

Town of Colonie Planning Unit

DRAFT SOLID WASTE MANAGEMENT PLAN



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EXECUTIVE SUMMARY

This document is a new Solid Waste Management Plan (SWMP) for the Town of Colonie Planning Unit that sets forth a long range plan for solid waste management, including waste reduction and recycling, through the year 2025. The Town of Colonie Planning Unit consists of the Town of Colonie, including its two incorporated villages of Colonie and Menands, and the City of Cohoes. The City of Watervliet is expected to join the Planning Unit in 2017. The estimated population of the Planning Unit was 97,859 in 2015. The addition of Watervliet to the Planning Unit is anticipated to occur in 2017 and would increase the projected population of the Planning Unit to over 108,000.

The Town of Colonie Planning Unit is currently organized as an informal consortium consisting of the Town and the two villages located within it, and the neighboring City of Cohoes. No formal agreements exist with respect to the organization of the Planning Unit, but as owner of the Colonie Landfill, the Town of Colonie takes the leadership role in administering the Planning Unit.

The major goals, and the corresponding objectives, for this SWMP are:

- To continue to provide reliable and reasonably priced solid waste management facilities and services, for MSW, C&D, and non-hazardous industrial waste, for the planning period until 2025, by:
 - Increasing the capacity of the Colonie Landfill through construction and operation of Area 7 at the existing landfill site.
 - Maintaining the current practices for solid waste collection and management in the Planning Unit.
 - Maintaining or expanding the membership of the Planning Unit.
- To minimize the amount of solid waste requiring land disposal in the future by:
 - Maintaining and expanding waste reduction, reuse and recycling efforts when technically and economically feasible.
 - Increasing the effectiveness of public education and the enforcement of existing recycling requirements.
 - Considering more emphasis on material re-use and alternatives such as food waste composting as mechanisms to achieve future reductions in waste requiring disposal;

An initial Solid Waste SWMP was prepared in July 1992 and revised in March 1993, and called for continued provision of waste reduction and recycling, as well for the construction a long term landfill on Town owned land adjacent to the existing landfill. The most recent SWMP update report (2007-2008 Solid Waste Plan Update) was adopted in 2009 and included, among other things for the continued provisions of waste reduction and recycling services as well as the expansion of the Colonie Landfill through the development of Area 7.

The continued improvement of existing waste reduction and recycling programs is one of the central elements of the new SWMP. It will include the following major elements:

- Promote waste minimization among all sectors: residential, commercial, industrial, and institutional;
- Continue to utilize and promote the expansion of local recycling infrastructure;

- Consider designating additional mandatory recyclables, when economically feasible markets exist;
- Monitor the development of capacity for separate collection and processing of SSOW.

The SWMP proposes a 10 year goal to reduce municipal solid waste disposal to 1.1 lb./person/day. This goal for MSW disposal is the same as the statewide goal noted in the NYSDEC Beyond Waste plan. Achievement of this level of reduction in MSW disposal is premised on the assumption that sufficient capacity is developed in the region to process food waste and other organics to enable their diversion from land disposal.

The SWMP also envisions the continued use of the Town of Colonie Landfill for the entire planning period through 2025. The expansion of the Town of Colonie Landfill (known as the Area 7 Development) is included as an element of the Town's 2007-2008 Solid Waste Management Plan Update and remains as an element of this SWMP. The Town is currently pursuing NYSDEC approval of the proposed Area 7 Development, which includes both vertical and horizontal expansion of the landfill, but no increase in the average daily tonnage limit. With the proposed Area 7 Development, the Colonie Landfill can accommodate the expected tonnage of solid waste requiring disposal from the Planning Unit for more than 20 years. The proposed Area 7 Development is also consistent with current state policy regarding waste management and disposal.

The SWMP envisions that the Town will continue its role as administrator of the Planning Unit and that the City of Cohoes and the City of Watervliet will execute Inter-Municipal Agreements with the Town of Colonie which will, among other things, memorialize those cities' commitment to abide by the terms of this SWMP. The Town will continue to participate in the Albany County Solid Waste Advisory Committee, or its successor, and will provide local coordination with other stakeholders, including quarterly meetings between the member municipalities; annual meetings with licensed haulers; annual meetings with surrounding planning units. This improved local coordination is expected to yield benefits across all program areas.

The SWMP also envisions some updates to local recycling laws in the Village of Menands to incorporate requirements for mandatory source separation and recycling of designated materials by commercial, industrial, and institutional generators, as well as residents. In addition, it is proposed that the waste hauler licensing rules contained in Article II of Chapter 112 of the Town of Colonie Code be amended to include a provision requiring the annual reporting of the quantities and types of solid waste and recyclable material that are collected within the Town each calendar year in order to improve solid waste disposal and recycling data accuracy.

1.0 INTRODUCTION AND BACKGROUND

1.1 Description of the Planning Unit

The Town of Colonie Planning Unit consists of the Town of Colonie, including its two incorporated villages of Colonie and Menands, and the City of Cohoes. The City of Watervliet is expected to join the Planning Unit in 2017.

The Planning Unit land area is currently 59.7 square miles and will increase to 61.0 square miles with the addition of the City of Watervliet. The population of the Planning Unit was 97,759 in 2010 and is projected to increase only slightly to 97,859 in 2015, as shown in Table 1-1. The addition of Watervliet to the Planning Unit is anticipated to occur in 2017, after the SWMP is approved by the NYSDEC, and would increase projected population to over 108,000. In 2010, the average Household size in the Planning Unit was 2.31 persons per household (2.29 persons per household when Watervliet is included).

Neighboring planning units include Saratoga County to the north and Schenectady County to the west and the Capital Region Solid Waste Management Partnership (formerly ANSWERS) to the south. While not bordering on the Town of Colonie Planning Unit, the Eastern Rensselaer County SWMA is located to the east, as is the former planning unit of the Greater Troy SWMA, which has been disbanded.

Figure 1-1 presents a map depicting the Town of Colonie Planning Unit (including Watervliet) as well as the surrounding planning units.

1.2 Previous Solid Waste Management Planning

The Town of Colonie Planning Unit originally consisted of the Town of Colonie, and its two incorporated villages of Colonie and Menands. An initial Solid Waste Management Plan (SWMP) was prepared in July 1992 and Revised in March 1993. The major recommendations of the 1993 SWMP included:

- Continue efforts to reduce waste.
- Add new materials to recycling program as viable markets become available.
- Continue Leaf and Yard Waste Composting program.
- Use administrative measures, such as mandatory source separation and hauler licensing laws and competitively priced municipal disposal and recycling services to encourage C&D recycling.
- Provide technical assistance and use administrative measures, such as mandatory source separation and hauler licensing laws and competitively priced municipal disposal and recycling services to encourage private sector recycling.
- Implement household hazardous waste collection program. Continue to accept used oil at landfill.
- Construct a long term landfill on Town owned land adjacent to the existing landfill.
- Continue to monitor Waste-to-Energy projects in region and assess potential for Planning Unit involvement.
- Continue recycling public education and promotion program.

In the most recent SWMP update report (2007-2008 Solid Waste Plan Update), it was noted that the City of Cohoes has joined the Planning Unit (effective in mid-2009), and that the Town provides the following services to businesses and residents within the Planning Unit.

- Disposal of municipal solid waste within the active landfill area.
- Disposal of Construction and Demolition (C&D) debris within the active landfill area.
- Disposal of Town Water Treatment Plant (WTP) and Wastewater Treatment Plant (WWTP) solids.
- A transfer station for the export of waste in the event of landfill closure or other reasons that would prohibit disposal in the Town active landfill cell.
- A Material Recycling System that collects and exports for processing of newspaper, cardboard metals cans, glass and plastics.
- A Residential Convenience Center that allows for the disposal of household refuse at the landfill facility.
- A Residential recycling area that accepts waste oil, waste automotive tires, white goods, Freon containing bulk metal appliances, bulk metal appliances, computers, televisions, automotive batteries, propane tanks.
- A Compost Facility that accepts grass, leaf and brush waste and processes these materials into compost that is made available for residential use and Town use. Yard waste is collected from residences in the Planning Unit.
- A cellular telephone recycling program.
- An old eyeglass reuse/recycling program.
- Salvation Army Clothing Drop-off at Residential Recycling Drop-off Station.
- A Medical Waste Facility that provides collection of medical waste for Town use (Emergency Medical Services) and Town residents. Commercial establishments contract with private medical disposal services.
- Household Hazardous waste days for the collection and disposal of residential hazardous waste.

As a result of the Solid Waste Disposal Options study conducted in 2005, the 2007- 2008 Solid Waste Plan Update did not propose any new solid waste management programs or facilities, but provided a mechanism for new facilities or services to be developed if there is a demonstrated benefit to the Planning Unit.

In 2009, on behalf of the Planning Unit, the Town issued an Request for Proposal (RFP) for Alternative Solid Waste Treatment Systems (ASWTS) that could be developed to reduce the quantity of waste being disposed at the Town Landfill or other waste disposal facilities and thereby extend the life of the Town Landfill and enable the Town Solid Waste Management Facility to continue to manage the solid waste generated within the Planning Unit beyond the projected life of the Town Landfill. In response to RFP the Town received two responses to the RFP which proposed export of Town waste using the Town's transfer Station to conserve disposal capacity as well as a range of options for facilities that included several emerging technologies. Ultimately, the Town determined that none of these proposals were beneficial to the Town and the Planning Unit because the economics were unfavorable, the project presented a financial risk for the Town, and the new technologies proposed as options were largely unproven.

In 2010, following the unfavorable responses to the 2009 RFP for ASTWS, the Town reviewed the SWMP and determined that, in the absence of a feasible ASWTS. The next logical step identified in the SWMP implementation schedule was to evaluate the privatization of the solid waste management facility. To that end, in June of 2010 the Town Board created the Colonie Landfill Exploratory Committee (CLEC) to review the landfill's operation model and recommend options that would improve facility operations. The CLEC was comprised of six high level Town officials and a Town resident with expertise in the field of

solid waste management. Clough Harbour Associates was retained by the CLEC to provide professional services. The committee was charged with the responsibility to explore options that would meet the criteria established by the Town. These items included:

- Extending the useful life of the facility by streamlining operations and incorporating new technologies to improve efficiency.
- Ensuring sustainable operation of the facility by addressing long term liability and providing financial relief related to existing facility debt.
- Providing both immediate and long-term financial security.

Other important factors considered by the committee included:

- Staffing determinations
- Community benefit
- Ownership of the facility
- Planning Unit tasks
- Contractual obligations

The committee worked to identify and consider various options before they reached their recommendation. The options considered by the committee were to make no changes to the current operating model, close the facility, sell the facility or explore a partnership with a professional operating company. After reviewing the available options, the committee concluded that the Town would be best served by a Professional Operating Agreement (POA) with a qualified operating company for the solid waste management facility and made this recommendation to the Town Board at the September 23, 2010 Town Board meeting. The Town Board authorized the preparation of a draft RFP for a landfill POA and authorized its issuance on October 7, 2010. The public comment period on the draft RFP concluded on January 3, 2011 and the RFP was issued on January 20, 2011. When the RFP response period closed on April 22nd, the Town had received six responses from major national and regional solid waste corporations. All respondents were interviewed in May with preliminary negotiations following in June and the winning proposer, Waste Connections, was selected in July. Under the terms of the operating agreement negotiated with Waste Connections, the Town secured a 25 year operating contract for the solid waste management facility with Waste Connections, assuming the regulatory and contractual obligations for the facility. The regulatory obligations assumed by Waste Connections under the operating agreement included closure and post closure care for the landfill. In addition to operating the landfill, Waste Connections also agreed to assume other waste management and recycling functions historically performed by the Town including:

- The acceptance of green waste for composting from the Town and the Village municipal collection programs.
- The operation of the residential convenience and recycling station which includes acceptance of:
 - Residential solid waste
 - Residential C&D
 - Compostable green waste
 - Single stream recycling
 - Commingled fibers
 - Commingled containers
 - Bulk metals, propane tanks, white goods & CFC containing appliances
 - Used Oil & Antifreeze

- Automotive and light truck tires
- Automotive batteries
- Fluorescent Bulbs and tubes
- Cell phones
- Eye glasses
- Mercury containing thermostats
- The operation of the registered E-waste collection site
- The operation of the regulated medical waste facility for residential sharps collection
- The acceptance of Town generated WTP and WWTP sludge
- The acceptance of Town generated DPW waste
- The acceptance of Maplewood Collection District waste

Through the long term contract with Waste Connections the Town also stabilized facility “gate” disposal rates and residential collection rates for subscription customers of the Waste Connections affiliate County Waste in the Town. Under the terms of the operating agreement, Waste Connections agreed to link potential future rate increases to the CPI-U.

Waste Connections assumed operation of the Town’s solid waste management facility through its wholly owned subsidiary, Capital Region Landfills, Inc. (CRL), in September of 2011. The Town, in partnership with Waste Connections, continues to work to provide environmentally responsible, reliable and realistically priced solid waste management services for MSW, C&D, and non-hazardous industrial waste through and beyond the planning period of 2025 by increasing the capacity of the Colonie solid waste management facility, through construction and operation of Area 7 at the existing landfill site and through maintaining and augmenting the current practices for solid waste collection and recycling in the Planning Unit.

1.3 Significant Circumstances Pertaining to the Planning Unit

There are no major population centers in the Planning Unit and residential development is generally at suburban density. In its Beyond Waste Plan, NYSDEC defined rural areas as communities “with a population density of less than 325 people per square mile; suburban areas as communities with a population density between 325 and 5,000 people per square mile, and urban areas as communities with population density greater than 5,000 people per square mile. Using 2015 estimates, the overall population density of the Planning Unit is 1,639 persons per square mile. The City of Cohoes has the highest density at 4,311 persons per square mile. The Density of the Town of Colonie, excluding its two villages, is 1,404 persons per square mile, while the villages of Colonie and Menands have densities of 4,434 persons per square mile and 1,313 persons per square mile, respectively. The City of Watervliet has a density of 7,618 persons per square mile, and will increase the overall density of the Planning Unit to 1,770 persons per square mile.

Except for resident college student population living in dormitories at Sienna College, there are no significant or notable seasonal population variations in the Planning Unit.

There are no federal or state parks in the Planning Unit, although Peebles Island State Park is located at the confluence of the Mohawk and Hudson rivers, in the Town of Waterford, just north of the City of Cohoes. There are presently no significant agricultural land uses in the Planning Unit.

Albany County Correctional Facility is located at 840 Albany Shaker Road in the Town of Colonie. The Correctional Facility is one of the largest County Correctional Facilities in the State of New York. The

Facility has a maximum of 1043 beds, providing custody for local, state and federal prisoners. The current staff of 420 for both sworn officers and civilians maintains the day-to-day operations of the Facility. During the past year, the average daily population has exceeded 800 inmates. (<http://www.albanycounty.com/Government/Departments/CountySheriff/Corrections.aspx> ; November 13, 2015)

Significant commercial industrial and institutional establishments in the Planning Unit include the Albany International Airport, Sienna College and the businesses in the large commercial corridors along Wolf Road and Central Avenue. Another unique aspects of the Town of Colonie and the Planning Unit are the relative large share of hotels in the Town, which is likely due to the location of the airport as well as its location adjacent to the neighboring City of Albany. School Districts and public schools in the Planning Unit, including Watervliet, are shown in Table 1-2. Table 1-3 presents a listing of the largest employers in the Town of Colonie. Table 1-4 presents a listing of colleges, universities and other higher education institutions located in the Planning Unit, the largest of which is Sienna College.

1.4 Goals and Objectives

The major goals, and the corresponding objectives, for this SWMP for the Town of Colonie Planning Unit are noted below:

- To continue to provide environmentally responsible ,reliable and reasonably priced solid waste management facilities and services, for MSW, C&D, and non-hazardous industrial waste, for the planning period until 2025, by:
 - Increasing the capacity of the Colonie Landfill through construction and operation of Area 7 at the existing landfill site.
 - Maintaining the current practices for solid waste collection and management in the Planning Unit.
 - Maintaining or expanding the membership of the Planning Unit.
- To minimize the amount of solid waste requiring land disposal in the future by:
 - Maintaining and expanding waste reduction, reuse and recycling efforts when technically and economically feasible.
 - Increasing the effectiveness of public education and enforcement of existing recycling requirements.
 - Considering more emphasis on material re-use and alternatives such as food waste composting as mechanisms to achieve future reductions in waste requiring disposal;

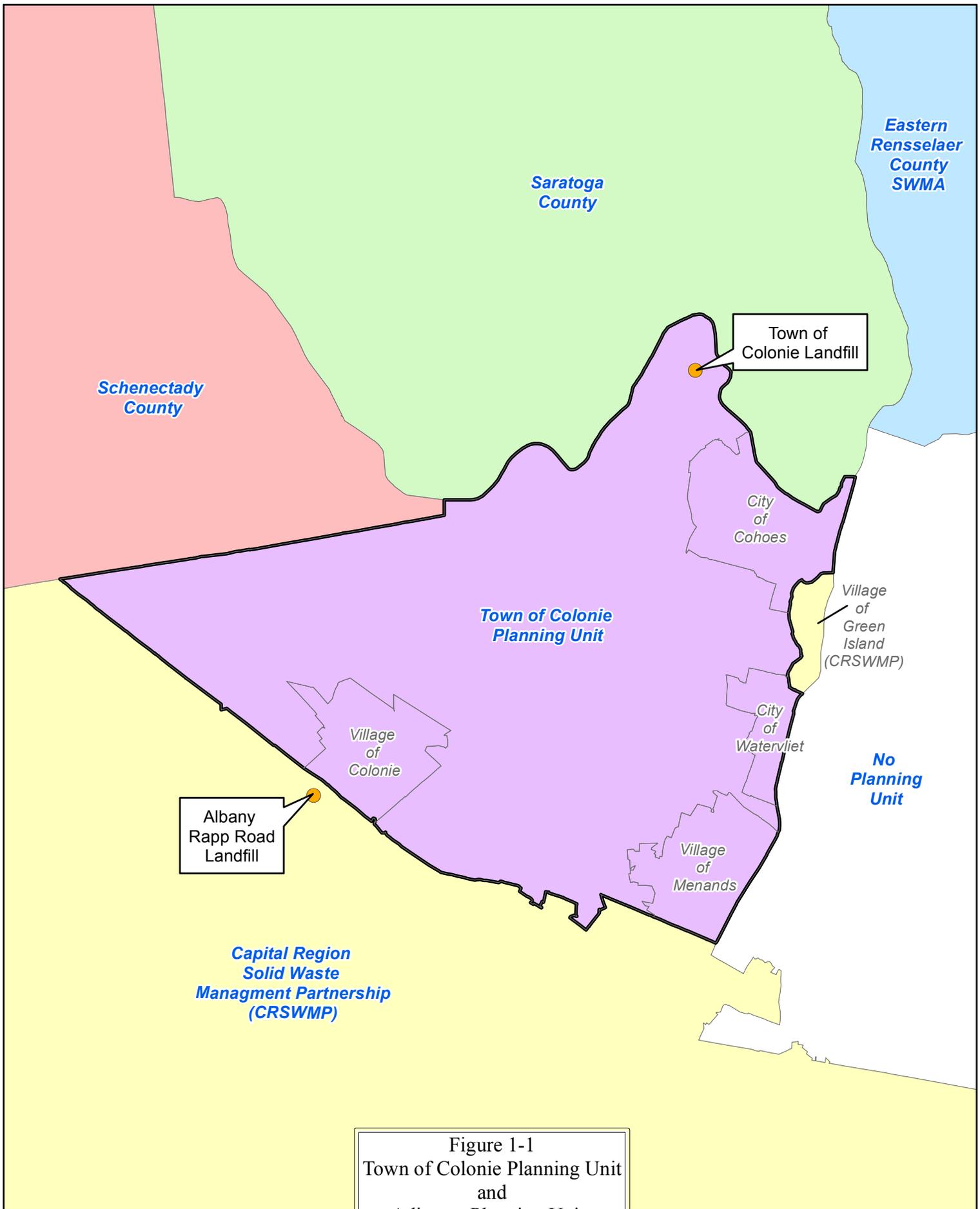


Figure 1-1
 Town of Colonie Planning Unit
 and
 Adjacent Planning Units

Town of Colonie
 Solid Waste Management Plan



**Table 1-1
Municipal and Planning Unit Population**

	2010	2014	2015 ³	2016 ³	2020	2025 ³
Cohoes, City	16,168	16,212	16,268	16,324	16,549	16,667
Colonie, Town ²	69,808	69,674	69,686	69,697	69,743	69,589
Colonie, Village	7,793	7,913	7,888	7,862	7,760	7,861
Menands, Village	3,990	4,004	4,018	4,032	4,088	4,142
Watervliet, City	10,254	10,233	10,247	10,260	10,315	10,371
Planning Unit Total ⁴	97,759	97,803	97,859	108,176	108,455	108,629

Notes:

- 1) Population data and projections from Capital District Regional Planning Commission, except as noted
- 2) Town population outside of villages.
- 3) Population for 2015, 2016 and 2025 estimated by linear interpolation
- 4) Planning Unit Totals for 2010,2014 and 2015, exclude City of Watervliet

**Table 1-2
School Districts and Public Schools**

<p>COHOES CITY SCHOOL DISTRICT ABRAM LANSING SCHOOL COHOES HIGH SCHOOL COHOES MIDDLE SCHOOL HARMONY HILL SCHOOL VAN SCHAICK ISLAND SCHOOL NORTH COLONIE CENTRAL SCHOOL DISTRICT BLUE CREEK SCHOOL BOGHT HILLS SCHOOL FORTS FERRY SCHOOL LATHAM RIDGE SCHOOL LOUDONVILLE SCHOOL SHAKER HIGH SCHOOL SHAKER JUNIOR HIGH SCHOOL SOUTHGATE SCHOOL</p>	<p>SOUTH COLONIE CENTRAL SCHOOL DISTRICT COLONIE CENTRAL HIGH SCHOOL FOREST PARK ELEMENTARY SCHOOL LISHA KILL MIDDLE SCHOOL ROESSLEVILLE SCHOOL SADDLEWOOD ELEMENTARY SCHOOL SAND CREEK MIDDLE SCHOOL SHAKER ROAD ELEMENTARY SCHOOL VEEDER ELEMENTARY SCHOOL MENANDS UNION FREE SCHOOL DISTRICT MENANDS SCHOOL WATERVLIET CITY SCHOOL DISTRICT WATERVLIET ELEMENTARY SCHOOL WATERVLIET JUNIOR-SENIOR HIGH SCHOOL</p>
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Source: <http://www.p12.nysed.gov/irs/schoolDirectory/public/2014-15/SECTION-II.pdf>

Table 1-3
Largest Employers

Employer	Location	# of Employees
Pepsi Bottling Group	1 Pepsi Cola Dr, Latham, NY	100 to 249
NYS Division of Military Affairs	330 Old Niskayuna Rd, Latham, NY	
Siena College	515 Loudon Road, Latham, NY	467
Town of Colonie	534 Loudon Road, Latham, NY	
North Colonie School District	91 Fiddlers Lane, Latham, NY	1,017
South Colonie School District	102 Loralee Drive, Albany, NY	
Times Union	645 Albany Shaker Rd, Albany, NY	
Albany International Airport	Albany Shaker Rd, Latham NY	6,591
Mohawk Paper	465 Saratoga St, Cohoes, NY	540 company wide
Norlite, LLC	628 S. Saratoga Street, Cohoes, NY	50 to 99
St-Gobain Abrasives	2600 10th Ave. Watervliet, NY	250 to 499

Table 1-4
Higher Education Institutions in the Planning Unit

Name	Location
Bryant and Stratton College	1259 Central Avenue, Albany NY
Branford Hall Career Institute	500 New Karner Rd, Albany, NY 12205
Empire State College	21 British American Blvd, Latham, NY
Sienna College	515 Loudon Rd, Albany, NY

2.0 SOLID WASTE QUANTITIES AND CHARACTERISTICS

2.1 Current Estimates of Solid Waste Generation

This Solid Waste Management Plan estimates solid waste generation based on waste origin data reported by the primary disposal facilities servicing the Planning Unit and by the annual Planning Unit Recycling Reports submitted to the NYSDEC. These estimates are then compared to the quantities that would be derived by using the per capita waste generation estimates presented by the NYSDEC in the Beyond Waste plan.

Table 2-1 presents estimated waste generation in the Planning Unit for municipal solid waste (MSW), construction and demolition debris (C&D), non-hazardous industrial waste (NHIW) and biosolids. The estimates are based on the average of four years of data reported at disposal facilities from 2011 through 2014 as well as reported recycled tonnage from the Planning Unit Recycling Reports and other sources for the same years. More detail is provided on estimated waste disposal from the Planning Unit in Table 3-4 and in the narrative discussion of that table which is presented in Section 3.3. More detail on recycled material recovery is provided in Table 4-1 and the accompanying narrative presented in Section 4.0.

Table 2-2 presents a comparison of the per capita generation rates for the Planning Unit with the 2008 statewide generation rates estimated by NYSDEC in Beyond Waste. The Planning Unit total waste generation rate of 6.92 pounds per person per day is considerable less than the DEC estimated statewide generation rate of 10.4 pounds per person per day.

2.2 Solid Waste Composition

No detailed studies of solid waste composition for the Planning Unit were done as part of this SWMP. Instead the SWMP will rely on NYSDEC estimates for Combined MSW Composition from suburban locations, and on the Combined Building C&D Debris Composition, as noted in Table H-1 and H-5, respectively of Beyond Waste. Estimated MSW Composition is presented in Table 2-3. Estimated C&D Composition is presented in Table 2-4.

The composition of Biosolids and NHIW are presented in Tables 2-5 and 2-6, respectively. Biosolids generated in Planning Unit includes grit generated by the Town DPW – Pure Waters Division that is disposed of at the Colonie Landfill, as well as the Planning Unit's share of biosolids generated by the Albany County Sewer District's North Plant. The North Plant is located in Menands, and treats wastewater from the cities of Cohoes and Watervliet, parts of the City of Albany, along with the villages of Menands and Colonie, and parts of the towns of Colonie and Guilderland. Biosolids from this facility are managed by sludge thickening, followed by dewatering in a filter press and combustion in a multiple hearth incinerator. The incinerator at the North Plant was upgraded in 2011 to include energy recovery. Ash resulting from the incinerated sludge is currently delivered to the Albany Rapp Road Landfill where it is used as an alternative daily cover material.

The NHIW generated in the Planning Unit includes alum sludge from the water treatment plant operated by the Town's Latham Water District as well as other NHIW from industries in the Planning Unit such as Norlite in Cohoes and St. Gobain Abrasives in Watervliet. These materials are currently delivered for disposal to the Colonie Landfill.

2.3 Future Solid Waste Quantities and Characteristics

For purposes of this Solid Waste Management Plan, future solid waste generation (on a per capita basis) and MSW composition is not expected to change significantly from current conditions presented in tables 2-1 and 2-3. Quantity of waste generation will increase in 2017, due to the anticipated addition of the City of Watervliet to Planning Unit. Future estimates of solid waste generation in years 2016, 2020 and 2025 are presented in Table 3-5.

**Table 2-1
Solid Waste Generation**

Solid Waste Type	Annual Average Generation 1,2 Ton/year	2015 Population	Calculated Per Capita Generation (lb/day)
MSW	54,859	97,859	3.07
C&D	56,579	97,859	3.17
NHIW	2,700	97,859	0.15
Biosolids	9,450	97,859	0.53
Total	119,739		6.92

Notes:

1. Annual average total of disposal and recycled tonnage for MSW and C&D as noted in Table 4-1 for year 2011 through 2014.
2. Annual average total of disposal for NHIW as noted in Table 3-4 for year 2011 through 2014.
3. Annual average biosolids as noted in Table 3-4, plus Planning Unit share of the biosolids generated at Albany County Sewer District North Plant.

**Table 2-2
Solid Waste Generation Comparison**

Solid Waste Type	NYSDEC Statewide Estimated Solid Waste Generation Per capita ¹ (lb/day)	Calculated Per Capita Generation ² (lb/day)
MSW	5.15	3.07
C&D	3.71	3.17
NHIW	1.00	0.15
Biosolids	0.51	0.53
Total	10.37	6.92

Notes:

1. MSW estimated based on per capita rate noted on page 118 of Beyond Waste. Others waste types estimated based on Table 7.1 of Beyond waste.
2. Town of Colonie Planning Unit estimate from Table 2-1

**Table 2-3
Estimated MSW Composition**

Material	MSW Composition ¹	Total MSW Generation 2015 ²
Newspaper	3.61%	1,980
Corrugated Cardboard	9.89%	5,426
Other Recyclable Paper	10.93%	5,996
Other Commercial Printing	2.27%	1,245
Office Paper	2.39%	1,311
Junk Mail	2.08%	1,141
Paperboard	2.02%	1,108
Magazines	0.91%	499
Books	0.41%	225
Bags	0.37%	203
Phone Books	0.30%	165
Poly-Coated	0.20%	110
Other Compostable Paper	6.40%	3,511
Sub-Total Paper	30.82%	16,908
Ferrous/Aluminum Containers	1.44%	790
Ferrous Containers	0.98%	538
Aluminum Containers	0.47%	258
Other Non-Ferrous Metals	1.16%	636
Other aluminum	0.25%	137
Automotive batteries	0.57%	313
Other non-aluminum	0.35%	192
Other Ferrous Metals	5.36%	2,940
Sub-Total Metals	7.96%	4,367
PET Containers	0.86%	472
HDPE Containers	0.81%	444
Other Plastic (3-7) Containers	0.20%	110
Film Plastic	5.64%	3,094
Other Plastic	6.05%	3,319
Durables	3.14%	1,723
Non-Durables	1.68%	922
Packaging	1.27%	697
Sub-Total Plastics	13.55%	7,433
Glass Containers	3.86%	2,118
Other Glass	0.35%	192
Sub-Total Glass	4.20%	2,304
Food Scraps	14.07%	7,719
Yard Trimmings	10.31%	5,656
Sub-Total Organics	24.38%	13,375
Textiles	5.43%	2,979
Clothing Footwear, Towels, Sheets	3.86%	2,118
Carpet	1.57%	861
Wood	3.44%	1,887
Miscellaneous	10.24%	5,618
C&D Materials	3.31%	1,816
Other Durables	1.56%	856
Diapers	1.70%	933
Electronics	1.65%	905
Tires	1.57%	861
HHW	0.33%	181
Fines	0.15%	82
Sub-Total Miscellaneous	19.11%	10,484
Total	100.00%	54,859

1. Composition % based on Table H-1 from Beyond Waste, Suburban location.

2. Total from Table 2-1

**Table 2-4
Estimated C&D Composition**

Material	C&D Composition ¹	Total C&D Generation 2015 ²
Concrete/Asphalt/Rock/Brick	20.76%	11,746
Wood	20.70%	11,712
Roofing	11.74%	6,642
Drywall	6.04%	3,417
Soil/Gravel	12.31%	6,965
Metal	10.79%	6,105
Plastic	0.53%	300
Corrugated/Paper	4.35%	2,461
Other	12.78%	7,231
Total	100.00%	56,579

Notes:

1. Combined Building C&D Debris Composition, as noted in Table H-5, of Beyond Waste.
2. Total from Table 2-1

**Table 2-5
Estimated Biosolid Composition**

Material	Biosolid Composition (%)	Total Biosolid Generation (tons) 2015 ¹
Sewage Sludge (Albany Sewer District)	41%	3,870
Grit from Pure Waters WWTP	59%	5,580
Total	100%	9,450

Notes:

1. Total from Table 2-1

**Table 2-6
Estimated NHIW Composition**

Material	NHIW Composition (%)	Total NHIW Generation (tons) 2015 ¹
Alum Sludge (Latham Water District)	68%	1,846
Other NHIW	32%	854
Total	100.00%	2,700

Notes:

1. Total from Table 2-1

3.0 EXISTING SOLID WASTE MANAGEMENT PRACTICES

This section of the SWMP presents a discussion of existing solid waste management practices and facilities. Section 3.1 summarizes existing MSW collection practices from residential, commercial, industrial and institutional sources. A discussion of collection practices for C&D debris, NHIW and Biosolids is presented in sections 3.2. Section 3.3 presents an inventory and discussion of solid waste management facilities in and around the Planning Unit.

3.1 MSW Collection and Management Practices (including recyclables)

In the Planning Unit, MSW is generally collected in one of three ways. It can be collected by the local municipality using its own forces, it can be collected by a private waste collection company, or it can be self-hauled by the waste generator to an approved disposal or transfer site. The method of MSW collection varies by municipality and by the type of waste generator (e.g. residential, commercial, industrial or institutional).

Because the collection of designated recyclables is mandatory in the Planning Unit and is often carried out by the same party providing MSW collection service, the discussions presented below include both MSW collection and recyclable collection. A listing of designated recyclable materials for each municipality is also presented in the discussion.

3.1.1 Residential MSW and Recyclables Collection

Residential MSW and recyclables are collected by a number of methods including municipal pickup, individual contracts with private haulers, and self-transport to disposal facilities. Municipal pickup occurs in the cities of Cohoes and Watervliet, and in the villages of Colonie and Menands. In the Town of Colonie (outside of the villages), individuals contract with private disposal companies which provide curbside pickup of both MSW and recyclables. Collection and disposal practices are outlined in Table 3-1 and are summarized in the paragraphs below.

More information about residential MSW recycling is presented in Section 4 of this SWMP. A list of mandatory recyclables and materials banned from landfill disposal in the Planning Unit is included in section 4.3.

Town of Colonie

Collection and disposal of solid waste and recyclables in the Town of Colonie is governed by Chapter 112 of the Town Code (see Appendix A for a copy of Chapter 112).

The Town of Colonie does not provide municipal solid waste or recyclable material collection services, except for the collection of residential yard waste for composting, and the arrangements noted below that are made for the Maplewood Refuse Collection District. The Town of Colonie owns the Town of Colonie Solid Waste Management Facility which includes the Colonie Landfill, a Transfer Station, a Recyclables Handling and Recovery Facility, a Residential Recyclables Drop-off Station, a Regulated Medical Waste (RMW) storage and transfer facility, a compost facility and a Household Hazardous Waste (HHW) storage and transfer facility, as listed in Table 3-3. With the exception of the HHW facility, all of these are operated are now operated by a private company (Capital Region Landfills, Inc.) under a long term operating agreement with the Town. The Recyclables Handling and Recovery Facility no

longer processes recyclables, but serves as collection and transfer location for shipment to other processing facilities.

Town residents may hire a private company licensed by the Town to provide MSW and recyclable removal or self-transport MSW and recyclables to the Town's transfer station located at the landfill site. Article II of Chapter 112 requires licensing for anyone engaged in the collection or removal of solid waste or recyclable materials. Excluding governmental and non-profit agencies, there are 14 waste haulers that are currently licensed in the Town.

The Transfer Station located at the Town Solid Waste Management Facility accepts residential and light commercial wastes. The Residential Recyclables Drop-off Station at this location accepts source separated recyclables from residents who wish to deliver their own materials. The Drop-Off Station accepts single stream recyclables as well as commingled paper and commingled containers which are collected in separate roll-off containers. The facility also accepts bulk metals at a charge of \$3.00 per item from residents and is also a registered e-waste collection site for computer components, televisions and other electronic equipment for recycling from Town residents. The Drop-Off Station also accepts empty 20-pound propane tanks, and automobile and light truck tires for recycling, polystyrene packing peanuts, white goods, Freon containing appliances, eyeglasses, cell phones, antifreeze, and fluorescent bulbs and tubes. The medical waste collection facility accepts sharps from Town residents.

Article III of Chapter 112 requires that all solid waste which has been left for collection or which is delivered by the generator of such waste to a solid waste management facility shall be separated into recyclable, reusable or other components. Residents, businesses and all other generators of solid waste shall separate recyclables from the solid waste stream prior to delivering the same to a solid waste management facility or prior to pickup of the same by a solid waste hauler. Each of the licensed solid waste hauling companies are required to accept old newspaper, corrugated cardboard, plastic containers (SPI Code # 1 through #7), metal containers and glass containers. Some hauling companies accept more than these basic recyclable materials. Town Residents and Businesses may also consider which hauling company to select based upon the comprehensive recycling system a collection company provides.

The Town of Colonie provides for residential waste and recyclables collection through contracted services in the Maplewood Refuse Collection District, a small area of about 300 homes. The Town also provides weekly curbside pick-up of yard waste seasonally throughout the entire Town outside of the villages. In 2015, the weekly collection season is from April 13 through November 6. Yard waste left for collection must be placed at the curbside in biodegradable paper bags or in a reusable container. Collected yard waste is delivered to the Compost Facility at the Landfill site. Town residents may also bring compostable yard waste directly to the Compost Facility at no charge.

Christmas trees are also collected from Town residents in January of each year and are ground or chipped for reuse.

The Town offers residents, including the two villages, numerous HHW collection days annually. In 2015, three HHW collection dates were provided. See the Brochure in Appendix B for additional information.

In addition to these Town-provided services, the New York State Police Troop G Headquarters in Latham provides collection of expired or unused prescription drugs.

Village of Colonie

Chapter 192 of the Village of Colonie Code established the solid waste and recyclables collection program for residential properties (see Appendix A for a copy of Chapter 192). These rules and regulations apply only to residential dwellings from which the Department of Public Works collects solid waste according to provisions of § 192-5. This program provides for weekly curbside collection and removal of solid waste and single stream recyclables and is available to residential dwellings of fewer than five units. It is not available for dwellings containing more than four units nor for commercial, industrial or office buildings.

Seasonal yard waste collection is also provided by the DPW to Village residents, and this material is delivered to the Compost Facility at the Colonie Landfill.

In enacting Chapter 192, the Village Board found *“that the removal of recyclable and reusable materials from the waste stream will promote the health, safety and welfare of persons and property in the Village of Colonie by minimizing the potential adverse effects of landfilling, by reducing the need for landfills and conserving the space in existing landfills, such as the Town of Colonie Sanitary Landfill, in which the village's solid waste from residences is deposited, by aiding in the conservation of valuable resources, materials and energy and by allowing for more efficient and safe management of each of the component materials contained within the solid waste stream. Further, source separation and segregation of recyclable and reusable materials is an integral component of the solid waste management plan of the solid waste planning unit in which the Village of Colonie participates and the New York State Solid Waste Management Act of 1988.”*

Village of Menands

Chapter 82 of the Village of Menands Code established policies and requirements for solid waste management and recycling (see Appendix A for a copy of Chapter 82). This chapter of the Code does not explicitly mandate recycling for either residents or businesses, so it may need to be considered for an update as part of this new LSWMP.

The Village DPW provides weekly waste and recyclables collection to residential properties. This service is available to residential dwellings of fewer than five units. Dwellings containing five units or more are considered multiple dwellings which, together with commercial or office buildings and/or dwellings where one or more units are used for commercial or office purposes, are not serviced by the DPW program and must contract with a private hauler for waste and recyclables collection.

The current recyclables program includes single stream collection with the following materials: glass bottles and jars (all colors), cans, plastic bottles and containers, newspapers, corrugated cardboard (broken down), office paper (all colors), junk mail (including envelopes and coupons), telephone books, magazines & catalogs, computer paper, brown craft bags, paper egg cartons, box board (empty cereal boxes & shoe boxes) and soft covered books.

The Village DPW also provides for special collection of bulk items from residents, upon request.

The DPW provides seasonal removal of organic lawn debris, including: grass clippings, hay, and other yard debris, with the exception of leaves, which must be placed curbside in a container marked as "compostable" or in biodegradable paper bags approved by the Village for such use; brush, tree and

bush trimmings, not exceeding four feet in length, bundled in string or twine, or bagged; leaves, which are free of other organic lawn debris, sod and rocks, which may be placed curbside for removal. This compostable material is delivered to the Compost Facility at the Colonie Landfill.

All multiple dwellings, office buildings, commercial, industrial, and educational entities in the Village of Menands, having garbage collection services provided by a private waste management service are required to secure dumpsters in an approved dumpster enclosure area.

City of Cohoes

Storage and disposal of solid waste in the City of Cohoes is governed by Chapter 239 Article III of the City Code (see Appendix A for a copy of Chapter 239). The City of Cohoes Department of Public Works provides weekly curbside collection of solid waste and designated recyclables to residents living in single family units, and multi-family residential properties with up to three units on a weekly basis. The City ordinarily provided each residence with a 65 gallon container, although residents were permitted to request alternate size containers (35 gallon or 95 gallon, if available) at the outset of the program. A maximum of two 95 gallon containers is permitted for each residential property.

Commercial property owners, including multi-family residences not covered under the above noted City program, are required to contract private collection services to collect solid waste. Commercial property owners may also apply to the City to opt-in to the City's collection program, and upon approval, will be issued up to two 95 gallon containers per property.

Article IV of Chapter 239 is known as the "City of Cohoes Source Separation Law" and its purpose is to encourage and facilitate the maximum recycling practicable on the part of each and every household, business and institution within the City of Cohoes. It shall further be the purpose of the City of Cohoes Source Separation Law to establish, implement and enforce minimum recycling-related practices and procedures to the extent applicable to all waste generators within the City. All residents are required to source separate all designated recyclables, and prepare said recyclables for collection in accordance with regulations promulgated by the Commissioner of the DPW. Multi-residential complexes are required to provide for adequate collection and storage of designated recyclable materials. The law also requires all commercial, industrial and institutional establishments within the City to source separate and arrange for the collection for recycling of all designated recyclables as may be included in or added to the City's recycling program.

In May 2012, the City of Cohoes converted to single stream recycling. Recyclables including glass, metal aluminum containers, #1-7 plastic containers, paper, and cardboard can be placed in the blue recycling bin at curbside for pick-up on the regularly scheduled recycling day effective immediately. A brochure describing the single stream recycling program is presented in Appendix B.

The DPW also provides residential yard waste collection. Yard waste for DPW collection must be in a brown, biodegradable paper bag and should be left out at the curb. Christmas trees are collected during January. In 2014, yard waste and Christmas trees were delivered for recycling to W.M. Biers in the Port of Albany.

Household hazardous waste (HHW) and electronic waste collection have been provided during the annual spring clean-up day. The last event of this type was held on May 16, 2015, and a copy of the event brochure is presented in Appendix B.

City of Watervliet

Solid waste and recyclables collection in the City of Watervliet is governed by Chapter 168 Article I of the City Code (see Appendix A for a copy of Chapter 168). The City of Watervliet's Department of Refuse and Recycling provides weekly municipal curbside pickup of MSW and recyclables. This service is available at no charge to residential dwellings of fewer than five units. The Department also picks up yard waste and grass clippings weekly between April and November each year, and currently delivers this material to the County Waste's Troy Transfer Station. During the month of January, Christmas trees are collected on Fridays and are ground for use as mulch in City Parks or as bulking agent at the Hudson Shores Composting Facility. The City also designates a "Bulk Item Pickup Week" every fall for residents to dispose of larger bulk items.

The City collects residential recyclables as a single stream that includes mixed paper, glass containers, plastic containers as well as metal cans and aluminum foil and trays. The City has also established a voluntary organic waste recycling program called Watervliet Organic Waste (WOW). A number of households in the City participate in the WOW Program, which was put in place to reduce the carbon footprint and to reduce costs of waste disposal. This is done by separating non-organic garbage from organic waste, and delivering the organic waste to the City's Hudson Shores organics facility creating compost and renewable sources of energy.

All residents are required to source separate all designated recyclables, and prepare said recyclables for collection in accordance with regulations promulgated by the Commissioner of the DPW. Multi-residential complexes are required to provide for adequate collection and storage of designated recyclable materials. The City Code also requires all commercial, industrial and institutional establishments within the City to source separate and arrange for the collection for recycling of all designated recyclables as may be included in or added to the City's recycling program.

3.1.2 Non-Residential MSW and Recyclables Collection

MSW and recyclables collection from Commercial, Institutional and Industrial (CII) sources, as well as from multifamily residences not serviced by municipal programs, is typically provided by private contractors under arrangement made by the waste generator. Large CII waste generators typically have one or more compactor units, roll-offs, or other collection containers to accumulate solid waste and recyclables for collection. Collection frequency will vary depending on the needs of the waste generator.

Recycling of non-residential MSW is mandatory in both the Town of Colonie, the City of Cohoes and the City of Watervliet. Recycling of MSW from CII sources is not explicitly required by the codes of the Villages of Colonie and Menands, so those codes should be updated to include this requirement.

3.2 Collection and Management Practices for C&D Debris, NHIW, and Biosolids

3.2.1 C&D Debris

The collection of C&D debris is different than the collection of other types of solid waste as it is project oriented rather than operations oriented. As such, C&D removal and disposal is normally the responsibility of the generator. In the case of a construction project, the site owner or general contractor typically hires a company to provide one or more containers for the on-site storage and removal from the site and transport to an appropriate regulated facility such as a transfer station, C&D processing facility or landfill. The DEC regulates processing and disposal facilities.

Collection typically occurs at the construction and demolition sites by the placement of open top containers, referred to as roll-offs. They are available in a variety of sizes, up to 40 CY or more. Processing and disposal will depend on available options locally. C&D can be processed to have recyclable material removed. Typical material recovered from C&D includes brick, concrete, asphalt, iron, steel and other metals. Sometimes wood and brush can be recovered from land clearing operations. As listed in Table 3-2, there are several C&D processing facilities in and around the Town of Colonie Planning Unit.

Some C&D material are recovered for use as alternative landfill cover material. This can include clean soils, contaminated soils, and process screenings (fine materials). The Town of Colonie Landfill has used all of these. The use of process screening for alternate cover has been discontinued because of the presence of gypsum wallboard which often turns to hydrogen sulfide when it gets hydrated in the landfill environment. Some C&D processing facilities now recover this component, including Taylor Recycling in Montgomery NY.

Based upon information presented in the Planning Unit Recycling Reports and C&D Recycling Facility Reports for the years 2011 through 2014, an annual average of 38,300 tons of C&D debris are recycled from the Planning Unit and an average of 18,400 tons per year of C&D debris is disposed. This represents a diversion rate of 68% for C&D Debris. More information about material recovery and recycling of C&D debris is presented in Section 4.2 of this SWMP.

3.2.2 NHIW

The collection of NHIW for recycling or disposal is specific to the individual needs of the industry, but it is typically provided by private contractors under arrangement made by the waste generator. Like large generators of CII MSW waste, NHIW generators may typically have one or more collection containers to accumulate solid waste and recyclables. Collection frequency will vary depending on the needs of the waste generator.

NHIW generated in the Planning Unit includes Alum sludge from the Town's Latham Water District. This material is accumulated in a tri-axle truck and is transported by Town personnel to the Colonie Landfill for disposal. NHIW is also generated by other industries in the Planning Unit such as Norlite in Cohoes and St. Gobain Abrasives in Watervliet.

3.2.3 Biosolids

Biosolids generated in the Planning Unit includes the grit generated by the Town DPW – Pure Waters Division. This material is managed by sludge thickening, followed by dewatering in a filter press and lime stabilization. The stabilized sludge is accumulated in a roll-off container and transported by Town personnel to the Colonie Landfill for disposal. The Albany County Sewer District North Plant is located in Menands, and treats wastewater from the cities of Cohoes and Watervliet, parts of the City of Albany, along with the villages of Menands and Colonie, and parts of the towns of Colonie and Guilderland. Biosolids from this facility are managed by sludge thickening, followed by dewatering in a filter press and combustion in a multiple hearth incinerator. The incinerator at the North Plant was upgraded in 2011. Ash resulting from the incinerated sludge is delivered to the Albany Rapp Road Landfill where it is used as an alternative daily cover material.

3.3 Inventory of Permitted and Registered Solid Waste Management Facilities in the Planning Unit

There are variety of solid waste management facilities operating in the Planning Unit. This network of facilities listed in the Tables 3-2.

The primary municipal solid waste disposal facility in the Planning Unit is the Colonie Landfill, which is owned by the Town and includes an MSW landfill, a transfer station, material recovery facility (MRF), a yard waste compost facility, a Regulated Medical Waste (RMW) storage and transfer facility, a Household Hazardous Waste (HHW) storage and transfer facility, and an equipment maintenance building and an office building. The Town executed an Operating Agreement with Capital Region Landfills, Inc. (CRL), a subsidiary of Waste Connections, Inc., on August 4, 2011. CRL assumed responsibility for operation of the Colonie Landfill in September 2011. Under the agreement, CRL will be responsible for all construction, operations, management, closure, and post closure care at the landfill, in accordance with the existing permits. Many private haulers servicing clients within the Planning Unit and surrounding area haul solid waste to this disposal facility. Under its currently approved permit, as modified on October 27, 2015, the Town of Colonie Landfill is permitted to accept up to 255,840 tons per year, with a daily limit of 820 tons per day of non-hazardous solid waste, based on a 25 operating day rolling average.

Waste acceptance at the Town of Colonie Landfill for the years 2010 through 2014 is summarized in Table 3-3. Over 2013 and 2014, the landfill has accepted an average of almost 254,000 tons per year, about 74% of which is MSW. The remaining permitted capacity at the existing landfill as of December 31, 2014 was approximately 1,020,157 cubic yards. Depending on the rate of utilization and in place density, this airspace likely represents a site life through 2017.

The Town has proposed to undertake a project involving the further development of the landfill site (a horizontal and vertical expansion of the landfill, referred to as the Area 7 Development) that has been approved as part of the Town's 2007-2008 Solid Waste Management Plan Update (December 2009). The Town initiated the SEQR process on the Area 7 Development by submitting a Part 1 EAF Form for the NYSDEC in March 2014. The NYSDEC issued a Notice of Positive Declaration on July 1, 2014 and a Scope of a Draft Environmental Impact Statement (DEIS) on November 3, 2014.

In February 2015, the Town of Colonie (as landfill owner and permittee) and Capital Region Landfills, Inc. (as landfill operator) submitted applications and a DEIS to NYSDEC to modify the Part 360 and Title V permits Town of Colonie Landfill to allow for the Area 7 Development. As of this writing, the DEIS and permit applications are still under completeness review by the NYSDEC.

The proposed Area 7 Development will create approximately 11,600,000 cubic yards of additional solid waste disposal capacity. The design capacity requested by this application does not change the daily or annual maximum tonnages that are currently allowed in the existing permit. At the existing disposal rate and including an allocation for BUD materials utilized as Alternate Daily Cover (ADC) pursuant to the limits included in the current Part 360 permit, the proposed Development will have an estimated site life of over 20 years. Upon approval by the NYSDEC, the proposed Area 7 expansion of the Town of Colonie Landfill will provide more than sufficient capacity for disposal of solid waste generated in the Planning Unit beyond the end of the planning period in 2025.

Table 3-4 presents the estimated waste disposal for the Town of Colonie Planning Unit, including disposal at the Town of Colonie Landfill and the Albany Rapp Road Landfill, as well as waste delivered to the County Waste Transfer Stations in Clifton Park and Troy, and the Waste Management Transfer Station in the Port of Albany. These annual waste disposal quantities presented in Table 3-4 were primarily derived from Annual Facility Reports prepared by each facility for submittal to the NYSDEC. In some cases, the reports do not provide a breakdown of origin by Planning Unit. For example, the reports submitted by Waste Management for the Port of Albany Transfer Station specify waste origin by Albany County, but do not further specify which municipality or Planning Unit is the origin. In this case, waste deliveries originating in the Colonie Planning Unit were made for Table 3-4 by taking a 31.7% proportional share of the waste reported to originate in Albany County (31.7% is the Planning Unit's proportion of total County population).

One noticeable trend exhibited in Table 3-4 is significant decline in MSW tonnage delivered from the Planning Unit to the Colonie landfill between 2011 and 2013. Some of this decrease is believed to be due to the redirection of waste deliveries away from the Colonie Landfill by both Waste Management and Allied Waste, to their respective transfer stations. Between 2012 and 2013, waste deliveries to the Colonie Landfill from Waste Management and Allied Waste decreased by over 9,000 tons and 5,000 tons, respectively. It is not known exactly what portion of that diverted waste originated in the Town of Colonie Planning Unit because that information is not provided in the Annual Facility Report submitted by the respective transfer stations.

To even out data gaps and other potential inconsistencies in annual data, for purposes of this Solid Waste Management Plan, the four year average of the waste disposal presented in Table 3-4 was used as a basis for estimating total waste generation, as previously presented in Table 2-1. The other basis for the estimate of total waste generation was the estimated tonnage of recyclable materials that were recovered and or delivered to recovery facilities, as presented in Table 4-1.

As noted in Section 2.3, per capita solid waste generation and waste composition is not expected to change significantly in the future. Future estimates of solid waste generation in years 2016, 2020 and 2025 are presented in Table 3-5. The increase in waste generation between 2015 and 2016 is due to the anticipated addition of the City of Watervliet to the Planning Unit in 2016.

Table 3-1 Residential Solid Waste Collection Practices										
	Collection Provider Type-MSW			Collection Method-MSW		Collection Provider Type-Recyclables			Collection Method-Recyclables	
	Municipal Collection	Municipal Contract	Private (4)	Curbside	Drop-off (5)	Municipal	Municipal Contract	Private (4)	Curbside	Drop-off (5)
Town of Colonie ¹		•	•	•	•	•	•	•	•	•
Village of Colonie ³	•			•	•	•			•	•
Village of Menands ³	•			•	•	•			•	•
City of Cohoes ²	•			•	•	•			•	•
City of Watervliet ³	•			•	•	•			•	•

- Notes:**
- (1) Town outside of Villages. Municipal collection of yard waste only. Contract collection in the Maplewood Collection District
 - (2) Residential is defined as 3 units or less
 - (3) Residential is defined as 4 units or less
 - (4) Residents hire private company to transport MSW and/or recyclables.
 - (5) Residents may self-transport waste and recyclables to Colonie transfer station.

**Table 3-2
Existing Solid Waste Management Facilities in the Planning Unit**

Facility Name/Type	Location	NYSDEC Number	Expected Remaining Life/Operating Status	Permit Expiration Date
MSW Landfill				
Colonie Sanitary Landfill	1319 Loudon Road, Cohoes, NY	01S26	Over 20 years ₁	12/31/2017
Registered C&D Processing Facilities				
Bonded Concrete	255 Watervliet Shaker Road, Watervliet, NY	01W04R	NA	NA
Bubonia Holding Corp.	18 West Albany Drive, Colonie NY	01W33R	NA/Active	NA
Constantine Construction & Farm CD Processor	566 Albany Shaker Road, Loudonville, NY	01W15R	NA	NA
Hauser Trucking	Crabapple Lane, Watervliet, NY	01W05R	NA	NA
King Road Materials	145 Cordell Rd, Colonie, NY	01W02R	NA/Active	NA
Nathan H. Kelman Inc	41 Euclid Street, Cohoes, NY	01W22R	NA/Active	NA
S. M. Gallivan Aggregates, LLC	191 Watervliet Shaker Road, Latham, NY	01W68R	NA/Active	NA
T-N-T Landscaping Excavations & Blacktopping, LLC	136 Morris Road, Colonie, NY	01W12R	NA	NA
Callanan Watervliet Asphalt Plant	100 Crabapple Lane, Watervliet, NY	01W11R	NA/Active	NA
Recyclables Handling and Recovery Facilities				
Colonie Sanitary Landfill	1319 New Loudon Road, Cohoes, NY	01M26	NA/ Active ²	12/31/2017
Cascades Recovery US Inc. - Albany	71 Fuller Road, Albany NY	01M21R	NA/Active	NA
Heritage Environmental Services, LLC	10 Apollo Drive, Albany NY	01M25R	NA	NA
Nathan H. Kelman Inc	41 Euclid Street, Cohoes, NY	01M11R	NA/Active	NA

Table 3-2

Existing Solid Waste Management Facilities in the Planning Unit (continued)

Facility Name/Type	Location	NYSDEC Number	Expected Remaining Life/Operating Status	Permit Expiration Date
Transfer Stations				
BFI Runway Ave Waste T.S.	Runway Avenue, Latham, NY	01T33	NA	4/26/2020
Colonie Sanitary Landfill	1319 New Loudon Road, Cohoes, NY	01T26	NA	12/31/2017
Menands Environmental Solutions LLC	22 Simmons Lane, Menands, NY	01C01	NA	2/28/2018
Murphy Rolloff Inc.	119 Wade Road, Latham, NY	01T17	NA	11/9/2021
Green Renewables /S. M. Gallivan	9 Crabapple Lane, Watervliet, NY	01R05	NA	
Town of Colonie Yard Waste Transfer Station	748 Watervliet Shaker Road, Latham, NY	01R27	NA	
ICS Transfer Station	Railroad Avenue, Colonie, NY		NA	
HHW Facility				
Colonie Sanitary Landfill	1319 New Loudon Road, Cohoes, NY	01Z26	NA/Active	12/31/2017
Composting Facilities				
Colonie Sanitary Landfill	1319 New Loudon Road, Cohoes, NY	01S26	NA/ Active ³	12/31/2017
Green Renewables /S. M. Gallivan	191 Watervliet Shaker Road, Colonie, NY		NA/Active	
HURB Landscaping	4278 Albany Street, Albany, NY	01Y29	NA	
TNT Landscaping	136 Morris Road, Schenectady, NY	01W12	NA	
City of Watervliet SSOW Compost Facility	Hudson Shores Park. 23rd St. Watervliet, NY		NA/Active	
Other Facilities				
Shine Renewables (Asphalt Shingles)	Railroad Avenue, Colonie NY		NA/ Active	

Notes:

1. Including Area 7.
2. Currently used only to transfer recyclables.
3. Currently used only to transfer compostable yard waste.

Table 3-3
Waste Accepted for Disposal (tons)
Colonie Sanitary Landfill

Year	MSW	C&D	NHIW	Biosolids	Total
2010	110,732	23,193	3,919	5,094	142,937
2011	125,261	26,865	4,949	5,467	162,542
2012	129,535	25,853	5,159	9,744	170,291
2013	181,783	47,449	10,114	13,801	253,147
2014	195,148	44,278	4,676	10,136	254,238
5 year average	148,492	33,527	5,763	8,848	196,631
2013 + 2014 Average	188,466	45,863	7,395	11,969	253,693

Table 3-4
Estimated Waste Disposal from Planning Unit
Tons per year

Year	Facility	MSW	C&D	NHIW	Biosolid	Total
2014	Colonie Landfill ¹	17,928	11,648	3,676	6,098	39,351
	Rapp Road Landfill ²	1,272	2,795	-	-	4,068
	WM Transfer Station, Port of Albany ³	5,290	3,052	-	-	8,342
	County Waste Transfer Station, Clifton Park ⁴	3,983	102	-	-	4,085
	County Waste Troy Transfer ⁴	1,834	149	-	-	1,982
	2014 Totals	30,307	17,746	3,675	6,097	57,828
	Per Capita Disposal (lb/person/day)	1.70	0.99	0.21	0.34	3.24
2013	Colonie Landfill	18,633	17,401	2,666	5,526	44,225
	Rapp Road Landfill	1,833	314	-	-	2,146
	WM Transfer Station, Port of Albany	5,902	4,927	-	-	10,829
	County Waste TS, Clifton Park	4,143	-	-	-	4,143
	County Waste Troy Transfer	1,829	168	-	-	1,997
	2013 Totals	32,339	22,810	2,666	5,526	63,341
	Per Capita Disposal (lb/person/day)	1.81	1.28	0.15	0.31	3.55
2012	Colonie Landfill	24,132	12,541	2,979	5,450	45,102
	Rapp Road Landfill	5,573	427	-	-	6,001
	WM Transfer Station, Port of Albany	3,504	5,027	-	-	8,531
	County Waste TS, Clifton Park	4,102	156	-	-	4,257
	County Waste Troy Transfer	2,411	-	-	-	2,411
	2012 Totals	39,721	18,151	2,979	5,450	66,302
	Per Capita Disposal (lb/person/day)	2.23	1.02	0.17	0.31	3.72
2011	Colonie Landfill	35,129	8,329	1,581	5,246	50,285
	Rapp Road Landfill	4,840	659	-	-	5,499
	WM Transfer Station, Port of Albany	4,162	5,801	-	-	9,963
	County Waste TS, Clifton Park	3,321	-	-	-	3,321
	2011 Totals	47,453	14,788	1,581	5,246	69,068
	Per Capita Disposal (lb/person/day)	2.66	0.83	0.09	0.29	3.87
	Four Year Average (2011-2014)	37,455	18,374	2,726	5,580	64,135
	Per Capita Disposal (lb/person/day)	2.10	1.03	0.15	0.31	3.59

Notes:

1. Attachment 2 of Annual Facility Report to DEC.
2. Section 7: Annual Facility Report to DEC.
3. Annual Facility Report to DEC: Estimated as 31.7% of Albany County.
4. Annual Facility Reports to DEC; and as provided by County Waste.

**Table 3-5
Estimated Solid Waste Generation**

Solid Waste Type	Calculated Generation Rate (lb/person/day) ¹	Annual Estimated Waste Generation (tons per year) ²			
		2015	2016	2020	2025
MSW	3.07	54,859	60,643	60,799	60,897
C&D	3.17	56,579	62,544	62,706	62,806
NHIW	0.15	2,700	2,985	2,992	2,997
Biosolids	0.53	9,450	10,446	10,473	10,490
Total	6.92	123,589	136,618	136,971	137,190

Notes:

1. As per table 2-1.

2. Per Capita generation rate multiplied times estimated population. Includes Watervliet in 2016-2025.

4.0 MATERIALS RECOVERY ANALYSIS

This section presents information and discussion about material recovery and recycling efforts currently underway in the planning unit, future options for additional material recovery, and current and potential markets for recyclable materials. This information and analysis is presented in accordance with the requirements for a Comprehensive Recycling Analysis (CRA) set forth at 6 NYCRR 360- 1.9(f). Sections 5 and 6 of this SWMP present other information and analysis required for a CRA.

Total estimated material recovery and recycling for the Planning Unit in the years 2011 through 2014 is presented in Table 4-1. Using the total of average tons of waste disposal from the Planning Unit in the years 2011 through 2014 (as shown in Table 3-4), the total recyclable material diversion rate during that time is 47%.

For MSW the overall diversion rate for the years 2011-2014 was 32%. This is likely an underestimate of actual conditions for several reasons. First, the estimates of recovered material tonnages presented in Table 4-1 rely on incomplete information. While our estimates have included proportional shares of recycled material receipts at Waste Management's Port of Albany Transfer Station, there are likely several other material recovery facilities accepting recyclable MSW from sources in the Planning Unit who do either not report or who are not known. Secondly, many large retail and grocery chains recover recyclables such as corrugated cardboard and wooden pallets through backhaul programs, and these material quantities have not been reported to the Planning Unit and are not included in Table 4-1. On the other hand, record keeping on waste delivered for disposal is generally more complete, but this has the effect of lowering recyclable material recovery rates.

The NYSDEC Beyond Waste Plan proposed a different approach for measuring the achievements of waste reduction and recycling programs and that is by measurement of per capita waste disposal rate. By that measure, the Planning Unit's program measures favorably, with a four year average MSW disposal rate of 2.1 lb. /person/day. It is also worth noting that, as shown in Table 3-4, both MSW disposal and total waste disposal have been declining throughout the period from 2011 through 2014.

4.1 Municipal Recycling Programs

Each of the municipalities that are members of the Planning Unit are responsible for their own municipal recycling programs. A discussion of the collection of residential MSW recyclables was presented previously in Section 3.1.1. Table 3-1 summarizes the general information about the residential MSW recycling collection.

Additional information about local laws and ordinances, public education and program promotion, and enforcement is presented below.

4.1.1 Local Laws and Ordinances

Each of the municipalities in the Planning Unit have enacted local laws or ordinances which mandated recycling.

In the Town of Colonie, the collection and disposal of solid waste and recyclables is governed by Chapter 112 of the Town Code. Article III of Chapter 112 requires that all solid waste which has been left for collection or which is delivered by the generator to a solid waste management facility shall be separated

into recyclable, reusable or other components. "Recyclables," for the purposes of Article III, means any material accepted at the Town of Colonie material recycling facility. Residents, businesses and all other generators of solid waste shall separate recyclables from the solid waste stream prior to delivering the same to a solid waste management facility or prior to pickup of the same by a solid waste hauler. Each of the licensed solid waste hauling companies are required to accept old newspaper, corrugated cardboard, plastic containers (SPI Code # 1 through #7), metal contains and glass containers. Some hauling companies accept more that these basic recyclable materials. Town Residents and businesses may also consider which hauling company to select based upon the comprehensive recycling system a collection company provides.

County Waste has the largest share of the residential waste collection in the Town and offers a volume based fee based on the size of the container for non-recyclable MSW, or a reduced frequency of service. The typical residential service includes a large (95 gallon) container for single stream recyclables and another container (sizes vary from 95, 65, and 35 gallons) for waste collection. Subscription fees depend on the size of the waste collection container and frequency of service. This type of service is also referred to as a Pay-as-You-Throw (PAYT) program because payment is based on the volume of waste material collected for disposal. These PAYT programs provide an economic incentive for residents to reduce the amount of waste they discard for disposal.

In the City of Cohoes, the Department of Public Works (DPW) provides weekly curbside collection of solid waste and designated recyclables to residents living in single family units, and multi-family residential properties with up to three units on a weekly basis. Article IV of Chapter 239 is known as the "City of Cohoes Source Separation Law" and its purpose is to encourage and facilitate the maximum recycling practicable on the part of each and every household, business and institution within the City of Cohoes. The Source Separation Law was also enacted to establish, implement and enforce minimum recycling-related practices and procedures to the extent applicable to all waste generators within the City. All residents are required to source separate all designated recyclables, and prepare recyclables for collection, in accordance with regulations promulgated by the Commissioner of the DPW. Multi-residential complexes are required to provide for adequate collection and storage of designated recyclable materials. The law also requires all commercial, industrial and institutional establishments within the City to source separate and arrange for the collection for recycling of all designated recyclables as may be included in or added to the City's recycling program.

Chapter 192 of the Village of Colonie Code established the solid waste and recyclables collection program for residential properties. These rules and regulations apply only to residential dwellings from which the Department of Public Works collects solid waste according to provisions of § 192-5. In enacting Chapter 192, the Village Board found "that the removal of recyclable and reusable materials from the waste stream will promote the health, safety and welfare of persons and property in the Village. Further, source separation and segregation of recyclable and reusable materials is an integral component of the solid waste management plan of the solid waste planning unit in which the Village of Colonie participates and the New York State Solid Waste Management Act of 1988."

Chapter 82 of the Village of Menands Code established policies and requirements for the solid waste management and recycling. While curbside collection of residential recyclables is provided by the village this chapter of the Code does not mandate recycling for either residents or businesses, so it may need to be considered for an update as part of this Solid Waste Management Plan.

The City of Watervliet is expected to join the Planning Unit in 2017. Solid waste and recyclables collection are governed by Chapter 168 Article I of the City Code. All residents are required to source separate all designated recyclables, and prepare said recyclables for collection in accordance with regulations promulgated by the Commissioner of the DPW. Multi-residential complexes are required to provide for adequate collection and storage of designated recyclable materials. The City Code also requires all commercial, industrial and institutional establishments within the City to source separate and arrange for the collection for recycling of all designated recyclables as may be included in or added to the City's recycling program. Watervliet has developed several specific policies for recycling and solid waste management and these are presented in Appendix C

4.1.2 Public Education and Program Promotion

Municipal recycling programs are well established in the Planning Unit, but the member municipalities do continue to engage in program promotion and public education. Examples of promotional literature that is distributed in the Planning Unit is presented in Appendix B - Recycling Program Brochures.

Single stream recycling services are provided to the residents of the Planning Unit as described in Section 3. Private Haulers provide residential curbside recycling services in the Town and these haulers distribute information to let their customers know what material are acceptable and when they are collected. Residential recycling services in the villages and the cities of Cohoes and Watervliet are carried out by their respective DPWs, which publicize these programs through municipal publications and websites.

The Town of Colonie continues to conduct tours of its solid waste facility site for school groups and youth organizations to promote a better understanding of solid waste management, including waste reduction and recycling.

4.1.3 Enforcement

Since the two villages and the cities provide for the collection of residential waste and recyclables, those jurisdictions provide enforcement in the case of residents who are non-compliant with their respective codes. In the Town outside of the villages, licensed haulers provide this service, and typically provide large (90+ gallon) rolling containers for use by residents in the collection of single stream recyclables. All of the municipalities in the Planning Unit provide for seasonal collection of yard waste, and participation rates in this program are high. For recyclables other than yard waste and single stream materials the Town provides for collection at its resident drop off facility located at the landfill site.

In addition, waste delivered for disposal at the Colonie Landfill is subject to visual inspection at the working face, and operators are trained to identify loads which contain excessive recyclables. In the event that such loads are identified, the landfill operator notifies the Town Department of Public Works (DPW), which takes appropriate follow-up action. The Town DPW also follows up on any complaints received from the public regarding services by haulers.

4.2 Commercial Industrial and Institutional Recycling

As noted above, recycling at commercial, industrial and institutional (CII) establishments is mandated in the Town of Colonie and in the cities of Cohoes and Watervliet. Generators are not required to report recovered material quantities to the Town or the member municipalities. Limited information is available about the quantity and types of material recycled by these establishments, but information

that is made available has been included in the Planning Unit Recycling Reports. As a result, recycled material tonnage originating from CII generators is very likely underestimated.

Nevertheless, most CII generators are believed to participate in material recovery and recycling because they have an economic interest to do so, and because it is mandatory. In addition, commercial haulers are required to provide the service to their customers, whether residential or commercial.

Enforcement of recycling from CII generators is provided by the licensed haulers and by visual inspection of waste delivered for disposal at the Colonie Landfill, as noted above. If loads are observed which contain excessive recyclables, the landfill operator notifies the Town Department of Public Works, which takes appropriate follow-up action. The Town DPW also follows up on any complaints received from the public regarding services by haulers.

4.3 Inventory of Existing Recycled Material Markets

Table 4-2 presents a listing of Existing Recyclable material markets used by the Planning Unit, based primarily on recent Planning Unit Recycling Reports.

Empire State Development (ESD) also serves as the repository for recycling market information for the entire State of New York. It provides an interactive, on-line database to help users locate outlets for materials that can be reused, recycled or composted. The database also provides exposure to recycling and reuse businesses and helps end markets for recovered materials in and around New York State access the raw materials they need for production.

This database allows the user to search for: brokers; processors/recyclers; manufacturers; reuse organizations; compost operations; re-manufacturers; and other recycling-related service providers by material type within specific geographic regions. The database can be accessed using the following link:

<http://www.esd.ny.gov/businessprograms/SecondaryMarketInfo.html>

The Town of Colonie makes this ESD database known to businesses that contact the DPW for information about recovered material markets.

Although not a traditional recycling facility or market, the Regional Food Bank of Northeastern NY, located in Latham has been helping to feed the poor and hungry in the region since 1982. It is the only organization of its kind in northeastern New York. The Food Bank collects large donations of food from the food industry and distributes it to charitable agencies serving hungry and disadvantaged people in 23 counties. From Plattsburgh to Newburgh, in urban, rural, and suburban communities, the Food Bank provides over 30 million pounds of food a year to 1,000 agencies. (<http://regionalfoodbank.net/about-us/mission-and-overview/> accessed 11/10/15) According to its 2014 Annual Report, the Regional Food Bank distributed 1,957 tons of food in Albany County, during that year. While it is not known how much of the food donations originated in Albany County or in the Town of Colonie Planning Unit, based on its proportional share (31.7 % of County population), it is estimated that 620 tons of food waste was diverted for distribution in the Planning Unit. This estimated diversion of food waste is not included in Table 4-1. In the past the Colonie Town Board has adopted annual resolutions declaring the food supply left over from the Town of Colonie Pool Concession as surplus and donating the surplus food to the Regional Food Bank. This practice is expected to continue.

4.4 Marketing Restrictions and Challenges

In the 28 years since the enactment of the Solid Waste Management Act, markets for recyclables materials have expanded significantly. Paper, plastic and metals recovered for recycling are now commodities in the global market place.

A significant current challenge to expanding recycling levels is the negative impact of lower global commodity prices has on the value of recycled material already being recovered. Commodity pricing on many metals are at a 6 year low, and the demand for recycled plastics has declined as a result of reduced cost of virgin plastic due to lower oil and natural gas prices. These economic impacts are being felt particularly in operation of single stream recycling facilities, as product quality becomes an increasingly important factor for end use markets.

Another economic challenge with respect to material recovery comes from the mixed glass fraction, which typically has a negative value in the region due to the lack of markets for recycled glass cullet in the remanufacture of new glass containers. Mixed glass is typically a large fraction of both a single stream or commingled container mix, and the limited local end use markets is having a negative effect on the value of these material streams.

4.5 Analysis of Other Potentially Recyclable Materials

The State's solid waste management policy is set forth in section 27-0106 of the Environmental Conservation Law, in includes the following solid waste management priorities:

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

This policy, after consideration of economic and technical feasibility, is intended to guide the solid waste management programs and decisions of the department and other state agencies and authorities.

As noted earlier in Section 1.4, the goals and objectives of this SWMP include minimizing the amount of solid waste requiring land disposal in the future by:

- Maintaining and expanding waste reduction, reuse and recycling efforts when technically and economically feasible.
- Increasing the effectiveness of public education and enforcement of existing recycling requirements.
- Considering more emphasis on material re-use and alternatives such as food waste composting as mechanisms to achieve future reductions in waste requiring disposal, including collaboration with other government and private entities to promote increased organics diversion and composting.

The following materials in the MSW waste stream are currently designated for recycling by the municipalities in the Planning Unit, or are banned from landfill disposal by New York State.

- Paper
 - Newspaper
 - Magazines
 - Old Corrugated Containers
 - Gable Top Cartons and Drink Boxes
 - Paper Board
 - Books and Directories
 - Office Paper
- Plastic Containers
 - PET (#1)
 - HDPE (#2)
 - Plastic #3 through #7
- Ferrous Metals
 - Ferrous Metal/Bi-metal Cans
 - Other Ferrous Metal
- Non-ferrous Metals
 - Aluminum Cans
 - Other Non-ferrous Metals
- Glass Bottles
- Yard Waste
- Tires (New York State)
- Waste Oil (New York State)
- Lead Acid Batteries (New York State)
- Rechargeable Batteries (New York State)
- Electronics (New York State)
- Mercury Thermostats (New York State)

Some of these materials are governed by state laws and regulations. In addition to the materials notes above, the Town Resident Drop-off Facility also accepts empty propane tanks and other bulk metal, polystyrene packing peanuts, white goods, Freon containing appliances, eyeglasses, cell phones, antifreeze, and fluorescent bulbs and tubes and mercury containing thermostats.

The Lead Acid Battery Recycling Law has been in effect since January 1991. It is illegal to dispose of lead-acid batteries in the trash, and stores selling lead-acid batteries must accept, free of charge, up to two used batteries per month from any individual. Most metal scrap recyclers will accept lead-acid batteries for recycling.

Tire management is covered under the Waste Tire Management and Recycling Act of 2003. Among other things, this law established the Waste Tire Management and Recycling Fund and enacted a waste tire management and recycling fee of \$2.50 per new tire sold, including tires on new motor vehicles. The law also provides for mandatory acceptance of used tires from customers by tire service centers. Customers may return tires in approximately the same size and in a quantity equal to the number of new tires purchased or installed. Sign posting requirements are also included for tire service centers. These provisions of the law expire on December 31, 2016, so they will need to be extended or amended

by the State Legislature before that time. Tires continue to be accepted at the Residential Drop-off facility at the Colonie Landfill.

The Electronic Equipment Recycling and Reuse Act, signed into law May 28, 2010, requires that manufacturers provide free and convenient recycling of electronic waste (such as televisions, computers, computer peripherals) to most consumers in the state. In addition, as of January 1, 2012 waste haulers, transporters and solid or hazardous waste management facilities are no longer allowed to collect or accept electronic waste for disposal. As previously noted, there is an E-waste collection site at the Colonie Landfill.

The Rechargeable Battery Recycling Act, signed into law on December 10, 2010, requires manufacturers of covered rechargeable batteries to collect and recycle the batteries statewide in a manufacturer-funded program at no cost to consumers. Retailers that sell covered rechargeable batteries are now required to accept used rechargeable batteries from consumers.

On December 18, 2013 the Governor signed the Mercury Thermostat Collection Act of 2013 into law. This legislation provides for the mandatory collection and environmentally sound management of mercury thermostats. The Act requires thermostat manufacturers, individually or collectively with other manufacturers, to establish and maintain a program for the collection, transportation, recycling, and proper management of out-of-service mercury thermostats at no cost to the consumer or other persons participating in the program. In 2016 the Planning Unit began participating in the Thermostat Recycling Corporation's mercury thermostat collection program and established three collection locations, one for Town and Village residents, one of City of Cohoes residents and one for City of Watervliet residents. In addition, the Town also collects thermostats and other devices containing mercury at its HHW collection events.

In December 2013, the Albany County Styrofoam Ban Law was signed that will prohibit certain chain establishments from selling prepared food or drink in polystyrene foam containers. The law also requires disposable food service items to be biodegradable or compostable. The law took effect on January 1, 2014.

Table 4-3 presents the estimated composition of the designated recyclables in the MSW stream based on the suburban waste characteristics estimated in the NYSDEC's Beyond Waste. The table shows that these designated recyclables represent nearly about 53% of the estimated MSW generation.

Paper materials constitute the vast majority of the designated recyclables in the MSW stream, at nearly 24.5 percent of the total MSW and over 46 percent of the total designated recyclable materials.

If all of designated recyclables in the MSW stream could be recovered, the overall MSW diversion rate in the Planning Unit could be estimated at 53%. However, the complete recovery of all of this recyclable material from the MSW stream is not a realistic expectation, since some of these materials become contaminated or are otherwise unsuitable for recycling. Furthermore, not every waste generator can be expected to actively participate in recycling programs all the time. Even the most conscientious recycler may inadvertently discard a recyclable item, or have a relative or house guest who discards a recyclable.

For purposes of this SWMP, two primary factors were used to determine the maximum expected recovery rate for a recyclable material component: 1) maximum anticipated participation rates; and 2) the maximum recovery efficiency percentage. The maximum anticipated participation rate is a concept meant to quantify the percent of the population that will actively participate in recycling. The maximum

recovery efficiency will quantify a percentage of the particular material stream that can be expected to be recovered for recycling. This maximum recovery efficiency accounts for the subtraction of those fractions of the material streams that are deemed unrecyclable due to contamination or other reasons. Taken together, these two concepts will place an upper limit on the percentage of a designated recyclable that can be recovered. For example, if a maximum anticipated participation rate is 90% and the maximum recovery efficiency percentage is 90%, the resultant maximum expected recovery rate is $0.9 \times 0.9 = 0.81$ or 81%.

Table 4-3 also presents an estimate of the maximum expected recovery rate for each of the designated recyclable components. This maximum recovery rate was then multiplied by the percentage of MSW composition to yield a maximum recoverable percentage of each material component. The maximum expected recovery rate for most materials is 75%, which is approximately equivalent to a maximum participation rate of 85% and a maximum recovery efficiency of 90%. Several material components are assumed to have maximum expected recovery rates of 80%, which is roughly equivalent to rates of 90% for both participation and recovery efficiency. These higher participation rates were applied to newspaper, corrugated, aluminum containers, automotive batteries, and glass containers because these materials either have a long history of material recovery, or have long been covered under container deposit legislation or other mandatory take back programs. The maximum recovery rate for yard waste was estimated at 85%.

As shown in Table 4-3, with currently designated recyclable materials, the overall maximum MSW diversion rate in the Planning Unit is 42%.

Achieving these maximized levels of diversion for currently designated recyclables may require consideration of the use additional public education and promotion, and enforcement efforts. As noted above, accurate measurement of recyclables diversion rates is hampered by gaps in available data because there are no consistent requirements for either generators, haulers, or facilities which accept process and recover recyclable materials to report on the quantities and types of materials recovered. Using per capita waste disposal, as described in the NYSDEC's Beyond Waste report, may be a more appropriate metric for waste reduction and recycling going forward.

In order to achieve a maximum diversion or recycling level beyond the above noted 42% maximum, it will be necessary to increase or maximize diversion of other waste stream components, which are not among the MSW components currently designated for recycling.

There are currently several MSW components that are recovered and recycled on a voluntary basis, which could be made part of a mandatory program. These could include film plastic, compostable paper and food waste.

One alternative to be considered is to add film plastic to the list of designated recyclables. As shown in Table 4-3, the category of Film Plastic (which includes plastic bags) represented 5.6 % of the MSW stream on an as-generated basis. New York State's Plastic Bag Reduction, Reuse and Recycling Act has been in effect since January 1, 2009. Amendments which went into effect on March 1, 2015 have expanded the plastic bags covered to include newspaper bags, dry cleaning bags and shrink-wrap. Among other requirements, stores with 10,000 square feet or more of retail space and chains which operate five or more stores with greater than 5,000 square feet of retail space, and which provide plastic carry out bags to customers, are required to place recycling bins to collect plastic bags for recycling. Large mall stores are required to establish their own plastic carry out bag recycling programs.

If film plastic were added as a designated or mandatory recyclable material, we estimate a 50% maximum expected recovery rate. The maximum recovery rate for the Film Plastic is lower than for many other material categories due to the fact that this category includes the plastic garbage bags which are used to collect and store solid waste, as well as plastic shopping bags that are frequently reused to collect garbage, and because of contaminants that could be present on certain firm plastics. If mandatory recycling were to result in this maximum recovery rate, it could increase in the maximum recyclable diversion rate in the Planning Unit by 2.8 percentage points.

Another potentially effective mechanism for increasing diversion would be the addition of programs and facilities to provide for the composting of food waste and other compostable paper. Based on the composition estimates presented in Table 4-3, these components constitute a significant fraction of the MSW stream. It is assumed that this organic fraction would include all or part of the following waste stream components:

- Food waste – 14.1%
- Other compostable paper – 6.4%

While these materials represent 20.5% of the MSW, only a fraction of the “other compostable paper” component would be likely be suitable for collection. For purposes of this analysis, it is assumed that half of the other paper, or 3.2% of the MSW stream, would be suitable for collection as source separated organic waste (SSOW). Based on this assumption, total materials suitable for SSOW collection represents 17.3% of the MSW stream, but this fraction does not account for concepts of maximum participation rate and maximum recovery efficiency discussed previously in connection with the currently designated recyclable materials. Applying these concepts to the SSOW stream is also necessary to determine the maximum recovery rate.

Using an optimistic assumption maximum expected recovery rate of 50%, a maximum SSOW recovery scenario could increase in the maximum recyclable recovery rate in the Planning Unit by about 8.6 percentage points. This maximum SSOW recovery would need to be achieved incrementally with the development of infrastructure and programs collect SSOW from selected commercial and institutional generators who will generate sufficient volume of SSOW, followed by targeted residential SSOW programs.

The Empire State Development (ESD) Organics Recycling Portal, lists many resources to help you divert organics into value added products. The link can be used find information, or locate composters or other businesses that recycle organics <http://esd.ny.gov/businessprograms/organicsrecyclingportal.html>

A limited amount of SSOW is being recovered on a voluntary basis by various commercial and institutional establishments in the Planning Unit at the current time. These include food donations to the Regional Food Bank of Northeastern New York, located in Latham. As noted above, in 2014 it is estimated that 620 tons of food waste was diverted for distribution in the Planning Unit. The City of Watervliet has also established a voluntary organic waste recycling program called Watervliet Organic Waste (WOW). SSOW is collected from participating households and delivered to the City’s Hudson Shores organics facility. This facility is currently composting organic waste but is planning to develop a small anaerobic digester to recover renewable energy.

In the absence of state mandated SSOW recovery programs, like those enacted in Massachusetts and Vermont, and other economic incentives, the development of adequate SSOW processing facility capacity to manage this fraction of the MSW stream will likely be slow to develop in New York.

As noted previously in Table 4-1, an annual average of nearly 38,300 tons of C&D recycling was estimated for the Planning Unit in from 2011 through 2014. This represents 68% of the C&D debris generated in the Planning Unit. The primary constituents of the C&D waste stream that are currently recycled include aggregate, asphalt, and concrete at various registered C&D processing facilities, as well as concrete, contaminated soil and other materials which are beneficially reused at the Colonie Landfill or the Albany Rapp Road Landfill.

There may be other opportunities for waste reduction and recycling in the other elements of the C&D stream. Government and corporate policies have been developed to promote green building and demolition practices. Shine Renewables LLC recently opened in the Town of Colonie and accept asphalt shingle from roofing replacements and can recycle the materials. According to their website, they are the only shingle collection facility in the Albany area. This new facility will provide a new opportunity for material recovery from the C&D stream in the Planning Unit.

4.6 Recycling and Diversion Rate Goals

As noted above, the total recyclable material diversion rate for the Planning Unit in the years 2011 through 2014 is 47%. For MSW the overall diversion rate for the years 2011-2014 is 32%, and for C&D debris the diversion rate is 68%.

Table 4-3 shows a maximum recovery rate for currently designated recyclable MSW material as 42%.

As noted previously, accurate measurement of recyclables diversion rates is hampered by gaps in available data because there are no consistent requirements for either generators, haulers, or facilities which accept process and recover recyclable materials to report on the quantities and types of materials recovered. We believe using per capita waste disposal, as described in the NYSDEC's Beyond Waste report, is a more appropriate metric for waste reduction and recycling going forward.

Using the 2015 Estimate Waste disposal Baseline from Table 3-4, per capita disposal of MSW in 2015 is 2.1 lb/person per day, and total waste disposal per capita is 3.6 lb/person/day. As a 10 year goal to achieve in the year 2025, total waste disposal per capita will be reduced to 2.5 lb./person/day and MSW disposal will be reduced to 1.1 lb./person/day. This goal for MSW disposal is the same as the statewide goal noted in Table 2.1 of the NYSDEC Beyond Waste plan. It should be noted that the reduction of MSW disposal to a rate of 1.1 lb./person/day is premised on the assumption that sufficient capacity is developed in the region to process SSOW to enable its diversion from land disposal.

These goals are presented in more detail in Section 6.

**Table 4-1
Estimated Recycling Tonnage by Material Type**

Material Recycled	2014	2013	2012	2011	4 Year Total	4 Year Average
Single Stream ¹	7,368	5,912	869	747	14,897	3,724
Newspaper	28		1,258	1,911	3,197	799
Corrugated Cardboard ¹	188	259	1,117	414	1,978	494
Other Mixed Paper ¹	26	805	6,391	6,808	14,031	3,508
Commingled Containers		290	381	584	1,254	314
Glass Containers			629	912	1,541	385
Tin/Aluminum Containers			252	343	595	149
White Goods	28				28	7
Bulk metal	272	398	1,450	236	2,355	589
Propane Tanks	1	2				
Plastic Containers commingled		5	252	399	656	164
Leaves and Grass ²	6,424	6,309	7,519	7,515	27,767	6,942
Brush Branches & stumps ²	213	568	484	75	1,340	335
Concrete for Landfill BUD ³	784	888	647	2,588	4,908	1,227
Drywall			77		77	19
PCS as ADCM ³	861	12,644	3,926	4,161	21,592	5,398
Aggregate to C&D processors	7,594	4,592	5,789	845	18,820	4,705
Asphalt to C&D processors	20,096	37,126	8,099	2,146	67,467	16,867
Brick to C&D Processors	4,755	4,121	1,585	-	10,461	2,615
Concrete to C&D processors	9,510	6,974	10,524	95	27,104	6,776
Mixed Fill to C&D processors	-	190	-	-	190	48
Clean Soil to C&D processors	-	380	-	-	380	95
Clean Wood to C&D processors	222	260	-	-	482	120
Electronics	125	123	90	35	372	93
Tires	40	42	42	44	169	42
Wood		159	615		773	193
Total	58,536	82,048	51,997	29,858	222,439	55,610
Total MSW Recycled	14,500	14,304	20,865	19,948	69,617	17,404
MSW Disposal	30,307	32,339	39,721	47,453	149,821	37,455
MSW Disposal + Recycled	44,807	46,644	60,586	67,401	219,438	54,859
MSW Recycling Rate	32%	31%	34%	30%	32%	32%
Total C&D Recycled	44,035	67,744	31,133	9,910	152,822	38,205
C&D Disposal	17,746	22,810	18,151	14,788	73,496	18,374
C&D Disposal + Recycled	61,782	90,554	49,284	24,698	226,318	56,579
C&D Recycling Rate	71%	75%	63%	40%	68%	68%

Notes:

Recycling Tonnage from Planning Unit Recycling Reports and Annual Reports filed with DEC by various facilities.

1) Also includes estimated recycled material deliveries from Planning Unit to WM Boat St. Transfer Station.

2) From Colonie Yard Waste compost facility reports, 2011-2014. 3) Concrete and PCS recycling tonnage for 2013 from Colonie Landfill Annual report

**Table 4-2
Existing Recycled Material Markets**

Facility Name and Location	Materials Accepted
Sierra Fibers, Albany NY	Single stream recyclables, commingled paper, commingled containers, ONP, OCC, plastic containers, glass containers, metal containers
Cascade Recovery, Albany NY	Commingled paper, OCC
NH Kellman, Cohoes, NY	Bulk metals
Ben Weitsman, Albany NY	Bulk metals
R. Freedman & Sons, Green Island, NY	Bulk metals
Blue Rhino, Johnstown NY	Used propane tanks
JGS Recycling & Hauling, Waterford NY	Used propane tanks , electronics, freon containing appliances
Colonie Yard Waste Compost Facility	Yard Waste
Green Renewables, Inc. Watervliet, NY	Yard Waste
Troy Sand and Gravel, West Sand Lake, NY	Yard waste compost, wood,
W.M Biers, Albany, NY	Yard waste (including Christmas trees)
S.M Gallivan LLC, Watervliet, NY	Yard Waste
Pro Tek Recycling. Troy, NY	Electronics
eLot Electronic Recycling, Troy, NY	Electronics
RCR&R, Victor, NY	Electronics
WeRecycle, Mount Vernon, NY	Electronics
Maven Technologies, Rochester, NY	Electronics
County Waste, Clifton Park, NY	Tires
BCD Tire Chip Mfg. , Hagman, NY	Tires
World Wide Tire Recycling	Tires
S.M Gallivan LLC, Watervliet, NY	Wood
Colonie Landfill	Old Concrete for Road base; PCS for ADCM
Taylor Recycling , Montgomery NY	Drywall
Shine Renewables, Albany NY	Roofing Shingles
Bonded Concrete, Watervliet, NY	Concrete
Bubonia Holding Corp., Colonie, NY	Aggregate, Asphalt, Brick, Concrete, Wood
Constantine Construction & Farm CD Processor	Aggregate
BBC Aggregate Recycling	Asphalt
King Road Materials, Colonie, NY	Asphalt
T-N-T Landscaping Excavations & Blacktopping, LLC	Aggregate, Asphalt, Mixed Fill, Clean Soil, Wood
Callanan Watervliet Asphalt Plant	Asphalt

Sources:

Planning Unit Recycling Reports, 2011 - 2014

Facility Annual Reports to NYSDEC

Table 4-3

Maximum Recovery Rates for Designated Recyclables

Material	MSW Composition ¹	Maximum Recovery Rate	Maximum MSW Recoverable
Newspaper	3.61%	80%	2.89%
Corrugated Cardboard	9.89%	80%	7.91%
Other Recyclable Paper	10.93%		
Other Commercial Printing	2.27%	80%	1.82%
Office Paper	2.39%	80%	1.91%
Junk Mail	2.08%	80%	1.66%
Paperboard	2.02%	75%	1.52%
Magazines	0.91%	75%	0.68%
Books	0.41%	75%	0.31%
Bags	0.37%	75%	0.28%
Phone Books	0.30%	75%	0.23%
Poly-Coated	0.20%	75%	0.15%
Other Compostable Paper	6.40%		
Sub-Total Paper	30.82%		19.35%
Ferrous/Aluminum Containers	1.44%		
Ferrous Containers	0.98%	75%	0.74%
Aluminum Containers	0.47%	80%	0.38%
Other Non-Ferrous Metals	1.16%		
Other aluminum	0.25%	75%	0.19%
Automotive batteries	0.57%	80%	0.46%
Other non-aluminum	0.35%	75%	0.26%
Other Ferrous Metals	5.36%	75%	4.02%
Sub-Total Metals	7.96%		6.04%
PET Containers	0.86%	80%	0.69%
HDPE Containers	0.81%	75%	0.61%
Other Plastic (3-7) Containers	0.20%	75%	0.15%
Film Plastic	5.64%		
Other Plastic	6.05%		
Durables	3.14%		
Non-Durables	1.68%		
Packaging	1.27%	75%	0.95%
Sub-Total Plastics	13.55%		2.40%
Glass Containers	3.86%	80%	3.09%
Other Glass	0.35%		
Sub-Total Glass	4.20%		3.09%
Food Scraps	14.07%		
Yard Trimmings	10.31%	85%	8.76%
Sub-Total Organics	24.38%		8.76%
Textiles	5.43%		
Clothing Footwear, Towels, Sheets	3.86%		
Carpet	1.57%		
Wood	3.44%		
Miscellaneous	10.24%		
C&D Materials	3.31%		
Other Durables	1.56%		
Diapers	1.70%		
Electronics	1.65%	75%	1.24%
Tires	1.57%	75%	1.18%
HHW	0.33%		
Fines	0.15%		
Sub-Total Miscellaneous	19.11%		
Total	100.00%		42.05%

1. Composition from Table 2-1 - % based on Table H-1 from Beyond Waste, Suburban location.

5.0 ALTERNATIVES ANALYSIS

5.1 Alternatives for Waste Disposal

This section will include an evaluation of various technologies for storage, treatment, and disposal of solid waste within the Planning Unit. The objective of the alternatives technology evaluation is to provide an overall summary of the alternatives available to the Town of Colonie Planning Unit related to waste disposal and recycling technologies. Typically this section is reserved for evaluations of different disposal technologies. However, for the duration of the planning period, the Town expects to continue to rely on the traditional solid waste disposal technology of land burial.

This Section 5.1 provides a general overview of the different disposal technologies that the Town has evaluated in the past, as well as an assessment brief description of two technologies (Anaerobic Digestion and Composting). While the Town and the Planning Unit do not have the resources needed to independently develop and operate these types of facilities, the Town will continue to monitor the feasibility of these types of facilities to process source separated organic waste (SSOW) throughout the planning period. These two technologies will be evaluated for technical feasibility and cost effectiveness on an individual basis depending on staff and resource availability. Other options for increasing the diversion of food waste are presented in Section 5.2.4, below.

Other potential alternative disposal or recovery technologies, such as Pyrolysis, Gasification, Mechanical/Biological Treatment, and Ethanol production, are not considered viable options for the Planning Unit. While some of these technologies are operational in Europe and Asia, in general, they do not have a record of proven successful operations in the United States, which record would be a prerequisite for any serious consideration by the Planning Unit for inclusion in the LSWMP. With respect to Waste-to Energy Combustion technology, while successfully proven operational track records are well-established, high construction and operational costs compared to land disposal make this alternative not feasible for the Planning Unit.

As noted in Table 3-4, total waste disposal (after waste reduction and recycling) in the Planning Unit is currently estimated at 3.59 lb/person/day, or about 64,100 tons per year. With the addition of Watervliet to the Planning Unit, the annual total is expected to increase to about 70,900 tons. This quantity of annual waste for disposal is not expected to increase significantly over the course of the 10 year planning period.

The Town conducted a study of Solid Waste Disposal Options in March 2005 (Town of Colonie Department of Public Works, March 2005). That study evaluated various solid waste technologies, including incineration, plasma and other gasification methods, thermal conversion, composting, anaerobic digestion, as well as various operational technologies including baling, shredding, transfer station, and additional waste reduction and recycling. It concluded that while *“other waste management technologies can be utilized to reduce the consumption of landfill airspace and prolong the facility life, ultimately the Town will require additional landfill space or cease to provide ultimate waste disposal capabilities.”* A copy of the study is included in Appendix D.

As noted previously in Section 1.2, in 2009 the Town also issued a widely distributed Request for Proposal (RFP) for Alternative Solid Waste Treatment Systems that could be developed to reduce the quantity of waste being disposed at the Town Landfill or other waste disposal facilities and thereby extend the life of the Town Landfill and enable the Town Solid Waste Management Facility to continue to manage the solid waste generated within the Planning Unit beyond the projected life of the Town

Landfill. In response to the RFP the Town received two responses which proposed export of Town waste using the Town's transfer Station to conserve disposal capacity as well as a range of options for facilities that included several emerging technologies. Ultimately, the Town determined that none of these proposals were beneficial to the Town and the Planning Unit because the economics were unfavorable, the project presented a financial risk for the Town, and the new technologies proposed as options were largely unproven.

With the proposed Area 7 development, the Colonie Landfill can accommodate this expected tonnage of solid waste requiring disposal for more than 20 years. As such, other alternatives for waste disposal will not be subject to detailed consideration as part of this LSWMP. Recent evaluations of alternative waste disposal options are summarized above and a more detailed discussion of alternatives for waste reduction and recycling are presented in Section 5.2. The reader is also directed to the NYSDEC's Generic Technology Assessment document, at the link noted below. www.dec.ny.gov/docs/materials_minerals_pdf/generictech1.pdf.

5.1.1 Anaerobic Digestion and Composting

Anaerobic Digesters

Anaerobic digestion is a biological process by which microorganisms digest organic material in the absence of oxygen, producing a solid byproduct (digestate) and a gas (biogas). In the past, anaerobic digestion has been used extensively to stabilize sewage sludge, but has been adapted more recently to process the organic fraction of MSW. Some anaerobic digester facilities in Europe can accept mixed MSW, but these technologies have not been commercially successful in the United States.

Anaerobic digesters are also used for the treatment of agricultural waste and manure at large dairy and livestock farms. According to the USEPA AGSTAR database, there were 32 operating AD facilities in New York State to process agricultural waste and manure. Several of these facilities reportedly accept food waste and food processing waste from outside sources.

The biogas generated at AD facilities can be used to fuel boilers or reciprocating engines to generate electricity, and requires minimal pretreatment. It can also be upgraded to pipeline quality and used as compressed natural gas (CNG), a vehicular fuel. The New York State Research and Development Authority (NYSERDA) offers funding for building renewable energy technologies such as biogas production through anaerobic digestion. Both farms and other commercial establishments may be eligible to receive funding.

More recently, several states (e.g., Massachusetts and Vermont) have established policies promoting the development of AD capacity for source separated organic waste from commercial and institutional sources by enacting legislation requiring large generators of SSOW to utilize AD or SSOW composting facilities, if they are available. Some similar legislation has been proposed in New York State but has not yet been enacted.

Composting

Composting is a natural aerobic digestion process, where organic material is metabolized by microorganisms in the presence of oxygen. During the process, temperature and pH increase, carbon dioxide and water are liberated (reducing the mass of material), and pathogens are destroyed. The finished compost can be an excellent soil amendment which enhances the fertility and natural health of the soil.

While there have been some limited success with co-composting mixed MSW with sewage sludge and other biosolids, most composting facilities and programs utilize a more homogenous organic feedstock. Previously the Town had an active full scale co-composting project at the landfill site using SSOW & Yard waste. That project was discontinued due to odor concerns of surrounding community residents

Yard waste represents a significant portion of the MSW stream and consists of leaves, grass clippings, and tree and shrub cuttings. The Town, cities and villages in the Planning Unit provide separate collection of yard waste, and there are several existing yard waste composting facilities in the Planning Unit to which this material can be delivered (see Table 3-2). Brush and tree trimmings are sometimes chipped for use as mulch rather than composted.

Source Separated Organic Waste (SSOW) composting involves the separation, collection and processing of certain organic components as feedstock to make compost products for reuse. As noted above, Subpart 360-5 specifically regulates the construction and operation of composting and other organic waste processing facilities for source separated organic waste

5.2 Alternatives to Increase Reduction, Reuse and Recycling

This section will include an evaluation of the following alternatives to increase reduction, reuse and recycling:

- Waste Minimization;
- Increasing diversion of currently designated recyclable materials;
- Designating additional mandatory recyclables; and
- Increasing the diversion of food waste.

In addition, the NYSDEC has recommended that a number of additional programs and initiatives be explored during the planning period. These are discussed in Section 5.2.5 below.

5.2.1 Waste Minimization

Waste minimization in the residential waste generation sector can continue to be promoted, with a primary focus on the following:

- The use of back yard composting for both yard waste and food waste;
- The use of other waste-reducing methods (except burning) for managing yard waste on-site;
- PAYT system implementation;
- Use of reusable grocery bags;
- Educating consumers about how to consider waste reduction and product packaging when they are making purchasing decision;
- Using existing programs that re-use or redistribute materials in the second-hand marketplace;
- Product stewardship initiatives;

To promote waste minimization in the CII sector, the Planning Unit can seek to form alliances with major employers to increase awareness about the economic and environmental benefits of waste reduction. In addition, if funding can be secured through the NYSDEC Environmental Protection Fund grant program, and other sources, the Planning Unit can also offer waste audits to CII waste generators to help identify specific opportunities for waste reduction (and recycling) at the audited establishment. Such a program

can be important either as a first step in developing of a business recycling program or as a way to identify improvements to take an existing program to the next level.

Waste minimization in the construction and demolition sector can be advanced by promoting policies which favor rehabilitation/reconstruction over demolition/new construction, and where building demolition is necessary, policies which favor building deconstruction and material recovery for reuse and recycling.

5.2.2 Increased Diversion of Designated Recyclable Materials

As shown in Table 4-3, with currently designated recyclable materials, the overall maximum MSW diversion rate in the Planning Unit is 42%. Achieving these maximized levels of diversion for currently designated recyclables may require consideration of the use additional public education and promotion, and enforcement efforts.

Most residents of the Planning Unit are provided with comprehensive curbside collection of single stream recyclables, either directly from the municipality or from their contracted service provider. While current practices of public education and promotion of residential recycling will be continued, it may be appropriate to focus future efforts to increase diversion of designated recyclables on the CII sector. For example, there are a large number of hotels in the Planning Unit, and these may be suitable targets for additional education and promotion efforts to increase recyclables diversion.

5.2.3 Designating Additional Mandatory Recyclables

The following material streams are potential candidates for designation as mandatory recyclables:

- Film Plastic
- Food Waste, along with compostable paper

With the addition of film plastics as designated mandatory recyclables, the maximum achievable diversion rate could be increased by 2.8 percentage points. The feasibility of adding this material may be limited by the difficulties in developing an efficient collection mechanism. Currently, film plastic collection takes place primarily at retail establishments that are required to take back plastic bags. This mechanism may not be suitable for expansion at these locations if collection programs are extended to include other types of film plastics. Curbside collection of source separated film plastic is likely to prohibitively expensive, and potential for contamination of post-consumer plastic film will present a significant challenge to marketing the material. Collection within existing single stream collection programs would be problematic because film plastic is not typically compatible with the processing equipment at single stream material recovery facilities.

The development of a mandatory program for food waste and compostable paper collection and a facility to process this waste stream could increase the diversion rate by another 8.6 percentage points, but as noted above, the development of such a facility is contingent on future conditions which would make the development of such a facility economically feasible. This alternative is discussed in more detail below.

Taken together with the increased recovery of currently designated recyclable materials, an overall MSW diversion rate of 53% can be achieved. Without the addition of food waste and compostable paper processing capacity, the maximum waste diversion rate would be about 45%.

5.2.4 Increasing Diversion of Food Waste

Diversion or reduction of food waste is already occurring in the Planning Unit, but the quantity of material that has been diverted from disposal is largely unknown. As noted previously, it is estimated that the Food Bank of Northeastern New York has diverted 620 tons of food waste in the Colonie Planning Unit from disposal in 2014. Source reduction and for donations to feed the hungry are the highest elements of the USEPA's Food Recovery Hierarchy (also adopted by the NYSDEC). Many in the food industry, including supermarkets are participants in this and other food donation programs. To the extent that capacity for this activity could be increased in the Planning Unit that would be a preferred alternative.

Recent communications with the Food Bank of Northeastern New York noted that they have recently begun to divert some of their produce waste to a pig farmers. As of December 2015, these farmers were accepting between 5,000 to 6,000 pounds of food waste per week from the Food Bank. Food waste diversion to feed animals is the third element of the Food Recovery Hierarchy. The Food Bank has worked with other pig farmers in the past for food waste diversion, but have encountered problems that forced them to discontinue those efforts. It is hoped that these new arrangements will be more successful.

It is likely that many residents compost food and/or yard waste in their back yards, but the number of residents and the quantity of waste diverted by this activity is unknown. This alternative requires hands on involvement by the households, and those who have the capacity and the initiative to undertake the task may already be doing it. Nevertheless, there may be opportunities to increase participation in this cost effective method of diverting food waste from disposal by working together with Cornell Cooperative Extension to promote the expansion of backyard composting to more residents.

Small scale community projects to collect food waste for composting are also taking place in a number of areas locally, including in the City of Watervliet. As noted previously, the City has established a voluntary organic waste recycling program. Participating households separate normal garbage from organic waste, and the City collects the organics and delivers it to Hudson Shores organics facility. Watervliet is seeking grant funding from NYSERDA to develop a pilot anaerobic digester for food waste as part of this program.

Albany County Executive Daniel McCoy established the Albany County Solid Waste Advisory Committee (ACSWAC) to determine what role the County could play in assisting the municipalities and constituents in developing a long term solution to the issue of solid waste management. The group began meeting monthly in mid-2014 and began to focus on food waste diversion as a way to reduce the waste stream while also creating a resource for local communities. The Town of Colonie typically sends one or more representatives to participate in the ACSWAC meetings. A December 2015 draft of the recommendations from ACSWAC to the County Executive included the following actions to be considered:

- Pass a resolution which encourages and promotes organic diversion, food recovery in particular, following the food recovery hierarchy as recognized by the DEC.
- Support State legislative and/or regulatory efforts that support organic material recovery/food scrap diversion.
- Support pilot programs developed by Albany County municipalities and/or non-profit or private sector businesses for model food scraps diversion programs that address different levels of the

hierarchy, including but not necessarily limited to source reduction (see #5 below), gleaning/food donation, composting, and anaerobic digestion.

- Identify a parcel of county-owned property that may be suitable for development as an organics recycling facility, and make it available to an organics recycling facility operator through a low-cost lease.
- Develop an Albany County Food Waste Recovery Challenge in collaboration with the EPA Food Recovery Challenge, focused on encouraging businesses and municipalities to step-up efforts to divert food from disposal. Tie into national goals at local level, and recognize leaders in each sector.

Explore policy options to support organics recovery, within the confines of the county's legal authority. Such options include mandating the diversion of organic materials from disposal, particularly for large generators, if and when sufficient recovery infrastructure exists within a reasonable transportation distance (e.g., 15 or 20 miles).

In addition, the December 2015 draft from ACSWAC recommends that Albany County municipalities work with the County to improve organics recovery. Municipalities should evaluate options for increasing organics recovery, including maximizing the redistribution of edible food, and collecting food and scraps other organics for composting or anaerobic digestion.

The NYSDEC's Beyond Waste Plan indicated that new legislation, policy initiatives and financial incentives would be forthcoming that would promote the expanded use of SSOW recycling facilities. However, since that time no new legislation, policy initiatives or financial incentives have been finalized. As noted in the recently completed solid waste management plan for the neighboring Capital Region Solid Waste Management Partnership the development of SSOW facilities is severely constrained due to the competing economics of other disposal options and by the absence of legislative mandates requiring separate management of organic waste. In the absence of legislative or regulatory mandates and economic incentives which can reduce the cost of owning and operating SSOW facilities, the development of such a facility by the Town Colonie Planning Unit is not deemed economically feasible at this time. However, as noted below, there is private sector interest in the development of SSOW processing capacity need to divert this material from disposal.

This interest is evident in the feasibility study of a larger scale facility that was investigated by Spectrum Bioenergy, a renewable energy and waste management venture. This study was documented in a report to New York State Energy Research and Development Authority (NYSERDA), excerpts of which are presented below.

Spectrum Bioenergy "conducted a demonstration project in conjunction with the Albany County Sewer District (ACSD) and the (NYSERDA) to generate site-specific data on the feasibility of co-digesting biosolids with fats, oil and grease (FOG), and food wastes to increase biogas production. The demonstration project was conducted at the ACSD's South Wastewater Treatment Plant (South Plant) using a pilot-sized anaerobic digester, gas handling equipment, and organic matter feed stocks comprised of South Plant filter cake with regionally collected FOG and food wastes. O'Brien & Gere was retained by Spectrum Bioenergy to review demonstration project results, evaluate the feasibility of constructing and operating a proposed co-digestion and CHP facility at the South Plant, and provide a basis for design for the proposed facilities.

“The design basis loading capacity for the co-digestion facility was determined to be:

- *Biosolids cake of 9.8 dry tons per day (dtpd) on an annual average and 13.5 dtpd during a maximum month. This is equivalent to 42 wet tons per day (wtpd) on average and 58 wtpd under maximum month conditions.*
- *Food waste of 29 wtpd on an annual average and 37 wtpd during a maximum month. This is equivalent to receiving 41 wtpd for five days per week on average.*
- *FOG waste of 3.8 wtpd on an annual average and 4.8 wtpd during a maximum month. For 5-day reception, the annual average is achieved by receiving 5.25 wtpd of FOG.*

“The conclusions from the analysis presented in this report show that the project is:

- *Technically feasible*
- *Regulatory feasible*
- *Provides environmental benefit*
- *Provides community benefit*

In November 2015 the ACSO issued a REI (Request for Expression of Interest) for a Regional Organic Sustainable Energy Project (ROSE). The project would switch the South Plant’s bio solids disposal method from incineration to anaerobic digestion.

If developed, this facility could have sufficient capacity to divert a significant amount of organic waste from the Colonie Planning Unit, where the maximum amount of food waste that could be recovered is estimated to be approximately 4,300 tons per year. However, it is not known how much of this proposed facility’s capacity could be committed to food waste from the Colonie Planning Unit.

It is also worth pointing out that while landfilling may be least desirable alternative for food waste and organic waste management in New York’s overall solid waste management hierarchy, disposal at the Town of Colonie Landfill is likely to remain a cost effective option, providing a very high level of environmental protection through the utilization of design, construction and operational practices that mitigate significant adverse impacts. The disposal of food waste and other organic waste at the Colonie Landfill will also result in alternative energy production, since the Colonie Landfill has a landfill gas-to-energy (LFGTE) systems. The USEPA promotes landfill gas recovery for beneficial use as a renewable source of energy. Enactment of legislative bans on the disposal of food waste in landfills will likely have an adverse impact on energy production from the LFGTE system operation.

5.2.5 Ongoing Evaluation of Programs and Initiative

A number of additional programs and initiatives could be explored during the planning period. Examples could include:

- Material exchange programs
- Textiles recycling
- Enhancing specific public outreach initiatives, especially for recycling
- Public space and public events recycling
- Recycling initiatives in partnership with local schools and industries

- Clear glass collection programs
- Public education and outreach and enforcement programs to be managed across the entire planning unit, in contrast of being independently managed by each member of the planning unit.

The Draft LSWMP includes provisions for the evaluation of at least one program initiative during each two-year cycle of the Biennial LSWMP Update.

5.3 Neighboring Jurisdictions

As noted previously, the Town of Colonie Planning Unit currently consists of four municipalities with a population of about 97,750 and an area of about 60 square miles. The City of Watervliet is expected to join the Planning Unit in 2017, and will add additional population (approximately 10,260 people) and 1.3 square miles of area.

As shown in Figure 1-1, there are three other active planning units which border the Town of Colonie Planning Unit. These include:

- The Capital Region Partnership;
- Schenectady County; and
- Saratoga County

While not bordering the Town of Colonie Planning Unit, the Eastern Rensselaer County Solid Waste Management Authority is located nearby on the east side of the Hudson River.

Albany County received a grant from the New York State Department of State to conduct a feasibility study to evaluate a regional solid waste management authority for this four-county region. All of the adjacent planning units are within the four county area (Albany, Rensselaer, Saratoga, and Schenectady) commonly referred to as the Capital District. The Town of Colonie participated in that study. The final report was completed in October 2011. It concluded that the creation of a new regional authority is feasible from a cost and operational perspective and could result in numerous significant benefits. The feasibility study recommended that the study area communities join together to create a new regional solid waste management authority, and take early actions to satisfy several concerns that were raised during the course of the study. However, this initiative has lost impetus to move forward, and the recommendations have not been implemented.

While regional solutions may be reconsidered in the future, a regional waste management planning unit does not appear to be a feasible alternative at this time. As it has in the past, the Town of Colonie Planning Unit could expand its membership in the future. The Town of Colonie will continue to consider requests from other municipalities wishing to participate in the Planning Unit. It is expected that the Colonie Landfill will continue to provide commercial disposal capacity to waste generators and haulers in the Town of Colonie Planning Unit and in neighboring planning units, throughout the period of this LSWMP. Because this is a continuation of existing services provided by the Town of Colonie and the Colonie Landfill, no adverse impacts on the adjoining planning units is anticipated. A draft copy of the LSWMP will be distributed to the neighboring planning units upon its review by the NYSDEC.

6.0 SOLID WASTE MANAGEMENT PLAN

6.1 Elements of the Solid Waste Management Plan

This section includes discussions of the various selected solid waste management plan components.

6.1.1 Reduction and Recovery of Materials

The continued improvement of existing waste reduction and recycling programs is one of the central elements of this LSWMP. It will include the following major elements:

- Promote waste minimization and recycling among all sectors: residential, commercial, industrial, and institutional;
- Continue to utilize and promote the expansion local recycling infrastructure;
- Periodic evaluation of new recycling program elements of initiatives;
- Consider designating additional mandatory recyclables, when economically feasible markets exists;
- Monitor the development of capacity for separate collection and processing of SSOW.

6.1.1.1 Waste Minimization and Recycling

Waste minimization and recycling in the residential waste generation sector will continue to be promoted, with a primary focus on the following:

- Promote food waste reduction by publicizing smart phone apps such as FoodKeeper, the USDA's mobile application, which offers users valuable storage advice about more than 400 food and beverage items
- Promote the use of back-yard composting for both yard waste and food waste by working with Cornell Cooperative Extension to distribute educational brochures and at events where demonstrations can be provided.
- Encourage locally licensed haulers to offer volume-based subscriptions (if they not already offer these) and increase the promotion of these cost saving alternatives with their customers.
- Encourage the use of reusable grocery bags.
- Work with local school districts to educate students and consumers about how to consider waste reduction and product packaging when they are making purchasing decision.
- Promote the existing programs that re-use or redistribute materials in the second-hand marketplace.
- Support Product Stewardship initiatives at the state and federal levels.

To promote waste minimization in the CII sector, the Planning Unit will seek to form alliances with major employers to increase awareness about the economic and environmental benefits of waste reduction. Due to the large number of hotels in the Planning Unit, they represent a suitable early target for additional education and promotion efforts to increase recyclables diversion as part of the LSWMP. As an initial step, the Town will arrange a meeting with representatives of major local hotel facilities to gauge the current level of waste reduction and recycling that is ongoing, and seek feedback on the structure of a survey that can be used to gather additional information. Based on an analysis of the survey, follow-up activities will be determined.

The Planning Unit will also continue to promote existing programs that collect and redistribute food to local food banks and food pantries by publicizing these programs on the websites of the participating municipalities. In addition, if funding can be secured through the NYSDEC Environmental Protection Fund grant program, and other sources, the Planning Unit can also offer waste audits to CII waste generators to help identify specific opportunities for waste reduction (and recycling) at the audited establishments.

6.1.1.2 Local Recycling Infrastructure

While the infrastructure to collect and process recyclables is mature and well established, the Town of Colonie Planning Unit will continue to utilize and promote its improvement and expansion. Capacity to collect designated recyclables is currently in place and will be maintained by the public and private entities who are responsible for this aspect of the program.

The Town and the Planning Unit members will consider revising their procurement policies, following the lead set by New York State agencies pursuant to Executive Order 4 of 2008. That order challenged state agencies and authorities to set an example for communities regarding sustainable operations and green purchasing. Among other things, the order specifically requires state agencies to purchase products that meet key “green” criteria, including recycled content, waste reduction, recyclability, compostability and extended producer responsibility requirements.

The Colonie Landfill facility will continue to operate the Recyclables Handling and Recovery Facility (now used for transfer only), Residential Recyclables Drop-off Station, Regulated Medical Waste (RMW) storage and transfer facility, compost facility and Household Hazardous Waste (HHW) storage and transfer facility that are located on the facility site. With the exception of the HHW facility, all of these are operated are now operated by a Capital Region Landfills, Inc. under a long term operating agreement with the Town. As part of this SWMP, the Town will explore mechanisms to make HHW collection and residential drop-off acceptance of recyclable materials available to residents of the City of Watervliet. It is also anticipated that the City of Cohoes will be able to continue to provide the periodic HHW collection events that have occurred in the past.

Capacity to accept recyclables for processing and or marketing are also in place in and around the Planning Unit, as noted in Table 4-2. Sufficient capacity exists at these facilities to accommodate the designated recyclable materials generated and collected in the Planning Unit, and these are expected to continue to be available, along with other facilities that may become available during the 10 year planning period.

New material collection capacity and/or new facility capacity may be proposed in the Planning Unit by the private sector in the future. A decision to approve and/or promote such proposed facilities will be made in the future on a case by case basis based on anticipated environmental impacts and conformance with local land use regulations and the goals of this LSWMP.

6.1.1.3 Periodic Evaluation of New Recycling Program Initiatives

As noted in Section 5.2.5, a number of additional programs and initiatives could be explored during the planning period. Evaluation of at least one program initiative will be undertaken during each two-year cycle of the Biennial LSWMP Update. The selection and analysis of the initiative(s) to be evaluated will generally take place in the calendar year prior to the submittal of the Biennial LSWMP Update, so the results can be reported and incorporated in those updates. Such an initiative could include one that

results from the ongoing collaboration with neighboring jurisdictions to share information about best practices and to consider cost-effective cooperative ventures which may enhance waste reduction and recycling opportunities.

6.1.1.4 Consider Designating Additional Mandatory Recyclables

Based on the analysis presented in Section 5, it is not proposed to designate additional mandatory recyclables at this time. However, over the course of the planning period through 2025, the Planning Unit will keep abreast of the availability of economic local markets and collection infrastructure for food waste, compostable paper, and film plastic, and will consider adding these materials to the list of designated mandatory recyclables if conditions are favorable to do so.

6.1.1.5 Separate Collection and Processing of Food Waste

Based on the analysis presented in Section 5, it is not feasible for the Planning Unit to propose or sponsor the development of programs to collect or process food waste at this time. Instead, the Town of Colonie will promote food waste diversion to food banks, and backyard composting, as noted above, and will promote small scale community composting facilities that may be proposed in the future, provided they are appropriately located and properly operated.

A small scale community food waste collection and composting program is already underway in the City of Watervliet, and a pilot anaerobic digester project is also proposed as part of Watervliet's program. The Town of Colonie Planning Unit will provide collaborative support for this program and monitor its ongoing operations for possible replication at other locations.

The Planning Unit will also monitor the status of any facilities to manage food waste that may be proposed by others, as well as legislative, regulatory and economic incentives, to determine if a mandatory SSOW program and SSOW facility development can become feasible in the future. As noted previously the Albany County Sewer District recently issued a Request for Expression of Interest for a Regional Organic Sustainable Energy Project (ROSE). The project would switch the South Plant's bio solids disposal method from incineration to anaerobic digestion.

6.1.2 Land Disposal

The Solid Waste Management Plan envisions the continued use of the Town of Colonie Landfill for the entire planning period through 2025. The Town is currently pursuing approval of a horizontal and vertical expansion of the landfill (referred to as the Area 7 Development) that has been approved as part of the Town's 2007-2008 Solid Waste Management Plan Update (December 2009). The Town initiated the SEQR process on the Area 7 Development by submitting a Part 1 EAF Form for the NYSDEC in March 2014. The NYSDEC issued a Notice of Positive Declaration on July 1, 2014 and a Scope of a Draft Environmental Impact Statement (DEIS) on November 3, 2014. In February 2015, the Town (as landfill owner and permittee) and Capital Region Landfills, Inc. (as landfill operator) submitted applications and a DEIS to NYSDEC to modify the Part 360 and Title V permits Town of Colonie Landfill to allow for the Area 7 Development. As of this writing, the DEIS and permit applications are still under completeness review by the NYSDEC.

The proposed Area 7 Development is also consistent with current state policy regarding waste management and disposal. Specifically, the NYSDEC's "Beyond Waste – a Sustainable Materials Management Strategy for New York State", recognizes that existing landfills and expansions of existing sites impact fewer natural resources than a new site, and goes on to say in Section 9.4.9 that, "This

trend toward expansions and optimizing capacity at existing land-disposal operations helps establish an existing and perhaps sustainable landfill disposal infrastructure such that the state's land resources can be conserved to the maximum extent possible."

The proposed Area 7 Development will create approximately 11,600,000 cubic yards of additional solid waste disposal capacity. The design capacity requested by this application does not change the daily or annual maximum tonnages that are currently allowed in the existing permit. At the existing disposal rate the proposed Area 7 will have an estimated site life of well over 20 years. Upon approval by the NYSDEC, the proposed Area 7 expansion of the Town of Colonie Landfill will provide more than sufficient capacity for disposal of solid waste generated in the Planning Unit beyond the end of the planning period in 2025.

In addition, upon approval of the proposed Area 7 expansion, the Town, and its landfill gas to energy contractor, Innovative Energy Systems, will consider expansions of the capacity of the existing energy recovery facility. These expansions could include the development of an additional internal combustion engine and the utilization of waste heat from the facility.

6.2 Administrative and Legal Structure

The Town of Colonie Planning Unit is currently organized as an informal consortium consisting of the Town and the two villages located within it, and the neighboring City of Cohoes. No formal agreements exist with respect to the organization of the Planning Unit, but as owner of the Colonie Landfill, the Town of Colonie takes the leadership role in administering the Planning Unit. Following the execution of a Professional Operating Agreement (POA) for the operation of the Town's solid waste management facility, in 2011, the Town reassigned existing solid waste management personnel to other positions within the Town. The Town personnel responsible for the administration of the Planning Unit were reassigned to the Town Department of Public Works and continue to work in that capacity under the Commissioner of Public Works in conjunction with planning unit members DPW staffs and the Town's contractors. Private waste haulers operating in the Town and Villages are required to be licensed under Town law through a program administered by the Town Clerks office.

The LSWMP envisions that the Town will continue its role as administrator of the Planning Unit and that the City of Cohoes and the City of Watervliet will execute Inter-Municipal Agreements with the Town of Colonie which will, among other things, memorialize those cities' commitment to abide by the terms of this SWMP. The Town will continue to participate in the Albany County Solid Waste Advisory Committee, or its successor, and will provide local coordination with other stakeholders, including quarterly meetings between the member municipalities; annual meetings with licensed haulers; annual meetings with surrounding planning units. This improved local coordination is expected to yield benefits across all program areas. The Town will also communicate at least annually with neighboring jurisdictions to share best practices and evaluate whether particular cooperative efforts may be worthwhile.

The SWMP also envisions some updates to local recycling laws in the Village of Menands to incorporate requirements for mandatory source separation and recycling of designated materials by commercial, industrial, and institutional generators, as well as residents. In addition, it is proposed that the waste hauler licensing rules contained in Article II of Chapter 112 of the Town of Colonie Code be amended to include a provision requiring the annual reporting of the quantities and types of solid waste and recyclable material that are collected within the Town each calendar year.

The Planning Unit will consider creating a position of Planning Unit Recycling Coordinator, and consider applying for NYSDEC or other available grant funding.

As administrator of the Planning Unit, the Town of Colonie will be responsible for implementation of many elements. The administrative responsibilities are undertaken by staff at the Town's Department of public works. These responsibilities include coordination with the member municipalities, as well as implementation of the items listed in the schedule as being the responsibility of the Planning Unit. Administrative staff funding for the planning unit is provided in the Town DPW budget while funding for the implementation of various planning unit programs (e.g. green waste collection and composting) is provided through the respective planning unit members DPW budgets. Additional planning unit programs requiring outside contractors, such as the household hazardous waste collection program, are either budgeted for separately or provided through the Town's Professional Operating Agreement for the operation of the Town's solid waste management facility.

The member municipalities retain responsibility for implementing and enforcing local waste reduction and recycling programs.

6.3 Implementation Schedule

The Solid Waste Management Plan implementation schedule is shown in Table 6-1. Table 6-1 also shows the annual goals for reducing per capita disposal of MSW, from 2.0 lb./person/day in 2016 to 1.1 lb./person/day at the end of the year 2025. As noted previously, the reduction of MSW disposal to a rate of 1.1 lb./person/day is premised on the assumption that sufficient capacity is developed in the region to process SSOW to enable its diversion from land disposal.

6.4 Impact on Neighboring Jurisdictions

Implementation of the Town of Colonie LSWMP is not expected to have any negative impacts on the solid waste and materials management programs in neighboring jurisdictions. Adjacent Planning Units and other neighboring jurisdictions include the Capital Region Partnership, Schenectady County, Saratoga County, and parts of Rensselaer County, as noted in Section 5.3.

The development of the Area 7 at the Colonie Landfill will have a positive impact on waste management in the surrounding jurisdictions by providing additional disposal capacity. This will be particularly important due to the limited remaining capacity of the City of Albany's Rapp Road Landfill.

With respect to waste reduction and recycling efforts, no negative impacts on surrounding jurisdictions are anticipated. The LSWMP includes provisions for ongoing collaboration with neighboring jurisdictions to share information about best practices and to consider cost-effective cooperative ventures which may enhance waste reduction and recycling opportunities.

As it has in the past, the Town of Colonie Planning Unit will continue to consider requests from other municipalities wishing to participate in the planning unit.

**Table 6-1
Implementation Schedule**

Year/Qtr.	Activity or Milestone	Responsible Party	Result	MSW Disposal Goal (lb./person/day)
2017/Q1 and Ongoing	Quarterly meeting with the member municipalities of the Planning Unit	Planning Unit and the member municipalities	Improved communications	
2017/Q1 and Ongoing	Continue operations of Town of Colonie Landfill.	Capital Region Landfills, Inc. (CRL)	Continued facility operations	
2017/Q1 and Ongoing	Continue to operate the Recyclables Handling and Recovery Facility Residential Recyclables Drop-off Station, Regulated Medical Waste (RMW) storage and transfer facility, compost facility	CRL	Maintain existing recycling infrastructure	
2017/Q1 and Ongoing	Continue to operate HHW collection and storage facility.	Town of Colonie	Maintain existing recycling infrastructure	
2017/Q1 and Ongoing	Continue to participate in the Albany County Solid Waste Advisory Committee or its successor	Town of Colonie on behalf of Planning Unit	Improved communications and opportunities for collaboration	
2017/Q3	Finalize SWMP after NYSDEC and public comments are received.	Town of Colonie on behalf of Planning Unit	Submit to NYSDEC with municipal endorsements	
2017/Q3	SWMP Plan is approved	NYSDEC	SWMP in effect	
2017/Q3 and ongoing	Work with local school districts to educate students and consumers about waste reduction and product packaging.	Member Municipalities	Meetings with local school districts.	
2017/Q3 and ongoing	Promote programs that re-use or redistribute materials in the second-hand marketplace.	Member Municipalities	Website promotion with ongoing updates	
2017/Q4	Promote food waste reduction by publicizing smart phone apps	Member municipalities	Update municipal websites with links to apps	
2017/Q4	Promote the use of back-yard composting.	Member municipalities/ Cornell Cooperative Extension	Distribute educational brochures at events and on websites.	

Table 6-1 (continued)

Implementation Schedule

Year/Qtr.	Activity or Milestone	Responsible Party	Result	MSW Disposal Goal (lb./person/day)
2017/Q4	Annual Meeting with Licensed Haulers	Town on behalf of the Planning Unit	Improved communication.	
2017	Permits issued for Town of Colonie Landfill Area 7	NYSDEC and CRL	Construction of Area 7 commences	
2017			End of Year MSW Disposal Goal	2.0
2018/Q1	Execute Inter-municipal Agreements with Cohoes and Watervliet	Town of Colonie, Cohoes and Watervliet	Inter-municipal Agreement	
2018/Q1	Explore mechanisms to make HHW collection and residential drop-off acceptance of recyclable materials available to residents of the City of Watervliet	Town of Colonie, City of Watervliet, CRL.	Facilities available to Watervliet residents	
2018/Q1	Update local recycling law in the Village of Menands to require mandatory source separation and recycling by CII generators	Village of Menands	Mandatory recycling requirements for CII generators	
2018/Q1	Initiate Hotel waste reduction and recycling evaluation Kick off meeting	Town on behalf of the Planning Unit	Communications with stakeholders	
2018/Q1	Consider creating a position of Planning Unit Recycling Coordinator, and applying for NYSDEC or other available grant funding	Town of Colonie and the member municipalities	PURC position established if fundable.	
2018/Q1	Apply for Grant for CII Waste Audits	Town on behalf of the Planning Unit	Perform waste audits upon grant approval	
2018/Q1 and Ongoing	Encourage the use of reusable grocery bags	Member Municipalities	Distribute educational information on websites.	
2018/Q1 and Ongoing	Support Product Stewardship initiatives at the state and federal levels.	Member Municipalities	Resolutions of support from governing bodies when state and federal initiatives are supported.	

Table 6-1 (continued)

Implementation Schedule

Year/Qtr.	Activity or Milestone	Responsible Party	Result	MSW Disposal Goal (lb./person/day)
2018/Q1 and Ongoing	Quarterly meeting with the member municipalities of the Planning Unit	Town of Colonie and the member municipalities	Improved communications	
2018/Q1 and ongoing	Keep abreast of economic local markets and collection infrastructure for food waste, compostable paper, and film plastic	Town on behalf of the Planning Unit	Consider adding these materials to the list of designated mandatory recyclables if conditions are favorable to do so. Biennial SWMP Report	
2018/Q1 and ongoing	Monitor the status of facilities to manage food waste that may be proposed by others, as well as legislative, regulatory and economic incentives	Town on behalf of the Planning Unit	Determine if a mandatory SSOW program and SSOW facility development is feasible	
2018/Q2	Hotel waste reduction and Recycling Evaluation: Study design and survey	Town on Behalf of the Planning Unit	Data acquisition	
2018/Q2	Consider amending Hauler Licensing law to require annual reporting of the quantities and types of solid waste and recyclable material that are collected within the Town	Town of Colonie	If enacted, more accurate data for monitoring program progress	
2018/Q3	Hotel waste reduction and Recycling Evaluation: Analysis and report	Town on Behalf of the Planning Unit	Recommendations for further action	
2018/Q3	Communicate with neighboring jurisdictions to share best practices and identify potential opportunities for collaboration	Town on behalf of the Planning Unit	Improved communications and opportunities for collaboration	
2018/Q3	Promote the use of back-yard composting	Member municipalities/ Cornell Cooperative Extension	Back Yard Compost Demonstrations at events	
2018/Q3	Encourage locally licensed haulers to offer volume-based subscriptions	Town of Colonie	More residents using volume based options	
2018/Q3 and ongoing	Waste reduction initiatives with CII generators	Town on behalf of the Planning Unit	Alliances with major employers and continued promotion of food diversion from CII sector	

Table 6-1 (continued)
Implementation Schedule

Year/Qtr.	Activity or Milestone	Responsible Party	Result	MSW Disposal Goal (lb./person/day)
2018/Q4	Consider revising procurement policies to meet key Green Criteria established by Executive Order 4 of 2008	Town of Colonie and the member municipalities	Revised procurement policies	
2018/Q4	Annual Meeting with Licensed Haulers to discuss amendments to Hauler Licensing requirements	Town on behalf of the Planning Unit	Improved communication	
2018/Q4	Commence Operation of Colonie Landfill Area 7	CRL	Ongoing Landfill Operations	
2018 and Ongoing as needed	Evaluate future recycling facilities proposed in the Planning Unit	Member municipalities/Planning Unit	If approved, consider promoting as part of SWMP implementation	
2018			End of Year MSW Disposal Goal	1.9
2019 and ongoing	Expand Energy Recovery Capacity at Colonie Landfill to manage LFG generated at Area 7	Town of Colonie, IES	Additional energy recovery	
2019/Q1	Evaluate potential waste reduction and recycling initiatives	Town on behalf of the Planning Unit	If favorable, incorporate in LSWMP through Biennial Compliance Report	
2019/Q1 and Ongoing	Quarterly meeting with the member municipalities of the Planning Unit	Town of Colonie and the member municipalities	Improved communications	
2019/Q3	Communicate with neighboring jurisdictions to share best practices and identify potential opportunities for collaboration	Town on behalf of the Planning Unit	Improved communications and opportunities for collaboration	
2019/Q4	Annual Meeting with Licensed Haulers	Town on behalf of the Planning Unit	Improved communication	
2019	Continue to implement ongoing activities	As noted above	As noted above	
2019	Evaluate waste heat recovery from Landfill Gas-to Energy Facility	Town of Colonie, IES, NYSERDA	Determine Feasibility	
2019			End of Year MSW Disposal Goal	1.8
2020/Q1	Biennial SWMP Compliance Report	Town on behalf of the Planning Unit	Report submitted to NYSDEC	

Table 6-1 (continued)

Implementation Schedule

Year/Qtr.	Activity or Milestone	Responsible Party	Result	MSW Disposal Goal (lb./person/day)
2020/Q1 and Ongoing	Quarterly meeting with the member municipalities of the Planning Unit	Town of Colonie and the member municipalities	Improved communications	
2020/Q3	Communicate with neighboring jurisdictions to share best practices and identify potential opportunities for collaboration	Town on behalf of the Planning Unit	Improved communications and opportunities for collaboration	
2020/Q4	Annual Meeting with Licensed Haulers	Town on behalf of the Planning Unit	Improved communication	
2020	Continue to implement ongoing activities	As noted above	As noted above	
2020			End of Year MSW Disposal Goal	1.7
2021/Q1	Evaluate potential waste reduction and recycling initiatives	Town on behalf of the Planning Unit	If favorable, incorporate in LSWMP through Biennial Compliance Report	
2021/Q1 and Ongoing	Quarterly meeting with the member municipalities of the Planning Unit	Town of Colonie and the member municipalities	Improved communications	
2021/Q3	Communicate with neighboring jurisdictions to share best practices and identify potential opportunities for collaboration	Town on behalf of the Planning Unit	Improved communications and opportunities for collaboration	
2021/Q4	Annual Meeting with Licensed Haulers	Town on behalf of the Planning Unit	Improved communication	
2021	Continue to implement ongoing activities	As noted above	As noted above	
2021			End of Year MSW Disposal Goal	1.6
2022 /Q1	Biennial SWMP Compliance Report	Town on behalf of the Planning Unit	Report submitted to NYSDEC	
2022/Q1 and Ongoing	Quarterly meeting with the member municipalities of the Planning Unit	Town of Colonie and the member municipalities	Improved communications	
2022/Q3	Communicate with neighboring jurisdictions to share best practices and identify potential opportunities for collaboration	Town on behalf of the Planning Unit	Improved communications and opportunities for collaboration	
2022/Q4	Annual Meeting with Licensed Haulers	Town on behalf of the Planning Unit	Improved communication	

Table 6-1 (continued)

Implementation Schedule

Year/Qtr.	Activity or Milestone	Responsible Party	Result	MSW Disposal Goal (lb./person/day)
2022	Continue to implement ongoing activities	As noted above	As noted above	
2022			End of Year MSW Disposal Goal	1.5
2023/Q1	Evaluate potential waste reduction and recycling initiatives	Town on behalf of the Planning Unit	If favorable, incorporate in LSWMP through Biennial Compliance Report	
2023/Q1 and Ongoing	Quarterly meeting with the member municipalities of the Planning Unit	Town of Colonie and the member municipalities	Improved communications	
2023/Q3	Communicate with neighboring jurisdictions to share best practices and identify potential opportunities for collaboration	Town on behalf of the Planning Unit	Improved communications and opportunities for collaboration	
2023/Q4	Annual Meeting with Licensed Haulers	Town on behalf of the Planning Unit	Improved communication	
2023	Continue to implement ongoing activities	As noted above	As noted above	
2023			End of Year MSW Disposal Goal	1.4
2024/Q1	Biennial SWMP Compliance Report	Town on behalf of the Planning Unit	Report submitted to NYSDEC	
2024/Q1 and Ongoing	Quarterly meeting with the member municipalities of the Planning Unit	Town of Colonie and the member municipalities	Improved communications	
2024/Q3	Communicate with neighboring jurisdictions to share best practices and identify potential opportunities for collaboration	Town on behalf of the Planning Unit	Improved communications and opportunities for collaboration	
2024/Q4	Annual Meeting with Licensed Haulers	Town on behalf of the Planning Unit	Improved communication	
2024	Continue to implement ongoing activities	As noted above	As noted above	
2024			End of Year MSW Disposal Goal	1.3
2025/Q1	Evaluate potential waste reduction and recycling initiatives	Town on behalf of the Planning Unit	If favorable, incorporate in LSWMP through Biennial Compliance Report	

Table 6-1 (continued)

Implementation Schedule

Year/Qtr.	Activity or Milestone	Responsible Party	Result	MSW Disposal Goal (lb./person/day)
2025/Q1 and Ongoing	Quarterly meeting with the member municipalities of the Planning Unit	Town of Colonie and the member municipalities	Improved communications	
2025/Q3	Communicate with neighboring jurisdictions to share best practices and identify potential opportunities for collaboration	Town on behalf of the Planning Unit	Improved communications and opportunities for collaboration	
2025/Q4	Annual Meeting with Licensed Haulers	Town on behalf of the Planning Unit	Improved communication.	
2025	Continue to implement ongoing activities	As noted above	As noted above	
2025			End of Year MSW Disposal Goal	1.2
2026/Q1	Biennial SWMP Compliance Report	Town on behalf of the Planning Unit	Report submitted to NYSDEC	
2026/Q1	Develop Draft SWMP 2027-2036	Town on behalf of the Planning Unit	Draft SWMP to NYSDEC	
2026/Q1 and Ongoing	Quarterly meeting with the member municipalities of the Planning Unit	Town of Colonie and the member municipalities	Improved communications	
2026/Q3	Communicate with neighboring jurisdictions to share best practices and identify potential opportunities for collaboration.	Town on behalf of the Planning Unit	Improved communications and opportunities for collaboration.	
2026/Q4	Annual Meeting with Licensed Haulers	Town on behalf of the Planning Unit	Improved communication.	
2026	Continue to implement ongoing activities	As noted above	As noted above	
2026			End of Year MSW Disposal Goal	1.1