York State Electronic Equipment Recycling and Reuse Act was signed into law on May 28, 2010. It requires manufacturers to set up and fund programs for the collection and recycling of electronic waste in New York State. This new law will relieve New York local municipalities, such as Chenango County, of the costly burden of managing hazardous e-waste, and will provide free and convenient recycling of electronics to consumers and businesses in New York State. Chenango County supports this legislation and intends to track it to determine how it may benefit Chenango County's local programs.

The County's list of mandatory recycled items does not include computers. As the technology in consumer electronics evolves, the quantity of electronic waste, or E-waste, entering the waste stream will continue to grow. While the County currently accepts E-waste for recycling at its transfer stations, the County proposes to evaluate the feasibility of expanding the list of mandatory recycled items to include E-wastes such as computers, cell phones and digital cameras. This would require the adoption of a local law to include these items as mandatory recyclables.

#### 6.1.3 Medical Wastes

Sharps are accepted at the transfer stations or recycling centers as long as they are contained in appropriate containers and properly marked. If they are not contained and properly marked they are not allowed, as they pose a serious health and safety risk to employees who would come in contact with them. Local pharmacies, healthcare facilities, etc. have programs in place that provide for the



proper disposal of these sharps as well. All hospitals in New York State (except for federal facilities) are required to collect sharps from households. The County's role is to help make sure that residents are aware that these programs are in place. The Chenango County Health Department maintains a listing of available outlets and generates a flyer for distribution and posting on the County's website.

#### 6.1.4 Universal Wastes

Universal waste is a category of waste materials designated as "hazardous waste", but containing materials that are very common. Although household hazardous waste facilities were previously discussed, this category is also pertinent to commercial, institutional and industrial entities. Businesses and other generators of such waste are required to provide for their proper disposal and typically HHW collection events are for residents.

##### *Mercury*

New York State bans the sale of many mercury containing products in NYS. Mercury is used in some consumer products; examples include thermometers, thermostats, and automotive switches. Disposal of mercury-added products are not allowed in normal trash but must be managed separately. Chenango County residents may dispose of these and other mercury containing materials for free at the scheduled household hazardous waste days, which were previously discussed.

It is well known that mercury is an extremely toxic substance that does not break down easily once released to the environment, and therefore its disposal needs to be controlled. The County will assess the feasibility of developing a permanent program for the collection and proper disposal of mercury containing products such as thermometers and thermostats. The goal of such a collection program is to provide residents with a convenient and safe method of disposal of these items and reduce the instances of improper disposal.

NYS joins a growing number of other states in adopting legislation that recognizes the environmental and public health consequences associated with the mismanagement of this highly toxic substance. Chenango County supports the Mercury Added Consumer Products Act of 2004, and will promote the proper handling and disposal of mercury containing materials through the public outreach program.

### *Compact Fluorescent Lamps (CFLs)*

The County's list of mandatory recycled items does not include compact fluorescent lamps (CFLs); however, Chenango County residents can dispose of expended CFLs at the local Household Hazardous Waste (HHW) Collection event or at the County's transfer stations. Broken CFLs are not accepted. CFLs contain a small amount of mercury; approximately 3-5 milligrams. Expended CFLs should be disposed of properly, in the same manner as other household hazardous waste products like paint, batteries and non-digital thermostats. Additionally, many CFL retail outlets, such as hardware stores, offer safe disposal or recycling.

### *Batteries*

Many residents use and discard batteries into the waste stream. Although waste batteries are a small amount of the solid waste stream, they are a concentrated source of some types of heavy metals. The main constituents of concern for human health and the environment include: cadmium, lead and mercury.

Reusable/rechargeable batteries are preferred over single-use batteries provided the rechargeable batteries are recycled after their useful life is over. Most communities in New York State have a voluntary, drop-off program for collecting household batteries.

As of June 8, 2011, New York retail locations that sell rechargeable batteries are required to accept used batteries of the same type for recycling. Additionally, as of December 15, 2011, it is against the law for New Yorkers to knowingly dispose of rechargeable batteries in the garbage. Rechargeable batteries, all household batteries and button cell batteries are on the County's list of mandatory recycled items, which are accepted at any of the County's transfer stations and landfill.

#### 6.1.5 Pesticides

CleanSweepNY is an Environmental Benefit Project which was initiated by the New York State Department of Environmental Conservation's Bureau of Pesticide Management and it describes in one word an effort to safely and economically dispose of canceled, unwanted, unusable, or otherwise obsolete pesticides and other chemicals from agricultural or non-agricultural business activities. CleanSweepNY also provides for the disposal of elemental mercury, mercury containing devices such as thermometers, manometers, etc. from schools and other entities.

CleanSweepNY collection events do not target the general public since home and garden pesticides are accepted in Household Hazardous Waste (HHW) collections. Commercially applied or larger quantities of pesticides are usually excluded from local HHW collections. In New York State this fact has created a backlog of demand for safe, legal, and affordable disposal of obsolete pesticide products and other chemicals.

CleanSweepNY is administered by NYSDEC in collaboration with the New York State Department of Transportation, which provides sites for the collection of these unwanted chemical materials. The program is supported by Cornell Cooperative Extension, the Agricultural Container Recycling Council, NYS Green Industry, Soil and Water Conservation districts, the New York Farm Bureau, and related grower associations. To date, CleanSweepNY has collected and disposed of over 850,000 pounds of hazardous chemicals and more than 500 pounds of elemental mercury. The program has also collected over 3,000 plastic pesticide containers for recycling that would have otherwise ended up in landfills.

Throughout the planning period, Chenango County will evaluate the feasibility of promoting these existing programs to residents. Table 6-5b provides a framework for encouraging proper disposal of the mentioned wastes. The Implementation Schedule in Chapter 7 also provides a year by year breakdown of the steps necessary to complete this task.

**Table 6-5b - Implementation Task #5 - Management Plan**

<b>Encourage Proper Disposal of Unique Wastes</b>	
<b>Management Plan</b>	<b>Details for Implementation</b>
Party Responsible for Implementation:	Chenango County DPW; Private Entities (i.e., supermarkets, pharmacies, hospitals, electronics stores, home improvement stores, Sheriff Dept., etc.).
Resources Required:	Existing staff.
Milestones:	Ongoing – See Chapter 7 – Implementation Schedule
Estimated Cost:	Minimal except for administrative costs.
Potential Limitations:	Insufficient funding for programs.
Goal:	Removal of unique wastes from disposal and increase recovery efforts.

## Implementation Task #6 - Product Reuse Collection and Distribution Programs

Product reuse is one of the most efficient forms of recycling. Chenango County currently operates a Latex Paint Exchange program between May 1<sup>st</sup> and September 30<sup>th</sup> at the North Norwich Recycling Center. This program may be used as a model to develop other programs and expand the types of products exchanged. Should Chenango County not be able to manage additional exchange programs, they would propose to encourage the private sector to provide additional systems by which their residents can drop off used, but still usable items free of charge. Items would also be salvaged from the existing recycling streams, such as bulk metal, book recycling, and used electronics recycling. These items would then be made available to residents for a fee.

A Materials Exchange program is an alternative product reuse outlet. Materials exchanges facilitate the exchange of materials or wastes from one party, which has no use for that material, to another party that views the materials as a valuable commodity. These facilities foster waste reduction efforts through the reuse of materials, thus eliminating the need to process the materials for recovery or disposal. These facilities are not regulated by the NYSDEC. Through economic development, the County would be supportive of a private or public entity developing a similar program within Chenango County. Table 6-6 provides an overview of expanding a product reuse program. The Implementation Schedule in Chapter 7 also provides a year by year breakdown of the steps necessary to complete this task.

**Table 6- 6 - Implementation Task #6 - Management Plan**

<b>Encourage Product Reuse Programs</b>	
<b>Management Plan</b>	<b>Details for Implementation</b>
Party Responsible for Implementation:	Chenango County; Private Entities
Resources Required:	Existing staff.
Milestones:	Ongoing – See Chapter 7 – Implementation Schedule
Estimated Cost:	To be determined.
Potential Limitations:	Lack of private sector interest.
Goal:	Promote product reuse to increase waste diversion.

## Implementation Task #7 - Agricultural Plastics Recycling

Chenango County is predominantly rural with 33% of the land used for agriculture, 60% is forested and only about 5% of the County's total land area is developed in commercial, industrial or residential use (Chenango County Online Visitor's Guide, 2005). Chenango County ranks 14<sup>th</sup> in New York State for the number of farms and 17<sup>th</sup> for land in farms [U.S. Department of Agriculture National Agricultural Statistics Service (USDA NASS), 2012]. With over 150,000 acres of farmland within its borders, agricultural plastics represent a



significant waste stream produced within the County. The agricultural plastics that farmers use, such as plastic baling twine, greenhouse plastics, hay bale wraps, mulch film, and pesticide containers are not currently included in the list of acceptable recyclables items in Chenango County. As such, many of these materials end up in the County landfill or buried at their point of origin. One challenge to recycling these products is that many of them are bulky and difficult to transport, as well as the concern that many of them may be contaminated with pesticides, mold, and soil. Recently a handful of agricultural plastics recyclers have begun to emerge across the country, along with new concepts in the handling of these materials to enhance the ability to recycle them.

In the past, the Cornell Cooperative Extension (CCE) within Chenango County has recently partnered with Cornell's Recycling Agricultural Plastics Project (RAPP) to establish programs for hard to recycle agricultural plastic products; however, the RAPP program has recently been suspended due to lack of funding. RAPP was a collaboration of Cornell University with organizations, agencies, and businesses in support of agriculture, environmental protection, economic development and recycling. A pole barn was constructed to house agricultural plastics as well as other degradable recycables at the North Norwich Transfer Station and agricultural plastics are still accepted; however, reliable outlets for these materials are no longer available in the United States and recycling overseas is becoming increasingly difficult.

In early 2016, Madison County issued an RFP for the development of a regional facility to turn hard to recycle plastics (i.e., agricultural plastics) into fuel. The Chenango County Department of Planning & Development provided a letter of support/interest as part of the RFP. Although no viable proposals were received at that time, it resulted in a study, funded by the NYSDEC. The study, titled "Conversion of Non-Recyclable Plastics-to-Oil Products Feasibility Study, Madison County, New York" performed by Parsons and MSW Consultants in May 2017

concluded that material from throughout a service area radius of 100 miles would be required to acquire adequate feedstock for such a facility. This radius extends into Chenango County. Madison County is currently in the process of re-issuing the RFP, with proposals expected in early 2019. As outlined in the program management plan in Table 6-7, Chenango County will continue to support and the Madison County RFP and their efforts in the agricultural plastics recycling initiative. The Implementation Schedule in Chapter 7 also provides a year by year breakdown of the steps necessary to complete this task.

**Table 6- 7 - Implementation Task #7 - Management Plan**

<b>Encourage Agricultural Plastics Recycling Programs</b>	
<b>Management Plan</b>	<b>Details for Implementation</b>
Party Responsible for Implementation:	Chenango County DPW; Chenango County Cornell Cooperative Extension; Madison County Department of Solid Waste, Local Agriculturalists
Resources Required:	Partnerships
Estimated Cost:	To be determined.
Potential Limitations:	Lack of private sector interest.
Milestones:	Ongoing – See Chapter 7 – Implementation Schedule
Goal:	Support the current and potential expansion of the agricultural plastics recycling program through the Chenango County Cornell Cooperative Extension

### **Implementation Task #8 Construction & Demolition Debris Recycling**

Currently, landfilling C&D waste is more economical than recycling it in most cases. As of the preparation of this LSWMP, there are no known full scale mixed C&D waste recycling facilities in operation in the vicinity of Chenango County. Collection of C&D debris is not provided by the County and collection must be contracted for independently with private haulers or contractors. Consequently, it would not be financially prudent for Chenango County to enter into the business of C&D waste sorting and recycling, as it has not been proven as a viable operation. One method the County will explore as a means to encourage C&D waste diversion without developing infrastructure would be to encourage the separating of portions of the waste stream at the source. Wood and masonry materials can be recycled fairly easily if properly separated from other materials. The County can work with existing C&D processors or encourage the development of such facilities to evaluate the feasibility of offering financial incentives to encourage generators to separate their own waste at the source and bring these sorted loads to the processing facilities for recycling. The County is also currently assessing the possibility of a “Re-use” store

for the voluntary drop off of reusable construction materials for re-sale. Table 6-8 provides an overview of the construction and demolition debris recycling program. The Implementation Schedule in Chapter 7 also provides a year by year breakdown of the steps necessary to complete this task.

**Table 6- 8 - Implementation Task #8 - Management Plan**

<b>Enhance Construction &amp; Demolition Debris Recycling</b>	
<b>Management Plan</b>	<b>Details for Implementation</b>
Party Responsible for Implementation:	Chenango County, Other Identified Partners
Resources Required:	Potential partners' support, Additional Staff.
Milestones:	See Chapter 7 – Implementation Schedule
Estimated Cost:	Administrative costs, staffing costs.
Potential Limitations:	<ol style="list-style-type: none"> <li>1. Lack of support from potential partners.</li> <li>2. Lack of programs available to replicate.</li> <li>3. Lack of private investment.</li> </ol>
Goal:	Increase diversion of C&D or remodeling debris from the landfill.

## 6.2 Implementation Tasks to Increase Organics Recovery

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.

### Implementation Task #9 – Organics Waste Diversion

Few towns within Chenango County provide for seasonal leaf and tree limb pick-up, leaving residents and businesses to take their yard waste to the Chenango County transfer stations for proper management. Chenango 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 disposal. As a second option, a few private companies operate yard waste compost facilities that are available to residents.

While composting of all organic waste can be an effective method of low technology recycling that can significantly reduce the stream of landfilled waste, collection of these materials on a household basis can prove both difficult and expensive. Another option for encouraging the removal of these wastes from the waste stream is to implement a backyard composting program, through which residents are provided information regarding the methods of backyard composting. The rural nature of Chenango County and the associated availability of open land available to

the average resident for such composting efforts make this a viable option. The Cornell Cooperative Extension currently offers low cost backyard composting seminars for residents of Chenango County. The County proposes to further support these seminars through educational outreach and consider hosting additional seminars once it has sufficient resources to do so. This would most likely involve distribution of information on effective composting through pamphlets, advertising, demonstrations, and/or the County website. As part of the training courses, the County could offer low-cost composting bins to residents by purchasing the bins in bulk and providing them to residents at cost.

Based on the estimates made in Chapter 3 utilizing the NYSDEC's detailed composition analysis and projection spreadsheets, there is a potential to divert approximately 5,960 tons of organics from the waste stream on an annual basis by increasing back yard composting efforts. Table 6-9 provides an outline of this implementation task. The Implementation Schedule in Chapter 7 also provides a year by year breakdown of the steps necessary to complete this task.

**Table 6- 9 - Implementation Task #9 - Management Plan**

<b>Promote backyard composting of food and yard waste through education and training programs</b>	
<b>Management Plan</b>	<b>Details for Implementation</b>
Party Responsible for Implementation:	Chenango County, Identified Partners
Resources Required:	<ol style="list-style-type: none"> <li>1. One staff member to develop program.</li> <li>2. Additional staff to assist with training sessions.</li> <li>3. Possible course provider fee if performed by outside vendor.</li> <li>4. Capital costs for purchase of compost bins.</li> <li>5. County facility for use as training location.</li> <li>6. Partners.</li> </ol>
Funding Opportunities Available:	Grant available from the NYSDEC to cover 50% of the salary of a recycling coordinator for your Planning Unit.
Milestones:	See Chapter 7 – Implementation Schedule.
Estimated Cost:	Staff (Initial Program Development): \$8,000 Staff (Program Implementation): \$2,500 - \$5,000 per event Equipment Costs: Compost bins approximately \$55 each.
Potential Limitations:	Initial program costs. Lack of public support. Lack of partnership support. Insufficient funding. Lack of staffing to coordinate partnerships or events.
Goal:	Increase diversion of food and yard waste requiring disposal.



### 6.3 Public Education Elements

Chenango County has taken the initiative to promote recycling in schools through presentations and distribution of recycling information. If financial and personnel resources allow, the County proposes to continue this program in the local schools, as well as expanding into public facilities (such as municipal office buildings) as referenced in Implementation Task #2.

#### Implementation Task #10 - Public Outreach and Education

Public outreach and education regarding waste diversion programs and responsible disposal of special wastes was identified as a key component of the solid waste management program in Chenango County through the discussion of waste management facilities outlined in Chapter 3. As presented in that chapter, there are several outlets that already exist in Chenango County that supports waste diversion practices. The conclusion that can be drawn from this observation is that in lieu of utilizing the County's limited resources to develop new diversion programs to accept a more broad range of less abundant waste stream, these resources would be better utilized in promoting participation in programs that are currently available to the public.

Chenango 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 in many of the discussions presented above. Specifically, the waste handling areas that should receive the most focus are:

- Backyard Composting
- Grass-cycling
- HHW Collection Events
- C&D Debris Diversion Opportunities
- Unique Waste Disposal Options
- Product Reuse
- Agricultural Plastics
- Commercial & Industrial Recycling and Waste Reduction Opportunities
- Institutional Recycling and Waste Reduction Opportunities
- Public Sector Recycling and Waste Reduction Opportunities
- Food & Clothing Donation Opportunities
- Waste Prevention

During this planning period, the County will evaluate its current and potential education methods for promoting reuse and the County's 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. Table 6-10 provides an outline of this implementation task. The Implementation Schedule in Chapter 7 also provides a year by year breakdown of the steps necessary to complete this task.

**Table 6- 10 - Implementation Task #10 - Management Plan**

<b>Encourage Public Outreach and Education Program</b>	
<b>Management Plan</b>	<b>Details for Implementation</b>
Party Responsible for Implementation:	Chenango County, Cornell Cooperative Extension, schools, etc.
Resources Required:	Partnerships, additional recycling staff (if funding becomes available)
Milestones:	See Chapter 7 – Implementation Schedule
Estimated Cost:	Provide funding mechanism to partners to conduct training or educational events on behalf of the County (\$1,000-\$5,000 donations).
Potential Limitations:	<ol style="list-style-type: none"> <li>1. Results will depend on the types of partnerships and projects developed.</li> <li>2. Lack of funding.</li> <li>3. Lack of partnership support or interest.</li> </ol>
Goal:	Educate the public and private sector (including residents) about recycling and waste reduction opportunities.

As demonstrated in Chapter 3, Chenango County's residents and commercial, industrial and institutional waste generators have some outlets to divert their waste from disposal to reduction, reuse and recycling. With this network of existing programs, Chenango County is in the best position to be a catalyst to promoting these outlets without having to fund or implement them.

#### **6.4 Infrastructure Needs**

The County currently has the infrastructure that is needed to divert waste; however, as discussed in Implementation Task #1 improvements to the infrastructure may be prudent depending on the outcome of the evaluation of the existing source separated recycling program. If additional infrastructure is required following this evaluation, this Plan will be modified to incorporate those additional infrastructure needs. The following programs will assist in diverting waste, which will lessen the strain put on the current infrastructure. This will benefit the solid waste management system in place as the County progresses through the planning period.

## **Implementation Task #11 – Solid Waste and Recycling Surveys and Reporting**

While the County offers various recycling options, no current monitoring mechanism is in place to determine quantities of recyclables for commercial, institutional, and industrial generators. Based upon current estimates, approximately 3.6% of the total waste stream and 4% of the MSW stream is diverted for recycling, which is lower than the NYSDEC waste diversion goal. It is the County's belief that this is due to the fact that the reported recycling numbers are based solely on the results reported at the County's recycling facilities on their NYSDEC annual reports. While solid waste accepted at disposal facilities in New York State is required to be handled through the NYSDEC facility reporting system, the same requirement does not apply to materials exported out of state. Therefore, large MSW producers such as big box stores, and even private collection companies, may ship waste and/or recyclable products directly to the end user for a profit, bypassing the county-located facilities. As a result, these materials are not being accounted for in the County's reports. Additionally, much of the LSWMP planning process hinges on having complete and current data. Without complete data it is nearly impossible to fully analyze the waste stream and determine what areas are in the most need of attention.

The County proposes to undertake biennial waste and recycling data surveys, which would be distributed to various sectors of the County in order to compile more complete waste and recycling data. These surveys will be used to help assess what materials could be available for use in new programs such as organics composting pilot projects and construction and demolition (C&D) material recycling. Ideally, the survey would be conducted in stages, with the largest waste producers being contacted first. Since waste generation data is not available for many of the businesses and industries in the County, those with the most employees will be surveyed first. While the number of employees does not necessarily reflect the quantity of waste generated, it is anticipated that those businesses and industries with many employees generate the type of waste most easily recovered by current programs, such as MSW.

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 within Chenango County. This information would then be compiled to help the County 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. In future planning periods, it may be prudent to offer to conduct waste audits to the responding entities to assist them with developing on-site recycling programs. Table 6-11 provides an overview of a management plan that outlines the resources and

steps necessary to implement such a program. The Implementation Schedule in Chapter 7 also provides a year by year breakdown of the steps necessary to complete this task.

**Table 6- 11 - Implementation Task #11 - Management Plan**

<b>Perform Biennial Waste and Recycling Surveys</b>	
<b>Management Plan</b>	<b>Details for Implementation</b>
Party Responsible for Implementation:	Chenango County DPW or other designated affiliate; and waste generators (residents, schools, libraries, agriculturalists, jails, institutions, nursing homes, businesses, industries).
Resources Required:	One staff member to prepare, distribute, and record surveys.
Milestones:	Biennially. See Chapter 7 – Implementation Schedule
Estimated Cost:	County staff labor and time. Approximately \$5,000/ survey occurrence.
Potential Limitations:	<ol style="list-style-type: none"> <li>1. Inadequate staffing.</li> <li>2. Insufficient funding.</li> <li>3. Lack of data.</li> <li>4. Lack of response to surveys.</li> </ol>
Goal:	To obtain a more complete data set to assist with the implementation of the program strategies.

### **Implementation Task #12 - Amendments to 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 is disposed of according to plan. During this 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:

- Source Separation
- Update to administrative structure referenced in current local law
- Modifications to existing mandatory recycling list
- Commercial/Industrial/Institutional recycling and reporting
- Enforcement efforts
- Hauler Licensing or districting
- Flow Control
- Recycling Compliance

These items, among others, will be considered during the law review process and implemented as the County deems prudent. The Implementation Schedule in Chapter 7 also provides a year by year breakdown of the steps necessary to complete this task.

**Table 6- 12 - Implementation Task #12 - Management Plan**

<b>Update Local Solid Waste Management Law</b>	
<b>Management Plan</b>	<b>Details for Implementation</b>
Party Responsible for Implementation:	Chenango County, Municipalities
Resources Required:	Outside sources
Milestones:	See Chapter 7 – Implementation Schedule
Estimated Cost:	Administrative costs.
Potential Limitations:	None identified.
Goal:	Align the County's Solid Waste Management and Recycling Law with the County's waste diversion and recovery goals.

### **Implementation Task #13 – Pay-As-You Throw Program**

The County currently supports a pay-as-you-throw (PAYT) program at the transfer stations whereby residents pay for disposal of their solid waste, while recyclables are received at no charge. Since Chenango County is not responsible for curbside collection of residential waste, the PAYT program would need to be implemented through the local haulers or further promoted at the existing transfer stations. Given that PAYT has been proven to be successful in many parts of the state, Chenango County will continue to monitor the availability and public need for this type of service. Should the public demand become greater than the private sector can manage, Chenango County will work with the haulers to determine if incentivized waste reduction programs can be made available to residents. Table 6-13 provides an overview of a management plan that outlines the resources and steps necessary to implement such a program. The Implementation Schedule in Chapter 7 also provides a year by year breakdown of the steps necessary to complete this task.

**Table 6- 13 - Implementation Task #13 - Management Plan**

<b>Pay-As-You Throw Program</b>	
<b>Management Plan</b>	<b>Details for Implementation</b>
Party Responsible for Implementation:	Chenango County, private haulers
Resources Required:	Outside sources
Milestones:	See Chapter 7 – Implementation Schedule
Estimated Cost:	Administrative costs.
Potential Limitations:	None identified.
Goal:	Evaluate the feasibility of PAYT programs during review/update of the Local Solid Waste Management Law.

## 6.5 Selection of an Integrated Solid Waste Management System

While many waste management options/goals were outlined in the program strategies above, including increased recycling and yard waste composting efforts and the implementation of organic waste composting pilot programs, some portion of the waste stream will remain in need of disposal. The practice of landfilling of these wastes has been, and will remain, a reliable, environmentally-sound means of disposal within the County. The existing annual permit limit is 150 tons per day, and the remaining design capacity as of January 1, 2018 is approximately 1,864,265 cubic yards or an estimated site life of approximately 30.83 years at current disposal rate projections. As outlined in the original LSWMP and in this LSWMP, the County's priorities for solid waste management are reduction, reuse, recycling and environmentally-sound disposal of remaining materials by maximizing the use and effectiveness of existing facilities within the County.

### **Implementation Task #14 – Continue Landfilling as Primary Disposal for all Non-Recyclable/Recoverable Waste**

While 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.

In addition to continuing to utilize the landfill for non-recyclable and non-hazardous waste, the County will evaluate the potential for an active landfill gas collection and control system at the County landfill. Given normal landfill conditions, biological decomposition of organic matter within the municipal solid waste typically generates a mixture of methane, carbon dioxide, and other trace gases; commonly referred to as landfill gas or LFG. This LFG vents to the atmosphere if not collected and controlled. Today, the collection of LFG presents an opportunity to generate a new potential income stream from the LFG. LFG might be beneficially utilized as an alternative energy resource. This technology will be evaluated periodically to determine if it would economically and environmentally benefit the County. In addition, the County will continue to evaluate the passive landfill gas controls in place at the facility in order to control odors and gas migration. These include the annual budgeting for incremental capping system installation, gas collection trenches, and passive solar flares.

Table 6-14 provides an overview of a management plan that outlines the resources and steps necessary to implement such a program. The Implementation Schedule in Chapter 7 also provides a year by year breakdown of the steps necessary to complete this task.

**Table 6- 14 - Implementation Task #14 - Management Plan**

<b>Continue Landfilling as Primary Disposal for all Non-Recyclable/Recoverable Waste</b>	
<b>Management Plan</b>	<b>Details for Implementation</b>
Party Responsible for Implementation:	Chenango County
Resources Required:	Existing resources.
Milestones:	See Chapter 7 – Implementation Schedule
Estimated Cost:	Administrative costs.
Potential Limitations:	None identified.
Goal:	Maintain a reliable, environmentally-sound means of disposal for non-recyclable/non-recoverable waste generated within the County.

## 6.6 Solid Waste Management Planning

As discussed, it is the intent of the County to implement this plan over the course of the ten year planning period. Should change to the plan be required, the County will address these through the biennial updates.

### Implementation Task #15 – Submission of Biennial Updates

As the party responsible for implementation and tracking of the Local Solid Waste Management Plan, Chenango County will complete biennial updates to the NYSDEC. An example outline of the report is included as Appendix C.

**Table 6- 15 - Implementation Task #15 - Management Plan**

<b>Submission of Biennial Updates</b>	
<b>Management Plan</b>	<b>Details for Implementation</b>
Party Responsible for Implementation:	Chenango County
Resources Required:	Existing sources
Milestones:	See Chapter 7 – Implementation Schedule
Estimated Cost:	Administrative costs.
Potential Limitations:	None identified.
Goal:	Submit biennial updates to the Department.

## **Chapter 7 - 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. The preliminary implementation schedule for the proposed plan is outlined in the table below. 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 Updates, which are issued by the County every 2 years.



### Implementation Schedule

Implementation Task	Year									
	1	2	3	4	5	6	7	8	9	10
1) Evaluation of Existing Source Separated Recycling Program		Develop a sub-committee to determine if changes should be made to the existing recycling program (source separated).	Retain an engineering firm to complete a cost-benefit analysis of the recycling program options available to the County (i.e., source separated, dual stream, or single stream).	Evaluate the options available to the County and present them to the Board of Supervisors. Identify the best option available to the County. If deemed necessary, prepare a request for proposals or bid documents.	If appropriate, select the recycling program that will benefit the County's overall recycling program, increase diversion, and make recycling easier for their residents.	Depending on the outcome of the evaluation of recycling program options, update the implementation schedule as part of the compliance reports submitted to the NYSDEC.				
2) Recycling at Public Facilities/Events	Apply for eligible grant(s) to perform recycling program coordination thru utilizing staff or contracted services.	Define a waste diversion goal for county owned facilities, special events, and schools.	Partner with area schools (2-3 districts to start) to implement a <i>recycling campaign</i> district wide. Encourage the formation of "green teams" or "recycling clubs" within the districts chosen to assist with the implementation of the program.	Work with students through "green teams" or "recycling clubs" to promote recycling. Plan and implement a public schools recycling education campaign through presentations, signage, games, contests, etc.	Update and modify the Plan for a public schools recycling program to reflect successes and challenges.	Depending on the success of the program, roll it out at additional school districts, as deemed appropriate.	Update and modify the Plan for a public schools recycling program to reflect successes and challenges.	To be determined later in the Planning Period.		
			Evaluate current recycling procedures at County owned facilities. Provide recycling outlets at County operated facilities.	Prepare plan to increase recycling rates at County-owned facilities. Form green teams to support recycling programs.	Initiate internal recycling campaign through signage, email notifications, contests, etc. Coordinate with other municipalities to share ideas to promote recycling.	Update and modify the Plan to reflect successes and challenges.	Share successes with the County to encourage a similar program for increasing recycling efforts on the local level.	To be determined later in the Planning Period.		
							Plan and initiate a pilot recycling program at two (2) special events held within the County.	Update and modify the Plan to reflect successes and challenges.		
			Utilize and evaluate data obtained as part of Implementation Task #11 to determine types and quantities of waste and recycling materials managed at public operated facilities, schools, libraries, public events.							
3) Support Product Stewardship Legislation	Become familiar with Product Stewardship/ Extended Producer Responsibility.	Review the Model Local Government EPR Resolution developed by Product Policy Institute.	Develop a sub-committee to determine if supporting Product Stewardship Legislation would be beneficial to Chenango County.	If supported, adopt local legislation supporting product stewardship.		Task the sub-committee with monitoring product stewardship and EPR legislation. Update implementation schedule depending on the status of legislation and policy within New York State.				
4) County Wide Household Hazardous Waste Collection	Gather cost-benefit analysis data from annual HHW collection events.			Assess four (4) years of costs and conduct a cost-benefit analysis on additional HHW collection events or the feasibility of a permanent facility. Compare with cost of sharing existing facility located in neighboring planning unit.		Determine if additional HHW collection events are prudent and implement to the extent sufficient funding and resources are available. If a permanent facility or shared use of existing facility is economically feasible, work with municipalities to develop a permanent facility or a shared facility program.		Determine tasks for remainder of the planning period depending on progress.		
			Reach out to surrounding planning units regarding potential for use of existing HHW Collection facility. Determine approximate cost share required.							

Implementation Task	Year									
	1	2	3	4	5	6	7	8	9	10
5) Proper Disposal of Unique Wastes			Consider the feasibility of sponsoring additional events for the disposal of e-wastes.		Consider the feasibility of sponsoring additional events for the disposal of universal wastes.		Consider the feasibility of sponsoring additional events for the disposal of pharmaceutical and medical wastes.		Consider the feasibility of sponsoring additional events for the disposal of pesticides.	
Ongoing promotion of existing programs through the County's public outreach and education programs;										
6) Product Reuse Collection and Distribution Programs	Inventory existing product reuse programs and provide information regarding them on the County's website.	Prepare and distribute recycling survey, as referenced in Implementation #11, with emphasis on material exchange or reuse opportunities.	Disseminate information to those interested in Product Reuse based on results of the survey.	Provide support to local waste generators as it relates to their desire for material exchange programs.		Consider generating a product reuse or material exchange database for generators to refer to.	Prepare and distribute recycling survey, as referenced in Implementation #1, with emphasis on material exchange or reuse opportunities.	Disseminate information to those interested in Product Reuse based on results of the survey.	Provide support to local waste generators as it relates to their desire for material exchange programs. Continue to update product reuse/material exchange database and post on the County's website.	
Continue Latex Paint Exchange Program. Should the opportunity present itself, the County will evaluate the existing program to determine if it could be expanded to include other materials.										
Ongoing support of materials exchange or reuse programs and interest in said programs.										
7) Agricultural Plastics Recycling	Monitor the Madison County Plastics to Energy RFP process and the development of a facility to accept agricultural wastes.		If feasible proposals are received, actively engage Madison County in the potential for management of Chenango County materials at facility.		Determine tasks for the remainder of the planning period depending on progress.					
8) Construction & Demolition Debris Recycling	Explore the potential to develop a construction material "Re-Use" store within the County. Visit similar facilities throughout the state to develop a feasible model. Estimate costs and determine economic feasibility.		Implement Re-Use store if economically feasible.	Establish a C&D waste diversion and recycling goal. Initially focus on County funded projects.	Identify other municipalities with C&D recycling programs, and determine if the programs could be adapted to Chenango County's needs.	If determined to be feasible, the County could prepare a plan that lays out how the program would be structured including: implementation, education, tracking,	Monitor and assess opportunities for meeting or increasing the goal.	Monitor and assess opportunities for meeting or increasing the goal.	Determine next step for C&D Debris Recycling.	
Utilize and evaluate data obtained as part of Implementation Task #11 to determine types and quantities of C&D materials managed by residents, businesses, institutions.										

Implementation Task	Year													
	1	2	3	4	5	6	7	8	9	10				
9) Organics Waste Diversion	Through public education and outreach promote grass-cycling, backyard composting, and food donation at local food banks.													
		Identify training materials available on the NYSDEC and Cornell Cooperative Extension (CCE) websites for assistance in developing training courses for local backyard composting. Place links on Chenango County's website.		Develop open communication with developers of training events and information.		Consider partnering with an organization (i.e., CCE, Soil and Water Conservation District) to develop additional organic waste diversion educational programs. Host at least one (1) County sponsored organics diversion training event.		Monitor training events successes and challenges.		Consider expanding the educational events to various locations/communities around the County.	To be determined later in the Planning Period.			
	Apply for eligible grant(s) to perform recycling program coordination thru utilizing staff or contracted services.		Incorporate questions related to organic material types, quantities and management methods in surveys conducted as part of Implementation Task #11.		Utilize and evaluate data obtained as part of Implementation Task #11 to determine types and quantities of organic materials managed by schools and institutions. Determine which programs require support or have successes to share.		Approach the schools and institutions that either have an organics management program or are interested in implementing an organics management program. Determine which programs require support or have successes to share. Encourage local programs to share their successes with others and promote the successful programs via Chenango County's website.		Utilize and evaluate data obtained as part of Implementation Task #11 to determine types and quantities of organic materials managed by industries and agricultural facilities.		Approach the industries and agricultural facilities that either have an organics management program or are interested in implementing an organics management program. Determine which programs require support or have successes to share. Encourage local programs to share their successes with others and promote the successful programs via Chenango County's website.		Approach the retail businesses (groceries, restaurants, etc.) that either have an organics management program or are interested in implementing an organics management program. Determine which programs require support or have successes to share. Encourage local programs to share their successes with others and promote the successful programs via Chenango County's website.	
Promote food donation at local food banks in conjunction with Implementation Task #10 and on the County's website.														

Implementation Task	Year										
	1	2	3	4	5	6	7	8	9	10	
10) Public Outreach and Education	Apply for eligible grant(s) to perform recycling program coordination thru utilizing staff or contracted services.	Develop a draft preliminary education plan regarding waste diversion and responsible waste disposal to utilize as a starting point for conversations with school districts or other partners. Focus initial plan on recycling, yard waste composting, backyard composting, food waste composting, HHW collection opportunities, C&D debris diversion, mercury containing materials disposal options, e-waste management, and pharmaceutical management options. The plan should expect the initial audience to include: residents, local public schools as well as colleges and universities, and attendees at public events.		Partner with a local environmental institute, organization, college or university to implement the public outreach and education plan.	Assess the effectiveness of the education plan and make necessary alterations.		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.		Expand the education plan to include other groups, such as, commercial retail stores and industries. Add details related to product stewardship or extended producer responsibility, waste prevention, waste diversions, and organics management to the education plan that would be most beneficial for commercial and industry audiences.		Update tasks for new 10 year planning period depending on progress.
11) Solid Waste and Recycling Surveys and Reporting	Apply for eligible grant(s) to perform recycling program coordination thru utilizing staff or contracted services.	Prepare a survey template for distribution to waste generators. Determine quantities of "heads" for each generator type listed in Chapter 1 - Tables 1-4 & 1-6 (i.e., number of beds in hospitals, number of students in each school, etc.)	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 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.	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 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.	
		Following the revisions to the Local Solid Waste Management Law, if deemed appropriate, incorporate the aspects in the law related to reporting into the data compilation program strategy.									
		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.	Report survey results and recommendations. Utilize to implement other tasks or modify tasks.	
12) Amendments to County Local Solid Waste Management and Recycling Law	Conduct internal review of Local Solid Waste and Recycling Law. Consult with outside sources to ensure that law is up-to-date and determine any necessary revisions to be made. Specific items to address include: source separation, update the administrative structure, modifications to the mandatory recycling list, commercial/industrial/institutional recycling and reporting, enforcement, hauler licensing or districting, flow control, and recycling compliance.		Update Local Solid Waste and Recycling Law.	Monitor and gather data related to modification of Local Solid Waste and Recycling Law.	Depending on outcome of Implementation Task #1, additional changes to the Local Solid Waste Management Law may be necessary.	Update Local Solid Waste and Recycling Law.	Monitor and gather data related to modification of Local Solid Waste and Recycling Law.				
13) Pay-As-You Throw Program		Monitor PAYT interest and availability through biennial surveys conducted as part of Implementation Task #11.	Evaluate the need to promote PAYT programs to customers.	Continue to monitor through biennial surveys regarding the possibility of implementing mandatory PAYT options from haulers.	Evaluate the need to promote PAYT programs to customers.	If warranted, work with local haulers and transfer stations to promote PAYT programs to customers.	Conduct PAYT survey to local haulers, transfer station operators, and possibly residents to determine successes and challenges of a PAYT program.	Evaluate the need to promote PAYT programs to customers.	Update tasks for new 10 year planning period depending on progress.		

Implementation Task	Year									
	1	2	3	4	5	6	7	8	9	10
14) Continue Landfilling as Primary Disposal for all Non-Recyclable/ Recoverable Waste		Review alternative waste disposal technologies and explore feasibility of implementation, provided resources are available.		Review alternative waste disposal technologies and explore feasibility of implementation, provided resources are available.		Review alternative waste disposal technologies and explore feasibility of implementation, provided resources are available.		Review alternative waste disposal technologies and explore feasibility of implementation, provided resources are available.		Review alternative waste disposal technologies and explore feasibility of implementation, provided resources are available.
	Monitor gas generation potential at the landfill annually to determine the need for an active landfill gas collection and control system.									
	Annually monitor available landfill capacity to maintain long-term disposal capacity as long as technically feasible and cost-effective. Continue to assess existing and new disposal methods.									
15) Submit biennial compliance reporting		Submit biennial updates		Submit biennial updates		Submit biennial updates		Submit biennial updates		Submit biennial updates
Optimal MSW Recycling Diversion Goals	6.9%	8.0%	8.4%	8.9%	9.3%	10.1%	10.6%	11.3%	12.0%	13.3%
Optimal C&D Diversion Goals	32.0%	32.0%	32.0%	32.0%	32.0%	37.5%	37.5%	42.0%	42.0%	46.4%

## **Chapter 8 - Public Participation**

The draft LSWMP was presented to the Chenango County Department of Public Works. Upon their authorization, the draft plan was made available on the County's website.

In addition, a formal public comment period was held from August 14, 2018 to September 28, 2018 during which all interested parties were encouraged to submit comments in writing or during the public hearing held on September 10, 2018. The comment period and public hearing was advertised on the County's website and in local publications used for advertisement of official County notices.

A summary of all comments received during the public comment period were prepared, along with the County's responses to each of these comments. This responsiveness summary is included as Appendix E.

## **Chapter 9 - Plans for LSWMP Distribution**

The County will provide public notice regarding the completion of the Final LSWMP on the county website. The website posting will indicate that the plan can be viewed through the county website and that hard copies are available for public review at the county office building.

Each neighboring county will be notified in writing of the completion of the plan and its availability.

## **Chapter 10 - Resolution Adopting the LSWMP**

The Chenango County Board of Supervisors enacted a resolution on April 8, 2019 adopting this Final Solid Waste Management Plan. A copy of the resolution has been included in Appendix F.



## **Appendix A**

### **Detailed Waste Composition Spreadsheets (NYSDEC Calculator)**

A1 – MSW Tables  
A2 – C&D Tables

## **A1 – MSW Tables**

# Population and Municipal Solid Waste Composition Calculator

## **Purpose and Background**

Developing a Local Solid Waste Management Plan (LSWMP) consist of several steps:

- Assessment of current planning unit conditions,
- Forecasting the future,
- Establishing objectives with clear statements of what is need to be achieved and when,
- Identifying and evaluating various alternatives and courses of action,
- Making decisions and selecting the best alternative for accomplishing objectives,
- Formulating tasks, subtasks, milestones, responsible parties, and certainly ensuring its effective implementation, as well as
- Evaluating achievements and taking corrective actions when necessary.

The purpose of the *Population and Municipal Solid Waste Composition Calculator* is to support planning units during the planning process, through a graphic and numerical representation of the current and future characteristics of the waste stream. The calculator has been designed to aid the development of a LSWMP from its early stage of assessment to its implementation and even evaluation of the plan over time.

The calculator intends to approximate the solid waste stream composition of the planning unit based on specific demographics and the goals set up for a specific planning period.

This projection tool is not intended to substitute for the valuable information gained by performing a municipal specific waste composition analysis. There is no substitute for accurately gathered and analyzed municipal specific waste composition data. This tool is merely intended to help refine the waste composition differences between planning units as a result of the wide array of demographics in New York State.

For this tool, DEC developed estimates of material's composition present in the MSW stream using data inputs that include field-based waste composition studies, performed within New York State and in other major US cities and States that have similar demographic characteristics to some of New York's regions.

After a careful review of dozens of composition analyses, the data from the following sources were used:

- Municipalities within New York State: New York City and Onondaga County Resource Recovery Authority (OCRRA).
- Municipalities in other states: Seattle, WA and San Francisco, CA.
- Other States: Vermont, Wisconsin, Missouri, Georgia, Oregon, Ohio, Delaware, Pennsylvania, and California.

## 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.

<b>Planning Unit</b>	Chenango County
<b>Planning Period</b>	2019-2029

## 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.

### Chenango 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):

Enter tons disposed here:

42,261.00

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 diverted here:

2,065.00

## 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:**

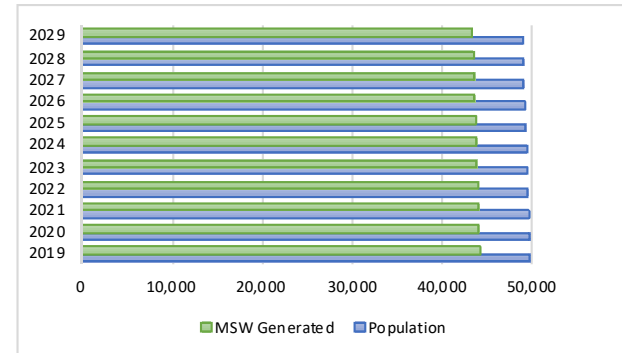
- The graphic will display the Population and MSW Generation projections over the selected planning period. It has been designed to visualize the contrast of the final outcomes, based on the selections of each planning unit

# Chenango County

2019-2029

## Current Data

2010 Population Census	50,477
2017 Population	49,844
2017 MSW Generated (Tons/yr)	44,326
2017 MSW generation rate (Lb/person/day)	4.65
2017 MSW Disposed (Tons/yr)	42,261
2017 MSW Diverted (Tons/yr)	2,065



- 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 ...

Annual rate of population growth (%)	-0.18%
--------------------------------------	--------

Population Projection										
2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
49,755	49,665	49,576	49,487	49,397	49,309	49,220	49,131	49,043	48,954	48,866

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

Reduction Factor (per year) 1.0%

MSW generation rate (Lb/person/day)	4.86
-------------------------------------	------

MSW Generation Projection											
2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	
4.86	4.86	4.86	4.86	4.86	4.86	4.86	4.86	4.86	4.86	4.86	(Lb/person/day)
44,170	44,090	44,011	43,932	43,853	43,774	43,695	43,616	43,538	43,459	43,381	Tons/yr





## 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.

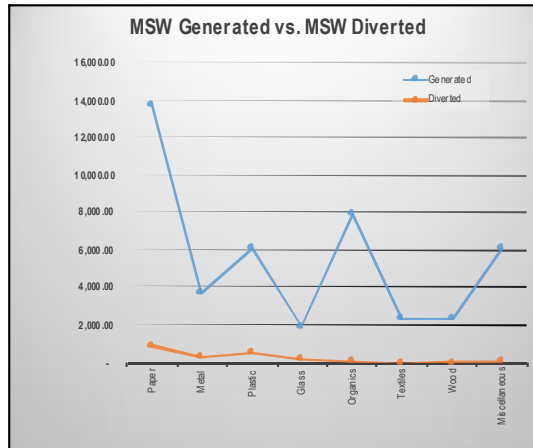
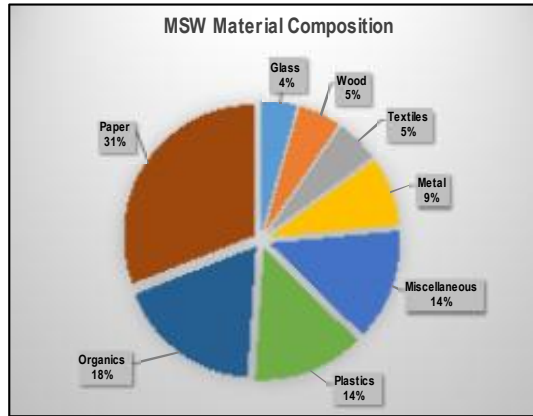
The total tons of MSW diverted per year will be auto populated based on previous data inputs, while the amounts tons diverted for each material by category should be populated by the user. Purple cells should be used for amounts of diverted waste by type of material, and a table number by category (e.g. 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.

**Chenango County**

**2019-2029**

		2016		
		MSW Materials Composition (%)	MSW Generated (Tons)	MSW Diverted (Tons)
<b>Material</b>		100.0%	44,326	2,065
Paper	Newspaper	3.8%	1,662	69
	Corrugated Cardboard	9.7%	4,314	695
	Other Recyclable Paper (Total)	10.8%	4,777	153
	Other Compostable Paper	6.7%	2,960	0
	<b>Total Paper</b>	30.9%	13,714	917
Metal	Ferrous/Aluminum Containers (Total)	1.9%	841	44
	Other Ferrous Metals	5.3%	2,352	250
	Other Non-Ferrous Metals (Total)	1.3%	567	0
	<b>Total Metals</b>	8.5%	3,760	294
Plastic	PET Containers	0.9%	416	35
	HDPE Containers	0.9%	384	23
	Other Plastic (3-7) Containers	0.2%	76	0
	Film Plastic	5.7%	2,544	0
	<b>Other Plastic (Total)</b>	6.1%	2,696	520
<b>Total Plastics</b>	13.8%	6,115	578	
Glass	Glass Bottles, Jars and Containers	3.9%	1,745	136
	Other Glass (Flat glass, dishware, light bulbs, etc.)	0.4%	188	0
	<b>Total Glass</b>	4.4%	1,933	136
Organics	Food Scraps	13.3%	5,892	0
	Leaves and Grass / Pruning and Trimmings	4.7%	2,085	33
<b>Total Organics</b>	18.0%	7,977	33	
Textiles	Clothing Footwear, Towels, Sheets	3.9%	1,732	14
	Carpet	1.4%	630	0
	<b>Total Textiles</b>	5.3%	2,362	14
Wood	<b>Total Wood (Pallets, crates, adulterated and non-adulterated wood)</b>	5.3%	2,364	0
Miscellaneous	DIY Construction & Renovation Materials	6.5%	2,862	0
	Diapers	1.6%	711	0
	Electronics	1.4%	636	92
	Tires	1.7%	766	0
	HHW	0.3%	152	0
	Soils and Fines	0.5%	205	0
	Other Composite Materials- Durable and/or inert	1.7%	770	1
	<b>Total Miscellaneous</b>	13.8%	6,101	93
<b>Total</b>		100.0%	44,326	2,065



## Step 6. Municipal Solid Waste (MSW) Diversion Projections

This tab will be used to create goals for the amount of material 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 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.

### Chenango County

2019-2029

Year	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Projected MSW Generation (Tons/yr)	44,170	44,090	44,011	43,932	43,853	43,774	43,695	43,616	43,538	43,459	43,381
MSW Diverted (Tons/yr)	1,926	2,301	2,534	2,841	3,309	3,771	4,177	4,693	4,964	5,522	5,898

	MSW Materials Composition (%)	2017		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029		
		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	
<b>Material</b>	100.0%	44,326	2,065	4.7%	4.4%	5.2%	5.8%	6.5%	7.5%	8.6%	9.6%	10.8%	11.4%	12.7%	13.6%	
<b>Paper</b>	Newspaper	3.8%	1,682	69	4.2%	5.5%	6.5%	7.5%	8.5%	9.5%	10.5%	11.5%	12.5%	13.5%	14.5%	15.5%
	Corrugated Cardboard	9.7%	4,314	685	16.1%	17.0%	18.0%	19.0%	20.0%	21.0%	22.0%	23.0%	24.0%	25.0%	26.0%	27.0%
	Other Recyclable Paper (Total)	10.8%	4,777	153	3.2%	5.0%	7.0%	8.0%	10.0%	15.0%	20.0%	25.0%	32.0%	33.0%	35.0%	36.0%
	Other Compostable Paper	6.7%	2,960	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%
	<i>Total Paper</i>	30.9%	13,714	917	6.7%	7.9%	9.1%	10.0%	11.2%	13.5%	15.6%	18.1%	21.1%	22.0%	23.2%	24.1%
<b>Metal</b>	Ferrous/Aluminum Containers (Total)	1.9%	841	44	5.2%	7.0%	10.0%	12.0%	14.0%	16.0%	18.0%	20.0%	22.0%	24.0%	26.0%	
	Other Ferrous Metals	5.3%	2,352	250	10.6%	1.0%	2.0%	2.0%	3.0%	3.0%	3.0%	3.0%	3.0%	5.0%	5.0%	
	Other Non-Ferrous Metals (Total)	1.3%	567	0	0.0%	40.0%	41.0%	42.0%	43.0%	44.0%	50.0%	52.0%	54.0%	56.0%	57.0%	58.0%
	<i>Total Metals</i>	8.5%	3,760	294	7.8%	8.2%	9.7%	9.8%	10.4%	11.6%	13.0%	13.7%	14.5%	15.2%	17.1%	17.7%
<b>Plastic</b>	PET Containers	0.9%	416	35	8.4%	16.0%	18.0%	18.0%	20.0%	20.0%	20.0%	20.0%	25.0%	30.0%	30.0%	
	HDPE Containers	0.9%	384	23	6.0%	16.0%	17.0%	17.0%	18.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	
	Other Plastic (3-7) Containers	0.2%	76	0	0.0%	14.0%	15.0%	16.0%	17.0%	18.0%	19.0%	20.0%	21.0%	22.0%	23.0%	24.0%
	Film Plastic	5.7%	2,544	0	0.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	2.0%	2.0%	2.0%	3.0%	3.0%
	Other Plastic (Total)	6.1%	2,696	520	19.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	<i>Total Plastics</i>	13.8%	6,115	578	9.5%	2.7%	2.9%	2.9%	3.1%	3.3%	3.3%	3.7%	3.7%	4.1%	4.8%	4.8%
<b>Glass</b>	Glass Bottles, Jars and Containers	3.9%	1,745	136	7.8%	8.0%	9.0%	10.0%	11.0%	12.0%	13.0%	14.0%	15.0%	16.0%	18.0%	20.0%
	Other Glass (flat glass, dishware, light bulbs, etc.)	0.4%	168	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%
	<i>Total Glass</i>	4.4%	1,933	136	7.0%	7.3%	8.3%	9.3%	10.3%	11.3%	12.3%	13.3%	14.3%	15.3%	17.2%	19.1%
<b>Organics</b>	Food Scraps	13.3%	5,882	0	0.0%	0.5%	1.0%	2.0%	3.0%	4.0%	5.0%	5.0%	5.0%	6.0%	10.0%	
	Leaves and Grass/Pruning and Trimmings	4.7%	2,085	33	1.6%	2.0%	5.0%	5.0%	5.0%	5.0%	5.0%	7.0%	10.0%	12.0%	15.0%	
	<i>Total Organics</i>	18.0%	7,977	33	0.4%	0.9%	2.0%	2.8%	3.5%	4.3%	5.0%	5.0%	5.5%	6.3%	9.0%	11.3%
<b>Textiles</b>	Clothing Footwear, Towels, Sheets	3.9%	1,732	14	0.8%	1.0%	2.0%	3.0%	4.0%	5.0%	6.0%	7.0%	8.0%	9.0%	10.0%	11.0%
	Carpet	1.4%	630	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	<i>Total Textiles</i>	5.3%	2,362	14	0.6%	0.7%	1.5%	2.2%	2.9%	3.7%	4.4%	5.1%	5.9%	6.6%	7.3%	8.1%
<b>Wood</b>	Total Wood (Pallets, crates, adulterated and non-adulterated wood)	5.3%	2,364	0	0.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	
<b>Miscellaneous</b>	DIY Construction & Renovation Materials	6.5%	2,862	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
	Diapers	1.6%	711	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
	Electronics	1.4%	636	92	14.5%	15.0%	16.0%	17.0%	18.0%	19.0%	20.0%	21.0%	22.0%	23.0%	24.0%	25.0%
	Tires	1.7%	766	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%
	HHW	0.3%	152	0	0.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	2.0%	2.0%	2.0%	5.0%	5.0%
	Soils and Fires	0.5%	205	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Other Composite Materials - Durable and/or inert	1.7%	770	1	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	<i>Total Miscellaneous</i>	13.8%	6,101	93	1.5%	1.7%	1.9%	2.2%	2.4%	2.6%	2.9%	3.1%	3.3%	3.6%	3.9%	4.1%



## **A2 – C&D Tables**

# C&D Debris Waste Composition and Projection tool

## Purpose and Background

Construction and Demolition (C&D) debris is the second largest waste stream in the state and is estimated to account for 25 to 30% of the total solid waste generation. Basic understanding of the materials composition of the C&D debris stream, would facilitate the management strategy and planning process at a local level of this important but usually overlooked waste stream.

The purpose of the *C&D Debris Waste Composition and Projection tool* is to estimate the generation and materials composition of the C&D debris stream for each planning unit. Calculations are based on specific characteristics such as activity, and sector of generation of C&D debris, which consist of new construction, renovation, and demolition of residential and non-residential properties, or municipal infrastructures such as roads and bridges.

A comprehensive knowledge of the C&D debris stream, will assist the selection of initiatives and management programs that minimize environmental impacts. The implementation of reduction, recycling and reuse management practices extend the lifecycle of materials and conserve the use of raw materials, water, and energy, reduce the overall building project expenses through avoiding unnecessary purchases and disposal costs, and conserve landfill space among many other benefits.

This projection tool is not intended to substitute for the valuable information gained by performing municipal waste characterization studies. There is no substitute for accurately gathered and analyzed municipal specific waste composition data. This tool is merely intended to help refine the waste composition differences between planning units as a result of the wide array of demographics in New York State.

For this tool, DEC developed estimates of materials composition in the C&D debris waste stream using data inputs that include field-based waste composition studies and research-based evaluations performed within New York State and in other major US cities and States that have similar characteristics to some of New York's regions.

After a careful review of dozens of composition analyses, the material composition of the (C&D) debris waste stream was found to be on average of RUCARB (recognizable uncontaminated concrete, asphalt, rock, and brick), wood, roofing, drywall, soil and gravel, metal, plastic, corrugated cardboard and paper, and other miscellaneous materials. The data from the following sources were used:

- Municipalities within New York State: New York City and Town of Babylon.
- Municipalities in other states: Seattle, WA and Des Moines, IA.
- Other States: Vermont, Wisconsin, Oregon, Delaware, Minnesota, Florida, and California.
- EPA

## 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.

<b>Planning Unit</b>	Chenango County
<b>Planning Period</b>	2019-2029

## 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:**

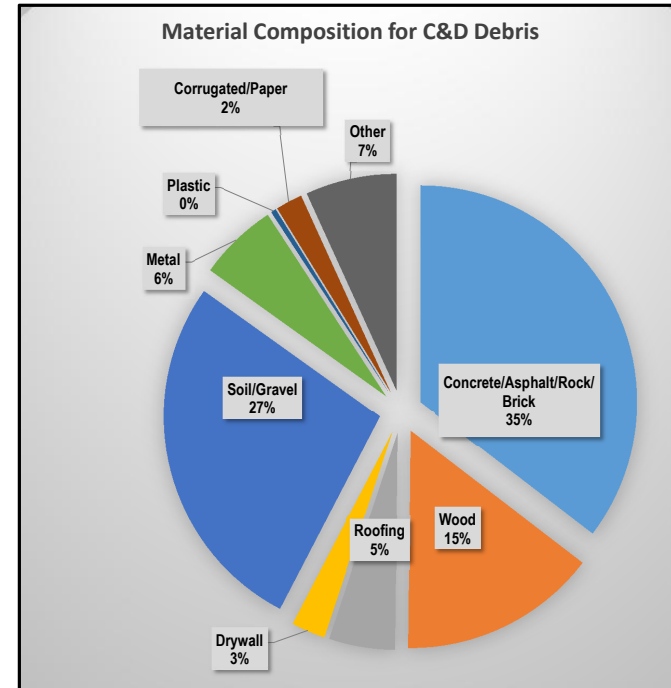
- The graphic displays the planning unit's C&D Debris generation data by material categories. It has been designed to help visualize the more representative categories of the waste stream.

### Chenango County

2019-2029

		Generation source								
		Residential				Non- Residential (commercial-institutional)				Other Municipal Infrastructure
		17.00%				25.00%				58.00%
Materials		New Construction	Renovation	Demolition	Combined Residential	New Construction	Renovation	Demolition	Combined Non-Residential	Renovation
	Concrete/ Asphalt /Rock/Brick	11.00%	29.00%	60.00%	100.00%	13.00%	48.00%	39.00%	100.00%	100.00%
	Wood	29.90%	19.10%	25.70%	24.25%	22.70%	12.40%	24.20%	18.34%	10.50%
	Roofing	6.00%	22.00%	6.10%	10.70%	2.10%	21.20%	5.10%	12.44%	0.00%
	Drywall	15.60%	7.90%	5.10%	7.07%	4.60%	6.40%	4.30%	5.35%	0.00%
	Soil/Gravel	11.30%	7.10%	18.50%	14.40%	13.10%	6.50%	15.60%	10.91%	38.00%
	Metal	5.30%	11.30%	5.20%	6.98%	12.00%	15.50%	11.10%	13.33%	2.40%
	Plastic	1.50%	0.70%	0.30%	0.55%	0.50%	0.70%	0.30%	0.52%	0.30%
	Corrugated cardboard/Paper	9.30%	2.90%	3.10%	3.72%	7.10%	4.60%	4.20%	4.77%	0.30%
	Other	11.30%	12.90%	14.50%	13.68%	7.20%	13.60%	12.10%	12.18%	2.50%
<b>Total</b>		100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	

C&D Debris Materials Composition (%)	
	100.00%
	35.39%
	14.80%
	4.93%
	2.54%
	27.22%
	5.91%
	0.40%
	2.00%
	6.82%
	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 **2018** and an estimate of what will be generated for each year of the planning period, **2019-2029**

**Chenango County**

**2019-2029**

		2017	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	
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)	
<b>Materials</b>	Concrete/Asphalt /Rock/Brick	35.4%	2,656.1	2,651.3	2,646.5	2,641.8	2,637.0	2,632.3	2,627.5	2,622.8	2,618.1	2,613.4	2,608.7
	Wood	14.8%	1,110.5	1,108.5	1,106.5	1,104.5	1,102.5	1,100.6	1,098.6	1,096.6	1,094.6	1,092.6	1,090.7
	Roofing	4.9%	369.9	369.2	368.5	367.9	367.2	366.6	365.9	365.2	364.6	363.9	363.3
	Drywall	2.5%	190.5	190.1	189.8	189.5	189.1	188.8	188.4	188.1	187.8	187.4	187.1
	Soil/Gravel	27.2%	2,042.4	2,038.8	2,035.1	2,031.4	2,027.8	2,024.1	2,020.5	2,016.8	2,013.2	2,009.6	2,006.0
	Metal	5.9%	443.6	442.8	442.0	441.2	440.4	439.6	438.8	438.0	437.2	436.5	435.7
	Plastic	0.4%	29.8	29.7	29.7	29.6	29.6	29.5	29.4	29.4	29.3	29.3	29.2
	Corrugated cardboard/Paper	2.0%	150.0	149.8	149.5	149.2	149.0	148.7	148.4	148.2	147.9	147.6	147.4
	Other	6.8%	512.0	511.1	510.1	509.2	508.3	507.4	506.5	505.6	504.7	503.7	502.8
	<b>Total</b>	<b>100.0%</b>	<b>7,504.8</b>	<b>7,491.3</b>	<b>7,477.8</b>	<b>7,464.3</b>	<b>7,450.9</b>	<b>7,437.5</b>	<b>7,424.1</b>	<b>7,410.7</b>	<b>7,397.4</b>	<b>7,384.1</b>	<b>7,370.8</b>



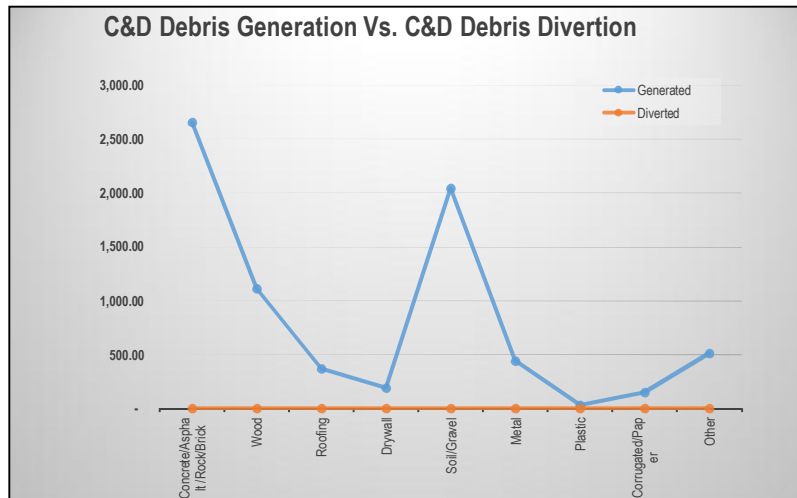
## Step 4. Construction & Demolition (C&D) Debris Diversion Projections

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.

**Chenango County**

**2019-2029**

		2017			
		C&D Debris Materials Composition (%)	C&D Debris Generated (Tons)	C&D Debris Diverted (Tons)	% C&D Diverted
<b>Materials</b>	Concrete/Asphalt/Rock/Brick	35.4%	2,656.1	0.0	0.0%
	Wood	14.8%	1,110.5	0.0	0.0%
	Roofing	4.9%	369.9	0.0	0.0%
	Drywall	2.5%	190.5	0.0	0.0%
	Soil/Gravel	27.2%	2,042.4	0.0	0.0%
	Metal	5.9%	443.6	0.0	0.0%
	Plastic	0.4%	29.8	0.0	0.0%
	Corrugated cardboard/Paper	2.0%	150.0	0.0	0.0%
	Other	6.8%	512.0	0.0	0.0%
	<b>Total</b>	<b>100.0%</b>	<b>7,504.8</b>	<b>0.0</b>	<b>0.0%</b>



### 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 purple cells for each material and each year of the planning period.

Chenango County

2019-2029

	C&D Debris Materials Composition (%)	2017			2019			2020			2021			2022			2023			2024			2025			2026			2027			2028			
		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	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	35.4%	2,656.1	0.0	0.0%	2,651.3	1,193.1	45.0%	2,646.5	1,190.9	45.0%	2,641.8	1,188.8	45.0%	2,637.0	1,186.7	45.0%	2,632.3	1,184.5	45.0%	2,627.5	1,313.8	50.0%	2,622.8	1,311.4	50.0%	2,618.1	1,439.9	55.0%	2,613.4	1,437.4	55.0%	2,608.7	1,565.2	60.0%
	Wood	14.8%	1,110.5	0.0	0.0%	1,108.5	443.4	40.0%	1,106.5	442.6	40.0%	1,104.5	441.8	40.0%	1,102.5	441.0	40.0%	1,100.6	440.2	40.0%	1,098.6	494.4	45.0%	1,096.6	493.5	45.0%	1,094.6	547.3	50.0%	1,092.6	546.3	50.0%	1,090.7	545.3	50.0%
	Roofing	4.9%	369.9	0.0	0.0%	369.2	36.9	10.0%	368.5	36.9	10.0%	367.9	36.8	10.0%	367.2	36.7	10.0%	366.6	36.7	10.0%	365.9	54.9	15.0%	365.2	54.8	15.0%	364.6	72.9	20.0%	363.9	72.8	20.0%	363.3	90.8	25.0%
	Drywall	2.5%	190.5	0.0	0.0%	190.1	19.0	10.0%	189.8	19.0	10.0%	189.5	18.9	10.0%	189.1	18.9	10.0%	188.8	18.9	10.0%	188.4	37.7	20.0%	188.1	37.6	20.0%	187.8	37.6	20.0%	187.4	37.5	20.0%	187.1	46.8	25.0%
	Soil/Gravel	27.2%	2,042.4	0.0	0.0%	2,038.8	407.8	20.0%	2,035.1	407.0	20.0%	2,031.4	406.3	20.0%	2,027.8	405.6	20.0%	2,024.1	404.8	20.0%	2,020.5	505.1	25.0%	2,016.8	504.2	25.0%	2,013.2	604.0	30.0%	2,009.6	602.9	30.0%	2,006.0	702.1	35.0%
	Metal	5.9%	443.6	0.0	0.0%	442.8	221.4	50.0%	442.0	221.0	50.0%	441.2	220.6	50.0%	440.4	220.2	50.0%	439.6	219.8	50.0%	438.8	263.3	60.0%	438.0	262.8	60.0%	437.2	284.2	65.0%	436.5	283.7	65.0%	435.7	305.0	70.0%
	Plastic	0.4%	29.8	0.0	0.0%	29.7	3.0	10.0%	29.7	3.0	10.0%	29.6	3.0	10.0%	29.6	3.0	10.0%	29.5	3.0	10.0%	29.4	4.4	15.0%	29.4	4.4	15.0%	29.3	5.9	20.0%	29.3	5.9	20.0%	29.2	5.8	20.0%
	Corrugated/Paper	2.0%	150.0	0.0	0.0%	149.8	22.5	15.0%	149.5	22.4	15.0%	149.2	22.4	15.0%	149.0	22.3	15.0%	148.7	22.3	15.0%	148.4	29.7	20.0%	148.2	29.6	20.0%	147.9	37.0	25.0%	147.6	36.9	25.0%	147.4	58.9	40.0%
	Other	6.8%	512.0	0.0	0.0%	511.1	51.1	10.0%	510.1	51.0	10.0%	509.2	50.9	10.0%	508.3	50.8	10.0%	507.4	50.7	10.0%	506.5	70.9	14.0%	505.6	70.8	14.0%	504.7	80.7	16.0%	503.7	80.6	16.0%	502.8	100.6	20.0%
	<b>Total</b>	<b>100.0%</b>	<b>7,504.8</b>	<b>0.0</b>	<b>0.0%</b>	<b>7,491.3</b>	<b>2,398.1</b>	<b>32.0%</b>	<b>7,477.8</b>	<b>2,393.8</b>	<b>32.0%</b>	<b>7,464.3</b>	<b>2,389.5</b>	<b>32.0%</b>	<b>7,450.9</b>	<b>2,385.2</b>	<b>32.0%</b>	<b>7,437.5</b>	<b>2,380.9</b>	<b>32.0%</b>	<b>7,424.1</b>	<b>2,774.1</b>	<b>37.4%</b>	<b>7,410.7</b>	<b>2,769.1</b>	<b>37.4%</b>	<b>7,397.4</b>	<b>3,109.5</b>	<b>42.0%</b>	<b>7,384.1</b>	<b>3,103.9</b>	<b>42.0%</b>	<b>7,370.8</b>	<b>3,420.5</b>	<b>46.4%</b>

**Appendix B**

**Copy of the Local Solid Waste Law**

The Solid Waste Committee offered the following, and moved its adoption:

Introduced as Proposed Local Law No. 7 of 1990

## CHENANGO COUNTY

### ADOPTED LOCAL LAW NO. 5 OF 1990

Be it enacted by the Chenango County Board of Supervisors, as follows:

#### SECTION 1.0 TITLE

1.1 This law shall be known of the 'SOURCE SEPARATION LAW'.

#### SECTION 2.0 DECLARATION OF PURPOSE

2.1 The Solid Waste Committee and the Chenango County Board of Supervisors recognizes the importance of recycling as a cost effective and environmentally sound method of solid waste management. It shall be the purpose of this law to encourage maximum recycling practices on the part of each and every household, business, and institution within Chenango County. It shall further be the purpose of the Chenango County Source Separation Law to establish, implement and enforce minimum recycling related practices and procedures to be applicable to all waste generators within the County.

#### SECTION 3.0 AUTHORITY

3.1 This local law is hereby enacted pursuant to the authority granted by section 10 and section 120-aa of the New York State Municipal Home Rule Law.

#### SECTION 4.0 DEFINITIONS

4.1 RECYCLABLE MATERIALS: Those materials designated by resolution of the Chenango County Board of Supervisors for inclusion in the mandatory recycling or source separation law, initially including the following:

4.1.1 CORRUGATED CARDBOARD: Corrugated cardboard boxes, containers and packaging which are cleaned of contamination by food wastes, adhesives, metals or plastics and which have been flattened for transport. This does not include press board or craft paper.

4.1.2 GLASS: Clear, green and amber glass jars, bottles and containers that have been rinsed and caps

removed. This term excludes ceramic, window glass, auto glass, mirror and kitchenware.

4.1.3. METAL FOOD CANS: Metal food cans, jars and containers which are rinsed. This term excludes aerosol cans, paint cans and metal containers that contained hazardous liquids.

4.1.4. NEWSPAPER: Common machine finished paper made chiefly from wood pulp used for printing newspapers. Must be dry and free of contaminants. This term excludes glossy finished papers, including inserts, and magazines.

4.1.5. HDPE PLASTIC: High Density Polyethylene plastic milk jugs and detergent bottles which are empty, rinsed and caps removed. This term excludes all film, vinyl, rigid and foam plastic materials.

4.1.6. OTHER RECYCLABLES: Any additional items designated by resolution of the Chenango County Board of Supervisors.

4.1.7. TIRES: Rubber tires from automobiles, trucks, farm machinery and any other motorized vehicle.

4.1.8. WHITE GOODS: Major household appliances including refrigerators, washing machines dryers, stoves, dishwashers, water heater tanks and similar items.

4.2 MATERIALS RECOVERY FACILITY: A public facility approved by resolution of the Chenango County Board of Supervisors for receiving and processing recyclable materials into marketable commodities.

4.3 DROP OFF CENTER: A publicly operated facility approved by the Chenango County Director of Waste Management where a person can deliver their recyclable materials.

4.4 SOURCE SEPARATION: The segregation of disposable materials into recyclable materials and non-recyclable garbage at the site of the waste generator.

4.5 WASTE GENERATOR: Any person/persons or legal entity which produces waste requiring off-site disposal.

4.6 PRIVATE WASTE HAULER: Any person or business who contracts or otherwise arranges with the waste generator to collect and transport recyclable and non-recyclable waste materials for disposal.

## SECTION 5.0 GENERAL PROVISIONS

- 5.1 Every WASTE GENERATOR including governmental entities in Chenango County shall separate RECYCLABLE MATERIALS from other non-recyclable waste and shall further separate recyclable material by the type of material as defined or designated under Section 4.1.
- 5.2 RESIDENTIAL HOUSEHOLDS shall make RECYCLABLE MATERIAL separated by type of item available for collection by a RECYCLABLES COLLECTOR separate from non-recyclable waste on a schedule established by the recyclables collector. Or shall deliver or cause to be delivered SOURCE SEPARATED RECYCLABLE MATERIAL to a DROP OFF CENTER or MATERIALS RECOVERY FACILITY.
- 5.3 It shall be a violation for a WASTE GENERATOR or a RECYCLABLES COLLECTOR to attempt to dispose of RECYCLABLE MATERIALS as waste or to fail to separate recyclable material by type under section 4.1 as defined or designated.
- 5.4 If plastic bags are used for non-recyclable waste, these plastic bags must be clear plastic. This provision is not applicable to waste generators that do not collect waste in plastic bags.

#### SECTION 6.0 ADMINISTRATION

- 6.1 The administration of this law shall be the responsibility of the Chenango County Board of Supervisors through the Chenango County Department of Waste Management. Said Board shall take such action as it deems necessary and appropriate to effectuate the intent and provisions hereof.

#### SECTION 7.0 ENFORCEMENT

- 7.1 Enforcement of the provisions of this law shall be by any law enforcement officer or agency exercising jurisdiction within Chenango County and by any County official acting in his or her official capacity.
- 7.2 In addition to any fines or penalties provided for herein, the County may utilize any other remedy including injunction available from a court of proper jurisdiction.

#### SECTION 8.0 CRIMINAL PENALTIES

- 8.1 Failure of a WASTE GENERATOR to comply with the provisions of this law shall be designated as a violation and shall be punishable by a maximum fine of Fifteen Dollars (\$15.00) for the first offense:

Thirty Dollars (\$30.00) for the second offense within twelve (12) months; Fifty Dollars (\$50.00) for the third offense within twelve months, and One Hundred Dollars (\$100.00) for each subsequent offense within twelve months.

8.2 Failure of a PRIVATE WASTE HAULER to comply with this law shall be a designated violation and shall be punishable by a maximum fine of Two Hundred Fifty Dollars (\$250.00) for the first offense; Five Hundred Dollars (\$500.00) for the second offense within twelve (12) months and One Thousand Dollars (\$1,000.00) for each subsequent offense within twelve (12) months.

8.3 One hundred percent (100%) of the criminal fines collected in the enforcement of this law shall be returned to the enforcing municipality for which the sentencing Court sits and shall be used for environmental improvement programs.

#### SECTION 9.0 CIVIL PENALTIES

9.1 In addition to the criminal fines imposed under sections 8.1 and 8.2 above, the offender shall pay a civil penalty in an additional amount equal to that of the criminal fine.

9.2 The County shall have the right to pursue civil penalty or other remedies regardless of whether a criminal proceeding is, has been or is to be commenced.

9.3 Should an offender not make payment of a fine or penalty within thirty (30) days of imposition, said offender shall be banned from the use of all Chenango County Landfills until payment is made.

9.4 All civil penalties shall be payable directly to the Chenango County Treasurer and utilized by the Chenango County Department of Waste Management for recycling purposes.

#### SECTION 10 SAVINGS CLAUSE

If any part of this local law is found to be illegal by a court of competent jurisdiction, the remaining parts hereof shall remain in full force and effect.

SECTION 11 EFFECTIVE DATE

11.1 This Source Separation Law shall become effective on January 1, 1991.

Seconded by Mr. Crouch

Results of a roll call vote were: Yes-2,257, No-31, Absent-183

No: Supervisor Brown

Absent: Supervisor Maltzan

The Chairman declared the Local Law duly adopted.



## **Appendix C**

### **Example Biennial Update Outline**

**Chenango County  
Local Solid Waste Management Plan**

**Biennial Update**

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

**April 20XX**

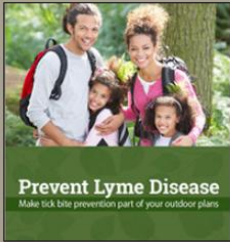
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- Appendix A – 20XX Chenango County Solid Waste and Recyclables Inventory
- Appendix B – 20XX Chenango County Solid Waste and Recyclables Inventory
- Appendix C – Updated MSW Generation and Diversion Projections
- Appendix D – Updated C&D Generation and Diversion Projections

**Appendix D**  
**Municipal Programs**



## Waste Management

### Main Office Normal Working Hours 8 a.m. - 4:30 p.m.

There are three solid waste and recycling facilities operated by the Chenango County Department of Public Works. The Pharsalia Landfill located in the Town of Pharsalia. Two Transfer Stations, one in the Town of North Norwich and the other near the hamlet of Brisben.

### Solid Waste Facilities Hours of Operation

**Pharsalia** (M-F) 8:00 a.m.-4:00 p.m., (Sat.) 8:00 a.m.-12:00 p.m.  
**North Norwich** (M) 8:00 a.m.-12:00 p.m., (T-S) 8:00 a.m.-4:00 p.m.  
**Brisben** (M) 8:00 a.m.-12:00 p.m., (T-S) 8:00 a.m.-4:00 p.m.

Educational programs on recycling as well as tours of the Landfill and the recycling facilities are available by contacting Patricia Pittsley, Waste Management Program Assistant, by phone at 337-1792 or via email: [PatriciaP@co.chenango.ny.us](mailto:PatriciaP@co.chenango.ny.us).

Waste Management
Household Hazardous Waste Collection Day
Latex Paint Exchange
Recycling Operations
Residential Landfill Permit
Department of Public Works
Get Directions

[Latex Paint Exchange](#)

[Recycling Operations](#)

[Draft - Chenango County Local Solid Waste Management Plan](#)

## Household Hazardous Waste Collection Day



For Chenango County Residents:  
**Saturday, September 23, 2017**  
**9:00am to 3:00pm**

At:  
Chenango County Highway Garage  
Rexford Street, Norwich  
Appointment **Required**  
Call: [337-1792](tel:337-1792)



## Recycling Operations

### North Norwich Facility

(607) 337-1815

[Directions](#)

Monday: 8:00 a.m. - 12:00 Noon  
 Tuesday thru Saturday  
 8:00 a.m. - 4:00 p.m.

### Brisben Facility

(607) 656-7718

[Directions](#)

Monday: 8:00 a.m. - 12:00 Noon  
 Tuesday thru Saturday  
 8:00 a.m. - 4:00 p.m.

### Pharsalia Facility

(607) 337-1769

[Directions](#)

Monday thru Friday  
 8:00 a.m. - 4:00 p.m.  
 Saturday: 8:00 a.m. - 12:00 Noon

**Residential Use Only**

**Closed Sundays and Holidays**

### Main Office

(607) 337-1790

[Directions](#)

[Residential Permit Application and Information](#)

Waste Management
Household Hazardous Waste Collection Day
Latex Paint Exchange
Recycling Operations
Residential Landfill Permit
Department of Public Works
Get Directions

**All recycling must be clean and dry with caps removed.**

## Mandatory Recycling

The following list contains items that are required to be recycled under current regulatory controls:

- **HDPE PLASTIC BOTTLES & JUGS (Please remove caps)** - Solid or milky colored plastic jugs and bottles. Look for the HDPE symbol. **Containers must be rinsed or well drained with caps removed.** Labels may remain.
- **NEWSPAPER** - Keep clean and dry. Newspapers may be packed in brown paper bags. Entire newspaper as delivered may be recycled.
- **CORRUGATED CARDBOARD, BROWN BAGS AND BOXBOARD (Please break down all boxes)** - Corrugated cardboard has the wavy interior. Keep cardboard clean, dry and flattened to save space. Clean brown paper grocery bags and brown kraft wrapping paper. Boxes like cereal, shoe, food and tissue boxes. Remove plastic film & liners.
- **GLASS CONTAINERS** - Glass food and beverage containers. Containers must be rinsed and caps removed. Labels may remain. Clear, green and brown glass must be separated.
- **METAL FOOD CANS** - All metal food cans, including steel, tin and aluminum cans must be washed. Labels may remain. All metal caps from glass jars.
- **LEAVES AND YARD WASTE & BRUSH** - Leaves, needles, pine cones, wood chips, weeds, remains of garden plants & old hay. Brush under 4" in diameter.
- **WET CELL BATTERIES** - Automobile, lawn mower, motorcycle-type batteries containing acid. **Please take care to store old batteries out of reach of children and pets!**
- **RECHARGEABLE BATTERIES AND BUTTON CELL BATTERIES** - Batteries that say 'Rechargeable' or 'Nickel-Cadmium' and small button shaped or coin shaped batteries. Rechargeable batteries sealed in battery packs are also recyclable.
- **USED MOTOR OIL & ANTI-FREEZE** - Used motor oil accepted at the North Norwich & Brisben Facilities. Maximum 5 gallons per resident per visit.
- **CATHODE RAY TUBE (CRT) TELEVISIONS AND COMPUTER MONITORS**

## Voluntary Recycling

The following list contains items that may be recycled:

- **PETE PLASTIC BOTTLES** - Bottle and jar type containers only. Solid color and clear. Look for the PETE symbol. Caps must be removed.
- **MAGAZINES AND JUNK MAIL** - Magazines, coupons, white and manila envelopes, old mail, sweepstakes coupons, notebook paper (any color), office and computer paper, FAX paper and NCR paper, gift wrap.
- **SCRAP METAL** - Any scrap metal item: Aluminum, tin, steel, copper, etc.
- **#3 - 7 PLASTIC JUGS, TUBS & LIDS**
- **PLASTIC GROCERY BAGS**
- **OFFICE PAPER**
- **COMPUTER TOWERS & ALL ELECTRONICS** - Free (Except CRT Monitors).
- **FLUORESCENT LIGHT BULBS & HOUSEHOLD BATTERIES** - Free

### Items Not Accepted for Recycling

The following list contains items that may not be recycled. These items **are accepted as garbage**:

- Ceramics
- Crystal
- Drinking Glasses
- Light Bulbs
- Window Glass
- Plastic Lined Bags
- Mirror Glass
- Styrofoam
- Boxes which have been refrigerated or frozen
- Soda or Beer boxes

### Tipping Fee Schedule

BASIC TIPPING FEE.....	\$58/Ton
CONSTRUCTION AND DEMOLITION DEBRIS.....	\$58/Ton
BRUSH & TREE STUMPS OVER 4" IN DIAMETER.....	\$58/Ton
RESIDENTIAL BAG RATE Up to 35 Gallons.....	\$1.50/Bag
COUPON FOR 30 BAGS.....	\$37.50
APPLIANCES AND WHITE GOODS WITHOUT FREON.....	FREE
WITH FREON.....	\$10 Each
AUTOMOBILE TIRES 16" Dia. or less with or without rims.....	\$2.00 Each
TRUCK TIRES 16" - 20".....	\$3.50 Each
TRUCK TIRES Greater than 20".....	\$5.00 Each
TRACTOR TIRES.....	\$8.50 Each
CRT TELEVISIONS AND COMPUTER MONITORS.....	\$5.00 Each

### **Disposal At Pharsalia Only**

Asbestos must be placed in appropriate plastic bags and taken to the Pharsalia Landfill. Bags are available at the weigh stations for \$.50 each. Disposal is an additional \$1.50 per bag or \$58/ton.

**All sludges require pre-approval from Dept.**

**SLUDGES** (Solid or Semi-Solid Liquid Waste from Sewage or Water Treatment Plants -

Non-Hazardous Industrial and Commercial Sludges)..... \$58/Ton

**According to New York State Law  
All Loads Must be Covered**

**Additional Guidelines**

Hazardous wastes as defined by NYS and Federal Regulation, liquids, including paint and motor oil, and wet cell batteries are prohibited in with garbage. Dry or solid paint can be accepted as garbage. Hot ashes are prohibited. Ashes must be in clear plastic bags for deposit at all 3 sites.

No open burning law, call (607) 337-1792 for more information.

Insulin needles are accepted at the scale houses. Please ask the weigh station operator about proper disposal procedures.

**CLEAR BAG POLICY:** All bagged refuse must be in clear plastic bags.





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- **PLASTIC GROCERY BAGS**
- **OFFICE PAPER**
- **COMPUTERS & ALL ELECTRONICS** - Free.
- **FLUORESCENT LIGHT BULBS & HOUSEHOLD BATTERIES** - Free

## **Cornell Cooperative Extension**

### **AGRICULTURAL PLASTICS BALER AT DAIRY DAY**

On June 15, 2013 the Recycling Agricultural Plastics Project (RAPP) and Chenango County CCE will be present at Dairy Day to promote the recycling of agricultural plastics. RAPP in Chenango County currently has over 15 dairy farms participating in the recycling of their bale wrap, twine, ag bags, and bunker covers. At Dairy Day the baler will offer a demonstration of how the baling of agricultural plastics works. RAPP will also have an informational booth and be preparing to schedule on location baling of farms that have prepared and held onto their plastics for recycling. The baler is completely mobile and is able to compress a 1,000 lb bale of balewrap in about 40 minutes.

If you are interested in learning more or participating in the program please contact Emily Jane Anderson or Rich Taber at Chenango County CCE, 334-5841 (ext 17 or 21).

### **BACKYARD COMPOSTING**

Learn basic composting techniques for the backyard in a variety of inexpensive containers. Learn how to balance “browns and greens” and moisture and air to create great compost for your garden. \$5 per person.

Saturday, July 13, 9:00AM-11 AM, at CCE Chenango

Tuesday, July 16, 5:30-7:30 PM – Location to be Announced – either Afton or Bainbridge.

Call 334-5841 ext 11 to register.

# Chenango County Recycles 4,000 Pounds of Plastic

The Chenango County agricultural plastics recycling program is a part of the statewide Recycling Agricultural Plastics Project (RAPP) based at Cornell University. Major funding is from the NYS Environmental Protection Fund through a contract with RAPP administered by the NYS Department of Environmental Conservation.

By working with the Recycling Agricultural Plastics Project this season, Chenango County has successfully recycled 4,000 pounds of plastic that would otherwise have been sent to the landfill. Since February RAPP and CCE have been encouraging farms that wish to participate to put “plastics best management practices” into action. So far only 10 farms in the county are actively participating, but others can join by following a few basic BMPs: keep plastic as clean and dry as possible, shake out pebbles and clumps of soils, and then roll or fold the plastic into pillow-sized bundles. Plastic that is going to be recycled should be stored on a pallet, out of the mud and gravel, with different colors and types separated.

The Big Foot Baler, which was seen at Chenango County’s Dairy Day, is able to make a 1000 pound bale of plastic bale wrap in about a half hour under ideal conditions. On Monday, June 17<sup>th</sup> the baler went mobile and visited three additional farms that worked together with other local farms to create bales at their sites. The idea is to create a bale that is fairly clean, dry and approximately 1000 pounds with the dimensions of about a three and a half foot cube. The bales are then stored on farm until they are transported to a recycling facility where they are made into sidewalk pavers, plastic plywood or oil.

RAPP is just gaining momentum and would love to see more farms participate. With over 30,000 pounds of plastic being delivered into the county for agricultural purposes it is great to see some of it recycled. It is important to do what works for your farm. RAPP can help recycle feed bags, bunker cover, boat wrap, bale wrap, and many other agricultural plastics.

If you are interested in participating in the program or want to learn more please contact Emily Jane Anderson at Chenango County CCE. E-mail: [eja74@cornell.edu](mailto:eja74@cornell.edu), phone: 607-334-5841 ex. 17

A small dairy farm, feeding an average of one large wrapped bale a day, will likely generate 1000 pounds of plastic in a season. In Chenango County there are about 70 active dairy farms feeding baleage. Not all of the farms produce agricultural plastics, but many do and have the potential to contribute to the efforts of recycling agricultural plastics. Chenango and Broome Counties are now working hand-in-hand with the NYS Recycling Agricultural Plastics Project (RAPP) and is on board to recycle these plastics.

Recycling offers farmers a good option for disposing of their plastic, an alternative to illegal burning, messy dumping and expensive landfill tipping fees. Since 2009, RAPP has collaborated with numerous local agencies, organizations, businesses and farmers across New York to collect more than a million pounds of used plastic that would otherwise have gone into landfills, been burned in pollution-generating open fires, or been left behind in the fields. These collected agricultural plastics are being made into sidewalk pavers, plastic lumber, oils, waxes and other products.

What is included under the “agricultural plastics” umbrella? In addition to bale wrap, silage and grain bags, bunker silo covers, bale netting, polytwine, feed and pellet bags, irrigation tubing, drip tape, maple tubing, green and hoophouse covers, nursery pots and seedling trays, mulch and fumigation films, tarps, netting, rigid containers, seed and fertilizer bags, bee hive frames and many more plastics can be recycled.

RAPP has developed markets to recycle most of these products if the plastic is prepared for recycling appropriately.

RAPP hopes to ensure best management practices (BPM's) for preparing agricultural plastics for proper recycling.

RAPP's BMP's are easy when you keep the following in mind:

1. Keep plastic as clean and dry as possible
2. Shake out any pebbles and clumps of soil and debris
3. Roll or fold the plastic into 3'x 3' pillows or bundles
4. Store the plastic off the ground, out of mud, gravel and grit
5. Separate different types of plastic by color and type

Some local farms are already taking on the initiative to recycle their agricultural plastics. Emily Jane Anderson at the Chenango County CCE Association (607-334-5841 ex. 17, [eja74@cornell.edu](mailto:eja74@cornell.edu)) is eager to work with farms who are interested in recycling. Please call her with questions or to participate.



RAPP education on a local farm

LATEX PAINT

\*Hours of Operation

\*North Norwich  
Recycling Center

\*Tuesday - Friday Only!!!

Tuesday-Friday - 8:00 am-3:30pm

\*May til September  
ONLY!!!

\*Call 337-1792 for  
Details.

**\*NO Saturday Hours**

**Chenango County  
Latex Paint  
Exchange  
May 1st - Sept. 30th**



### Rules for Dropping off Latex Paint

You **MUST** sign a waiver stating that the paint is latex and is of good quality.

The paint must measure at least 3 inches in the can.

The paint will be opened for inspection.

The paint must be smooth and free of lumps.

The paint must have never been frozen.

We accept 5-gallon, 2-gallon, 12-gallon & quart cans of Latex Paint only.

Cans must be in good shape with no rust & lids that fit tightly.

Labels must be on the cans and readable.

### Reminders

Latex Paint Exchange is for Chenango County residents, businesses, and non-profit agencies only.

The County reserves the right to limit the quantity dropped off or picked up.

No drums or large containers will be accepted.

### Rules for Picking up Paint

- ◆ We only have Latex Paint
- ◆ You **MUST** sign a waiver absolving the County of liability.
- ◆ Paint **CAN NOT** be resold.
- ◆ Paint may not be mixed on site.

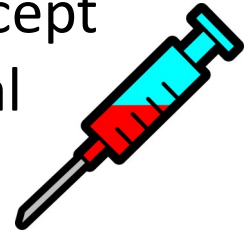


### Reminders

- ◆ If you have unacceptable Paint, save it for the next Household Hazardous Waste Collection Day.
- ◆ Small quantities may be dried out with kitty litter and disposed of when **COMPLETELY DRY** with your regular garbage.
- ◆ **No Mixed Paint, or Oil-Based Paints Accepted**

# Sites in Chenango County That Accept Sharps and Needles for Disposal

(Updated June 2017)



Chase Health (Chase Memorial Nursing Home)

1 Terrace Heights New Berlin, NY 13411

607-847-7000 Times: 9-3 M-F

Chenango Memorial Hospital

179 North Broad Street Norwich, NY 13815

607-337-4111 Time: Fridays 9-11 am

At the Emergency Entrance

The Eaton Center Outdoor Dropbox

Eaton Ave (Elm Street Side) Near the Garage, Norwich, NY

New York State Veterans' Home

4207 NY-220 Oxford, NY 13830

607-843-3173 Times: 7-3:30 M-F in Clinic area

Main number is 843-3100

Norwich Rehabilitation and Nursing Center

88 Calvary Drive, Norwich, NY 13815

607-336-3915 Times: 9-5 Any Day

Southern Tier AIDS Program

19 Eaton Ave Norwich, NY 13815

607-759-6746 Tuesdays from 10:30-3 pm

Reference :ESAP Program and the Growing up Healthy Program  
Chenango County Health Department 607-337-1660



## **Appendix E**

### **Responsiveness Summary**

## LSWMP Public Hearing Comments With Responses

Chenango County held a public meeting on September 10, 2018 at the Supervisor's Chambers, County Office Building, in Norwich, NY for the purpose of presenting the Draft Local Solid Waste Management Plan (LSWMP) to both County Board members as well as any general public in attendance. Shortly following a short presentation of the LSWMP contents, the floor was opened to the public attendees to make comments and express concerns about the plan. The County Board members were also given the same opportunity. The comments heard at the meeting along with any submitted written comments, have been compiled below, with applicable responses to each. The list of commenters is as follows:

- Canice Paliotta – Resident, Town of Oxford
- Todd Dreyer – Resident, 106 Pleasant Street, Norwich, NY 13815
- Catherine Murphy – Resident, 336 Reservoir Hill Road, Norwich, NY 13815
- Thomas Murphy – Resident, 336 Reservoir Hill Road, Norwich, NY 13815
- Carol Kolinski – Resident, 5 Locust Street, Norwich, NY 13815

### 1) Canice Paliotta

- a. Is it possible to implement an active gas collection and control system? Madison County has a lumber kiln that operates on landfill gas and there is the potential for a lumber mill opening up in Chenango County and will possibly need a kiln.

#### **Response:**

**According to the Environmental Protection Agency Title V regulations, an active gas collection system is not required for this facility based on the capacity and quantity of waste accepted at the facility. Currently, the waste mass and annual waste acceptance rate at the Chenango County Landfill is not large enough to support the quantity of landfill gas required to make an active landfill gas collection system economically feasible. However, Implementation Task #14 of the Draft LSWMP discusses that the County will continue to evaluate the possibility of implementing an active gas collection system at the landfill as well as beneficial uses of the gas throughout the planning period.**

- b. We have enough room for today, but what about 20 years or 100 years from now? Are there practices, such as a solar cap, that could help compress the waste and extend the life expectancy of the landfill?

#### **Response:**

**The implementation of a solar cap will not help with the compression of waste. The landfill compaction equipment and natural settling over time are the best mechanisms for waste settlement. The LSWMP contemplates the expected life span of the landfill over the next 10 years and continuing to evaluate alternative practices to increase diversion of material from the landfill facility in order to further extend this life span.**

- c. Are we ok with tipping fees being unequal? Shouldn't we think long term and about everyone as a whole, not just the few that make the most money?

**Response:**

**The County offers a sliding scale for waste disposal rates based on the location at which the waste is collected. If it is delivered directly to the landfill, a lesser rate is charged than at one of the transfer stations as it saves the County the cost of hauling the material to the landfill for disposal. In addition, haulers who can offer a guarantee as to the quantity of waste that they will deliver to the landfill are offered a lower tipping fee. Due to the extent of the fixed operational costs for the landfill facility, it is sometimes beneficial for the landfill facility to take more waste at a reduced tipping fee to offset these operational costs that would be incurred no matter how many tons of waste are received in a day.**

- d. Madison County has a compactor for packing styrofoam. Maybe farm plastics can be recycled. Some places charge for recycled items.

**Response:**

**Implementation Tasks #1 and #7 of the LSWMP address the evaluation of possible changes to the recycling system, including the addition of new recyclables streams, and, specifically, agricultural plastics. In addition, a charge for the acceptance of recyclables at County facility could be contemplated during the evaluation of amendments to the County Local Solid Waste Management and Recycling Law addressed in Implementation Task #12.**

2) Todd Dreyer

- a. Why is there a lack of data from government and institutional facilities, if they are controlled by the county?

**Response:**

**There is no current universal mechanism in place within the county in order to obtain this sort of information. A questionnaire and formal reporting structure would be needed in order to track this type of data. This is included as a future task under Implementation Tasks #2 and #11.**

- b. Can we somehow incorporate the general public in the planning process?

**Response:**

**The opportunity to review and comment the Draft Local Solid Waste Management Plan is providing the public the opportunity to participate in the planning process. In addition, a majority of the implementation items identified in the plan call for future assessment and analysis of various solid waste management activities such as alternate disposal methods and recycling opportunities. Any implementation of the items during the planning period would occur through the existing processes used by town and county government. This would provide an opportunity for additional public input during the implementation process.**

- c. Why has the county not had any increase in recycling compliance since the facility has been in place?

**Response:**

**As noted in the Draft LSWMP, a lack of data is the biggest obstacle to the County in increasing diversion rates. As new options for diversion outside of the County-run recycling system emerge, the County has less and less control over the access to this data. In addition, as is typical in New York State communities, participation in existing programs may be limited by the number of residents voluntarily participating in the recycling program. Unless there are new items added to the list of materials accepted at the County facility for recycling, it would be hard to increase the recycling participation rate, without yielding significant costs.**

- d. Why is there no comparative data between neighboring counties, or even on the state level?

**Response:**

**Comparative data for diversion rates for the surrounding counties has been added to the LSWMP in Section 3.4.**

- e. After extrapolating the waste produced, per household across the county, why does it seem like small haulers only tend to have non-recyclable trash, and aren't complying with the recycling laws?

**Response:**

**The commenter has not provided sufficient information to make such a claim. The goal of the hauler surveys recommended in Implementation Task #11, Solid waste and Recycling Survey and Reporting, is to gather additional data regarding waste disposal and recycling opportunities provided to County residents by the private sector.**

- f. Why is there no info for the cost incurred for waste management and recycling?

**Response:**

**This information is provided in the County's annual budget, which is made available to the general public per the Freedom of Information Act. These costs vary from year to year, and are, therefore, not included in the LSWMP as they would quickly be out of date over the expected 10-year planning period.**

- g. Each municipality should weigh its waste and recyclables quarterly and report it to the County. This should include schools and healthcare facilities as well.

**Response:**

**Not all municipalities within the County are responsible for the handling of their own waste and recyclables. In some locations, a contracted municipal collection and hauling company may provide services to the entire municipality. In other locations, residents may contract with waste and recycling collection companies individually, or may choose to use the County-owned convenience stations. This variation in disposal options makes it rather difficult to**

**collect any sort of accurate data on an individual municipal basis. The waste surveys included in Implementation Item 11 may assist in capturing some institutional data, but it will likely not be comprehensive.**

- h. BOS should incur a surcharge on haulers who don't have a reasonable compliance( say 15% recycling goal)

**Response:**

**The implementation of such a surcharge would require the modification of the Local Solid Waste and Recycling Law. The plan's Implementation Task #12, Amendments to County Local Solid Waste Management and Recycling Law, is geared towards reviewing the current law, consulting with outside sources, and ensuring that the solid waste law is up to date. The review will include, but not be limited to, source separation, modifications to existing mandatory recycling list, commercial, industrial and institutional reporting, enforcement efforts, hauler licensing or districting, flow control and recycling compliance. Hauler licensing may be a mechanism by which such a surcharge could be implemented.**

3) Multiple Commenters (Catherine Murphy, Thomas Murphy)

- a. The foul odor from the landfill has not been addressed in the plan. The odor started in 2017, and has increased in frequency to several times a week, starting primarily in the early morning. The odor is raising health concerns from the gasses themselves, along with the lack of sleep and stress level increase. The odor also has taken a toll on the property values of the houses along the Northern and Eastern shores, primarily. Contact has been made with Shawn Fry, initially by telephone then by email, but communication has progressively declined. This contact was followed up by a site visit from Dennis Brown, one of the supervisors of Chenango County. Why are none of these odor concerns addressed in the plan?

**Response:**

**The purpose of the Draft LSWMP is to address the mechanisms put in place for solid waste management over the ten year planning period, not the operation of specific facilities contemplated by the plan. The Draft LSWMP does, however, include discussion of evaluation of future landfill gas collection and control systems at the landfill to control emissions and odors. Some additional language has been added to Implementation Task #14 to discuss the ongoing assessment of passive gas collection controls such as additional capping, gas collection trenches and passive flares.**

4) Carol Kasinski – Resident, Town of Plymouth

- a. How long, at the correct operating rate, does the landfill have until it reaches capacity? There are some things that could prolong the life of the landfill by removing certain materials, such as incorporating a Styrofoam compactor to process the packaging Styrofoam into usable materials rather than including it in the landfill materials. Is this a viable option, and if not, what other options could there be?

**Response:**

**As stated in Section 3.2.1 of the LSWMP, with the current operation rate of 150 tons/day, the landfill has an estimated life expectancy, as of January 1, 2018, of 30.83 years. Within Implementation Task #12, there is reference to the evaluation of the possible expansion of mandatory recyclable materials. This could potentially include items such as Styrofoam, which could yield a minor increase in the lifespan for the landfill.**

**Appendix F**

**Resolution Adopting Plan**

**RESOLUTION #61-19P**

**ADOPTION OF THE CHENANGO COUNTY LOCAL SOLID WASTE MANAGEMENT PLAN**

The Public Works Committee offered the following, and moved its adoption:

WHEREAS, the County of Chenango is the planning unit responsible for developing a Local Solid Waste Management Plan (LSWMP) pursuant to Section 27-0107, paragraph 1(a) of the Environmental Conservation Law of the State of New York; and

WHEREAS, on March 13, 2019 the New York State Department of Environmental Conservation issued a letter stating that the current draft of the LSWMP constitutes an approvable plan; and

WHEREAS, Section 366-4.1(d)(2) of the New York State Department of Environmental Conservation's solid waste management regulations contains several provisions that must be included in a planning unit's resolution to adopt a Final LSWMP, and such clauses are included herein as required;

NOW, THEREFORE, be it

RESOLVED, That the Chenango County Final LSWMP is hereby adopted by the County Board of Supervisors, acting as the solid waste planning unit for Chenango County; and be it further

RESOLVED, That, as required by Sections 366-4.1(d)(2)(i), 366-4.1(d)(2)(i1), and 366-4.1(d)(2)(110), of the New York State Department of Environmental Conservation's solid waste management regulations, the County of Chenango will (i) adopt the LSWMP, effective upon department approval of the LSWMP, (ii) implement and maintain the solid waste management system described in the LSWMP, and (iii) submit annual planning unit reports and biennial updates; and be it further

RESOLVED, That the Clerk of the Board of Supervisors is hereby directed to send notices of the availability of the Final LSWMP to adjacent solid waste planning units and will ensure that an electronic copy of the Final LSWMP is made available for public review on the County's website; and be it further

RESOLVED, That the Clerk of the Board of Supervisors is hereby directed to furnish all items to the New York State Department of Environmental Conservation as indicated in the March 13, 2019 letter referenced above.

Seconded by Supervisor Seneck

Results of a roll call vote on the Preferred Agenda were: Yes – 1466, No – 0, Absent – 261

Absent: Supervisors Dolores Nabinger, Daniel Jack and David Evans

Chairman Wilcox declared the Preferred Agenda Resolutions duly adopted.

State of New York)  
County of Chenango)

I hereby certify that the foregoing is a true and correct transcript of a resolution duly adopted by the Board of Supervisors of Chenango County on the 8<sup>th</sup> day of April, 2019 and of the whole thereof.

Dated, Norwich, N. Y.

April 11, 2019

  
Clerk of the Board