Draft

Rethinking Waste in Tompkins County: Fostering a Local Circular Economy

A Local Solid Waste Management Plan

Prepared By

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EXECUTIVE SUMMARY

Rethinking Waste in Tompkins County: Fostering a Local Circular Economy is the County's 10-year Local Solid Waste Management Plan. The purpose of this Plan is to describe the path to be pursued for managing materials generated in Tompkins 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 planning period will commence following approval of this Plan by the New York State Department of Environmental Conservation (NYSDEC) and is projected to encompass 2023-2032.

This Plan will: 1) serve as a countywide framework for the coordination of solid waste management; 2) establish countywide materials diversion goals and objectives as well as a plan to monitor progress toward the goals; and 3) satisfy NYSDEC requirements for solid waste planning and comprehensive recycling analyses.

With strong goals for reducing, reusing, recycling, and rethinking waste, the Tompkins County Department of Recycling and Materials Management (TCRMM) has identified opportunity to foster a circular economy that applies a systems approach to materials management. Through this strategy, systems are developed to ensure that materials are used for their highest value for as long as possible, with end-products becoming inputs for new systems. This approach will further activity for reducing waste generation, increasing reuse and recovery, and ultimately decreasing disposal, now and in the future.

Tompkins County serves as the solid waste planning unit for all municipalities within its boundaries. This Plan recognizes that local municipalities, the NYSDEC, the community, waste haulers, neighboring solid waste planning units, facility owners, and other stakeholders all play important roles in Tompkins County's current and future management of solid waste and recyclable materials.

As acknowledged in the organization's diversity statement, "Tompkins County Government centers diversity, equity, and inclusion. We are committed to the empowerment of employees and residents to dismantle systemic barriers that inhibit inclusive governance and the provision of government services to all." The Plan has been developed with recognition that homogeneity, inequality in resource and opportunity access, and exclusion all impact the waste stream as well. For example, access to transportation, economic barriers, and geographic location all impact decisions made by consumers, which in turn influence the packaging and product waste that is generated. A diverse array of solutions are required to provide accessible and inclusive opportunities that support the needs of the community. In alignment with these values, development and implementation of this Plan will focus on opportunities to ensure access to materials management solutions countywide.

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:

1. first, to reduce the amount of solid waste generated;
2. second, to reuse material for the purpose for which it was originally intended or to recycle material that cannot be reused;
3. third, to recover, in an environmentally acceptable manner, energy from solid waste that cannot be economically and technically reused or recycled; and
4. 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).

A draft statewide SWMP, *Building the Circular Economy Through Sustainable Materials Management*, was released for public comment in March 2023. At the time of drafting this Plan, the public comment period was still open. The state's new draft plan outlines broad objectives for waste reduction and a transition to a circular economy, while establishing a plan to reduce landfilling by 85% by 2050, statewide. Six focus areas are laid out to achieve this goal, including organics reduction and recycling; waste prevention, reduction and reuse; recycling and market development resiliency; design and operation of solid waste management facilities; toxics reduction in products; and product stewardship and extended producer responsibility. Based on the data gathered and compiled for this Plan, the County has identified program strategies to work toward during a ten-year planning period that are consistent with the State Solid Waste Management Policy. The strategies set forth below were identified with the goal of preventing and rethinking waste while further enhancing the reuse and recycling of materials generated in Tompkins 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 Section 6.0.

Program Strategy #1 – Promote Waste Reduction Programs
Goal: Establish robust waste reduction programming to increase waste reduction through modifications in behavior, as well as purchasing, while supporting a sharing economy.

Program Strategy #2 – Promote Reuse Programs
Goal: Expand reuse activity and infrastructure in Tompkins County, supporting material exchange, repair, creative reuse for residential, commercial, and institutional generators, and focusing on materials such as packaging and dishware, building materials, paint and hazardous waste, electronics, and textiles.

Program Strategy #3 – Expand Recyclables Recovery
Goal: Increase the participation in recycling programs and types of materials accepted for recycling at the County's Recycling and Solid Waste Center (RSWC), while reaching residents, institutional, and commercial generators, as well as public spaces and events.

Program Strategy #4 – Organic Recovery Programs
Goal: Promote wasted food prevention, donation of surplus edible food, and organics recycling opportunities for all community members, including residents, businesses, and institutions.

Program Strategy #5 – Rethink
Goal: Engage the community in rethinking waste, encompassing strategies for product stewardship, as well as green purchasing for residents, municipalities, businesses, and institutions.

Program Strategy #6 – Managing Residue
Goal: Continue the successful PAYT program, household hazardous waste collection, environmental management of closed landfills, and preparedness for management of disaster debris.

Program Strategy #7 – Local Laws and Enforcement Programs
Goal: Research and update local laws; provide public education and enforcement of the revised laws, rules, and regulations.

Program Strategy #8 – Communications
Goal: Educate the community to address operational needs, including promotion of the 4Rs to promote sustainable materials management.

Program Strategy #9 – Data Collection and Evaluation Efforts
Goal: Continually improve data collection and reporting to monitor and assist with the implementation of the program strategies.

Program Strategy #10 – Review Available Technologies
Goal: Evaluate alternative waste disposal technologies that are available to the County.

ABBREVIATIONS

4Rs	Reduce, Reuse, Recycle, and Rethink
AD	Anaerobic Digestion
C&D	Construction and Demolition Debris
CCETC	Cornell Cooperative Extension of Tompkins County
CESQG	Conditionally Exempt Small Quantity Generators
CH_4	Methane
CO	Carbon Monoxide
CO_2	Carbon Dioxide
County	Tompkins County
CRT	Compost, Recycling, and Trash
EPA	United States Environmental Protection Agency
EPP	Environmentally Preferable Procurement
EPR	Extended Producer Responsibility
FDN	Friendship Donations Network
HDPE	High Density Polyethylene (plastic #2)
H_2	Hydrogen
HHW	Household Hazardous Waste
IAWWTF	Ithaca Area Wastewater Treatment Facility
LSWMP	Local Solid Waste Management Plan
MBT	Mechanical-Biological Treatment
MRF	Materials Recovery Facility
MSW	Municipal Solid Waste
MWC	Municipal Waste Combustor
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSEG	New York State Electric & Gas
PAYT	Pay As You Throw
PET	Polyethylene Terephthalate (plastic #1)
RCA	Recoverable Container Act
RDF	Refuse Derived Fuel
RSWC	Recycling and Solid Waste Center
Sq Mi	Square Miles
STP	Sewage Treatment Plant

ABBREVIATIONS CONT.

TC3	Tompkins Cortland Community College
TCRMM	Tompkins County Department of Recycling and Materials Management
TPD	Tons Per Day
TST-BOCES	Tompkins-Seneca-Tioga Board of Cooperative Educational Services
WTE	Waste To Energy
WWTF	Wastewater Treatment Facility
WWTP	Wastewater Treatment Plant

1.0 PLANNING UNIT DESCRIPTION

1.1. Size, Location, Population

1.1.1. Physical Setting

Located in the Finger Lakes region of New York State, Tompkins County (the County) is surrounded by Seneca and Cayuga County to the north, Chemung and Tioga County to the south, Schuyler County to the west, and Cortland County to the east. Each of these counties represents a neighboring planning unit. Tompkins County is located approximately equidistant from two larger urban areas: Binghamton and Syracuse - both of which are approximately an hour's drive.

The County is comprised of 491 square miles, 477 of which is land with the remaining 14 miles being comprised of water, with a population density of 215 people per square mile (sq mi). According to the 2010 US Census, the County's population is approximately 27% urban, 43% rural, and approximately 30% characterized as suburban. Within the County, the City of Ithaca is a major population area. The southern area is dominated by rugged hills, while the northern portion has a gentler terrain and generally more fertile soils. Approximately one quarter of the land in the County is covered by high quality agricultural soils. Maps of the County, including Municipalities and Roads in the County, Abandoned Landfills, Agricultural Districts, and School Districts, can be found in Appendix A.

The most dominant natural feature of the county is Cayuga Lake, the second largest Finger Lake, with approximately 26 miles of shoreline. In addition, the county has one recreational river (a portion of Fall Creek), one critical environmental area (Coy Glen), four State Parks, and all or part of eight State Forests. The New York State Parks located in Tompkins County alone draw over one million visitors per year and contributes to the third-quarter peak tourism figures, bringing individuals to the county who may not be familiar with existing sustainable materials management strategies.

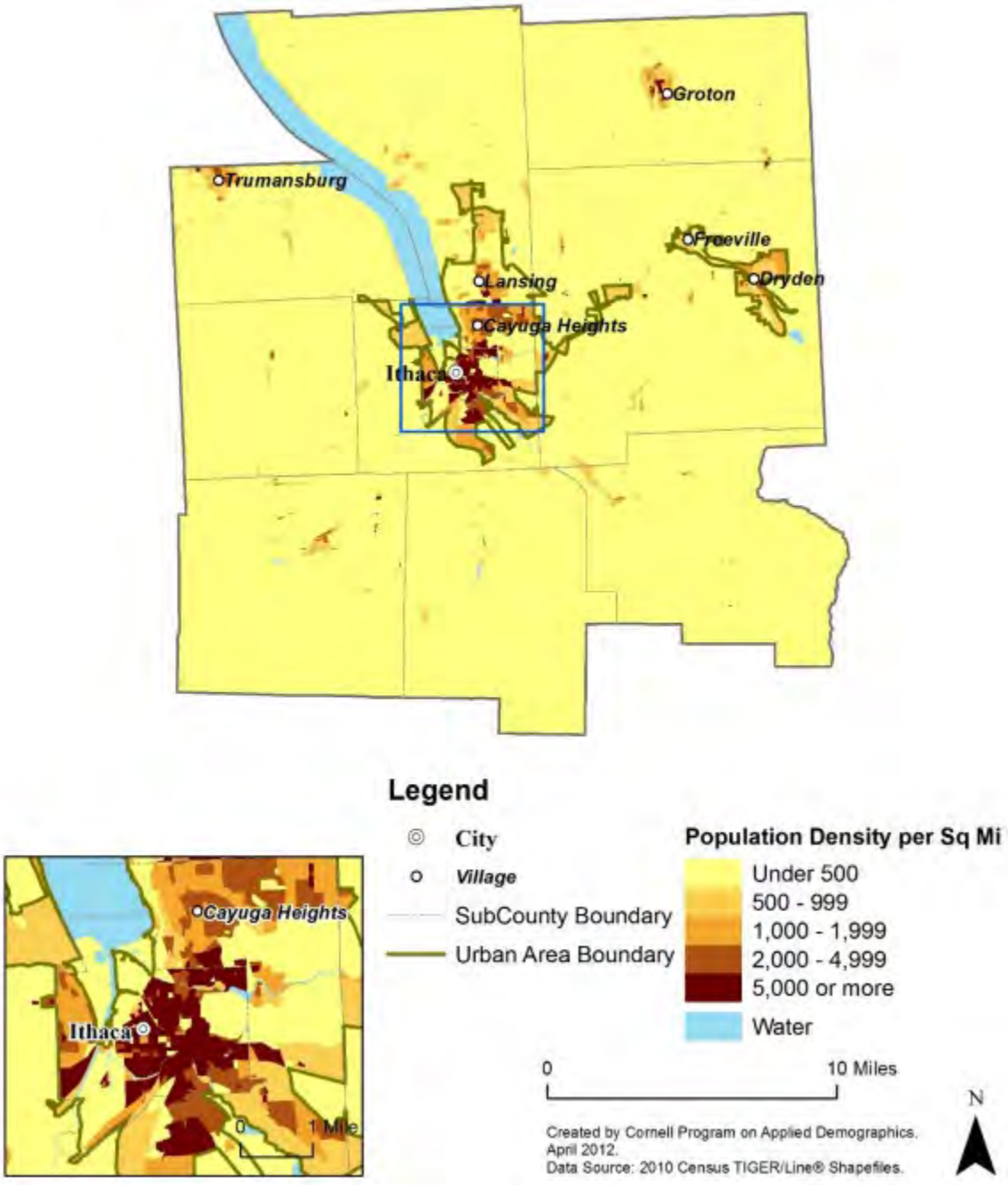
Tompkins County was founded in 1817, establishing Ithaca as the County Seat. The County includes the City of Ithaca, nine townships (Ithaca, Caroline, Danby, Dryden, Enfield, Groton, Lansing, and Trumansburg), and six incorporated villages (Cayuga Heights, Dryden, Freeville, Groton, Lansing, and Trumansburg). A map displaying the County's municipal jurisdictions is presented in Figure 1-1: Municipalities in Tompkins County.

Figure 1-1: Municipalities in Tompkins County

Source: Cornell Program on Applied Demographics

The intensity of development and settlement patterns varies widely among different regions of the County. While much of the perimeter of the County is rural or agricultural in nature with population densities of less than 500 people per square mile, the center is quite urban, particularly the City of Ithaca and Villages of Lansing and Cayuga Heights. The most densely populated area of the County is the City of Ithaca, which has a population density of 5,570 people per square mile. See Figure 1-2: 2010 Population Density in Tompkins County.

Figure 1-2: 2010 Population Density in Tompkins County



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

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

According to the U.S. Census data for 2020, Tompkins County's population is approximately 105,740, and is distributed over 9 towns, 6 villages, and 1 city with 39,618 households. The U.S. Bureau of Census published the following populations for the municipalities within Tompkins County for 2020.

Table 1-1: Population By Municipality, 2020

Municipality	Population
City of Ithaca	32,108
Town of Ithaca	22,283
Village of Cayuga Heights	4,114
Town of Caroline	3,334
Town of Danby	3,421
Town of Dryden	13,905
Village of Dryden	1,887
Village of Freeville	498
Town of Enfield	3,362
Town of Groton	5,746
Village of Groton	2,145
Town of Lansing	11,565
Village of Lansing	3,648
Town of Newfield	5,126
Town of Ulysses	4,890
Village of Trumansburg	1,714

Tompkins County's population increased from 101,564 in 2010 to 105,740 persons in 2020, an increase of 4,176 persons. According to Cornell University's Program of Applied Demographics, the population of Tompkins County is estimated to be 100,893 in 2030 and is projected to decrease by 2,287 persons to 98,606 persons by the year 2040.

While the population of the county totals 105,740, approximately 29,262 of these individuals are enrolled at one of the county's three institutions of higher education, according to the 2019 American Community Survey (2019 One-Year Estimate). Most of these students live in the county only during the school year, resulting in a significantly lower summer population, probably between 75,000 and 80,000 people. This results in an increase in waste generation during the school year, and a need for ongoing educational efforts to address a transient population.

[1] U.S. Census, 2020.
[2] Cornell University's Program of Applied Demographics, 2010.

Other factors impacting generation include commuters from other counties, of which there are approximately 15,000, and tourists.[3] According to statistics from the Ithaca/Tompkins County Convention & Visitors Bureau, in 2021 the county had about 395,000 overnight stays in local hotels. Like the student population, transient tourists may not be familiar with local recycling infrastructure, resulting in increased waste generation.

1.2. Planning Unit Members and Administrative Structure

The Planning Unit members consist of the 1 city, 9 towns, and 6 villages that make up the County. The membership of the Planning Unit has not changed since its inception. It is not anticipated that there will be any further changes of municipalities within the Planning Unit.

Tompkins County will draw upon its existing administrative structure to implement the programs and objectives outlined within this Plan. Since 1970, the County has operated under a county charter, with a legislature-administrator form of government. There are fourteen (14) Legislators elected every four (4) years from districts of approximately equal population. The County Legislature is responsible for the following:

- Overseeing county services and spending;
- Setting policy and determining the best use of financial resources; and
- Appointing the County Administrator, County Finance Director, County Attorney, and Legislative Clerk.

The County Administrator's responsibilities include:

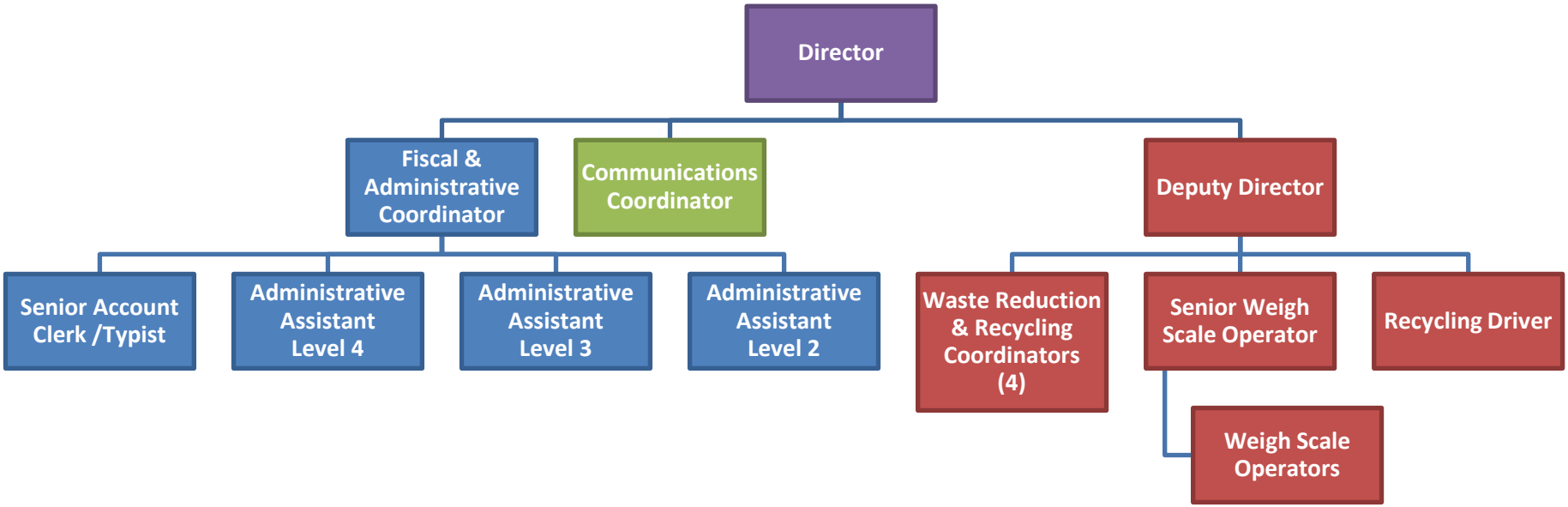
- Overseeing and coordinating county government operations to carry out policies of the Legislature;
- Appointing all other non-elected department heads, subject to Legislature confirmation; and
- Guiding delivery of services by employees of county departments and through contracts with not-for-profit agencies and service providers.

Ultimately, the County is responsible for the implementation of this Plan. The Recycling and Materials Management Department, in addition to other duties and responsibilities, is charged with the development and implementation of this Plan, which is accomplished in part through its programs and operations. TCRMM also recommends policies to the County Administrator and Legislature. The County may delegate tasks to other partners as appropriate based on the nature of the contract, relationship, or partnership. Any such delegated task may be assigned with Department oversight. Figure 1-3 depicts the administrative structure to be followed for

[3] *Tompkins County Comprehensive Plan*, Tompkins County Planning Department, 2015, https://www.tompkinscountyny.gov/files2/planning/ComprehensivePlan/FINAL-March%2012-low%20res.pdf

implementing the programs and objectives outlined in this Plan. Each entity has a role in the success of the solid waste management system including operations, administration, finance, outreach and education, enforcement, data collection and evaluation, and LSWMP updates and reports. These are identified in Figure 1-3.

Figure 1-3: Tompkins County Department of Recycling and Materials Management Staff Structure



1.2.1. Neighboring Planning Units

Table 1-2 lists the neighboring planning units along with possible opportunities for inter-jurisdictional programs or issues that may impact implementation of this Plan and achievement of its goals. Further evaluation of these opportunities or potential impacts will be discussed in Section 5.0.

Table 1-2: Potential Impacts or Opportunities with Neighbors That Could Affect Plan Implementation

Neighboring Planning Unit	Existing or Potential Inter-Jurisdiction Considerations/Impacts	Effects of Opportunities or Impacts to Implement the LSWMP
Cayuga County	Little to no information available for Cayuga County.	None identified at this time.
Cortland County	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 transfer facility – according to annual report, only takes recycling from Cortland County.	None identified at this time.
Tioga County	Tioga County offers a municipal collection service for recyclable materials to County residents. A privately owned and operated single stream recycling facility is located within the County. A privately owned and operated transfer station in the Town of Barton is available for use by County waste generators. Residents may drop off their solid waste at the Tioga Waste Management Facility in Owego or contract with a private hauler for curbside pickup. Most solid waste is reportedly disposed at the Chemung County Landfill by private haulers.	None identified at this time.
Chemung County	The County owns one landfill comprised of an operational municipal solid waste (MSW) and construction and demolition debris (C&D) landfill in the Town of Chemung, and a transfer station/materials recovery facility (MRF) in the City of Elmira, which is currently operated as a consolidation center for waste and recyclable materials that are trucked off-site for disposal at the landfill and processing at a MRF, respectively. Both are operated by New England Waste Services of N.Y., Inc. (NEWSNY), a subsidiary of Casella Waste Systems, Inc. Generators and haulers are not required to deliver waste or recyclables to the County facilities and businesses may self-market their recyclables. Therefore, not all waste and recyclables pass through the County facilities. It is currently estimated that slightly more than 80% of the MSW and nearly 70% of the C&D debris is managed outside of the County.	Chemung County Landfill manages a portion of the MSW generated in Tompkins County. REACT Recycling in Horseheads processes electronic waste generated in Tompkins County.

Neighboring Planning Unit	Existing or Potential Inter-Jurisdiction Considerations/Impacts	Effects of Opportunities or Impacts to Implement the LSWMP
Schuyler County	The collection and disposal of municipal solid waste within Schuyler County has been primarily handled by the private sector. Haulers transport the waste to out of county landfills/transfer stations. Each municipality also contracts independently for recycling services for their residents except for the Towns of Cayuta, Catharine, and Montour who offer one central recycling drop-off center for the residents of all three (3) towns. Of the five (5) haulers offering recycling service, three (3) offer single stream collection, while the others offer source separated collections.	None identified at this time.
Seneca County	The Recycling Department administers the recycling contract with a private company for the operation of the recycling program in Seneca County.	None identified at this time.

1.2.2. Planning Unit Membership and Impacts on Implementing the Plan

Table 1-3 includes a list of the Planning Unit members as well as conditions that pose a significant impact to implementing *Rethinking Waste in Tompkins County* and achieving the established goals. Currently, the members are not directly involved in preparing or implementing the Plan; however, the members contribute to the Plan through their representation in the legislature and participation in the public review and comment period. Planning Unit members could also play a significant role in the gathering of information and quantities of materials collected and recycled within the towns, at various businesses, schools, and other recycling facilities. The significant impacts are discussed further in Section 1.4 of this chapter. Additionally, more details related to organic waste management are provided in Table 2-3 in Section 2.0.

There are numerous nonprofit and commercial entities located throughout Tompkins County that support sustainable materials management, and the following table is not a comprehensive listing of these entities. While these stakeholders will be engaged in materials management planning, they are not listed individually.

Table 1-3: Planning Unit Membership

Municipal Member	Population Density – Character[4]	Unique Conditions or Issues[5]
Cities		
Ithaca	5,570/sq mi - Urban	County seat. Tompkins County Recycling and Solid Waste Center (RSWC). The Household Hazardous Waste DEPOT at the RSWC. Provides curbside trash collection.
Towns		
Ithaca	736/sq mi - Suburban	None noted.
Caroline	61/sq mi - Rural	None noted.
Danby	64/sq mi - Rural	None noted.
Dryden	147/sq mi - Rural	Caswell Landfill (Closed). Cornell Compost Facility.
Enfield	91/sq mi - Rural	None noted.
Groton	116/sq mi - Rural	Teets & Son (metal recycling).
Lansing	165/sq mi - Rural	None noted.
Newfield	87/sq mi - Rural	Casella Waste Systems, Inc. Transfer Station. Teets & Son (metal recycling).
Ulysses	132/sq mi - Rural	Cayuga Compost.
Villages		
Cayuga Heights	2,327/sq mi - Suburban	Provides curbside trash collection.
Dryden	1,066/sq mi - Suburban	Contracts with private hauler to provide curbside trash collection.
Freeville	457/sq mi - Suburban	Contracts with private hauler to provide curbside trash collection.
Groton	1,235/sq mi - Suburban	None noted.
Lansing	788/sq mi - Suburban	None noted.
Trumansburg	1,233/sq mi - Suburban	Contracts with private hauler to provide curbside trash collection.

1.3. Seasonal Variations and Unique Circumstances

There are several seasonal variations which occur within Tompkins County which could affect implementation of this Plan and achievement of its goals.

- Spring is a large cleanup time, which can lead to an influx of brush, downed trees, lawn debris, and scrap metal. The impacts and effects of these materials are discussed in Section 1.4.2.
- Summer marks the end of the school year for college and grade school students. Student move-out results in turnover of household goods, textiles, and furniture, in addition to unused school supplies and recyclable paper from all schools. Several college campuses offer initiatives to reduce waste with cleanout, such as Dump & Run at Cornell

[4] Census 2010 Summary File 1 (SF 1), U.S. Census Bureau.
[5] Further evaluation will be completed as discussed in Chapter 5.

University and Take It or Leave It at Ithaca College. During the summer break, schools clean out equipment that has been left behind, as well as wastes from any remodels or construction projects at schools and in student housing. The impacts and effects of these wastes are discussed in Section 1.4.4.

- Summer also brings an increase of yard waste, food scraps, agricultural waste and cleanups, as well as garden wastes which could all be composted. The impacts and effects of these wastes are discussed in Section 1.4.2.
- There are also many events held within the County during the year, some of which the County provides recycling and food scraps collection services for, as listed in Table 1-9. Additional events occur within the County that may generate significant quantities of waste. The impacts and effects of these events are discussed in Section 1.4.5.
- Fall is a sign of the return of students to school, leading to the acquisition of new electronics, books, etc. Finger Lakes ReUse holds an annual tent sale with the return of students to the community. With an increased Tompkins County population due to the return of students, fall also denotes a time when there is a larger amount of material generated in the county, including recyclables and food scraps. TST-BOCES provides collection services for recycling and trash to all public-school districts in the county. Cornell University and Tompkins Cortland Community College contract with a private hauler for collection. Ithaca College self-hauls material to the RSWC. The impacts and effects of these wastes are discussed in Section 1.4.4.1.
- Several public libraries are located within the County. The Friends of the Tompkins County Public Library hold two book sales annually, in May and October, to fundraise for the Friends program and grants. Potential recycling options for waste/recyclable materials generated at libraries are discussed in Section 1.4.4.2.
- There are some small manufacturers, businesses, nursing homes, a jail, and other institutional facilities which manage their own waste and recyclables. While some recycling activities and data for these facilities are unknown, past annual surveys have been conducted, which may inform trends in generation rates. Recycling programs and data collection will be discussed in the Alternatives Evaluation and Selection in Section 5.0. Tasks will be included in the Implementation Schedule to evaluate and implement new or improved recycling programs, including packaging and organics recovery, and to collect data.

1.4. Overview of Solid Waste Generation Sources Within Tompkins County

A majority of Tompkins County's commercial, institutional, and industrial facilities are located within the State Routes 13, 38, 79, and 96 transportation corridors. Major employment centers within the County are concentrated in the City of Ithaca.

Tompkins County's economic base is relatively diversified. The extent and mix of an area's commercial and industrial base may affect solid waste disposal requirements. Large educational institutions, such as the Ithaca City School District, Cornell University, and Ithaca College, tend to

produce large quantities of paper. Shopping plazas and medical office buildings are other types of establishments that generate large volumes of cardboard, mixed paper, and non-recyclable waste.

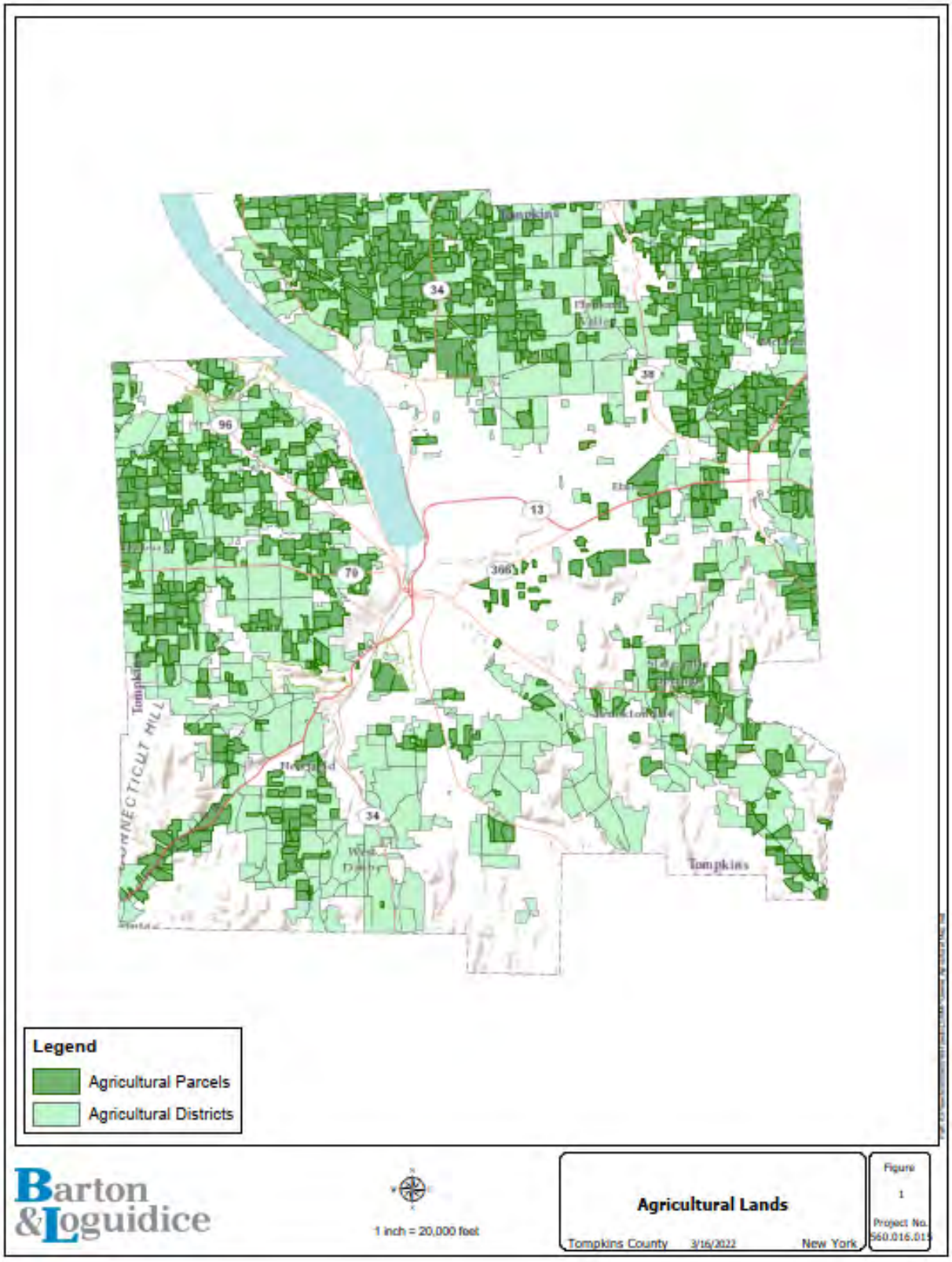
While a business' number of employees is not necessarily correlated with the volume of waste it generates, it is one metric by which to gauge a business' size. According to the NYS Department of Labor, the type of industry that employed the most individuals in Tompkins County in 2020 was government (12.1% of employment) followed by healthcare and social assistance (12.0%) and retail (9.3%).

There are many natural, cultural, and historical amenities in the County that have contributed to the growth of tourism. Some of these amenities are seasonal, while others draw visitors throughout the year. Among the attractions in the County are the Ithaca Children's Garden, local festivals and live music, wineries, micro-breweries, Buttermilk Falls State Park, Stewart Park, Lansing Park, Danby State Forest, Taughannock Falls State Park, North Star Art Gallery, Cornell University Herbert F. Johnson Museum of Art, Allan H. Treman State Marine Park, Cayuga Nature Center, Yellow Barn State Forest, State Theatre of Ithaca, and the Robert H. Treman State Park.

The unemployment rate peaked in April 2020 at 11%, likely due to impacts from the COVID-19 pandemic, and has been steadily declining to a rate of 2.8% in January of 2022. The number of employed jobs, which has stayed relatively constant for the past five years, was 48,700 in January of 2022.

A total of 991 active farms existed in the County in 2018. These farms occupied approximately 113,938 acres of the County's total land area, and the average farm size was 115 acres. A figure depicting active farmland is shown in Figure 1-4.

Figure 1-4: Agricultural Lands in Tompkins County[6]



[6] Cornell University Geospatial Information Repository.

1.4.1. Residential Waste

According to the 2020 Census, there are over 40,000 households in Tompkins County. These are comprised of private homes and multifamily dwellings such as apartment complexes and mobile home parks. Recycling programs are available to all housing units. Residential curbside single stream recycling collection is offered on a biweekly basis. Residents may also choose to bring single stream materials and a variety of other recyclables, such as scrap metal, electronics, rigid plastics, batteries, white goods, and textiles to the RSWC. Food scraps recycling programs and assistance for home composting target organic components of the waste stream. Yard waste is also accepted at the RSWC, in addition to programs offered by local municipalities around the county.

Education also focuses on reduction and reuse of components of the waste stream. Due to the transient nature of a portion of the population, seasonal fluctuations can be noted in residential waste generation, and there is a need for consistent and continual educational efforts. Further, with the dense urban population of the City of Ithaca, there are opportunities for efficiencies in waste handling, such as curbside collection programs.

1.4.2. Spring and Summer Residential and Agricultural Waste

Table 1-4 lists seasonal residential and agricultural variations in waste, along with conditions and impacts that affect implementation of *Rethinking Waste in Tompkins County* and achievement of its goals.

Table 1-4: Impacts of Residential and Agricultural Wastes in the Planning Unit[7]

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

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

The opportunity for recycling organics, such as by composting or anaerobic digestion, will be discussed in the Alternatives Evaluation and Selection in Section 5.0, and tasks will be included in the Implementation Schedule as appropriate.

1.4.3. Large Retailers & Commercial Centers

Table 1-5 lists seasonal residential and agricultural variations in waste, along with conditions and impacts that affect implementation of *Rethinking Waste in Tompkins County* and achievement of its goals.

Table 1-5: Impacts of Large Retailer and Commercial Center Wastes in the Planning Unit[8]

Location	Source of Wastes	Unique Circumstance or Situation	Impact on Generation & LSWMP
City of Ithaca	• Buttermilk Falls Shopping Plaza • The Commons • Creekside Plaza • Dewitt Mall • Collegetown • Commercial enterprises between Cascadilla St. and Buttermilk Falls Road on Route 13 • Ithaca Shopping Plaza	Features restaurants, retail stores, and office space. Hosts periodic community events. Little storage space available for source separated materials in certain areas.	Generators of recyclables, food waste, and MSW. Seasonal generation of bulky items, recyclables, organics, and trash. Increased generation of material during events. Requires ongoing education and outreach.
Town of Ithaca	• East Hill Plaza • South Hill Business Campus	Features retail stores, offices, business establishments, and restaurants.	Generators of recyclables, food waste, and MSW.
Village of Cayuga Heights	• Community Corners	Includes retail stores and office space.	Generators of recyclables, food waste, and MSW.
Village of Lansing	• Cayuga Mall • Cornell University Business & Tech Park • Shops at Ithaca Mall • The Small Mall • Tompkins County Airport • Triphammer Marketplace	Features retail stores. Traditional stand-alone mall includes anchor stores that periodically discard product. Airport brings in visitors from outside Tompkins County.	Generators of recyclables, food waste, and MSW. Increased generation of potentially reusable materials during inventory turnover. Mall food court generates organic waste. Presence of Community ReUse Center reduces some waste and represents an outlet for unwanted items.

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

While all of these locations represent the opportunity for increased material generation, the cluster of large retailers in the City of Ithaca and shopping malls in the Village of Lansing, represents the possibility of increased waste generation.

1.4.4. Institutions

Table 1-6 lists the jails, nursing homes, and other institutions in the Planning Unit, along with conditions and impacts that affect implementation of *Rethinking Waste in Tompkins County* and achievement of its goals.

Table 1-6: Impacts of Jails, Institutions, Nursing Homes Within The County

Source of Wastes	Facility Type/Unique Situation or Circumstances	Quantity/Quality Impacts	Impacts On LSWMP
Tompkins County Jail	Municipal facility.	Trash and recycling are collected.	Food scraps and paper towels are collected for composting.
Cayuga Medical Center & Convenient Care	Medical facility; cafeteria in medical center.	Unknown solid waste. Potential for high quantity of medical waste.	Generators of healthcare materials and food scraps.
Beechtree	Nursing home. Periodic cleanouts. Food wastes. Medical waste. No data available.	Unknown solid waste. Potential for high quantity of medical waste.	Same as above.
Bridges Cornell Heights	Same as above.	Same as above.	Same as above.
Brookdale Ithaca	Same as above.	Same as above.	Same as above.
Cayuga Nursing & Rehabilitation Center	Same as above.	Same as above.	Same as above.
Evergreen House	Same as above.	Same as above.	Same as above.
Groton Community Health Care Center	Same as above.	Same as above.	Same as above.
Kendal at Ithaca	Same as above.	Same as above.	Same as above.
Longview	Same as above.	Same as above.	Same as above.
Oak Hill Manor	Same as above.	Same as above.	Same as above.

As noted in the table above, many of the institutions in Tompkins County generate wasted food as well as other recyclables throughout their regular operations. Similar to commercial generators, many of these operators handle materials through private haulers. Opportunities exist for further data collection, as well as additional commercial generator support for further materials diversion. Possible recycling programs and data collection will be discussed further in Section 5.0.

1.4.4.1 Schools

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

Table 1-7 lists the schools in the Planning Unit, along with conditions and impacts that affect implementation of *Rethinking Waste in Tompkins County* and achievement of its goals. Information and data in the table will be revised throughout the Planning Period as more details become available.

Between 2006 and 2010 TCRMM approached public schools throughout the County with the opportunity to participate in the Go GREEN Initiative and receive a ReBusiness Partners waste assessment. Many schools participated in this process and developed green teams to address sustainability goals, including recycling and composting. Looking ahead, TCRMM recognizes an opportunity to reconnect with these entities to provide additional support.

Table 1-7: Impacts of Schools Within the Planning Unit

Source of Wastes	Unique Situation or Circumstances	Quantity/Quality Impacts	Impacts On LSWMP
Universities and Colleges			
Cornell University	Seasonal generation with student move-in/out; increased food waste when classes are in session; special events; construction.	Generator of large quantities of material. Household goods & equipment left behind; C&D; increased organics generation.	Sustainability programs and education are offered and may present an opportunity for participation in education/outreach activities. Initiatives established for managing material onsite. Data regarding materials management practices is provided to TCRMM on an annual basis.
Ithaca College	Seasonal generation with student move-in/out; increased food waste when courses in session; special events.	Same as above.	Same as above.
Tompkins Cortland Community College (TC3)	Same as above.	Same as above.	Same as above.

Source of Wastes	Unique Situation or Circumstances	Quantity/Quality Impacts	Impacts On LSWMP
Elementary and Secondary Schools			
Dryden School District – Includes 3 elementary schools, 1 middle school, and 1 high school	Summer cleanout/ construction. Seasonal food waste from cafeterias. School waste and recyclables are hauled by TST BOCES.	Generators of large quantities of material. Active green team, off-site composting, and recycling program. Classroom equipment, books, and school materials left behind. Food waste generation.	May participate in education/outreach activities provided by Tompkins County. Opportunity to contribute towards waste diversion goals.
Groton School District – Includes 1 elementary school and 1 high school	Same as above.	Generators of large quantities of material. Active recycling program. Classroom equipment, books, and school materials left behind. Food waste generation.	Same as above.
Ithaca City School District - Includes 8 elementary schools, 2 middle schools, 1 high school, and 1 school for grades 6-12	Same as above.	Generators of large quantities of material. Active green team, recycling program, and some off-site and some on-site composting. Classroom equipment, books, and school materials left behind. Food waste generation.	Same as above.
Lansing School District – Includes 1 elementary school, 1 middle school, and 1 high school	Same as above.	Generators of large quantities of material. Active recycling program. Classroom equipment, books, and school materials left behind. Food waste generation. Opportunity to gather additional information.	Same as above.
Newfield School District – Includes 1 elementary school, 1 middle school, and 1 high school	Same as above.	Generators of large quantities of material. Active recycling program. Classroom equipment, books, and school materials left behind. Food waste generation.	Same as above.

Source of Wastes	Unique Situation or Circumstances	Quantity/Quality Impacts	Impacts On LSWMP
Trumansburg School District – Includes 1 elementary school, 1 middle school, and 1 high school	Same as above.	Generators of large quantities of material. Active green team, off-site composting, and recycling program. Classroom equipment, books, and school materials left behind. Food waste generation.	Same as above.
New Roots Charter School	Same as above.	Generators of large quantities of material. Sustainability is embedded in the school's mission and vision, and there is an active recycling program. Classroom equipment, books, and school materials left behind. Food waste generation.	Same as above.
Tompkins-Seneca-Tioga Board of Cooperative Education Services (TST BOCES)	Same as above.	Generators of large quantities of material. Active recycling program. Classroom equipment, books, and school materials left behind. Food waste generation.	Same as above.
Private Schools			
Cascadilla School	Summer cleanout/ construction. Seasonal food waste from cafeterias. Private hauler collects waste and recycling.	Same as above	Same as above.
George Junior Republic Union Free School District	Same as above.	Generators of large quantities of material, including those from trade and occupation programming. Classroom equipment, books, and school materials left behind. Food waste generation.	Same as above.

Source of Wastes	Unique Situation or Circumstances	Quantity/Quality Impacts	Impacts On LSWMP
Ithaca Waldorf School	Same as above.	Generators of large quantities of material. Classroom equipment, books, and school materials left behind. Food waste generation.	Same as above.
Ithaca Montessori School	Same as above.	Same as above.	Same as above.
Namaste Montessori School - 2 locations	Same as above.	Same as above.	Same as above.
Elizabeth Ann Clune Montessori School	Same as above.	Same as above.	Same as above.
Covenant Love Community School	Same as above.	Same as above.	Same as above.

The colleges and university in Tompkins County maintain various infrastructures for managing waste. While Cornell University and Tompkins Cortland Community College (TC3) contract for recycling collection with a private hauler, Ithaca College acts as a self-hauler, bringing material directly to the RSWC. Ithaca College also has programs established to recycle electronics and scrap metal through a private vendor. TC3 has programs for collection of mixed paper, single stream recyclables, scrap metal, electronics, and food scraps. Cornell University has established recycling programs for: cardboard, mixed containers, mixed paper, single stream recyclables, electronics, food scraps, plastic film & bags, rigid plastics, scrap metal, textiles, tires, yard waste, farm waste, used oil, used glycol, lamps, ballasts, batteries, and shredded paper. Cornell currently monitors a private, closed landfill.

Collection options for schools in Tompkins County typically are offered through the TST-BOCES, which provides hauling services for participating school districts. The Ithaca City School District consolidates recyclables from 12 schools in the district at one building for collection by TST-BOCES. Material collected through this program is either recycled through the RSWC or baled and handled mill-direct.

1.4.4.2 Libraries

Table 1-8 lists the libraries in the Planning Unit, along with conditions and impacts that affect implementation of this Plan and achievement of its goals. Information in this table will be updated throughout the planning period as more detail becomes available.

Table 1-8: Impacts of Libraries Within the Planning Unit

Source of Wastes	Unique Situation or Circumstances	Quantity/Quality Impacts	Impacts On LSWMP
Southworth Library (Dryden)	Periodic cleanouts. Private hauling of all library wastes.	Large amounts of books, magazines, and audiovisual materials. Data unavailable.	Opportunity for libraries to coordinate a recycling management program among libraries or as a venue for education and outreach. Further evaluation needed.
Durland Alternatives Library	Periodic cleanouts. Located in Anabel Taylor Hall at Cornell.	Books and audiovisual materials.	Same as above.
Finger Lakes Toy Library	Periodic cleanouts.	Facilitates reuse of toys and may have unusable items through operations.	Demonstrates an example of a Library of Things in which materials do not need to be purchased but can be shared temporarily. Opportunity for further expansion of materials into other libraries, and shift culture from purchase to borrowing.
Groton Public Library	Periodic cleanouts. Private hauling of all library wastes.	Large amounts of books, magazines, and audiovisual materials. Data unavailable.	Opportunity for libraries to coordinate a recycling management program among libraries or as a venue for education and outreach. Further evaluation needed.
Tompkins County Public Library (Ithaca)	Same as above.	Same as above.	Same as above.
Lansing Community Library	Same as above.	Same as above.	Same as above.
Newfield Public Library	Same as above.	Same as above.	Same as above.
Trumansburg-Ulysses Philomathic Library	Same as above.	Same as above.	Same as above.

As libraries evolve to meet new needs over time, a concept of the 'Library of Things' has expanded to the community. For example, the Tompkins County Public Library currently offers a variety of items that can be borrowed from its Library of Things, including items such as museum passes, mobile hot spots, a tote bag, umbrella, electricity usage monitor, and more. The Finger Lakes Toy Library also offers opportunities to borrow, rather than purchase, items that are needed on a limited basis.

It is not known what these libraries are now doing with the waste that they are generating. Possible recycling programs and data collection will be discussed in Section 5.0. This could include recycling programs for cardboard, outdated books and periodicals, and for materials generated from any events held at the library facilities. Tasks will be included in the Implementation Schedule to evaluate and implement new or improved recycling programs, and to collect data, as appropriate.

The Friends of the Tompkins County Public Library is a not-for-profit organization that accepts donations of books to raise money through twice-yearly book sales. Proceeds from the sales are given to the Tompkins County Public Library, Finger Lakes Library System, and other purposes within the organization's mission. In 2021, combining numbers for the May and October sales, 489,000 donated books, DVDs, CDs, puzzles, and games were offered for sale by the Friends of the Library. Of these, 350,000 were sold locally and 35 gaylord boxes loaded with books were sent to Thriftbooks to be sold online. The rest was either recycled or discarded.

1.4.5. Special Events within the Planning Unit

Table 1-9 lists the special events in the Planning Unit, along with conditions and impacts that affect implementation of *Rethinking Waste in Tompkins County* and achievement of its goals. This data will be updated throughout the planning period as more information becomes available.

Table 1-9: Impacts of Special Events Within the Planning Unit

Sources of Wastes	Unique Situation or Circumstances	Quantity/Quality Impacts	Impacts On LSWMP
Annual Town Cleanups	Annual events to provide solid waste collection for town cleanups.	An approval process is available to request emergency designation for a waiver of the disposal fee.	This event will cause a seasonal influx of waste received at the County's Transfer Stations each year. These facilities will need to have the capacity to handle these larger waste volumes.

Sources of Wastes	Unique Situation or Circumstances	Quantity/Quality Impacts	Impacts On LSWMP
Cornell Alumni Weekend	Local event drawing in- and out-of-town attendees.	Materials generated are collected by private hauler and/or event organizers and volunteers.	Event presents an opportunity for engaging visitors and residents.
Downtown Ithaca Apple Harvest Festival	Same as above.	TCRMM has partnered with the festival and CCETC to collect food scraps and provide community education. Trash and recycling are collected by a private hauler.	Event presents an opportunity for engaging visitors and residents. Generates a large quantity of material in a short period of time.
Downtown Ithaca Chili Cook-Off	Same as above.	Materials generated are collected by private hauler and/or event organizers and volunteers.	Event presents an opportunity for engaging visitors and residents. Visitors are encouraged to reuse their spoons.
Downtown Ithaca Chowder Cook-Off	Same as above.	Same as above.	Event presents an opportunity for engaging visitors and residents.
Downtown Ithaca Festival of Fire and Ice	Same as above.	Same as above.	Same as above.
Downtown Ithaca Winter Festival	Same as above.	Same as above.	Same as above.
Dryden Dairy Day	Same as above.	Same as above.	Same as above.
Finger Lakes Grassroots Festival of Music & Dance	Same as above.	Same as above.	Same as above.
Groton Olde Home Days	Same as above.	Same as above.	Same as above.
Ithaca Festival	Same as above.	TCRMM has partnered with the festival and CCETC to collect food scraps and provide community education. Trash and recycling are collected by a private hauler.	The festival presents an opportunity for engaging visitors and residents. Generates a large quantity of material in a short period of time.
Ithaca Reggae Fest	Same as above.	Materials generated are collected by a private hauler and/or event organizers and volunteers.	Same as above.
Juneteenth Festival	Same as above.	Same as above.	Same as above.

Sources of Wastes	Unique Situation or Circumstances	Quantity/Quality Impacts	Impacts On LSWMP
Newfield Old Home Days	Same as above.	Same as above.	Same as above.
Trumansburg Fair	Same as above.	Same as above.	Same as above.
Trumansburg WinterFest	Same as above.	Same as above.	Same as above.
Household Hazardous Waste Drop-off Events	Event held to collect HHW multiple times each year.	Approximately 75.12 tons of HHW were collected in 2021.	Could co-locate recycling events on these days. Opportunity for education outreach to the community related to recycling and waste diversion.

Tompkins County coordinates a Borrow-A-Bin program to loan out recycling bins for public events. Initiated through receipt of a grant from Keep America Beautiful, this bin loan program has grown since inception and continues to be popular for special events across the county.

Within the past decade, efforts to educate event attendees and divert materials have been facilitated through Ithaca CRT, a volunteer-run initiative supporting event organizers and attendees by staffing educational compost, recycling, and trash sorting stations. Due to changes in the acceptable items at Cayuga Compost, these efforts have stalled as compostable disposables are no longer accepted. In the absence of Ithaca CRT, festivals may coordinate volunteers directly to support food waste diversion and materials collection during the event. Additionally, TCRMM and CCETC continue to support events with educational booths, though there may be opportunity for further awareness raising at community events. Efforts to promote and facilitate reusable dishware are starting to become more prevalent, supporting other waste reduction efforts at events.

In 2015, TCRMM launched a pilot program for public space recycling, establishing three trash and recycling collection stations in locations around the county. Since that time, the initiative has expanded to encompass 11 locations throughout the county. These sites are regularly monitored for contamination and illegal dumping and have been well received. Positive feedback has indicated that there is interest in expanding these collection bins to new sites.

The potential of capturing recycling and waste from special events could be increased dramatically. The types of materials that are being generated, and how they are currently managed at events presents an opportunity. Possible recycling programs will be discussed in the Alternatives Evaluation and Selection in Section 5.0. Tasks will be

included in the Implementation Schedule to evaluate and implement new or improved recycling programs, including packaging and organics recovery.

1.4.6. Industrial Generators

Tompkins County is home to few industrial facilities. Industrial generators in the county include:

- Advanced Plastic and Material Testing
- Applied Pulse Power
- BinOptics/MACOM
- Borg Warner Morse TEC
- Cargill Deicing Technology
- C&D Assembly
- Ecolectro
- EMF Corporation
- Emmy's Organics
- Harrick Plasma Inc.
- IMR Test Labs
- Incodema
- Incodema3D
- Ithaca Beer Co.
- Jamex
- Kionix
- Knickerbocker
- Lansing Instrument Corp.
- MPL
- NovaSterilis
- Odyssey Semiconductor, Inc.
- Parker Isaac
- Porous Materials Inc.
- Precision Filters
- Rheonix
- Stork H&E Turbo Blading
- Sturges Electronics
- Therm Incorporated
- Transonic Systems

These industrial generators typically have established recycling programs ranging from the collection of traditional single stream recyclables, to large volumes of cardboard and pallets, to specialized scrap metal recycling. These sites may also manage liquid coolants and other potentially hazardous wastes. Cargill, which operates a salt mine, handles fines and rock as well. Tompkins County contacts many of these generators through its annual reporting process to gather information about materials generation rates over the course of the year.

1.5. Summary of Implementation of Previous LSWMP

Since the development of the previous LSWMP, the County has achieved numerous accomplishments. The following lists achievements since 2016 by year.

2016:

- Established a multi-year paper shredding collection contract for County buildings.
- Applied for and received a Climate Smart Communities grant to construct a food scraps transfer area at the RSWC for receipt of source-separated commercial food scraps for composting.

- Constructed a user-friendly tipping shelter to accommodate the growing use of the residential food scraps and FOG (fats, oils, and grease) at the RSWC public drop-off area. Contracted with Buffalo Biodiesel as a market for FOG.
- Conducted 22 waste assessments for local businesses to assist them with reducing waste and saving money.
- Provided 34 educational presentations, RSWC tours, and participation at community events.
- Developed a video about how businesses can receive a waste assessment through the ReBusiness Partners program.
- Developed and implemented a food waste prevention education program for school-age children.
- Developed a pilot residential food scraps collection program for 1,000 homes in the City and Town of Ithaca.

2017:

- Added a Communication Specialist to the Department staff.
- Expanded the food scraps recycling drop spot program to include 5 new supervised locations.
- Upgraded the Department website, "RecycleTompkins.org"
- Conducted 7 business waste assessments through the ReBusiness Partners program.
- Started a social media campaign providing waste prevention tips.
- Awarded a multi-year contract for HHW collection operations at the RSWC.
- Awarded a 10-year contract for residential curbside and apartment recycling collection.

2018:

- Obtained new Scale System software for tracking weights and types of materials that are brought to the RSWC.
- Replaced a critical environmental sampling well at the Hillview Road closed landfill.
- Began operating the food scraps transfer area for commercial and drop-off area loads.
- Added two additional supervised food scraps drop spots bringing the total to 15.
- Provided and attended 48 educational presentations, RSWC tours, and community outreach events.
- Developed a video to help residents Recycle Right and reduce contamination.
- Applied and received a state grant to assist several low-income apartments to reduce food waste and recycle food scraps.
- Added additional components to the food waste prevention education initiative, including a social media campaign, games, and a public screening of "Waste."

2019:

- Awarded a multi-year waste hauling and disposal contract to haul MSW from the RSWC to a designated landfill.
- Awarded a contract for the local processing of food scraps into compost.
- Conducted 15 waste assessments at local businesses as a component of the ReBusiness Partners program.
- Offered Borrow-A-Bins to 11 events.
- Developed an RFP for a contractor to operate and market materials from the RSWC for 10 years.

2020:

- Awarded a 5-year contract for the operation of the RSWC.
- Awarded a multi-year contract for groundwater sampling and analysis at closed landfills.
- Conducted a study to measure the contamination rate from residential recycling.
- Implemented an education and enforcement program to reduce recycling contamination.
- Curtailed outreach and ReBusiness waste assessments due to the COVID-19 pandemic.

2021:

- Operated 16 food scraps drop spots for residents throughout the county.
- Educational presentations, outreach events, and tours were curtailed due to COVID-19 safety procedures, and virtual presentations were conducted.
- Conducted a second audit of residential curbside recycling to compare to the 2020 audit and study the recycling contamination rate, which noted a 1.43% reduction from the prior year.
- Offered six free food waste prevention cooking classes in conjunction with CCETC through a grant funded by the NYSDEC.
- Developed and implemented a "Save Some Green, Bring Your Own Bags" campaign in tandem with the New York plastic bag ban, encouraging residents to utilize reusable bags when shopping.

2022:

- Developed and implemented a plan in May for a separate glass collection at the RSWC residential drop-off for glass to be made into new bottles. Approximately 10 tons of glass were sent to TOMRA.
- Additional food scraps drop spot launched at the Trumansburg Farmers Market, bringing the total number up to 17 drop spots throughout the county.
- Paving upgrade project for the RSWC and office building completed, on time, within budget.
- Hired two additional Waste Reduction and Recycling Coordinators, filling the current Department staff roster.

1.6. Summary of Changes to the Planning Unit

Since the development of the previous LSWMP, the County has made numerous changes within the Planning Unit. Through the development of its RSWC, and the associated services, the County has secured a place to handle recyclables and generate a revenue stream. A decision not to build a County-owned landfill resulted in an emphasis on recycling instead of in-county waste disposal, with trash being transferred out-of-county. Creation of the PAYT trash tag system further emphasized recycling by offering a financial incentive. Local Solid Waste laws have been enacted with enforcement mechanisms to increase participation and volumes for recycling programs while reducing litter. Creation of a Solid Waste Annual Fee that is paid by all users provided a stable funding structure with which to fund facilities and infrastructure for recycling and waste diversion operations. This Annual Fee funds 4R programs (reduce, reuse, recycle, and rethink). Implementation of these 4R programs provides an educational component to encourage waste reduction and further diversion.

1.7. Unique Characteristics in Tompkins County

Both the local government and the community express a strong interest in sustainability. The county is included in the Cleaner Greener Southern Tier Regional Sustainability Plan, which outlines a set of "Top 22" priority projects to improve the economic and environmental health of the area. There is also a Tompkins County 2020 Energy Strategy to develop an Energy Roadmap for the county. In 2001, Tompkins County joined the Cities for Climate Protection Campaign, recognizing the need to address the global warming problem swiftly and effectively, and the County's unique position to play a role. There are also numerous local organizations and efforts to support sustainability for residents, businesses, and the community as a whole. Further, with 20 years of residential curbside recycling collection, residents have developed high expectations for County-provided materials management services and understand the environmental benefits of such programs.

Portions of the county have no zoning, providing an ability to site unplanned transfer stations in these areas. Currently, there is a private transfer station located in the Town of Newfield, but there is a moratorium on new transfer stations. A private compost facility accepts food and yard waste in the Town of Ulysses. Some local municipalities, including the City of Ithaca, offer yard waste or brush collection programs.

With varied or 'mixed' characteristics between areas, geography, and groups, there are many dichotomies in the county that make single-focus materials management strategies unlikely to work. In other words, there is no "one size fits all" solution for sustainable materials management in Tompkins County. For instance, the distance between rural areas and the location of the lake impacts collection efficiencies of certain materials. Recognition of this factor is evidenced by Tompkins County's multi-pronged approach to materials handling, such as offering countywide residential recycling collection in addition to a public drop-off area for the same material at the RSWC.

2.0 SOLID WASTE AND RECYCLABLES QUANTITIES AND TYPES

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

2.1. Waste Types

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

For the purposes of *Rethinking Waste in Tompkins County*, MSW consists of waste generated in homes, businesses, institutions, and the commercial portion of waste discarded by industries. The residential component includes, but is not limited to, newspapers and magazines, corrugated cardboard, glass, metal, plastic containers, food waste, yard trimmings, textiles, and household goods including bulky items such as furniture and appliances. The commercial waste stream tends to contain higher percentages of office paper, corrugated cardboard, and scrap metals. Commercial waste is the non-hazardous waste generated by businesses such as restaurants, retail stores, and professional offices, as well as schools, hospitals, 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 about the quantities of materials managed and often identify the geographic locations where the waste materials were generated. The data from the NYSDEC annual reports is readily available and generally reliable. It can also be assumed that the materials collected and processed at recycling facilities in the County are being separated from the household, business, institutional, and commercial wastes classified as MSW, and are considered another component of that waste stream. Due to the fact that these types of recyclables handling facilities must also compile annual reports to the NYSDEC, this data is also relatively easy to gather. Yard waste is a component of the waste stream that is difficult to quantify. Implementation of a plan to collect data and estimate MSW by material type, including estimating residential yard waste generation and recovery, is further discussed in Section 5.0.

Non-hazardous industrial waste is typically generated by manufacturing facilities as a result of an industrial process and is made up of materials such as sludge, ash, drill cuttings, and dust. The homogeneous nature and relatively large quantity of non-hazardous industrial wastes typically available can also make them useful as feedstocks for other processes or result in unique management methods. Therefore, only partial data for the generation of these materials within the county is currently available. Implementation of a plan to collect data and estimate MSW by material type, including estimating industrial waste generation and recovery, considering these circumstances is further discussed in Section 6.0.

Construction and demolition (C&D) debris is generated by the residential, commercial, industrial, and institutional sectors and typically consists of wood, masonry, soil, land clearing debris, plumbing fixtures, and other construction related items. For this specific analysis, asbestos debris and petroleum contaminated soil are also included in the C&D debris category. Many of the upstate New York landfills report C&D debris as a separate disposal stream, and therefore, the quantity disposed of from Tompkins County residents can be identified from those landfill annual reports. However, many of these materials can be recycled and reused (e.g., clean fill material, mulch, or recycled aggregate). Data from these types of operations and uses has been difficult to obtain. Further discussion about data collection to estimate C&D debris generation and recovery is included in Section 5.0.

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

Processed scrap metals are typically generated by commercial or industrial sectors, but in potentially large quantities which makes it worth monitoring. Data from these types of operations and uses is difficult to obtain. Data collection to estimate scrap metals generation and recovery in the County is further discussed in Section 5.0.

2.2. Availability of Generation and Recovery Estimates

2.2.1. Data Sources and Methodology

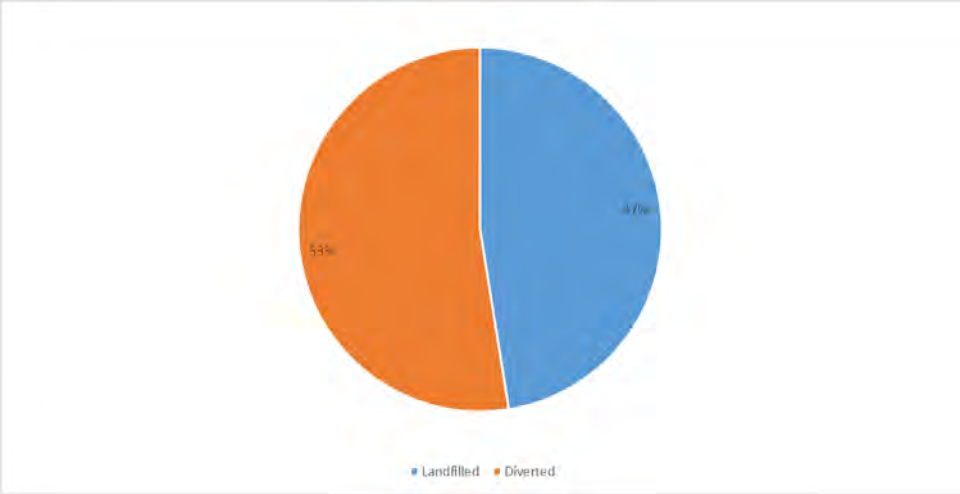
As discussed above, much of the following waste generation estimates were derived from available reports provided to the NYSDEC by transfer stations. Limitations associated with the data are as follows and will be considered when evaluating and implementing new or improved data collection efforts.

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

2.2.2. Estimation of Total Waste Generation in Tompkins County

Based on annual reports submitted to the NYSDEC for 2021, Tompkins County residents and businesses generated approximately 152,036.21 tons of waste (including potentially recyclable materials). 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 Tompkins County. Based on the information available to interpret, the majority of the waste was landfilled (72,174.49 tons or 47 percent) while the remainder was diverted (79,861.72 tons or 53 percent).

Figure 2-1: Estimated Waste Management Methods in Tompkins County in 2021



Source: NYSDEC, Facility Annual Reports, 2021; Self-Reporting

Tompkins County has 7 wastewater treatment facilities (WWTFs). Table 2-1 shows the method of sludge management utilized.

Table 2-1: Municipal Sewage Sludge Generation and Management Summary[9]

Treatment Plant	Treatment Method	Dewatering Device	Tons/Year	Use/Disposal Method
Village of Cayuga Heights	Anaerobic Digestion	Belt Filter Press	Unknown	Land Spread
Village of Dryden	Anaerobic Digestion	Drying Beds	Unknown	Landfill
Village of Freeville	Unknown	Unknown	Unknown	Landfill
Village of Groton	Unknown	Drying Beds	Unknown	Landfill
Ithaca Area Wastewater Treatment Facility (IAWWTF)	Anaerobic Digestion	Belt Filter Press & Gravity Belt	Unknown	Landfill
Town of Newfield	Unknown	Unknown	Unknown	Unknown
Village of Trumansburg	Aerobic Digestion	Gravity	Unknown	Unknown
Total Sewage Sludge Used/Disposed On-site			**Unknown**	
Total Sewage Sludge Landfilled			**1,356.6 Tons**	
Total Municipal Sewage Sludge Generated			**Unknown**	

A shared facility located in the City of Ithaca, supports the City and Town of Ithaca as well as the Town of Dryden. Additional processing facilities are located in Freeville and Cayuga Heights. In 2015, material generated from the City's facility is disposed of in the Ontario County landfill, while material from the Cayuga Heights facility was transported for land spreading at Dickson Farms in Bath, New York.

The majority of the biosolids generated in the County are landfilled, and the data is available from the NYSDEC solid waste facility annual reports. It was reported that 1,356.6 tons of biosolids from the County were delivered to the Chemung County Landfill in 2021. Additionally, approximately 1,471 tons of biosolids from the Village of Cayuga Heights are land applied by Dickson Farms.

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

The data in Table 2-1 was generated from data gathered from the Division of Water's Descriptive Data of Municipal Treatment Plants in NYS (2004). While individual sewage sludge tonnage generated by each treatment plant are unknown, the total sewage sludge generated in Tompkins County and landfilled (1,356.6 tons) was derived from 2021 landfill annual reports submitted to the NYSDEC.

A complete breakdown of waste generated as a whole for Tompkins 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 2021 Waste Tonnage by Management Method

	Amount (Tons)	% of Management Method	% of Total Generation
Landfilled[10]			
MSW[11]	58,072.62	80%	46%
Construction and Demolition Debris	6,620.07	9%	5%
Sewage Sludge	1,356.60	2%	1%
Industrial	30.00	<1%	<1%
Beneficial Use Determination Material	6,095.20	8%	5%
Total	**72,174.49**	100%	58%
Diverted			
Land Applied Sewage Sludge	1,471.00	2%	1%
Composted Yard Waste	2,627.85	5%	2%
Household Hazardous Waste	75.12	<1%	<1%
Recovered/Composted Food Scraps	4,250.79	8%	3%
Recycled	24,706.69	47%	20%
Industrial Plastic	22.07	<1%	<1%
Industrial Scrap Metal	11,905.40	23%	10%
Processed Construction & Demolition Material	4,150.00	8%	3%
Scrap Metal Dealer	3,670.19	7%	3%
Total	**52,879.11**	100%	42%
Total Waste Generation	**125,053.6**	100%	100%

2.2.3. Estimation of Potential MSW Recovery

As previously discussed, an incomplete set of disposal and recovery data is available for the County to compile and review; therefore, with the assistance of the NYSDEC's waste composition and recovery projection tool, the following section provides Tompkins County with an estimated MSW waste composition for future planning purposes. The complete tables are provided in Appendix B. MSW composition includes residential, commercial, and institutional waste generators; consequently, for the purposes of this analysis, the following are excluded from the MSW composition estimates: separately managed C&D debris, several organics streams (biosolids, septage, agricultural materials, etc.), and scrap metal managed outside of the MSW management structures.

[10] NYSDEC 2021 Facility Annual Reports.

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

Table 2-3 provides a detailed estimate of materials that could be recovered or diverted from a waste disposal location if the appropriate programs were in place. These numbers are based on the actual total tons of MSW generated within the county, as reported in Table 2-2. Based on annual reports, Tompkins County diverted approximately 34,681 tons of material (37 percent) from the 92,753 tons of MSW generated from residential, commercial, and institutional generators in 2021.[12]

Several materials identified below are collected and recovered at the recycling centers or other similar facilities in Tompkins County; however, there are no mechanisms for gathering data for the individual materials at this time. Therefore, the NYSDEC MSW composition tool was applied to the actual waste generation totals to estimate quantities for more specific materials that are not tracked individually within waste streams.

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

Table 2-3: Estimated MSW Recoverable Materials in Tompkins County

Material	Estimated MSW Tons Generated (2021)[13]	Estimated % of Total Tons Generated (2021)	Estimated MSW Tons Diverted (2021)[14]	Estimated % of Each Material Diverted (2021)
Newspaper	3,718	4.0%	2,760	74.2%
Corrugated Cardboard	9,046	9.8%	7,046	77.9%
Other Recyclable Paper (Total)	10,566	11.4%	9,888	93.6%
Other Compostable Paper	6,205	6.7%	0.00	0.0%
Total Paper	29,535	31.8%	19,695	66.7%
Ferrous/Aluminum Containers (Total)	1,630	1.8%	313	19.2%
Other Ferrous Metals	4,423	4.8%	4,109	92.9%
Other Non-Ferrous Metals (Total)	1,033	1.1%	12	1.1%
Total Metals	7,085	7.6%	4,434	62.6%
PET Containers	912	1.0%	337	36.9%
HDPE Containers	801	0.9%	325	40.6%
Other Plastic (3-7) Containers	169	0.2%	83	49.1%
Film Plastic	5,331	5.7%	87	1.6%
Other Plastic (Total)	5,730	6.2%	0.00	0.0%
Total Plastics	12,973	14.0%	832	6.4%
Glass Containers	3,687	4.0%	1,161	31.5%
Other Glass	380	0.4%	0.00	0.0%
Total Glass	4,067	4.4%	1,161	28.5%
Food Scraps	14,386	15.5%	3,601	25%
Yard Trimmings	4,384	4.7%	2,628	59.9%
Total Organics	18,770	20.2%	6,229	33.2%
Clothing Footwear, Towels, Sheets	3,600	3.9%	128	3.5%
Carpet	1,314	1.4%	0.00	0.0%
Total Textiles	4,914	5.3%	128	2.6%

[13] NYSDEC MSW Combined Composition Analysis and Projections.

[14] 2021 NYSDEC Facility Annual Reports.

Material	Estimated MSW Tons Generated (2021)[13]	Estimated % of Total Tons Generated (2021)	Estimated MSW Tons Diverted (2021)[14]	Estimated % of Each Material Diverted (2021)
Total Wood	4,047	4.4%	296	7.3%
C&D Materials	5,092	5.5%	0.00	0.0%
Other Durables	1,594	1.7%	962	60.3%
Diapers	1,548	1.7%	0.00	0.0%
Electronics	1,311	1.4	256	27.2%
Tires	1,241	1.3%	513	41.3%
HHW	203	0.3%	75	24.9%
Fines	303	0.3%	0.00	0.0%
Total Miscellaneous	11,392	12.3%	1,906	16,7%
Total	92,753	100%	34681	37.4%

2.2.4. Estimation of Potential C&D Waste Recovery

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

Based on the data reported in the NYSDEC 2021 Facility Annual Reports, Table 2-4, below, provides an overview of the tons of C&D debris that could be recovered or diverted from a waste disposal location if the appropriate programs were in place.

Table 2-4: Estimated C&D Debris Recoverable in Tompkins County

Material	Estimated Components of C&D Debris Tons Generated per NYSDEC Model (2021)	% of Total C&D Debris Generated (2021)	Tons of C&D Debris Diverted per 2021 Data Obtained	
			Tons Diverted	% Diverted
Concrete/Asphalt/Rock/Brick	5,377.0	31.9%	4,150.0	77.2%
Wood	3,043.8	18.0%	0.0	0.0%
Roofing	798.4	4.7%	0.0	0.0%
Drywall	640.5	3.8%	0.0	0.0%
Soil/Gravel	3,932.6	23.3%	0.0	0.0%
Metal	1,121.2	6.6%	0.0	0.0%
Plastic	76.9	0.5%	0.0	0.0%
Corrugated/Paper	542.4	3.2%	0.0	0.0%
Other	1,332.4	7.9%	0.0	0.0%
Total	16,865.3	100.0%	4,150.0	24.6%

Based on the quantities of potential divertible materials that were reported to the NYSDEC or estimated, Tompkins County diverted approximately 4,150.0 tons of material (24.6 percent) from the C&D disposal stream in 2021. Table 2-4, above, indicates that 16,865.3 tons of C&D materials is generated within the county from residential and non-residential construction, renovation, or demolition projects. A task has been added to the Implementation Schedule to evaluate and implement data collection efforts. Sections 3.0 and 5.0 describe the existing systems for recovering these materials as well as possible future programs during this planning period to increase the County's diversion rate.

3.0 EXISTING PROGRAM DESCRIPTION

Tompkins County Recycling and Materials Management provides 4R programming (reduce, reuse, recycle, and rethink) for stakeholders countywide. This includes educational efforts, a Recycling and Solid Waste Center (RSWC), extensive food scraps drop spots, and more. As a key part of its waste reduction strategy, the County contracts with various entities for public-private partnerships. These relationships enable the County to support local economic growth, draw on the strength of the private and nonprofit sectors, and reach broader diversion goals without overextending its staff.

Existing infrastructure and efforts are underway to support a local circular economy where materials are used for their highest and best value for as long as possible. Current activity lays the groundwork for new initiatives as outlined in Section 5.0, Alternatives Evaluation and Selection.

3.1. Solid Waste Management Facilities

3.1.1. Landfill Facilities

Tompkins County currently does not own or operate any active landfills.

The County owns, maintains, and monitors two (2) closed landfills: the Hillview Landfill (closed 1992) and the Caswell Landfill (closed 1985). There are landfills located outside of Tompkins County which are available for the disposal of MSW and C&D. Ontario County and Chemung County landfills both accepted material from the RSWC in 2021. At times, Seneca Meadows and Hyland Landfills have accepted material from the RSWC. 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 Tompkins County. The out-of-county landfills accepting Tompkins County waste are summarized in Table 3-1.

Table 3-1: Out-of-County Solid Waste Landfills Servicing Tompkins County Waste[15]

Solid Waste Facility	Facility Address	Permitted Capacity (cubic yards)	Expected Site Life (years)	Waste Types Accepted [16]	Operating Status
Ontario County Landfill	1879 State Route 5 & 20, Stanley, NY 14561	6,419,439	8.0	Asbestos; C&D Debris; Industrial Waste; Sewage Treatment Plant Sludge; MSW (Residential/Institutional & Commercial)	Publicly owned by Ontario County and privately operated by Casella Waste Systems, Inc.

[15] NYSDEC Annual Facility Reports, 2020.
[16] https://data.ny.gov/Energy-Environment/Landfill-Solid-Waste-Management-Facilities-Map/afg5-7i6u

Solid Waste Facility	Facility Address	Permitted Capacity (cubic yards)	Expected Site Life (years)	Waste Types Accepted [16]	Operating Status
Chemung County Landfill	1488 County Road 60, Elmira, NY 14901	6,308,239	10.8	C&D Debris; Industrial Waste; MSW (Residential/Institutional & Commercial); Sewage Treatment Plant Sludge	Publicly owned by Chemung County and privately operated by Casella Waste Systems, Inc.
Seneca Meadows Landfill	1786 Salcman Road, Waterloo, NY 13165	10,024,038	3.9	Ash MSW Energy Recovery Fly; C&D Debris; Non-petroleum Contaminated Soil; Sewage Treatment Plant Sludge; Industrial; MSW (Residential/Institutional & Commercial); Waste Tires; Treated RMW; Grit & Screenings; Asbestos (Friable & Non-Friable)	Privately owned and operated by Seneca Meadows, Inc.
Hyland Landfill	6653 Herdman Road, Angelica, NY 14709	5,858,906	9.5	Asbestos (Friable); C&D Debris; Non-petroleum and petroleum contaminated soil; Sewage Treatment Plant Sludge; MSW (Residential/Institutional & Commercial)	Privately owned by Hyland Facility Associates and privately operated by Casella Waste Systems, Inc.

3.1.2. Transfer Stations or Drop-Offs

The RSWC serves commercial haulers, businesses, and residents. Commercial haulers are required to obtain a haulers license to collect waste in Tompkins County. Most residents and businesses that are either not served by or elect not to contract with a private hauler, deliver their materials to the Tompkins County RSWC, located at 160 Commercial Ave in Ithaca. The facility is equipped with two truck scales and accepts MSW, food scraps, yard waste, and other recyclables. The RSWC only accepts solid waste generated from within the Planning Unit. MSW collected at the RSWC is disposed of at the Ontario County Landfill and Chemung County Landfill. Tompkins County offers multiple options for waste disposal fees. In addition to the permit fee, residents or businesses can pay through disposal coupons for vehicle loads of trash, punch cards for up to 5 bags/cans of trash, or on a weight basis if loads are greater than one ton. The transfer station's payment option prices are included in Table 3-2.

Table 3-2: RSWC Fees (2021)

Payment Type	Cost
Disposal coupon (two and four-door sedans)	$10
Disposal coupon (SUVs, minivans, and wagons)	$15
Punch cards for up to 5 individual bags or cans of trash	$15
Flat fee (0-333 lbs.)	$15
Flat fee (334-666 lbs.)	$30
Flat fee (667-999 lbs.)	$45
Per ton of MSW for licensed residential and commercial permit holders	$96
Per ton Commercial Recycling	$60
Tires (up to 10 per visit)	$3/tire
Tires (up to 25 per visit)	$285/ton
TVs and monitors	$10/item
Freon units	$20/unit
Yard waste punch card (6 punches)	$12
Yard waste coupon	$8/carload

3.1.3. Other Solid Waste Facilities

As outlined in Table 3-3: Other Solid Waste Facilities, there are several additional facilities in Tompkins County that can accept various types of wastes, such as source separated organics, C&D debris, waste tires, and MSW.

Table 3-3: Other Solid Waste Facilities

Facility	Facility Type	Facility Address	Waste Types Accepted
Casella Waste Management	Transfer Station	1180 Elmira Road Newfield, NY 14867	MSW, C&D Debris, Waste Tires
Cayuga Compost	Compost Site	3225 Agard Road Trumansburg, NY 14886	Source Separated Organic Waste
Cornell Compost Facility	Compost Site	Off Stevenson Road Ithaca, NY	Source Separated Organic Waste
Perry City Automotive	Motor Vehicle Repair Shop - large	6211 Brook Road Trumansburg, NY 14886	End of Life Vehicles

3.2. Waste Reduction Programs

Tompkins County incorporates information about waste reduction in all outreach strategies as a component of the 4Rs. Preventing waste before it is created is recognized as a strong strategy for materials management, considering that avoided waste does not need to be managed. While broad education about the concept of waste reduction is shared, TCRMM also strives to promote waste reduction on a material-by-material basis where possible.

Select businesses and activities further support waste reduction. A local sharing economy enables shared use and borrowing, through Libraries of Things as well as rental services and memberships in activities such as carsharing or a makerspace. Select stores allow customers to buy items in refillable or reduced packaging. Forums such as the buy-nothing community on Facebook offer support, encouragement, and ideas for waste reduction.

Additionally, the New York State Bag Waste Reduction Law enabled Tompkins County to enact a $0.05 fee per paper bag, with 40% of the resulting revenue returned to Tompkins County for the purpose of procuring and distributing reusable bags, with priority to low- and fixed-income communities. To accomplish this, TCRMM partners with local agencies and sites that service fixed- and low-income residents such as food pantries, homeless shelters, and healthcare facilities. Currently, TCRMM oversees this initiative, tracking bags that are distributed by site.

3.3. Reuse Programs

The second of Tompkins County's 4Rs, reuse is a growing component of materials management efforts. Through public private partnerships, TCRMM extends its promotional reach beyond direct programming offerings. Since 2007, a partnership has existed between the County and Finger Lakes ReUse to support and foster the development of two Community ReUse Centers. Through its programming, Finger Lakes ReUse offers a deconstruction program, computer refurbishing services, pick-up and delivery, free materials for individuals and nonprofits in need through partnerships with human service organizations, and job training in partnership with related businesses and workforce development agencies, as well as two retail outlets for secondhand goods. The organization is also home to the local, all-volunteer Ithaca Fixer's Collective that meets regularly to repair broken items. In 2017, pilot donation drop-off events for the collection of reusable materials from more rural communities demonstrated high public engagement.

Reuse is an active part of the local economy as well. A Reuse Trail webpage lists 42 secondhand stores, which have chosen to participate in promoting reuse widely. Services such as tailors, seamstresses, appliance repair, bike mechanics, and more, are available to support materials reuse. In addition to these services, there are classes available for topics such as home maintenance and repair, empowering those who wish to fix their own items.

Local deconstruction interest and advocacy have been growing in recent years, including the formation of CR0WD (Circularity, Reuse, and Zero Waste Development). This is a collaborative network working to address the vast system of building material waste within New York State and is currently made up of The Circular Construction Lab of Cornell University, Finger Lakes ReUse, Historic Ithaca & Significant Elements, Just Places Lab, Susan Christopherson Center for Community Planning, and Preservation Association of Central New York.

Past partnerships have included collaboration with the Sciencenter for a ReInvention Station where visitors creatively reuse donated items; Historic Ithaca's architectural salvage program, Significant Elements, which ultimately led to the development of Finger Lakes ReUse; support to SewGreen to promote reuse of sewing supplies; the Computer All Stars which provided computer repair training to youth; and GLOW to facilitate the Western/Central New York Materials Exchange directory.

3.4. Recycling Programs

The County offers recycling programs for a variety of materials, which are designed to be as, or more convenient than, trash disposal to incentivize recycling. Countywide residential recycling collection and access to a public drop-off area at the RSWC are components of this strategy.

3.4.1. Recycling and Solid Waste Center

Casella Waste Systems, Inc. operates the County-owned RSWC, which is located on Commercial Ave. in Ithaca. This site functions as a transfer station, and recycling transfer and processing facility. Recyclables are not required to pass through the County facility; however, recyclables delivered to the RSWC must be source separated from other wastes and conform to Chapter 140 Article I of the Tompkins County Code.

Traditional single stream material as well as additional items, such as scrap metal, electronics, food scraps, rigid plastics, and more, are accepted at the RSWC. There is no fee for residents to drop off single stream recyclables and food scraps at the RSWC. A variety of items, including tires, yard waste, and Freon Units are accepted for a fee. Recycling flyers available to residents are provided in Appendix D for further information.

Single stream recyclables at the RSWC are loaded into transfer trailers and shipped to a single stream materials recovery facility (MRF) in Ontario County, which is owned and operated by Casella Waste Systems, Inc. Commercial cardboard and office paper is baled at the RSWC and shipped directly to a mill.

3.4.2. Collection

Residents and small businesses have access to countywide curbside recycling collection through a contractual agreement between Casella Waste Systems, Inc. and the County. Materials collected through this contract are required to be delivered to the RSWC.

On an every-other-week basis, residents can set out an unlimited quantity of material, and small businesses can set out no more than 200 gallons of material, and 2 cubic yards of cardboard. Education, outreach, and enforcement efforts are provided with a goal of increasing recycling rates and eliminating contamination.

Residents and other generators in Tompkins County can self-haul recyclables to the RSWC for free. Businesses who choose not to participate in curbside collection or to self-haul material to the RSWC can hire a private hauler to collect their recyclables.

3.4.3. Recycling Market Agreements

All recyclables collected at the RSWC are marketed by the contracted operator of the RSWC. As a result, the County approves a marketing plan submitted annually by the contracted operator. The County monitors the general markets for recyclables and assists in finding new markets.

3.4.4. Additional Material Recovery

Numerous additional materials are accepted for recycling – either at the RSWC or through other facilities in the county. Tompkins County collects residential electronics year-round the RSWC. As of January 1, 2023, electronics are collected at the RSWC for no charge. Finger Lakes ReUse also accepts electronics and refurbishes computers. They are a NYS certified e-waste collection site and make every effort to reuse and refurbish materials locally.

Scrap metal is accepted for recycling at the RSWC. Additionally, there is one private scrap metal recycler in Tompkins County, Teets & Son Scrap Metal Recycling, which operates in Newfield and Groton. This business accepts material from the public for recycling. Currently, incidental quantities of scrap metal that arrive at the RSWC with MSW are culled from the tip floor for recycling when possible.

There are several mobile shredding companies that offer services to generators of confidential documents in the county. The County contracts with a private shredding company to service all County buildings.

Tires are accepted at the County's RSWC for a fee, as detailed in Table 3-2. In New York, the Waste Tire Management and Recycling Act requires mandatory acceptance of used tires from customers by tire service centers. This means that customers can return tires which are approximately the same size and quantity as those purchased or installed at

the time of service. A waste tire management and recycling fee is charged per tire at the time of purchase.

3.4.5. C&D Processing Facilities and Efforts

Contractors for LEED projects work with select haulers to handle and recycle material where possible. Finger Lakes ReUse partners with offsite deconstruction services to support building disassembly for reuse, thus reducing the generation of C&D materials.

Collection of commercial C&D debris for processing is not provided by the County and collection must be arranged independently with private haulers or contractors. The County's RSWC can accept and code C&D material separately from inbound MSW. After it is coded as such, inbound C&D is handled the same as the MSW stream. Private waste haulers throughout the county may also accept and dispose of C&D at out-of-county facilities.

3.4.6. Public Spaces and Events

In 2015, TCRMM launched a pilot program for public space recycling, establishing three trash and recycling collection stations in locations around the county. Through program monitoring and gradual expansion, TCRMM has grown the number of locations to 11 sites throughout the county and has received feedback that there is interest in additional sites.

Through the Borrow-A-Bin program, which was launched after receipt of a grant from Keep America Beautiful, TCRMM loans out recycling bins for public events. The program has grown since inception and continues to be popular for special events across the county.

Until 2019, a local organization, Ithaca CRT provided event organizers and attendees support in sorting unwanted materials at events. This changed when Cayuga Compost stopped accepting compostable disposable products, such as plates and utensils. Currently TCRMM supports select events by offering food scraps recycling collection from vendors. At many events, CCETC has a presence, offering compost education and collecting food scraps for recycling. TCRMM also provides public education at select events throughout the year.

To reduce event waste, Dish Truck, a local small business, offers a service to provide reusable dishware. There is additional potential for increasing reuse at events.

Other public space and special event recycling efforts are currently handled individually by each event. The impacts of special events within the Planning Unit are provided in Section 1.4.5.

3.5. Organic Recovery Program

3.5.1. Wasted Food Prevention

A focus on food scraps recycling has led to initiatives for prevention of wasted food. At the top of the food recovery hierarchy, food waste prevention provides the greatest impact, eliminating waste before it is created. To date TCRMM has implemented several educational campaigns to support food waste prevention. In 2015, TCRMM launched a residential campaign through the support of grant funding from the NYS Pollution Prevention Institute. This project applied a community based social marketing approach and utilized tools such as tips and reminders to help residents recognize and reduce the amount of food waste they generate. A commercial pilot program was also offered to test a food waste tracking system in select businesses. These efforts have laid the groundwork for future ongoing work to promote waste prevention.

3.5.2. Surplus Edible Food Rescue

A focus on food donation has also emerged with growing food scraps recycling programs. Further, impacts of the COVID-19 pandemic have raised community awareness for these issues, leading to new direct distribution opportunities, such as Mutual Aid. With the passing of the New York State Food Donation and Food Scraps Recycling law, as well as the development of the Tompkins County Food System Plan, the time is ripe to focus on food waste prevention and redistribution of surplus edible food.[17]

Several local organizations exist that help divert edible food from the waste stream. These range from local resources to redistribution groups to food pantries. As a food recovery organization, the Friendship Donation Network coordinates volunteers to rescue fresh food from stores, farms, institutions, and individuals that would otherwise be thrown away, and redistribute it to the community. Food donations are redistributed through 50 partners. A regional organization, the Food Bank of the Southern Tier is a nonprofit organization that receives donated food and grocery products from retailers, manufacturers, corporations, and community resources. Products are redistributed through over 160 member agencies, including local food pantries. Donations of imperfect, surplus, or unharvested produce are accepted by both groups.

As outlined below, there are also numerous food pantries and kitchens in the county that help provide food at varying times throughout the week to those in need. Several locations also offer community meals and as a result can accept more fresh and prepared food donations. The list below is broad, as open sites change over time, and

[17] Cornell Cooperative Extension of Tompkins County, *Tompkins County Food System Plan: a Roadmap for our Food Future*, https://s3.amazonaws.com/assets.cce.cornell.edu/attachments/58689/TC-Food-System-Plan-PAGE_VIEW_OPTIMIZED.pdf?1662664144

three comprehensive lists of food distribution sites include those maintained by the Food Bank of the Southern Tier, Friendship Donation Network, and Human Services Coalition 211 Tompkins/Cortland.

Organization	**Service Offered**
Baptized Church of Jesus Christ	Food pantry
Calvary Baptist Church Pantry	Food pantry
Caroline Food Pantry	Food pantry, mobile food pantry
Danby Food Pantry	Food pantry, mobile food pantry
Dryden Kitchen Cupboard Pantry	Food pantry
Dryden United Methodist Church	Community meals
Enfield Food Distribution	Food pantry, mobile food pantry
Freeville Food Pantry	Food pantry
Groton Food Providers	Food pantry, mobile food pantry
Healthy Tuesdays at Groton Public Library	Food pantry
Immaculate Conception Church	Food pantry
Ithaca Kitchen Cupboard	Food pantry
Ithaca Free Clinic Food Pharmacy	Food pharmacy
Lansing Food Pantry	Food pantry, mobile food pantry
Loaves & Fishes of Tompkins County	Offers free meals, cooked from donated food
McLean Community Church Pantry	Food pantry
Mutual Aid of the Finger Lakes	Food pantry
Mutual Aid Tompkins	Food pantry
Newfield Kitchen Cupboard	Food pantry, mobile food pantry
No More Tears/ No Mas Lagrimas	Food pantry
Overlook Apartments	Food pantry
Salvation Army	Mobile food pantry, free meals, meals to go
Southside Community Center	Food pantry
St. John's Community Services	Food pantry
Thrive Church	Food pantry
Tompkins Community Action	Food pantry
Trumansburg Food Pantry	Food pantry
YMCA of Ithaca & Tompkins County	Food pantry

3.5.3. Residential Food Scraps Recycling

Several programs support collection of residential food scraps for recycling. This includes compost education, drop spots, and multifamily collection. Over the past five years, TCRMM has increased its focus on offering programs to support residential diversion. Efforts include strategies to divert material for composting, as well as promotion of the finished product to encourage closing the loop.

3.5.3.1 On-site Composting

Through a long-standing partnership with CCETC, TCRMM supports a compost education program that trains Master Composters and provides community education about on-site composting. This successful train-the-trainer approach

provides a wide reach in the community to raise awareness and increase adoption of on-site composting practices. In addition, home compost bins are sold at cost at the TCRMM offices.

3.5.3.2 Food Scraps Recycling Drop Spots

Through a growing network of food scraps recycling drop spots across the county, TCRMM offers convenient collection options for residents. Currently, 16 drop spots operate on set schedules, spanning all seven days of the week. These sites are held through a partnership with municipalities and other businesses and organizations, and are staffed by a drop spot consultant who directs material to a collection bin that is serviced by the Department and delivered to Cayuga Compost. At no cost to the user, participants are given educational materials, a kitchen caddy, and compostable bin liners. Transportation containers are available for purchase at the TCRMM office. Educational materials are provided to help reduce food scrap waste.

3.5.3.3 Curbside Collection of Food Scraps

A curbside collection pilot for food scraps recycling was launched in Tompkins County on November 15, 2013, followed by an expansion in May of 2014. To make the program easy to use, participants were given free educational materials, kitchen caddies, compostable bin liners, and a curbside collection cart. Material was collected curbside through a contract with Casella Waste Systems, Inc., and transported to Cayuga Compost for processing. Through careful evaluation of participation rates and costs, TCRMM decided to end the pilot program effective December 31, 2016. This decision was greatly influenced by low recycling commodity revenues, which impacted the TCRMM budget at the time. There is interest in expanding on these efforts through grant funding, and an opportunity may arise for local municipalities or haulers to offer such a service at a reduced cost compared to trash collection. Additional program success may come to fruition if trash collection frequency is reduced. Should a hauler or municipality offer such a service, TCRMM could provide support in sharing toolkits or educational materials.

3.5.3.4 Food Scraps Recycling in Multifamily Units

Multifamily collection options exist in select units throughout the county. As a component of the ReBusiness Partners program, a few property managers have been supported in providing food scraps recycling options to their residents. Free waste assessments, educational materials, presentations, kitchen caddies, and bin liners have been provided to participants. Collected material is then delivered for processing to Cayuga Compost. Due to the transient nature of residents in some of these locations, TCRMM staff work closely with property

managers and tenant liaisons to implement this program. While this setting has inherent challenges due at times to turnover, language barriers, and other factors, it has been well received, and is identified as an effective strategy to increase promotion and diversion.

Through the Addressing Food Waste Reduction, Reuse, and Recycling in Apartments project that was funded by the NYSDEC, TCRMM staff have worked to implement food scraps recycling at three multifamily affordable housing complexes in Tompkins County. The project also included food waste prevention education and a food donation component.

3.5.4. Commercial & Institutional Food Scraps Recycling

In 2006, TCRMM began a partnership with Cayuga Compost to process material collected from local organizations. Since that time, the number of participants has grown, spanning local businesses, schools, and other institutions. Tompkins County pays the processing fee for all food scraps generated within the county and processed at Cayuga Compost. Direct support is offered to commercial food waste generators through the ReBusiness Partners program, providing posters, technical assistance, and educational information about collecting materials.

Where applicable, the compost education program through CCETC is available to aid with on-site composting. Some very small generators such as office buildings or apartment complexes currently apply this strategy. A few schools utilize onsite composting bins for the educational value it offers. TCRMM staff are also available to support these organizations.

3.5.5. Collection

Casella Waste Management of NY, Inc., Natural Upcycling, and Organix Recycling are all listed on the NYSDEC's list of Food Scraps Transporters for Tompkins County.[18] Tompkins County also collects material generated from drop spots, County buildings, and select small generators such as nonprofits and public events.

Informal and private composting collection is also a possibility in Tompkins County. The County encourages interested entities to develop a hauling business focused on compost collection, which might take place in various forms, including bicycle collection of material. In addition, communities have expressed interest in shared neighborhood collection routes that would reduce one's need to drive to drop spots on a weekly basis.

[18] NYSDEC Division of Materials Management, *Food Scraps* Transporters, https://www.dec.ny.gov/docs/materials_minerals_pdf/foodscrapstransporters.pdf.

3.5.6. Community Composting

Community composting represents a low-cost opportunity for segments of the population to access food scraps recycling. It offers many similar benefits to backyard composting and food scraps recycling, but also provides a unique means for community engagement, empowerment, and education.

Through its partnership with CCETC, the compost education program has offered support for residential sites such as multifamily housing, individual households, and neighborhood groups that are interested in on-site composting. The program also maintains demonstration sites that can accept some food scraps from community participants. Most recently, a Compost Learning Collaborative was developed that supports the opportunity for participants to bring their food scraps to central sites such as community gardens for on-site processing. Together, TCRMM and CCETC are exploring additional opportunities to support community composting. Considerations for these practices include acceptable feedstocks, processing methods, siting, operational practices, equipment, staffing, and volunteer engagement. This could be expanded to remote locations throughout the county, or communities where there is strong interest. These programs offer the benefit of reduced material transportation and increased participant engagement as material is processed onsite.

3.5.7. Mid- and Large-scale Organics Processing

Tompkins County currently has a multi-year contract with Cayuga Compost for co-composting of yard trimmings and food waste in windrows. Through this contract, the County pays for the processing of all food scraps generated within Tompkins County that are diverted for recycling, providing a financial incentive for recycling to residents and businesses. Collected food waste, paper towels, and napkins are processed at the company's site in the Town of Ulysses. Processed materials are then marketed by Cayuga Compost, offering customized bulk blends as well as straight compost, and bagged quantities of soil amendment for retail.

To facilitate increased diversion and the efficient handling of organic materials, such as food scraps and yard waste, a tipping-transfer building was designed and constructed at the RSWC. The facility has reduced inefficiencies and costs associated with hauling across the county, thereby encouraging competition among haulers for collection. Additionally, the tipping area enables material to be pre-sorted and consolidated at one centralized location for handling, transfer, and transportation to the processing facility.

3.5.8. Yard Waste Management

Numerous outlets exist in Tompkins County for diversion of yard waste from the landfill. Through educational programs, residents and businesses learn how to process this material onsite. Yard waste is also accepted for recycling at the RSWC, Cayuga Compost,

and some local municipalities. Collection programs exist in select municipalities, or entities can hire a landscaper to manage this material.

3.5.9. Mortality Waste Diversion

There are several contributing factors to local animal mortalities, including through farm operations, road kills, and through disease outbreak. Local options for management of this material include burial, alkaline digestion, composting, or disposal. Resources are available from Cornell University to support diversion through composting, and where applicable, TCRMM may offer support.

3.5.10. Biosolids Management

Seven wastewater treatment facilities exist throughout the county: Village of Cayuga Heights, Village of Dryden, Village of Freeville, Village of Groton, Town of Newfield, Village of Trumansburg, and the Ithaca Area Wastewater Treatment Facility.

Two feasible management strategies other than disposal for biosolids are land application and composting. According to surveys of local WWTFs, biosolids/sewage sludge generated in Tompkins County were managed as identified Table 2-1 in Section 2.0. As of 2016, only a small quantity of the material generated in Tompkins County is land applied. It has been identified that more research must be conducted to understand opportunities for increasing diversion of this material and the feasibility of possible solutions.

3.6. Programs to Rethink Waste

Tompkins County's 4th R is rethink. Located after reduce, reuse and recycle, this R encourages the community to consider behaviors, habits, and practices that result in waste generation. By rethinking waste, citizens are given the opportunity to identify new approaches that can foster a circular economy, creating infrastructure and approaches to support waste reduction, reuse, and recycling. Education and outreach strategies from the department incorporate rethinking waste into current approaches.

A component of rethinking waste, green purchasing encompasses a variety of strategies, such as buying products with recycled content, shopping secondhand, procuring multipurpose goods, and more. TCRMM has conducted efforts for green purchasing over time. Past activities range from incorporation in presentations, to development of the former Finger Lakes Buy Green website that shared tips and tools, to an Environmentally Preferred Procurement Consortium for institutions. Current efforts include information shared through outreach efforts and programs like the ReBusiness Partners, as well as leadership of an internal Environmentally Preferable Procurement (EPP) Team to increase green purchasing in County operations.

Product stewardship efforts, including extended producer responsibility, are also strategies that support rethinking waste. TCRMM remains educated and appraised of current statewide efforts that impact this area. For example, recent legislation passed in 2022 for producer responsibility for carpet will support increased recycling of this material over the long term.

3.7. Materials Management Efforts by Sector

3.7.1. Residential

As noted above, residents are provided access to a variety of education, outreach, and programming that supports the 4Rs. The PAYT trash tag program provides a financial incentive for diversion. Residents can participate in the countywide curbside recycling collection program or bring single stream materials and additional recyclables to the RSWC for handling. Organics recycling programs, including food waste prevention campaigns, compost education, and food scraps recycling drop spots are available as well. Strategies to reduce waste, reuse, recycle, and rethink waste are promoted widely.

3.7.2. Commercial

Commercial entities have the potential to generate large volumes of materials – some of which are reusable and recyclable. These establishments may engage Finger Lakes ReUse, with two drop-off locations open daily in Tompkins County, or arrange for pick up or salvage services based on the organization's capacity and marketability of reusable materials. Commercial entities may contract directly with a hauler to collect and manage their recyclables, or they may utilize the RSWC public drop-off. Curbside recycling services are provided to all Tompkins County small businesses on an every-other-week basis if their material is set at the curb. Businesses are limited to setting out up to 200 gallons of single stream recyclables, plus 2 cubic yards of cardboard. Commercial single stream materials are collected separately from curbside recycling. When received at the RSWC, the material is weighed in by material code then commingled with residential single stream material and transferred out as single stream recyclables —destined for the Ontario County MRF. Source separated cardboard is accepted at the RSWC, processed, and marketed directly.

While voluntary reporting is requested for some commercial entities that send recovered materials to facilities outside of Tompkins County, the quantities and types of materials disposed or recovered are difficult for the County to track. Section 5.9 is intended to address the issue of the lack of data being reported by the various commercial entities. TCRMM offers outreach and education to support the commercial recycling sector. The County will continue to determine what improvements, partnerships, or other alternatives should be evaluated for implementation to reach this sector and what the resulting future recovery goals could be.

3.7.3. Institutional

Large institutions, such as local school districts, colleges, jails, nursing homes, hospitals, and senior living complexes, tend to produce large quantities of paper waste and food waste. Section 1.4.4 provides an overview of several of these institutions. These institutions manage their own waste and additional recyclables, some of which are transported to the RSWC. Tompkins County supports these institutions by assisting them with their waste reductions efforts through the ReBusiness Partners program. Tompkins County does not monitor or enforce recycling efforts at these facilities; however, most of these entities benefit from waste reduction and recovery efforts. Currently, there is no reporting requirement for these institutional entities, and the quantities and types of waste disposed or recovered in Tompkins County is likely included in waste quantities reported from disposal and recycling facilities, just not available per individual institution. Section 5.9 is intended to address the issue of the lack of data from these various entities. Additionally, outreach and educational efforts will include the institutional recycling sector and how best to increase recycling rates.

Where possible, TCRMM has offered and conducted waste assessments for municipalities as well, providing tailored suggestions for maximizing 4R practices. As some local governments strive towards sustainability, the overall impact of these municipalities is reduced.

Within its own facilities, Tompkins County has several initiatives to reduce waste. A Waste Reduction and Resource Management Policy that was passed in 2007 laid the groundwork for conducting waste assessments in all departments, promoting environmentally preferable purchasing, reuse, recycling, and efforts to support waste reduction. As a component of this framework, TCRMM has established food scraps recycling in departments where appropriate. A Surplus Equipment & Supplies Policy promotes reuse prior to disposal, and the County's current Procurement Policy limits the purchase of single-use plastics in addition to promoting environmentally preferred procurement.

3.7.4. Industrial

Tompkins County is home to several manufacturing facilities. Facilities within Tompkins County with the NAICS code 31-33: Manufacturing at the time of development of this Plan include:

- Advanced Plastic and Material Testing
- Applied Pulse Power
- BinOptics/MACOM
- Borg Warner Morse TEC
- Cargill Deicing Technology
- C&D Assembly
- Ecolectro
- EMF Corporation
- Emmy's Organics
- Harrick Plasma Inc.
- IMR Test Labs

- Incodema
- Incodema3D
- Ithaca Beer Co.
- Jamex
- Kionix
- Knickerbocker
- Lansing Instrument Corp.
- MPL
- NovaSterilis
- Odyssey Semiconductor, Inc.
- Parker Isaac
- Porous Materials Inc.
- Precision Filters
- Rheonix
- Stork H&E Turbo Blading
- Sturges Electronics
- Therm Incorporated
- Transonic Systems

Each facility is responsible for managing its waste. Similar to the commercial sector, these businesses have access to options for recycling and disposal collection. Scrap metal, rigid plastics, batteries, electronics, cardboard, coolant, oil, and pallets are some of the materials these types of facilities recycle. Additionally, Cargill Deicing Technology's Cayuga Salt Mine disposes of fines and rock in abandoned mining areas.

Some of these facilities provide annual reporting data to TCRMM as a component of the Biennial Update to the LSWMP. Through this process, TCRMM maintains data from industrial generators in the Planning Unit. Additionally, TCRMM offers a voluntary ReBusiness Partners program, which is available to these generators, as a means for providing additional support with diversion efforts. The County will consider the possibility of requiring industries to directly report their generation, recycling, and disposal rates and practices.

3.7.5. Agricultural

Agricultural operations across New York State have incorporated food waste and other organic components of MSW into their organics processing systems. The most common practice is anaerobic digestion. Due to the rural nature of Tompkins County, there are farms that may be using this technology, or have the ability to expand their collections. Select operations also accept surplus food for feeding animals, though at this time, information about this informal practice is not currently available.

According to the NYS Pollution Prevention Institute's (P2I) Organic Resource Locator, the only existing organics recycling resource within Tompkins County is Cayuga Compost in Trumansburg, NY, a source-separated organics (SSO) compost site.[19] Cornell University also operates its own compost site. Tompkins County contracts with Cayuga Compost for processing yard and food waste, and will continue to monitor P2I's site and identify possible agricultural operations that are managing organic components of MSW.

[19] https://www.rit.edu/affiliate/nysp2i/organic-resource-locator

3.8. Residue

3.8.1. Collection

Considering the rural nature of Tompkins County, a limited variety of collection services are used in the county to collect and transport solid waste. Methods include municipal public works collection; private contracts with municipalities, businesses, and residents; and self-hauling to disposal sites.

In 2021, municipal solid waste that was delivered to the RSWC was primarily delivered to the Ontario County Landfill, with Chemung County as a backup. Both Seneca Meadows in Waterloo and the Hyland Landfill in Angelica have also been used as backups in the past. Local generators and haulers are not required to deliver waste to the RSWC.

3.8.2. Weight-based Pricing Incentives

The County uses a weight-based pricing mechanism (pay-as-you-throw) for bags and cans as well as punch cards at the RSWC as detailed in Table 3-2 in Section 3.1.2. Most recyclables are accepted at the RSWC free of charge. This strategy of accepting recyclables at low or no cost is intended to provide an additional incentive for reducing waste.

3.8.3. Management of Household Hazardous Waste

To divert household hazardous waste from the landfill, the County hosts six HHW collection drop off events per year at the RSWC's permanent D.E.P.O.T. (Don't Empty Pollutants in Our Trash). Residents may sign-up for this service at no charge, as long as they currently hold a solid waste permit. Operation of the drop-off days is provided by a third-party contractor. This provides an opportunity for residents to safely discard unwanted, hazardous materials. In addition, conditionally exempt small quantity generators (CESQG) within Tompkins County have the option to participate in this program, at cost.

To notify the public about this important issue, the County conducts widespread outreach and education. Tools used for this purpose have included items such as bookmarks. Through the website, notification of collection drop-off days and sign-up forms are provided, as well as a listing of acceptable and unacceptable items. When funding exists, the events are also promoted via advertising in the paper.

Table 3-4 summarizes the quantities of HHW that were collected in 2021 through this program.

Table 3-4: 2021 HHW Collected in Tompkins County

Material	Quantity
Antifreeze	440 gallons
Hazardous Paint	8,525 gallons
Pesticides (solids)	3,450 pounds
Pesticides (liquids)	1,650 gallons
Mercury Containing Devices	45 pounds
Fluorescent Bulbs	7,534 pounds
Other HHW (solids)	13,086 pounds
Other HHW (liquids)	2,585 gallons
Total	75.12 tons

3.8.4. Pharmaceuticals

The Tompkins County Coalition for Safe Medication Disposal (CSMD) is focused on encouraging New York State to fully enact the 2018 New York State Drug Take Back Act. The Act requires pharmaceutical manufacturers to organize and pay for a state take back program. Chain pharmacies with ten or more stores in New York State must provide free take-back. Independent pharmacies and law enforcement agencies can choose to participate in the program. There are several permanent drug drop boxes in Tompkins County, as outlined on the NYS Rx Drug Drop Sites map.[20]

3.8.5. Sharps Collection

All hospitals and nursing homes in New York State are mandated by law to accept home-generated sharps as a free community service through their sharps collection programs.[21] Two drop-off locations listed by Tompkins County Health Department are, Cayuga Medical Center 101 Dates Drive, Ithaca NY, and Southern Tier AIDS Program (STAP) drop box for anonymous disposal.

3.9. Communications and Public Education

TCRMM draws on an extensive communication strategy to offer a comprehensive 4R (reduce, reuse, recycle, and rethink) education program to the community. As outlined in Section 5.8, this encompasses a website, in-person engagement, print materials, social media, advertising,

[20] NYS Rx Drug Drop Sites map, https://www.arcgis.com/home/webmap/viewer.html?webmap=58175eea143d45b699296b2a63c74bd5&extent=-81.9219,39.4623,-68.9801,46.0128

[21] https://www.nysenate.gov/legislation/laws/PBH/1389-DD

newsletters, press releases, radio, and reports. These strategies are aimed to encompass a broad audience, including schools, businesses, residents, and community groups. Educational programs are tailored to the audience, and typically include a focus on the importance of the 4Rs, acceptable items for recycling, and other programs that are available to help individuals reduce waste. Brochures and handouts are developed and produced for distribution to target audiences to further provide information about the 4Rs.

In-person outreach includes presentations and tours of the RSWC. Additionally, there are numerous events that take place in Tompkins County – including fairs, festivals, and other community celebrations. At many of these, TCRMM has a presence – either by tabling or through a team of outreach staff – to provide information and answer questions about recycling and other materials management programs.

Through the ReBusiness Partners program, and support for school green teams, TCRMM has offered hands-on technical assistance to businesses, schools, and organizations to help them maximize waste reduction, reuse, recycling, and composting efforts. Participants can receive a free waste assessment, benchmarking report that highlights opportunities for next steps, recycling bins, signs, decals, support for composting, and ongoing technical assistance. As a member of the Tompkins County Chamber of Commerce, Department staff have attended events that serve as networking opportunities to promote the ReBusiness Partners program.

Additionally, the Department's website (www.recycletompkins.org) is constantly evolving and strives to highlight programs that the community can utilize. The Department also has a presence on Facebook and other social media. Office staff answer phone calls and inquiries, including emails, from the public about recycling and other 4R services. Efforts for creating more public awareness are supplemented by an advertising campaign which may incorporate print media and radio stations, as well as periodic news releases.

As a result of the partnership with CCETC, compost education and outreach are offered through a variety of media, including participation at events, classroom presentations, on-site demonstrations, a website, surveys, articles in local papers, adult education classes, and social media. Similarly, a partnership with Finger Lakes ReUse expands reuse education efforts. This nonprofit operates two conveniently located and accessible Community ReUse Centers and strives to maximize reuse while offering mentoring opportunities, job-training, and education in the skills of repair and reuse. Through tours, presentations, tabling, lectures, internships, and volunteer and work study opportunities, Finger Lakes ReUse provides information to the community about the benefits of and ways in which to reuse.

3.10. Efforts to Enforce Local Disposal and Recycling Laws

According to local law, recycling is mandatory in Tompkins County. Chapter 140 of the Tompkins County Code regulates many areas of recycling and disposal. Article I mandates the recycling of various materials. Article II requires the use of trash tags and establishes a Pay-As-You-Throw system serving to incentivize recycling. Article III requires solid waste haulers to obtain a license

that requires many safe operating practices. Article IV regulates disposal activities such as unauthorized dumping of solid waste, requirements for covering loads of waste delivered to the RSWC, and various rules and regulations regarding facility use. Tompkins County's Waste Reduction and Recycling Coordinators are responsible for investigating reported incidents, monitoring illegal dumping cases, and addressing concerns regarding infractions of the law. While there is still room for improvement with this program, it is considered to be successful, overall.

3.11. Local Hauler Licensing

Article III of Chapter 140 of the Tompkins County Code establishes a structure by which waste collectors in Tompkins County are monitored, with a goal of fostering the state legislative purpose of encouraging the development of economical and environmentally sound projects for the present and future collection, treatment, and management of materials.

Table 3-5 lists haulers licensed in Tompkins County as of development of this Plan. With few exceptions, any collector who hauls solid waste for compensation in Tompkins County must be licensed. TCRMM oversees this licensing process. Through this mechanism, haulers are required to report quantities and types of materials transported over the course of the year. This facilitates data tracking for TCRMM's annual reporting and informs programmatic decisions for enhancing diversion efforts. A copy of the hauler reporting form can be found in Appendix C.

Table 3-5: 2022 Licensed Haulers

Company	Location	Type
4-Season Landscaping	Ithaca, NY	Commercial/Residential Dumpster Service
Casella Waste Systems, Inc.	Newfield, NY	Residential pickup, Commercial/Residential Dumpster Service
City of Ithaca	Ithaca, NY	Municipal Trash Service
Dave's A-1 Hauling	Newfield, NY	Odd Job Cleanups
Doug's Trash Removal	Groton, NY	Residential pickup, Commercial/Residential Dumpster Service
Elmore Dumpster Rentals	Ithaca, NY	Dumpster Service
Expert Clutter Removal	Byron, NY	Commercial/Residential Dumpster Service
Hilliard Trash Service	Locke, NY	Residential pickup, Odd Job Cleanups
Holden Dumpsters	Ovid, NY	Commercial/Residential Dumpster Service
Junk Man to the Rescue	Slaterville, NY	Odd Job Cleanups
Mansaz Dumpsters (Residential)	Newfield, NY	Commercial/Residential Dumpster/Roll-off Service, Odd Job Cleanups
MarCon Companies, Inc.	Syracuse, NY	Commercial/Residential Dumpster/Roll-off Service
Natural Upcycling	Linwood, NY	Commercial food scraps pickup
Pro-Lawn, Inc.	Ithaca, NY	Commercial/Residential Dumpster Service
Red Line Disposal	Odessa, NY	Residential pickup, Commercial/Residential Dumpster/Roll-off Service

Company	Location	Type
Robinson Rolloff, LLC	Auburn, NY	Commercial/Residential Dumpster Service
S&S Disposal	Brooktondale, NY	Residential pickup, Odd Job Cleanups
SDM Landscaping	Ithaca, NY	Commercial/Residential Dumpster Service
TPK Disposal Services	Ithaca, NY	Residential pickup, Commercial/Residential Dumpster Service
Village of Cayuga Heights	Ithaca, NY	Municipal Trash Service
Waste Management	Liverpool, NY	Commercial/Residential Dumpster Service

3.12. Recycling Data Collection Efforts & Gaps

As described in the previous sections of this Plan, Tompkins County's residential, commercial, institutional, and industrial generators have outlets to divert their waste from disposal to reduction, reuse, and recycling. However, unlike solid waste data that is reported to the NYSDEC annually, a complete set of waste diversion data is not readily available since much of it is not required to be reported by private entities to any agency (except for those facilities that must submit recycling reports to NYSDEC). At this time, the majority of residential and light commercial recyclables are handled at the RSWC, and therefore is summarized in Table 2-2 in Section 2.0. Private businesses within the county are not currently required to report the destinations of their recyclables. As referenced in Table 2-2 in Section 2.0, based on 152,036.21 tons of waste (including recyclable materials) generated within Tompkins County in 2021, 72,174.49 tons were disposed in landfills and 79,861.72 tons of materials were diverted either by composting or recycling. Consequently, Tompkins County's current overall waste diversion rate is estimated at 53%. When examining just the MSW component of the overall waste stream, the County's MSW diversion rate is estimated at 51% -- this excludes contaminated soil, sewage sludge, construction and demolition debris, processed scrap metal, and industrial waste. Since there is no reporting requirement for these entities, quantities and types of waste disposed or recovered in Tompkins County has not been made readily available to the County.

4.0 EXISTING ADMINISTRATIVE AND FINANCIAL STRUCTURE

4.1. Staff in Charge of Implementing New System

Tompkins County is responsible for the implementation of the program strategies described in Section 5.0. Specifically, the Director, Deputy Director, and Waste Reduction and Recycling Coordinators share these responsibilities, including oversight of the contract for RSWC operations and marketing of recycling materials, program administration, finances, outreach and education, data collection and evaluation, and LSWMP updates and reports. To accomplish this, the County works with stakeholders, including municipalities, institutions, and private sector waste managers to address the implementation of the program strategies.

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

4.2. Financial Structure

The goal of financing the Department of Recycling and Materials Management budget is to enable the development, maintenance, and sustainability of an integrated solid waste management system that facilitates waste reduction, reuse, recycling, composting, and other diversion activities to the greatest extent possible. Where possible, the financing system is also designed to create incentives for diversion of materials from disposal. The Department is an enterprise fund, and therefore no revenue is obtained from Tompkins County property taxes.

The revenue streams for TRCMM include the following:

- Annual Fee: Established as a funding mechanism to ensure equitable payments for non-disposal services from all entities
- Disposal Fees: Tipping fees for garbage disposal at the RSWC
- Recycling Revenue: Revenue from the sale of recycling commodities
- Grant Revenue: Funds obtained through contracts with granting entities
- Miscellaneous Revenue: Includes incidental costs, such as sale of recycling and compost bins, fines, permits, and licensing fees

TCRMM's programs are funded through a disposal fee for garbage, an Annual Fee, and revenue share from material marketed at the County-owned RSWC, which provides reliability as a local facility for recycling. The Annual Fee ensures a stable funding structure for recycling and waste diversion operations, as well as 4R programs. This fee is charged to residential units, commercial facility owners, colleges, nonprofits, and other miscellaneous categories of users. Additionally, a Pay As You Throw (PAYT) trash tag program ensures that residential users pay for the cost of disposal while offering a financial incentive for reduction, reuse, recycling, and rethinking waste. Contractual relationships for recycling activities, such as operation of the RSWC, curbside

recycling collection, and processing food scraps for composting, draws on the strength of the private sector, enhancing services offered while supporting local community organizations.

Table 4-1 provides a summary for year-year for TCRMM from the 2023 Adopted Budget. Any variance between revenue and expense is adjusted by the use of a fund balance. Surplus revenue is contributed to this long-term account, which is utilized in years when recycling revenues are lower than projected.

Table 4-1: 2021-2023 Solid Waste Division Budget

	2023 Adopted Budget	2022 Actual Budget	2021 Actual Budget
Revenue:			
Solid Waste Annual Fee	$ 4,654,192	$ 4,386,841	$ 4,151,126
Disposal Fees	$ 2,343,359	$ 1,871,743	$ 2,013,211
Recycling	$ 1,411,434	$ 1,180,932	$ 1,365,236
Grants	$ 99,426	$ 118,893	$ 123,588
Miscellaneous Revenue	$ 184,380	$ 175,215	$ 196,647
Total Revenues	$ 8,692,791	$ 7,733,624	$ 7,849,808
Expenses:			
Personnel & Fringe	$ 1,392,595	$ 1,189,614	$ 1,199,044
Equipment & Supplies	$ 252,470	$ 104,062	$ 116,727
Contractual	$ 7,456,703	$ 6,285,353	$ 5,937,582
Total Expenses	$ 9,101,768	$ 7,579,029	$ 7,253,353

Source: Adopted 2023 Budget for Tompkins County

TCRMM's current administrative structure provides broad oversight across a variety of materials management strategies. County ownership of the RSWC ensures that there is a centrally located public facility for materials handling. Public-private partnerships draw on the strengths of the private sector while offering municipal oversight. As private sector operations vary and costs fluctuate, this can provide budgetary implications. Considering that PAYT only applies to individual garbage set out in curbside containers and not commercial dumpsters, there is opportunity for expanding this program to financially disincentivize disposal for all generators. Over the course of the planning period, TCRMM will also evaluate and implement changes to the Annual Fee structure to ascertain the equitable delivery of services for payments received.

4.3. Laws, Regulations or Ordinances

4.3.1. Chapter 140 of the Tompkins County Code

Chapter 140 of the Tompkins County Code regulates solid waste and recyclable materials in Tompkins County. It is divided into four sections called articles, which can be found in Appendix C. A brief description of each is listed below.

4.3.1.1 Article I: Recycling

Sometimes referred to as Mandatory Recycling, the purpose of this article is to establish a plan for the management of recyclables and reusables generated or originated in Tompkins County, to promote the safety, health, and well-being of persons and property within Tompkins County; and to comply with New York State's policy to encourage waste stream reduction through recycling.

4.3.1.2 Article II: Tag System for Collection

Informally referred to as the Trash Tag law, this local law prescribes the methods of payment for disposal of solid waste through private and municipal solid waste haulers and encourages the recycling of solid waste. This PAYT system provides a financial mechanism to incentivize waste reduction.

4.3.1.3 Article III: Facilities; Licensing of Haulers

This article establishes a structure by which waste collectors in Tompkins County are monitored, with a goal of fostering the state legislative purpose of encouraging the development of economical and environmentally sound projects for the present and future collection, treatment, and management of solid waste.

4.3.1.4 Article IV: Disposal

The purpose and intent of this local law is to prohibit the disposal of solid waste at any location other than properly authorized facilities or sites and to prevent the unauthorized use of dumpsters and other solid waste containers.

4.3.2. Waste Importation and Flow Control

A flow control law was first adopted in Tompkins County in 1993. This law was not well received by haulers due to high disposal costs, and soon after the law was approved, haulers indicated intention to deliver commercial-generated recyclables to out-of-county facilities, should the flow control on trash be enforced. Enforcing flow control would have led to a costly legal battle. As a result of the potential for commercial sector recyclables to be delivered to facilities other than the RSWC, the County chose not to enforce its flow control law. This was directly related to the County's decision to base its financial system on the delivery of recyclables, as opposed to garbage, which supports TCRMM's mission of prioritizing sustainable materials management.

4.4. Solid Waste Management Policies

TCRMM's programs have a central focus towards sustainable materials management and a circular economy, with a strong emphasis on the 4Rs: reduce, reuse, recycle, and rethink. A PAYT trash tag program, paired with a countywide residential curbside recycling collection offers a financial incentive to reduce, reuse, recycle, and rethink waste. Section 3.0 provides a baseline of current activities around the 4Rs, while Section 5.0 provides additional insight into future activities to further waste reduction.

In addition to the County's numerous 4R programs for residents and other stakeholders, the County also promotes the 4Rs internally. Passed in 2007, a Waste Reduction and Resource Management Policy provided groundwork for conducting waste assessments in all departments, promoting environmentally preferable procurement (EPP), ensuring recycling collection, and offering education to support these efforts. Through this work, TCRMM has established food scraps recycling in departments where appropriate. Additionally, a Surplus Equipment & Supplies Policy provides guidance for handling reusable items, encouraging reuse prior to disposal. A resolution has also been passed to limit the purchase of single-use plastics and promote EPP. Lastly, through an update to the County's Procurement policy, TCRMM is responsible for coordinating an EPP Team that supports development of tools and resources to bolster EPP activity throughout county departments.

5.0 ALTERNATIVES EVALUATION AND SELECTION

The County has evaluated numerous programs and technologies that could possibly enhance existing materials management program elements or add new program elements to the Planning Unit. In alignment with the EPA's priorities, Tompkins County has embraced the concept of the circular economy, which applies a systems approach to materials management.[22] The strategy of regenerative design is integral to this concept, as materials are maintained at their highest value for as long as possible, and products at their end-of-life can become feedstocks or inputs for new systems. This transcends recycling by incorporating reuse and prevention into the approach in a holistic manner. As a result, many of the opportunities identified below will focus on expanding strategies for incorporating waste reduction and reuse in the Planning Unit. Over the 10-year planning period, the County will promote a circular economy, while focusing on opportunities to reduce, reuse, recycle, and rethink prior to disposal.

The Administrative/Technical Impacts, Jurisdictional Impacts, and Selected Alternatives Identification for the strategies identified throughout this section can be found in more detail in Appendix E.

5.1. Waste Reduction Programs

Waste prevention represents the largest opportunity to reduce waste by not creating it in the first place. This requires a departure from a single-use, disposable ethos that is pervasive in this country. Community engagement and education along with modifications to infrastructure and systems will all support such a shift. Through changes in production, operational processes, purchasing practices, and behavior, businesses, institutions, and individuals can reduce waste. Over the coming decade TCRMM will grow and expand waste reduction strategies with community partners.

Promotion of the rental or sharing economy can shift from a buy-own-store-dispose model to one in which the utility of an item is retained and shared without the material impacts of storage and disposal. At the individual scale, simple modifications in mindset and behavior can support waste reduction – bringing your own container, purchasing multi-use items, and buying package-free are all examples. For local businesses, shifting available products can provide a significant impact– be it reusable to-go ware from restaurants, durable items in retail stores, or circular packaging of items received. Broadly, manufacturers and producers have further opportunity to impact the circular economy through product design, manufacture, and transportation. These strategies can help reduce the use of materials and minimize toxicity before products are produced and eventually enter the waste stream.

Promotion of behavior change can require minimal infrastructure, though systems redesign can facilitate more rapid waste prevention adoption. As with most materials management programs in Tompkins County, some of these efforts occur through county-organized initiatives, while

[22] https://www.epa.gov/recyclingstrategy/what-circular-economy

others transpire informally or through public and private entities. These program elements were chosen as strategies based on cost, impact, and ability to scale with current infrastructure.

5.1.1. Education & Engagement

Educational efforts can support increased awareness for, and a shift in behavior changes away from disposal to a waste reduction mindset. Public education campaigns may encompass a variety of media ranging from in-person and virtual workshops to printed or electronic guidance documents, booklists, community cafés, toolkits, murals, social media posts, swaps, collaborative events, and videos. As a component of each educational campaign, TCRMM will identify a target audience, messaging, and tailored resources to meet their unique need. Topics may range from simple messages like "skip the straw" and "ask first" for to-go utensils at restaurants to alternative gifts like experiences, and product swaps. Examples of these changes in product use might include choosing cloth diapers over disposables, cleaning rags in favor of paper towels, handkerchiefs instead of tissues, dryer balls to replace dryer sheets, and other durable household items. Collaboration through the ReBusiness Partners program may support a campaign across numerous businesses in the community, extending the prevalence, awareness for, and reach of campaigns for 'ditching the disposables' - skipping bags, straws, and disposable utensils.

Community based social marketing techniques will be utilized to demonstrate community embracement of these strategies. This might include public campaigns in which local celebrities highlight waste reduction practices, a pledge to prevent waste, and other strategies that demonstrate widespread adoption of techniques. Spotlights of success stories may be developed to spur increased activity and motivate participation. Offering incentives such as prizes or physical toolkits can help individuals make simple shifts, and providing unique solutions to specific challenges can support residents in identifying long-term solutions. Online groups such as a buy-nothing community can further support and catalyze this activity.

5.1.2. Sharing Economy

A sharing economy fosters opportunities to capture the utility of goods without the burden of ownership, promoting sharing of resources for collective use. Increasingly, the internet provides resources and apps to develop a sharing economy. Examples range from local efforts to carshare, to peer-to-peer vacation rentals, Ithaca Bike Rentals, coworking spaces, and Little Free Libraries. Public forums including Freecycle, Craigslist, and Facebook all offer the ability to post seldom needed items for communal use.

Libraries of Things also offer an opportunity for sharing materials. This encompasses strategies such as a tool library, materials check-outs at the public library, or a local toy library. Where possible, TCRMM will encourage development and implementation of these types of sharing centers. Community reuse centers or peer rental sites may also facilitate this type of sharing.

As people work to simplify their lives, the popularity of sharing grows. This provides a very informal way of reuse, and TCRMM plans to support and promote these efforts throughout the next ten years. Simple strategies such as stuff swaps, sharing among friends and neighbors, and promotion of sharing at gatherings where community members already meet represent potential for increased sharing.

5.1.3. Engaging Entrepreneurs

Opportunities exist for entrepreneurs to facilitate more reduction and reuse through the products that are available in the community. These may include, but are not limited to:

- Package free stores that allow individuals to refill and reuse containers for bulk purchasing,
- Bulk buying co-ops,
- Apps and business models that sell produce and other food nearing the best by date prior to spoilage,
- Rental of goods that are used on a limited basis; and
- Bulk product dispensers – removing the poverty tax and allowing individuals to buy only the quantity of a good that is needed, when it is needed.

As opportunities arise, TCRMM will support these developments.

5.1.4. Reduction Resources

In addition to education, outreach, and engagement, resources will be developed along the way to promote a local circular economy. As an example, a guide might be created to promote strategies that reduce the impact of local events that occur across the county, such as fairs, festivals, small house parties, or organizational meetings. Conscious choices when establishing catering, water bottle refilling, and dishware cleaning, as well as potential vendor requirements can all influence the amount of waste created from such activities. Advanced planning, with support from local resources, will help reduce this impact.

5.1.5. Toxics Reduction Measures

Education and outreach are provided to showcase proper handling of household hazardous waste (HHW), as well as strategies to avoid generation of these products. While current promotional materials encourage proper handling of items, there is opportunity to increase the focus on prevention. One-on-one education includes information about prevention, such as recommendations to select longer lasting LED light bulbs that don't require special handling at the end of life, as compared to fluorescent bulbs and tubes. However, there is an opportunity to increase education to promote waste-conscious purchasing choices and green chemistry for those businesses producing hazardous waste as byproducts. Where applicable, TCRMM will seek and promote programs for emerging toxics, such as the safe disposal of nicotine liquid for vaping devices or reuse of reduced-efficiency solar panels due to age. Over the next decade, staff will explore opportunities to promote source reduction of toxic items by encouraging green product alternatives, like environmentally friendly multipurpose cleaners.

5.2. Reuse Programs

After evaluating options for waste prevention, the County's next approach is to support initiatives to reuse materials. The following outlines proposed reuse strategies. It should be noted that many waste reduction strategies incorporate reuse by the nature of extending the lifespan of existing items to reduce waste and prevent the need for new materials. Strategies that promote shifts in behavior that ultimately result in the prevention of waste have been addressed in Section 5.1, including initiatives such as sharing of materials, rentals, product choice swaps, and purchasing refillable goods.

Reuse can be both solutions-based and educational, teaching maintenance and repair skills and raising awareness of this waste-reduction method with profound social impacts. Reuse offers tangible, direct solutions to managing unwanted and excess durable materials. County residents and businesses are increasingly looking for places to donate items, and more and more people are aware of the connection between waste and climate change impacts and want to choose to do the right thing. As an indicator of this, Finger Lakes ReUse has demonstrated 20% annual business growth in recent years. Over the coming decade, an investment will be needed to expand the capacity of current infrastructure, such as the Community ReUse Centers, to meet the increasing demand.

In addition to infrastructure, labor is an overreaching need for this area. Although reuse is labor-intensive, there is an enormous untapped opportunity for workforce development with experiential learning. Increasing skilled labor will increase reuse activity within the community. As an example, in response to persistent capacity issues that have arisen at Finger Lakes ReUse due to the success and popularity of its services, the organization has developed a mutually-beneficial job training program (ReSET – ReUse Skills & Employment Training). This helps

address staffing shortfalls while providing hands-on learning and work experiences that support career development. Positioning reuse as a workforce development bridge program will therefore provide key support for long-term growth in this industry and community.

Some reuse activities are directly managed by County staff and other initiatives are accomplished through public-private partnerships or solely by external organizations. TCRMM will work with partners across the county to support increased activity. The selected strategies were chosen because of their ability to integrate with existing programs while increasing diversion in the county, and many of these initiatives also include low-cost opportunities to build reuse.

5.2.1. Materials Exchanges, Wholesale Hubs, and Informal Mechanisms

An ideal reuse infrastructure will include materials exchanges, wholesale hubs, and informal mechanisms.[23] Materials exchanges are places that anyone from the public may donate or sell used material, as well as purchase or access used material, and include community reuse centers, architectural salvage stores, thrift stores, antique shops, used specialty merchandise shops, and online marketplaces. Wholesale hubs are warehouses where reusable materials can be gathered and processed, including for downstream market. Lastly, through informal mechanisms, goods are distributed directly – this encompasses strategies such as peer-to-peer posting, as well as garage sales and classified ads.

A notable materials exchange model is the Community ReUse Center (CRC). Developed by Finger Lakes ReUse, the CRC fulfils many functions in one space. It's not just a shopping center, it's an educational center, a cultural center, and a social center - a place to gather, learn, and connect. Locally, Finger Lakes ReUse (FLR) offers 2 retail outlets where donated goods are received, processed, and sold at a discounted rate. While the CRCs are its main programs, FLR additionally partners with offsite deconstruction services, refurbishes computers and serves as an eWaste collection site, hosts the volunteer-run Ithaca Fixers Collective which offers weekly free repair services to the public, provides a materials access program through partnerships with local human service agencies, and maintains the ReSET job-skills training program.

Finger Lakes ReUse has demonstrated strong impacts on waste reduction, as well as positive workforce development and economic impacts with this model. Cornell University performed an Economic Impact Analysis of Finger Lakes ReUse in Tompkins County in 2022, showing that the organization has been able to leverage public investment to divert millions of pounds of high value material from the waste stream, and convert that into sales revenues and living wage jobs. This is building an economy

[23] Quantifying the Economic Impact of Finger Lakes ReUse in Tompkins County, NY", Nika Mikec, Wyeth Augustine-Marseille, 2022, https://ithacareuse.org/wp-content/uploads/2023/04/FLR-Economic-Impact-Analysis-2018-2022.pdf

that develops skills in repair and maintenance and local enterprise development, and may serve as an ideal location to pilot new models to increase reuse and waste reduction.[24]

Over the course of the planning period, additional material exchanges with visible, accessible retail outlets and material drop-off points will be necessary throughout Tompkins County, particularly in rural areas. TCRMM will also explore opportunities for pop-up or satellite collection sites for secondhand materials. An example of this is the Stop 'N' Swaps held in New York City, in which attendees may bring materials to share to an event and shop for new items; all remaining materials from the end of the event are then distributed to reuse operations. This may take place in conjunction with existing programs, such as the food scraps drop spots, or as a new initiative, such as a community stuff swap in which unclaimed items are redistributed for reuse through local organizations and outlets.

Wholesale hubs are larger scale brick and mortar solutions to successfully absorb, stage, process, and market larger volumes of material generated by institutions, businesses, and contractors. While the majority of the materials will be derived "from the trade," high volume materials such as textiles, or those with higher space needs, such as appliances and repair, can also be managed at the hubs. Processed materials will be made available to interested parties, prioritizing local markets, or distributed through an existing materials exchange network.

The development of a local wholesale hub to help manage the large-scale volumes of material (building materials, appliances, furniture, textiles, etc.) will significantly reduce the amount of reusable goods currently going to landfill. While Finger Lakes ReUse has expanded its warehouse capacity, it has demonstrated a clear case to exchange the warehouse for a more dynamic wholesale hub and training center. A center could be used to process and access materials and identify and prioritize wholesale/commodities markets. Partnerships with numerous material exchanges and existing workforce development and educational entities, like TST BOCES, can facilitate increased activity.

Informal mechanisms, such as online reuse forums, offer significant potential for peer-to-peer distribution of materials, as well as business opportunities in the reuse economy. Informal forums, such as Craigslist, Freecycle, the growing Facebook Marketplace, and Instagram provide individuals the potential to list and procure items on their own. Garage sales and classified ads are another informal mechanism for reuse. An online directory targeting higher education is IRN: The Institute Recycling Network, which connects surplus and byproducts with others interested in using them. Looking

[24] Quantifying the Economic Impact of Finger Lakes ReUse in Tompkins County, NY", Nika Mikec, Wyeth Augustine-Marseille, 2022, https://ithacareuse.org/wp-content/uploads/2023/04/FLR-Economic-Impact-Analysis-2018-2022.pdf

ahead, there is an opportunity to create a more comprehensive online platform and localized marketplace that supports both consumer-level and institutional-level reuse while directly benefiting the local economy. Having one main resource for this could help focus efforts, making it easier for community participants to sell and find items. The development and promotion of an online marketplace would allow County residents to find additional markets for unique and large-volume goods, ultimately increasing waste diversion for currently difficult-to-reuse materials.

Throughout this process, education and outreach will be important. A Reuse Trail lists more than 30 local thrift and secondhand stores, many of which accept donations or purchase items in addition to providing used goods. While some feature local artists who upcycle materials, others include antique stores, consignment shops, and discount goods. As of the drafting of this document, the most recent coordinator of this trail, will no longer facilitate the effort. TCRMM will explore opportunities to support and expand this trail or other efforts to promote the robust reuse network in the community. There is potential to include repair shops, and other locations on a trail, as well as to coordinate events that build on past work, promoting reuse and tourism.

5.2.2. Repair

Repair services and classes are currently being offered in the community through several mechanisms. Teaching repair and maintenance skills can extend the life of materials and build community resiliency. Classes and skill building sessions promote reuse of a wide variety of materials categories – from bicycles to home improvement, sewing, and more. These services are offered through for-profit and non-profit entities, peer-to-peer learning, and community groups. Small businesses like tailors, seamstresses, and cobblers provide opportunity to extend product life and expand the community's options for reuse while raising awareness about the subject. There is opportunity for growth as these existing efforts do not serve the existing demand for repair in the County.

Over the planning period, Finger Lakes ReUse will continue to teach repair through programming and expand its textiles reuse and repair program in partnership with the volunteer-led Community Quilting Center. A component of this will be to repair and maintain sewing machines, a key tool in textiles repair and reuse, and potential home enterprises for Tompkins County residents. As another component, this effort will help harvest fabric from unsellable clothing to keep these materials in local use.

In the future, Tompkins County intends to provide support for these initiatives where practicable. Sponsored repair classes or a social media campaign may increase community participation while enabling existing operations to continue independently. There is also potential to develop a course credential for repair, such as a homeowners

or real estate credential around home repair, which would further encourage more reuse. Additionally, while there is one active repair group (the Ithaca Fixers Collective), further investment in this effort, such as reviving the Finger Lakes ReUse pilot, "Kids Fix" series which was disrupted by the pandemic, along with collaboration with local school districts, community organizations, libraries, and international efforts may facilitate more of these sessions, bringing together individuals with broken items, skills, and interest in repair. Empowering individuals to repair items on their own can support ongoing culture change towards reuse.

5.2.3. Creative Reuse & Education

Creative reuse and reuse education are projected to continue over the planning period and may connect with initiatives of repair and sharing. These activities present an opportunity to further engage the community around this subject and promote cultural shift in thinking about the life of materials. Educational efforts can encourage individuals to use their imagination in keeping items out of the landfill. School presentations and tours offered by the County feature a component of reuse to inspire youth to continue rethinking waste.

Creative reuse projects can give otherwise hard-to-reuse items new life, such as fabric scraps, wine corks, damaged books, partially used notebooks, etc. Secondhand stores offer reused materials that can be incorporated into projects and present the potential to demonstrate techniques for practicing creative reuse. This viable economic skill can lead to the development of microenterprises, bolstering the economy and creating jobs. Upholstery, "upcycling," and creating new products out of reused materials can all come from forms of creative reuse.

Artists often incorporate secondhand materials as feedstocks for new work. Mural projects are an artistic way to promote reuse. Opportunities exist to cultivate upcycled art exhibits and community workshops that teach skills building for creative reuse. In 2023, a Community Quilting Center is being established at Finger Lakes ReUse's MegaCenter, which will provide instruction and access to materials for fabric arts projects.

5.2.4. Reuse for Institutions and Commercial Generators

A large uncaptured segment of the reusable waste stream is institutional-level reuse. This includes furniture, building materials, and office supplies. A major driver for larger generators is convenience. Providing regular pickups, helping large businesses, contractors, and institutions identify services, staging areas, and communication channels will be key.

Tompkins County is home to three institutions of higher education. During the school year, reuse is supported through internal systems, like Ithaca College's OSCAR, Office Supply Collection And Reuse. During student move-out periods, as well as through the summer when campus renovation projects transpire, large quantities of materials are generated. Efforts such as Dump & Run at Cornell and Take It Or Leave It at Ithaca College help redirect these materials for another use. Collaboration with nonprofit entities in the community supports these strategies; however, additional capacity needs to be developed, as evidenced by the overwhelming influx of materials to reuse stores in the summer and overflowing dumpsters in Collegetown.

Early in the planning period, a committee of stakeholders will be formed to address these largest generators of reusable materials. While significant progress has been made over the last decade, the efforts still fall short of supply, and student and institutional waste of reusables continues to grow. A focus on educational efforts led by institutions to highlight sustainability and reuse will help carry momentum for these efforts forward. Where practicable, information about programs will be circulated to encourage building on other's successes.

Other institutions, such as schools, hospitals, and local government also have the opportunity to increase reuse. To address waste generated in Tompkins County operations, TCRMM enacted a policy-based approach towards reuse of existing assets. Over the ten-year planning period, Tompkins County will revise and update the Surplus Equipment Policy, which first focuses on internal reuse of unwanted items by circulating them to other departments. Items that have no use within the county are donated to a non-profit or other approved organization. The current Waste Reduction and Resource Management Policy, adopted in 2007, ensures that County departments practice the 4Rs, and TCRMM will continue to carry forward this work across the organization.

Through the organization's ReBusiness Partners program, TCRMM can share information about this policy with other institutions and businesses as a model for creating procedures for reuse of surplus equipment. For example, a fact sheet may be developed on how to incorporate reuse into organizational procedures. With increasingly constrained budgets, many organizations seek reused equipment or donate unwanted goods. It is anticipated that efforts to support reuse of assets at end-of-life, as well as procurement of secondhand goods will continue to grow in the future. Smart purchasing choices and campaigns focused on reuse will also be encouraged. Examples may include buying reusable products, promoting bring-your-own or reusable mug programs, and encouraging reusable crating with inter-organizational movement of supplies.

5.2.5. Reusable Containers and Packaging

Disposable serviceware, including paper plates, cups, napkins, and plastic utensils, represent a highly visible portion of the waste stream at events and select food service establishments. Considering that much of these materials are not currently recyclable or compostable, options need to be explored to support large-scale reuse.

Over the planning period, TCRMM will work with community organizations and businesses to understand the challenges and potential solutions to promoting the use of more durable dishware away from home. Research will be conducted to understand the potential for siting a central dishwashing facility in proximity to the Planning Unit. A centralized site could be utilized for washing reusable to-go ware utilized by businesses around the county, as well as reusable packaging (bottles, jars, etc.) for products that are produced nearby. As an example, a centralized bottle washing facility could facilitate local breweries and dairy producers in providing products in reusable packaging that is returned for a deposit. Development of dishwashing facilities or reusable container rentals also presents an entrepreneurial opportunity.

With or without a central dishwashing facility, businesses may choose to provide a rental service or include reusable to-go ware for customers. Institutions, such as schools, also represent a closed environment to promote reusable dishware. TCRMM may provide rental kits for small batches of dishware to be made available to businesses and residents for special events. There are many models across the country and beyond that highlight the feasibility of reusable dishware. During the planning period, TCRMM will research these models and engage local businesses to explore feasibility, and where possible, pilot this strategy.

In the absence of providing reusable containers, a campaign will be conducted to promote individuals bringing their own reusable serviceware. Zero Waste Ithaca, a nonprofit program, has established the “BYO Reduces Program” to encourage local businesses to allow and encourage customer use of reusable containers. These are completely safe under proper hygiene protocols, even during pandemic procedures. This strategy can be effective for early adopters, and an increase in prevalence of this behavior will support increased activity for reuse – be it through bringing reusable containers for take-out food or reusable utensils. As a component of a reusable dishware strategy, TCRMM will collaborate with the Health Department to continue to provide clear, consistent guidelines around health and safety with utilizing reusable containers.

5.2.6. Deconstruction and Building Material Reuse

Deconstruction is the careful and systematic disassembly of buildings to preserve maximum components and value. Building material recovery efforts can occur across a spectrum of pathways, ranging from building reuse where a structure is kept intact, to full deconstruction, partial deconstruction, soft stripping where select materials are recovered from a building, to conducting a pre-demo clean-out. Considering the significant contribution to the waste stream that building materials represent, deconstruction and reuse of building materials presents an impactful opportunity. Reducing and recycling construction and demolition materials conserves landfill space, reduces the environmental impact of producing new materials, creates jobs, and can reduce overall building project expenses through avoided purchase or disposal costs. Low tipping fees at landfills and project time constraints can make the sorting of these materials into desirable components cost-prohibitive or otherwise unattractive.

Work is underway via CR0WD (Circularity, Reuse, and Zero Waste Development), a statewide partnership based in Tompkins County to promote increased deconstruction and building material reuse. Participation in this initiative will keep local stakeholders informed and involved in supporting increased activity in this area.

Strong public interest in expanding deconstruction infrastructure and policy will continue to increase diversion of this large component of the waste stream. Moving forward, private contractors may be offering deconstruction services as demand grows. If a property owner elects to perform deconstruction where the materials are donated to a 501c3 charitable organization, this can represent a tax-write-off for those who opt to donate the materials, although that often falls short as an incentive. Deconstruction can still be a competitive economic alternative to demolition, especially if the site is particularly difficult for large equipment, and once avoided tipping fees and other incentives, such as the tax break, are considered.

Despite the waste reduction potential of this program, there are still barriers to participation, primarily perceived timing and expense, compounded by demonstrated lack of local capacity to absorb the potential volumes of high-value, reusable materials. A solution for the local capacity constraints is in the wholesale hub model where space and a built-in workforce are available to absorb and process the large volumes of material that come from a deconstruction site. This will reduce the labor costs of deconstruction by allowing for higher skilled on site panelization (cutting large segments of a building) and quick removal of materials, and once transferred to the Hub, can be processed and denailed by a workforce in training, in partnership with the Labor Unions (Local Laborers 785) and TST BOCES.

Policy for furthering deconstruction has taken various forms in other communities. This includes mandating a waiting period on demolition projects to address the barrier that deconstruction takes longer than demolition projects; materials diversion targets or source separation requirements for projects; increased fees for demolition permits compared to deconstruction permits; and requiring waste management plans for projects. CR0WD has conducted initial case studies in 2021 and 2022 that can be used to advance this work more quickly.

Another local non-profit entity, Significant Elements, is an architectural salvage program that is a part of Historic Ithaca, which promotes the reuse and refurbishment of building materials. In addition to reselling used goods, the organization hosts classes on topics such as wood window repair. Moving forward, the County is interested in exploring additional partnership opportunities with this organization and others to support education and awareness-raising efforts for reuse.

After conducting research, TCRMM will explore options to increase the reuse of building materials. County-owned buildings may present an opportunity for pilot projects for deconstruction – be it through soft strips, partial deconstruction, full deconstruction or even building reuse. Should these be pursued, case studies or spotlights will be developed to document the impact and potential realized through this strategy as a model for replication. The Circular Construction Lab has extensive experience in documenting deconstruction, including the development of a database of projects for development, and may be a potential partner in these efforts.

5.2.7. Paint and Hazardous Waste

While there is currently an informal process for paint reuse in the community, there is opportunity for additional infrastructure to support reuse. Tompkins County is a participating PaintCare location through its HHW operations contractor. This provides additional advertising as a residential outlet for PaintCare-covered materials, and covers the cost of transportation and recycling or disposal of the material. Finger Lakes ReUse will be partnering with the PaintCare program to accept donated paint for reuse and recycling. Reused paint can be sold as is, and recycled paint will be mixed with new color to be sold again at reuse businesses.

Through an informal hazardous waste exchange location, small quantities of reusable products are and will continue to be set aside in-between collection events. Types of materials may include windshield wiper fluid or small propane canisters, which is then used in County departmental operations before final disposal. TCRMM will plan to explore opportunities to extend salvage of these materials for reuse over the coming decade. For example, Ithaca Murals offers a paint supply library for sharing leftover paints. Support for more materials reuse may be an option in the coming decade.

5.2.8. Electronics

Electronic equipment has an increasingly short shelf-life as new products are rapidly developed and marketed, and yet, as demonstrated by Finger Lakes ReUse, there is still a strong market for legacy electronics. The strategy to date to address this issue has focused on providing retail outlets for exchange and developing assessment and repair skills locally. Computer repair training, computer refurbishment services, and job-skill training through the ReSET Tech program are offered at Finger Lakes ReUse. As a component of this project, marketable computers, peripherals, and home electronics are recovered from the waste stream and put back into use. These efforts help to not only increase product life before recycling and disposal, but also support workforce development skills as well as widen distribution to community members across various income levels. As electronics become even more prevalent in the community, TCRMM will continue to promote and support these initiatives where possible.

New "Right to Repair" legislation passed in NYS may impact this category; currently electronic reuse is constrained by availability of replacement parts and even access to test or repair components, especially for laptops, cellphones, and tablets. If legislative efforts are successful, there should be more demand for affordable repair options instead of replacement of higher-expense items like these.

5.2.9. Textile Reuse

Textiles reuse initiatives in Tompkins County are both solutions based, offering collection methods, as well as education-based, raising awareness and building skills. Some initiatives are operated directly by County staff while others are implemented through partnerships or by separate organizations to offer residents a convenient means of reusing and recycling textiles.

Tompkins County currently offers textile collection at the RSWC. Collected material is currently handled by St. Pauly Textile Inc., which transports, sorts, bales, and markets material for reuse. Finger Lakes ReUse accepts and retails clothing and textiles locally, and is developing local textile repair and upcycling programs. Additionally, there is a demonstrated need for a baler for textiles that cannot be locally or regionally marketed. As noted under Section 5.2.2, there are several initiatives to support textiles reuse through sewing, including via SewGreen, Finger Lakes ReUse, and a Community Quilting Center. These efforts encompass reuse of fabric, yarn, and other sewing equipment, and serve as skill building resources via educational opportunities such as classes.

During the coming planning period, current efforts will continue to be supported, and new opportunities will be evaluated for implementation as they arise. TCRMM staff will review other initiatives, such as ReThread DC to identify further strategies and their fit for implementation in the Planning Unit.

5.3. Recyclables Recovery Program

After options for reduction and reuse have been considered, the County then encourages recycling, which is typically offered to residents free of charge. Program development is designed with convenience and accessibility in mind, offering options for both the residential and commercial sectors. Similar to the aforementioned categories, strategies can be direct or educational and may be achieved by County employees, partnerships, or external efforts. With longstanding recycling programs already established in Tompkins County, many of the highlighted strategies are designed to build on existing infrastructure and programs.

5.3.1. Recycling & Solid Waste Center

In 1989, Tompkins County began to develop the RSWC, which has operated to date through a public-private partnership. This strategy has ensured a consistent location to bring recyclable materials generated in the county, and draws on the strengths of the private sector to market recyclable materials in all market environments. In 2021, the County entered into a contract in which the operator of the facility transfers single stream recyclables for processing at a regional materials recovery facility. A compactor has recently been added to prepare single stream recyclables for transportation to a regional MRF, reducing transportation costs. Under this contract, source-separated cardboard is also accepted, baled, and marketed.

Tompkins County will continue to monitor and evaluate options for partnerships to further diversion of new materials, as opportunities arise.

The contract process for operation of the RSWC has provided Tompkins County with a successful strategy for ensuring stability in local recycling outlets. Through a written contract, the role of the private sector is well-defined and storage and processing procedures are outlined. At the end of the existing contract, the County will once again solicit proposals for operation, seeking the most relevant technologies for implementing strategies to further diversion. There may be potential to leverage underutilized space at the site for cost-savings strategies that reduce waste while managing materials responsibly.

Single Stream Recyclables:

- *Cardboard & Mixed Paper*
- *Glass Containers*
- *Metal Cans & Foil*
- *#1, 2, or 5 Plastic Containers*
- *Paper Milk & Juice Cartons*

5.3.2. Collection

Through a contract with a private hauler, TCRMM provides countywide curbside recycling collection to residents on an every-other-week basis. The current contract ends in October 2027. Multifamily sites with four or more units are eligible to set up a mini-drop, in which a containerized collection service is provided, such as totes or dumpsters. Small businesses have the option to participate in this program within contract guidelines as to the amount of material. In the City of Ithaca, businesses have the option of paying for weekly collection. This strategy has proven successful in ensuring that all residents have a convenient and accessible method for recycling materials. It is anticipated that in the future, the County will continue to contract for such a service and could seek to increase support to multifamily dwellings with a goal of increasing diversion and participation rates.

Businesses that do not participate in the residential curbside program may contract directly with a licensed hauler for collection, or self-haul to the RSWC. Industrial generators also work closely with contracted haulers to identify and provide services for managing the large quantities of materials generated. It is unexpected that this approach will change during the planning period.

5.3.2.1 Addressing Contamination in Collected Recycling

A curbside recycling collection enforcement plan was developed in October of 2019 to reduce the amount of contamination curbside from single family homes. In conjunction with this plan, a contamination audit was also completed to monitor progress. Prior to plan implementation a recycling audit was done to determine the percentage of contamination of residential curbside recycling material coming into the RSWC prior to the Rejection Phase. The audit was conducted again after the enforcement plan and data was analyzed to determine the impact of enforcement action on the decrease in contamination. Looking ahead, a similar plan will be developed to apply this strategy to multifamily dwellings.

The enforcement plan was launched in three phases: Awareness, Warning, and Rejection. Each phase included using a curbside sticker for recycling drivers to leave on bins and educate residents about contamination in recycling containers.

The Awareness Phase involved the use of the yellow “Please” stickers. Drivers would collect the recycling and then place the sticker to notify the resident that they might have done something incorrectly with their recycling. This plan coincided with a “Recycle Right” campaign, and included additional outreach

and education efforts to residents reducing the amount of contamination. The Awareness Phase ended in 2019.

The Warning phase featured a newly developed orange sticker to "warn" the resident that there were unacceptable items in their recycling container, and if not corrected, their material would be left at the curb, and not collected. Drivers also tracked the number of stickers given out curbside and reported the data to TCRMM. The Warning Phase ran 10 months.

The Rejection Phase was marked by a red rejection sticker. Drivers would place the sticker on recycling containers that contained contamination, notifying the resident it would not be accepted. Drivers tracked the number of stickers given out curbside and reported the data to TCRMM. The Rejection Phase is ongoing. This process was successful in reducing a curbside contamination rate from 5.37% to 3.94%. TCRMM will apply this strategy, with modifications to multifamily dwellings, which typically utilize containerized collection. This effort will be paired with ReBusiness Partners program services to offer education and support to site contacts as contamination is addressed. Future studies and audits will expand beyond residential curbside, and look to collect data from apartments and commercial businesses.

5.3.2.2 Apartments & Multifamily Units

Apartments that house four or more units are serviced by curbside recycling by utilizing a containerized system, such as wheel carts or dumpsters. The decision of what type of container is used at a specific location is determined by TCRMM, the contracted hauler, and the site or property manager. They will evaluate the number of units and the space available onsite. Some of the current challenges include receiving an updated list of the apartments from the contractor, and contamination of recycling materials in closed containers such as wheel carts or dumpsters. Educational outreach to multifamily residents as well as working with property managers and landlords will be key in reducing contamination. Working through the ReBusiness Partners program can help develop a plan to support apartment complexes and provide specific tools for sites.

5.3.2.3 Commercial

Businesses participating in the curbside collection program have a limit of recycling that they can place to the curb for every other week collection. No more than 200 gallons of material, and 2 cubic yards may be placed curbside for a business to participate. Businesses that have more than this amount of material may need to contract with a private hauler, or self-haul the material to the RWSC. There would be a fee for either of these options. Tompkins County

does not have significant data about business participation rates in the collection program. Future studies may include collecting data on the number of businesses using curbside collection, businesses self-hauling, and businesses using a private hauler for collection. With additional information, the County may seek to explore new collection opportunities for mixed-use properties that include residential and commercial facilities, as well as opportunities for sites with significantly limited collection space.

5.3.3. Additional Material Recovery

In addition to single stream recyclables such as paper and containers, other materials are recyclable in Tompkins County. The following materials are currently accepted for recycling at the RSWC, though other outlets also exist for these and other recyclables:

- Batteries – Lithium Ion, Lead Acid, & Rechargeable
- Electronics
- Fats, Oils, Grease (FOG) from cooking
- Food Scraps
- Freon Units (Fee)
- Glass (Source-separated)
- Propane Tanks
- Rigid Plastics
- Scrap Metal
- Single Stream Recycling
- Textiles
- Tires (Fee)
- Yard Waste (Fee)

Other collection occurs locally through scrap metal processors, electronics recycling collection outlets, and bottle redemption centers, among others. For example, New York State has banned disposal of certain types of electronic equipment; there is extended producer responsibility legislation ensuring that manufacturers support recycling infrastructure for this material. Through PaintCare, paint is collected for reuse and recycling. New EPR for carpet in New York State will facilitate carpet recycling in the coming years.

While many recycling outlets are typically required to participate in annual reporting to the NYSDEC, their daily operations are significantly more independent from TCRMM operations. This is also true for unique materials produced by industrial generators. Utilization of both private and public recycling operations in the Planning Unit will continue over the next ten years to provide the community with a variety of recycling options to choose from.

5.3.4. Commercial, Institutional, & Industrial Recycling

Through its ReBusiness Partners program, Tompkins County has supported local entities with their 4R efforts. Since 2006, this successful partnership has provided free hands-on assistance through waste assessments, while distributing information about existing programs. As a result, local organizations gain contacts at TCRMM and learn about how they can participate in programs such as residential curbside recycling collection. Businesses and institutions are also offered free educational presentations and support upon request, to foster increased diversion. In the coming years, TCRMM will continually improve this program, focusing on the collection of recyclables, food waste prevention, recovery, food scraps recycling, and green purchasing.

5.3.5. Develop C&D Collection & Processing

Diversion of C&D involves separating materials for reuse and recycling at construction, demolition, or remodeling job sites. Separating C&D for reuse and recycling provides an opportunity for a contractor to save money on disposal costs. Some of the common materials that are reusable or recycled from new construction projects are: overrun doors, windows, insulation, metal roofing, structural lumber, drywall, tile, flooring, cast iron radiators, HVAC systems, carpeting; and for recycling: wood, metal, drywall, and cardboard. Separating the debris often requires additional staging areas for separate containers and additional planning at the onset of a project.

C&D collection, processing, and diversion continue to be a challenge. A designated staging area and regular pickup service could help contractors and developers more successfully manage their reusable materials. Considering the current economic environment, it is often less expensive to dispose of this material in a C&D landfill as opposed to recycling or diverting it. A nearby landfill, whose life is currently projected to extend beyond the planning period, charges a tipping fee much lower than the cost of disposal at the RSWC. New materials, such as gravel, are less costly to purchase from a mine than to regrind slabs. Additional barriers to participation include concerns about contamination from polluted buildings entering the recycling process, ensuring clean fill has the proper paperwork, and finding stable markets for material.

As disposal tip fees increase over the coming decade, an opportunity may exist at the RSWC to accept C&D material separate from MSW and transfer this material to a designated C&D landfill.

A preliminary review of existing markets has resulted in the identification of potential markets for select C&D materials. Located in Cortland, NY, Contento's Recycling operates New York's only construction and demolition debris recycling center, accepting unprocessed material like clean gypsum, masonry materials, wood, asphalt, glass, plastics, and electrical wiring and components. Clean wood can also be chipped and

composted at Cayuga Compost. Casella's facility in Tonawanda offers a regional outlet for gypsum board. Metal is recycled as scrap.

Currently LEED projects are a driving factor in diverting this material from the landfill. Unfortunately, waste reduction is not a large focus of the LEED certification and there are opportunities to improve the data collection components of the system. The Climate Smart Communities program also provides points to municipalities that establish a construction and demolition waste policy and/or program. This may help spur activity in the region as well.

Looking ahead over the next decade, TCRMM will evaluate the quantity of material to identify opportunities for increased recycling and diversion. In conjunction with other area stakeholders, the County will monitor opportunities for increased data collection to inform its decisions. Development of new technologies and viable private business facilities for recycling may offer additional potential for diversion. Local interest in deconstruction and green building projects is driving an increased demand for siting multiple dumpsters on a project over time, to source separate building materials for handling. A focus on reuse will continue, as noted in the section above.

State or local legislation for mandatory recycling of C&D materials could also support diversion. Over the course of the planning period, opportunities for legislation that promote reuse and recycling of building materials will be explored. While reuse opportunities may increase viability for such legislation, recycling mandates may require more stabilized markets for recycling this material.

5.3.6. Event & Public Space Recycling

The Borrow-A-Bin program loans out recycling bins for public events and continues to be popular for special events across the county. TCRMM plans to maintain the Borrow-A-Bin program over the planning period. Consideration will be given to the potential for procuring new mobile trash bins to pair with the recycling and compost collection for a comprehensive sorting station. Signage could also be provided with these new systems. It should be noted that strategies may evolve over the planning period as other waste reduction initiatives for events arise, such as reusable dishware.

Since 2015, TCRMM has established eleven public space recycling and trash collection stations in locations around the county. Through program monitoring and slow expansion, TCRMM will collect feedback, develop best management practices, and explore opportunities for expansion over the next decade.

5.4. Organic Recovery Program

Each person in the US disposes of about 720 pounds of organic waste annually; 100% of that waste can be composted.[25] This includes food waste, yard trimmings, and wood waste. Composting 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 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.

Tompkins County has a diversified strategy to promote holistic organics management countywide. Throughout the ten-year planning period, TCRMM will support the national USDA and EPA initiative to reduce food waste by 50% by 2030 from the local level. This will align with NYS's Food Donation and Food Scraps Recycling Law in that it promotes donation prior to composting. The following food scraps management strategies focus on methods to realize this goal. Further, this work is aligned with the Tompkins Food Future: Food System Plan to contribute towards the success of Goal 8: Provide widespread opportunity for community participation in food waste reduction and recovery.[26]

5.4.1. Wasted Food Prevention[27]

Prevention offers a cost-effective solution for eliminating waste at its source. Techniques such as improved date labeling, consumer education, and improvements to packaging require relatively low capital, while reducing the economic impact of wasted food. In fact, consumer education campaigns have been identified as one of the top cost-effective solutions for preventing food waste.

During this planning period, Tompkins County will continually promote practical strategies for avoiding food waste – at the residential and commercial level. Through a pilot program in 2015, the County pursued a community based social marketing strategy to provide residents with tips and tools for smart shopping, smart prep, and smart storage to reduce their waste. To expand these efforts, additional campaigns will be launched that offer tools and resources to encourage behavior change. These may be shared via social media, through community partners, or in conjunction with existing composting and recycling initiatives, such as engagement with drop spot participants. Residential prevention campaigns will demonstrate the wide variety of strategies available for reducing food waste and will draw from the ever-increasing research and case studies of successful programs.

[25] https://www.epa.gov/facts-and-figures-about-materials-waste-and-recycling/national-overview-facts-and-figures-materials
[26] https://www.tompkinsfoodfuture.org/_files/ugd/bfff24_7b3467fa1c1344e9a12045a6ecf1aab2.pdf
[27] *A Roadmap to Reduce U.S. Food* Waste *by 20 Percent*, ReFED, 2016.

To offer a variety of cost-effective strategies and continual improvement, TCRMM will identify techniques and tools that can be used by commercial sector businesses to support food waste prevention. Opportunities may include waste tracking and analytics, discounted perishables, collaboration on ugly produce campaigns, or fostering direct relationships between farms and consumers. Should industrial food processors locate in the community, TCRMM will plan to offer additional technical support to these sites and promote techniques for prevention across the value chain.

For both residential and commercial food waste prevention, the County will seek to develop and foster partnerships with community organizations that may have similar goals for food recovery. For example, active collaboration is underway to support work associated with the Tompkins County Food System Plan, which includes a goal focused on community participation in food waste reduction and recovery. This may also include collaboration with a statewide campaign, participation in the Organics Council of the New York State Association for Reduction, Reuse, and Recycling (NYSAR^3), and seeking additional grant funding to support initiatives. Widespread legislation for strategies such as standardized date labeling could also contribute to this strategy.

5.4.2. Surplus Edible Food Rescue

An important element of food recovery is donation for redistribution and rescue for animal feed. New York State's Food Donation and Food Scraps Recycling Law requires that businesses and institutions that generate two tons per week of wasted food must donate excess edible food. Through a partnership with Feeding NYS, the state currently provides support to commercial entities that are establishing donation programs.

While there is already an active wasted food marketplace for recovery in Tompkins County, there is opportunity to increase communication across organizations, provide education and raise awareness, and explore untapped opportunities. A Tompkins County Food Task Force could periodically be convened to assist with facilitating communication across agencies, identifying trends in the marketplace, organizational needs, and expanding the potential for collaboration between organizations. It has been observed that both residents and commercial operations do not have a clear understanding of the types and roles of entities supporting food rescue, as well as liability protections, tax incentives, and other benefits of donation. Education and outreach will be provided to shed light on these murky areas of donation to facilitate increased activity.

There are also additional opportunities for rescuing surplus edible food. While there is currently prepared food donation and gleaning taking place in Tompkins County, there is opportunity to increase this activity. Reusable crating or food packaging systems may be explored for supporting distribution of materials. As another example, access to a

commercial kitchen and volunteers or staff to process surplus food could extend the life of ingredients with a short shelf-life – by making meals, freezing, or otherwise preserving food. A process will be pursued to engage stakeholders, explore opportunities for recovery, and pursue key strategies over the next decade.

Currently any recovery of food for animal feed occurs informally. It should be noted that Ag & Markets outlays rules for feeding this material to animals, which requires consistent feedstock and potentially re-cooking the food. As a result, it is likely that feeding unwanted food happens on a much smaller scale. TCRMM will expand its knowledge of activity in this area, understanding current practices in the county, and in the region through conversations with the Cornell Waste Management Institute. Following an understanding of current practices, TCRMM will explore opportunities to increase this activity, in accordance with the EPA's food recovery hierarchy.

5.4.3. Residential Food Scraps Recycling

Several programs support collection of residential food scraps for recycling. This includes drop spots, multifamily collection, community composting, and other means of collection. Since 2012, TCRMM has increased its focus on offering programs to support residential food scraps recycling. Efforts include strategies to divert material for composting, as well as promotion of the finished product to encourage closing the loop. It is anticipated that this focus will increase in the coming decade.

5.4.3.1 On-site Composting

Through a long-standing partnership with CCETC, TCRMM supports a compost education program that trains Master Composters and provides community education about on-site composting. This successful train-the-trainer approach provides a wide reach in the community to raise awareness about home composting and strategies to manage yard waste as well as food scraps on-site. In addition, on-site compost bins are sold at cost at the TCRMM office. It is anticipated that both efforts will continue over the planning period, although modifications may be made to the compost education program as an increasing component of the Tompkins County population is aware of home composting options.

5.4.3.2 Food Scraps Recycling Drop Spots

Through a growing network of food scraps recycling drop spots across the county, TCRMM offers convenient collection options for residents. Operated on set schedules, spanning every day of the week, these sites are staffed by a drop spot attendant who directs material to a collection bin which is later transferred to the Cayuga Compost by way of the RSWC. At no cost to the user, participants

are given educational materials, a kitchen caddy, and compostable bin liners. Expansion of this program will occur over the next decade, with a focus on adding drop spots to meet the needs of currently underserved populations. Locations, days, and times of these sites will be varied in order to meet the needs of all residents, and a mobile collection unit will be utilized to facilitate expansion. In the future, TCRMM anticipates increasing infrastructure, equipment, and labor to handle the growing operation of food scraps collection from these locations.

TCRMM will also work to develop new models for food scraps recycling collection points that expand the reach to new populations in the county. Ideas under consideration include unattended limited-access bins in dense urban neighborhoods or other designated locations to enable collection from residents while preventing contamination; drop-off points supervised by a third-party such as retail stores and community centers; and collection from commuters at large-employers.

5.4.3.3 Curbside Collection of Food Scraps

Providing convenient collection of materials through curbside pick-up presents a significant potential for increasing participation in the food scraps recycling program. TCRMM will seek to conduct a pilot for curbside collection of this material during the planning period, with an aim to understand logistics of long-term management, financial structure, and ideal location for a regular collection program. This pilot will provide a model for local municipalities or haulers to gain a better understanding of collection, laying the groundwork for such stakeholders to offer food scraps recycling collection at a reduced cost compared to trash pickup. This type of strategy could build on the success of the long-standing PAYT trash tag program, establishing a PAYT system for curbside food scraps recycling, with tags that cost less than those required for trash disposal. Additional program success may be realized if trash collection frequency is reduced. Should a hauler or municipality offer such a service, TCRMM could provide support in sharing toolkits or educational materials. Such a program may provide further incentives for diversion while covering operating costs.

5.4.3.4 Food Scraps Recycling in Multifamily Units

Multifamily collection options exist in select units throughout the county. As a component of the ReBusiness Partners program, interested property managers have been supported in providing food scraps recycling options to their residents. Free waste assessments, educational materials, presentations, kitchen caddies, and bin liners have been provided to participants. Collected

material is then hauled and processed by Cayuga Compost. Due to the transient nature of residents in some of these locations, TCRMM staff work closely with property managers and tenant liaisons to implement this program. While this setting has inherent challenges due at times to turnover, language barriers, and other factors, it has been well received, and is identified as an effective strategy to increase promotion and diversion.

TCRMM is also conducting a grant-funded project aimed at addressing food waste in apartment complexes and multifamily housing. The project has resulted in food scraps recycling collection and food waste prevention cooking classes being implemented at three housing complexes in Tompkins County. With a focus on low- and fixed-income sites, this project has provided important insights and raised additional questions about providing widespread access to programs and engaging residents from all backgrounds in strategies related to food waste prevention and recycling. TCRMM will conduct additional research to develop iterative strategies for managing food waste aimed at reaching new, diverse audiences. Findings from this ongoing project will be used to expand food scraps collection and food waste prevention education at apartment complexes and multifamily housing during the 10-year planning period.

5.4.3.5 Commercial & Institutional Food Scraps Recycling

In Tompkins County there are businesses, schools, events, and institutions that compost food scraps. Direct support is offered to commercial food waste generators through the ReBusiness Partners program. Diverted material may be processed on-site or hauled to the RSWC or Cayuga Compost for processing.

Where applicable, the compost education program through CCETC is available to provide guidance for on-site composting. A limited number of select small generators such as office buildings or apartment complexes currently apply this strategy. A few schools utilize onsite composting bins for the educational value it offers. TCRMM staff are also available to support these organizations.

Numerous special events throughout Tompkins County also collect food scraps for recycling. Organizers typically work directly with Cayuga Compost, or in conjunction with TCRMM and Master Composters to provide collection infrastructure for vendors, and in some cases, sorting stations for guests. Considering the significant quantity of material generated over the short course of a special event, these represent an area for improvement in furthering diversion. Over the planning period, TCRMM will increase its focus on diversion from these events, including educational strategies that will extend beyond the course of a special event.

Due to widespread interest in composting, it is anticipated that formal and informal options for commercial diversion will continue to grow in Tompkins County. There will be a renewed focus on working with entities through the ReBusiness Partners program to expand food scraps recycling activity. For example, collaboration will be sought with public schools to establish or restart composting programs were possible. As a component of the program, TCRMM will seek to better understand current practices, available haulers, barriers, or gaps, and outstanding needs to support food scraps recycling. In addition to commercial hauling options, TCRMM will also encourage businesses and institutions to make use of the RSWC's Food Scraps Transfer Building.

5.4.3.6 Collection

Currently, there are a few commercial haulers of food scraps in the county in addition to select collection by TCRMM. Additional nonprofit and private composting collection is a future possibility. The County intends to encourage interested entities to develop a hauling business focused on compost collection, which might take place in various forms, such as bicycle collection of material. In addition, communities have expressed interest in shared neighborhood collection routes that would reduce one's need to drive to drop spots on a weekly basis. TCRMM will continue to observe, and where feasible, support efforts that foster a diversified approach to food scraps recycling. New potential food waste haulers will be encouraged to make use of the RSWC Food Scraps Tip Floor. Should New York State expand the Food Donation and Food Scraps Recycling law to encompass businesses generating 52-104 tons per year, additional collectors would be incentivized to offer service in the area.

5.4.3.7 Community Composting[28,29]

Community composting represents a low-cost opportunity for segments of the population to have access to food scraps recycling. It can occur in various ways and offers many of the similar benefits to backyard composting and food scraps recycling, but also provides a unique means for community engagement, empowerment, and education.

Currently, three Compost Learning Collaborative sites are monitored and maintained through a partnership with CCETC. This organization also maintains a Rotline for incoming inquiries and provides support as requested.

[28] *Guide to Community Composting,* Institute for Local Self Reliance, July 2014, http://ilsr.org/wp-content/uploads/2014/07/growing-local-fertility.pdf

[29] *2014 NYC Community Composting Report,* NYC Department of Sanitation, January 2015, www1.nyc.gov/assets/dsny/docs/about_2014-community-composting-report-LL77_0815.pdf

Tompkins County is in the early stages of exploring additional strategies to foster community composting – in residential, mixed-use, and public spaces. Components to be evaluated include acceptable feedstocks, processing methods, siting, operational practices, equipment, and staffing or volunteer engagement. This may be established with other community partners, such as CCETC, and could take place in remote locations throughout the county, or in communities where there is strong interest. These programs offer the benefit of reduced material transportation and increased participant engagement as material is processed onsite. Throughout the coming years, work will be conducted by TCRMM to plan for and grow community composting options across the county. These strategies will be designed to complement and enhance the existing integrated diversion strategy, drawing upon best management practices gleaned from other successful community composting models. TCRMM may provide equipment to facilitate implementation of new community composting sites, such as in-vessel composting systems, tumbler-style systems, and low-cost systems made from inexpensive and reused materials.

5.4.3.8 Mid- and Large-scale Organics Processing

Tompkins County currently has a multi-year contract with a local company, Cayuga Compost, for co-composting of yard trimmings and food waste in windrows. Food waste and paper towels & napkins collected are processed at the company's site in the Town of Ulysses. Processed materials are then marketed by Cayuga Compost, offering bulk blends as well as straight compost, and bagged quantities of soil amendment for retail.

As food scraps recycling volumes grow, TCRMM will evaluate other options to process material, in order to increase capacity while ensuring sufficient material processing outlets. A Food Scraps Tip Floor has been constructed at the RSWC. The Tip Floor allows for a more efficient and consolidated transfer of food scraps material to Cayuga Compost, and provides an option for haulers, businesses, and institutions to collect and deliver food scraps. This site is centrally located in the county, addressing geographic and transportation challenges that arise from a processing site in a rural location.

Secondary or additional processors of food scraps may develop in Tompkins County and the surrounding region over the next decade. For example, opportunities may arise for residential food scraps to be processed on-site at local farms. Additionally, anaerobic digestion (AD) is increasingly prevalent, especially within New York's dairy industry, and new renewable fuel standards are expected to encourage further development of biogas and electricity

generating AD facilities. Wastewater Treatment Facilities could explore opportunities for co-digestion as well.

5.4.4. Yard Waste Management

Numerous outlets exist in Tompkins County for diversion of yard waste from landfills. Through educational programs, residents and businesses learn how to process this material onsite. Grasscycling is highlighted as a strategy to avoid generating some yard waste in the first place. Yard waste is also accepted at the RSWC, Cayuga Compost, and some local municipalities. Collection programs exist in select municipalities, or entities can hire a landscaper to manage this material. It is anticipated that these successful strategies will continue over the next decade, and that there is an opportunity to add yard waste processing efforts to existing local composting maps to further raise awareness of available options.

5.4.5. Mortality Waste Diversion

Animal mortalities occur on farms, as a result of road kills, and through disease outbreak. Local options for management of this material include burial, alkaline digestion, composting, or disposal. Resources are available from the Cornell Waste Management Institute to support diversion through composting, and where applicable, TCRMM may offer support. It is not anticipated that there will be significant changes to the management of this material over the planning period.

In December 2022, Governor Kathy Hochul signed a law to legalize natural organic reduction, establishing the potential for composting of human remains. New York is the sixth state to pass such a law since 2019. Through an established process, certified organic reduction facilities will be able to process remains into compost in a suitably contained and ventilated vessel. Should a local organization pursue establishment of such a facility locally, TCRMM will remain appraised of such activity.

5.4.6. Biosolids Management

Two feasible management strategies for biosolids are land application and composting. As of 2016, only a small quantity of the material generated in Tompkins County is land applied. It has been identified that more research must be conducted to understand opportunities for increasing diversion of this material and the feasibility of possible solutions. Over the coming decade, as opportunities arise, TCRMM will collaborate with facilities to identify barriers to these management strategies and offer support in the development of diversion efforts.

5.5. Rethink

The fourth R in Tompkins County is rethink, which encourages individuals to shift their mindset, current habits, and other practices that lead to waste generation. It challenges people to reconsider how they think about goods and products in their lives. This includes green purchasing, which can help close the loop and promote the purchase of goods that support waste reduction, reuse, and recycling. It also includes reviewing and understanding manufacturing and processing practices to refocus on waste avoidance. Based on previous successful strategies to promote these efforts, the County will continue to focus on educational outreach, including development of brochures, presentations, and suggestions through the ReBusiness Partners waste assessments.

5.5.1. Community Engagement

Similar to waste reduction, engaging the community is a key component of TCRMM's rethink strategy. Workshops, campaigns, and educational efforts can support a shift in practices and raise new ideas for strategies that reduce waste. This can foster additional entrepreneurial opportunities, community groups, and organizations can arise that further address the challenge of a disposable society. Like the rest of the 4Rs, rethink implies a need for action – to reconsider how we handle materials and why we generate them in the first place. Strategies over the coming years will contribute to a shift towards increased adoption of this fourth "R".

5.5.2. Extended Producer Responsibility

Through product stewardship initiatives, manufacturers incorporate life-cycle considerations into the development of goods and services. Extended producer responsibility (EPR) shifts end-of-life handling responsibility to producers, which often encourages smart design strategies that minimize need for disposal and reduce toxics in the waste stream. While some manufacturers voluntarily choose responsible practices, others claim that without legislation, there is an unfair advantage to those who do not participate as they can offer their products at a lower cost. Legislation can create a level playing field for all operators.

TCRMM has identified support for product stewardship efforts and EPR to be an effective method in promoting source reduction. On December 17, 2013, the County Legislature signed a resolution "Urging the New York State Legislature to Enact Extended Producer Responsibility Legislation," in support of state-level framework legislation for product stewardship. This resolution not only sent a message to the State, but also empowered the Director of the Department of Recycling and Materials Management to be authorized to send letters to the State Legislature and State associations to urge support for EPR legislation. This important strategy will help reduce the burden that communities and municipalities bear for end-of-life management of

consumer products while creating solutions for the end-of-life handling of goods and services produced. As future opportunities arise, TCRMM will continue to support and encourage adoption of these strategies.

Hard-to-handle, bulky, or prevalent items like flares, mattresses, and packaging, may be candidates for this type of legislation. Additionally, emerging wastes with limited end of life options, such as lithium-ion primary batteries, and solar panels may be subjects for EPR legislation moving forward. Over the planning period, TCRMM will employ techniques to encourage this strategy, such as support of legislation and consumer education. As new laws are passed, staff will remain appraised of their developments and requirements for implementation. Local laws for EPR may also support these efforts and will be evaluated.

5.5.3. Residential Green Purchasing

Over the past decade, many resources have become available to inform consumers and promote green purchasing. A strong buy local movement has helped raise awareness to foster conscious consumers who weigh choices before purchasing. Many of these local products have green attributes, as is evidenced by the fact that individuals can buy goods that are durable, multipurpose, secondhand, recyclable, or free of packaging. To promote green purchasing in the residential sector, TCRMM will share resources and information about the topic, distribute promotional products that exhibit these traits, and incorporate these concepts into existing outreach efforts, such as presentations, social media, and tabling events.

5.5.4. Municipal Procurement

The County's current Procurement Policy includes coordination of an EPP Team to support purchase of environmentally preferred products, including those with recycled content. Each year the team establishes goals and develops an annual report to measure success and aim for continual improvement. In 2022, New York State also introduced a Green Purchasing Communities program that is open to all municipalities and encourages use of state-level resources to foster increased adoption of EPP strategies. Tompkins County will pursue this certification and share information about this resource as well as other materials over the planning period.

5.5.5. Procurement in the Commercial & Institutional Sectors

By modifying purchasing practices, commercial and institutional sectors have a considerable opportunity to adopt Environmentally Preferable Procurement (EPP) practices. Similar to the residential sector, information about green purchasing and the availability of preferred products has significantly improved over the past ten years. Past support for these initiatives has included development of the Finger Lakes

Environmentally Preferred Procurement Consortium and the creation of a green purchasing guide. Over the next decade TCRMM will continue to identify opportunities to share information about this topic and support others in adopting similar practices. This may include sharing success stories, highlighting new products or practices that eliminate waste, or distributing resources that have been beneficial with the County's operations as well.

5.6. Residue

The County intends to continue its successful PAYT trash tag system over the next decade. This ensures that all generators of waste realize a cost disincentive for disposal as compared to diversion. The program is currently implemented through a requirement for the use of trash tags with curbside set-out and punch cards at the RSWC. The County plans to optimize this PAYT program and revise the regulations to clarify issues associated with the definition of containerized material. Should the state impose a per ton disposal disincentive surcharge on all waste landfilled or combusted from New York State, as outlined in its current draft SWMP, a further financial incentive will be provided for residential and commercial generators to reduce their waste. Section 6.0 provides the milestones through the planning period that are anticipated to evaluate this task.

5.6.1. Collection

Many businesses and residents choose to have their trash picked up curbside or via a dumpster service. Generators of industrial waste also contract for trash hauling. Some local municipalities operate collection vehicles, while a few provide residential collection through a contract with a third-party hauler. Individuals who do not live in service areas with this option may also contract directly with a hauler for disposal. One opportunity to increase diversion is to reduce collection frequencies for trash, while retaining higher levels of service for recycling.

Trash collected from Tompkins County is primarily transferred to out-of-county landfills. Over the planning period, TCRMM will monitor regional capacity for disposal, and explore opportunities for collaboration should the opportunity arise. With its strong focus on investing in alternatives to disposal, the Department will continue to monitor and evaluate if other financially feasible alternatives to landfilling are viable for material generated in the county. A cost benefit analysis or carbon footprint analysis may further support evaluating future technologies as they arise.

5.6.2. Household Hazardous Waste

Funding for HHW collection is currently provided in part through a grant from the NYSDEC. Pending funding availability, the County intends to continue this strategy over the coming planning period. Additionally, should funds exist, TCRMM may explore

options in the future to hold mobile or satellite collection drop-off events in communities within its borders, to provide increasingly convenient service.

5.6.3. Closed Landfills

TCRMM will continue to oversee two closed landfills located within Tompkins County at a level that meets or exceeds NYSDEC requirements. New management tools and techniques will be evaluated as they develop, such as remote monitoring of leachate tank levels. The County is currently exploring opportunities to site solar panels on one of its closed landfills. Additional beneficial uses of these underutilized locations will be studied as interest and opportunities emerge.

5.6.4. Disaster Debris

Both natural and manmade disasters result in a wide variety of debris, such as yard waste, sediment, and C&D, as well as damaged vehicles and personal property. To avoid damage before it occurs, Tompkins County has developed a Hazard Mitigation Plan. Although prevention is the most effective strategy for managing disaster debris, it is recognized that not all disasters are preventable. While specific management practices will be outlined in a separate Debris Management Plan, it should be noted that debris management in Tompkins County is based on the following approach: reduction, reuse, reclamation, resource recovery, incineration, and landfilling. Where possible, municipal departments will collaborate with contractors to identify opportunities to recycle and reclaim resources from the debris before disposal in a regional landfill.

5.7. Local Laws and Enforcement Programs

Chapter 140, of the Tompkins County Code was adopted in 1992 and is comprised of four articles: Article I: Recycling; Article II: Tag System for Collection; Article III: Facilities; Licensing of Haulers; and Article IV: Disposal. These laws are designed to maintain public health and safety, environmental responsibility, and promote increased waste diversion. The local laws also offer the necessary framework to ensure that all stakeholders and operators within the solid waste system in Tompkins County follow the same guidelines, providing an equitable starting point for competition, while documenting information that is needed to ensure compliance.

The County has begun to identify areas in which its existing laws could be strengthened in order to more adequately ensure that waste is disposed of according to plan. During the next planning period, the County intends to conduct a review of its laws, as well as consult with outside sources, in order to ensure its local solid waste laws are up to date. As a first step, staff will ensure a thorough understanding of current and past practices relating to each law. Research will be conducted locally and in other communities to understand best practices and opportunities to enhance each law for compliance with NYS Part 360 regulations, while

maximizing waste diversion locally. As laws are revised, staffing needs will be evaluated to ensure adequate capacity to enforce updated rules and regulations.

Changes to the rules and regulations will be widely promoted through public outreach. As an effort to increase awareness and education about this strategy, TCRMM has the opportunity to increase publicity about mandatory recycling and its enforcement. Throughout the course of the planning period, TCRMM staff will seek out and evaluate opportunities to raise awareness about this issue.

5.7.1. Article I: Recycling

Article I, sometimes referred to informally as the mandatory recycling law, requires the local source separation of select materials for recycling, in accordance with the New York State Solid Waste Management Act of 1988. Through implementation and enforcement of this regulation for more than two decades, TCRMM staff have identified areas of the local law, rules, and regulations to be revised to increase relevance and clarity. By clarifying handling, collection, and transportation requirements and guidelines, staff plan to elaborate on the intent of the law, making mandatory recycling easier to enforce. Further, there is a need to review and possibly revise the current fine structures so that fees discourage non-compliance and revenues return to the TCRMM operating budget.

Over time, TCRMM has also increased its list of acceptable items, as recycling markets for materials have proven viable or expanded. For example, organics, a newly mandated material by New York State for larger covered commercial generators, may make sense to be included on a list moving forward. Revisions to the law will reflect the expansion of acceptable items. TCRMM also intends to clarify wording in the original documents that require source separation of materials to reflect the addition of single stream recycling.

5.7.2. Article II: Tag System for Collection

Trash tags are a requirement for collecting curbside containerized trash in Tompkins County and provide a pay as you throw incentive for users. The tag price for residents is directly tied to the trash tipping fee at the RSWC in order to highlight the cost of landfilling material and incentivize waste diversion and recycling at the residential level. The County will refer to past practices and feedback from haulers and constituents to update and improve trash tag regulations to clarify requirements and address emerging technologies.

5.7.3. Article III: Facilities; Licensing of Haulers

The County's licensing system for waste haulers has been effective in that it ensures two-way communication opportunities for TCRMM and licensed haulers as well as

participation in the PAYT system. The County regularly communicates with licensed haulers, holding periodic meetings and sharing updates, as well as a point of contact for haulers to communicate any concerns with. In addition, this communication ensures that haulers are aware of the regulations to which they are required to comply. This is one tool that supports the monitoring of compliance with the law, and the amount, characterization, and destination of materials hauled. Currently, MSW haulers are required to be licensed, though the County may benefit from expanding this requirement to other waste hauler types such as organics, C&D waste, and back-hauled retail wastes. Over the planning period, TCRMM will review this law and explore modifications that can address changes to improve enforcement and data collection.

5.7.4. Article IV: Disposal

The Disposal law prohibits illegal dumping of material. A Waste Reduction & Recycling Coordinator at TCRMM oversees this law and can work in conjunction with local law enforcement or the NYSDEC to address cases of illegal dumping. Investigations may include photographing the incident location, securing evidence and, in some cases, removing the material. Tompkins County may work with local municipalities, providing a waiver to have larger amounts of material removed, on a case-by-case basis. When evidence is secured, civil penalties are mailed. Often, warnings are issued rather than fines imposed.

There is an opportunity to revise and modernize the local law, including clear definitions (ex: illegal dumping, theft of service, littering, etc.), updating rules and regulations to clarify handling, collection, and transportation requirements, and refining or increasing the fee structure. These efforts might help further discourage this unwanted behavior. Training and procedures would be beneficial to the County Designee overseeing the laws concerning illegal dumping. This could include seeing cases through from start to finish, following up, and pursuing fines working with the County Attorney.

Opportunities also exist for additional education and outreach about illegal dumping. Education to promote increased diversion may help address root causes such as ignorance, apathy, and irresponsibility. Increasing fines that deter this behavior may also address these causes, further reducing illegal dumping.

5.8. Communications

TCRMM utilizes multiple channels of communication to share information that both educates and informs the public about the department's programs and services, news, events, and more. Channels of communication include, but are not limited to, the department website, newsletters, print materials, in-person engagement, email, phone, press releases, advertisements, social media, and radio.

The primary channel of communication is the TCRMM website, RecycleTompkins.org. All other channels of communication, including print materials, press releases, articles, social media posts, newsletters, etc., direct audiences back to the website and reiterate content found there. TCRMM communications staff will continue to improve the website, making it easy to navigate and creating clear, concise, accurate, audience appropriate content. A new menu item (Reduce & Reuse) will be added to the website's main menu bar and relevant content will be created as TCRMM focuses more on reuse and waste reduction in the coming 10 years.

5.8.0. Website

The website for the department contains information about existing programs and services. It also allows for residents to ask questions through "Contact Us", look up their recycling day in the "Find My Recycling Day" option, and search for information about disposal and recycling options by materials through the "What Do I Do With?" search function. All other channels of communication reference and link back to the website whenever possible.

5.8.1. Print Materials

Print materials with information about TCRMM programs and services are created by TCRMM communications staff (and contracted graphic designers) and shared at over 30 designated hubs throughout Tompkins County. Print materials include, but are not limited to, rack cards, magnets, stickers, the annual Curbside Recycling Guidelines Brochure, posters, quarter cards, and program or audience specific packets.

5.8.2. In-Person Engagement & Outreach

TCRMM staff have many opportunities to engage with the public throughout the year. Such opportunities include, but are not limited to, tours of the RSWC, community events, interactions with attendants at food scraps drop spots, HHW events, during presentations, at legislature meetings, and through interactions at the RMM Office and Scale House. In addition, in-person communication and engagement will take place through the ReBusiness Partners program as it relaunches in 2023.

TCRMM staff create interactive games to engage with the public at community events throughout Tompkins County. Staff participate in many community events in Tompkins County throughout the year which allows for direct engagement with residents, sharing of information about services and programs, and direct feedback from the community.

5.8.3. Social Media

TCRMM has an account on Facebook, Instagram, and Twitter. Communications staff will develop an annual social media schedule each year.

5.8.4. Advertisements

Advertisements are placed with local media outlets, encompassing print, digital, and radio, as needed throughout the year.

5.8.5. Newsletters

The department's newsletter, 4R Times, is published on a quarterly basis. In collaboration with staff, the Communications Coordinator and program coordinators choose relevant topics for and create the newsletter, which is shared in print, through GovDelivery, and on the department's website and social media channels. The previous ReBusiness Partners program newsletter will be redesigned and launched again on either a biannual or quarterly basis, and be shared through the same channels as the 4R Time newsletter. There are also plans to create an internally facing (within County offices) newsletter focused on EPP.

5.8.6. Press Releases

Press releases are written by the Communications Coordinator in collaboration with the Director, Deputy Director, and program staff. Press releases focus on current issues and programs and services offered by TCRMM. Press releases are shared with local media and on the website as well as social media channels.

5.8.7. Radio

On occasion, the TCRMM Director and staff are asked to participate in interviews to be aired on local radio stations. The department also creates program or service specific Public Service Announcements.

5.8.8. Reports

TCRMM produces an annual report and other reports as required by Tompkins County Legislature and NYDEC.

5.9. Data Collection and Evaluation Efforts

Several data collection and monitoring efforts are underway. Internally, the County monitors progress towards select goals through a Results Based Accounting (RBA) approach. Specific metrics are established to monitor progress on implementation of educational and outreach strategies, curbside recycling, RSWC transfer station volumes and recycling efforts, and food scraps recycling. TCRMM may elect to use the RBA process to monitor other budget programs at the direction of County Administration. Throughout the year, data is entered into a system to ensure progress towards goals and adjustments in programming are made accordingly.

The County has a recycling program, with many materials being mandatory to recycle. Trends in the marketplace, such as shifts to a paperless office, lack of clarity among residents about acceptable items, and non-compliance with recycling from commercial establishments are monitored regularly. While the County offers recycling options, the Facility Annual Report produced by the County consistently reports recycling percentages below what would be expected. It is the County's belief that this is due to the fact that reported recycling numbers are based solely on the materials that are handled through the County's solid waste management system. Large recyclables producers, such as private recyclables collection companies, may ship recyclable products directly to the end user for a profit, bypassing the intermediate recycling facilities. As a result, these materials are difficult to account for in the County's recycling reports.

TCRMM sends an annual recycling data survey to various generators throughout the county in order to compile a more complete set of recycling data. These surveys are used to help assess what materials could be available for use in new programs such as organics composting and C&D material recycling. The survey focuses on contacting the largest waste producers first. The groups of generators may include: retail businesses (groceries, restaurants, stores); industries; schools and institutions; libraries, jails and nursing homes; the public sector and special events. Survey recipients are 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 are contacted to determine how much material they receive from Tompkins County. This information is then compiled to help the County more accurately determine the actual recycling rate within the county, which recycling efforts are most effective, and which new recycling methods would be most prudent for the County to pursue. Through this process, data is also collected on materials that are reused and composted, where available. The enforcement of the hauler licensing and reporting component of the law assists in these efforts to obtain better data.

In addition to generator data, solid waste management facility data could be collected as well. For every facility/program that manages MSW, biosolids/sewage sludge, C&D debris, processed scrap metal, and/or industrial waste generated in Tompkins County, requested information could include information regarding capacity/expected life, service areas, and operating status.

For Planning Unit owned or contracted facilities/programs information would include:

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

5.10. Review of Available Technologies

Currently, a majority of the waste generated within the county is disposed of at solid waste landfill facilities. To evaluate alternative technologies, a brief research survey was developed by Barton & Loguidice, outlining findings for options such as waste-to-energy, pyrolysis, gasification, mixed municipal solid waste composting, mechanical/biological treatment, anaerobic digestion, in-vessel composting, chemical recycling, MRF technologies, fermentation, ethanol production, and industrial waste disposal. A summary of this overview can be found in Appendix H. Throughout the planning period, the County will stay up to date on alternative waste disposal technologies and if a technology presents itself that is promising, the County will further evaluate it.

Based on the technologies reviewed and the proposed actions for waste reduction, reuse, recycling, and rethinking; and if all viable technologies are used to reduce, reuse, recycle, and prevent waste generation, landfilling of waste outside of the county will continue. Tompkins County will continue to focus its investments on diverting waste before it is generated, as a means to minimize the need for landfilling material. Should any of the other technologies discussed in Appendix H be pursued in the future, further analysis and a separate environmental review process would be required to analyze the benefits and impacts of these technologies. In addition, should any of the other technologies discussed above be implemented, it is imperative that long term waste commitments be in place to undertake a full scale program within Tompkins County. Tompkins County does not propose evaluating the feasibility of these other alternative waste disposal options any further during the 10 year planning period; however, Tompkins County does acknowledge that they are available and will keep abreast of their further development. Changes to regional landfill disposal capacity may also impact the viability of potentials options. If advances in the above technologies occur, the County will reassess these opportunities during the next planning period.

6.0 IMPLEMENTATION SCHEDULE

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

7.0 WASTE STREAM PROJECTIONS

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

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

7.1. Anticipated Changes to the Local Planning Unit

Tompkins County has experienced a relatively consistent population increase over the past five decades. U.S. Census data reveals that Tompkins County's population steadily increased from 77,106 in 1970 to 101,564 in 2010. In the 2020 Census, the population was reported as 105,740 persons. The largest estimated municipal population change between 2010 and 2015 occurred in the Town of Danby, which experienced an estimated population growth of 6.3% during that period, due to its low initial population. The Town of Caroline also experienced a large population growth at an estimated 5.0% gain. Overall, the county has been experiencing a consistent increase in population totaling a gain of 3.3% between 2010 and 2015.

Baseline population projections reflecting these historical trends have been developed and analyzed by Cornell University's Program of Applied Demographics, an affiliate of the U.S. Census Research Data Center network. Tompkins County's population projections indicate a decrease in the county's total population from its present level to 100,893 in 2030. After 2030, Tompkins County's population projections indicate a decrease in the county's total population to 98,606 in 2040.[30] The baseline population projections noted are not forecasts of future population size; they simply project population levels that would be expected if current life expectancy, birth, and net migration rates continue unchanged in future years.

7.2. Anticipated Changes to the Waste Stream

Over the course of the previous planning period, changes to the waste stream have occurred nationally, which includes local trends in Tompkins County as well. Consumers have moved towards a throw-away society where one-time use products and convenience are preferred instead of environmental concerns. Consumer products are quickly replaced with newer models or better versions. Household items including thermostats, electronics, and batteries contain harmful chemicals such as mercury, Freon, and heavy metals. Proper disposal and diversion are

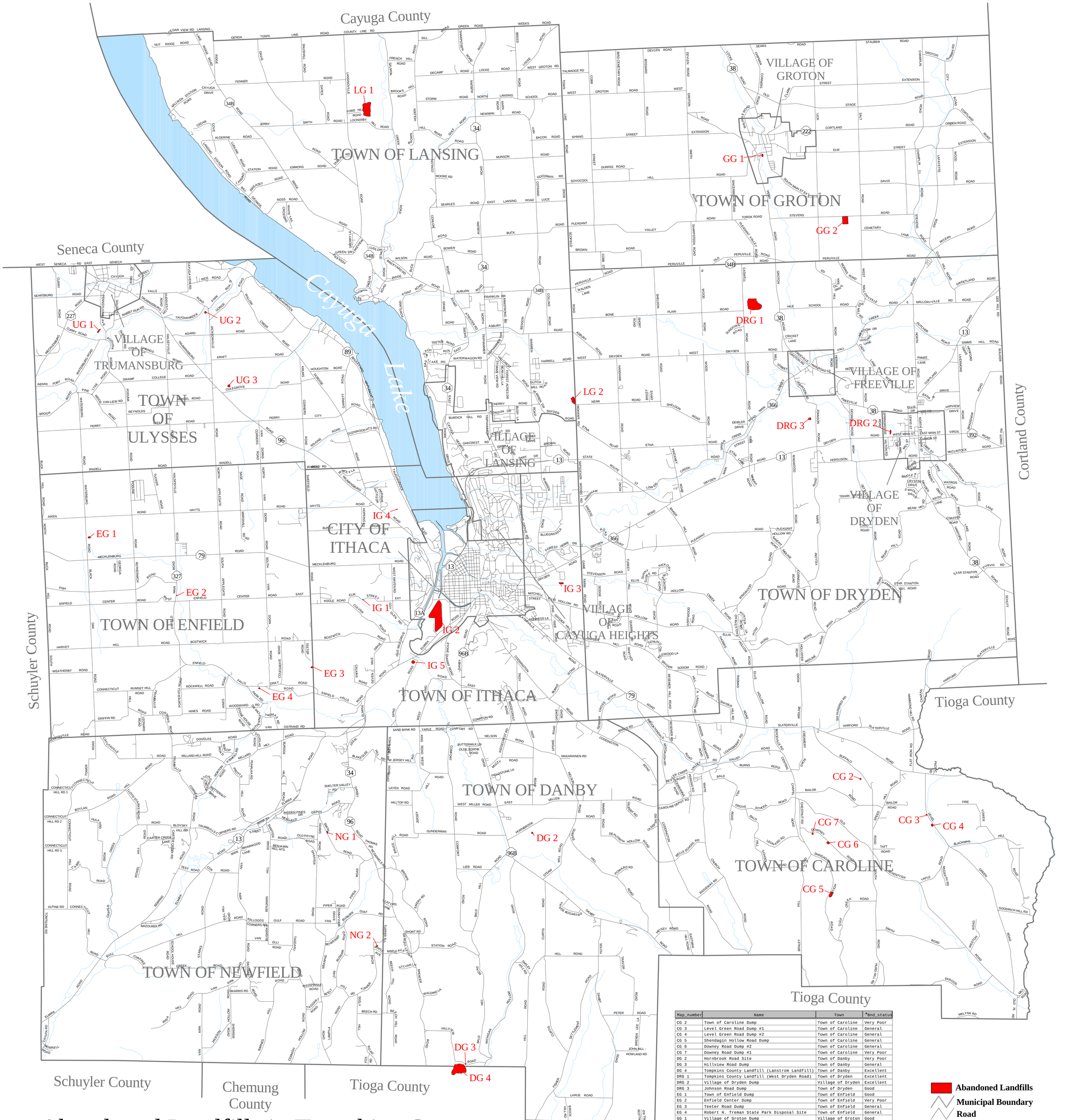
[30] https://pad.human.cornell.edu/profiles/Tompkins.pdf

key aspects of solid waste management today. Education is an integral component to changing materials management practices nationally, as well as locally.

Based on the declining population projection trends referenced in Section 7.1, it is the opinion of the County that the amount of waste produced within its borders will parallel the population's projected downward trend. It is also anticipated that with the implementation of this Plan, more data will be collected to inform potential waste diversion programs that can be made available to the community. This, in addition to better data capture for private facilities, should increase the County's waste diversion percentage. Section 5.0 describes the various programs that will be made available to county residents and how these tasks and goals will be implemented.

Appendix A

Resource Maps



Abandoned Landfills in Tompkins County

January 2000

Prepared by the Tompkins County Planning Department in cooperation with the Tompkins County Health Department

This map depicts the location of 30 abandoned landfills in Tompkins County. Health department records and a variety of GIS data sets (roads, contours, tax parcels and digital aerial photographs) were used to delineate abandoned landfill boundaries. The accuracy of the boundary lines vary among the 30 sites depending on the historic information available and whether or not the site is visible on the 1995 digital aerial photographs. In order to ensure the appropriate use of this data, users are required to review the bnd_status field in the related table to assess the relative accuracy of a particular abandoned landfill boundary. Additional information about each site is provided in the related database including: a unique Map Number, a Common Name, the name of the Town within which the site is located, the timeframe during which the abandoned landfill operated, whether the site is exposed or covered, whether the site is visible on 1995 digital aerial photographs, Additional Comments and Acreage. For further information about the Abandoned Landfills GIS data set see the metadata record.

The standard geo-referecing format for Tompkins County digital spatial data is New York Plane Central Coordinate grid system, based on the 1983 North American Datum and GRS80 Spheroid.

Map_number	Name	Town	*Bnd_status
CG 2	Town of Caroline Dump	Town of Caroline	Very Poor
CG 3	Level Green Road Dump #1	Town of Caroline	General
CG 4	Level Green Road Dump #2	Town of Caroline	General
CG 5	Shendagin Hollow Road Dump	Town of Caroline	General
CG 6	Downey Road Dump #2	Town of Caroline	General
CG 7	Downey Road Dump #1	Town of Caroline	Very Poor
DG 2	Hornbrook Road Site	Town of Danby	Very Poor
DG 3	Hillview Road Dump	Town of Danby	General
DG 4	Tompkins County Landfill (Lanstrom Landfill)	Town of Danby	Excellent
DRG 1	Tompkins County Landfill (West Dryden Road)	Town of Dryden	Excellent
DRG 2	Village of Dryden Dump	Village of Dryden	Excellent
DRG 3	Johnson Road Dump	Town of Dryden	Good
EG 1	Town of Enfield Dump	Town of Enfield	Good
EG 2	Enfield Center Dump	Town of Enfield	Very Poor
EG 3	Teeter Road Dump	Town of Enfield	General
EG 4	Robert H. Treman State Park Disposal Site	Town of Enfield	General
GG 1	Village of Groton Dump	Village of Groton	Good
GG 2	Stevens Road Dump	Town of Groton	Good
IG 1	Elm Street Extension Dump	Town of Ithaca	General
IG 2	City of Ithaca Dump	City of Ithaca	Good
IG 3	Cornell Dump	Town of Ithaca	General
IG 4	Odd Fellows Dump Site	Town of Ithaca	General
IG 5	Buttermilk Falls State Park Disposal Site	Town of Ithaca	General
LG 1	Ford Hill Road Dump	Town of Lansing	Good
LG 2	Collins Dump	Town of Lansing	Good
NG 1	Newfield Town Dump	Town of Newfield	Good
NG 2	Tupper Road Site	Town of Newfield	Very Poor
UG 1	Village of T-Burg/Town of Ulysses Dump	Town of Ulysses	Good
UG 2	Taughannock State Park Land Dump	Town of Ulysses	General
UG 3	Town of Ulysses Dump	Town of Ulysses	Good

* See the Entity and Attribute Information section in the Abandoned Landfills metadata record for a detailed description of bnd_status classes.

Abandoned Landfills
Municipal Boundary
Road
Major Creek

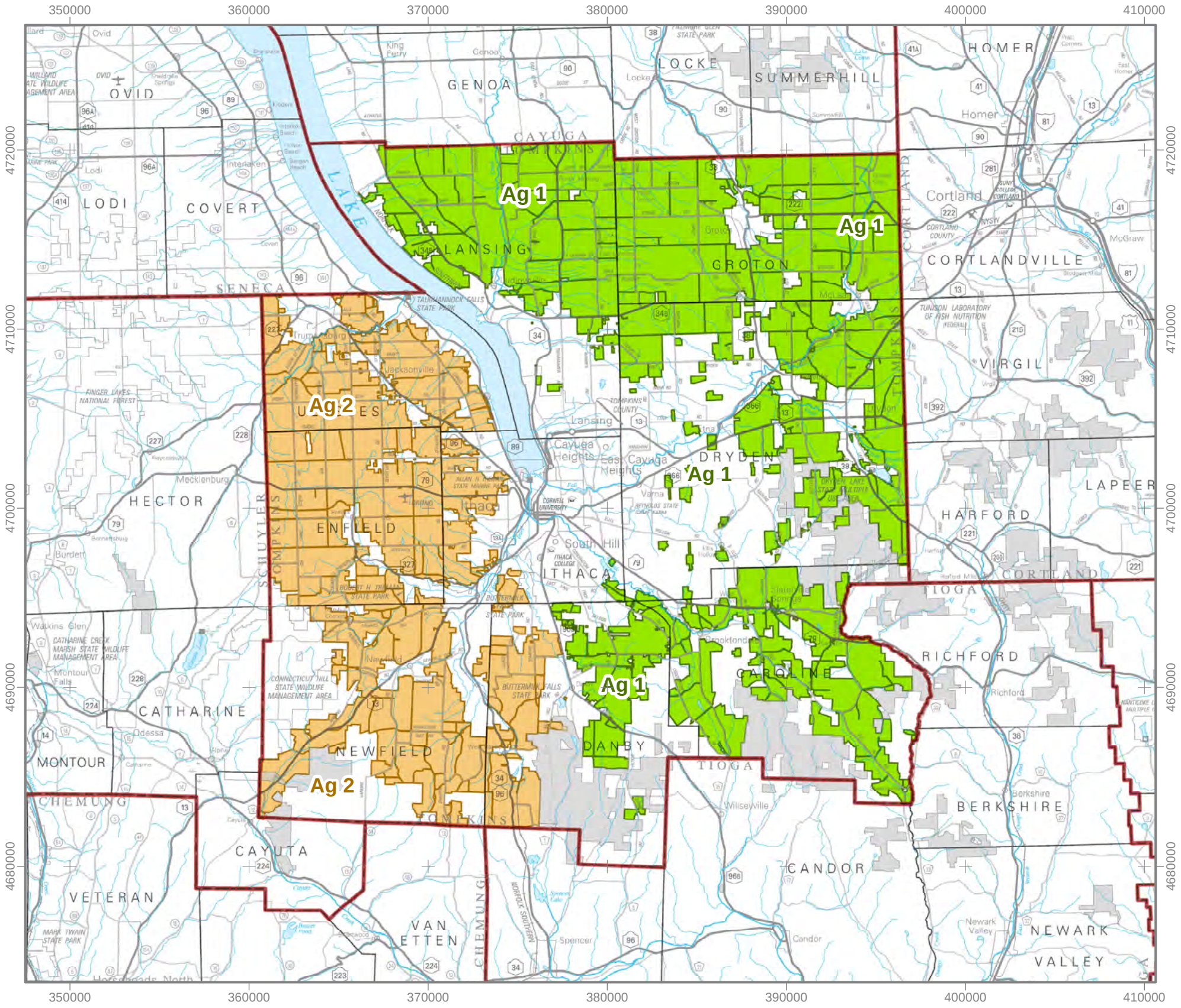
N
W E
S

1:48000
1 0 1 Miles

New York State Dept of Agriculture and Markets

TOMPKINS COUNTY

Agricultural Districts 2021



MAP PROJECTION
UTM Zone 18, NAD83 meters

5 4 3 2 1 0 5 miles

10,000 5,000 0 10,000 meters

Tompkins County

Ag. District 1

Ag. District 2

DISTRICT CERTIFICATIONS and TOWNS

DISTRICT 1
CERTIFIED 8/5/2020

Caroline
Danby
Dryden
Groton
Ithaca
Lansing

DISTRICT 2
CERTIFIED 3/28/2017

Danby
Enfield
Ithaca
Newfield
Ulysses

MAP SOURCE INFORMATION

Map created at Cornell IRIS (Institute for Resource Information Sciences) <http://iris.cals.cornell.edu> for the NYS Department of Agriculture and Markets <https://www.agriculture.ny.gov>

Base Map: state250_bw.tif 1998
Scale: 1:250,000; County boundaries imported from the file nyshore.e00 from the NYSGIS Clearinghouse website: <http://gis.ny.gov>

Agricultural Districts boundary data is available at CUGIR (Cornell University Geospatial Information Repository) website: <http://cugir.library.cornell.edu>

DISCLAIMER
This is a general reference to Agricultural District boundaries; not a legal substitute for actual tax parcel information.

Boundaries as certified prior to January 2021

Open Enrollment Annual Inclusions added after the certification date are not included in this data. Check with county agencies to confirm the status of individual parcels.

Tompkins County
Municipalities and Roads

North

1 0.5 0 1 2 3 4 5 Miles

1 0 1 2 3 4 5 Kilometers

1:75,000 One Inch represents 6250 Feet
when printed on ARCH D 24 x 36

NY State Plane, Central GRS 80 Datum
Roads are from the 1991 Tompkins County Digital Planimetric Map/ITCTC
Municipal Boundaries are from the Tompkins County Digital Tax Parcel Maps

Tompkins County
Information Technology Services
GIS Division
S. Borovska

Legend

- State Highways
- County Roads
- Local Roads
- Unpaved Roads
- Municipalities
- Lakes & Streams

Muni_Roads.mxd
January 2007

TOMPKINS COUNTY

General School Districts

N

New York State Plane Central
1983 NAD

Roads are from 1991 Tompkins Coounty Digital Planimetric Map, Survey Maps, and Aerial Imagery.

School Districts are from the TC Digital Tax Parcel Maps and NYS ORPS.

1:75,000

1 0.5 0 1 2 3 Miles

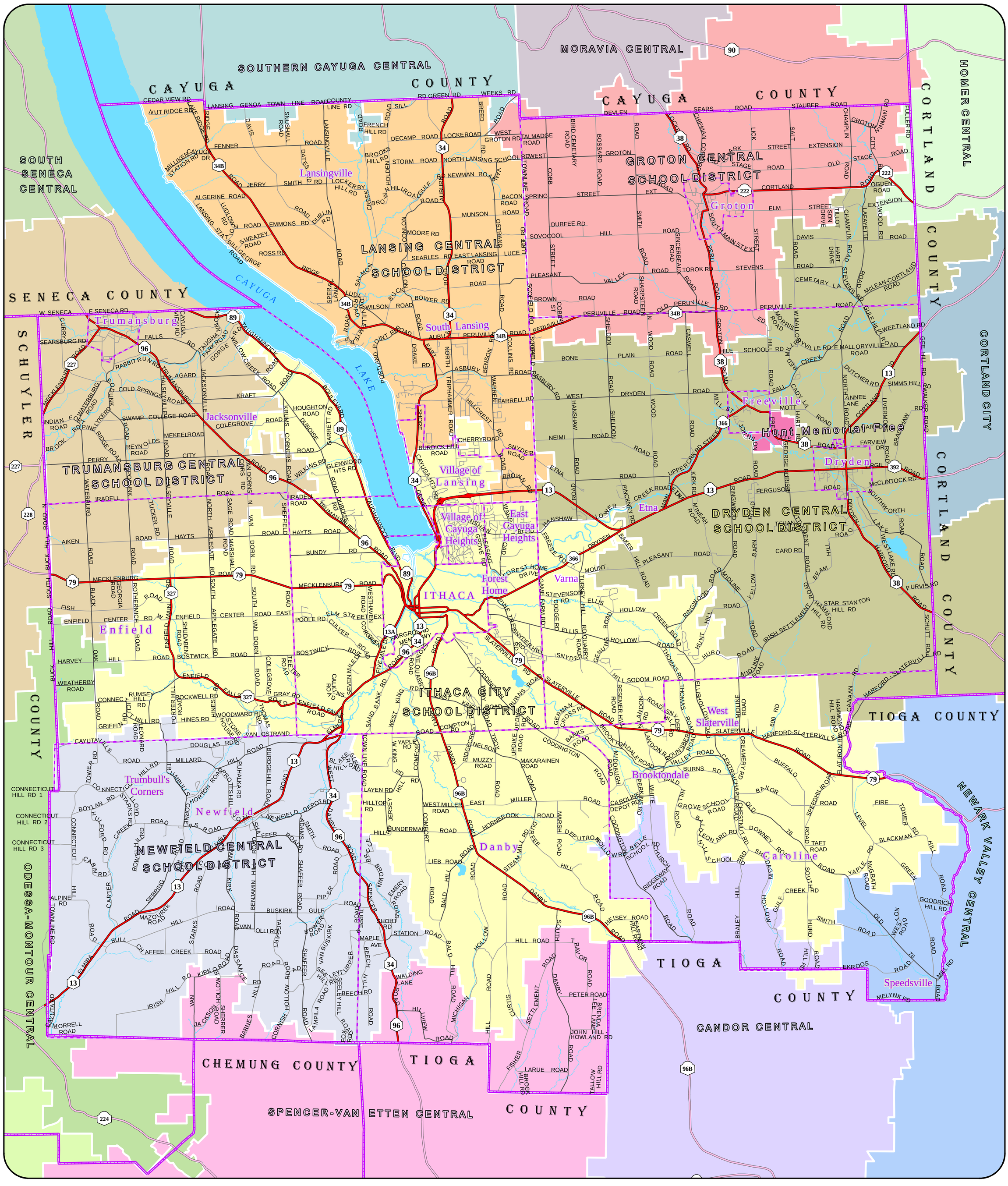
1 inch equals 1.2 miles when printed on ARCH D 24 x 36

Tompkins County
Information Technology Services
GIS Division
www.tompkins-co.org/gis

Legend

- County Boundary
- Municipal Boundaries
- State Highways
- County Roads
- Local Roads
- Lakes & Streams

SchoolDistMap_24_36.mxd
S. Borovska 09/09/2006



Appendix B

Detailed Waste Composition Spreadsheets

Appendix B.1

Municipal Solid Waste
Combined Composition Analysis and Projections

Step 1. Planning Unit and Plan Period Selection

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

Planning Unit	Tompkins County
Planning Period	2023-2032

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.

Tompkins County

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

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

Enter tons disposed here: 58,072.62

Enter tons diverted here: 34,680.64

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:

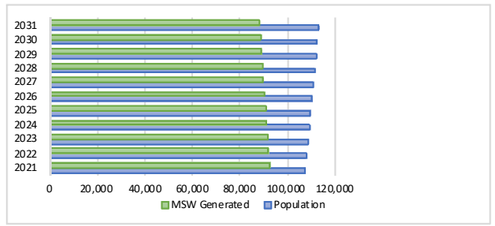
As a result of successfully implementing the Local Solid Waste Management Plan, MSW generation will be reduced by an annual factor of ...
An Annual Factor of Reduction (%) should be calculated, defined, and selected by the planning unit. This factor will be the numerical representation of one of the 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

Tompkins County 2023-2032

Current Data	
2010 Population Census	101,564
2021 Population	107,527
2021 MSW Generated (Tons/yr)	92,753
2021 MSW generation rate (Lb/person/day)	2.96
2021 MSW Disposed (Tons/yr)	58,073
2021 MSW Diverted (Tons/yr)	34,681



Annual rate of population growth (%)	0.52%

Population Projection

2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
107,527	108,086	108,648	109,213	109,781	110,352	110,926	111,502	112,082	112,665	113,251	113,840

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

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

Reduction Factor (per year) 1.0%

MSW generation rate (Lb/person/day)	4.72

MSW Generation Projection

2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	
4.72	4.67	4.62	4.58	4.53	4.49	4.44	4.40	4.35	4.31	4.27	4.22	(Lb/person/day)
92,593	92,144	91,697	91,252	90,809	90,369	89,930	89,494	89,060	88,627	88,197	87,770	Tons/yr

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

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

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

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

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

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

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

Tompkins County 2023-2032

Density Population Distribution		Rural			Suburban			Urban			MSW Materials Composition (%)
		42.76%			27.68%			29.56%			
		Residential	Comm/Inst.	Combined	Residential	Comm/Inst.	Combined	Residential	Comm/Inst.	Combined	
		58.00%	42.00%	100.00%	55.00%	45.00%	100.00%	58.00%	42.00%	100.00%	100.00%
Material	Newspaper	5.20%	1.90%	3.81%	5.00%	1.90%	3.61%	6.60%	2.00%	4.67%	4.01%
	Corrugated Cardboard	6.60%	13.90%	9.67%	6.60%	13.90%	9.89%	6.90%	13.70%	9.76%	9.75%
	Other Recyclable Paper – Paperboard	3.20%	1.10%	2.32%	3.30%	1.00%	2.27%	3.60%	0.90%	2.47%	2.35%
	Other Recyclable Paper – Office Paper	0.80%	3.80%	2.06%	0.90%	4.20%	2.39%	1.10%	5.80%	3.07%	2.45%
	Other Recyclable Paper – Junk Mail	3.00%	0.70%	2.03%	3.20%	0.70%	2.08%	3.50%	0.70%	2.32%	2.13%
	Other Recyclable Paper – Other Commercial Printing	1.70%	2.30%	1.95%	1.70%	2.40%	2.02%	2.30%	2.60%	2.43%	2.11%
	Other Recyclable Paper – Magazines	1.10%	0.90%	1.02%	1.00%	0.80%	0.91%	1.10%	1.00%	1.06%	1.00%
	Other Recyclable Paper – Books	0.50%	0.30%	0.42%	0.50%	0.30%	0.41%	0.60%	0.40%	0.52%	0.44%
	Other Recyclable Paper – Paper Bags	0.50%	0.20%	0.37%	0.50%	0.20%	0.37%	0.60%	0.20%	0.43%	0.39%
	Other Recyclable Paper – Phone Books	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.20%	0.26%	0.29%
	Other Recyclable Paper – Poly-Coated	0.20%	0.30%	0.24%	0.20%	0.20%	0.20%	0.30%	0.20%	0.26%	0.24%
	Other Recyclable Paper (Total)	11.30%	9.90%	10.71%	11.60%	10.10%	10.93%	13.40%	12.00%	12.81%	11.39%
	Other Compostable Paper	6.80%	6.80%	6.80%	6.40%	6.40%	6.40%	6.80%	6.80%	6.80%	6.69%
	Total Paper	*29.90%*	*32.50%*	*30.99%*	*29.60%*	*32.30%*	*30.82%*	*33.70%*	*34.50%*	*34.04%*	*31.84%*
	Ferrous/Aluminum Containers – Ferrous Containers	1.90%	1.00%	1.52%	1.20%	0.70%	0.98%	1.40%	0.70%	1.11%	1.25%
	Ferrous/Aluminum Containers – Aluminum Containers	0.70%	0.40%	0.57%	0.60%	0.30%	0.47%	0.50%	0.40%	0.46%	0.51%
	Ferrous/Aluminum Containers (Total)	2.60%	1.40%	2.10%	1.80%	1.00%	1.44%	1.90%	1.10%	1.56%	1.76%
	Other Ferrous Metals	5.20%	5.40%	5.28%	5.00%	5.80%	5.36%	3.30%	3.70%	3.47%	4.77%
	Other Non-Ferrous Metals – Other aluminum	0.20%	0.30%	0.24%	0.20%	0.30%	0.25%	0.20%	0.30%	0.24%	0.24%
	Other Non-Ferrous Metals – Automotive batteries	0.80%	0.50%	0.67%	0.70%	0.40%	0.57%	0.20%	0.20%	0.20%	0.50%
	Other Non-Ferrous Metals – Other non-aluminum	0.50%	0.30%	0.42%	0.30%	0.40%	0.35%	0.40%	0.20%	0.32%	0.37%
	Other Non-Ferrous Metals (Total)	1.50%	1.10%	1.33%	1.20%	1.10%	1.16%	0.80%	0.70%	0.76%	1.11%
	Total Metals	*9.30%*	*7.90%*	*8.71%*	*8.00%*	*7.90%*	*7.96%*	*6.00%*	*5.50%*	*5.79%*	*7.64%*
	PET Containers	1.10%	0.80%	0.97%	0.90%	0.80%	0.86%	1.20%	1.00%	1.12%	0.98%
	HDPE Containers	1.10%	0.60%	0.89%	0.90%	0.70%	0.81%	1.00%	0.70%	0.87%	0.86%
	Other Plastic (3-7) Containers	0.20%	0.10%	0.16%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.18%
	Film Plastic	5.70%	5.90%	5.78%	5.50%	5.80%	5.64%	5.80%	5.80%	5.80%	5.75%
	Other Plastic – Durables	3.10%	3.20%	3.14%	3.00%	3.20%	3.09%	3.20%	3.30%	3.24%	3.16%
	Other Plastic – Non-Durables	1.60%	1.80%	1.68%	1.60%	1.80%	1.69%	1.80%	1.90%	1.84%	1.73%
	Other Plastic – Packaging	1.40%	1.10%	1.27%	1.40%	1.10%	1.27%	1.50%	1.10%	1.33%	1.29%
	Other Plastic (Total)	6.10%	6.10%	6.10%	6.00%	6.10%	6.05%	6.50%	6.30%	6.42%	6.18%
	Total Plastics	*14.20%*	*13.50%*	*13.91%*	*13.50%*	*13.60%*	*13.55%*	*14.70%*	*14.00%*	*14.41%*	*13.95%*
	Glass Bottles, Jars and Containers	4.10%	3.80%	3.97%	3.90%	3.80%	3.86%	4.30%	3.80%	4.09%	3.98%
	Other Glass (Flat glass, dishware, light bulbs, etc.)	0.50%	0.40%	0.46%	0.30%	0.40%	0.35%	0.40%	0.40%	0.40%	0.41%
	Total Glass	*4.60%*	*4.20%*	*4.43%*	*4.20%*	*4.20%*	*4.20%*	*4.70%*	*4.20%*	*4.49%*	*4.38%*
	Food Scraps	12.70%	13.30%	12.95%	12.90%	15.50%	14.07%	17.20%	25.20%	20.56%	15.51%
	Leaves and Grass / Pruning and Trimmings	3.10%	1.10%	2.26%	11.30%	9.10%	10.31%	4.20%	1.50%	3.07%	4.73%
	Total Organics	*15.80%*	*14.40%*	*15.21%*	*24.20%*	*24.60%*	*24.38%*	*21.40%*	*26.70%*	*23.63%*	*20.24%*
	Clothing Footwear, Towels, Sheets	4.60%	3.00%	3.93%	4.40%	3.20%	3.86%	4.80%	2.50%	3.83%	3.88%
	Carpet	1.40%	1.30%	1.36%	1.70%	1.40%	1.57%	1.70%	0.90%	1.36%	1.42%
	Total Textiles	*6.00%*	*4.30%*	*5.29%*	*6.10%*	*4.60%*	*5.43%*	*6.50%*	*3.40%*	*5.20%*	*5.30%*
	Total Wood (Pallets, crates, adulterated and non-adulterated wood)	*4.10%*	*9.00%*	*6.16%*	*2.90%*	*4.10%*	*3.44%*	*2.00%*	*3.50%*	*2.63%*	*4.36%*
	DIY - Construction & Renovation Materials	8.00%	7.60%	7.83%	3.80%	2.70%	3.31%	4.40%	3.80%	4.15%	5.49%
	Diapers	1.90%	1.10%	1.56%	2.10%	1.20%	1.70%	2.30%	1.10%	1.80%	1.67%
	Electronics	1.30%	1.40%	1.34%	1.60%	1.70%	1.65%	1.30%	1.30%	1.30%	1.41%
	Tires	1.80%	1.80%	1.80%	1.70%	1.40%	1.57%	0.50%	0.40%	0.46%	1.34%
	HHW	0.60%	0.00%	0.35%	0.60%	0.00%	0.33%	0.50%	0.00%	0.29%	0.33%
	Soils and Fines	0.60%	0.60%	0.60%	0.10%	0.20%	0.15%	0.10%	0.10%	0.10%	0.33%
	Other Composite Materials - Durable and/or Inert	1.90%	1.70%	1.82%	1.60%	1.50%	1.56%	1.90%	1.50%	1.73%	1.72%
	Total Miscellaneous	*16.10%*	*14.20%*	*15.30%*	*11.50%*	*8.70%*	*10.24%*	*11.00%*	*8.20%*	*9.82%*	*12.28%*
	Total	*100.00%*	*100.00%*	*100.00%*	*100.00%*	*100.00%*	*100.00%*	*100.00%*	*100.00%*	*100.00%*	*100.00%*

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

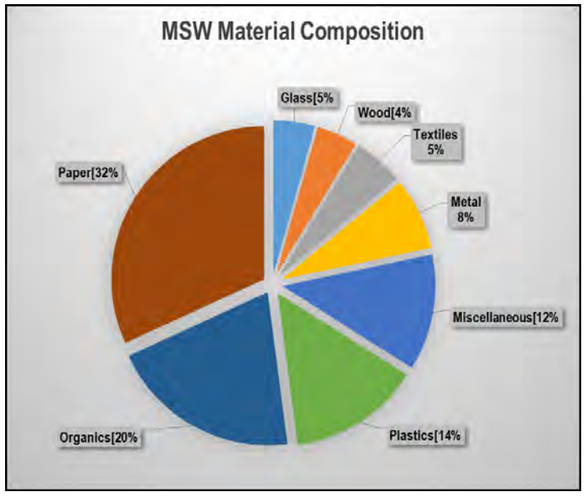
On this tab, the composition of the municipal waste stream will be estimated based on the amount of material generated in the planning unit and the state average of the different waste materials. A pie chart will be generated to clearly show the composition of the waste stream and to identify key categories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

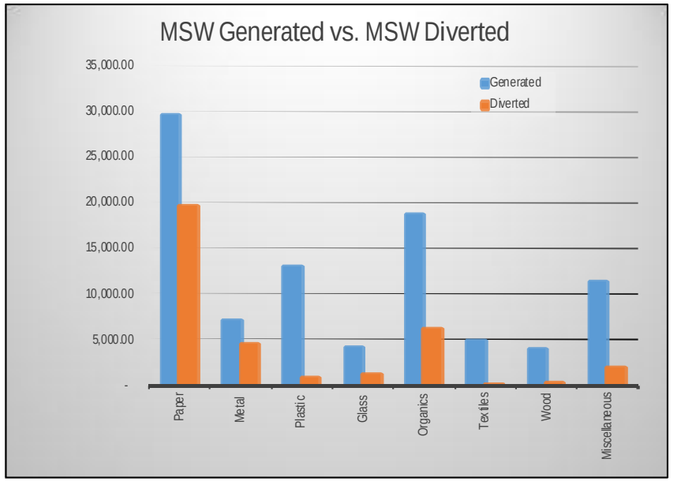
The total tons of MSW diverted per year will be auto populated based on previous data inputs, while the amount tons diverted for each material by category should be populated by the user. Purple cells should be used for amounts of diverted waste by type of material, and a totaled number by category (e.g.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

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

Tompkins County 2023-2032

		2021		
		MSW Materials Composition (%)	MSW Generated (Tons)	MSW Diverted (Tons)
	Material	100.0%	92,753	34,680.64
Paper	Newspaper	4.0%	3,718	2,760.36
	Corrugated Cardboard	9.8%	9,046	7,046.14
	Other Recyclable Paper (Total)	11.4%	10,566	9,888.90
	Other Compostable Paper	6.7%	6,205	0.00
	Total Paper	31.8%	29,535	19,695.40
Metal	Ferrous/Aluminum Containers (Total)	1.8%	1,630	313.36
	Other Ferrous Metals	4.8%	4,423	4,109.45
	Other Non-Ferrous Metals (Total)	1.1%	1,033	11.61
	Total Metals	7.6%	7,085	4,434.42
Plastic	PET Containers	1.0%	912	336.57
	HDPE Containers	0.9%	801	324.97
	Other Plastic (3-7) Containers	0.2%	169	82.97
	Film Plastic	5.7%	5,331	87.10
	Other Plastic (Total)	6.2%	5,730	0.00
	Total Plastics	14.0%	12,943	831.61
Glass	Glass Bottles, Jars and Containers	4.0%	3,687	1,160.60
	Other Glass (Flat glass, dishware, light bulbs, etc.)	0.4%	380	0.00
	Total Glass	4.4%	4,067	1,160.60
Organics	Food Scraps	15.5%	14,386	3,600.79
	Leaves and Grass / Pruning and Trimmings	4.7%	4,384	2,627.85
	Total Organics	20.2%	18,770	6,228.64
Textiles	Clothing Footwear, Towels, Sheets	3.9%	3,600	127.66
	Carpet	1.4%	1,314	0.00
	Total Textiles	5.3%	4,914	127.66
Wood	*Total Wood* (Pallets, crates, adulterated and non-adulterated wood)	4.4%	4,047	296.00
Miscellaneous	DIY Construction & Renovation Materials	5.5%	5,092	0.00
	Diapers	1.7%	1,548	0.00
	Electronics	1.4%	1,311	356.45
	Tires	1.3%	1,241	512.81
	HHW	0.3%	302	75.12
	Soils and Fines	0.3%	303	0.00
	Other Composite Materials - Durable and/or inert	1.7%	1,594	961.93
	Total Miscellaneous	12.3%	11,392	1,906.31
	Total	100.0%	92,753	34,680.64





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.

Tompkins County 2023-2032

Year	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Projected MSW Generation (Tons/yr)	92,144	91,697	91,252	90,809	90,369	89,930	89,494	89,060	88,627	88,197	87,770
MSW Diverted (Tons/yr)	36,964	38,487	40,169	43,150	44,988	47,421	49,860	52,917	55,444	57,828	61,915

			2021			2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
		MSW Materials Composition (%)	MSW Generated (Tons)	MSW Diverted (Tons)	% MSW Diverted	% MSW Diverted	% MSW Diverted	% MSW Diverted	% MSW Diverted	% MSW Diverted	% MSW Diverted	% MSW Diverted	% MSW Diverted	% MSW Diverted	% MSW Diverted	% MSW Diverted
	Material	100.0%	92,753	34,681	37.4%	40.1%	42.0%	44.0%	47.5%	49.8%	52.7%	55.7%	59.4%	62.6%	65.6%	70.5%
Paper	Newspaper	4.0%	3,718	2,760	74.2%	75.2%	76.2%	77.2%	78.2%	79.2%	80.2%	81.2%	82.2%	83.2%	84.2%	85.2%
	Corrugated Cardboard	9.8%	9,046	7,046	77.9%	77.9%	77.9%	77.9%	77.9%	77.9%	77.9%	77.9%	79.9%	81.9%	83.9%	85.9%
	Other Recyclable Paper (Total)	11.4%	10,566	9,889	93.6%	93.6%	93.6%	93.6%	93.6%	93.6%	93.6%	93.6%	93.6%	93.6%	93.6%	93.6%
	Other Compostable Paper	6.7%	6,205	0	0.0%	5.0%	10.0%	16.0%	22.0%	28.0%	34.0%	40.0%	45.0%	50.0%	55.0%	60.0%
	Total Paper	31.8%	29,535	19,695	66.7%	67.9%	69.0%	70.4%	71.8%	73.2%	74.6%	76.0%	77.8%	79.5%	81.3%	83.1%
Metal	Ferrous/Aluminum Containers (Total)	1.8%	1,630	313	19.2%	21.7%	24.2%	26.7%	29.2%	31.7%	38.2%	44.7%	51.2%	57.7%	64.2%	70.7%
	Other Ferrous Metals	4.8%	4,423	4,109	92.9%	92.9%	92.9%	92.9%	92.9%	92.9%	92.9%	92.9%	92.9%	92.9%	92.9%	92.9%
	Other Non-Ferrous Metals (Total)	1.1%	1,033	12	1.1%	5.2%	10.2%	16.2%	22.2%	28.2%	34.2%	40.2%	45.2%	50.2%	55.2%	60.2%
	Total Metals	7.6%	7,085	4,434	62.6%	63.7%	65.1%	66.6%	68.1%	69.6%	72.0%	74.4%	76.7%	78.9%	81.1%	83.0%
Plastic	PET Containers	1.0%	912	337	36.9%	36.9%	36.9%	36.9%	36.9%	39.9%	43.9%	50.9%	57.9%	64.9%	71.9%	78.9%
	HDPE Containers	0.9%	801	325	40.6%	41.6%	42.6%	43.6%	44.6%	45.6%	49.6%	56.6%	63.6%	70.6%	77.6%	84.6%
	Other Plastic (3-7) Containers	0.2%	169	83	49.1%	49.6%	50.1%	50.6%	51.1%	51.6%	58.6%	63.1%	67.6%	72.1%	76.6%	81.1%
	Film Plastic	5.7%	5,331	87	1.6%	7.3%	13.3%	19.3%	25.3%	31.3%	41.3%	47.3%	53.3%	60.3%	67.3%	74.3%
	Other Plastic (Total)	6.2%	5,730	0	0.0%	3.0%	6.0%	9.0%	12.0%	15.0%	18.0%	21.0%	24.0%	27.0%	30.0%	33.0%
	Total Plastics	14.0%	12,943	832	6.4%	10.2%	14.0%	17.9%	21.8%	25.9%	31.9%	36.7%	41.5%	46.7%	51.9%	57.1%
Glass	Glass Bottles, Jars and Containers	4.0%	3,687	1,161	31.5%	32.5%	33.5%	34.5%	35.5%	36.5%	44.5%	52.5%	60.5%	68.5%	75.5%	80.5%
	Other Glass (Flat glass, dishware, light bulbs, etc.)	0.4%	380	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%
	Total Glass	4.4%	4,067	1,161	28.5%	29.5%	30.5%	31.5%	32.5%	33.5%	40.9%	48.2%	55.6%	62.9%	69.4%	74.0%
Organics	Food Scraps	15.5%	14,386	3,601	25.0%	25.6%	26.2%	27.4%	35.5%	37.3%	39.0%	40.7%	46.0%	47.6%	49.2%	50.8%
	Leaves and Grass / Pruning and Trimmings	4.7%	4,384	2,628	59.9%	79.0%	79.0%	79.0%	86.0%	88.0%	90.0%	92.0%	95.0%	97.0%	97.0%	97.5%
	Total Organics	20.2%	18,770	6,229	33.2%	38.1%	38.6%	39.5%	47.3%	49.2%	50.9%	52.7%	57.5%	59.2%	60.4%	61.7%
Textiles	Clothing Footwear, Towels, Sheets	3.9%	3,600	128	3.5%	8.5%	13.5%	18.5%	23.5%	28.5%	33.5%	38.5%	43.5%	48.5%	53.5%	58.5%
	Carpet	1.4%	1,314	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.0%	10.0%	15.0%	20.0%	30.0%
	Total Textiles	5.3%	4,914	128	2.6%	6.3%	9.9%	13.6%	17.2%	20.9%	24.6%	29.6%	34.6%	39.6%	44.6%	50.9%
Wood	*Total Wood* (Pallets, crates, adulterated and non-adulterated wood)	4.4%	4,047	296	7.3%	8.3%	9.3%	10.3%	12.3%	14.3%	17.3%	22.3%	27.3%	32.3%	37.3%	42.3%
Miscellaneous	DIY Construction & Renovation Materials	5.5%	5,092	0	0.0%	4.0%	8.0%	12.0%	16.0%	20.0%	24.5%	30.0%	35.5%	41.0%	46.5%	52.0%
	Diapers	1.7%	1,548	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%
	Electronics	1.4%	1,311	356	27.2%	33.0%	39.0%	45.0%	51.0%	56.0%	61.0%	66.0%	71.0%	76.0%	81.0%	86.0%
	Tires	1.3%	1,241	513	41.3%	47.3%	53.3%	59.3%	64.3%	69.3%	74.3%	79.3%	84.3%	89.3%	94.3%	99.3%
	HHW	0.3%	302	75	24.9%	34.9%	44.9%	54.9%	64.9%	69.9%	74.9%	79.9%	84.9%	89.9%	94.9%	99.9%
	Soils and Fines	0.3%	303	0	0.0%	10.0%	20.0%	30.0%	40.0%	45.0%	50.0%	55.0%	60.0%	65.0%	70.0%	75.0%
	Other Composite Materials - Durable and/or inert	1.7%	1,594	962	60.3%	61.2%	62.2%	63.2%	65.2%	67.2%	69.2%	71.2%	73.2%	75.2%	77.2%	79.2%
	Total Miscellaneous	12.3%	11,392	1,906	16.7%	20.5%	24.3%	28.1%	31.9%	35.4%	39.1%	43.2%	47.3%	51.4%	55.6%	59.7%

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

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

Tompkins County 2023-2032

	Material		MSW Materials Composition (%)	2021			2022			2023			2024			2025			2026			2027			2028			2029			2030			2031			2032		
				MSW generated (Tons)	MSW Diverted (Tons)	%MSW Diverted	MSW generated (Tons)	MSW Diverted	%MSW Diverted	MSW generated (Tons)	MSW Diverted	%MSW Diverted	MSW generated (Tons)	MSW Diverted	%MSW Diverted	MSW generated (Tons)	MSW Diverted	%MSW Diverted	MSW generated (Tons)	MSW Diverted	%MSW Diverted	MSW generated (Tons)	MSW Diverted	%MSW Diverted	MSW generated (Tons)	MSW Diverted	%MSW Diverted	MSW generated (Tons)	MSW Diverted	%MSW Diverted	MSW generated (Tons)	MSW Diverted	%MSW Diverted	MSW generated (Tons)	MSW Diverted	%MSW Diverted	MSW generated (Tons)	MSW Diverted	%MSW Diverted
			100.00%	92,753	34,681	37.4%	92,144	36,964	40.1%	91,697	38,487	42%	91,252	40,149	44.0%	90,809	43,110	47.5%	90,369	44,730	49.5%	89,930	47,343	52.6%	89,494	49,762	55.6%	89,060	52,800	59.3%	88,627	55,308	62.4%	88,197	57,673	65.4%	87,770	60,318	68.7%
Paper	Newspaper		4.01%	3,718	2,760	74.2%	3,694	2,779	75.2%	3,676	2,802	76%	3,658	2,825	77.2%	3,640	2,848	78.2%	3,623	2,871	79.2%	3,605	2,893	80.2%	3,587	2,914	81.2%	3,570	2,936	82.2%	3,553	2,957	83.2%	3,535	2,978	84.2%	3,535	3,014	85.2%
	Corrugated Cardboard		9.75%	9,046	7,046	77.9%	8,987	7,000	77.9%	8,943	6,966	78%	8,900	6,932	77.9%	8,857	6,898	77.9%	8,814	6,865	77.9%	8,771	6,832	77.9%	8,729	6,799	77.9%	8,686	6,939	79.9%	8,644	7,078	81.9%	8,602	7,216	83.9%	8,602	7,388	85.9%
	Other Recyclable Paper	Paperboard	2.35%	2,177	0	0.0%	2,163	0	0.0%	2,152	0	0%	2,142	0	0.0%	2,131	0	0.0%	2,121	0	0.0%	2,111	0	0.0%	2,100	0	0.0%	2,090	0	0.0%	2,080	0	0.0%	2,070	0	0.0%	2,070	0	0.0%
		Office Paper	2.45%	2,272	0	0.0%	2,257	0	0.0%	2,246	0	0%	2,235	0	0.0%	2,225	0	0.0%	2,214	0	0.0%	2,203	0	0.0%	2,192	0	0.0%	2,182	0	0.0%	2,171	0	0.0%	2,161	0	0.0%	2,161	0	0.0%
		Junk Mail	2.13%	1,977	0	0.0%	1,964	0	0.0%	1,954	0	0%	1,945	0	0.0%	1,935	0	0.0%	1,926	0	0.0%	1,916	0	0.0%	1,907	0	0.0%	1,898	0	0.0%	1,889	0	0.0%	1,880	0	0.0%	1,880	0	0.0%
		Other Commercial Printing	2.11%	1,957	0	0.0%	1,944	0	0.0%	1,934	0	0%	1,925	0	0.0%	1,916	0	0.0%	1,906	0	0.0%	1,897	0	0.0%	1,888	0	0.0%	1,879	0	0.0%	1,870	0	0.0%	1,861	0	0.0%	1,861	0	0.0%
		Magazines	1.00%	927	0	0.0%	921	0	0.0%	916	0	0%	912	0	0.0%	907	0	0.0%	903	0	0.0%	898	0	0.0%	894	0	0.0%	890	0	0.0%	885	0	0.0%	881	0	0.0%	881	0	0.0%
		Books	0.44%	412	0	0.0%	409	0	0.0%	407	0	0%	405	0	0.0%	403	0	0.0%	401	0	0.0%	399	0	0.0%	397	0	0.0%	395	0	0.0%	393	0	0.0%	392	0	0.0%	392	0	0.0%
		Paper Bags	0.39%	360	0	0.0%	358	0	0.0%	356	0	0%	355	0	0.0%	353	0	0.0%	351	0	0.0%	350	0	0.0%	348	0	0.0%	346	0	0.0%	344	0	0.0%	343	0	0.0%	343	0	0.0%
		Phone Books	0.29%	267	0	0.0%	265	0	0.0%	264	0	0%	262	0	0.0%	261	0	0.0%	260	0	0.0%	259	0	0.0%	257	0	0.0%	256	0	0.0%	255	0	0.0%	254	0	0.0%	254	0	0.0%
		Poly-Coated	0.24%	218	0	0.0%	217	0	0.0%	216	0	0%	215	0	0.0%	213	0	0.0%	212	0	0.0%	211	0	0.0%	210	0	0.0%	209	0	0.0%	208	0	0.0%	207	0	0.0%	207	0	0.0%
	Other Recyclable Paper (Total)		11.39%	10,566	9,889	93.6%	10,497	9,824	93.6%	10,446	9,776	94%	10,395	9,729	93.6%	10,345	9,682	93.6%	10,295	9,635	93.6%	10,245	9,588	93.6%	10,195	9,541	93.6%	10,145	9,495	93.6%	10,096	9,449	93.6%	10,047	9,403	93.6%	10,047	9,403	93.6%
	Other Compostable Paper		6.69%	6,205	0	0.0%	6,164	308	5.0%	6,134	613	10%	6,104	977	16.0%	6,074	1,336	22.0%	6,045	1,693	28.0%	6,016	2,045	34.0%	5,986	2,395	40.0%	5,957	2,681	45.0%	5,929	2,964	50.0%	5,900	3,245	55.0%	5,900	3,540	60.0%
	Total Paper		31.84%	29,535	19,695	66.7%	29,341	19,911	67.9%	29,199	20,158	69%	29,057	20,463	70.4%	28,916	20,765	71.8%	28,776	21,063	73.2%	28,636	21,358	74.6%	28,497	21,649	76.0%	28,359	22,051	77.8%	28,221	22,449	79.5%	28,085	22,843	81.3%	28,085	23,345	83.1%
Metal	Ferrous/Aluminum Containers	Ferrous Containers	1.25%	1,157	222	19.2%	1,150	233	20.2%	1,144	243	21%	1,138	253	22.2%	1,133	263	23.2%	1,127	273	24.2%	1,122	283	25.2%	1,117	293	26.2%	1,111	303	27.2%	1,106	312	28.2%	1,100	322	29.2%	1,100	333	30.2%
		Aluminum Containers	0.51%	473	91	19.2%	470	95	20.2%	467	99	21%	465	103	22.2%	463	107	23.2%	460	112	24.2%	458	116	25.2%	456	120	26.2%	454	124	27.2%	452	127	28.2%	449	131	29.2%	449	136	30.2%
	Ferrous/Aluminum Containers (Total)		1.76%	1,630	313	19.2%	1,619	352	21.7%	1,611	390	24%	1,603	429	26.7%	1,596	466	29.2%	1,588	504	31.7%	1,580	604	38.2%	1,573	703	44.7%	1,565	802	51.2%	1,557	899	57.7%	1,550	995	64.2%	1,550	1,096	70.7%
	Other Ferrous Metals		4.77%	4,423	4,109	92.9%	4,394	4,082	92.9%	4,372	4,062	93%	4,351	4,042	92.9%	4,330	4,023	92.9%	4,309	4,003	92.9%	4,288	3,984	92.9%	4,267	3,964	92.9%	4,247	3,945	92.9%	4,226	3,926	92.9%	4,205	3,907	92.9%	4,205	3,907	92.9%
	Other Non-Ferrous Metals	Other aluminum	0.24%	225	0	0.0%	224	0	0.0%	223	0	0%	222	0	0.0%	221	0	0.0%	219	0	0.0%	218	0	0.0%	217	0	0.0%	216	0	0.0%	215	0	0.0%	214	0	0.0%	214	0	0.0%
		Automotive batteries	0.50%	467	0	0.0%	464	0	0.0%	462	0	0%	460	0	0.0%	457	0	0.0%	455	0	0.0%	453	0	0.0%	451	0	0.0%	449	0	0.0%	446	0	0.0%	444	0	0.0%	444	0	0.0%
		Other non-aluminum	0.37%	340	0	0.0%	338	0	0.0%	336	0	0%	335	0	0.0%	333	0	0.0%	331	0	0.0%	330	0	0.0%	328	0	0.0%	327	0	0.0%	325	0	0.0%	323	0	0.0%	323	0	0.0%
	Other Non-Ferrous Metals (Total)		1.11%	1,033	12	1.1%	1,026	54	5.2%	1,021	104	10%	1,016	165	16.2%	1,011	225	22.2%	1,006	284	28.2%	1,001	343	34.2%	996	401	40.2%	992	448	45.2%	987	496	50.2%	982	542	55.2%	982	591	60.2%
	Total Metals		7.64%	7,085	4,434	62.6%	7,039	4,487	63.7%	7,004	4,557	65%	6,970	4,636	66.5%	6,937	4,714	68.0%	6,903	4,791	69.4%	6,870	4,930	71.8%	6,836	5,068	74.1%	6,803	5,195	76.4%	6,770	5,320	78.6%	6,737	5,444	80.8%	6,737	5,594	83.0%
Plastic	PET Containers		0.98%	912	337	36.9%	906	334	36.9%	901	333	37%	897	331	36.9%	893	330	36.9%	888	355	39.9%	884	388	43.9%	880	448	50.9%	875	507	57.9%	871	566	64.9%	867	623	71.9%	867	684	78.9%
	HDPE Containers		0.86%	801	325	40.6%	795	331	41.6%	791	337	43%	788	343	43.6%	784	350	44.6%	780	189	24.2%	776	385	49.6%	772	437	56.6%	769	489	63.6%	765	540	70.6%	761	591	77.6%	761	644	84.6%
	Other Plastic (3-7) Containers		0.18%	169	83	49.1%	168	83	49.6%	167	84	50%	166	84	50.6%	165	85	51.1%	165	52	31.7%	164	96	58.6%	163	103	63.1%	162	110	67.6%	161	116	72.1%	161	123	76.6%	161	130	81.1%
	Film Plastic		5.75%	5,331	87	1.6%	5,296	388	7.3%	5,270	703	13%	5,245	1,014	19.3%	5,219	1,322	25.3%	5,194	1,627	31.3%	5,169	2,136	41.3%	5,144	2,435	47.3%	5,119	2,730	53.3%	5,094	3,073	60.3%	5,069	3,413	67.3%	5,069	3,768	74.3%
	Other Plastic	Durables	3.16%	2,928	0	0.0%	2,909	0	0.0%	2,895	0	0%	2,881	0	0.0%	2,867	0	0.0%	2,853	0	0.0%	2,839	0	0.0%	2,825	0	0.0%	2,812	0	0.0%	2,798	0	0.0%	2,785	0	0.0%	2,785	0	0.0%
		Non-Durables	1.73%	1,607	0	0.0%	1,596	0	0.0%	1,589	0	0%	1,581	0	0.0%	1,573	0	0.0%	1,566	0	0.0%	1,558	0	0.0%	1,550	0	0.0%	1,543	0	0.0%	1,535	0	0.0%	1,528	0	0.0%	1,528	0	0.0%
		Packaging	1.29%	1,195	0	0.0%	1,187	0	0.0%	1,182	0	0%	1,176	0	0.0%	1,170	0	0.0%	1,165	0	0.0%	1,159	0	0.0%	1,153	0	0.0%	1,148	0	0.0%	1,142	0	0.0%	1,137	0	0.0%	1,137	0	0.0%
	Other Plastic (Total)		6.18%	5,730	0	0.0%	5,693	171	3.0%	5,665	340	6%	5,638	507	9.0%	5,610	673	12.0%	5,583	837	15.0%	5,556	1,000	18.0%	5,529	1,161	21.0%	5,502	1,321	24.0%	5,476	1,478	27.0%	5,449	1,635	30.0%	5,449	1,798	33.0%
	Total Plastics		13.95%	12,943	832	6.4%	12,858	1,308	10.2%	12,795	1,796	14%	12,733	2,280	17.9%	12,671	2,759	21.8%	12,610	3,061	24.3%	12,549	4,006	31.9%	12,488	4,584	36.7%	12,427	5,156	41.5%	12,367	5,774	46.7%	12,307	6,385	51.9%	12,307	7,025	57.1%
Glass	Glass Bottles, Jars and Containers		3.98%	3,687	1,161	31.5%	3,663	1,190	32.5%	3,645	1,220	33%	3,628	1,251	34.5%	3,610	1,281	35.5%	3,592	1,310	36.5%	3,575	1,590	44.5%	3,558	1,867	52.5%	3,540	2,141	60.5%	3,523	2,413	68.5%	3,506	2,646	75.5%	3,506	2,822	80.5%
	Other Glass (Flat glass, dishware, light bulbs, etc.)		0.41%	380	0	0.0%	377	4	1.0%	376	8	2%	374	11	3.0%	372	15	4.0%	370	19	5.0%	368	22	6.0%	367	26	7.0%	365	29	8.0%	363	33	9.0%	361	36	10.0%	361	40	11.0%
	Total Glass		4.38%	4,067	1,161	28.5%	4,040	1,193	29.5%	4,021	1,228	31%	4,001	1,262	31.5%	3,982	1,296	32.5%	3,963	1,329	33.5%	3,943	1,612	40.9%	3,924	1,893	48.2%	3,905	2,170	55.6%	3,886	2,445	62.9%	3,867	2,682	69.4%	3,867	2,861	74.0%
Organics	Food Scraps		15.51%	14,386	3,601	25.0%	14,292	3,663	25.6%	14,223	3,730	26%	14,154	3,882	27.4%	14,085	5,004	35.5%	14,017	5,232	37.3%	13,949	5,444	39.0%	13,881	5,654	40.7%	13,813	6,358	46.0%	13,746	6,547	47.6%	13,680	6,734	49.2%	13,680	6,953	50.8%
	Leaves and Grass / Pruning and Trimmings		4.73%	4,384	2,628	59.9%	4,355	3,442	79.0%	4,334	3,426	79%	4,313	3,409	79.0%	4,292	3,693	86.0%	4,271	3,761	88.0%	4,251	3,827	90.0%	4,230	3,893	92.0%	4,209	4,001	95.0%	4,189	4,065	97.0%	4,169	4,045	97.0%	4,169	4,066	97.5%
	Total Organics		20.24%	18,770	6,229	33.2%	18,647	7,105	38.1%	18,557	7,156	39%	18,467	7,291	39.5%	18,377	8,697	47.3%	18,288	8,993	49.2%	18,199	9,271	50.9%	18,111	9,547	52.7%	18,023	10,359	57.5%	17,935	10,612	59.2%	17,848	10,780	60.4%	17,848	11,019	61.7%
Textiles	Clothing Footwear, Towels, Sheets		3.88%	3,600	128	3.5%	3,576	306	8.5%	3,559	482	14%	3,542	657	18.5%	3,525	830	23.5%	3,508	1,001	28.5%	3,491	1,171	33.5%	3,474	1,339	38.5%	3,457	1,505	43.5%	3,440	1,670	48.5%	3,423	1,833	53.5%	3,423	2,004	58.5%
	Carpet		1.42%	1,314	0	0.0%	1,306	0	0.0%	1,299	0	0%	1,293	0	0.0%	1,287	0	0.0%	1,281	0	0.0%	1,274	0	0.0%	1,268	63	5.0%	1,262	126	10.0%	1,256	188	15.0%	1,250	250	20.0%	1,250	375	30.0%
	Total Textiles		5.30%	4,914	128	2.6%	4,882	306	6.3%	4,859	482	10%	4,835	657	13.6%	4,811	830	17.2%	4,788	1,001	20.9%	4,765	1,171	24.6%	4,742	1,402	29.6%	4,719	1,631	34.6%	4,696	1,858	39.6%	4,673	2,083	44.6%	4,673	2,379	50.9%
Wood	*Total Wood* (Pallets, crates, adulterated and non-adulterated		4.36%	4,047	296	7.3%	4,020	334	8.3%	4,001	373	9%	3,981	411	10.3%	3,962	488	12.3%	3,943	564	14.3%	3,923	679	17.3%	3,904	871	22.3%	3,885	1,061	27.3%	3,867	1,249	32.3%	3,848	1,436	37.3%	3,848	1,628	42.3%
Miscellaneous	DIY Construction & Renovation Materials		5.49%	5,092	0	0.0%	5,059	202	4.0%	5,034	403	8%	5,010	601	12.0%	4,985	798	16.0%	4,961	992	20.0%	4,937	1,210	24.5%	4,913	1,474	30.0%	4,889	1,736	35.5%	4,866	1,995	41.0%	4,842	2,252	46.5%	4,842	2,518	52.0%
	Diapers		1.67%	1,548	0	0.0%	1,538	0	0.0%	1,530	0	0%	1,523	0	0.0%	1,515	0	0.0%	1,508	0	0.0%	1,501	0	0.0%	1,494	0	0.0%	1,486	0	0.0%	1,479	0	0.0%	1,472	0	0.0%	1,472	0	0.0%
	Electronics		1.41%	1,311	356	27.2%	1,302	430	33.0%	1,296	505	39%	1,290	580	45.0%	1,284	654	51.0%	1,277	715	56.0%	1,271	775	61.0%	1,265	835	66.0%	1,259	894	71.0%	1,253	952	76.0%	1,247	1,010	81.0%	1,247	1,072	86.0%
	Tires		1.34%	1,241	513	41.3%	1,233	583	47.3%	1,227	654	53%	1,221	724	59.3%	1,215	782	64.3%	1,209	838	69.3%	1,203	894	74.3%	1,198	950	79.3%	1,192	1,005	84.3%	1,186	1,059	89.3%	1,180	1,113	94.3%	1,180	1,172	99.3%
	HHW		0.33%	302	75	24.9%	300	105	34.9%	299	134	45%	297	163	54.9%	296	192	64.9%	294	206	69.9%	293	219	74.9%	292	233	79.9%	290	246	84.9%	289	260	89.9%	287	273	94.9%	287	287	99.9%
	Soil sand Fines		0.33%	303	0	0.0%	301	30	10.0%	299	60	20%	298	89	30.0%	296	119	40.0%	295	133	45.0%	293	147	50.0%	292	161	55.0%	291	174	60.0%	289	188	65.0%	288	201	70.0%	288	216	75.0%
	Other Composite Materials - Durable and/or inert		1.72%	1,594	962	60.3%	1,584	970	61.2%	1,576	981	62%	1,569	992	63.2%	1,561	1,018	65.2%	1,553	1,044	67.2%	1,546	1,070	69.2%	1,538	1,096	71.2%	1,531	1,121	73.2%	1,523	1,146	75.2%	1,516	1,171	77.2%	1,516	1,201	79.2%
	Total Miscellaneous		12.28%	11,392	1,906	16.7%	11,317	2,320	20.5%	11,262	2,737	24%	11,207	3,150	28.1%	11,153	3,562	31.9%	11,099	3,928	35.4%	11,045	4,315	39.1%	10,991	4,748	43.2%	10,938	5,176	47.3%	10,885	5,600	51.4%	10,832	6,019	55.6%	10,832	6,466	59.7%

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Population	107,527	108,086	108,648	109,213	109,781	110,352	110,926	111,502	112,082	112,665	113,251	113,840
MSW Generated (tons)	92,753.26	92,144	91,697	91,252	90,809	90,369	89,930	89,494	89,060	88,627	88,197	87,770
Per Capita MSW Generated (lbs/person/year)	1,725	1,705	1,686	1,671	1,654	1,638	1,621	1,605	1,589	1,573	1,558	1,542
MSW Diverted (tons)	34,680.64	36,964	38,487	40,149	43,110	44,730	47,343	49,762	52,800	55,308	57,673	60,318
Per Capita MSW Diverted (lbs/person/year)	645	684	708	735	785	811	854	893	942	982	1,018	1,060
MSW Disposed (tons)	58,072.62	55,180	53,210	51,103	47,699	45,639	42,587	39,732	36,259	33,319	30,525	27,451
Per Capita MSW Disposed (lbs/person/year)	1,080	1,021	979	936	869	827	768	713	647	591	539	482
Per Capita MSW Disposed (lbs/person/day)	2.96	2.80	2.68	2.56	2.38	2.27	2.10	1.95	1.77	1.62	1.48	1.32

Appendix B.2

Construction and Demolition Debris
Combined Composition Analysis and Projections

Step 1. Planning Unit and Planning Period Selection

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

Planning Unit	Tompkins County
Planning Period	2023-2032

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.

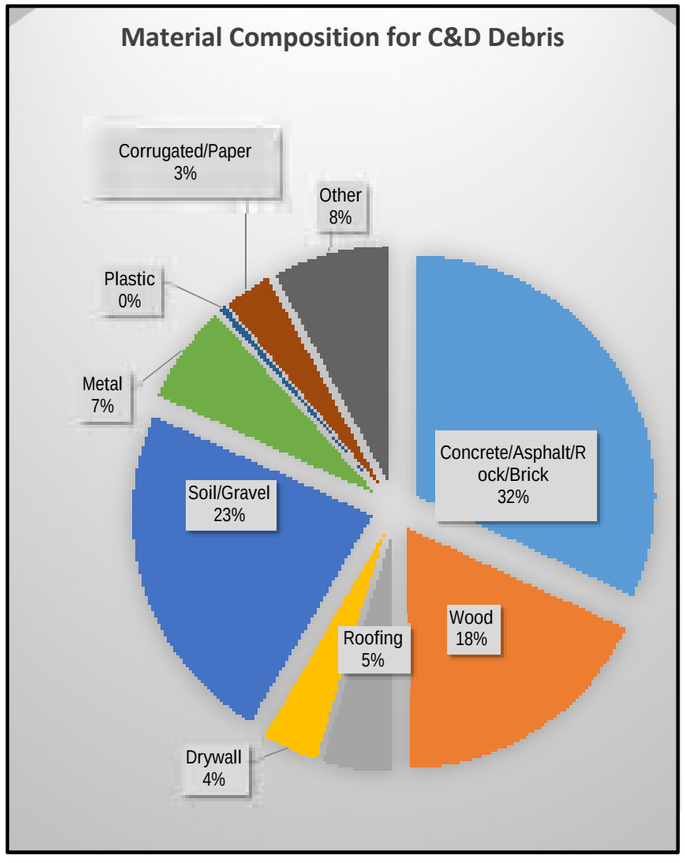
The results are presented on the last right column under C&D Debris Waste Stream Composition. Be aware of color changes on the cells, whenever a category represents over 15% of the total generation, the cell will turn red to easy identify key categories on the waste stream. It will also aid with the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

Tompkins County | **2023-2032**

		Generation source									
		Residential				Non- Residential (commercial-institutional)				Other Municipal Infras-tructure	C&D Debris Materials Composition (%)
		30.00%				30.00%				40.00%	
		New Construction	Renovation	Demolition	Combined Residential	New Construction	Renovation	Demolition	Combined Non-Residential	Renovation	
		20.00%	20.00%	60.00%	100.00%	60.00%	20.00%	20.00%	100.00%	100.00%	100.00%
Materials	Concrete/ Asphalt /Rock/Brick	9.80%	16.10%	21.50%	18.08%	30.70%	19.10%	23.10%	26.86%	46.00%	31.88%
	Wood	29.90%	19.10%	25.70%	25.22%	22.70%	12.40%	24.20%	20.94%	10.50%	18.05%
	Roofing	6.00%	22.00%	6.10%	9.26%	2.10%	21.20%	5.10%	6.52%	0.00%	4.73%
	Drywall	15.60%	7.90%	5.10%	7.76%	4.60%	6.40%	4.30%	4.90%	0.00%	3.80%
	Soil/Gravel	11.30%	7.10%	18.50%	14.78%	13.10%	6.50%	15.60%	12.28%	38.00%	23.32%
	Metal	5.30%	11.30%	5.20%	6.44%	12.00%	15.50%	11.10%	12.52%	2.40%	6.65%
	Plastic	1.50%	0.70%	0.30%	0.62%	0.50%	0.70%	0.30%	0.50%	0.30%	0.46%
	Corrugated cardboard/ Paper	9.30%	2.90%	3.10%	4.30%	7.10%	4.60%	4.20%	6.02%	0.30%	3.22%
	Other	11.30%	12.90%	14.50%	13.54%	7.20%	13.60%	12.10%	9.46%	2.50%	7.90%
	Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%



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

This step will estimate the amount of waste generated for each material based on the total amount of waste generated in that year. In the purple cells enter the amount of waste generated in the Planning Unit. It will be a known amount for the first year, 2021 and an estimate of what will be generated for each year of the planning period, 2023-2032

Tompkins County	2023-2032

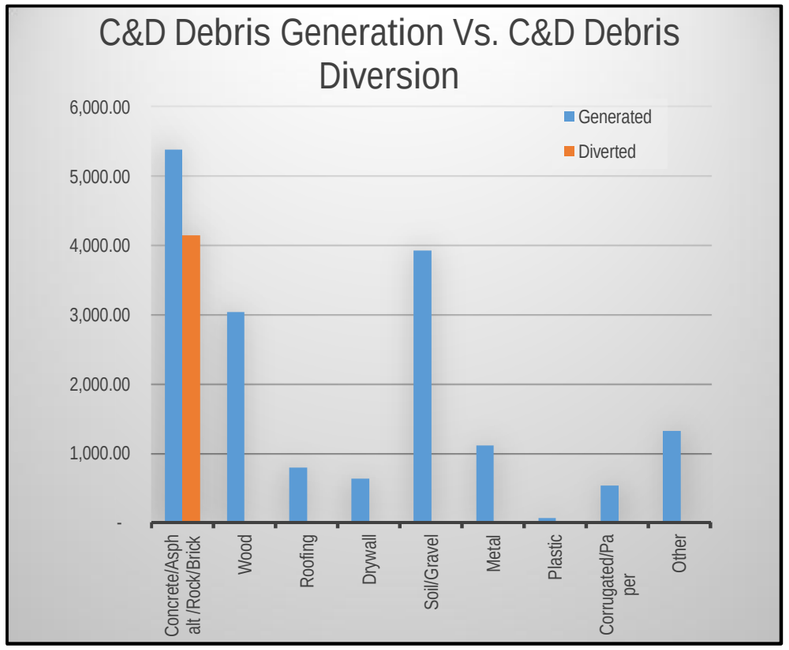
			2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
		C&D Debris Materials Composition (%)	C&D Debris Generated (Tons)	C&D Debris Generated (Tons)	C&D Debris Generated (Tons)	C&D Debris Generated (Tons)	C&D Debris Generated (Tons)	C&D Debris Generated (Tons)	C&D Debris Generated (Tons)	C&D Debris Generated (Tons)	C&D Debris Generated (Tons)	C&D Debris Generated (Tons)	C&D Debris Generated (Tons)	C&D Debris Generated (Tons)
Materials	Concrete/Asphalt /Rock/Brick	31.9%	5,377.0	5,323.2	5,270.0	5,217.3	5,165.1	5,113.5	5,062.3	5,011.7	4,961.6	4,912.0	4,862.8	4,814.2
	Wood	18.0%	3,043.8	3,013.4	2,983.3	2,953.4	2,923.9	2,894.7	2,865.7	2,837.1	2,808.7	2,780.6	2,752.8	2,725.3
	Roofing	4.7%	798.4	790.4	782.5	774.7	766.9	759.3	751.7	744.2	736.7	729.4	722.1	714.8
	Drywall	3.8%	640.5	634.1	627.8	621.5	615.3	609.1	603.1	597.0	591.1	585.1	579.3	573.5
	Soil/Gravel	23.3%	3,932.6	3,893.3	3,854.4	3,815.8	3,777.7	3,739.9	3,702.5	3,665.5	3,628.8	3,592.5	3,556.6	3,521.0
	Metal	6.6%	1,121.2	1,110.0	1,098.9	1,087.9	1,077.0	1,066.3	1,055.6	1,045.0	1,034.6	1,024.2	1,014.0	1,003.9
	Plastic	0.5%	76.9	76.1	75.4	74.6	73.9	73.1	72.4	71.7	71.0	70.3	69.6	68.9
	Corrugated cardboard/Paper	3.2%	542.4	537.0	531.6	526.3	521.0	515.8	510.6	505.5	500.5	495.5	490.5	485.6
	Other	7.9%	1,332.4	1,319.0	1,305.8	1,292.8	1,279.9	1,267.1	1,254.4	1,241.8	1,229.4	1,217.1	1,205.0	1,192.9
	Total	100.0%	16,865.3	16,696.6	16,529.7	16,364.4	16,200.7	16,038.7	15,878.3	15,719.5	15,562.3	15,406.7	15,252.6	15,100.1

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

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

Tompkins County	2023-2032

		2021			
		C&D Debris Materials Composition (%)	C&D Debris Generated (Tons)	C&D Debris Diverted (Tons)	% C&D Diverted
Materials	Concrete/Asphalt /Rock/Brick	31.9%	5,377.0	4,150.0	77.2%
	Wood	18.0%	3,043.8	0.0	0.0%
	Roofing	4.7%	798.4	0.0	0.0%
	Drywall	3.8%	640.5	0.0	0.0%
	Soil/Gravel	23.3%	3,932.6	0.0	0.0%
	Metal	6.6%	1,121.2	0.0	0.0%
	Plastic	0.5%	76.9	0.0	0.0%
	Corrugated cardboard/Paper	3.2%	542.4	0.0	0.0%
	Other	7.9%	1,332.4	0.0	0.0%
Total		100.0%	16,865.3	4,150.0	24.6%



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

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

2023-2032

			2021			2022			2023			2024			2025			2026		
		C&D Debris Materials Composition (%)	C&D Debris Generated (Tons)	C&D Debris Diverted	% C&D Diverted	C&D Debris Generated (Tons)	C&D Debris Diverted	% C&D Diverted	C&D Debris Generated (Tons)	C&D Debris Diverted	% C&D Diverted	C&D Debris Generated (Tons)	C&D Debris Diverted	% C&D Diverted	C&D Debris Generated (Tons)	C&D Debris Diverted	% C&D Diverted	C&D Debris Generated (Tons)	C&D Debris Diverted	% C&D Diverted
Materials	Concrete/Asphalt /Rock/Brick	31.9%	5,377.0	4,150.0	77.2%	5,323.2	4,151.1	78.0%	5,270.0	4,162.3	79.0%	5,217.3	4,172.8	80.0%	5,165.1	4,182.7	81.0%	5113.5	4192.1	82.0%
	Wood	18.0%	3,043.8	0.0	0.0%	3,013.4	0.0	0.0%	2,983.3	0.0	0.0%	2,953.4	147.7	5.0%	2,923.9	292.4	10.0%	2894.7	434.2	15.0%
	Roofing	4.7%	798.4	0.0	0.0%	790.4	0.0	0.0%	782.5	0.0	0.0%	774.7	0.0	0.0%	766.9	15.3	2.0%	759.3	30.4	4.0%
	Drywall	3.8%	640.5	0.0	0.0%	634.1	0.0	0.0%	627.8	0.0	0.0%	621.5	0.0	0.0%	615.3	18.5	3.0%	609.1	36.5	6.0%
	Soil/Gravel	23.3%	3,932.6	0.0	0.0%	3,893.3	0.0	0.0%	3,854.4	0.0	0.0%	3,815.8	190.8	5.0%	3,777.7	377.8	10.0%	3739.9	561.0	15.0%
	Metal	6.6%	1,121.2	0.0	0.0%	1,110.0	0.0	0.0%	1,098.9	0.0	0.0%	1,087.9	54.4	5.0%	1,077.0	107.7	10.0%	1066.3	159.9	15.0%
	Plastic	0.5%	76.9	0.0	0.0%	76.1	0.0	0.0%	75.4	0.0	0.0%	74.6	0.0	0.0%	73.9	1.5	2.0%	73.1	2.9	4.0%
	Corrugated /Paper	3.2%	542.4	0.0	0.0%	537.0	0.0	0.0%	531.6	0.0	0.0%	526.3	0.0	0.0%	521.0	10.4	2.0%	515.8	20.6	4.0%
	Other	7.9%	1,332.4	0.0	0.0%	1,319.0	0.0	0.0%	1,305.8	0.0	0.0%	1,292.8	0.0	0.0%	1,279.9	25.6	2.0%	1267.1	50.7	4.0%
	Total	100.0%	16,865.3	4,150.0	24.6%	16,696.6	4,151.1	24.9%	16,529.7	4,162.3	25.2%	16,364.4	4,565.7	27.9%	16,200.7	5,031.9	31.1%	16,038.7	5488.3	34.2%

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

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

2023-2032

			2027			2028			2029			2030			2031			2032		
		C&D Debris Materials Composition (%)	C&D Debris Generated (Tons)	C&D Debris Diverted	% C&D Diverted	C&D Debris Generated (Tons)	C&D Debris Diverted	% C&D Diverted	C&D Debris Generated (Tons)	C&D Debris Diverted	% C&D Diverted	C&D Debris Generated (Tons)	C&D Debris Diverted	% C&D Diverted	C&D Debris Generated (Tons)	C&D Debris Diverted	% C&D Diverted	C&D Debris Generated (Tons)	C&D Debris Diverted	% C&D Diverted
Materials	Concrete/Asphalt /Rock/Brick	31.9%	5,062.3	4,200.8	83.0%	5,011.7	4,208.9	84.0%	4,961.6	4,216.4	85.0%	4,912.0	4,174.2	85.0%	4,862.8	4,132.5	85.0%	4,862.8	4,132.5	85.0%
	Wood	18.0%	2,865.7	573.1	20.0%	2,837.1	709.3	25.0%	2,808.7	842.6	30.0%	2,780.6	973.2	35.0%	2,752.8	1,101.1	40.0%	2,752.8	1,101.1	40.0%
	Roofing	4.7%	751.7	45.1	6.0%	744.2	59.5	8.0%	736.7	73.7	10.0%	729.4	87.5	12.0%	722.1	115.5	16.0%	722.1	144.4	20.0%
	Drywall	3.8%	603.1	54.3	9.0%	597.0	71.6	12.0%	591.1	94.6	16.0%	585.1	117.0	20.0%	579.3	144.8	25.0%	579.3	173.8	30.0%
	Soil/Gravel	23.3%	3,702.5	740.5	20.0%	3,665.5	916.4	25.0%	3,628.8	1,088.6	30.0%	3,592.5	1,257.4	35.0%	3,556.6	1,422.6	40.0%	3,556.6	1,422.6	40.0%
	Metal	6.6%	1,055.6	211.1	20.0%	1,045.0	261.3	25.0%	1,034.6	310.4	30.0%	1,024.2	358.5	35.0%	1,014.0	405.6	40.0%	1,014.0	405.6	40.0%
	Plastic	0.5%	72.4	4.3	6.0%	71.7	5.7	8.0%	71.0	7.1	10.0%	70.3	8.4	12.0%	69.6	11.1	16.0%	69.6	13.9	20.0%
	Corrugated /Paper	3.2%	510.6	30.6	6.0%	505.5	40.4	8.0%	500.5	50.0	10.0%	495.5	59.5	12.0%	490.5	78.5	16.0%	490.5	98.1	20.0%
	Other	7.9%	1,254.4	75.3	6.0%	1,241.8	99.3	8.0%	1,229.4	122.9	10.0%	1,217.1	146.1	12.0%	1,205.0	192.8	16.0%	1,205.0	241.0	20.0%
	Total	100.0%	15,878.3	5,935.1	37.4%	15,719.5	6,372.5	40.5%	15,562.3	6,806.4	43.7%	15,406.7	7,181.8	46.6%	15,252.6	7,604.6	49.9%	15,100.1	7,733.1	51.2%

Appendix C

Copy of the Local Solid Waste and Recycling Law

Chapter 140

SOLID WASTE

[HISTORY: Adopted by the Board of Representatives (now County Legislature) of Tompkins County as indicated in article histories. Amendments noted where applicable.]

ARTICLE I
Recycling
[Adopted 8-11-1992 by L.L. No. 8-1992]

§ 140-1. Title.

This article shall be known as the "Mandatory Recycling Law."

§ 140-2. Findings.

The County Legislature of Tompkins County finds that:

A. Removal and reduction of certain materials from the solid waste stream will decrease the flow of solid waste to landfills, aid in the conservation of valuable resources, and reduce the required capacity and associated costs of existing and proposed solid waste disposal facilities.

B. The New York State Solid Waste Management Act of 1988 mandates that all municipalities adopt a local law or ordinance by September 1, 1992 requiring that solid waste which has been left for collection or which is delivered by the generator of such waste to a solid waste management facility shall be separated into recyclable, reusable or other components for which economic markets for alternate uses exist.

C. Methods of solid waste management emphasizing source reduction, reuse and recycling are essential in Tompkins County for long-term preservation of public health, economic productivity, and environmental quality.

§ 140-3. Declaration of purpose.

This article is adopted pursuant to the laws of the State of New York, including General Municipal Law § 120-aa, to:

A. Institute a plan for the management of recyclables and reusables generated or originated in Tompkins County, to promote the safety, health and well-being of persons and property within Tompkins County; and

B. Implement the express policy of the State of New York encouraging waste stream reduction through recycling.

§ 140-4. Definitions.

As used in this article, the following terms shall have the meanings indicated:

AUTHORIZED RECYCLING FACILITY — Any and all state-permitted or specifically exempt facilities for accumulation, processing, recovery, reprocessing and/or recycling materials which are specified in the rules and regulations promulgated pursuant to § 140-5A of this article, including but not limited to the county's recycling dropoff centers and to the recycling and solid waste center. This term shall exclude incineration facilities, waste-to-energy facilities, and landfills.

COUNTY — The County of Tompkins.

COUNTY LEGISLATURE — The Tompkins County Legislature.

COUNTY RECYCLING HAULER — The county or a hauler under contract with the county that collects recyclables from waste generators as part of a county-sponsored recycling program.

COUNTY-SPONSORED RECYCLING PROGRAM — Any program sponsored or administered by the county to handle recyclable materials, including but not limited to programs for the collection of recyclables by county employees or agents.

ECONOMIC MARKETS — Instances in which the full avoided costs of proper collection, transportation, and

disposal of a source separated recyclable material is equal to or greater than the cost of collection, transportation, and sale of the recyclable material, less the amount received from the sale of the recyclable material.

EXEMPT — The status granted to any person who can demonstrate an inability to comply with this article and who applies to the Solid Waste Manager and receives a certificate of exemption from this article, or parts thereof, pursuant to the rules and regulations, or who by rules and regulations promulgated hereunder is exempt from this article or parts thereof.

HAZARDOUS WASTE —

A. Any waste that by reason of its quality, concentration, composition or physical, chemical or infectious characteristics may do any of the following: cause or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness; or pose a substantial threat or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of or otherwise mismanaged; or any waste that is defined or regulated as a hazardous waste, hazardous substance, toxic substance, hazardous chemical substance or mixture, or asbestos under applicable law, as amended from time to time, including but not limited to: the Resource Conservation and Recovery Act, 42 U.S.C. § 6901 et seq., and the regulations contained in 40 CFR Parts 260-281; the Toxic Substances Control Act, 15 U.S.C. § 2601 et seq., and the regulations contained in 40 CFR Parts 761-766; and future additional or substitute federal, state or local laws pertaining to the identification, treatment, storage or disposal of toxic substances or hazardous waste; except that hazardous waste shall not include household hazardous waste which is accorded treatment as other than hazardous waste under applicable law;

   (1) Radioactive materials that are source, special nuclear or by-product material as defined by the Atomic Energy Act of 1954, 42 U.S.C. § 2011 et seq., and the regulation contained in 10 CFR Part 40;

   (2) Radioactive waste that has been deregulated or is not regulated by the United States Environmental Protection Agency or Nuclear Regulatory Commissioner, or the New York State Department of Health or Environmental Conservation; or

   (3) Solid waste so designated by the rules and regulations promulgated pursuant to this article.

LICENSED HAULER — A person licensed by Tompkins County pursuant to the Tompkins County Solid Waste and Haulers Licensing Local Law[1] to collect, transport or handle solid waste or regulated recyclables.

OTHER RECOVERABLE MATERIAL — Any material, substance, by-product, compound, or any other item generated or originated within the county not treated by the waste generator as solid waste, and separated from solid waste at the point of generation for separate collection, donation, sale, external reuse, recycling, or reprocessing and/or lawful disposition other than by disposal in landfills, sewage treatment plants or incinerators. The disposition of other recoverable material is not regulated by this article, except to the extent of certain reporting requirements set forth in § 140-8 of this article.

PERSON — Any natural person, partnership, association, joint venture, corporation, estate, trust, county, city, town, village, improvement district, school district, governmental entity, or any other legal entity.

RECYCLABLE MATERIALS or RECYCLABLES — Materials that would otherwise be solid waste, and which can be collected, separated, and/or processed, treated, reclaimed, used or reused so that its component materials or substances can be beneficially used or reused.

RECYCLING CONTAINER — A bin or other container, whether set at curbside or at recycling dropoff centers, supplied by the county or its designee for use by waste generators within the county, or any other durable container readily identifiable by a hauler as a container for recyclable materials. Containers supplied by the county shall be used exclusively for the storage and collection of recyclables pursuant to a county-sponsored recycling program, and such containers shall, at all times, remain the property of the county.

RECYCLING DROPOFF CENTER — Any supervised county-coordinated facility to which a person can deliver

1. **Editor's Note: See Article III, Facilities; Licensing of Haulers, of this chapter.**

recyclables during designated hours and in accordance with appropriate preparation standards and utilizing designated containers.

REGULATED RECYCLABLES or REGULATED RECYCLABLE MATERIALS — Recyclables which the waste generator has left for collection or has delivered to a solid waste management facility for disposal, and which are designated for source separation, pursuant to this article and the rules and regulations. Recyclables that are not designated as regulated recyclables may also be recycled and reused.

SOLID WASTE — All putrescible and nonputrescible solid waste materials generated or originated within the county, including but not limited to materials or substances discarded or rejected, whether as being spent, useless, worthless, or in excess to the owners at the time of such discard or rejection or for any other reason; or being accumulated, stored, or physically, chemically or biologically treated prior to being discarded or rejected, having served their intended use; or a manufacturing by-product, including but not limited to garbage, refuse, waste materials resulting from industrial, commercial, community, and agricultural activities, sludge from air or water pollution control facilities or water supply treatment facilities, rubbish, ashes, contained gaseous material, incinerator residue, demolition and construction debris and offal; but not including sewage and other highly diluted water-carried materials or substances and those in gaseous form, or hazardous waste as defined in this article; or any unregulated recyclable materials, but shall include regulated recyclable materials.

SOLID WASTE MANAGER — The Tompkins County Solid Waste Manager or designee thereof.

SOURCE SEPARATION — The segregation of recyclables and other recoverable materials from nonrecyclable solid waste at the point of generation for separate collection, donations, sale or other disposition.

WASTE GENERATOR — Any person or legal entity which produces solid waste in Tompkins County requiring disposal.

WASTE REDUCTION PROGRAM — Programs designed to reduce the volume of solid waste, to enhance reclamation and recovery of solid waste or recyclables otherwise destined for the municipal waste stream, and includes recycling programs; changes to the packaging portion of the waste stream to reduce solid waste generated; and activities and enterprises of scrap dealers, processors and consumers. For purposes of this definition, such waste stream reduction programs shall not include the processing of waste for incineration or disposal by landfill or other means.

§ 140-5. Powers to adopt rules and regulations.

A. The County Legislature is authorized to promulgate, revise, amend and publish rules, regulations and orders necessary to carry out the purposes of this article. Such rules, regulations and orders may, but shall not be limited to or required to, include the following:

(1) Designate, define and modify categories of recyclable materials for which economic markets exist as regulated recyclable materials to be source separated pursuant to this article.

(2) Prescribe methods and standards of source separation for regulated recyclable materials.

(3) Identify one or more authorized recycling facilities to which regulated recyclable materials may be delivered, subject to such exceptions as the Solid Waste Manager may determine to be in the public interest.

(4) Establish criteria and procedures to identify persons exempt from all or parts of this article and the rules and regulations hereunder.

(5) Establish county programs to implement source separation of recyclable materials.

(6) Provide notice and public education consistent with this article and the rules and regulations promulgated hereunder.

(7) Determine the form, content and procedures of reports and records to be maintained pursuant to this

article.

B. The County Legislature, in promulgating the rules, regulations, and orders, may reflect local differences in types of waste generators, population density, accessibility and capacity of markets and facilities, collection practices, and waste composition. The County Legislature shall also give due consideration to existing source separation, recycling, and other facilities in the area; to the adequacy of markets for separated materials, and to any additional expense and effort to be incurred by waste generators and haulers. In addition, the County Legislature shall consider the capacity, handling, disposal, marketing capabilities, and geographical location of available facilities, and such other factors as enable the County Legislature to determine that the public interest is served by the rule or regulation.

C. The County Legislature may delegate to its designee all or part of its power to promulgate rules, regulations, and orders.

§ 140-6. Source separation and waste handling.

A. Solid waste generated or originated within the county that is left for collection or that is delivered by the waste generator to a solid waste management facility shall be handled and disposed of as follows:

(1) Prior to initial collection or transport, such solid waste shall be source separated by the waste generator into regulated recyclables and remaining solid waste as provided in the rules and regulations promulgated hereunder.

(2) Source separated regulated recyclables shall not be commingled with other solid waste during collection, transportation, processing, or storage following collection.

(3) All source separated regulated recyclables must be either collected by a licensed hauler or county recycling hauler, delivered to a recycling dropoff center or authorized recycling facility, or handled through a waste reduction program.

(4) Any waste generator using a county recycling dropoff center or authorized recycling facility shall source-separate regulated recyclable material from other solid waste, and shall dispose of regulated recyclables in separate containers that shall be made available at each dropoff center or authorized recycling facility. Once deposited in the containers provided, all recyclable materials become the property of Tompkins County.

B. Disposal of solid waste that is barred from authorized recycling facilities by rules, regulations, or orders promulgated pursuant to § 140-5 of this article, or by any other law, regulation, or ordinance, shall not otherwise be regulated by this article.

C. No hazardous waste and no solid waste other than recyclable materials may be put in a recycling container or delivered to a recycling dropoff center or authorized recycling facility.

D. No facility other than an authorized recycling facility or a waste reduction program shall accept regulated recyclables that have been source separated.

E. No person shall deliver or dispose of solid waste at any solid waste management facility unless the regulated recyclables have been separated and removed from the solid waste for separate handling.

§ 140-7. Collection of regulated recyclables.

A. Authority to collect.

(1) Only persons acting under the authority of a county recycling hauler shall collect, pick up, remove, or cause to be collected, picked up, or removed, any recyclables placed in or adjacent to a recycling container for collection by the county as part of a county-sponsored program.

(2) Only persons acting under the authority of a licensed hauler shall collect, pick up, remove, or cause to be collected, any recyclables left by the waste generator for collection by the licensed hauler.

B. Empty curbside recycling containers shall be removed from the curbside or other place of collection by the waste generator responsible for placing the recycling container at curbside no later than 8:00 p.m. the day on which collection is made from the premises.

C. A licensed hauler may refuse to collect or pick up solid waste from which the designated recyclables have not been removed. In instances where the licensed hauler or the county recycling hauler has refused to collect solid waste or recyclables because the recyclables have not been separated, placed, treated or prepared in accord with the provisions of this article and the rules and regulations promulgated hereunder, the person responsible for initially placing those materials for collection shall remove those materials from any curb, sidewalk, streetside or other designated collection place no later than 8:00 p.m. the day on which collection is scheduled for the premises.

D. Nothing herein shall prevent any person from making arrangements for the reuse, private collection, sale, or donation of recyclables; provided that recyclables to be privately collected, sold or donated shall not be placed curbside or at any other designated collection place on or immediately preceding the day for scheduled collection of such recyclable materials pursuant to a county-sponsored recycling program; and provided that all reporting requirements of this article, rules, and regulations are complied with.

§ 140-8. Reporting requirements.

A. All parties. To the extent provided in the rules and regulations, all persons engaged in the collection of regulated recyclables and other recoverable materials, including but not limited to tires, lead-acid batteries, scrap metal, clothing, through a waste reduction program, or through any other such activities (e.g., paper drives, bottle redemption, waste exchanges, etc.) shall provide an annual report to the Solid Waste Manager, who shall then file a summary report with the County Legislature. Such information is essential for the county to maintain data and comply with waste reduction and recycling goals required by the New York State Department of Environmental Conservation.

B. Haulers.

(1) All licensed haulers must maintain separate records of recyclables collected, transported or disposed of by the licensed hauler, as provided by the Flow Control and Hauler Licensing Law[2] and the rules and regulations thereunder.

(2) All licensed haulers shall keep records of the county-provided notice (given pursuant to § 140-9C) given to customers who do not comply with this article and the rules and regulations promulgated hereunder, which records shall include: the customer's name, address, and date of issuance of each notice. The record maintained by the licensed hauler shall be made available for review upon request by the county, and shall be compiled and delivered to the Solid Waste Manager on or before February 1, May 1, August 1 and November 1 of each calendar year for each preceding quarter.

§ 140-9. Additional requirements; handling charge.

A. No person shall bring into any county solid waste management facilities any waste materials from which regulated recyclables have not been source separated. If a person delivers to a county-owned or operated solid waste management facility solid waste from which regulated recyclables have not been properly separated, the county may, at its option, refuse to accept the load of solid waste, or accept the solid waste and charge the person a handling charge. The handling charge shall be $25 per load for any person delivering under a residential permit and $100 per load for all others, in addition to the regular tipping fee. The handling fee shall be collected in the same manner and subject to the same conditions as the regular tipping fee.

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2. **Editor's Note: See Article III, Facilities; Licensing of Haulers, of this chapter.**

B. Licensed haulers shall deliver county-supplied recycling containers to the haulers' customers, to the extent required by any county-sponsored recycling program.

C. The county shall supply county recycling haulers and licensed haulers with notice forms that the hauler must use to notify its customers if solid waste or recyclables left for collection do not conform or comply with the requirements of this article and the rules and regulations promulgated hereunder.

D. Licensed haulers shall indemnify and hold harmless Tompkins County for any pending, threatened or actual claims, liability or expenses arising from collection, transport, handling and disposal by the licensed hauler in violation of this article.

§ 140-10. Enforcement.

A. Inspections and appearance tickets.

(1) All portions of vehicles, dumpsters, garbage cans, garbage bags and other containers used to collect, haul, transport or dispose of solid waste or regulated recyclables, including recycling containers or other containers placed outside of residences or other establishments, shall be subject to inspection to ascertain compliance with this article and the rules, regulations or orders promulgated hereunder, by any police officer, peace officer, or any other public official designated by the county.

(2) Police officers, peace officers, the Solid Waste Manager and other public officials designated by the County Legislature are hereby authorized and directed to issue appearance tickets for violations of this article.

B. Penalties.

(1) Civil sanctions. The county may commence a civil action to enjoin or otherwise remedy any failure to comply with this article or the rules, regulations and orders promulgated pursuant to this article.

(2) Criminal penalties.

(a) Except as provided below, failure to comply with this article or the rules, regulations or orders promulgated pursuant to this article, shall be a violation as defined in § 55.10 of the Penal Law.

(b) Any waste generator convicted of a violation shall be liable for a fine of $15 for the first violation, $30 for the second violation and $50 for each succeeding violation.

(c) Any person, other than a waste generator, convicted of a violation shall be liable for a fine of $50 for the first violation, $100 for the second violation and $250 for each succeeding violation.

(d) If any person is convicted of three violations of this article within a period of 24 months, each subsequent failure to comply with this article or the rules, regulations or orders promulgated pursuant to this article, shall be a misdemeanor as defined in § 55.10 of the Penal Law. Any person convicted of a misdemeanor shall be liable for a fine of up to $2,500.

(3) Each commission of a single act shall constitute a separate violation of this article, and each day such violation occurs or continues shall constitute a separate offense, which may be punished and prosecuted as such.

(4) Any penalties or damages recovered or imposed under this article are in addition to any other remedies available at law or equity.

ARTICLE II
Tag System for Collection
[Adopted 6-30-1993 by L.L. No. 3-1993]

§ 140-11. Legislative declaration.

A. It is hereby declared that waste stream recycling and reduction is of importance to the health, safety, and welfare of the residents of the County of Tompkins.

B. It is further declared that the imposition of solid waste disposal costs upon generators of solid waste on the basis of the weight of solid waste disposed of provides a necessary incentive to reduce the generation of solid waste by recycling and waste reduction.

§ 140-12. Purposes.

This article prescribes the methods of payment for disposal of solid waste through private and municipal solid waste haulers and encourages the recycling of solid waste.

§ 140-13. Definitions.

As used in this article, the following terms shall have the following meanings:

CONTAINER PROGRAM SOLID WASTE — Any solid waste generated or originated on residential property and any solid waste generated or originated on commercial property that is placed at curbside for collection. Container program solid waste shall not include hazardous waste under any applicable law or regulation, or construction or demolition debris.

DISPOSAL FEE — The cost per pound for the disposal of solid waste at the facility or facilities specified by the Tompkins County Legislature pursuant to L.L. No. 3-1992.[3] The disposal fee shall not include any fees charged by solid waste haulers for the collection, hauling or handling of solid waste.

SOLID WASTE — All putrescible and nonputrescible materials or substances discarded or rejected as being spent, useless, worthless or in excess to the owners at the time of such discard or rejection, including but not limited to garbage, refuse, industrial, commercial, and agricultural waste, sludges from air or water pollution control facilities or water supply treatment facilities, rubbish, tires, ashes, contained gaseous material, incinerator residue, demolition and construction debris and offal, but not including sewage and other highly diluted water-carried materials or substances and those in gaseous form, special nuclear or by-product material within the meaning of the Atomic Energy Act of 1954, as amended, or waste which appears on the list or satisfies the characteristics of hazardous waste promulgated by the Commissioner of Environmental Conservation pursuant to § 27-0903 of the Environmental Conservation Law. Solid waste shall not include any scrap or other material of value separated from the waste stream and held for purposes of materials recycling.

SOLID WASTE HAULER — Any person, corporation or partnership in the business of collecting, transporting or handling solid waste generated or originated within the county. For purposes of this article, "solid waste hauler" includes municipalities providing hauling services.

§ 140-14. Tag system.

A. All container program solid waste placed at curbside for collection must, to the extent practical, be placed in a garbage can or a plastic bag.

B. All containers holding container program solid waste collected by solid waste haulers in Tompkins County must bear a tag stating the current disposal fee. The tag may also include a cost for hauling, administrative and collection fees charged by the solid waste hauler if those costs are listed separately from the disposal fee.

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3. Editor's Note: Local Law No. 3-1992 was superseded by L.L. No. 6-1993. See now Article III, Facilities; Licensing of Haulers, of this chapter.

C. It shall be a violation of this article for any person to place solid waste at curbside for collection without a tag required by this article.

D. No solid waste hauler may pick up container program solid waste unless the container holding the solid waste bears a tag required by this article.

E. All solid waste haulers must sell tags to their customers suitable for display on garbage cans and bags. Such tags shall be issued in weight denominations determined by the Commissioner of Public Works or his designee. All solid waste haulers must make single trash tags available for purchase by the public at at least one location or by mail.

F. Trash tags shall expire at the effective date of a change of the tipping fee charged by the county, or earlier if stated on the trash tag. All solid waste haulers must refund the cost of the trash tag to purchasers if the request for refund is made 90 days after the expiration date or sooner.

G. All solid waste haulers required to use the above described tag system are required to itemize administration, collection and hauling charges separately from trash tag fees on all billings or invoices provided to customers.

§ 140-15. Enforcement.

The Commissioner of Public Works or his designee, in consultation with the County Attorney, shall enforce the provisions of this article and all rules, regulations and designations made pursuant thereto. Such enforcement shall include but not be limited to legal or equitable proceedings, including without limitation an action for specific performance brought in the name of the county.

§ 140-16. Penalties for offenses.

A. Any person, including any solid waste hauler, who violates this article shall be guilty of an offense and subject to a fine of not more than $500 and/or imprisonment for not more than 15 days. Each and every act committed which is prohibited by § 140-14 of this article shall constitute a separate violation.

B. Upon the failure of any solid waste hauler to comply with the requirements of this article, the hauler's solid waste license shall be subject to suspension, revocation or to the imposition of conditions. The Commissioner of Public Works or his designee may initiate such action in the manner prescribed by L.L. No. 3-1992.[4]

4. Editor's Note: Local Law No. 3-1992 was superseded by L.L. No. 6-1993. See now Article III, Facilities; Licensing of Haulers, of this chapter.

ARTICLE III

Facilities; Licensing of Haulers

[Adopted 12-21-1993 by L.L. No. 6-1993]

§ 140-17. Title.

This article shall be known as the "Flow Control of Solid Waste and Haulers Licensing Law."

§ 140-18. Purposes.

This article is adopted pursuant to the laws of the State of New York to:

A. Advance the implementation of a plan for the management of solid waste generated, originated, or brought within the County of Tompkins, to promote the safety, health and well-being of persons and property within the County of Tompkins;

B. Allow for the equitable payment of solid waste management costs by those responsible for generating the solid waste and thereby foster waste reduction, recycling and integrated solid waste management;

C. Carry out the policy of the state to foster efficient solid waste management and disposal organized and administered by the county as the appropriate planning unit; and

D. Foster the state legislative purpose of encouraging the development of economical and environmentally sound projects for the present and future collection, treatment and management of solid waste.

§ 140-19. Legislative findings.

A. The county currently owns and operates a transfer station and anticipates owning and contracting for the operation of a transfer station in the foreseeable future.

B. Requiring the delivery of all acceptable solid waste to a designated facility or facilities allows the county to ensure that regulated recyclable materials are being separated from solid waste and that solid waste does not contain hazardous waste or other harmful products.

C. By requiring the delivery of acceptable solid waste to a designated facility or facilities, the county can ensure that solid waste is disposed of in an environmentally safe manner and at an environmentally safe location.

D. Requiring the delivery of all acceptable solid waste to a designated facility or facilities allows the county to accurately determine the quantity of solid waste generated in the county, and thereby allows the county to plan accordingly and to accurately meet reporting requirements.

E. By requiring the delivery of acceptable solid waste to a designated transfer station, the county can ensure that the waste is loaded into vehicles suitable for economical and environmentally sound transportation.

F. By requiring the delivery of solid waste to a particular facility or facilities, the county can collect fees from the producers of solid waste, and thereby encourage the reduction of solid waste.

G. Solid waste that is loaded into transfer trailers at a transfer station for shipment may economically travel a greater distance than solid waste which is not reloaded at a transfer station, and, therefore, the reloading of solid waste encourages and facilitates the transportation of solid waste in interstate commerce.

§ 140-20. Definitions.

As used in this article, the following terms shall have the meanings indicated:

ACCEPTABLE SOLID WASTE — All solid waste generated, originated or brought within the county other than

waste that is defined herein as hazardous waste, unregulated recyclable materials, regulated recyclable materials, or unacceptable waste. Acceptable solid waste excludes solid waste traveling through the county while being transported from a place outside the county to a destination outside the county.

BELOW REGULATORY CONCERN RADIOACTIVE WASTE — Radioactive waste that has been deregulated or is not regulated by the United States Environmental Protection Agency or Nuclear Regulatory Commission, or the New York State Department of Health or Environmental Conservation.

COMMISSIONER — The Commissioner of the Department of Public Works of Tompkins County or designee thereof.

COUNTY — The County of Tompkins.

COUNTY LEGISLATURE — The Tompkins County Legislature.

FACILITY — Any solid waste management or resource recovery facility employed beyond the initial solid waste collection process that is to be used, occupied or employed for or is incidental to the receiving, transporting, storage, processing, or disposal of solid waste or the recovery by any means of any material or energy product or resource therefrom, including but not limited to recycling centers, transfer stations, processing systems, resource recovery facilities, sanitary landfills, plants and facilities for composting or landspreading of solid wastes, secure land burial facilities, reprocessing and recycling facilities, reuse facilities, surface impoundments and waste oil storage, incinerators and other solid waste disposal, reduction or conversion facilities.

HAZARDOUS WASTE —

A. Any waste that by reason of its quality, concentration, composition or physical, chemical or infectious characteristics may do any of the following: cause or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness; or pose a substantial threat or potential hazard to human health or the environment when improperly treated, stored, transported or disposed of or otherwise mismanaged; or any waste that is defined or regulated as a hazardous waste, toxic substance hazardous chemical substance or mixture, or asbestos under applicable law, as amended from time to time including, but not limited to:

B. The Resource Conservation and Recovery Act, 42 U.S.C. § 6901 et seq. and the regulations contained in 40 CFR Parts 260-281;

C. The Toxic Substances Control Act, 15 U.S.C. § 2601 et seq. and the regulations contained in 40 CFR Parts 761-766;

D. Future additional or substitute federal, state or local laws pertaining to the identification, treatment, storage or disposal of toxic substances or hazardous waste; except that hazardous waste shall not include household hazardous waste which is accorded treatment as other than hazardous waste under applicable law;

E. Radioactive materials that are source, special nuclear or by-product material as defined by the Atomic Energy Act of 1954, 42 U.S.C. § 2011 at seq. and the regulations contained in 10 CFR Part 40;

F. Below regulatory concern radioactive waste; or

G. Solid waste so designated by the rules and regulations promulgated pursuant to this article.

PERSON — Any natural person, partnership, association, joint venture, corporation, estate, trust, association, county, city, town, village, improvement district, governmental entity or other legal entity.

RECYCLING or RECYCLED — Any method, technique or process utilized to separate, process, modify, convert, treat or otherwise prepare solid waste so that its component materials or substances may be beneficially used or reused.

REGULATED RECYCLABLE MATERIALS — Materials separated or required to be separated from the waste stream pursuant to a mandatory source separation law adopted by the county pursuant to § 120-aa of the General

SOLID WASTE — All putrescible and nonputrescible solid wastes, including but not limited to materials or substances discarded or rejected whether as being spent, useless, worthless or in excess to the owners at the time of such discard or rejection, or that are being accumulated, stored, or physically, chemically or biologically treated prior to being discarded or rejected, having served their intended use, or that are a manufacturing by-product, including but not limited to garbage, refuse, industrial, commercial and agricultural waste, sludges from air or water pollution control facilities or water supply treatment facilities, rubbish, ashes, contained gaseous material, incinerator residue, demolition and construction debris and offal, but not including sewage and other highly diluted water-carried materials or substances and those in gaseous form, or hazardous waste as defined in this article, or any unregulated recyclable materials, but shall include regulated recyclable materials.

SPECIFIED FACILITY OR FACILITIES — A facility or facilities for certain solid waste specified by the County Legislature pursuant to § 140-21 of this article.

UNACCEPTABLE WASTE — Sludges from air treatment facilities, industrial wastewater sludges that are actual point source discharges, foundry sand, loads of fly and bottom ash, discarded automobiles or major components thereof, large items of machinery and equipment from commercial sources, offal, regulated infectious or medical waste, domestic sewage, in-situ mining residues, below regulatory concern radioactive waste, and other solid waste so designated by the rules and regulations promulgated pursuant to this article.

UNREGULATED RECYCLABLE MATERIALS — Scrap or other material of value separated from the waste stream and held for purposes of material recycling, including but not limited to manufacturing by-products of value, but not including materials separated from or required to be separated from the waste stream pursuant to a mandatory source separation law adopted by the county pursuant to § 120-aa of the General Municipal Law.

§ 140-21. Designation of specified facility.

A. The County Legislature is hereby authorized to designate, by resolution, from time to time, one or more specified facilities, to which certain acceptable solid waste or regulated recyclable materials, generated or originated, or brought within the county, must be delivered. Any so specified facility or facilities shall be the only facility or facilities to which such acceptable solid waste or regulated recyclable materials shall be delivered. Such designation shall be subject to such exceptions as are set forth in the rules and regulations promulgated pursuant to this article or as the Commissioner may determine to be in the public interest.

B. Should the County Legislature designated one or more specified facilities pursuant to Subsection A above, no person shall dispose of or deliver such acceptable solid waste or regulated recyclable materials except at the designated facility or facilities.

C. Should the County Legislature designate one or more specified facilities pursuant to Subsection A above, no facility shall accept such acceptable solid waste or regulated recyclable materials, other than the designated facility or facilities.

D. Any solid waste generated or originated or brought within the county that has not been designated to be delivered to a specified facility shall be disposed of only as permitted under other state, federal and local laws.

§ 140-22. Rules and regulations.

A. The County Legislature is authorized to promulgate, revise, amend and publish rules, regulations and orders necessary to carry out the purposes of this article. Such rules, regulations and orders may, but shall not be limited to or required to, include the following:

(1) Establish or modify the disposal or other fee charged or imposed at any county owned, operated or contracted facility, which authority may not be delegated to a designee.

(2) Establish or modify the fee or fees charged for any solid waste license, or renewal, required by this

article, which authority may not be delegated to a designee.

(3) Establish or modify the fee or fees charged for any permit required by this article, which authority may not be delegated to a designee.

(4) Identify, designate and refine categories of solid waste, including categories of acceptable solid waste.

(5) Establish and maintain standards for solid waste that may be delivered and accepted at any county owned, operated or contracted solid waste facility, including prohibiting one or more categories of solid waste from being delivered or disposed of at a county owned, operated or contracted facility.

(6) Establish the detailed requirements and procedures for solid waste license applications and renewals, as well as license revocations and suspensions, consistent with the provisions of this article.

(7) Determine the form, content and procedure of records to be maintained by solid waste licensees.

B. Except as limited above, the County Legislature may delegate to its designee all or part of its power to promulgate rules, regulations and orders.

§ 140-23. Solid waste license requirement.

A. Except as otherwise provided in this section or in the rules and regulations promulgated pursuant to § 140-22, no person shall engage in the business of collecting, transporting or handling solid waste generated or originated or brought within the county without a solid waste license issued by the Commissioner, provided that only persons who collect, transport or handle solid waste for compensation shall be required to obtain a solid waste license.

B. All applications for solid waste licenses or renewal of licenses shall be in writing and shall contain such information as is required by this article and the rules and regulations promulgated pursuant to this article, and shall be verified by the applicant.

C. Within 30 days of receipt of the properly completed and signed application, the Commissioner shall either issue a solid waste license or inform the applicant, in writing, that the solid waste license applied for has been denied with an explanation of the denial. (See § 140-24 for conditions for a solid waste license.) Any decision denying a license shall be sent to the applicant by registered mail.

D. If a solid waste license application or renewal application is denied, the applicant may, within 15 days of the date the denial was mailed, file a written petition with the Commissioner demanding that a hearing be held. The hearing shall be held before the Hearing Board in accordance with § 140-26 herein.

E. Renewal licenses shall be applied for and issued in the same manner and subject to the same requirements as original licenses, and shall also be subject to any additional requirements in effect at the time of application for renewal. A complete and timely submitted application for renewal shall result in the applicant's existing license remaining in effect (provided that such license has not been suspended or revoked) until the expiration of the license or until the renewal application is acted upon by the Commissioner, whichever is later. If the application is denied and the applicant demands a hearing, the Hearing Board may, in its discretion, grant the applicant a temporary license pending the final determination of the hearing.

§ 140-24. Issuance and conditions of solid waste license.

A. Solid waste licenses required by § 140-23 shall be issued as follows:

(1) Solid waste licenses must be obtained and renewed on an annual basis from the Commissioner.

(2) The solid waste license fee or fees, including fees, if any, for each vehicle used to collect or transport solid waste by or on behalf of the licensee, shall be established by the County Legislature.

B. Solid waste licenses and renewals shall be subject to the following conditions:

(1) All licensees must comply with this article and the rules, regulations, and orders promulgated pursuant to this article. A solid waste license application or renewal application may be denied based on the failure of the applicant to comply with this article and the rules, regulations and orders promulgated pursuant to this article, or with any other federal, state or local law governing the licensee's operations.

(2) All licensees must maintain records of acceptable solid waste and regulated recyclables collected, transported or disposed of by the licensee, in accordance with the rules and regulations promulgated pursuant to this article.

(3) The licensee shall provide evidence of security from a reliable insurer or surety authorized to do business in New York State, in the form of policies for insurance or surety bonds providing for coverages as determined by the rules and regulations promulgated pursuant to this article.

(4) As a term and condition of being issued a solid waste license, a licensee shall consent that any vehicle being operated by or on behalf of the licensee may be searched and its contents examined by any police officer, County Inspector or other person designated by the County Legislature at any facility or while engaged in the collection, transportation or carrying of solid waste.

(5) No solid waste license shall be issued upon original application or renewal application to any applicant convicted of a misdemeanor or felony violation of any federal, state or local law pertaining to the collection or disposal of solid waste, unless the Commissioner finds the denial of a solid waste license to such person would not be in public interest.

(6) As a condition for renewal of a solid waste license, the licensee shall file with the Commissioner a certificate executed before a notary public attesting that the licensee has complied with this article and any and all rules, regulations and orders promulgated pursuant thereto during the term of the prior license.

(7) If the County Legislature has designated a facility pursuant to § 140-21 of this article, all licensees must deliver any solid waste required to go to a particular facility within 48 hours of picking up the solid waste. Weekends and holidays shall be excluded from the forty-eight-hour computation. If any solid waste is delivered to the designated facility or facilities in a different vehicle from that in which the solid waste was picked up, the licensee must inform the Commissioner prior to or upon delivery that the delivery vehicle contains solid waste that was picked up in other vehicles, and the other vehicles must be identified. The Commissioner may excuse a licensee from the time limit for a particular pickup if the licensee notifies the Commissioner prior to the expiration of the time period that the time requirement cannot be satisfied because of a vehicle mechanical failure or other unanticipated delay.

(8) All licensees shall be required to post a bond, security deposit or other guaranty or payment as determined by the Director of Finance. **[Amended 10-4-1994 by L.L. No. 6-1994]**

(9) The time for payment of all fees, including but not limited to the per-ton fee for solid waste, shall be determined by the Commissioner, and all licenses must comply with these payment requirements.

C. The Commissioner is hereby empowered to administer the issuance, denial, revocation or suspension of solid waste licenses, in accordance with this article and the rules and regulations promulgated hereunder.

§ 140-25. Suspension or revocation of license.

A. Upon the failure of a licensee to comply with the solid waste license conditions of this article and the rules and regulations promulgated thereunder, or any other state, federal or local law governing the licensee's operation, the Commissioner shall notify the licensee, in writing, personally served or sent by registered mail to the licensee's last known address. Such notice shall state the Commissioner's intent to revoke, suspend or

impose conditions on the licensee's solid waste license, together with the reasons for the Commissioner's action.

B. The licensee may demand a hearing by serving upon the Commissioner a written request for a hearing within 10 days from the date the Commissioner's notice is served or mailed. Hearings shall be held as provided in § 140-26 herein. If the licensee does not demand a hearing, the Commissioner may revoke, suspend or impose conditions on the license and shall promptly advise the licensee, in writing, of such action.

C. If in the judgment of the Commissioner the failure of the licensee to comply with the solid waste license conditions or the rules and regulations or other law pose a threat to the health or safety of the county or any resident of the county or if the violations will continue if action is not taken within the time period enumerated in Subsection B, the Commissioner may revoke, suspend or impose conditions on a license at any time without providing an opportunity for a prior hearing. Upon receipt of notice of revocation, suspension or the imposition of conditions, the licensee shall be entitled to a hearing within five days of receipt of demand for such hearing by the county.

§ 140-26. Hearings.

A. Hearings shall be held before a Hearing Board, which shall consist of the following people:

(1) One member of the County Legislature appointed by the Chair of the County Legislature;

(2) One member of the County Solid Waste Management Advisory Committee appointed by the Chair of the Committee;

(3) The County Administrator or designee thereof; and

(4) The County Attorney, or designee thereof, shall be an ex-officio, nonvoting member of the Hearing Board.

B. Except as provided in § 140-25C, hearings shall be scheduled to be held before the Hearing Board within 10 days of the receipt of the demand for the hearing. The hearing shall be held during regular business hours and may be adjourned or continued thereafter as the Hearing Board shall deem necessary or convenient. The Commissioner shall notify the licensee or applicant, in writing, of the time and place of the hearing at least five days before the hearing date.

C. The licensee or applicant may be represented by counsel at the hearing, and may offer evidence and cross-examine witnesses. Upon request of the licensee or applicant, the hearing shall be recorded by a stenographer.

D. The Hearing Board shall make a final determination within 10 days after the last day of the hearing, except for hearings held pursuant to § 140-25C. Final determination, on hearings held pursuant to § 140-25C shall be made within two days after the last day of the hearing.

E. The Hearing Board shall promptly notify the licensee, in writing, of its final determination, including the effective date.

§ 140-27. Permits.

A. To the extent provided in the rules and regulations promulgated hereunder, no person shall dispose of solid waste or recyclables at a facility owned or operated by or contracted for by the county without a permit issued by the county.

B. Permits must be obtained from the Commissioner.

C. The County Legislature shall establish the fee(s) for permits.

D. The terms and conditions for the permit shall be determined by the rules and regulations promulgated pursuant

to this article.

§ 140-28. Enforcement.

This article shall be enforced by:

A. Any peace officer or police officer, as provided by the Criminal Procedure Law of the State of New York.

B. The Commissioner or designee, by issuance of an appearance ticket pursuant to Article 150 of the Criminal Procedure Law of the State of New York.

§ 140-29. Penalties for offenses.

A. Civil penalties.

(1) The county may commence a civil action to enjoin or otherwise remedy any failure to comply with this article or the rules, regulations and order promulgated pursuant to this article. Any such action may include a claim for any losses suffered by the county as a result of the failure to comply.

(2) In addition to any other penalties prescribed in this article, the county may maintain an action in a court of competent jurisdiction to impound the vehicle(s) and/or equipment used in violating this article of a person required to maintain a solid waste license who is operating without a solid waste license or is operating with a suspended, revoked or expired solid waste license, or has been found guilty of or liable for serious repeated violations of this article or the rules, regulations and orders promulgated thereto.

B. Criminal procedures.

(1) Failure to comply with this article or the rules, regulations or orders promulgated pursuant to this article, shall be a violation as defined in § 55.10 of the Penal Law.

(2) Any person convicted of a violation, other than a violation of § 140-27, shall be liable for:

(a) A fine of up to $1,000 for the first violation, and a fine of up to $2,500 for the second violation, and a fine of up to $5,000 for any succeeding violations; or

(b) Imprisonment for a term of up to 15 days per violation; or

(c) Both a fine and imprisonment; and/or

(d) Community service.

(3) A person convicted of a violation of § 140-27 shall be liable for a fine of not less than $50 nor more than $500.

(4) Each commission of a single act shall constitute a separate violation of this article, and each day such violation occurs or continues shall constitute a separate offense, which may be punished and prosecuted as such.

C. Any penalties or damages recovered or imposed under this article are in addition to any other remedies available at law or equity.

ARTICLE IV
Disposal
[Adopted 9-6-1994 by L.L. No. 4-1994]

§ 140-30. Declaration of purpose.

A. The purpose and intent of this article is to prohibit the disposal of solid waste at any location other than at properly authorized facilities or sites and to prevent the unauthorized use of dumpsters and other solid waste containers.

B. The Tompkins County County Legislature acknowledges the growing costs associated with the disposal of solid waste and the resulting inclination of those who may seek to avoid such costs by depositing such material along highways, in vacant lots, on business sites, in the private dumpsters of others and in other unauthorized places. Such activities are hereby deemed to pose an imminent hazard to the public health, safety, and welfare of the residents of the county.

C. The adoption and vigorous enforcement of this article is intended to be an effective deterrent to dumping of solid waste. This article shall be liberally construed to effectuate its objectives and purposes.

§ 140-31. Definitions.

As used in this article, the following terms shall have the meanings indicated:

BELOW REGULATORY CONCERN RADIOACTIVE WASTE — Radioactive waste that has been deregulated by the United States Environmental Protection Agency or Nuclear Regulatory Commission, or the New York State Department of Health or Environmental Conservation.

DISPOSE — To abandon, discharge, deposit, inject, dump, spill, leak, or place any substance into or on any land or water or so that such substances or any constituent thereof may enter the environment. The placement of biodegradable material in a properly maintained compost pile is not disposal of solid waste.

HAZARDOUS WASTE — Includes radioactive waste (including below-regulatory-concern radioactive waste, or any radioactive waste that has been deregulated) and that waste defined to be hazardous by any federal or New York State law, code, rule or regulation.

PERSON — Any individual, firm, public or private corporation, political subdivision, government agency, municipality, industry, partnership, association, institution, trust, estate or any other legal entity whatsoever.

PROPERLY MAINTAINED COMPOST PILE — Refers to a compost pile of less than 25 cubic yards that:

A. Is maintained and operated in a safe nuisance-free manner;

B. Contains no sewage, sludge, or septage; and

C. Follows acceptable methods of composting that minimize odors and produce a useful stable end product.

SOLID WASTE — All putrescible and nonputrescible materials of substances that are discarded or rejected as being spent, worthless, useless or in excess to the owners at the time of such discard or rejection, including but not limited to garbage, refuse, industrial and commercial waste, sludge from air or water treatment facilities, rubbish, tires, ashes, contained gaseous material, incinerator residue, construction and demolition debris, discarded automobiles and offal.

§ 140-32. Prohibited activities.

A. No person shall dispose of solid waste in the County of Tompkins except at: **[Amended 12-5-1995 by L.L. No. 5-1995]**

(1) A disposal facility exempt from the requirements of 6 NYCRR Part 360 if its exempt status is unaffected

by such disposal, except that there shall be no exemption under this article for disposal areas within the property boundaries of a single-family residence or farm for solid waste generated on that residence or farm unless such disposal is either otherwise exempt or the solid waste disposed of is entirely construction and demolition debris, ashes or yard waste as defined by state law.

(2) A disposal facility authorized to accept such waste for disposal pursuant to said Part 360 or pursuant to an order issued by the New York State Department of Environmental Conservation or a court having jurisdiction.

B. No person shall own, operate, or maintain a disposal area in Tompkins County that is not authorized as provided for in Subsection A(2) or exempt as provided in Subsection A(1).

C. No person shall violate any rules or regulations promulgated by the Tompkins County Solid Waste Manager or designee with respect to activities at any solid waste facility owned, operated or leased by the County of Tompkins.

D. No person shall dispose of hazardous waste at any solid waste facility owned, operated or leased by the County of Tompkins.

E. All vehicles transporting solid wastes or recyclable materials to and/or entering any solid waste or materials recovery facility owned, leased or operated by the county or any solid waste facility in the county shall have the solid waste or recyclable materials appropriately covered or confined in the vehicle by the use of tarpaulins, nets, or other devices that prevent papers, plastics, litter, and other substances from blowing or falling out of the vehicle. Said tarpaulin, net, or cover shall not be removed until said vehicle passes a designated point within the solid waste or materials recovery facility. No person may operate a vehicle without following these requirements.

F. Each person is strictly liable for ensuring that solid waste he/she generates is properly disposed of. If solid waste generated by a person is illegally disposed of, the person generating said solid waste shall be subject to civil liability as defined in § 140-33 of this article, in addition to any other fines or penalties that may be applicable. Any indicia of ownership, including but not limited to the person's name on some or all of the solid waste, is deemed sufficient proof of ownership of said solid waste.

G. No person may place any solid waste in a dumpster, garbage can, or other solid waste container belonging to another person without the permission of the owner or person legally entitled to use said dumpster or solid waste container.

§ 140-33. Enforcement; penalties for offenses.

A. Any person who commits a violation of § 140-32A, B, C, or G above is subject to arrest. Punishment upon conviction shall be as follows:

(1) First offense. Conviction of a first offense under this article shall be punishable by a fine of not less than $100 nor more than $500, and/or a term of imprisonment not to exceed 15 days, together with restitution based on avoided disposal fees and cost of collection and hauling, and/or community service. Violation of this provision shall be a violation as defined by § 55.10(3) of the Penal Law of the State of New York.

(2) Second or subsequent offense. Conviction of a second or subsequent offense within a year of the first offense shall be punishable by a fine or not less than $500 nor more than $1,000 and/or a term of imprisonment not to exceed six months, together with restitution based on avoided disposal fees and cost of collection and hauling, and/or community service. Violation of this provision shall be a misdemeanor as defined by § 55.10(2) of the Penal Law of the State of New York.

(3) Conviction of any company, partnership, municipality, or any entity other than an individual person shall be subject to a fine of not less than $500 nor more than $2,500 and/or community service and/or

restitution.

B. Any person who violates § 140-32D above shall be guilty of a misdemeanor and, upon conviction, shall be punishable by a fine or not less than $500 nor more than $5,000 for a first offense; and for a second and each subsequent offense, he/she shall be guilty of a misdemeanor and, upon conviction thereof, shall be punishable for a fine of not less than $3,000 nor more than $20,000 or a term of imprisonment of not more than six months, or both.

C. Any person who commits a violation of § 140-32E above is subject to arrest and punishment, upon conviction, of a fine of not less than $50 and/or a term of imprisonment not to exceed 15 days and/or community service.

D. Each day during which an offense continues shall be deemed to be a separate offense.

E. Enforcement of Subsections A through D shall be effected as follows:

(1) By a peace officer or police officer as provided by the Criminal Procedure Law of the State of New York;

(2) By the Tompkins County Solid Waste Manager and/or the Public Health Director or their designees by issuance of an appearance ticket pursuant to Article 150 of the Criminal Procedure Law of the State of New York.

F. Persons violating § 140-32F shall be liable for a civil penalty of $50 for the first offense, $100 for a second offense and $500 for a third or subsequent offense. Said persons shall also be liable for any expense in removing the illegally disposed of waste. This provision shall be enforced by a delivery of a notice of civil penalty by a police officer, peace officer, or the Solid Waste Manager or designee thereof, either in person or by certified mail. Failure to pay said civil penalty may result in the commencement of a civil action by the County Attorney or his designee. Upon commencement of an action, the person shall be liable for attorneys' fees in an amount of $100, in addition to the civil penalty.

G. Civil enforcement. Notwithstanding the penalties set forth above, the Tompkins County Attorney may institute a civil action to obtain restitution to the County of Tompkins from such offender for the actual costs incurred in rectifying the problem created by the aforesaid violation or improper disposal of solid waste, or to abate, enjoin, or otherwise compel cessation of the violation of any provision of this article.

H. Any person who commits a violation of this article, including any activity described in § 140-32, shall, in addition to any other fines and penalties provided for by this article, be liable to pay restitution to the county or any other person that incurs costs in collecting, hauling, or properly disposing of solid waste or hazardous waste incurred as a result of the offense.

I. Enforcement. This article is enforceable throughout the county. It does not supersede ordinances enacted by municipalities within Tompkins County that regulate the disposal of solid waste if such ordinances are not inconsistent with this article.

Appendix D

Existing Educational Flyer

What's Accepted at the Curb

Cardboard & Mixed Paper
Clean pizza boxes, cereal boxes, mail, newspaper, magazines, office paper, and paperback books

Paper Cartons & Drink Boxes
Milk, juice, and soup boxes including Tetra Pak® cartons

Plastics
Plastics marked #1, #2, #5 including yogurt cups, milk jugs, and detergent bottles

Glass Containers
Clear, green, and brown food and beverage containers

Metal Cans & Foil
Aluminum foil and pie plates, food cans, and empty aerosol cans from food and cosmetic products

Additional Recyclables

Accepted at Recycling and Solid Waste Center Drop-off Area:

- Batteries - NiCad, lead acid, lithium ion, rechargeable
- Electronics
- Fats, oils, grease (FOG) from cooking
- Food scraps
- Freon® and coolant units* (ex: air conditioners, dehumidifiers, refrigerators)
- Rigid plastics**
- Glass containers
- Propane tanks
- Scrap metal
- Textiles & clothing (clean, dry and odorless)
- Tires*
- Yard waste*

* *A solid waste permit and fee are required for these items. Items are subject to change without notice.*
** *See www.recycletompkins.org for a list of acceptable items*

Food Scraps

Save money and reduce waste by recycling your food scraps free of charge at Drop Spots across Tompkins County.

Drop Spots Include:

- Brooktondale Community Center
- Cayuga Compost
- Cayuga Heights Village Office
- Cornell Cooperative Extension
- Danby Town Hall
- Dryden Town Highway Dept.
- East Hill Farmers Market
- East Hill Plaza
- Enfield Town Clerk
- Groton Town Clerk's Office
- Hancock & 5th Street, Ithaca
- Lansing Village Office
- Newfield Town Hall
- Recycling and Solid Waste Center
- Tompkins County Highway Dept.
- Trumansburg Farmers' Market
- Trumansburg Village Public Works

Visit www.recycletompkins.org/dropspots for hours.

NOT SURE WHETHER AN ITEM CAN BE RECYCLED?
Search for it using the "What Do I Do With...? " feature at www.recycletompkins.org

JULY 2023-JUNE 2024

Curbside Recycling Guidelines for Tompkins County

RECYCLING AND MATERIALS MANAGEMENT OF TOMPKINS COUNTY

Curbside Pickup Schedule

Recycling collection is provided at the curb for County residents every other week. Refer to the table below to find your pick-up day. The calendar below shows green shaded and non-shaded weeks through June 2024.

Set out recycling by 6:00 am on your scheduled day unless otherwise noted. Late set-outs will not be collected until the next scheduled pick-up day. Visit www.recycletompkins.org to sign up for automatic reminders via phone, email, or text. Residents can also bring their recyclables to the Recycling and Solid Waste Center at no charge.

Non-Shaded Weeks

CITY OF ITHACA
Set out by 4:00 am.
Visit www.recycletompkins.org or call 273-6632 for pick-up day.

TOWNS
Caroline ..... Monday
Danby ..... Monday
(excluding West Danby)
Dryden ..... Thursday
North of and including Rte. 13
Groton ..... Wednesday
West of Rte. 38
Ithaca ..... Friday
West of Rte. 96B
Newfield ..... Tuesday
West Danby ..... Tuesday

VILLAGES
Cayuga Heights ..... Friday
(set out by 7:30 am)
Dryden ..... Thursday
Freeville ..... Friday
Lansing ..... Wednesday
Trumansburg ..... Wednesday

Shaded Weeks

TOWNS
Dryden ..... Thursday
South of Route 13
Enfield ..... Friday
Groton ..... Wednesday
East of and including Rout. 38
Ithaca ..... Tuesday
East of and including Route 96B
Lansing ..... Monday
Ulysses .....Friday

VILLAGES
Groton..... Wednesday

● **= HOLIDAYS**
There is no recycling collection on these days. All pickups will be one day later for the rest of the holiday week.

Schedule subject to change. In the event of severe weather, collection may be delayed. For updated information visit www.recycletompkins.org.

2023

July

S	M	T	W	Th	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

August

S	M	T	W	Th	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

September

S	M	T	W	Th	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

October

S	M	T	W	Th	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

November

S	M	T	W	Th	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

December

S	M	T	W	Th	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

2024

January

S	M	T	W	Th	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

February

S	M	T	W	Th	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29		

March

S	M	T	W	Th	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

April

S	M	T	W	Th	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

May

S	M	T	W	Th	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

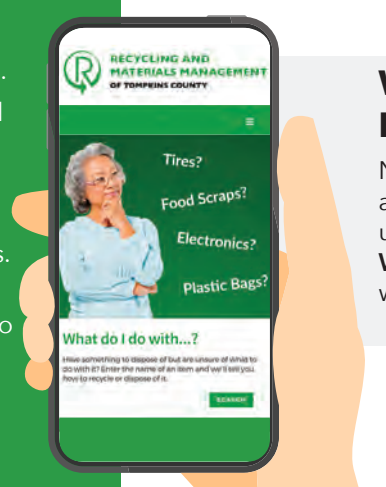
June

S	M	T	W	Th	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

Single Stream Recycling

Before materials go in the bin:

- Empty all containers.
- Rinse containers of residue.
- Lids, labels, neck rings, and caps on containers are OK.
- Staples in office paper or envelopes are OK.
- Flatten all cardboard boxes.
- Items must be no smaller than 2 square inches and no larger than a 5 gallon pail.



What do I do with...?

Not sure what to do with an item? Search for it using the **What Do I Do With...?** tool at www.recycletompkins.org

Metal Cans & Foil

Aluminum foil and pie plates, food cans, and empty aerosol cans from food and cosmetic products

Cardboard & Mixed Paper

Clean pizza boxes, cereal boxes, newspaper, mail, magazines, office paper, and paperback books

Plastic Containers

Plastics marked #1, #2, #5 including yogurt cups, milk jugs, and detergent bottles

Paper Cartons & Drink Boxes

Milk, juice, and soup boxes including Tetra Pak® cartons

Glass Containers

Clear, green, and brown food and beverage containers

When in Doubt, Keep it Out

These Items Don't Belong in Your Recycling Bin

- BATTERIES
- COMPOSTABLE DISPOSABLES
- CONTAINERS FROM HAZARDOUS WASTE
- DRINKING GLASSES, PYREX®, OR COFFEE POTS
- ELECTRONICS/APPLIANCES
- HANGERS
- ICE CREAM CARTONS AND FROZEN FOOD PACKAGING
- PADDED ENVELOPES
- PAPER TOWELS, NAPKINS, CUPS & TISSUES
- PLASTICS #3, #4, #6, #7, OR UNMARKED
- PLASTIC BAGS OR FILM
- PVC PIPE
- RIGID PLASTICS
- STYROFOAM®
- SYRINGES
- TEXTILES/CLOTHING
- TRASH (I.E. FOOD, METAL, WOOD, DIAPERS)

Don't see an item above? Find the proper method at recycletompkins.org

What do I do with...? SEARCH

Recycle Right in Tompkins County

Single Stream Recycling

Paper, glass, metal and plastic containers go in the same recycling bin.

Recycling Bin Options:

1. County green recycling bin

- Bins (18 or 22 gallon size) can be purchased at the Tompkins County Recycling and Materials Management office.

2. Use a recycling container of your choice

- Size: Up to 50 gallons.
- Weight: Up to 40 pounds when full.
- Container may have wheels and a lid.
- Mark your container with an "R" decal. (Decals are available for free at the TCRMM Office, the Public Drop-Off Area of the Recycling and Solid Waste Center, all food scraps drop spots and municipal offices, as well as several other locations).

To prepare your recyclables:

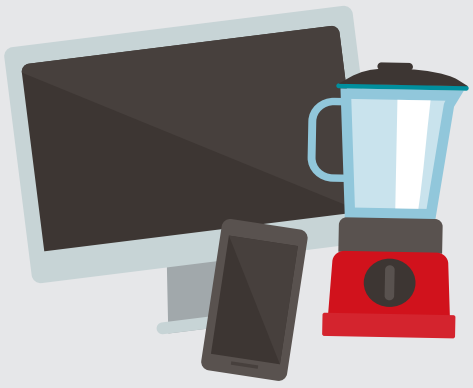
- Empty all containers and rinse out residue.
- Place your recycling bin at the curb no later than **6:00 am** on your scheduled collection day (**4:00 am** in the City of Ithaca).
- Put "R" decals on both side of your recycling bin parallel to the road so the collector can see it.
- Flatten cardboard. If it does not fit in your recycling bin, place next to the bin in stacks no more than 4' x 4' x 4'.
- **DO NOT** put plastic bags in your recycling bin or leave items in a plastic bag for pick up. **They will not be collected.**

If your recycling is picked up on the same day as your trash, place your bin at least 2 feet from your trash so the collector can easily see your recycling bin.

REJECTION

Recycling bins with **unacceptable items** will receive a red "Rejected" sticker and the contents of the bin **will not be collected.**

Donate Working Items



Finger Lakes ReUse, Inc.
Accepting quality reusable building materials, furniture, housewares, electronics and more. Donations are tax deductible.

For a list of locations and hours of operation, visit www.ithacareuse.org or call (607) 257-9699

Household Hazardous Waste

Household Hazardous Waste (HHW) is material that must be handled and disposed of properly due to dangers it poses to our health and the environment.

Visit www.recycletompkins.org/hhw for drop-off event dates and to register in advance, or call the TCRMM office. A solid waste permit is required.

HAVE QUESTIONS?

www.recycletompkins.org • 607-273-6632

Tompkins County Recycling and Materials Management:
122 Commercial Avenue,
Ithaca, NY 14850
Monday-Friday 8:00am - 4:30pm

Recycling and Solid Waste Center:
160 Commercial Avenue,
Ithaca NY 14850
Monday-Saturday 7:00am - 3:30pm

FOOD SCRAPS RECYCLING

Fork 'em Over!

DROPPING OFF YOUR FOOD SCRAPS

Residents can bring food scraps and paper napkins and towels, free of charge, to any of our Drop Spots in Tompkins County.

IT'S EASY:

Kitchen Caddy
Collect your food scraps in your kitchen caddy, available free of charge. For added convenience, use a compostable liner.

Transport Container
Empty your kitchen caddy into a larger container with a secure lid. Transport containers can be purchased at the Recycling and Materials Management Office, or use your own container.

Drop-Off Tote
Bring your container to any drop spot and place food scraps - compostable liner and all - into the tote.

WHAT'S ACCEPTED:

- Bread, Grains, & Beans
- Compostable Bin Liners
- Paper Napkins & Towels
- Meat, Fish, & Bones
- Eggs & Dairy
- Fruits & Vegetables
- Coffee Grounds/Paper Filters & Tea Bags

WHAT'S NOT ACCEPTED:

- Pet Waste
- Paper Plates and Cups
- Compostable Serviceware
- Plastic (inc. bags)
- Utensils
- Yard Waste

DROP SPOTS:

Tompkins County
Recycling and Solid Waste Center
Monday-Saturday, 7:00am - 3:30pm

Brooktondale Community Center
Tuesdays, 4:00pm-6:00pm

Cayuga Compost
Trumansburg, *Open 24 hours*

Cayuga Heights Village Office
Sundays, 11:00am - 3:00pm

Cornell Cooperative Extension - Ithaca
Sundays, 10:00am - 2:00pm

Danby Town Hall
Saturdays, 9:00am-Noon

Dryden Town Highway Dept.
Saturdays, 9:00am-Noon

East Hill Plaza - Ithaca
Saturdays, 11:00am-2:00pm
Wednesdays 3:00pm-6:00pm
(during Farmers Market)

Enfield Town Clerk's Office
Saturdays 9:00am-11:00am

Groton Town Clerk's Office
Saturdays, 9:00am-11:00am

Hancock & Fifth Street - Ithaca
Wednesdays, 4:00pm-6:00pm

Lansing Village Office
Saturdays, 10:00am-1:00pm

Newfield Town Hall
Thursdays, 4:00pm-6:00pm

Tompkins County Highway Dept.
Bostwick Road - Ithaca
Saturdays, 9:00am-Noon

Trumansburg Farmers' Market
4:00pm-7:00pm (during market)

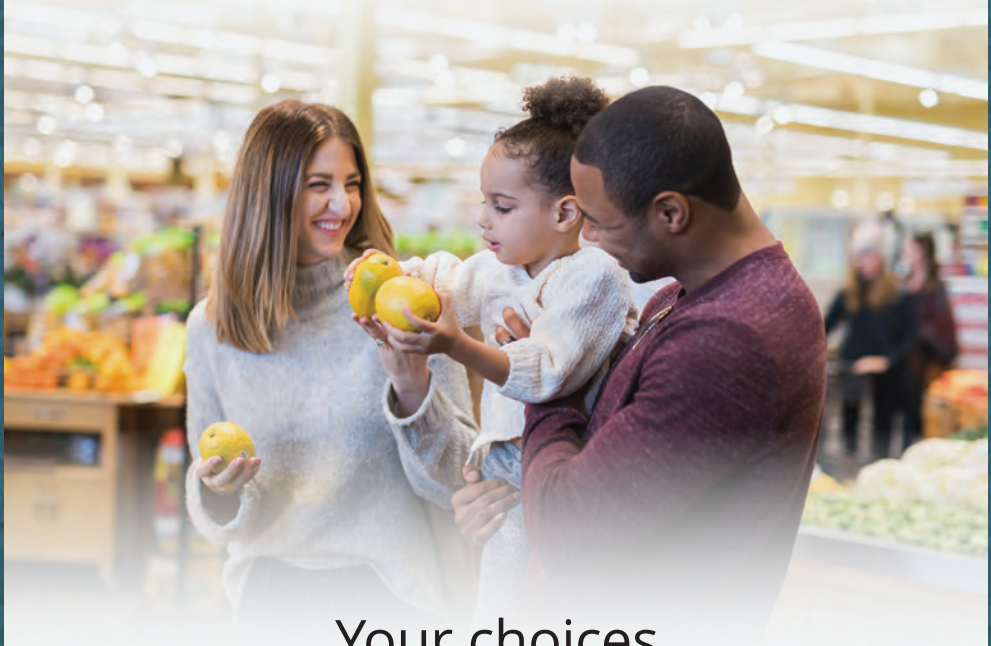
Trumansburg Village Public Works
Saturdays, 9:00am-Noon

Users may bring up to 10 gallons per day.
Replacement compostable liners are available.
Please NO plastic bags.

Tompkins County Recycling and Materials Management
www.recycletompkins.org | 607-273-6632

Printed on 100% Recycled Paper.

Smart Food Waste Prevention



Your choices **make a big difference.**

Your shopping, food storage, and and cooking choices can make a big difference in how much food you waste. Eat better, save money and help the environment by following our tips on the next page.

For more tips on reducing food waste visit www.recycletompkins.org

NEW YORK STATE OF OPPORTUNITY Department of Environmental Conservation

Funding provided by a grant from the NYS Department of Environmental Conservation.

Food Waste Prevention Tips

Smart Shopping

Change shopping choices to waste less food and save more money.

- Shop from your pantry first. What do you already have?
- Think about how many meals you'll eat at home this week and how long it will be before your next shopping trip.
- Consider how much you need when it comes to fresh foods. Will you use them up before they can spoil?

Smart Storage

Keep food fresh longer.

- Store leftovers in clear containers so you can see what's inside.
- Use your freezer to press pause on some foods.
- Freeze in smaller quantities that are convenient for each use (ex: freeze each serving of soup separately).
- Learn how to best use the different areas of your fridge (e.g. raw meat on the bottom, leafy veggies in the high humidity crisper, cooked leftovers and condiments on the top shelf)

Smart Cooking

Change food preparation choices to waste less food.

- Create meals from leftovers.
- Prepare and cook perishable items, then freeze them for use throughout the month.
- Plan ahead to use items that are abundant in season.

Food Waste Myths

Many commonly held beliefs that lead to wasted food aren't true.

Myth: You have to throw out food when it passes its expiration date.

False - Expiration dates indicate guaranteed freshness, not safety. Food is usually still fresh after the expiration date passes. Use your sense of sight and smell to identify spoilage.

Myth: It is unsafe to donate food.

False - The Good Samaritan Act makes it possible to donate surplus food without liability.

Appendix E

Alternative Technology Evaluation

Implementation Item: 1

Title: Waste Reduction Programs

Administrative/Technical Impacts:

Quantitative/Qualitative Impacts on Waste Stream:

The Waste Reduction Program is expected to reduce overall generation of select MSW.

Types and Sizing of Facilities or Program:

This program would not affect sizing of current facilities. While new systems for sharing platforms may facilitate this activity, no specific infrastructure is required by the County. Waste reduction allows facilities within the Planning Unit to maintain the current size.

Summary of Cost Data for Evaluation:

Waste reduction efforts are not expected to have a significant cost to the County or residents.

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

MSW reduction is expected to conserve natural resources. Significant energy production or job creation is not anticipated.

Jurisdictional Impacts:

Interest in Participation by Neighboring Planning Units:

Should waste prevention programming be promoted through a statewide effort, neighboring planning units may participate in a similar campaign. Resources for developing waste reduction programs may be available to share with neighboring counties. A consistent message between planning units would support educational efforts.

Alternatives Available with Participation by Neighboring Planning Units:

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

Recommendations from Neighboring Planning Units:

N/A

Assessment of Environmental Justice Impacts:

According to the NYSDEC Environmental Justice Area Mapper, there are 22 potential environmental justice areas located in Tompkins County. There is no known or environmental justice impact in Tompkins County associated with waste reduction.

Selected Alternatives Identification:

Reasons for Being Chosen:

Waste reduction is a low-cost method for furthering sustainable materials management efforts.

Expected Quantitative and Qualitative Impacts On:

Waste Reduction, Reuse, and Materials Recovery:

This activity is expected to reduce waste, promote reuse, and increase materials recovery. Please see Chapter 7.0 Waste Stream Projections for additional detail.

Participation in Recovery Opportunities:

Activity for this implementation item is expected to enhance program participation.

Product Stewardship:

Product stewardship presents an opportunity to reduce waste through design; new opportunities may be revealed through program development.

Economic, Administrative, or Partnership Benefits:

Opportunities exist to connect with local partners to support the sharing economy. Administrative resources will be utilized to support programming.

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

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

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

None at this time.

Implementation Item: 2

Title: Reuse Programs

Administrative/Technical Impacts:

Quantitative/Qualitative Impacts on Waste Stream:

The Reuse Program is expected to reduce select MSW waste volumes through a direct focus on strategies to recover and redistribute secondhand materials prior to disposal. Deconstruction can significantly reduce building material waste.

Types and Sizing of Facilities or Program:

Additional infrastructure within the county would support increased activity for reuse. Development and expansion of Wholesale Hubs and materials exchanges will further this aim. The County will also evaluate the feasibility of a central dishwashing facility to promote reuse. Additionally, there is opportunity to explore options to increase collection and sorting of reusable items at the RSWC.

Summary of Cost Data for Evaluation:

Additional costs for this program include expansion of current operations at the RSWC, as well as support of reuse infrastructure and intiatives.

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

Reuse conserves natural resources. Significant energy production is not anticipated. Workforce development opportunities will arise with increased activity - at retail, construction, and processing facilities.

Jurisdictional Impacts:

Interest in Participation by Neighboring Planning Units:

Neighboring planning units could potentially collaborate for promotion of reuse - through consistent messaging or a statewide campaign. Collaboration between reuse operations and programs within neighboring counties may alleviate materials flow and capacity issues as they arise. Workforce development can be leveraged to bolster skills throughout the region.

Alternatives Available with Participation by Neighboring Planning Units:

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

Recommendations from Neighboring Planning Units:

N/A

Assessment of Environmental Justice Impacts:

Promotion of reuse programming can increase the volume of donated items, making materials available at a lower cost. Job training and skill building opportunities arise from the local reuse economy. Deconstruction may provide opportunity for environmentally preferred handling of building materials in vulnerable communities.

Selected Alternatives Identification:

Reasons for Being Chosen:

Reuse provides opportunities for cost avoidance, reduction in environmental impact, and job creation.

Expected Quantitative and Qualitative Impacts On:

Waste Reduction, Reuse, and Materials Recovery:

This activity is expected to reduce waste, increase reuse, and enhance recycling. Please see Chapter 7.0 Waste Stream Projections for additional detail.

Participation in Recovery Opportunities:

Activity for this implementation item is expected to enhance program participation.

Product Stewardship:

Right to Repair legislation and other strategies may further reuse during the planning period.

Economic, Administrative, or Partnership Benefits:

Partnership opportunities exist throughout the community to spur outlets, programming and skill building. Sale of secondhand items will positively impact the local economy.

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

TCRMM anticipates a need to develop an additional program budget for reuse to support these efforts. Incorporating this into the existing administrative, contractual, and financial structure will be sufficient to support ongoing and proposed reuse activities.

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

None at this time.

Implementation Item: 3

Title: Recyclables Recovery

Administrative/Technical Impacts:

Quantitative/Qualitative Impacts on Waste Stream:

The Recycling Program is expected to reduce MSW volumes. Should Packaging EPR legislation pass in 2023, it is anticipated that recycling rates will increase with additional focus on these materials. Additional EPR programs may lead to further material recovery.

Types and Sizing of Facilities or Program:

Activity will continue for collection and transfer at the RSWC; should additional materials be accepted, increased infrastructure may be needed. Residential curbside collection program will continue. Educational programming will continue to be offered to support theses efforts.

Summary of Cost Data for Evaluation:

Anticipated costs associated with this program include operations at the RSWC, curbside collection, public space recycling, and education and outreach. Fluctuations in the recycling market, as well as labor, fuel, and the consumer price index will impact program costs.

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

Increased recycling will lead to additional conservation of natural resources. No energy production is anticipated. Potential future changes may result in limited job creation.

Jurisdictional Impacts:

Interest in Participation by Neighboring Planning Units:

Neighboring planning units could collaborate for promotion of recycling, such as through the statewide "Recycle Right" campaign. Collected recyclables are processed at a regional MRF through a public-private partnership.

Alternatives Available with Participation by Neighboring Planning Units:

Recycling programs will continue with single stream processing at a regional facility.

Recommendations from Neighboring Planning Units:

N/A

Assessment of Environmental Justice Impacts:

There is not a known or expected environmental justice impact in Tompkins County with the proposed recycling program.

Selected Alternatives Identification:

Reasons for Being Chosen:

Recycling supports highest and best use of materials, is required by law, and when economics are favorable, provides opportunities for cost avoidance.

Expected Quantitative and Qualitative Impacts On:

Waste Reduction, Reuse, and Materials Recovery:

This activity is expected to increase recycling rates. Please see Chapter 7.0 Waste Stream Projections for additional detail.

Participation in Recovery Opportunities:

It is anticipated that activity for this implementation will enhance program participation.

Product Stewardship:

Information from recycling programs may provide insight into potential future product stewardship initiatives.

Economic, Administrative, or Partnership Benefits:

TCRMM expects to continue to collect, process, and market recyclables through a public-private partnership. Recycling markets will impact costs of the program. EPR programs may alleviate the cost burden on the local community.

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

The existing administrative, contractual, and financial structure will be evaluated during the planning period to ensure the ability to support ongoing and proposed recycling activities.

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

The mandatory recycling law will be reviewed during the planning period and it is anticipated that there may be some resulting modifications.

Implementation Item: 4

Title: Organic Recovery

Administrative/Technical Impacts:

Quantitative/Qualitative Impacts on Waste Stream:

Food waste prevention, donation, residential organics recycling, and commercial organics recycling programs are anticipated to increase diversion across the Planning Unit. Key changes and growth over 10-years include increased hauler activity, food scraps drop spots, multifamily recycling, adjustments to the NYS Food Donation and Food Scraps Recycling law, and curbside collection.

Types and Sizing of Facilities or Program:

Public-private partnerships support program activity, as well as TCRMM operations, including a food scraps transfer station at the RSWC. Drop spots are operated on partner locations, and local non-profits coordinate donation programs. Educational programming will continue to support efforts, including a partnership with CCETC.

Summary of Cost Data for Evaluation:

Costs include contractual processing and transportation fees, educational expenses, operational costs for the drop spots, multifamily, and curbside recycling collection, and educational programming.

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

Increased organics management conserves natural resources and reduces greenhouse gas emissions. No energy production is anticipated. Potential future changes may result in limited job creation related to hauling.

Jurisdictional Impacts:

Interest in Participation by Neighboring Planning Units:

Neighboring planning units could potentially collaborate for promotion of onsite composting, such as through the International Compost Awareness Week efforts.

Alternatives Available with Participation by Neighboring Planning Units:

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

Recommendations from Neighboring Planning Units:

N/A

Assessment of Environmental Justice Impacts:

Education, outreach, and programming will be developed with a lens to diversity, equity, and inclusion to mitigate and alleviate potential environmental justice impacts. New programming will include a focus on service in environmental justice areas.

Selected Alternatives Identification:

Reasons for Being Chosen:

Whole-hierarchy organics management strategies provide an opportunity to reduce waste before it is created. TCRMM's programs aim to provide equitable access to a variety of solutions for organics handling.

Expected Quantitative and Qualitative Impacts On:

Waste Reduction, Reuse, and Materials Recovery:

This activity is expected to reduce waste, increase donation activity, and increase diversion to composting. Please see Chapter 7.0 Waste Stream Projections for additional information.

Participation in Recovery Opportunities:

Work through this implementation item is expected to enhance program participation.

Product Stewardship:

No anticipated impact on product stewardship.

Economic, Administrative, or Partnership Benefits:

Food waste prevention may offer economic benefits for community businesses. Administrative resources, including an additional Recycling Driver, will be allocated to this program. Public-private partnerships will support extensive program implementation.

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

As programs grow it is anticipated that costs will increase, and additional funds or cost sharing with other entities will likely be required.

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

The mandatory recycling law will be reviewed during the planning period, and consideration for a local organics recycling law will be reviewed. Should the NYSDEC reduce the threshold of the Food Donation and Food Scraps Recycling Law, it is anticipated that recycling rates will greatly increase.

Implementation Item: 5

Title: Rethink

Administrative/Technical Impacts:

Quantitative/Qualitative Impacts on Waste Stream:

Rethink programs are anticipated to support diversion across the Planning Unit through initiatives such as statewide product stewardship activities, green purchasing practices, and systems redesign for reducing waste.

Types and Sizing of Facilities or Program:

Infrastructure for product stewardship activities will be identified and supported through legislation. Green purchasing activities can support new community services.

Summary of Cost Data for Evaluation:

Product stewardship may lead to decreased costs for materials management by shifting these costs to producers.

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

Increased recycling conserves natural resources. No energy production is anticipated. Potential future changes may result in job creation.

Jurisdictional Impacts:

Interest in Participation by Neighboring Planning Units:

A statewide adoption of and promotion for EPR and green purchasing efforts can lead to furthering these activities.

Alternatives Available with Participation by Neighboring Planning Units:

Activities with this program are not dependent on the participation of neighboring planning units, though regional approaches may further diversion and increase availability of green products and services.

Recommendations from Neighboring Planning Units:

N/A

Assessment of Environmental Justice Impacts:

There is not a known or expected environmental justice impact in Tompkins County with the program.

Selected Alternatives Identification:

Reasons for Being Chosen:

Programming to rethink waste minimizes generation of materials before they are created. These strategies are cost effective and provide long-term exponential impact as improvements through this iterative process lead to a circular economy.

Expected Quantitative and Qualitative Impacts On:

Waste Reduction, Reuse, and Materials Recovery:

This activity is projected to reduce waste, increase reuse, and improve materials recovery rates. Please see Chapter 7.0 Waste Stream Projections for additional detail.

Participation in Recovery Opportunities:

Additional program participation is anticipated from this implementation item.

Product Stewardship:

This strategy may lead to an increase in product stewardship activity.

Economic, Administrative, or Partnership Benefits:

As the state adopts new product stewardship efforts, there may be an increase in financial support for materials management. Demonstration of support for product stewardship by municipalities may lead to state-level activity. Increased green purchasing may lead to some increased purchasing costs as well.

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

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

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

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

Implementation Item: 6

Title: Residue

Administrative/Technical Impacts:

Quantitative/Qualitative Impacts on Waste Stream:

TCRMM will manage solid waste from the county in a manner that is environmentally sound, cost effective, and socially responsible. A PAYT trash tag system has been implemented to incentivize diversion prior to disposal.

Types and Sizing of Facilities or Program:

Implementation items 1-5 focus on waste reduction to ensure that current facility infrastructure is suitable for managing residue.

Summary of Cost Data for Evaluation:

The PAYT trash tag system requires payment by generation rate (weight) for disposal. Management of closed landfills is supported through the Solid Waste Annual Fee.

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

PAYT creates an incentive for waste reduction, supporting natural resource conservation. HHW programs and closed landfill monitoring mitigate potential environmental issues. Installation of solar panels on closed landfills would generate energy.

Jurisdictional Impacts:

Interest in Participation by Neighboring Planning Units:

Material generated in Tompkins County is currently handled at an out-of-county landfill through a public-private disposal contract.

Alternatives Available with Participation by Neighboring Planning Units:

Contracts for disposal with entities that have out-of-county disposal sites will ensure ongoing management of MSW.

Recommendations from Neighboring Planning Units:

N/A

Assessment of Environmental Justice Impacts:

PAYT provides a financial incentive to reduce waste, and broad 4R programs support all individuals in reducing waste and mitigating the cost of disposal. HHW collection days currently require individuals to deliver materials to the RSWC; options for mobile collection to provide broader access will be considered.

Selected Alternatives Identification:

Reasons for Being Chosen:

PAYT incentivizes waste reduction and charges on a per generation basis. HHW programs manage material efficiently and in an environmentally sound manner. Monitoring closed landfills minimizes the potential for environmental issues.

Expected Quantitative and Qualitative Impacts On:

Waste Reduction, Reuse, and Materials Recovery:

The incentive PAYT structure is projected to reduce waste, and promote reuse and materials recovery. See Chapter 7.0 Waste Stream Projections for additional detail.

Participation in Recovery Opportunities:

Additional program participation is anticipated from this implementation item.

Product Stewardship:

No anticipated impact on product stewardship.

Economic, Administrative, or Partnership Benefits:

PAYT places the cost of disposal on the generator, creating a sustainable long-term system for payment of disposal costs.

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

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

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

The Tag System for Collection law will be reviewed during the planning period for needed modifications.

Implementation Item: 7

Title: Local Laws and Enforcement

Administrative/Technical Impacts:

Quantitative/Qualitative Impacts on Waste Stream:

Local laws incentivize diversion, require recycling, establish a system for hauler licensing and data reporting, and disincentivizes illegal dumping of material. This provides a framework to support a countywide materials management system.

Types and Sizing of Facilities or Program:

This implementation item is not anticipated to impact facility sizing or programming in the coming planning period.

Summary of Cost Data for Evaluation:

To support this program, funding will be needed to provide additional enforcement, possibly through collaboration with the Sheriff's Department. Current staffing levels will need to be maintained to ensure support for enforcement programs.

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

Local laws support natural resource conservation by mandating recycling and encouraging proper material handling.

Jurisdictional Impacts:

Interest in Participation by Neighboring Planning Units:

At this time, no collaboration with neighboring planning units is anticipated.

Alternatives Available with Participation by Neighboring Planning Units:

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

Recommendations from Neighboring Planning Units:

N/A

Assessment of Environmental Justice Impacts:

There is no known or anticipated environmental justice impact associated with this program.

Selected Alternatives Identification:

Reasons for Being Chosen:

Local laws were established to create a framework that incentivizes waste reduction and recycling, while ensuring data collection and proper management of residue.

Expected Quantitative and Qualitative Impacts On:

Waste Reduction, Reuse, and Materials Recovery:

Local laws are designated to enhance waste reduction, reuse and materials recovery. Chapter 7.0 Waste Stream Projections offers additional detail.

Participation in Recovery Opportunities:

This program is designed to promote participation.

Product Stewardship:

No anticipated impact on product stewardship.

Economic, Administrative, or Partnership Benefits:

Activity for this implementation item will support enhanced partnerships with local collectors. Hauler licensing creates a fair system from which all haulers benefit. Long term, these laws provide financial benefit by preserving environmental health.

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

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

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

Local laws will be reviewed and modified to address concerns that have been identified over time. Enforcement efforts will be ongoing.

Implementation Item: 8

Title: Communications

Administrative/Technical Impacts:

Quantitative/Qualitative Impacts on Waste Stream:

A comprehensive communication strategy for department programs will support education and outreach for the 4Rs, and continue to enhance diversion efforts.

Types and Sizing of Facilities or Program:

This program is not anticipated to affect sizing of current facilities.

Summary of Cost Data for Evaluation:

Communication efforts are not expected to significantly increase administrative costs.

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

No direct impacts on natural resources, energy production, or job creation are anticipated.

Jurisdictional Impacts:

Interest in Participation by Neighboring Planning Units:

Opportunities may exist for co-promotion of 4R programming with neighboring planning units or communities across the state.

Alternatives Available with Participation by Neighboring Planning Units:

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

Recommendations from Neighboring Planning Units:

N/A

Assessment of Environmental Justice Impacts:

The communications plan will be developed with an aim to reach residents and businesses throughout the county and provide access to services.

Selected Alternatives Identification:

Reasons for Being Chosen:

Strong communication supports 4R programming and adoption of new strategies and techniques for a circular economy.

Expected Quantitative and Qualitative Impacts On:

Waste Reduction, Reuse, and Materials Recovery:

This activity is anticipated to reduce waste, increase reuse, and improve materials recovery rates. Please see Chapter 7.0 Waste Stream Projections for additional information.

Participation in Recovery Opportunities:

This implementation item is expected to increase program participation.

Product Stewardship:

No anticipated impact on product stewardship.

Economic, Administrative, or Partnership Benefits:

Opportunities exist to collaborate with and acknowledge local partners when conducting outreach. Administrative resources will be utilized to support programming.

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

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

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

None at this time.

Implementation Item: 9

Title: Data Collection and Evaluation Efforts

Administrative/Technical Impacts:

Quantitative/Qualitative Impacts on Waste Stream:

Collected data will be used to monitor progress and inform program development, with an aim for reducing, reusing, recycling, and rethinking waste.

Types and Sizing of Facilities or Program:

This program is not anticipated to affect sizing of current facilities, unless new data becomes available that informs infrastructure needs.

Summary of Cost Data for Evaluation:

Administrative labor for data gathering and analysis are costs associated with this item.

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

No direct impacts on natural resources, energy production, or job creation are anticipated.

Jurisdictional Impacts:

Interest in Participation by Neighboring Planning Units:

Collaboration between planning units could lead to enhanced data about materials that are handled on a regional basis. Materials handlers located in neighboring planning units voluntarily provide data.

Alternatives Available with Participation by Neighboring Planning Units:

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

Recommendations from Neighboring Planning Units:

N/A

Assessment of Environmental Justice Impacts:

There is no known or anticipated environmental justice impact associated with this program.

Selected Alternatives Identification:

Reasons for Being Chosen:

This strategy were chosen based on feasibility and impact to maximize data collection in a fiscally responsible manner.

Expected Quantitative and Qualitative Impacts On:

Waste Reduction, Reuse, and Materials Recovery:

Increased availability of data may lead to revised projections as outlined in Chapter 7.0 Waste Stream Projections.

Participation in Recovery Opportunities:

This implementation item is not expected to increase program participation.

Product Stewardship:

Collected data may inform future product stewardship initiatives.

Economic, Administrative, or Partnership Benefits:

Staff resources will need to be dedicated to this task, including data gathering and analysis. Information from other agencies and organizations may support this effort.

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

The existing administrative, contractual, and financial structure may benefit from additional support to achieve ongoing and proposed activities. Adjustments to the curbside recycling collection contract may support additional data about generation rates.

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

Adjustments to the local hauler licensing law may support an increase in available data for materials handling. Consideration of annual reporting requirements for commercial generators and other stakeholders may support improved accuracy of collected data.

Implementation Item: 10

Title: Review Available Technologies

Administrative/Technical Impacts:

Quantitative/Qualitative Impacts on Waste Stream:

No impacts are anticipated.

Types and Sizing of Facilities or Program:

Based on this review, no infrastructure is required. As new technologies are considered, infrastructure, including facility sizing will be considered. Any proposed technology would require a separate analysis.

Summary of Cost Data for Evaluation:

Associated costs include administrative labor for review.

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

Natural resource conservation, energy production, or job creation may result from pursuing new technology identified in a review.

Jurisdictional Impacts:

Interest in Participation by Neighboring Planning Units:

New technologies may present additional opportunity for collaboration between neighboring planning units.

Alternatives Available with Participation by Neighboring Planning Units:

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

Recommendations from Neighboring Planning Units:

N/A

Assessment of Environmental Justice Impacts:

There is no known or anticipated environmental justice impact associated with this program. Technology review will include a lens of environmental justice.

Selected Alternatives Identification:

Reasons for Being Chosen:

A periodic review of technologies will be conducted as new innovations and opportunities arise.

Expected Quantitative and Qualitative Impacts On:

Waste Reduction, Reuse, and Materials Recovery:

No quantifiable impacts are anticipated.

Participation in Recovery Opportunities:

No quantifiable impacts are anticipated.

Product Stewardship:

No quantifiable impacts are anticipated.

Economic, Administrative, or Partnership Benefits:

Conducting a review will rely on administrative resources to ensure selection of the most beneficial technologies. Potential partnerships may supplement these activities.

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

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

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

At this time, no new laws, ordinances or regulations are required for implementation.

Appendix F

Implementation Schedule

Implementation Schedule

Program Strategy	Year									
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
	1	2	3	4	5	6	7	8	9	10
1) Waste Reduction Programs										
1a) Education & Engagement	Develop and implement campagns for waste reduction, such as product swaps, waste free shopping, and buy-nothing strategies. Draw on community based social marketing techniques to implement these campaigns.									
1b) Sharing Economy	Support and promote initiatives that develop a sharing economy such as little free libraries, stuff swaps, and libraries of things. Explore peer to peer sharing networks and potential for replication locally.									
1c) Engaging Entrepreneurs	Support entrepreneurs as they develop new innovations such as bulk buying coops, apps or business models for food waste reduction, supply rental, and bulk distribution. Share examples from other communities as they apply.									
1d) Reduction Resources	Conduct research to support planning for creation of resources to support reduction.			Develop resources for a circular economy, like a local waste free event guide, to be shared through outreach and educational activities attended by TCRMM.						
1e) Toxics Reduction Measures	Continue incorporating waste prevention in promotional materials that encourage proper handling of items. As new materials are developed, such as innovations from Green Chemistry or green non-toxic cleaning products, educate and inform the public about strategies to eliminate hazardous materials.									
2) Reuse Programs										
2a) Materials Exchanges, Wholesale Hubs, and Informal Mechanisms	Continue to collaborate with community reuse centers to expand reuse education and programming across the county. Provide support for development of wholesale hubs and increased infrastructure where possible.									
	Evaluate reuse trail & develop plan.		Continue refreshed reuse trail.		Evaluate revised trail and opportunities for continual improvement.	Implement refreshed operation for reuse trail.			Evaluate revised trail and opportunities for continual improvement.	Implement refreshed operation for reuse trail.
2b) Repair	Promote repair classes, services, and resources to increase community participation while enabling existing operations to continue independently.									
	Explore workforce development opportunities for repair & reuse services that may be offered by other entities.				If viable, pursue plan to support increased workforce development and skill building opportunities for reuse.					
	Monitor progress of the Ithaca Fixers Collective and evaluate opportunities for new repair cafes.			Research repair cafes and explore opportunities for expansion		Launch and maintain additional repair cafes in the county.				
2c) Creative Reuse and Education	Support and promote programs that educate the public about creative reuse. Engage the artist community to facilitate increased activity for this work.									
2d) Reuse for Institutions and Commercial Generators		Participate in stakeholder committee for large generators of reusable materials to expand efforts.		Promote reuse programs for institutions of higher education during the school year. Participate in and promote efforts to expand end-of-year reuse opportunities.						
	Update County Policy for Surplus Equipment and accompanying procedures.	Implement and maintain Surplus Equipment Policy; adjust procedures as needed.								
		Continue to share information about the Surplus Equipment Policy and procedures with other municipalities, businesses, institutions, and organizations as a model for creating procedures for reuse of surplus equipment. Share reuse resoures through ReBusiness Partners Program.								
2e) Reusable Containers and Packaging	Work with community organizations and businesses to understand the challenges and potential solutions to promoting the use of more durable dishware away from home									
	Conduct a feasibility study to understand viability of central washing system			If viable, evaluate opportunities for washing system and identify funding sources			If viable, pursue plan to develop a local washing facility based on selected model and best practices.			
	Research successful models to promote dishware reuse		Launch reusable dish loan program for small scale use		Evaluate dishware rental, modify as needed, and pursue continual improvement for the initiative.					

Implementation Schedule

Program Strategy	Year									
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
	1	2	3	4	5	6	7	8	9	10
2f) Deconstruction and Building Material Reuse	Gather additional information to better understand the barriers to building deconstruction and characterize this component of the waste stream.					Explore options to increase the reuse of building materials. Consider promoting laws that mandate a waiting period on demolition projects.				
	Participate in local and regional efforts to support education and awareness-raising efforts for reuse, repair, deconstruction, and incorporating secondhand materials into new construction.									
	Monitor construction and demolition (C&D) material generation and processing quantities available through facility reporting and on County projects. Incorporate deconstruction and building materials reuse considerations in County's Green Buildings policy.					Assess the potential for a local deconstruction ordinance.	If deemed appropriate, attempt a "pilot program," and test out such a requirement on one or more County bids.	Assess the results of the pilot program and determine if it is feasible to implement County-wide.	If appropriate, develop a County-wide policy for deconstruction and building materials reuse.	
2g) Paint and Hazardous Waste	Continue to accept paint and materials at the DEPOT and evaluate adding new acceptable materials. Explore options for increased paint reuse through a local partner and/or PaintCare.				Continue to promote reuse opportunities for paint, and materials that would be considered universal waste or hazardous waste at point of disposal. Provide ongoing program implementation and monitoring as opportunities arise.					
2h) Electronics	Continue to promote and support computer repair training services offered by Finger Lakes ReUse where possible. Monitor and respond to marketplace adjustments following right to repair legislation in NYS.									
2i) Textile Reuse	Continue to offer textile collection at the RSWC and market collected materials to a third party that includes options for reuse or recycling.									
	Promote textile reuse and repair opportunities coordinated by local entities, such as sewing classes, secondhand outlets, and swaps. Evaluate new opportunities for implementation as they arise.									
				Explore opportunities for reuse at secondary schools, such as a drop box, education, or swap events.						
3) Recyclables Recovery										
3a) Recycling & Solid Waste Center	Monitor and oversee contract for operation; continue to evaluate opportunities for accepting and recycling new materials. Conduct feasibility study and cost comparison for expansion of efforts at the RSWC, including reuse, product stewardship program implementation, and other modifications in the industry.		Research and develop RFP for operating at and marketing materials from the RSWC	Award new contract and monitor contract of RSWC operations.	Monitor and oversee contract for operation; continue to evaluate opportunities for accepting and recycling new materials.					
3b) Curbside Collection	Continue to contract for county-wide curbside residential recycling collection.			Research and develop bid; submit bid process for curbside collection. Incorporate expansion of multifamily, mixed use, and small business recycling through this contract.	Award new contract and monitor contract of curbside collection.	Monitor contract and consider seeking to increase support to multifamily dwellings, small businesses, and mixed use properties with a goal of increasing diversion and participation rates.				
	Review recycling operations for multifamily and small business participants.		Provide pilot to expand support to small businesses & multifamily participants in diverse neighborhoods.	Revise program and incorporate recycling incentive program for multifamily, small business, and mixed use properties participating in curbside collection.						
3c) Additional Material Recovery	On an annual basis, continue to evaluate potential recovery options for materials under the County's control to increase diversion from landfilling, including new programming resulting from product stewardship legislation.									
3d) Commercial, Institutional, and Industrial Recycling	Continue to grow the ReBusiness Partners Program, focusing on collection of office paper and cardboard, environmentally preferable procurement, and wasted food. Incorporate additional materials focuses as opportunities arise and markets develop.									
3e) Develop C&D Collection and Processing	Participate in local and regional efforts for establishing deconstruction pathways. Promote opportunities as they arise.			Evaluate opportunities to accept C&D separately at the RSWC, as well as reuse opportunities at the site.		Evaluate the quantity of material generated as well as emerging markets and technologies in order to identify opportunities for increased recycling and diversion.				

Implementation Schedule

Program Strategy	Year									
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
	1	2	3	4	5	6	7	8	9	10
3f) Event and Public Space Recycling	Evaluate current recycling and composting procedures at events.		Develop a guide for events to support waste reduction, which will include best practices, sign templates, and considerations for vendor contracts. Share successes with municipalities within the County to encourage a similar program for increasing recycling efforts and waste reduction on the local level.							
	Continue to offer Borrow A Bin program for events.									
	Evaluate Public Space Recycling program and address challenges.			Monitor and expand the public space recycling program. Collect feedback, develop location criteria and best management practices, and explore opportunities for new locations.						
4) Organic Recovery Program										
4a) Wasted Food Prevention	Continue community based social marketing strategy to provide residents with tips and tools for smart shopping, smart prep, and smart storage to reduce their waste. Launch additional campaigns that offer tools and resources to encourage behavior change in residents. When possible, pair efforts with existing food scraps recycling initiatives.									
	Evaluate commercial opportunities to promote prevention, including workshops, technology, and other strategies.			Identify best practices for waste tracking and analysis in businesses. Distribute information and extend support through the ReBusiness Partners Program.						
	Seek to develop and foster partnerships with community organizations that may have similar goals for food waste prevention. This may include collaboration with a statewide campaign and/or participation in the Organics Council of the NYS Association for Reduction, Reuse, and Recycling.									
4b) Surplus Edible Food Rescue	Promote food donation to local food distribution outlets. Explore opportunities to convene stakeholders for increased communication. Leverage ReBusiness Partners program to extend services and support.									
	Benchmark strategies adopted in communities to support and expand food recovery of prepared foods. Convene stakeholders to understand existing and new opportunities.			Partner with local stakeholders to provide additional outreach for these efforts and conduct research about how to best recover perishable and prepared foods. Explore opportunities for increased infrastructure to support these goals, such as reusable crating systems.						
	Follow the advancements in donation tax incentives, standardized donation regulation, donation matching software, improved infrastructure for cold storage and transportation of materials, and value-added processing and evaluate opportunities for furthering these strategies as they arise. Support distribution of food for animal feed as opportunities become available.									
4c) Residential Food Scraps Recycling	Continue to support existing compost education program that trains Master Composters and provides community education about on-site composting. Continue to sell on-site compost bins at cost at the TCRMM offices.									
	Expand food scraps recycling drop spot service with a focus on adding drop spots to meet the needs of currently underserved populations.									
	Conduct feasiblity study of curbside collection for food scraps.		Engage stakeholders to expand options for curbside food scraps collection and consider offering support such as sharing toolkits or educational materials to expand collection locations as opportunities arise. Encourage municipalities and businesses to offer curbside food scraps recycling collection.							
			Expand pilot for food scraps recycling in multifamily units. Develop best practices for multifamily food scraps recycling.		Expand program based on best practices and offer multifamily food scraps recycling county-wide.					
4d) Commercial & Institutional Food Scraps Recycling	Refresh the ReBusiness Partners Program with a focus on food scraps recycling. Explore opportunities to assist with collection options for businesses of all scales.		Work with local schools to address food scraps recycling, understand needs, and address bariers as they arise. Assist mandated entities with NYS Food Donation and Food Scraps Recycling law compliance.		Continue to focus on diversion from businesses, institutions, and special events, including educational strategies that will extend beyond the course of a special event. Consider expanding parameters for collecting food scraps from public events. Assist mandated entities with NYS Food Donation and Food Scraps Recycling law compliance. Provide support as needed.					
4e) Collection	Foster increased hauling activity to support additional food scraps recycling at commercial businesses and from residential locations.									
4f) Community Composting	Explore strategies to foster a community compost program. Evaluate acceptable feedstocks, processing methods, siting, operational practices, equipment, staffing, community participation, and volunteer engagement.			Consider community partners, such as Cornell Cooperative Extension, neighborhoods, and local municipalities for implementing a program.		If feasible, launch community composting program.				
4g) Mid- and Large-scale Organics Processing	Explore options for additional diversion, such as on-farm composting, and evaluate the potential for public-private partnerships to address this need. Continue to accept commercial food scraps at the RSWC and continue to contract with a composter to process food scraps generated in the county.									
4h) Yard Waste Management	Continue to accept yard waste at the RSWC, in addition to programs offered by local municipalities.									
	Continue to support existing yard waste outlets and collection programs. Support the compost education program and provide other resources as needed for yard waste management.									
4i) Mortality Waste Diversion	Continue to monitor and support opportunities for mortality waste diversion. Monitor changes resulting from the natural organic reduction law passed in 2022.									
4j) Biosolids	Collaborate with local facilities, including wastewater treatment sites, to identify barriers to biosolids diversion and offer support in development of diversion efforts.									
5) Rethink										
5a) Community Engagement	Research, develop, and implement ongoing campaigns and other strategies for community engagement around rethinking waste, with an emphasis on strategies showcasing waste reduction, reuse, and green purchasing.									

Implementation Schedule

Program Strategy	Year									
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
	1	2	3	4	5	6	7	8	9	10
5b) Extended Producer Responsibility	Employ techniques to encourage product stewardship, such as support of legislation and consumer education.					Evaluate local laws for EPR to support these efforts.				
	Participate in the New York Product Stewardship Council to stay appraised of Product Stewardship and Extended Producer Responsibility (EPR) and assess how the County can implement these programs.						Update tasks for new 10 year planning period depending on progress.			
	Implement and address local response to broader EPR laws passed at the state and federal level. Educate the community and stakeholders about necessary changes, and adjust programming accordingly.									
5c) Residential Green Purchasing	Share resources and information about green purchasing resources, distribute promotional products that exhibit these traits, and incorporate these concepts into existing outreach efforts, such as presentations, social media, and tabling events.									
5d) Municipal Procurement	Maintain EPP Team efforts. Evaluate and join the Green Purchasing Communities program.	Maintain and grow EPP Team efforts. Leverage the NYS Green Purchasing Communities program as it expands. Develop and share resources for EPP that can be used by County departments. Where appropriate, extend these resources to share with other municipalities within the County.								
5e) Procurement in the Commercial and Institutional Sectors	Continue to identify opportunities to share information about this topic and support others in adopting EPP practices. Leverage the ReBusiness Partners program to share information and resources about green purchasing.									
6) Residue										
6a) Collection	Continue successful PAYT program with opportunity for municipal and private collection as well as disposal at RSWC.									
	Research and develop bid for haul and disposal of material from RSWC.	Start new contract. Monitor contract for transfer and disposal.				Research and develop bid for haul and disposal of material from RSWC.	Start new contract. Monitor contract for transfer and disposal.			
6b) Household Hazardous Waste	Continue to host at least six HHW collection drop-off events annually at the RSWC's D.E.P.O.T.									
					Explore options in the future to hold mobile HHW collection drop-off events, to provide increasingly convenient service.					
6c) Closed Landfills	Continue to oversee closed landfills and monitor leachate for toxicity and quantity. Evaluate new management tools and techniques as they develop. Explore opportunities for beneficial use, such as the proposed solar project.									
6d) Disaster Debris	Work with the Department of Planning and Sustainability to periodically update the Debris Management Plan. Where possible, include considerations for sustainable materials management. In the case of a disaster, follow the plan to handle resulting debris.									
7) Local Laws and Enforcement Programs										
7a) Article I: Recycling	Conduct research to assess current compliance with the law and required materials. Engage Solid Waste Attorney to review and recommend changes in policy.	Identify areas of the local law, rules, and regulations to be revised to increase relevance and clarity. Research and propose potential modifications to the law.	Revise and update the local law, including updating rules and regulations, mandated recyclables, and the fine structure so that fees discourage non-compliance.		Implement new procedures and processees following law revisions. Seek continual improvement and public education to increase recycling.					
7b) Article II: Tag System for Collection			Revise and update the local law, including updating rules and regulations, containerized waste, tag requirements, and the fine structure so that fees discourage non-compliance.		Implement new procedures and processees following law revisions. Seek continual improvement and public education to incentivise reductions in quantity disposed.					
7c) Article III: Facilities; Liscensing of Haulers			Revise and update the local law, including updating rules and regulations, covered entities, and reporting requirements.		Implement new procedures and processees following law revisions. Seek continual improvement and public education to ensure equity and reporting requirements are met.					
7d) Flow Control and Districting Potential	Review flow control law.		Confirm the decision to not pursue enforcement of flow control law with garbage haulers.							

Implementation Schedule

Program Strategy	Year									
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
	1	2	3	4	5	6	7	8	9	10
7e) Article IV: Disposal	Review current practices for enforcement of illegal dumping and identify Departmental needs. Engage Solid Waste Attorney to review and recommend changes in policy.	Research and propose potential modifications to the law.	Revise and update the local law, including updating rules and regulations to clarify handling, collection and transportation requirements, as well as refining the fee structure, to discourage illegal dumping.		Implement new procedures and processees following law revisions. Seek continual improvement and public education to reduce instances of illegal dumping.					
8) Communications	Develop and implement an annual communications plan that encompasses all the channels of communication utilized by the Department. Remain appraised of new opportunities for outreach and education, and continue to promote the 4Rs countywide.									
9) Data Collection and Evaluation Efforts	Continue to conduct annual survey for data collection from large generators in the County, including retail businesses, industry, schools and other institutions, and the public sector and special events.			Continue to conduct annual survey. Assess potential for expansion in types of data and facilities to target, as well as other data collection and analysis tools that become available throughout the industry. Provide support to identified generators as needed to further waste reduction goals.						
10) Review Available Technologies		Monitor existing and potential available technologies that may be economically feasible to implement within the County.			Monitor existing and potential available technologies that may be economically feasible to implement within the County.			Monitor existing and potential available technologies that may be economically feasible to implement within the County.		Monitor existing and potential available technologies that may be economically feasible to implement within the County.
Optimal MSW Recycling Diversion Goals	42.0%	44.0%	47.5%	49.5%	52.6%	55.6%	59.3%	62.4%	65.4%	68.7%
Optimal C&D Diversion Goals	25.2%	27.9%	31.1%	34.2%	37.4%	40.5%	43.7%	46.6%	49.9%	51.2%

Notes:

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

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

Appendix G

Example Biennial Compliance Report Outline

Rethinking Waste in Tompkins County:
Fostering a Local Circular Economy
A Local Solid Waste Management Plan

Compliance Report

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

April 20XX

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Appendix H

Summary of Alternative Technologies

Alternative Waste Technologies

Waste-to-Energy (Combustion/Incineration)

A traditional waste-to-energy (WTE) facility is a solid waste management facility that processes waste through a combustion process. These facilities are sometimes referred to as resource recovery facilities, Municipal Waste Combustors (MWC), or Energy-From-Waste (EFW) facilities. There are approximately 70 of these facilities in operation in the United States.

This technology is extremely effective in reducing the ultimate disposal volume, often times by 80-90 percent. The byproduct of the process is residual "bottom ash" (the portion of ash that is expelled from the furnace) and "fly ash" (the portion of ash that is removed from the flue gas stream). Often these streams are combined and sent to landfills under a Beneficial Use Determination (BUD) for use as alternative daily cover. Other alternative uses of for WTE ash are being researched and additional options may become available in the future if the state is willing to issue BUDs for alternative uses, which could include using portions of the ash stream as aggregate for road base and/or concrete block/cement production.

These facilities are typically net exporters of power, as the steam produced from the combustion process is typically superheated and run through a turbine-generator to produce electrical power. A small number of these facilities sell steam directly to a local end user. Newer technology allows higher efficiency heat recovery from the combustors, increasing energy production potential.

If Tompkins County initiated the permitting, construction and operation of their own WTE facility within the county, high construction, operations, and maintenance costs as well as uncertainty in energy sales revenues, would result in significantly higher disposal costs per ton than landfilling. As an example, the most recent mass burn WTE facility constructed in the United States was the West Palm Renewable Energy Facility in West Palm Beach, FL. It cost $672 million (2015) to construct and processes 3,000 TPD of MSW. Another example is the Durham York Energy Centre located in Ontario, Canada. That facility is designed to process up to 480 TPD and cost approximately $290 million to establish.

There are approximately 70 active WTE facilities in the United States. These facilities are able to demand higher tip fees as a result of flow control legislation and/or limited local disposal options. There are no active WTE facilities in Tompkins County. Without the desire to construct such a facility and implement flow control measures to ensure waste will be sent to the facility despite the higher tipping fees, a WTE facility is not a viable option for solid waste management in Tompkins County.

Pyrolysis

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

Pyrolysis of MSW has not been demonstrated to be commercially viable at the time of this Plan's publication. There are no commercially operating MSW pyrolysis facilities in North America. There are 12 commercial facilities in Japan and Germany that process Japanese municipal and industrial waste and are in the size range of 100 to 400 tons per day. One consulting firm has recently concluded that MSW pyrolysis facilities can be characterized as having "previous failures at scale, uncertain commercial potential; no operating experience with large scale operations." Tipping fees for MSW pyrolysis facilities in North America can also be expected to be in the range of $100 to $300 per ton.[31]

Gasification

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 what is required for complete combustion. The primary syngas products are H_2 and CO with smaller quantities of CH_4 produced at lower temperatures. Similar to pyrolysis, the syngas product may be used for heating, electricity generation, fuel, fertilizers or chemical products, or in fuel cells. Byproduct residues such as slag and ash are produced and require disposal in a landfill.

Gasification of MSW has not been demonstrated to be commercially viable in the United States at the time of this Plan's publication; however, the use of this technology is widespread in Japan. Although the predominant disposal technology used in Japan is traditional mass burn waste-to-energy, there are over one hundred thermal treatment

[31] https://www.mswmanagement.com/collection/article/13014762/six-waste-conversion-technologies-you-should-know

plants utilizing a variety of gasification technologies (direct smelting, thermoselect, plasma arc) with facilities in the size range of 100 to 400 tons per day processing Japanese municipal and industrial wastes.[32] Tipping fees for MSW pyrolysis facilities in North America can be expected to be in the range of $150 to $300 per ton.

Mixed Municipal Solid Waste Composting

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

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

As mentioned above, Delaware County operates a mixed MSW composting facility, which has been successful as it relates to their needs. Their facility met the need to extend 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, and 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.

Considering that the Planning Unit focuses on source separation of the organic component of the waste stream, this technology was deemed unsuitable for Tompkins County.

[32] https://www.nswai.org/docs/MUNICIPAL%20SOLID%20WASTE%20MANAGEMENT%20AND%20WASTETO-ENERGY%20IN%20THE%20UNITED%20STATES,%20CHINA%20AND%20JAPAN.PDF

Mechanical/Biological Treatment

Mechanical-biological treatment (MBT) systems are similar to mixed MSW composting systems in that intense sorting is required as the first step in the waste treatment process. This is considered the mechanical phase of the treatment, where recyclable and non-organic materials are removed from the waste stream prior to the biological treatment. The biological treatment phase involves bio-drying of the remaining organic materials for production of refuse derived fuel, or RDF. RDF can be used in place of fossil fuel products, such as a replacement for coal in electricity production. According to a 2011 survey, there are currently over 330 active MBT systems in operation across Europe, with a majority of these facilities operating as pilot scale projects (exact numbers are not available).[33] To date, this technology has not been proven to be economically feasible within the United States for MSW management.

Anaerobic Digestion

Anaerobic digestion (AD) 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; however, there has been new consideration of using this as a method to process the organic fraction of MSW. In anaerobic digestion, biodegradable material is converted by a series of bacterial groups into methane and CO_2. In a primary step called hydrolysis, a first bacterial group breaks down large organic molecules into small units like sugars. In the acidification process, another group of bacteria converts the resulting smaller molecules into volatile fatty acids, mainly acetate, but also H_2 and CO_2. A third group of bacteria, the methane producers, or methanogens, produce a medium-Btu biogas consisting of 50-70% methane, as well as CO_2. This biogas can be collected and used for a variety of purposes including electricity production or converted to high BTU natural gas. Anaerobic digestion facilities are used extensively for the treatment of agricultural wastewater sludge and organic wastes such as food wastes. Mixed MSW anaerobic digestion facilities are more common in foreign countries.

Specific to the United States, few mixed MSW anaerobic digestion facilities exist, as the technology has not proven economically feasible. 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. There are four (4) anaerobic digestors permitted and one (1) anaerobic digestor registered with the NYSDEC. Three (3) of the permitted facilities are owned and operated by Generate Capital, Inc. and are located in Auburn, Buffalo, and Wheatfield, NY. The remaining permitted facility is owned and operated by CH4 Biogas, LLC and is located in Wyoming, NY. These systems manage regional biomass residuals (organic waste) to produce electricity that is sold to NYSEG. The registered facility is owned and operated by Matt

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

Brewing Co., processes brewery wastewater, and is located in Utica, NY. 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.

Currently, the IAWWTF has an AD system for which it is exploring options to include additional materials, such as food waste. Over the next ten years, TCRMM will plan to seek opportunities to collaborate with the IAWWTF and potential projects such as on-farm digesters. At this time, the County does not see the need for increasing processing capacity by developing another digester.

In-Vessel Composting

In-vessel composting systems are fully enclosed chambers with the breakdown of the feedstock occurring within the chamber. An in-vessel system is suitable for composting if the process must be finished rapidly, odor and leachate control are a concern, or space is limited. There are several categories of in-vessel technologies including:

- Agitated bays/beds – long channels formed between walls with rails to support the turning machine. Regularly turned automatically, without an operator.
- Aerated bays in halls – Large bays inside a building with forced aeration floors and automated materials handling.
- Vertical silos – Vertically oriented vessels in which the feedstock mix is loaded at the top. Materials travel downward as compost is removed from the bottom. Typically silo systems employ forced aeration from the bottom.
- Rotating drums – Horizontally oriented cylinders in which feedstocks are loaded at one end and compost is removed at the other end. The drums rotate slowly, mixing, turning, and moving the materials within.

While there are variable methods of in-vessel composting, the following basic principles are shared by most in-vessel composting methods:

- Forced aeration and/or frequent agitation;
- Higher capital investment;
- Process isolation from ambient environment;
- Process separation from direct contact with human operator;
- Process control is more rigorous;
- Automated monitoring and data management;
- Require three-phase electricity, often at a higher voltage than standard electrical service;
- Short retention time (1 day – 3 weeks);

- Due to the short retention time, once active composting is complete the material typically has an additional curing period of 1 – 2 months;
- Supplied and supported by a commercial vendor;
- Operator expertise required due to the highly complex technology (some vendors will cover this).

Unless for small-scale operations, in-vessel composting is limited to projects with a high budget, and is ideal for locations where process and odor control are advantageous. The following lists the key features of in-vessel composting:

- High process control with forced aeration and moisture control;
- Built-in materials handling and plug-flow design;
- Accelerated active composting;
- Produces little leachate;
- Produces compost with a consistent texture without screening;
- Higher capital cost;
- Requires a vessel or building with corrosion-resistant materials and strong ventilation;
- Requires engineering, site development, and utility connections.[34]

It has been determined that this process is too expensive and unnecessary for the available resources in Tompkins County at this time.

Chemical Recycling

Chemical recycling technologies break plastics down into their building blocks, transforming them into valuable secondary raw materials that can be used to produce new chemicals and plastics. There are three (3) general categories of chemical recycling:

1. Dissolution: Heat and solvents are used to dissolve plastic waste into a solution of polymers and additives, which the plastic was originally made from. These polymers are then separated from the additives, recovered, and combined with new additives to produce new recycled plastic. The structure of the polymer is not altered in the dissolution process.
2. Depolymerisation: The combination of chemistry, solvents, and heat are used to break down polymers into monomers, which are the building blocks of polymers. After removing any potential contaminants, the monomers are used in normal plastic production as a secondary raw material. The new plastics produced through this process are of similar quality to those made from virgin fossil resources.

[34] *The Composting Handbook*. Available from: VitalSource Bookshelf, Elsevier S & T, 2021.

3. Conversion: In a reactor, heat and chemistry are used to break plastic waste down into either a liquid, an oil like material through pyrolysis, or a gaseous material through gasification. The generated oil or gaseous material re-enters the chemical production chain as a secondary raw material. The new plastics produced through this process are of similar quality to those made from virgin fossil resources.[35]

MRF Technologies (Robotics)

There have been recent developments in coupling robotics with artificial intelligence (AI) for use in recyclables sorting at MRFs. With single-stream recycling growing more common, employees at MRFs are tasked with sorting the mixed recyclable materials into individual streams for recycling. Up until recently, the sorting task has been too complex for machines to handle. The AI being used at MRFs is an algorithm connected to a computer vision system that can recognize materials based on visual cues. Once the system distinguishes between materials, a robotic arm is activated to separate targeted materials. Currently, robotic sorting at MRFs is uncommon as the AI technology is still in development.[36]

Fermentation

Fermentation is an anaerobic biological process through which microorganisms metabolize sugars and produce alcohols as a byproduct. In addition to producing such alcohols as beer and wine for consumption, fermentation can be used to produce such fuel liquids as ethanol and other chemicals. Cellulosic feedstocks, including the majority of the organic fraction of MSW, must first undergo hydrolysis to break down cellulose and hemicelluloses to simple sugars that can be metabolized by the yeast and bacteria for the fermentation process. MSW must first be processed through a MRF to separate, shred, and dry the cellulosic fraction.[37] Tompkins County has no desire to enter into the business of generating ethanol or other similar materials. If interest in this type of technology expands in NYS and into the county, further analysis will be completed to determine if it is a viable technology.

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

[35] https://cefic.org/a-solution-provider-for-sustainability/chemical-recycling-making-plastics-circular/
[36] https://asmedigitalcollection.asme.org/memagazineselect/article/142/01/32/1072348/Recycling-RobotsMaterials-Recovery-Facilities-Need
[37] https://www.mswmanagement.com/collection/article/13014762/six-waste-conversion-technologies-you-should-know

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

Industrial Waste Disposal In-County

Non-hazardous industrial waste includes discarded materials generated by industrial processes or manufacturing, and can include food processing waste, liquid waste, coal ash, or foundry sands. Although this material retains potential for recycling and special handling, there are cases in which industrial wastes are disposed in a landfill.

Based on a review of industrial waste generators in Tompkins County, it has been determined that there are relatively few processors or manufacturers in the Planning Unit, resulting in the generation of a respectively small quantity of material to be managed. Further, Tompkins County is not adjacent to transportation routes that encourage transfer or importation of unwanted materials for management. As a result, it was determined that there is simply not enough material generated or available to justify the costs of establishing a separate recycling facility for unique industrial wastes. Due to the fact that there is already an existing scrap metal processor in the county, it was also acknowledged that there is no need for actively establishing yet another processing business.

Until there are larger volumes of consistent feedstocks, this material is best managed by the generators, who have contractual relationships with haulers and material processors. With increases in sustainability efforts and costs, businesses have inherent motivation to find recycling options that represent a lower cost than traditional disposal.