LOCAL SOLID WASTE MANAGEMENT PLAN

Biennial Update (March 2019)
Revised July 2019
Planning Period 2017 - 2018
&
Planning Period Extension 2021 - 2022

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Executive Summary

The Oneida-Herkimer Solid Waste Management Authority (Authority) is a New York public benefit corporation which was created by the State Legislature at the request of Oneida and Herkimer Counties by passage of Article 8, Title 13-FF of the New York Public Authority Law on September 1, 1988. The Authority was created to address environmental problems associated with improper solid waste disposal, to develop new facilities and programs for waste reduction and recycling, and to address the lack of long-term disposal capacity for non-recyclable waste.

With this charge and mandatory recycling laws enacted by both Counties, the Authority has developed a regional, comprehensive, integrated system of facilities to serve all the residents, businesses, industries and institutions of the two Counties. This integrated system promotes reduction, maximizes recycling, and provides safe, economical disposal for non-recyclable waste. The Authority owns and operates a Recycling Center, Household Hazardous Waste Collection Facility, Green Waste Composting Facility, Regional Landfill, two Land Clearing Debris facilities, a Pallet-Processing facility, three transfer stations and is constructing a Source Separated Organics Processing Facility. Services include recycling, promoting backyard composting, providing public education, promoting waste reduction and reuse of materials, school "Go Green" initiatives, full-scale electronics collection and sludge management.

The Authority developed the region's first local solid waste management plan (LSWMP) in 1991. The Plan included development of the comprehensive integrated solid waste management system. All municipalities in both Counties are participants in the Planning Unit and LSWMP. The original plan has been fully implemented. The Authority developed a new 10-year plan to guide the region's solid waste management through 2020. This biennial update covering the period 2017-2018 will also serve as a LSWMP planning period extension for the years 2021 and 2022 as per 6 NYCRR Part 366-4.1(g).

The Authority is governed by a 10-member Board of Directors, employs approximately 80 people and has an annual operating budget of approximately $26.8 million.

In 2007, the Authority won a landmark case in the United States Supreme Court (United Haulers v. Oneida-Herkimer Solid Waste Authority) establishing a national precedent for local public solid waste systems.

The Authority revenue structure is primarily a fee for service system. A system tip fee is charged for all non-recyclable waste delivered to the Authority. These fees cover the majority of expenses in the Authority budget. The Authority receives additional revenue from other sources such as investments, sale of landfill gas, sale of carbon credits, sale of recyclables, compost and grants. The Authority receives no funding from the Counties.

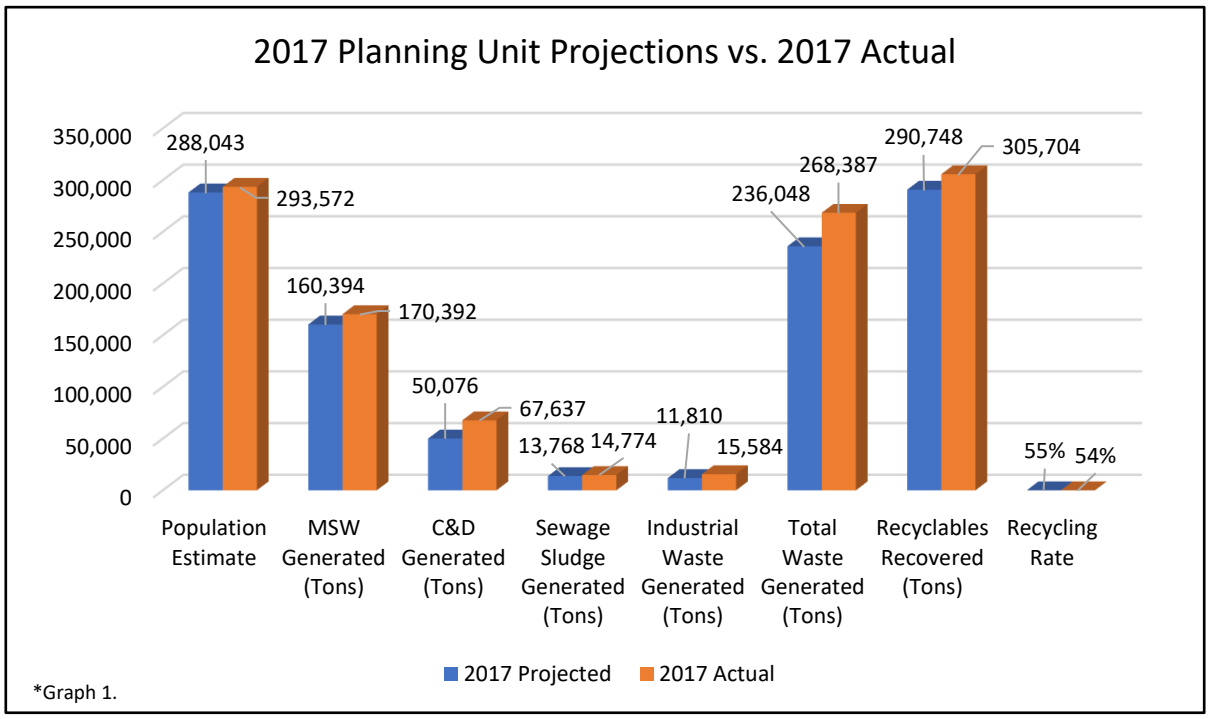
This document features a discussion of actual recycling and disposal data for the operating period 2017-2018, as well as a major update to the LSWMP pertaining to organics recovery. It also describes the Authority's outreach and education activities, obstacles faced, the status of conformance with the current LSWMP, and a revised implementation schedule.

It also contains the required elements consistent with 6 NYCRR Part 366-5.2 for a LSWMP planning period extension of two years, 2021-2022.

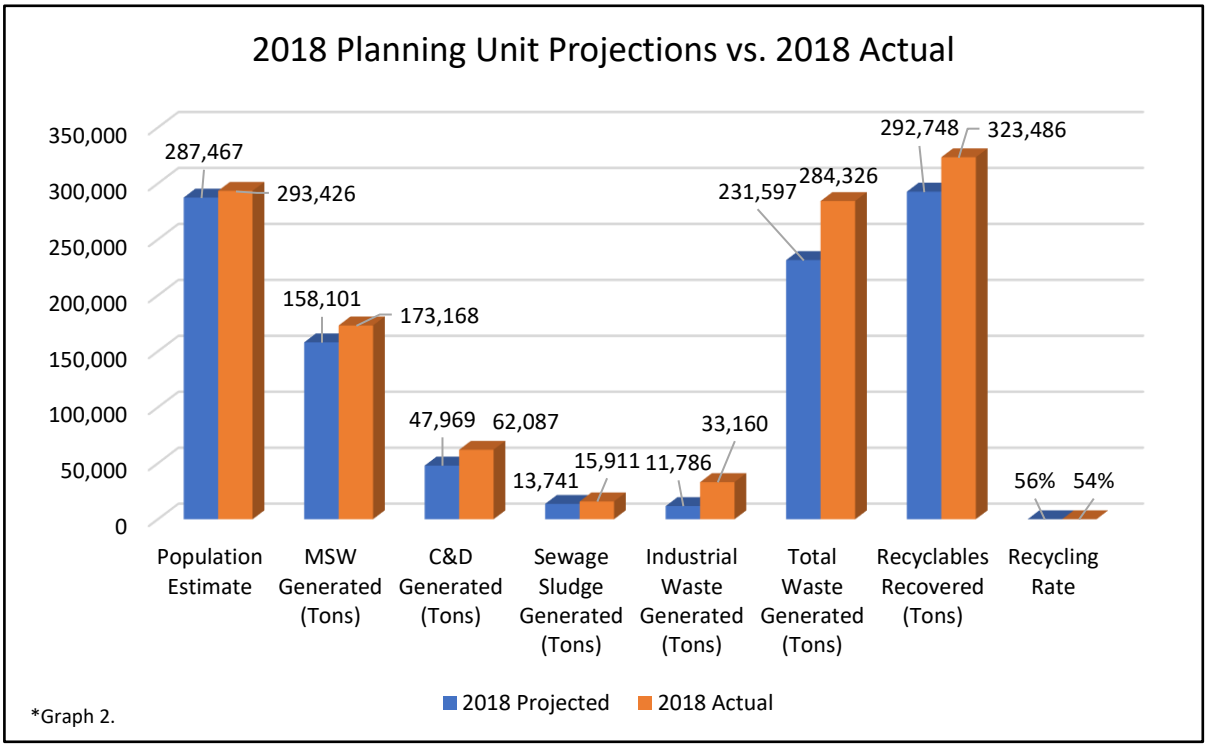
1. Summary Report

i. **<u>Changes to the Planning Unit Structure</u>** – The Oneida Herkimer Solid Waste Authority (Authority) is the solid waste management planning unit for the Oneida County and Herkimer County region. There are no changes to the planning unit structure. Both Oneida and Herkimer Counties and all municipalities located within them participate in the Planning Unit and Local Solid Waste Management Plan (LSWMP).

ii. **<u>Actual Waste Recycling and Disposal Data</u>** – For the reporting period the actual 2017 and 2018 Recycling and Disposal data is illustrated in the following Tables and discussed in the associated text. Data is compared to 2017 and 2018 projections originating from the current LSWMP.

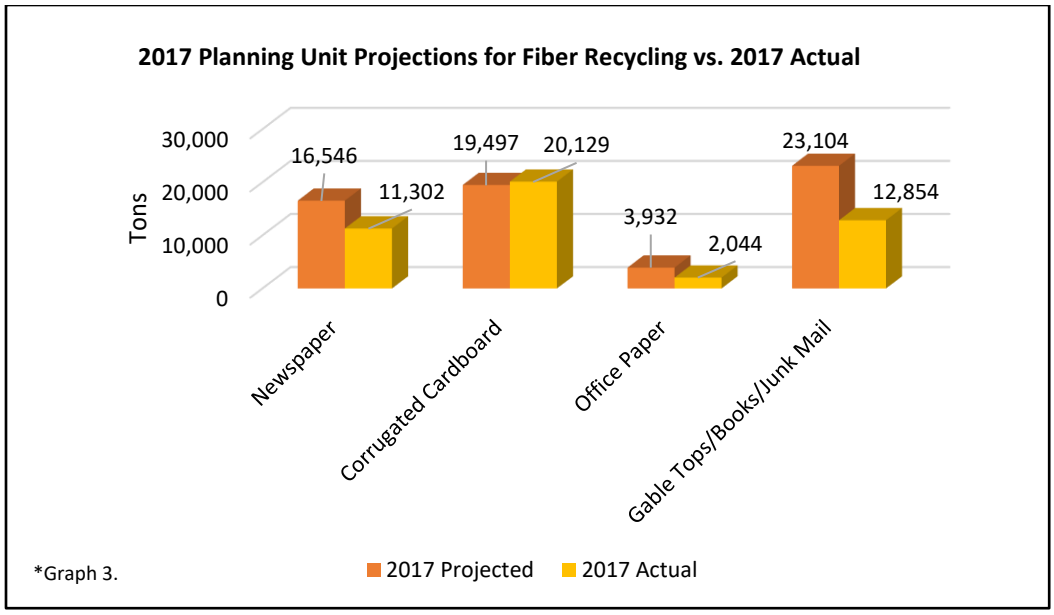


*Graph 1.

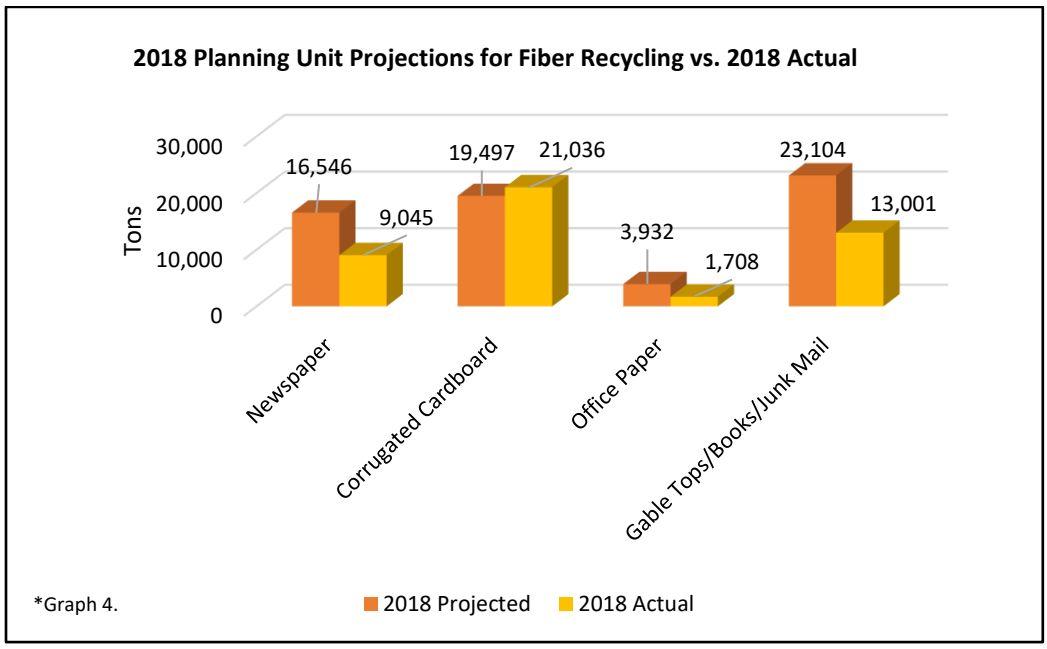


*Graph 2.

As seen in both Graphs 1 and 2 above, the actual totals are all higher than the projected totals with the exception of recycling rates. It is believed that this is generally due to increased economic activity in the region resulting in greater consumption, which in turn brings increased waste and recyclable material generation. The actual population of the region was flat during the reporting period. Recycling rates remained flat due to a larger total waste plus recyclables universe. Actual waste increased 6% during the two-year reporting period, recyclables also increased 6% during the same period. The area has seen an uptick in economic activity. Local unemployment rates were low during the reporting period (4.3% in 2018 compared to 8.7% in 2010 when the current LSWMP was written according to the Bureau of Labor Statistics) and consumer activity appeared to be increasing. C&D has risen compared to projections because of more commercial construction and the demolition of older housing stock. Industrial waste was up significantly when compared to projections, this is likely due to comparing strictly industrial waste in the current LSWMP to “Planning Unit Recycling Report” industrial waste which includes asbestos waste and contaminated soil not used as alternate operating cover material. Sewage sludge increased over 18%, this is at least partially due to an increase of high strength (whey waste) acceptance by the City of Rome Treatment Plant.



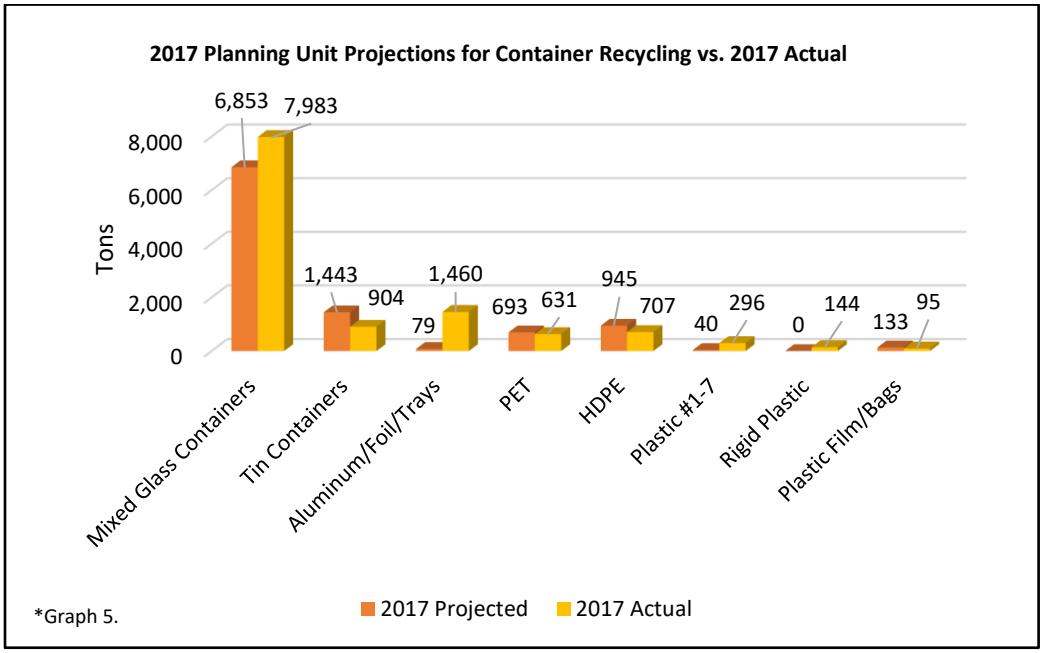
*Graph 3.



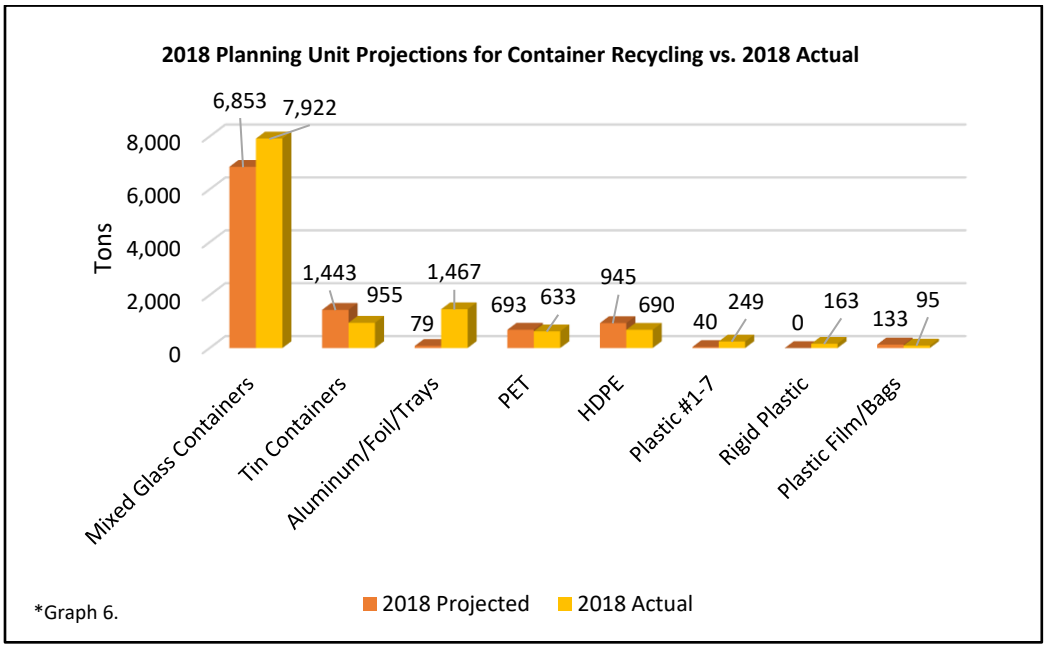
*Graph 4.

After a review of Graphs 3 and 4, the following observations were made. The actual totals for newspaper, office paper and gable tops/books/junk mail were all down from their projected totals. This is not surprising. Since the projected totals were made in 2010, the Observer-Dispatch, the region's highest circulation daily local newspaper, has been physically reduced by 25%. The digital world fully hit the area during the current LSWMP. Computer users have embraced electronic filing and e-mails over traditional paper files and memorandums. Over the recent years, social media and online advertising have hit an all-time high. Therefore, most residents are reading, getting their news, communicating with one another and doing their business electronically. This phenomenon is a main contributor for the corrugated cardboard being higher and office paper being lower in tonnage than the projected totals. Because more local residents are purchasing items online from retailers such as Amazon and having them shipped to their door, we are seeing an increase in corrugated cardboard shipping containers consistent with this

nation-wide trend. OCC is up 3% and 7% for 2017 and 2018, respectively, projections versus actuals. Actual OCC is up 4% between 2017 and 2018. Office paper data show a decline in actual numbers of 20% during the reporting period and 92% and 130% actuals versus projections.



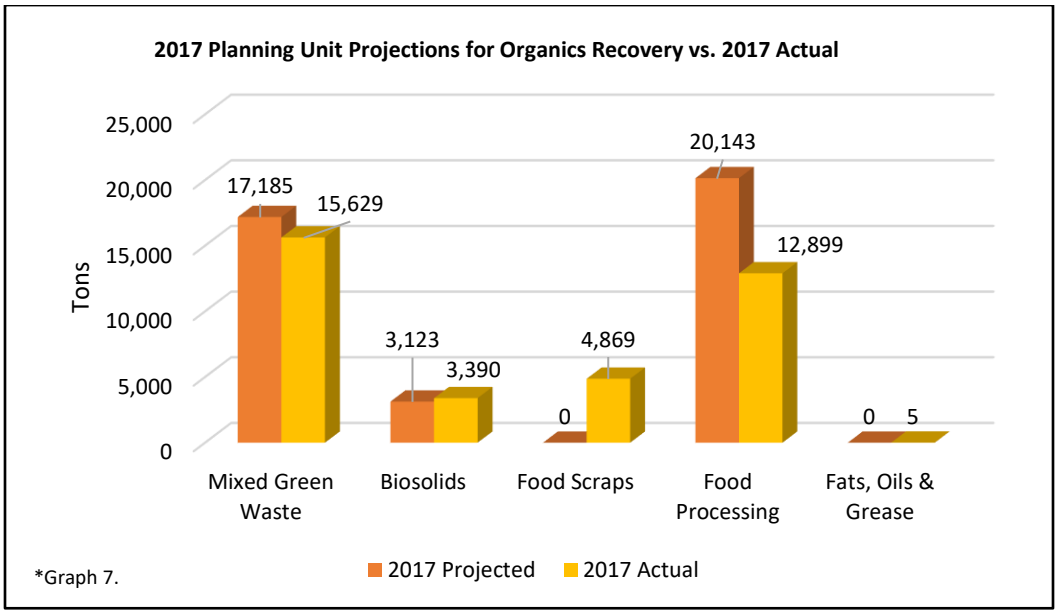
*Graph 5.



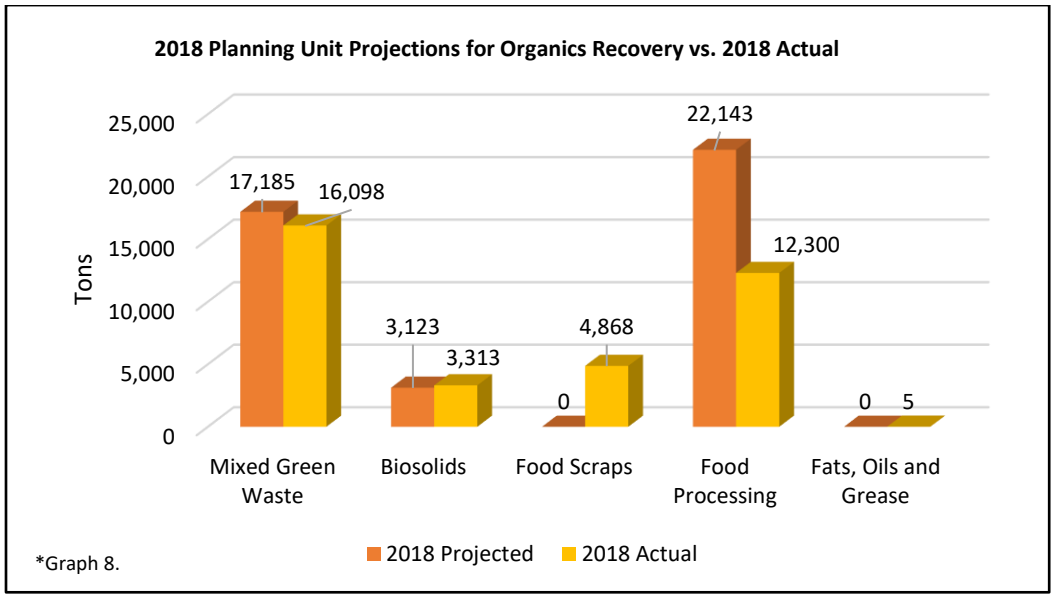
*Graph 6.

Graphs 5 and 6 illustrate interesting results. Mixed glass containers, aluminum/foil/trays, plastic #1 - 7 and rigid plastics are all showing actual totals to be higher than the projected totals. When looking at mixed glass containers and aluminum/foil/trays, there are a limited number of easy and convenient ways of recycling these materials other than curbside collection. Therefore, we see more of this material coming into our Recycling Center. Our facility is also accepting more types of plastics (#1 - #7) than we originally projected when the current LSWMP was written, which in turn causes an increase in that category. When projected totals were first made back in 2010, we were not accepting rigid plastics. In 2012, we started this program, therefore causing an increase in this category.

The categories of tin containers, PET, HDPE and plastic film/bags all fall below their projected totals. PET was very close in both 2017 and 2018, while HDPE had a slightly larger difference. This difference could be attributed to the change in manufacturing/packaging and the actual "thinning" of plastic to save weight and thereby decrease shipping costs. We believe the difference in the tin containers and plastic film/bags comes from the way some businesses choose to report their totals. It is our understanding that the tin containers can often be mixed or included with the industrial scrap metal reported in Graphs 9 and 10. Plastic film is another category that is often hard to get an accurate number because not all grocery stores or facilities that collect this material report clear and accurate information to us. In fact, some stores/facilities on the two-county region don't report anything at all.



*Graph 7.

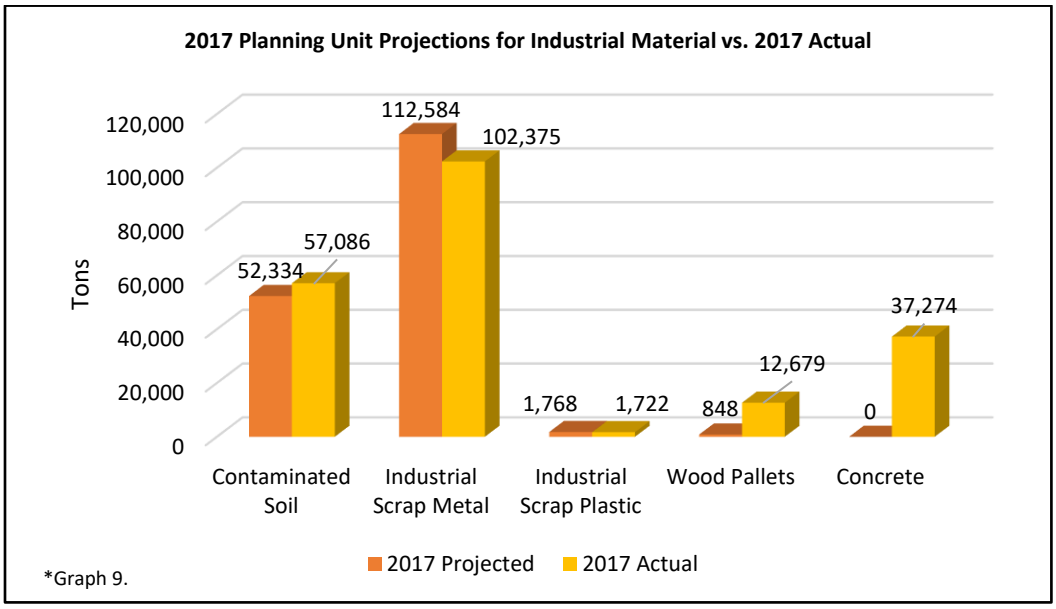


*Graph 8.

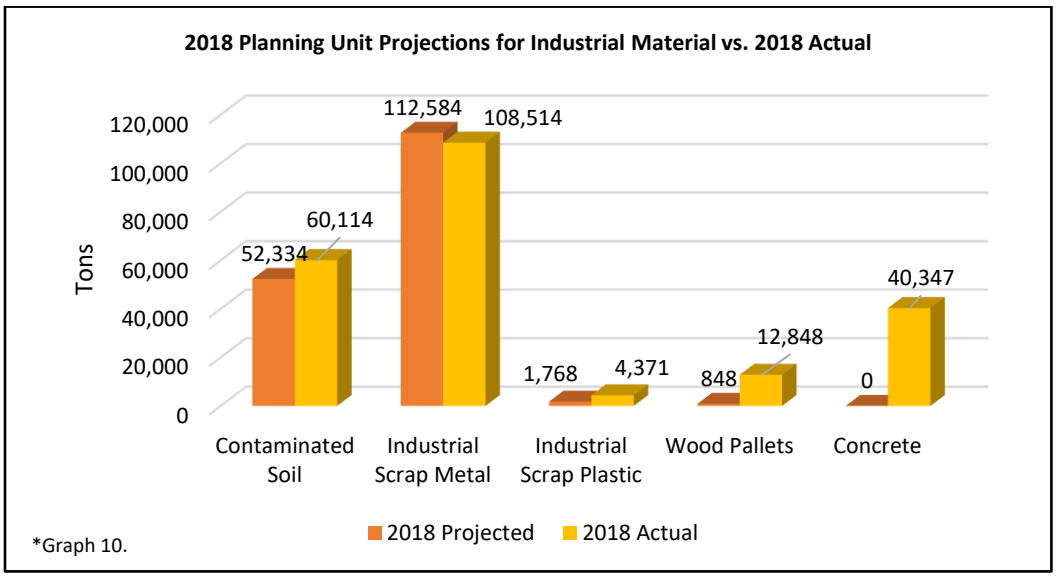
Graphs 7 and 8 represent the projected and actual totals for organics recovery. Most of the categories are very similar when comparing actual numbers to projections.

One of the reasons we believe we are seeing a difference in mixed green waste is because more local people are educated and participating in backyard composting programs.

It is also worth pointing out that food scraps and food processing were once reported as one category and now are split into the two, as seen above. Otherwise, these totals would be very close as well. Biosolids have been very consistent year to year and are nearly the same for projections and actuals. We did not make any projections for fats, oil or grease in the current LSWMP. We now have some limited data for those materials, due to our private sector waste and recyclables survey.



*Graph 9.



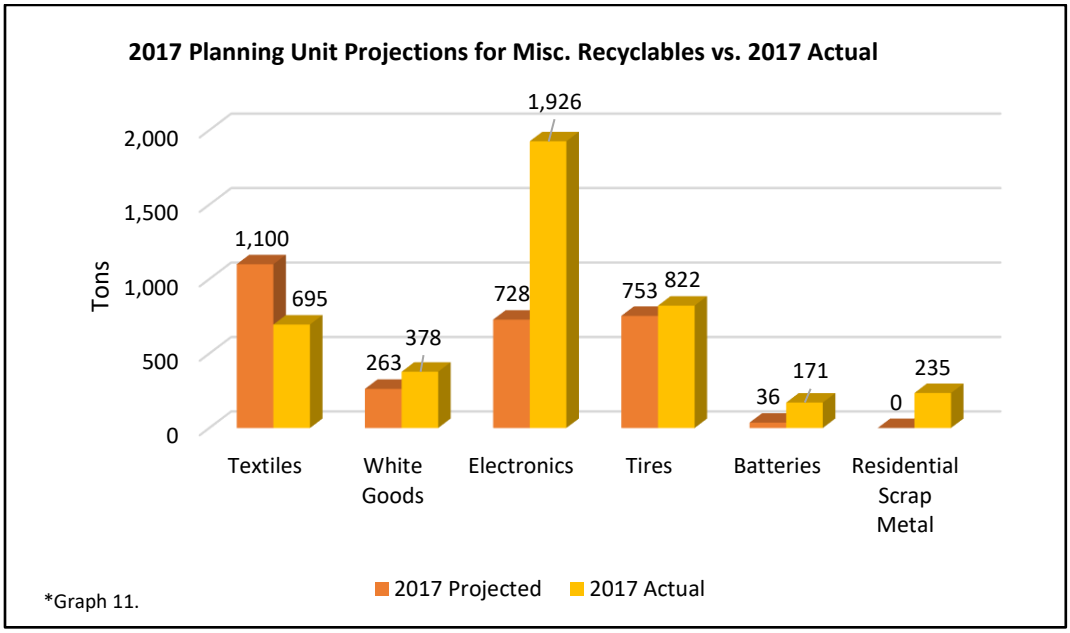
*Graph 10.

Graphs 9 and 10 show the tonnages reported for industrial material. The increase in contaminated soil (9% in 2017 and 15% in 2018, actuals versus projected) is likely due to economic development and availability of government money to address the area's industrial clean-ups and road improvements. In order to start new construction, road repair or put in place new infrastructure, contaminated soil may need to be removed. Scrap metal is largely a private sector

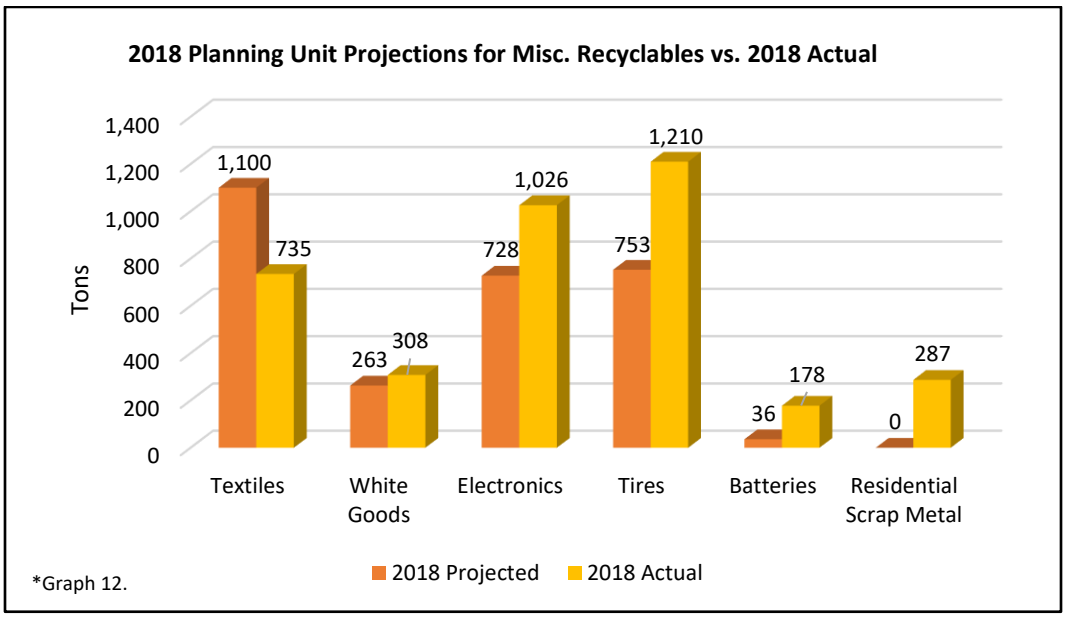
industry and we rely on the private sector to accurately report to us. This sector is also subject to double counting (scrap from outside the region hauled in), but this practice is out of the Authority's control.

The increase in 2018 industrial scrap plastic is attributed to better reporting from the private sector.

A large increase is also shown in the wood pallets category, which we believe can be directly related to better private sector reporting, increased goods shipments and the improving economy. At the time of projections in 2010, concrete was not being tracked as its own category, however, it will be going forward.



*Graph 11.



*Graph 12.

Lastly, are Graphs 11 and 12. The decrease in textiles can once again be attributed to reporting inconsistency, similar to plastic film/bags recycling in Graphs 5 and 6. Not all facilities that collect this material report their numbers to us. All other categories seen in the above two graphs saw an

increase in their actual totals from their projected numbers. This can be directly related to our outreach and education campaigns. Electronics are significantly up when compared to LSWMP projections, 62% for 2017 and 38% for 2018. This is attributed primarily to the wide-spread use of flat screen computers and TV's with the associated discarding of old-style computer screens and TV's. However, we may be witnessing the beginning of the end of older style screen TV and computer screen removal as actual electronics decreased 8.8% during the reporting period. The Authority now makes it more convenient than ever to recycle white goods, electronics, tires, batteries and residential scrap metal. All mentioned items can be disposed of at either our EcoDrop Utica or EcoDrop Rome Facilities six days a week. For example, the tire category shows an actual increase of 32% from 2017-2018.

In addition, battery recovery is up a whopping 79% and 80% versus projections during the reporting period, because of the widespread use of rechargeable batteries in tools and other common household items.

iii. Current Status and Changes to Solid Waste Management Practices

Recycling

The Authority implemented single stream recycling in 2012. This took the place of the Authority's previous dual stream processing system. The single stream processing system utilizes mechanical star screens and optical sorting technology to sort recyclable material by size and type. This advanced technology is able to perform efficiently with high throughput. Residents and businesses in the two-County region are able to recycle a wide-range of materials which are processed at the Recycling Center. Those materials include newspaper, magazines, boxboard, office paper, junk mail, gable top containers, juice boxes, PET plastics, HDPE plastics, mixed plastics (#1 - #7), glass, ferrous cans, and mixed aluminum.

Recyclables are collected curbside with a combination of municipal and private haulers. The Authority directly markets recyclables processed at its Recycling Center. It has business relationships with 80 local and interstate buyers for recyclable material. During this period the Recycling Center processed over 52,000 tons of in-county recyclable material.

Since investing in its state-of-the-art single stream processing facility to process recyclables from Oneida and Herkimer Counties, the Authority has proven it has excess capacity which allows more recyclables to be processed. Under its enabling legislation, the Authority is authorized to process out-of-region recyclables.

The Authority has intergovernmental agreements for the processing and marketing of recyclables from Oswego County, Lewis County and Fulton County.

In 2017 and 2018, the Recycling Center processed over 20,000 tons of recyclables from outside the Oneida-Herkimer region.

The Authority continues to promote its business recycling program which assists businesses, industries, schools and other commercial establishments by providing information on starting and maintaining a recycling program as well as decreasing the volume of waste produced by businesses.

Through a waste assessment/audit, the Authority evaluates current solid waste and recycling practices as area businesses, schools and institutions; identifies waste generation points; assesses individual work spaces and waste produced to document participation and compliance

rates; and determines potential opportunities for increasing recyclable material recovery. This service is provided free of charge.

As part of the Business Recycling Program, the Authority also offers a voluntary RecycleOne Business Certification program which recognizes businesses and industries for taking steps to reduce solid waste, increase recycling and save energy. Thirteen businesses achieved Certification in 2017-2018.

During the 2017-2018 period there were no major changes to recycling program practices.

Household Hazardous Waste Management

The Oneida-Herkimer Household Hazardous Waste Collection Facility opened for its 25th and 26th seasons during the reporting period.

The facility is one of the first permanent facilities in the northeast to recycle paint and to accept a full-range of household hazardous waste. This facility is designed to serve Oneida and Herkimer Counties' residents and select businesses. There is no charge for residents to drop off household hazardous waste.

The Oneida-Herkimer Solid Waste Authority has a specially-designed Household Hazardous Waste Collection Facility for receiving, sorting, packaging and storing household hazardous waste material.

In 2017, and 2018 127,386 gallons of hazardous waste were collected at the Authority's Household Hazardous Waste Facility and shipped for disposal. Other materials collected included motor oil, anti-freeze, oil filters, automobile batteries, fluorescent lamps and electronics, which continue to be accepted at the facility year-round.

Conditionally-exempt small quantity generators (CESQG) [small businesses] and universal waste generators are allowed to drop-off waste after obtaining approval from the Authority.

In 2017 and 2018, 188 conditionally-exempt small quantity generators and universal waste generators continued to take advantage of this program, resulting in substantial savings for these generators. Under this program, small businesses are charged a fee for disposal costs.

To provide additional environmentally sound recycling and disposal options for the residents, businesses and institutions of Oneida and Herkimer Counties, the Oneida-Herkimer Solid Waste Authority developed an Electronics Recycling Program.

In 2017 and 2018 1,435 tons of computers and electronic equipment were accepted for recycling and proper disposal, including computers, monitors, CPUs, keyboards, computer components, televisions, video equipment, CD/DVD players, desktop copiers, fax machines, microwaves, electronic games, printers, toner cartridges, cellular phones, battery chargers, calculators, answering machines and other electronics. It is estimated that over 50,000 individual items were recycled.

As with the recycling program, there were no major changes to household hazardous waste management in 2017 and 2018.

Green Waste Composting

The Authority's Green Waste Compost Facility was in its 24th and 25th years of operation in 2017-2018. This regional facility serves area residents, municipalities, private haulers, businesses, institutions and landscapers. About two-thirds of the population of Oneida-Herkimer Counties utilizes the site.

In 2017 and 2018, the facility received nearly 20,000 tons of green waste (grass, leaves, brush, etc.). The Authority continues to provide local municipalities, residents and businesses with an environmentally sound destination for green waste.

Green waste is processed, placed in windrows, turned as needed, and screened to facilitate natural decomposition, all in compliance with New York State regulatory requirements. The end-product of these efforts is high quality compost. The Authority's compost is tested quarterly to stringent standards, resulting in the Seal of Testing Assurance issued by the U.S. Composting Council.

The compost is made solely from yard waste and makes a great soil amendment for gardens and landscape applications. The Authority's compost can be purchased in convenient 45-pound bags, or in bulk. During the reporting period 24,680 bags of compost were sold. This very successful program is in direct response to the requests of local residents wanting a more convenient way to get compost.

In addition, approximately 40 local businesses and municipalities regularly purchase bulk compost from the Authority. In 2017-2018, 11,221 cubic yards of finished compost were sold.

There were also no changes in the manner green waste was managed by the Authority during the reporting period.

Waste Disposal

Since 2006, all non-hazardous, non-recyclable solid waste (MSW, C&D, asbestos waste, industrial waste, sewage treatment plant sludge and medical waste) is disposed of at the Authority's Regional Landfill (RLF) located in Ava, NY. The vast majority of the region's MSW is transported to the landfill via two transfer stations, the Eastern located in Utica and the Western located in Rome. The Landfill, which was constructed in 2006, has a design capacity of 1,000 tons per day.

In 2018 the Regional Landfill marked it's 12-year anniversary. Given current tonnage, the landfill has a capacity for nearly 80 years of operational life. This is mainly due to a higher waste density of (.96 tons/cubic yard) as compared to original estimates.

In the 2017-2018 period, the Authority's landfill disposed of 343,560 tons of MSW; 129,724 tons of C&D; 10,930 tons of industrial waste; 10,555 tons of asbestos waste; and 23,932 tons of sludge. Alternate operating cover materials totaled 132,865 tons for that period.

During the reporting period, the Authority constructed the landfill's newest cell. The construction of cell 7 began in 2017 and was dual-phased. Phase I consisted of soil stripping to sub-grade within the cell footprint, gray till mining/screening and soil stabilization. Phase II was completed in 2018 and included the installation of testing of the clay liner and the HDPE primary and secondary leachate collection layer. The total acreage of cell 7 is 10.75 acres.

The release of methane from landfills is a contributor to greenhouse gas generation. The Authority's landfill gas to electricity project represents a significant commitment by the Authority

to dramatically reduce our carbon footprint by capturing methane from our landfill and converting it to green energy. This project is a win-win for the environment, the Authority, and energy consumers.

In 2018, the Authority installed 20 new gas collection wells at the RLF, continuing to advance the active landfill gas collection system which brings the total number of vertical wells to 89 and horizontal wells to 27.

The Authority is one of Google's long-standing carbon offset project partners and was featured in the 2017 Google Environmental Report: *Capturing value from waste in upstate New York* for its successful Landfill Gas Project.

The partnership between Google and the Authority goes back to 2010, when Google decided to invest in the Authority's landfill gas project in its early stages. Included in Google's report, "as organic waste decomposes inside a landfill, it creates methane gas, which is a significant contributor to climate change: methane is 28 times more potent than carbon dioxide and accounts for 16% of global GHG emissions.

Landfills in many U.S. states aren't required to capture or process methane if they don't reach a certain threshold of emissions, so by voluntarily collecting and destroying it, they can generate carbon offsets.

Developing a carbon offset project provided the financial incentive for the initial investment. After vetting the project, Google committed to purchasing all the carbon offsets it would generate. This long-term investment provided the financial certainty the Authority needed to build and begin operating the gas-collection system three years earlier than planned.

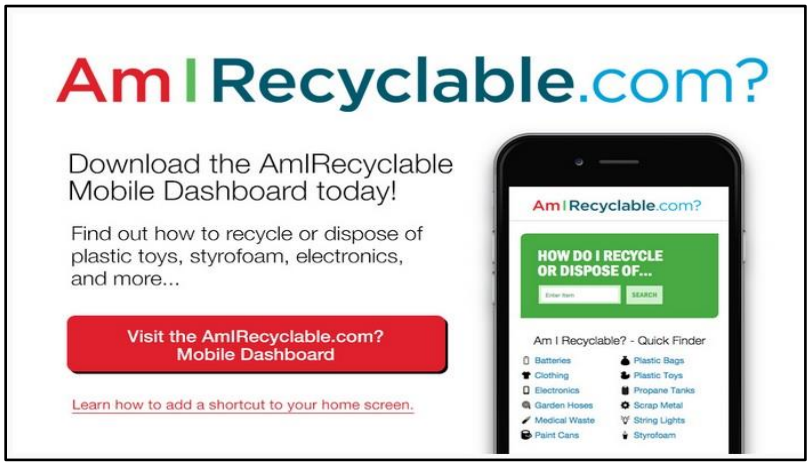
Since then, the project has eliminated half a million metric tons of carbon dioxide equivalent, generating more than half a million carbon offsets while ensuring the gas is properly handled."

There were no significant changes in solid waste disposal methods during the reporting period.

iv. Summary of Outreach and Education Activities

"Am I Recyclable?" Campaign

In 2018, the Authority made a marketing investment with Trainor Associates to continue promoting its education campaign and mobile web app. The goal of the "Am I Recyclable?" campaign was to target contamination in the recycling stream. Through the use of social media marketing, the campaign helped educate and encourage audiences to engage in the recycling conversation.

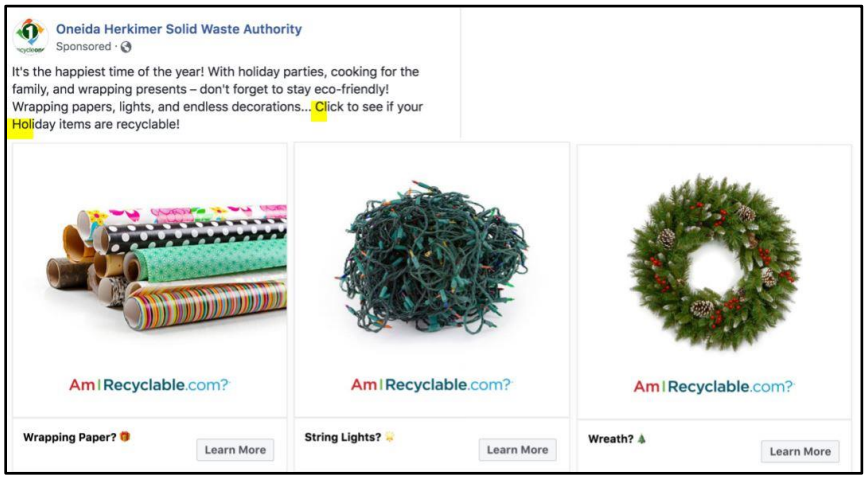


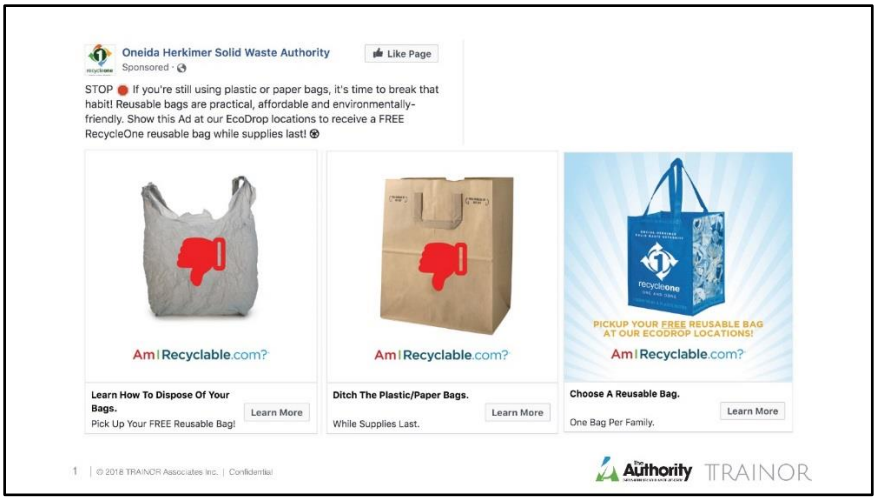
The “Am I Recyclable?” tool is a Mobile Web App which is a scaled down version of the “How Do I Recycle or Dispose Of” search tool on the Authority.org website. This mobile web app includes a “Quick Finder” which highlights the top 12 items that are improperly recycled or disposed of. The mobile web app can be viewed by visiting [www.AmIRecyclable.com.](http://www.AmIRecyclable.com)

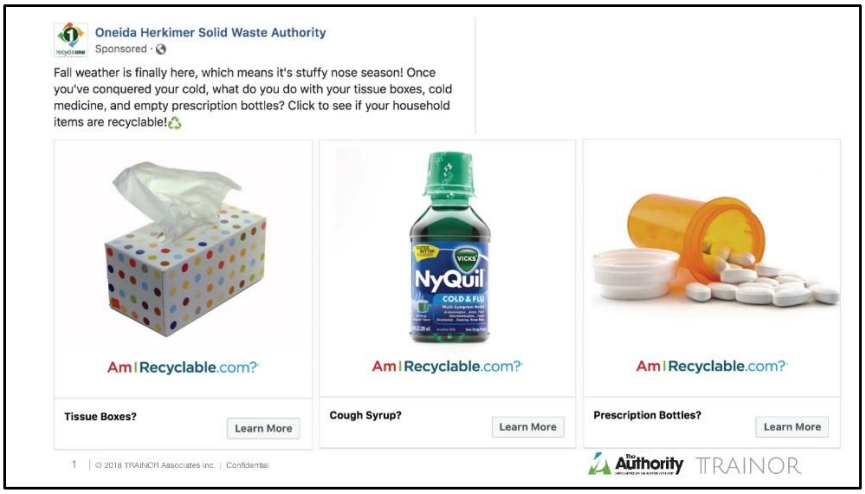
AmIRecyclable.com?

In 2017 and 2018, the Authority used social media marketing through Facebook and Instagram to promote the “Am I Recyclable?” campaign.

AmIRecyclable.com?







EPA Environmental Champion Award

In 2017, the Authority was selected to receive a U.S. EPA Environmental Champion Award from the Environmental Protection Agency (EPA), Region 2. The EPA annually recognizes individuals, businesses, government and organizations that have demonstrated outstanding commitment to protecting and enhancing environmental quality and public health. The Environmental Champion Award is the highest recognition bestowed to the public by EPA, Region 2.

The Authority has promoted reduction, maximized recycling, and provided safe, economical disposal for non-recyclable waste for the two-County region since its creation 30 years ago. The Authority was recognized by the EPA for its integrated system and strong public information efforts, including its, **"Am I Recyclable?"** campaign.

The Authority was honored at an awards ceremony on May 19, 2017 at the EPA Regional Office in New York City.

Anahita Williamson, Ph.D., Director of the Division of Environmental Science and Assessment; William Rabbia, Authority Executive Director; Jamie Tuttle, Authority Recycling Educator; and Eric Schaaf, Regional Counsel, EPA, Region 2

RecycleOne Campaign

The Authority maintains an excellent recycling rate; however, frequent and consistent communications from the Authority is necessary to remind residents of recycling guidelines.

To keep residents informed of the Authority's single stream recycling program, dubbed RecycleOne – One and Done, the Authority continued its public education campaign throughout 2017 and 2018. The Authority invested resources into direct public education through TV, web and print media. The RecycleOne campaign communicates to residents that recycling is easier and more convenient than ever.

The Authority also provided direct outreach, informational posters and RecycleOne bin decals to haulers and municipalities to further get the message directly to residents.

Authority Presentations and Tours

Authority staff maintains a strong commitment of outreach to the public through presentations on a wide range of Authority activities and issues including information on waste reduction, reuse of materials, recycling, landfill operations, backyard composting, sludge management, and services provided at Authority facilities. Regular presentations are done at area schools, colleges, businesses, civic groups and other organizations. More than 200 presentations and tours were given in 2017 and 2018. Tours of Authority facilities are available by contacting the Authority office at **www.Authority.org**.

Go Green School Recycling Program

The Authority continues its efforts to improve recycling in schools throughout our region and is dedicated to working with the schools in Oneida and Herkimer Counties to develop, support and maintain recycling programs in each school through a "Go Green" initiative.

In both 2017 and 2018, the Authority's School Recycling Coordinator visited individual classrooms and provided over 120 presentations to area schools. In addition, over 60 tours of the Oneida-Herkimer Recycling Center were given to students throughout the two-County region.

The Go Green School Recycling Program provides educational tools, resources, promotional materials, technical information, recommendations, program training and recycling and waste evaluations to the schools. A School Recycling Program Guide assists teachers and educates students on the value and long-term benefits of recycling, conservation and environmental stewardship. Promotional posters, banners, decals, Green Team vests, recycling containers and an interactive website are used in the program.

DEC Environmental Excellence Award

In 2017, the Authority was one of seven organizations to receive an Environmental Excellence Award from the New York State Department of Environmental Conservation (NYSDEC). Each organization was recognized for its state-of-the-art programs and commitment to environmental sustainability, social responsibility and economic viability.

The Authority was recognized for its Go Green School Recycling Program. As per the NYSDEC, "The Authority's Go Green Recycling Program is an example of a well-designed and creatively implemented education/outreach and engagement program, which involves all but two of the 30 public and private school systems in the two-County area.

In addition, the Authority's Recycling Educator successfully engages students, teachers, custodians, parents and school faculty in recycling and composting programs."

DEC established the Environmental Excellence Awards in 2004 to recognize those who are working to improve and protect New York's environment and contribute to a healthier economy by advancing sustainable practices and forming creative partnerships.

To date, DEC has recognized 80 award winners. They are an elite group of committed organizations leading by example and serving as models of excellence within their industry and community.

The Authority was recognized at the NYSDEC's 14th Annual Awards Celebration I Albany on November 14, 2017.

William Rabbia, Authority Executive Director; Emily Albright, Authority Director of Recycling; and Julie Tighe, DEC Acting Chief of Staff

Earth Day Poster Contest

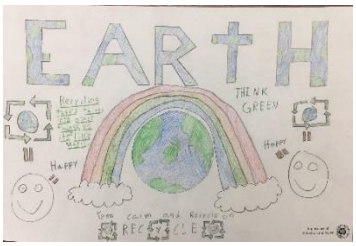
In celebration of Earth Day 2018, the Authority sponsored a Poster Contest. The purpose of the Poster Contest was to promote and educate youth and the community on proper curbside recycling, plastic film recycling and the importance of reduction and reuse. The Contest was open to all K-12 students in Oneida and Herkimer Counties.

This initiative focused on reduction, reuse and recycling to divert waste from our regional landfill and conserve natural resources and energy.

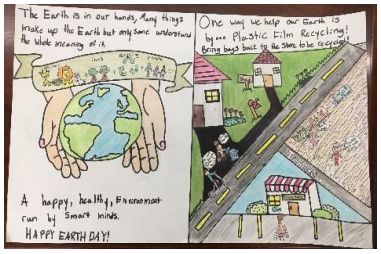
The Authority received over 500 poster contest entries from area students. Many of the entries were displayed at the Authority's Annual Earth Day event on April 21, 2018.

Posters were divided into three categories: grades K-6; grades 7-9; and grades 10-12.

Grades K-6 Category



Grades 7-9 Category



Grades 10-12 Category

Group photo from the Authority's 2018 Earth Day event where students were recognized for their efforts by the Authority and the NYSDEC.

"Zero Waste" Lunch Challenge

In celebration of Earth Day 2017, the Authority held its seventh annual "Zero Waste" Lunch Challenge to demonstrate how students can reduce the amount of waste they produce. The Challenge was open to all public and private K-12 school buildings in the two Counties.

The Challenge aimed to show students that simply throwing items away after use wastes valuable natural resources and energy and causes pollution. The Authority hopes to inspire students to make small changes, like packing "Zero Waste" lunches, to make a positive impact on our environment.

Plastic Film Recycling Challenge

In 2017 and 2018, the Authority sponsored its second and third annual Plastic Film Recycling Challenge for local schools, in an effort to promote and educate youth and the community on proper recycling of plastic grocery bags and other plastic film, which cannot be recycled through regular curbside recycling programs.

Over 15 schools participated in the two Plastic Film Recycling Challenges and had five weeks to collect plastic film for recycling. Participating schools partnered with local grocery stores and delivered the plastic film directly to them for proper recycling. The initiative focuses on collecting clean, dry, plastic film to keep it out of our region's landfill.

With the efforts of these schools combined, just over 11,700 pounds of plastic film was collected for recycling in five weeks – that is the equivalent of recycling almost 900,000 plastic grocery bags.

Food Waste Composting Program

The Authority's Go Green School Recycling Program is committed to taking recycling to the next level. In combination with our general school recycling program, the Authority has designed a food/green waste composting program for the schools of Oneida and Herkimer Counties. In doing so, the Authority is prepared to aid and facilitate local schools with composting initiatives.

As of December 2018, the Authority has provided a total of 22 facilities in our region with Mantis Compost-Twin composting unit for use in composting cafeteria food waste at no cost to the schools.

- Poland Central School District
- New York Mills School District
- Holland Patent Middle School
- Sauquoit Valley Elementary School
- Camden Elementary School
- Central Valley Academy
- Frankfort-Schuyler High School
- Adirondack Middle/High School
- Harts Hill Elementary School
- Staley Upper Elementary School
- Denti Elementary School
- Gansevoort Elementary School
- Barringer Road Elementary School
- Westmoreland Middle School
- McConnellsville Elementary School
- Mohawk Valley Community College (Rome)
- Mohawk Valley Community College (Utica)
- Munson Williams Proctor Art Institute
- United Cerebral Palsy of Utica
- United Cerebral Palsy of Rome
- United Cerebral Palsy of Chadwicks
- Utica Zoo

The Authority offers assistance to these schools in developing and facilitating a plan for separation and removal of food waste in the cafeteria.

The Authority's website has proven to be an effective tool to get the word out to the local community on reuse options. The most effective way to reduce waste is to not create it in the first place. Manufacturing new products requires raw materials and energy. As a result, reusing is one of the most effective ways you can conserve natural resources, energy and landfill space.

The Authority encourages reuse before disposal. There are various locations and organizations in Oneida and Herkimer Counties that accept used items as a donation for reuse or recycling.

Some acceptable items include clothing, books, furniture, household items and more. Certain organizations will arrange for the pickup of donated items.

The Authority has partnered with the organizations below to boost reuse in the area.

- Habitat for Humanity ReStore (Utica)
- New 2 U Thrift Store (Utica)
- Second Chance Tool Store (Utica)
- CNY Veteran's Outreach Center (Utica)
- The Salvation Army (Utica)
- The Rescue Mission of Utica
- The Rescue Mission of Rome
- Goodwill-HARC Store & Donation Center (Herkimer)
- Freecycle

v. Compliance with Local Recycling Laws

The Authority's compliance efforts are based upon Oneida County Local Law No.1 of 1990 and Herkimer County Local Law No. 1 of 1990. Both laws are in effect, have survived legal challenges, and indeed were upheld by the United States Supreme Court. In general, the laws regulate the collection and disposition of solid waste and recyclables in the two-County area. First and foremost, the laws mandate the separation of residential and commercial/industrial, recyclable material from the waste stream.

Proper disposition of each component of the waste stream including waste destination is addressed. Prohibitions against unauthorized dumping and enforcement penalties for non-compliance is also set forth. In addition, a requirement for all entities engaged in waste and or recyclables collection to obtain an Authority permit is mandated. The permit is another tool (in addition to the local laws) for recycling compliance. The Counties have designated through contracts the Authority as the enforcement agent for their solid waste laws.

The Authority currently administers 771 contracts, each with a disposal permit for solid waste/recyclables collection and disposal. Revocation of the disposal permit is the main deterrent used by the Authority for enforcement. For example, if a permitted waste hauler is repeatedly caught mixing recyclables with solid waste collection, privileges may be revoked by voiding their permit.

The Authority employs a multi-pronged approach to ensure compliance with Oneida County and Herkimer County recycling laws. As described in detail in Section iv. a comprehensive and up-to-date public education program is used to keep the public informed on the "do's and don'ts" of proper recycling as stated in the local recycling laws.

The Authority also has a day-to-day presence on the streets of our largest city, Utica, using solid waste inspectors. Two inspectors are involved in enforcing the solid waste/recycling laws by conducting set out requirement compliance checks, educating the public and issuing citations if needed.

There is also constant interaction with the public by Authority staff to follow-up on complaints that citizens may have about potential recycling law violations.

Lastly, there are Authority inspectors located at the Eastern and Western Transfer Stations and the Recycling Center that have the responsibility to observe truckloads of waste or recyclables as they are discharged or dumped. At the transfer station haulers are subject to fines for significant amounts of recyclable material contained in a load of C&D or MSW. At the Recycling Center haulers are subject to fines for significant amounts of waste in recyclable material loads.

vi. Obstacles

The most serious obstacle that the Authority faced during the reporting period was the negative impacts to fiber recycling markets due to China's widespread import restrictions. In July of 2017, China announced its "National Sword" or "Green Sword" policy in which it would ban the importation of certain types of solid waste, as well as set strict contamination limits on recyclable material. In other words, China would no longer accept shipments that were contaminated with trash, the wrong type of recyclable material, or low-quality recyclables. Following the announcement in July 2017, the ban officially began January 1, 2018.

China has been the world's largest importer of waste for decades. However, the implementation of National Sword has greatly reduced the rate at which paper, plastic and scrap metals were being imported into that nation. This caused significant problems within the international recycling system. Recyclables are piling up in the United States with very few, if any, places to go and pricing has significantly dropped.

The greatest impact to the Authority has been in the fiber area. The Authority continues to work with Waste Management Recycle America for the purchase of our baled fiber (mixed paper and OCC) material. Even though the destination facilities have changed to Vietnam and India and the

price has significantly dropped, the Authority was able to ensure that these materials were being properly recycled. All other commodities such as plastic, glass and metal have seen little change in the way they are being handled and recycled.

The Authority has remained committed to its mission and has continued to recycle all material that has been delivered to its facility. Following the announcement of China's new policy, the Authority was, and has remained, very pro-active. In order to minimize contamination, the Authority has conducted numerous "bale breaks" in order to determine contamination rates. It has also purchased new equipment to help calculate and monitor moisture content in the fiber.

Table 1 below shows the average fiber revenue per overall ton for the years 2017 and 2018. This provides a good look at how the prices have significantly dropped due to implementation of National Sword. During the 2017-2018 period, mixed paper fell 340% and OCC fell 73%.

Table 1		
COMMODITY	**2017**	**2018**
Mixed Paper (Newspaper)	$84.42/ton	$19.17/ton
Old Corrugated Cardboard (OCC)	$154.57/ton	$89.50/ton

Table 2 shows total recycling revenue by commodity for the years of 2016, 2017 and 2018. Again, showing how National Sword has directly impacted the Authority's recycling markets. Between 2017 and 2018, total recycling revenue fell $885,517, or approximately 50%.

Table 2			
COMMODITY	**2016**	**2017**	**2018**
Plastics	$512,075	$553,116	$559,276
Mixed Paper	$709,940	$947,465	$203,498
Old Corrugated Cardboard (OCC)	$629,555	$902,949	$729,278
Ferrous	$105,281	$151,769	$188,508
Aluminum	$73,619	$73,088	$59,621
Other	$20,576	$22,113	$24,802
TOTALS	**$2,051,046**	**$2,650,500**	**$1,764,983**

Going forward, the Authority is mindful of the impact of this revenue decrease obstacle as it considers future recycling projects and the budgetary impact to overall revenues.

Another obstacle faced by the Authority during the 2017-2018 timeframe was the lack of viable markets for container glass received and processed at the Recycling Center. Container glass inevitably breaks during the collection/trucking process and consequently the glass shards damage the single stream recycling system components (such as bearings) through abrasive wear. The shards are also a contaminant for other recyclable materials such as paper and plastic. We are forced to haul the glass to our landfill at extra cost to re-use the glass in civil engineering applications when it would be more beneficial to recycle this material into new glass containers.

In 2017, the Authority released a Request For Proposals (RFP) for the use of excess heat generated by the landfill gas to energy facility. The RFP requested proposals from companies that would be interested in developing a facility at the landfill site in Ava, NY, that would utilize approximately 2,075,000 BTU's per hour of excess heat. The utilization of excess thermal energy was identified as a project for potential implementation in the Authority's LSWMP.

Unfortunately, there were no respondents to the RFP. Therefore, based on a lack of interest from the private sector this particular project cannot be implemented at this time.

In 2018, the Authority faced another obstacle related to the potential expansion of our landfill gas to energy project. Beginning in 2018, the Authority has been flaring enough landfill gas to power an additional landfill gas to energy generator which would produce enough power equivalent to the electricity consumed by 1,650 homes. The additional generator would give the Authority a total of three operating units. Unfortunately, the cost of interconnect improvements, facility upgrades to house the additional generator and generator purchase are not supported by the current depressed electricity market returns. The large supply of natural gas and its effect on electricity market is the main factor for this economic obstacle. In addition, the landfill is too far away from a natural gas pipeline to institute the significant investment and facility overhaul to provide pipeline quality natural gas. RIN sales have also been evaluated and are currently not achievable. Therefore, the Authority is forced to continue to flare the excess gas to mitigate its effect on the environment without energy production benefits.

The LSWMP also identified the possible implementation of a sewer line hook-up for landfill leachate. An in-house analysis was conducted during the reporting period. With respect to a sewer line extension to the Village of Boonville, a headworks study revealed that the treatment works could not properly treat the landfill's leachate. A hook-up was also evaluated for the City of Rome Treatment Plant, but distance made that project not feasible from a cost standpoint. Therefore, the sewer line project from the landfill does not appear to be possible, at this time.

vii. Status of Conformance with the Implementation Schedule

Table 3

STATUS	CURRENT LSWMP PROJECTION	PROJECT/TASK/MILESTONE	RESPONSIBLE PARTY	COMMENTS
Implemented 2012	2013	Implemented Single Stream Recycling	Authority	Accomplished one year ahead of schedule.
Not Implemented 2012	2012, 2013	Evaluate feasibility of providing recycling containers to each household in the region	Authority	Deemed not feasible due to cost and logistical issues (distribution & replacement).
Implemented 2011-2012	2011	Complete Landfill Gas to Electricity Project	Authority	On schedule.
Ongoing	Ongoing	Expand/Continue PAYT Program	Authority Municipalities	No additional municipalities added during reporting period. Support continued to existing programs.
Ongoing	2011-2015	Expand/Continue School Recycling & Go Green Projects	Authority Schools	Expanded during reporting period.
Ongoing	2011-2015	Expand/Continue School Organics Recovery Projects	Authority Schools	Expanded during reporting period.
Ongoing	2011-2015	Implement Backyard Compost Unit Sales Event	Authority	Sales event held in 2017 & 2018.
Implemented 2013	2012-2013	Evaluate/Implement Pilot Food Waste Compost Project – (Brewery hops)	Authority	On schedule and operation continued during reporting period.
Not Implemented	Ongoing	Support Private Sector Biosolids Recycling Efforts	Authority Private Sector	Change in policy, see Section 4 herein.
Ongoing	Ongoing	Continue Waste Assessments/Audits	Authority	See page 10.
Ongoing	Ongoing	Expand/Continue Public Education Efforts	Authority	See Section iv. herein.
Ongoing	Ongoing	Expand/Continue Public Outreach Programs	Authority	See Section iv. herein.
Ongoing	2016-2018	Evaluate New Processing Technology	Authority	Evaluated Source Separated Organics Processing Technology during the reporting period.
Ongoing	Ongoing	Expand/Continue Reuse of Materials in Civil Engineering Practices	Authority	Glass use at the Regional Landfill.
Not Implemented 2017	2013	Evaluate/Implement, if feasible an Alternative Energy Project (such as Greenhouse) that could utilize excess thermal energy from the Landfill Gas to Energy Facility	Authority	Not feasible, at this time; re-evaluate in the future. See page 22.
Not Feasible	2013-2017	Evaluate/Implement if feasible sewer line hook-up for landfill leachate	Authority	Not feasible, at this time. See page 23.
Implemented 2017-2018	2014-2015, 2019-2020	Build New Cells at Landfill	Authority	See page 11.
Ongoing	Ongoing	Support Private Sector C&D Recycling Efforts	Authority	No interest from private sector during 2017 & 2018.
Ongoing	Ongoing	Hold Pharmaceutical Collection Days	Authority Pharmacists	Held in 2017 & 2018.
Ongoing	Ongoing	Continue and Evaluate Municipal Demolition Assistance Program	Authority Municipalities	Successful programs continued during the 2017 & 2018 reporting period.
Ongoing	Ongoing	Continue and Evaluate Library Location Book Recycling Program	Authority Libraries	Events held in 2017 & 2018.
Ongoing	Ongoing	Continue Confidential Paper Shredding Events	Authority	Events held in 2017 & 2018.
Ongoing	Ongoing	Add any feasible material to Recyclable List	Authority	No feasible materials identified during the reporting period.

Table 3 above shows the status of conformance with the current LSWMP Implementation Schedule. It lists the project, task, or milestone, responsible party for implementation, current LSWMP date projection for implementation, status and any relevant comments. Four projects/tasks have been implemented, four have not been implemented. Reasons for implementation or non-implementation are contained in the comments section. The remaining projects or tasks are listed as having a status of ongoing meaning that the Authority is continuing that project.

2. Solid Waste and Recyclables Data

i. and ii. Facilities, Locations and Quantities of Accepted Waste and Recyclables (2017)

RECYCLABLES

Ferrous Metal Containers – (1,238.05 tons)

The Conti Group (**153.24 tons)**
166 46th Street
Brooklyn, NY 11204

Recyclable Materials Marketing – ReMM (**663.19 tons)**
217 Terrace Hill Street – Unit 810
Brantford, ON N3R 1GB

N.H. Kelman **(361.73 tons)**
41 Euclid Street
Cohoes, NY 12047

CellMark Recycling **(40.08 tons)**
P.O. Box 641
Norwalk, CT 06854

Ekman Recycling **(19.81 tons)**
1608 Route #88 West – Suite #301
Brick, NJ 08724

PET Plastic/HDPE Plastic – (1,833.90 tons)

N.H. Kelman **(128.38 tons)**
41 Euclid Street
Cohoes, NY 12047

Ekman Recycling **(62.97 tons)**
1608 Route #88 West – Suite #301
Brick, NJ 08724

The Conti Group **(41.92 tons)**
1661 46th Street
Brooklyn, NY 11204

CellMark Recycling **(229.49 tons)**
P.O. Box 641
Norwalk, CT 06854

Nursery Supplies, Inc. **(195.18 tons)**
1415 Orchard Drive
Chambersburg, PA 17201

Park Polymers **(83.15 tons)**
1321 Generals Hwy – Suite #302
Crownsville, MD 21032

BlackBridge Investments **(103.73 tons)**
3600 Route #66 – Suite #150
Neptune, NJ 07753

Haycore Canada, Inc. **(83.50 tons)**
3144 Gregoire Road
Russell, ON K4R 1E5

Recycle America – Container Group **(194.42 tons)**
6255 Sheridan Drive – Suite #412
Williamsville, NY 14221

Plastic Revolutions **(152.30 tons)**
P.O. Box 1616
Reidsville, NC 27320

Canusa-Hershman Recycling Co. **(62.83 tons)**
45 N. E. Industrial Road
Branford, CT 06405

Eco Choice **(258.30 tons)**
217 Terrace Hill Street – Unit B10
Brantford, ON N3R 1GB

Recyclable Materials Marketing – ReMM **(172.93 tons)**
217 Terrace Hill Street – Unit B10
Brantford, ON N3R 1GB

Prime Plastics **(64.80 tons)**
1351 Distribution Way
Vista, CA 29081

#1 - #7 Mixed Plastics – (404.90 tons)

Canusa-Hershman Recycling Co. **(65.41 tons)**
45 N.E. Industrial Road
Branford, CT 06405

Dubitec America, Inc. **(17.25 tons)**
2000 E. 4th Street #201
Santa Ana, CA 92705

BlackBridge Investments **(216.09 tons)**
3600 Route #66 – Suite #150
Neptune, NJ 07753

Casella **(106.15 tons)**
110 Main Street
Saco, ME 04072

White Goods & Scrap Metal – (613.18 tons)

Empire Recycling Corporation **(465.55 tons)**
64 Genesee Street
Utica, NY 13502

SIMS Metal Management East **(147.63 tons)**
167 West River Road
Frankfort, NY 13340

Bulky Rigid Plastics – (114.19 tons)

Recyclable Materials Marketing – ReMM **(21.51 tons)**
217 Terrace Hill Street – Unit B10
Brandford, ON N3R 1GB

BlackBridge Investments **(40.90 tons)**
3600 Route #66 – Suite #150
Neptune, NJ 07753

Canusa-Hershman Recycling Co. **(34.22 tons)**
45 N. E. Industrial Road
Brantford, CT 06405

Dubitec America, Inc. **(17.56 tons)**
2000 E. 4th Street #201
Santa Ana, CA 92705

Aluminum Containers/Aluminum Foil & Trays – (95.12 tons)

N.H. Kelman **(36.50 tons)**
41 Euclid Street
Cohoes, NY 12047

CellMark Recycling **(38.62 tons)**
P.O. Box 641
Norwalk, CT 06854

Recyclable Materials Marketing – ReMM **(20.00 tons)**
217 Terrace Hill Street – Unit B10
Brantford, ON N3R 1GB

Textiles and Other Clothing Items – (11 tons)

St. Pauly Textile Inc. **(11 tons)**
1067 Gateway Dr.
Farmington, NY 14425

Tires – (655.49 tons)

Casings, Inc. **(557.67 tons)**
P.O. Box 731
Catskill, NY 12414

Geiter Done of WNY **(97.82 tons)**
300 Greene Street
Buffalo, NY 14206

Glass – (4,845 tons)

Oneida-Herkimer Regional Landfill **(4,845 tons)**
7044 State Route 294
Boonville, NY 13309

Organics – (180 tons)

Leitz Trucking Corp.
162 McIntyre Road
Frankfort, NY 13340

WASTE

Municipal Solid Waste (MSW) – 170,392 tons)

Oneida-Herkimer Regional Landfill **(170,392 tons)**
7044 State Route 294
Boonville, NY 13309

Construction & Demolition Debris (C&D) – (67,637 tons)

Oneida-Herkimer Regional Landfill **(67,637 tons)**
7044 State Route 294
Boonville, NY 13309

Industrial Waste – (15,584 tons)

Oneida-Herkimer Regional Landfill **(15,584 tons)**
7044 State Route 294
Boonville, NY 13309

Biosolids – (11,384 tons)

Oneida-Herkimer Regional Landfill **(11,384 tons)**
7044 State Route 294
Boonville, NY 13309

i. and ii. Facilities, Locations and Quantities of Accepted Waste and Recyclables (2018)

RECYCLABLES

Ferrous Metal Containers – (1,291.78 tons)

The Conti Group **(84.59 tons)**
1661 46th Street
Brooklyn, NY 11204

Recyclable Materials Marketing – ReMM **(539.01 tons)**
217 Terrace Hill Street – Unit B10
Brantford, ON N3R 1GB

N.H. Kelan **(314.91 tons)**
41 Euclid Street
Cohoes, NY 12047

CellMark Recycling **(122.49 tons)**
P.O. Box 641
Nonwalk, CT 06854

Empire Recycling Corporation **(230.78 tons)**
64 Genesee Street
Utica, NY 13502

PET Plastic/HDPE Plastic – (1,788.16 tons)

N.H. Kelman **(289.59 tons)**
41 Euclid Street
Cohoes, NY 12047

Ekman Recycling **(102.24 tons)**
1608 Route #88 West – Suite #301
Brick, NJ 08724

The Conti Group **(19.18 tons)**
1661 46th Street
Brooklyn, NY 11204

CellMark Recycling **(446.76 tons)**
P.O. Box 641
Norwalk, CT 06854

Nursery Supplies, Inc. **(131.64 tons)**
1415 Orchard Drive
Chambersburg, PA 17201

Blue Ridge Plastics **(42.42 tons)**
11511 NC Hwy. 770 East
Eden, NC 27288

BlackBridge Investments **(21.26 tons)**
3600 Route #66 – Suite #150
Neptune, NJ 07753

Haycore Canada, Inc. **(21.76 tons)**
3144 Gregoire Road
Russell, ON Kar 1E5

Recycle America – Container Group **(129.92 tons)**
6255 Sheridan Drive – Suite #412
Williamsville, NY 14221

Plastic Revolutions **(110.04 tons)**
P.O. Box 1616
Reidsville, NC 27320

Canusa-Hershman Recycling Co. **(211.93 tons)**
45 N. E. Industrial Road
Branford, CT 06405

Eco Choice **(131.13 tons)**
217 Terrace Hill Street – Unit B10
Brantford, ON N3R 1GB

Recyclable Materials Marketing – ReMM **(84.87 tons)**
217 Terrace Hill Street – Unit B10
Brantford, ON N3R 1GB

Industrial Container Services **(45.41 tons)**
1704 Barnes Street
Reidsville, NC 27320

#1 - #7 Mixed Plastics – (336.65 tons)

Canusa-Hershman Recycling Co. **(85.52 tons)**
45 N.E. Industrial Road
Branford, CT 06405

Ekman Recycling **(41.93 tons)**
1608 Route #88 West – Suite #301
Brick, NJ 08724

BlackBridge Investments **(20.46 tons)**
3600 Route #66 – Suite #150
Neptune, NJ 07753

Casella **(166.45 tons)**
110 Main Street
Saco, ME 04072

Industrial Container Services **(22.29 tons)**
1704 Barnes Street
Reidsville, NC 27320

White Goods & Scrap Metal – (595.40 tons)

Empire Recycling Corporation 413,80 tons)
64 Genesee Street
Utica, NY 13502

Rubicon Recycling, Inc. **(1.27 tons)**
7895 Tannery Road
Rome, NY 13440

SIMS Metal Management East **(180.33 tons)**
167 West River Road
Frankfort, NY 13340

Bulky Rigid Plastics – (220.51 tons)

Industrial Container Services **(20.79 tons)**
1704 Barnes Street
Reidsville, NC 27320

BlackBridge Investments **(117.73 tons)**
3600 Route #66 – Suite #150
Neptune, NJ 07753

Haycore Canada, Inc. **(21.25 tons)**
3144 Gregoire Road
Russell, ON K4R 1E5

Ekman Recycling **(60.74 tons)**
1608 Route #88 West – Suite #301
Brick, NJ 08724

Aluminum Containers/Aluminum Foil & Trays – (113 tons)

N.H. Kelman **(56.58 tons)**
41 Euclid Street
Cohoes, NY 12047

CellMark Recycling **(37.83 tons)**
P.O. Box 641
Norwalk, CT 06854

The Conti Group **(18.59 tons)**
1661 46th Street
Brooklyn, NY 11204

Textiles and Other Clothing Items – (12 tons)

St. Pauly Textile, Inc. **(12 tons)**
1067 Gateway Dr.
Farmington, NY 14425

Tires – (1,047 tons)

Casings, Inc. **(501.25 tons)**
P.O. Box 731
Catskill, NY 12414

Geiter Done of WNY **(545.75 tons)**
300 Greene Street
Buffalo, NY 14206

Glass – (4,735 tons)

Oneida-Herkimer Regional Landfill **(4,735 tons)**
7044 State Route 294
Boonville, NY 13309

WASTE

Municipal Solid Waste (MSW) – (173,168 tons)

Oneida-Herkimer Regional Landfill **(173,168 tons)**
7044 State Route 294
Boonville, NY 13309

Construction & Demolition Debris (C&D) – (62,087 tons)

Oneida-Herkimer Regional Landfill **(62,087 tons)**
7044 State Route 294
Boonville, NY 13309

Industrial Waste – (33,160 tons)

Oneida-Herkimer Regional Landfill **(33,160 tons)**
7044 State Route 294
Boonville, NY 13309

Biosolids – (12,548 tons)

Oneida-Herkimer Regional Landfill **(12,548 tons)**
7044 State Route 294
Boonville, NY 13309

3. Evaluation of Alternatives

During the development of the Authority's current LSWMP, staff evaluated a series of solid waste management alternatives. The LSWMP clearly lists a process that the Authority uses while considering different solid waste management alternatives.

As a general approach, the Authority will consider the following factors in evaluating technology options for each component of the system.

- Ability to meet environmental protection, public health and safety standards.
- Operating experience and reliability.
- Capital cost.
- Operating cost.
- Other pertinent factors (i.e., waste type limitations, assessment of product characteristics, residue, air emissions, etc.).

The Authority has used the criteria above to formally evaluate a number of conceptual gasification, digestion, pyrolysis, and vermiculture alternatives. None of the projects met the criteria.

The Authority also evaluated waste-to-energy which was deemed to be too expensive when compared to the chosen alternative of landfilling.

A major alternative evaluation was done in relation to dual stream versus single stream recycling. The current LSWMP details the efficiency advantages of the chosen alternative single stream process which leads to increased recycling levels. The single stream process also saves energy and reduces greenhouse gas emissions.

The LSWMP also identifies the need to further investigate bio-solids management alternatives. This future project is listed on pg. 45 and may have a significant effect on waste entering the landfill in the future by diverting a major portion of the bio-solids waste stream.

With regard to the LSWMP extension into 2021 and 2022, the organics fraction of the waste stream was the subject of an extensive alternative study beginning in 2016. The Authority tasked its consulting engineer Barton & Loguidice with developing a Source Separated Organics Feasibility Study.

As discussed in Section 4, the purpose of this study was to assess the feasibility of the collection and diversion of source separated organics (SSO) from commercial and institutional entities located in Oneida and Herkimer Counties. The study specifically assessed the quantity of available organics, the type and sizing of the collection and processing equipment, including any upgrades to the ETS, and any potential issues for collection and processing, within the context of the current solid waste management system. The study also determined the economic feasibility and any impacts to existing solid waste management facilities, along with the potential for expansion of the system to other organic waste streams located in the Authority's service area.

The project was determined to be beneficial for natural resource conservation, energy production and job creation. Valuable landfill air space is saved by diverting this waste from the landfill. Correspondingly, greenhouse gas levels will also decrease. Green energy will be produced by the processing of organics in the digestor. This energy will be used by the Oneida County Wastewater Treatment Plant to run its operation. We estimate one new job created from the project with the potential of more jobs depending on the level of participation.

The study also established projected costs for the SSO project, estimated to be $815,000 for transfer station modification, $550,000 for SSO processing equipment and $334,000 for sanitary sewer upgrades totaling about $3,400,000 with contingency.

The Authority, after careful evaluation of alternatives such as composting, chose the anaerobic digestion method as described in detail beginning on page 37 herein. Composting was deemed as a less desirable alternative due to a number of concerns such as siting, lack of a suitable location, odor, vectors, marketing of end-product limitations and lack of a partner. As opposed to the partnership with Oneida County Wastewater Treatment Plant under the chosen alternative.

As far as quantitative/qualitative impacts of the project, limited information was available on the total tonnage of SSO available for diversion from commercial entities. The Authority surveyed many of the commercial and institutional entities in their service area in order to estimate the amount of SSO that could potentially be collected. However, some of the institutions surveyed, including schools, hospitals, nursing homes, restaurants, hotels, and grocers, do not track the amount of food waste they produce. Tonnage data for these facilities was calculated based on usage of similar out-of-region facilities. For example, food waste generated at the schools was estimated based on the number of students and a set waste generation rate per student. Combining the available survey data with the estimates resulted in an approximate commercial SSO quantity of 31,700 tons per year. Commercial organics already recovered for other uses are quantified in the Authority's Planning Unit Reports and are summarized in Table 6 below. Removing all food waste allocated towards other uses, such as donation or composting, resulted in available commercial SSO for collection totaling approximately 15,000 tons per year. This assumes generator participation of 100% which, although unlikely, allowed for processing equipment to be sized conservatively.

Table 4 – Diverted Commercial Organics

YEAR	RECOVERED COMMERCIAL/INDUSTRIAL FOOD WASTE (TONS/YEAR)[1]
2010	13,623
2011	15,107
2012	15,878
2013	18,012
2014	20,383
2015	17,112
Average	**16,686**

1Authority Planning Unit Reports

All volume data was checked against the waste composition numbers per NYSDEC's State Solid Waste Management Plan, Beyond Waste. Data collected as part of the Beyond Waste Plan states that 46% of MSW is commercial, institutional, or industrial in origin, and that 25.2% of commercial and institutional waste is food scraps. Applying these waste composition percentages to the Authority's service area results in an estimated available SSO of 21,300 tons per year (see Table 5). This matches closely with the estimated total commercial SSO available, including food waste already allocated for uses such as donation and composting. Based on the expected phasing of the SSO collection program, a range of expected tonnages of 5,000 to 21,000 was used to size equipment. This range assumes that in addition to larger generators that will be mandated by state legislation to participate in organics diversion, that smaller

generators not subject to the legislation will voluntarily participate based on corporate green initiatives or economics.

Table 5 – Authority Potential Food Waste Recovery

YEAR	TOTAL MSW GENERATED (TONS)[1]	FOOD WASTE IN MSW (TONS)[2]	COMMERCIAL INDUSTRIAL MSW GENERATED[3]	COMMERCIAL INDUSRIAL FOOD IN MSW[4]
2010	185,686	42,708	85,416	21,524
2011	185,834	42,742	85,484	21,542
2012	180,504	41,516	83,032	20,924
2013	184,826	42,510	85,020	21,425
2014	187,175	43,050	86,101	21,697
2015	179,793	41,352	82,705	20,842
				21,326 Average

1 Includes Food Recovered tons

2 Food Scraps 23% of MSW Disposed as per NYSDEC Beyond Waste

3 NYSDEC Beyond Waste, 46% of MSW is commercial/institutional/industrial, 54% is residential

4 NYSDEC Beyond Waste, Appendix H, Table H-2: 25.2% of MSW from commercial entities/institutions is food scraps

Diversion of organics is anticipated to occur in a phased manner, with larger generators (greater than 2 tons of SSO/week) participating first due to state mandates, and other generators following as economics, green initiatives, and/or further mandates dictate. In order to further refine the amount of SSO initially available, one must take into account the effect of New York State Legislation. The SSO recycling legislation in New York State will require generators of greater than 2 tons per week of food or food scraps, based on an annual average, to donate edible food and compost or recycle what is not donated beginning in January of 2021. In addition, haulers or intermediaries, such as transfer stations, would need to ensure that SSO is taken ultimately to a certified organics recycler such as an animal feed operation, renderer, compost facility, anaerobic digestion facility or other approved recyclers. Generators within 50 miles of a viable facility would be required to recycle food scraps.

Based on generator surveys, the Authority estimates that there are about 10 area organics generators that would initially be mandated to recover their organics under the proposed State law. This does not include generators in the service area that are currently recovering their organics through donation, animal feed operations or composting. Other smaller generators that do not meet the mandated generation levels have indicated to the Authority willingness to participate in a local organics' recovery project. There are also a significant number of chain restaurants that have corporate green "initiatives" as part of their mission statements. Many of these restaurants are likely to participate in an organics' recovery program. The Authority estimates that a combination of newly mandated large generators with no current recovery, and smaller voluntary participants would generate approximately 5,000 tons of food and food scraps per year. Due to the unknown factors associated with the legislation and voluntary participation in the program, a sensitivity analysis was performed to determine the feasibility of the program for a range of tonnages from the initial phase estimation of 5,000 tons per year to the maximum available SSO currently estimated at 21, 000 tons per year.

There have been some informal discussions with neighboring planning units regarding some type of participation in the Authority's SSO project. In theory, out of region commercial food

waste would be trucked to the Authority facility for processing. These discussions will continue. No comments or recommendations were received from any neighboring planning units regarding the SSO project.

No environmental justice issues have been raised by the community regarding this SSO project or the Utica Solid Waste Management complex in general (Recycling Center, HHW Management Building, Green Waste Compost Site and Transfer Station).

The Authority needed no new local laws, ordinances or regulations to implement the SSO project. Standard Authority operating procedures were used for the administrative, contractual (RFP process) and financial requirements (budget and grants) of the project.

4. Significant Updates to LSWMP

The major or significant change to the LSWMP is the way the Authority plans to manage a large portion of its organic waste stream – source separated organics.

The new way the Authority manages organics recovery was started in 2017-2018. The Authority has been evaluating options for organics diversion (specifically commercial and institutional organics) to find a practical and economical solution to integrate into its existing solid waste management system. Examples of non-residential source-separated organics (SSO) waste includes grocery store bakery and produce waste, institutional cafeteria waste and restaurant waste. The project is consistent with the Authority's current LSWMP. The LSWMP calls for continued investigation of organics collection and outlets for diverted food waste as a path to decrease MSW from entering the landfill, and thereby increase valuable landfill air space and decrease the landfill's carbon footprint. The project is also consistent with the New York State Solid Waste Management Plan, Beyond Waste, which identifies anaerobic digestion as an available technology for organics management with the added benefit of more efficient biogas production than landfills and the greater potential for energy recovery.

In 2016, the Authority conducted a source-separated organics feasibility study. The study looked at the feasibility of processing food waste and diverting it to Oneida County Sewer District's (OCSD) new digesters. OCSD began the process of installing anaerobic digesters at its treatment plant directly adjacent to the Authority's Eastern Transfer Station Utica in 2018. The feasibility study also assessed the quantity of available organics, the type and sizing of the collection and processing equipment, including any upgrades to the Authority's Eastern Transfer Station, and any potential issues for collection and processing.

In 2016, the Authority partnered with Oneida County to submit a grant application through a Climate Smart Communities Grant to fund 50% of the capital cost of a source-separated organic waste processing facility. The County and the Authority were awarded the grant. The grant application was for $1,327,500. Ultimately, the Authority would enter an intergovernmental agreement with Oneida County related to the grant proceeds and Authority funding. The Authority also secured an additional $276,407 from the NYSDEC MWRRR grant program.

It was determined that the separate collection and processing of commercial organics as a feedstock for the OCSD anaerobic digesters would be feasible. Therefore, on May 15, 2017, the Authority Board authorized issuance of a Request For Proposals (RFP) under 120-w of the General Municipal Law for entering into an agreement for the source separated organics processing facility. A draft RFP for design, construction and installation of an organics processing building addition to the Authority's Eastern Transfer Station was released on May 17, 2017; a pre-proposal conference and facility tour was held on June 20, 2017; and the deadline for comments on the Draft RFP was July 17, 2017. A final RFP was released on August 2, 2017 with Final Proposals due on August 18, 2017. One joint proposal from RRT Design and Construction (RRT) and the Authority's consulting engineer, Barton & Loguidice was received. An extensive evaluation of RRT's proposal, including meeting with the respondent and contracting references, was conducted by Authority staff. RRT has experience building and designing a SSOP facility (SSOPF) and also constructed the Authority's single stream processing facility. Based upon this evaluation, the Authority entered into an agreement with RRT for the design, procurement and installation of the SSOP. RRT began construction and broke ground in October 2018.

The SSOPF design is in accordance with 6 NYCRR Part 360.16(c)(3)(i). The SSOPF 65' x 70' pre-engineered metal building features a tipping floor, storage area, processing area, organics slurry storage and loadout areas.

An estimated maximum of 80 tons of SSO per day will be managed through the SSOPF.

SSO collected and hauled to the site will be unloaded inside the SSOPF building onto a sloped concrete tipping floor with drain for inspection and removal of unprocessible items. Liquid from the SSO will be collected through the drain into a sump and reused in the process. A skid steer loader will transfer the SSO into the feed hopper of an organics separator, where it is transferred through the system via conveyors. The organics separator unit is the main process unit, which will separate any packaging or contamination from the SSO, as well as reduce the SSO particle size. Gray water from the WPCP will be added to the separator for emulsification.

Incoming SSO will be inspected for contamination such as Styrofoam or textiles and stockpiled prior to processing. An Authority employee will be trained to inspect incoming loads and run the processing equipment.

A Scott Turbo Separator, THOR model, will be used to reduce the SSO particle size and water will be added to form a slurry and to separate out any packaging or contaminants. The THOR Turbo Separator was chosen as it is sized to handle the maximum anticipated incoming SSO tonnage and has the highest tolerance for contamination in the throughput out of all of the Turbo Separator models. This equipment will be located in a separate insulated portion of the building to protect the material from freezing and for noise attenuation. The Scott Turbo Separator was chosen for its depackaging capabilities and its known efficacy in processing food waste. Since commercial SSO collection is a new program in the service area, the total quality and quantity of food waste can only be estimated. The THOR model organics separator was chosen for its high throughput capacity, 12 to 20 tons per hour, and its high tolerance for contamination. This model will be able to process the maximum anticipated SSO acceptance rate of 80 tons per day and will be able to accommodate high levels of contamination, including packaged pre-consumer food waste, which anticipated at the initial outset of the collection program.

Processed SSO will be collected separately from the removed contaminants. The organics separator will collect the SSO slurry at the bottom of the unit via an organics' conveyor. This conveyor will direct the processed SSO to a dual-piston organics pump which will discharge the organics slurry into a 7,000-gallon conical bottom mixing tank. This tank will be continuously mixed and additional gray water added to dilute the organics slurry to a total solids content of 10% and to prevent settlement. The diluted organics slurry will be pumped from the mixing tank to a continuously mixed 20,000-gallon storage tank exterior to the SSOPF building. The storage tank will be equipped with a tanker truck loadout for loading a bottom hopper style tanker truck for transportation of the diluted organics slurry to the WPCP. The organics slurry will be deposited at the WPCP septage receiving building for co-digestion with biosolids in the WPCP anaerobic digester.

The Authority was granted a NYSDEC permit to construct and operate the SSOPF in October 2018.

In 2018, the Authority further committed to organics recovery by adding an additional recycling coordinator position to the Authority staff. Along with traditional recycling work, this full-time employee is also dedicated to supporting the SSO project through public education, research and organics generator outreach.

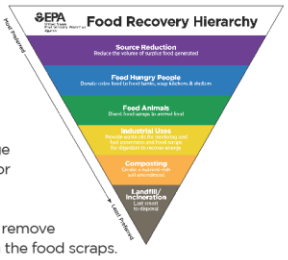
In order for the SSO project to be successful, a comprehensive public education campaign must be developed and implemented. The Authority created a “Food2Energy” campaign that is simple, informative and visually attractive. The two posters shown below highlight the accepted materials and not accepted contaminants for the SSO project. There is also a summary of the lower tip fee for SSO - a savings of $22 per ton over the current MSW tip fee. The advantages to the participant of the Authority’s SSO project are evident in the posters, such as the ability to accept packaged food waste, bones, liquids and soiled paper/boxes.

LOOKING FORWARD

Food 2 Energy™

Food2Energy™ Coming in 2019

The Oneida-Herkimer Solid Waste Authority is currently constructing a facility that will allow for the recovery of food scraps in order to divert them from the Regional Landfill and recover them for energy. With **Food2Energy**, we will be able to divert food waste, which makes up **roughly 22%** of the waste stream, from the Regional Landfill.



Food2Energy is simple and cost-effective! The tipping fee for garbage in Oneida & Herkimer Counties is currently $62/ton. The tipping fee for **Food2Energy** is projected to save $22/ton!

Food scraps may be delivered in bags and there is no requirement to remove packaging. The Authority will be able to separate the packaging from the food scraps. The recovered food scraps will be sent to the Oneida County Waste Water Treatment Plant where they will be turned into energy through a process called Anaerobic Digestion.

ACCEPTED MATERIALS	NOT ACCEPTED
All meat & fish (including bones)	No waste containing antibacterial chemicals
All fruits & vegetables	No municipal solid waste
Cereals & grains	No non-food related industrial wastes
Bakery waste, including dry goods like flour	No leaf and yard debris
Restaurant food scraps	No waste with >5% contamination
Cafeteria food scraps, plate scrapings	No clean recyclables (i.e. paper, plastic, metal, glass)
Dairy products	No plastic film intended for recycling
Expired food	No foil-backed or plastic-backed paper
Liquids like milk, soda or beer	No juice or soy milk type boxes with foil liner
Pet food	No cooking oil
Packaged food waste	No diapers
Food processor byproducts	
Coffee filters	
Greasy pizza boxes and paper bags	
Paper cups and plates	
Paper ice cream containers (metal rim is OK)	
Paper napkins, tissues and paper towels	
Paper takeout boxes and containers	

The Authority 30 YEARS OF SERVICE

In the Summer of 2018, the Authority began contacting “large generators” of organic waste to provide notice of the new food waste disposal option available to them at the Authority’s upcoming SSOPF. To date, over 70 large generators have been contacted and provided SSO project information.

Large generators were identified as such by the Authority based on the findings of the Feasibility Study for this project in 2016. Large generators are defined as those facilities that were found to produce at least 2 tons per week of organic waste (including: loose and packaged produce, baked goods, canned and jarred foods, food processing by-products, dairy products, beverages, as well as pre and post-consumer food waste).

Examples of ‘large generators’ include colleges and universities, food manufacturing and processing facilities, hospitals, nursing homes, grocery stores, large restaurants, and large businesses with employee cafeterias.

Food waste estimation figures were determined in part by direct phone calls and estimation of the amount of waste produced by employees and company managers. These numbers were checked for accuracy by cross referencing several online food waste tools and published studies.

Pre and post-consumer food waste at restaurants, hospitals, nursing homes, colleges, and large business cafeterias was quantified with estimates of consumer waste ‘per-plate’ or ‘per-bed’ figures were determined by the “Food Waste Estimation Guide” by *Recycling Works* based in Massachusetts. Food waste at food manufacturing and processing facilities and grocery stores were determined via a 2012 study published by the *Grocery Manufacturers Association*.

All figures were also compared to the Rochester Institute of Technology’s New York State Food System Sustainability Clearinghouse in order to ensure accuracy of reported and calculated food waste totals.

Pre-determined large generators in Oneida and Herkimer Counties were contacted by the Authority (via emails or calls) to inform them of the new Food2Energy program available via the upcoming SSOPF. The Authority requested meetings to discuss the environmental and potential financial benefits of this program to interested generators. Receptive organizations were provided with free Food2Energy posters, decals, waste audits, presentations and staff trainings to ensure proper separation of organics from their municipal solid waste and recyclable materials. Local colleges and hospitals were among the first to test-run this program at their facilities with the Authority’s assistance.

Local waste haulers were notified of the Authority’s new SSOPF and Food2Energy program in 2018. The Authority instructed interested businesses to contact their current waste hauler to determine a schedule and fee for organics pick-ups. Some businesses expressed interest in hauling the material directly to our SSOPF to achieve maximum cost savings.

Outreach and work with interested generators remain active.

Once the SSOPF begins accepting and processing organic waste from large generators in 2019, this action will result in one of the first major alternatives to solid waste disposal in Upstate New York.

5. MSW Composition Analysis

Table 6 MSW Composition Projections and associated Pie Charts illustrate the Authority's MSW composition and any projected changes in the baseline year of 2018 through the end of the extension period 2022.The Table and Charts are valuable planning tools as the Authority considers solid waste management priorities. In order to prevent artificial skewing of the data, large quantities of commercial/industrial metals, wood and concrete/soil not managed by the Authority (with the exception of contaminated soil) were not included in this analysis. Otherwise, the 2018 data is actual scale-verified data. Table 6 was generated through the use of NYSDEC's on-line waste calculator and Authority projections based on trends identified in Section 1, pages 4-9.

Table 6 lists the Authority's MSW materials composition by material (and its associated components) over the 2018-2022 period. For example, the material glass is made up of components – glass bottles, jars and containers and other glass (flat glass, dishware, light bulbs).

We see a notable downward trend in newspaper and the opposite for corrugated cardboard. There are also decreases in materials composition percentage for other components of the paper group – such as office paper, junk-mail, books and phone books. We believe this is due to the use of electronics being more popular as well as online shopping and the need for shipping containers like cardboard.

There are slight upticks in metal components ferrous containers and aluminum containers based on recent regional trends. Other metals are expected to stay the same during the planning period.

We are projecting the composition of plastics to remain about the same with the exception of a decrease in film plastic due to recently enacted NYS plastic bag prohibition legislation, and an increase in other plastics due to actual regional trend data identified in Section 1.

Glass containers are projected to decrease rather significantly because of packaging and container preference changes associated with durability and weight.

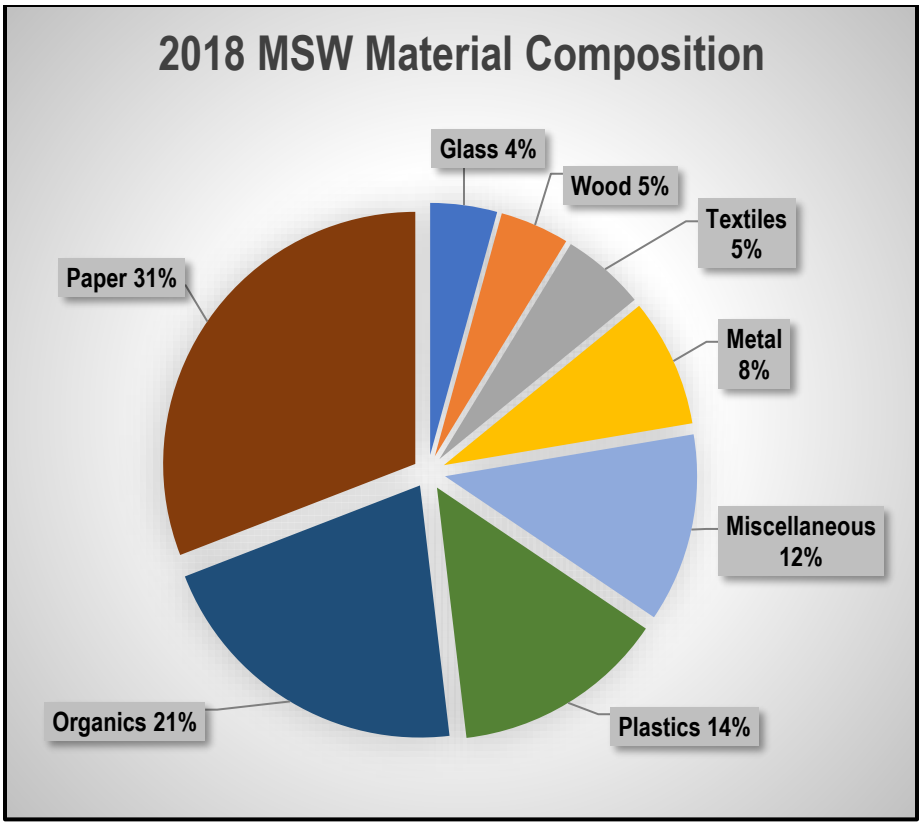
In terms of MSW composition, the Authority does not project any significant changes to the categories of organics, textiles, wood, and miscellaneous. At this time for these categories, we do not have data that suggests warranted adjustments to DEC's online calculator percentages.

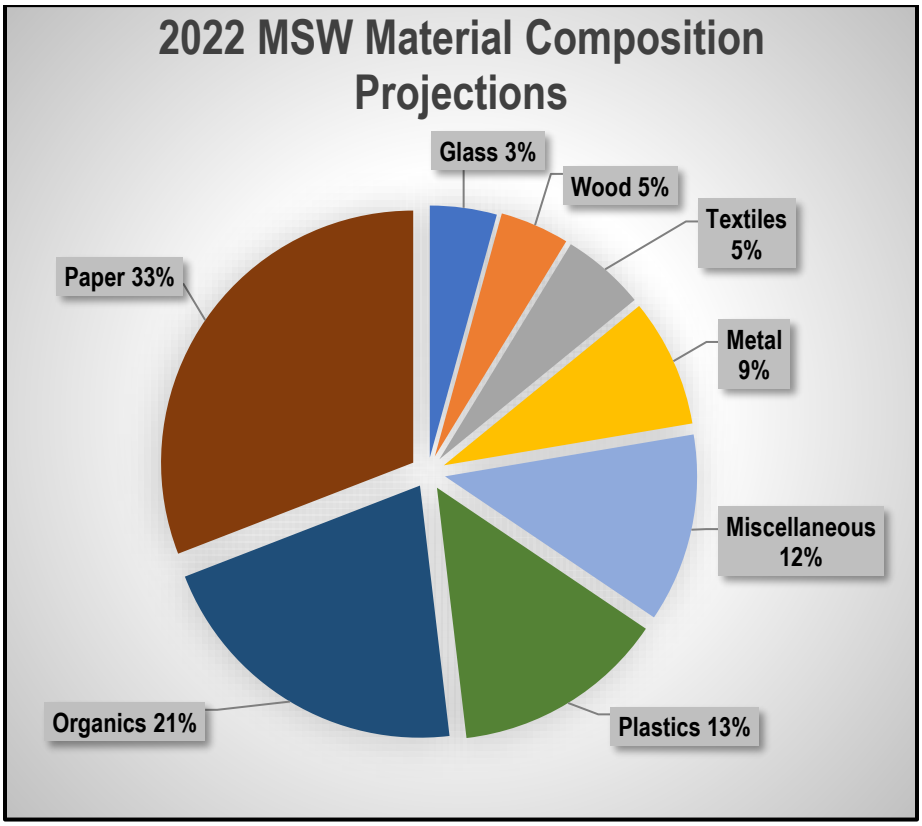
The 2018 MSW Materials Composition Pie Chart clearly shows paper (31%) and organics (21%) being the two largest segments of the region's MSW composition totaling 52%. Paper is the largest segment and this material is, when looking at both charts, and will be, adequately managed by the Authority's Recycling Center and private recyclers. The 2022 MSW materials composition chart shows a 2% increase for total paper. This is primarily due to significant increases in corrugated cardboard associated with consumer preferences for shipped-to-home goods.

Organics is the other major segment of the region's MSW as identified in the two Pie Charts. The Authority has deemed this segment as ripe for diversion. Section 4 details the Authority's plan on diverting a major portion of the organics segment through the SSO project.

Table 6. Municipal Solid Waste (MSW) Composition Projections 2018-2022

			MSW Materials Composition (%)				
	YEAR		2018	2019	2020	2021	2022
	Material		100.0%	100.0%	100.0%	100.0%	100.0%
Paper	Newspaper		3.7%	3.5%	3.4%	3.0%	3.0%
	Corrugated Cardboard		9.8%	12.9%	13.3%	14.0%	14.0%
	Other Recyclable Paper	Paperboard	2.3%	2.3%	2.3%	2.3%	2.3%
		Office Paper	2.3%	1.8%	1.8%	1.8%	1.8%
		Junk Mail	2.1%	1.6%	1.6%	1.6%	1.6%
		Other Commercial Printing	2.0%	2.0%	2.0%	2.0%	2.0%
		Magazines	0.9%	0.9%	0.9%	0.9%	0.9%
		Books	0.4%	0.4%	0.2%	0.2%	0.2%
		Paper Bags	0.4%	0.4%	0.4%	0.4%	0.4%
		Phone Books	0.3%	0.3%	0.1%	0.1%	0.1%
		Poly-Coated	0.2%	0.2%	0.2%	0.2%	0.2%
	Other Recyclable Paper (Total)		10.8%	9.9%	9.5%	9.5%	9.5%
	Other Compostable Paper		6.5%	6.5%	6.5%	6.5%	6.5%
	Total Paper		30.9%	32.9%	32.8%	33.1%	33.1%
Metal	Ferrous/Aluminum Containers	Ferrous Containers	1.2%	1.3%	1.3%	1.3%	1.3%
		Aluminum Containers	0.5%	0.6%	0.6%	0.6%	0.6%
	Ferrous/Aluminum Containers (Total)		1.7%	1.9%	1.9%	1.9%	1.9%
	Other Ferrous Metals		5.3%	5.3%	5.3%	5.3%	5.3%
	Other Non-Ferrous Metals	Other aluminum	0.2%	0.2%	0.2%	0.2%	0.2%
		Automotive batteries	0.6%	0.6%	0.6%	0.6%	0.6%
		Other non-aluminum	0.4%	0.4%	0.4%	0.4%	0.4%
	Other Non-Ferrous Metals (Total)		1.2%	1.2%	1.2%	1.2%	1.2%
	Total Metals		8.2%	8.5%	8.5%	8.5%	8.5%
Plastic	PET Containers		0.9%	0.9%	0.9%	0.9%	0.9%
	HDPE Containers		0.8%	0.8%	0.8%	0.8%	0.8%
	Other Plastic (3-7) Containers		0.2%	0.3%	0.4%	0.5%	0.9%
	Film Plastic		5.7%	4.6%	4.5%	4.2%	3.9%
	Other Plastic	Durables	3.1%	3.1%	3.1%	3.1%	3.1%
		Non-Durables	1.7%	1.7%	1.7%	1.7%	1.7%
		Packaging	1.3%	1.3%	1.3%	1.3%	1.3%
	Other Plastic (Total)		6.1%	6.1%	6.1%	6.1%	6.1%
	Total Plastics		13.7%	12.7%	12.7%	12.5%	12.6%
Glass	Glass Bottles, Jars and Containers		3.9%	2.5%	2.5%	2.5%	2.4%
	Other Glass (Flat glass, dishware, light bulbs, etc.)		0.4%	0.4%	0.4%	0.4%	0.4%
	Total Glass		4.3%	2.9%	2.9%	2.9%	2.8%
Organics	Food Scraps		13.7%	13.7%	13.7%	13.7%	13.7%
	Leaves and Grass / Pruning and Trimmings		7.3%	7.3%	7.3%	7.3%	7.3%
	Total Organics		21.0%	21.0%	21.0%	21.0%	21.0%
Textiles	Clothing Footwear, Towels, Sheets		3.9%	3.9%	3.9%	3.9%	3.9%
	Carpet		1.5%	1.5%	1.3%	1.5%	1.5%
	Total Textiles		5.4%	5.4%	5.4%	5.4%	5.4%
Wood	*Total Wood* (Pallets, crates, adulterated and non-adulterated wood)		4.4%	4.6%	4.7%	4.7%	4.8%
Miscellaneous	DIY Construction & Renovation Materials		5.0%	5.0%	5.0%	5.0%	5.0%
	Diapers		1.6%	1.6%	1.6%	1.6%	1.6%
	Electronics		1.5%	1.5%	1.5%	1.5%	1.4%
	Tires		1.7%	1.7%	1.7%	1.7%	1.7%
	HHW		0.3%	0.3%	0.3%	0.3%	0.3%
	Soils and Fines		0.3%	0.3%	0.3%	0.3%	0.3%
	Other Composite Materials - Durable and/or inert		1.7%	1.7%	1.7%	1.7%	1.7%
	Total Miscellaneous		12.1%	12.1%	12.1%	12.1%	12.0%
	TOTALS		100.0%	100.0%	100.0%	100.0%	100.0%


2018 MSW Material Composition
Glass 4%
Wood 5%
Textiles 5%
Metal 8%
Miscellaneous 12%
Plastics 14%
Organics 21%
Paper 31%


2022 MSW Material Composition Projections
Glass 3%
Wood 5%
Textiles 5%
Metal 9%
Miscellaneous 12%
Plastics 13%
Organics 21%
Paper 33%

6. Revised Implementation Schedule

The following Table is a supplement to the table located in Section vii. Implementation Schedule. It shows the revisions to the Implementation Schedule representing the planning period extension as per 6 NYCRR Part 366-4.1(g). The extension is for a two-year period 2021-2022 beyond the planning period of the current LSWMP 2010-2020.

Year/Period	PROJECT/MILESTONE Table 7	Responsible Party
2019	Complete Construction of Source Separated Organics Processing Facility (SSOPF)	Authority
2019	Install Processing Equipment at SSOPF and Test	Authority
2019	Begin Accepting Organics at SSOPF (2,000 Tons Per Year) Throughput Goal	Authority/Generators/Haulers
2020	Ramp Up Organics Throughput to SSOPF to 4,000 Tons Per Year	Authority/Generators/Haulers
2021 - 2023	Ramp Up Organics Throughput to SSOPF to 5,000 Tons Per Year	Authority/Generators/Haulers
2020	Initiate Biosolids Recovery Study Through RFQ, RFP	Authority
2021	Determine Biosolids Recovery Technology/ Process	Authority
2022 - 2023	If Feasible, Implement Biosolids Recovery Project	Authority
2020 - 2021	Evaluate Alternate Uses of Captured Landfill Gas	Authority
2022	Implement Alternate Uses of Captured Landfill Gas	Authority

The revised implementation schedule lays out the planned timing for the SSOP project, biosolids recovery technology evaluation and alternate landfill gas use study.

The following Tables illustrate revised waste projections for the planning extension period of 2021-2022, as well as a more detailed Table which shows MSW generation broken down by sector.

REVISED WASTE PROJECTIONS
Table 8

	2018	2019	2020	2021	2022
Population	293,426	293,007	292,578	292,160	291,739
MSW (Disposed)	173,168	168,744	164,382	161,081	158,826
C&D (Disposed)	62,087	61,208	60,361	59,516	58,683
Sludge (Disposed)	12,548	12,372	12,199	12,028	10,360
Industrial Waste [Medical, Asbestos] (Disposed)	13,095	12,912	12,732	12,554	12,378

NOTE:
1. All figures, except population, in tons.
2. 2018 figures are baseline actuals.
3. According to Cornell Program on Applied Demographics, population is projected to fall 0.14 per year.
4. SSO recovery projections are: 2,000 tons in 2019; 4,000 tons in 2020; and 5,000 tons in 2021/2022.

REVISED MSW PROJECTIONS BY SECTOR
Table 9

	2018	2019	2020	2021	2022
MSW Residential	93,511	92,202	90,911	89,638	88,383
MSW Commercial	66,562	63,630	60,739	58,889	58,065
MSW Industrial	13,095	12,912	12,732	12,554	12,378
TOTALS	173,168	168,744	164,382	161,081	158,826

NOTE:
1. All figures in tons.
2. 2018 figures are baseline actuals.

Table 8 shows revised waste projections through the planning period extension 2021-2022. We see the region's population declining slightly at a rate of 0.14% per year. For planning purposes, we assume a likewise decline of 0.14% per year for all waste sectors since population decline usually correlates to waste generation decline. In addition, we project a large decrease in MSW destined for disposal directly related to the Authority's SSO project. This projected trend is consistent with 6 NYCRR Part 366-2.7(b)2 showing "progressively decreasing quantities of MSW generated in the planning unit managed through thermal treatment and disposal." For 2019 we expect a 2,000 ton MSW decrease, for 2020 a 4,000 ton decrease and for 2021 and 2022 a 5,000 ton decrease. The Authority believes that the MSW downward trend projection may be conservative and as the program matures and more generators are identified diversion figures may surpass the projected numbers.

We also see a significant decrease in sludge generation in 2022 in Table 8. The 2022 figure reflects the 0.14% decrease plus a 1,500 ton decrease which is again attributable to the Authority's SSO project. The Authority's consulting engineer estimates that for 2022 there will be about 1,500 tons of sludge resulting from the anaerobic digestion of the 5,000 tons of SSO slurry processed at the OCSD digesters. The Authority is committed to beneficially re-using at least that portion of OCSD's sludge.

Table 9 lists figures associated with revised MSW projections by sector. The sectors are residential MSW, commercial MSW and industrial MSW. 2018 numbers are actual baseline to provide a realistic starting point. Again, we use a 0.14% decrease across the table for the same reasons as in Table 4. The impact of the SSO project is clearly observed in the declining trend of commercial MSW figures. This sector (restaurants, grocery stores, colleges, etc.) is the target of the SSO project.