



City of Troy, NY

-FINAL-

Comprehensive Recycling Analysis

2019 – 2028

September 2018

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Executive Summary

City of Troy Comprehensive Recycling Analysis Plan (previously known to the public as Troy's Solid Waste Management Plan) – 2019-2028

This Plan, covering the period of 2019-2028 is being submitted pursuant to Troy City Code Chapter 247-8 [G] (See Appendix 12). Passed in 2017, the code change calls for the development and approval of a “Comprehensive Solid Waste Plan” by December 31, 2018. New York Department of Environmental Conservation (NYSDEC) has¹ guidelines and requirements for municipalities with regards to solid waste planning. NYSDEC uses the terminology Local Solid Waste Management Plan (LSWMP) to describe plans that guide municipal solid waste practices in accordance with State Law. NYSDEC LSWMPs encompass a decade-long planning period. This document adheres to that guideline with a ten year plan for future solid waste activities. NYSDEC has articulated guidelines for planning units on ten year solid waste management practices. These guidelines were followed, within limitations, for this plan. This plan covers the solid waste management period from January 1, 2019 through December 31, 2028. The jurisdiction of this plan is restricted to the City of Troy, New York.

This Comprehensive Recycling Analysis is being developed in support of the City's ongoing efforts to provide economically- and environmentally-sustainable solid waste services to the city's residents, businesses and organizations in the near and long term. The City will submit this plan to the NYSDEC as a Comprehensive Recycling Analysis (CRA) in order to become compliant with state law. The plan is named as such because at this time the City does not have a planning unit it is associated with and has never had a solid waste management plan. This will be the first plan and will be the CRA. The plan additionally finds that if the City becomes part of a regional entity, in adherence to NYSDEC recommendations, solid waste management will become easier. In a regional entity planning and management will be in accordance with NYS Law. The residents, businesses, industries and institutions in the City of Troy produce thousands of tons of solid waste annually. The question of how to reduce waste generation and increase reuse and recycling gives rise to the need for a plan such as this one.

The purpose of this plan is to 1) serve as a citywide framework for the coordination of solid waste management; 2) establish solid waste goals and methods for monitoring the progress towards these goals; and 3) satisfy both the NYSDEC legal requirements for a municipality with regards to solid waste planning and comprehensive recycling analysis and the recently-approved City of Troy requirement to develop and implement a “Comprehensive Solid Waste Plan” before the end of 2018.

¹ 6 NYCRR Part 366

Current Solid Waste Programs

The City's current solid waste program operates out of the Department of Public Works Garage in Troy's North Central neighborhood with a secondary location for material management at "The Alamo" facility located adjacent to the Rensselaer County Jail in South Troy. The City uses The Alamo site as an adjunct to handle its solid waste stream, excluding municipal solid waste (MSW) or single stream recycling (SSR). All MSW and SSR is collected by the City and brought directly to a transfer station located off Route 4/Burden Avenue in South Troy, leased and operated by County Waste. All non-SSR recyclable materials are brought to "The Alamo" by the City, including found electronic waste, found household hazardous waste (HHW), yard waste, scrap metal, and bulk material. The City hosts a free annual collection event – which accepts HHW, Electronic Waste and confidential paper shredding – at "The Alamo" for a limited number of residents advertised through a City press release. .

This plan also highlights the need for the City to acknowledge and address the significant & ongoing changes in international recycling markets. Shifts within the industry are effecting communities not only in the Capital District, but across the northeast region and nationwide. It is important to understand that these changes are new and unforeseen. Municipalities will be forced to completely overhaul their solid waste master plans in response. The City of Troy is well-positioned to prepare for these changes. Development of the City's SWMP during this period of market upheaval puts our community one step ahead of other municipalities in the state.

During the period in which this plan was being developed, the single stream recycling (SSR) system began encountering significant market limitations. Long-established overseas markets for recyclable materials have either become severely limited or no longer available due to recently-enacted stricter contamination standards. Each municipality is experiencing the trickle-down effect of these market changes in different ways. Although the City of Troy currently appears to be insulated from a dramatic elimination of recycling or cost increases it does not mean they could not occur in the future. These changes will impact every municipality, but each community will be affected differently. The City's Solid Waste Advisory Board utilized the changes within the global recycling market as an opportunity to make positive recommendations that account for the drastic changes that occurred in 2018 and establish a stronger municipal solid waste management system for the future.

Goals and Objectives – Comprehensive Recycling Analysis – 2019-2028

In 2017, in accordance with previous recommendations, including the Citizens Advisory Group "Municipal Composting in Troy" (2012) report and the "Improving Troy's Solid Waste Management Program" (2000) report by the Green City Project – a joint undertaking of the Green Education and Legal Fund, Inc., and the Ecological Economics, Values and Policy Program Department of Science and Technology Studies

at Rensselaer Polytechnic Institute – the City of Troy approved the implementation of a solid waste management fee.

The legislation removed the cost of solid waste from the general tax bill and established a separate fee to cover the costs of municipal waste collection services. Funding the cost of this service outside of the general taxes is recommended in the 2000 and 2012 reports to the City, by the US EPA and NYSDEC, and serves as a stepping stone towards the recommendation of a pay-as-you throw system (PAYT) of municipal solid waste management.

Concurrently, the updated law requires the City to develop a Solid Waste Master Plan prior to the end of 2018 (draft-plan of which was submitted in the fall of 2018). This plan will serve to guide the City in their efforts to increase recycling, decrease waste output, and to manage costs incurred by the municipality.

The City utilized established NYSDEC guidelines which assist municipalities in developing waste management plans and comprehensive recycling analysis. Although the requirements established under the recently-enacted local law requires the City to finish and implement the plan before the end of 2018, the plan provides a guide that can be used to achieve compliance successfully in the short- and long-term. NYSDEC requires annual updates on the CRA – with the first update scheduled for 2020 – at which time any items NYSDEC deems necessary for inclusion will be updated.

With the publication of “Beyond Waste – A Sustainable Materials Management Strategy for New York State”², New York State renewed its commitment to work aggressively to reduce the amount of waste destined for disposal. This publication marked a change in guidance from NYSDEC, as they put it “...a shift from focusing on ‘end-of-pipe’ waste management techniques to looking ‘upstream’ and more comprehensively at how materials that would otherwise become waste can be more sustainability managed through the state’s economy”. The City of Troy’s SWMP takes this state-issued guidance into account and looks to establish many upstream fixes and improvements while also accounting for any downstream backup.

By taking into account the immediate needs of the City of Troy through a comprehensive solid waste guide combined with New York State’s “Beyond Waste” approach and the updated NYSDEC guidelines on writing CRA’s, the City has identified seven objectives in this plan (an implementation strategy to achieve these objectives is outlined in Section 6). The objectives line up with the City’s goals for waste reduction, reuse and recycling and creation of a financially and environmentally sustainable solid waste management strategy. They are as follows:

² Beyond Waste: A Sustainable Materials Management Strategy for New York State New York Department of Environmental Conservation, December, 2010, https://www.dec.ny.gov/docs/materials_minerals_pdf/frptbeyondwaste.pdf

Objective 1: Establish a Recycling Center

The City should utilize current assets and facilities to create a recycling drop-off center that is open to the public that allows material to be sorted into a variety of reuse and recycling options.

Objective 2: Provide guidance for diversion/gleaning of Consumable Foods and operate a Mulch and Compost Facility

The City should work with local organizations and agencies to develop a food gleaning program to divert consumable foods for human consumption. As well, they should create a composting program to process food waste internally within NYSDEC registration volumes. The purpose of a food gleaning program would be to provide viable food to those facing food insecurity while simultaneously reducing the amount of food being composted or landfilled.

A mulch and compost facility will be to handle all yard waste generated by the City and a portion of the municipality's organic waste.

Objective 3: Develop a plan for a Reuse Center

The City should explore options for establishing a reuse center in Troy, and should partner with existing organizations to temporarily increase reuse options prior to further exploration of establishing full scale reuse center.

Objective 4: Establish Clear Waste Collection Procedures & Increase Collection Participation

The City should enact incentive-based pricing and update the City Code to reflect actual disposal costs to the City. These changes will provide a clear process for how each type of material can be reused, recycled or disposed of. Violations should be structured to incentivize compliance from chronic violators. The City should establish a separate sanitation budget fund that is funded through a PAYT disposal system to clarify and properly allocate the expenses of waste costs, ensure the sanitation bureau is properly funded and create a fair pricing structure.

Objective 5: Increase Education and Outreach

The City should maintain the recycling coordinator position to ensure continued compliance with state and local regulations, and increase education opportunities and promote public outreach in regards to solid waste and recycling. The City should create an online clearinghouse, updated regularly, of all recycling and reuse services available to the community. The City should offer additional public

recycling and reuse events for the community in order to increase proper disposal and education opportunities.

Objective 6: Increase Accurate Data Collection and Reporting

The City should adjust hauler-permit laws to collect more data about the waste generated in the City. This data will help populate annual waste reports and identify trends within the City's municipal solid waste and recycling stream, useful information which can be utilized to improve collection services and development of future policies and procedures. In addition, the City should establish a permanent Solid Waste Advisory Committee to advise the City on use of data and reports to implement this plan and assist in NYSDEC annual updates and development of the next CRA in 2029.

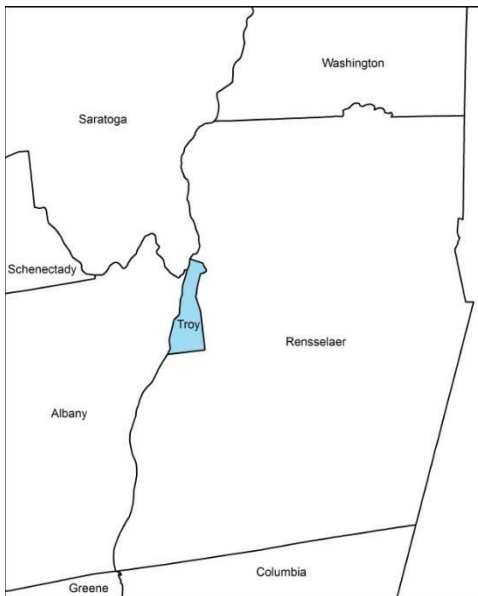
Objective 7: Create Deconstruction Permitting and Education

The City should create a permit outlining deconstruction options. The program should structure permit costs to incentivize deconstruction instead of demolition. The City should also increase home & property owner education about deconstruction versus demolition.

These objectives are set forth to make the public aware of the City's solid waste options and costs in order to reduce solid waste at the source, enhance reuse and recycling of materials generated by the City, and establish the groundwork for the City's next CRA. While some of these objectives are ambitious, each will be financially and environmentally sustainable for the City of Troy in the short- and long-term.

Section 1 – Description of Municipality

1.1 SIZE AND GEOGRAPHIC LOCATION

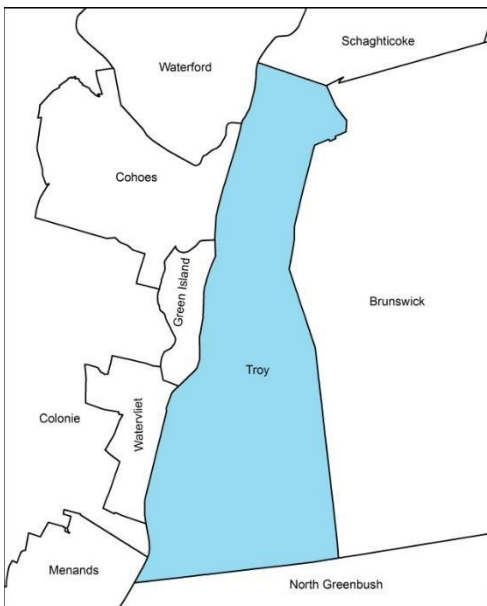


The City of Troy is a small municipality located in the Capital Region of Upstate New York State. It is approximately 11 square miles. Troy is the largest city located within Rensselaer County by size and population. The Hudson River marks the western boundary of the City. Route 7 (Hoosick Street), which bisects Troy from East to West, is the main route into Vermont and New Hampshire for most of New York State and is the entrance to Vermont for the southern and western United States.

1.2 POPULATION

The US Census Bureau 2010 population for the City of Troy is 50,129. This is an increase of 1.83% from the 2000 census which put the population at 49,229. The Owner-occupied housing unit rate from 2012-2016 was 37.6%, implying a high number of renters. The City's median income in 2016 dollars from 2012-2016 was \$39,847³ and the people in poverty percentage was 25.5%.

1.3 NEIGHBORING MUNICIPALITIES

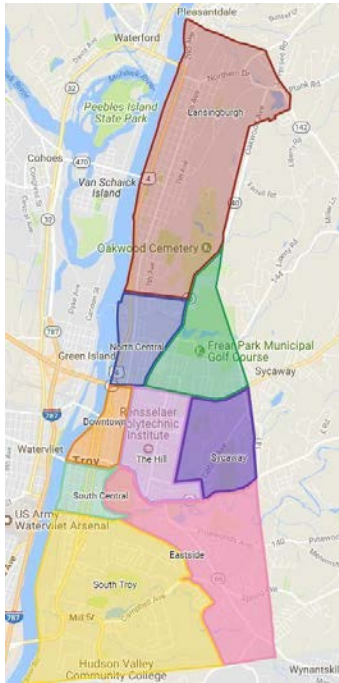


The City of Troy is located near several municipalities including: the City of Albany, Town of Colonie, City of Schenectady, City of Saratoga Springs and City of Pittsfield, MA. The immediate neighboring municipalities on the western bank of the Hudson River include: the Village of Waterford, City of Cohoes, Village of Green Island, City of Watervliet and the Village of Menands, listed from north to south. The immediate neighboring municipalities to the east include: the Town of Schaghticoke, Town of Brunswick, Village of Wynantskill, and the Town of North Greenbush, from north to south.

3

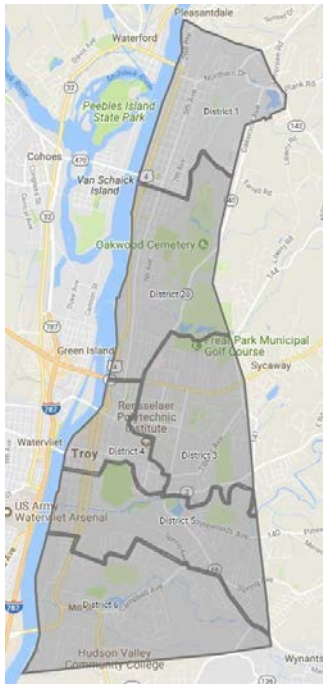
¹U.S. Census Bureau, *Quick Facts Troy New York, 2017*, Retrieved from <https://www.census.gov/quickfacts/fact/table/troycitynewyork/PST045217>

1.4 City Neighborhood



The City of Troy is divided into nine major neighborhoods. There are several smaller neighborhoods located within these larger divisions. However, the nine provide a clean geographic outline of Troy for solid waste management purposes. These neighborhoods do not follow the political voting districts of the City, of which there are six. The neighborhoods are listed from north to south as follows: Lansingburgh, Frear Park, North Central, Downtown, Hillside, Sycaway, South Central, Eastside and South Troy. Each neighborhood has its own unique identity, coupled with nuanced differences and problems related to the delivery of solid waste and recycling services. Troy is broken up into solid waste collection zones, each having its own day of the week for service. These collection zones do not follow the neighborhood boundaries. There is no current public map of these collection zones.

The City does not have any data on the breakdown of waste generated by individual neighborhoods or data from private haulers. Only citywide data on material collected by the City's municipal collection is available at this time. Data limitations are discussed at length in Section 2.



1.5 Institutions of Note

The City of Troy has many prominent organizations, for-profit businesses, non-profit businesses and institutions. The institutions that most contribute to the waste stream are Rensselaer Polytechnic Institute, Russell Sage College, Hudson Valley Community College, Samaritan Hospital, and St. Mary's Hospital. All of these institutions privately manage their own solid waste. The City has no collected data from these institutions related to their solid waste management or disposal processes. A solution for this problem is given in Section 5.11 Hauler Licensing. As well, the city plans to survey these large-scale generators as well as others.

The City has three major parks, two memorial parks and 18 neighborhood parks. Of the three major parks one is a municipal golf course operated by the City. The City also

⁴ Map of Troy Neighborhoods and Troy City Council Districts was created using Google My Maps by [reddit.com/r/troy](https://www.reddit.com/r/troy)

boasts a year-round farmers market that is the largest in the region. The farmers market is run autonomously from the City. The farmers market attracts upwards of 14,000 customers to the City each Saturday. The City, in partnership with local organizations such as the Downtown Troy Business Improvement District, hosts many events throughout the year. Each of these draws thousands of people into the City which creates additional waste management challenges.

1.6 SEASONAL VARIATIONS

The City of Troy has a vibrant and growing downtown area with a central business district (CBD). It features a diverse group of businesses, restaurants, bars & breweries, art galleries, retail shops and more. These create a concentrated and unique waste stream in the downtown, which is complicated by the historic nature of the buildings and age of streets. As a result, the City provides regular pickups in the CBD Monday through Friday, five days per week. The downtown waste stream fluctuates throughout the year due to seasonal events held downtown such as the Victorian Stroll, the Chowder Festival and the Troy Pig Out.

The largest impact on the City's seasonal waste stream variation is created by the educational institutions located in Troy. The three higher education institutions – Rensselaer Polytechnic Institute (RPI), Hudson Valley Community College (HVCC), and Sage College – have a collective student body of over 20,000 people. A little more than half of these students attend HVCC. Although the college is expanding its student residential options, most of their students are commuters. These commuting students do not impact the waste stream as directly as RPI and Sage students.

All three schools operate on similar annual schedules. Most students arrive before the first of September and leave after school ends at the end of May. The semester schedule has resulted in a large number of apartments located within Troy to have either June 1 or July 1 start dates, subsequently creating May 31 or June 31 move out dates. Because large numbers of students move out during a similar time period, a significant volume of accumulated material is deposited into the waste stream. Since 2012, the City's highest disposal volumes of municipal solid waste occur in May and June. The spike is attributed to the departing students and to the semester's effect on yearly lease agreements.

In the spring, the City sees a large influx of brush material from winter cleanup. In late fall, a similar influx is seen but from fallen leaves and yard cleanup. It is these two seasons that contribute the largest amount of yard waste at the City's collection pile.

1.7 ANTICIPATED CHANGES

Troy has experienced a recent increase in residential and commercial investment. There are a number of residential and mixed use development projects near completion, underway and in planning phases. These projects are expected to increase the waste streams in their respective neighborhoods. Currently these developments are

concentrated in the downtown central business district. Additional development projects are slated in South Central and North Central. The exact impact of these developments on the waste stream or the population is not known at this time.

Section 2 – Waste Generation and Materials Recovery Data

2.1 DESCRIPTION OF CURRENT WASTE STREAM

The City of Troy currently utilizes a private transfer station in South Troy as the primary waste disposal site. The transfer station, its history, and current collection methods are elaborated on in Section 3. Since it opened all waste stream data records are provided to the City in monthly statements issued by the transfer station. The transfer station accepts three streams of material: Single Stream Recycling (SSR), Construction and Demolition debris (C&D), and Municipal Solid Waste (MSW). The transfer station currently provides the City with monthly totals for each type of material. Yard waste, scrap metal, and bulk waste are collected by the City and consolidated and held at the Alamo facility (a property owned by Troy Local Development Corporation and leased by the City). This facility is located in South Troy, at the intersection of Main Street and Industrial Parkway East.

There is currently no truck scale at the Alamo; so waste is measured as it is removed from the site. (The Alamo site is expanded upon in section 3.1.3).

Table 2.1 provides total tonnage by material from the transfer station from 2014 – 2017. Tires, yard waste and electronic waste data were available from their respective haulers for 2017 only. Scrap metal data was available back to 2014.

Troy can conservatively estimate a single stream recycling rate between 6-7% for the last 4 years. This rate does not include all diverted material. 2017, is the only year where data is available for other diverted material. In 2017 the recycling rate is 9%. Closer monitoring of materials will yield more data related to solid waste, moving towards achieving the objective of accurate data collection and reporting.

Table 2.1 - Waste Stream Breakdown (in tons)				
	2017	2016	2015	2014
MSW	15,352.3	15,238.7	15,892.4	16,029.5
SSR	1,170.6	1,163.9	1,243.8	1,342.0
Scrap Metal	40.4	45.3	7.9	6.1
C&D + Bulk	1,791.9	1,766.4	1,243.8	3,326.0
Tires	1.0	N/A	N/A	N/A

Yard Waste	700	N/A	N/A	N/A
E-Waste	19.0	N/A	N/A	N/A
Total	18,875.1	18,214.3	18,387.8	20,703.5

Table 2.1 has data from the transfer station and private collection services. MSW information comes from the monthly tip totals County Waste sends the City. The monthly weight totals for MSW were added up to see the number indicated here. The data received from County Waste only accounts for the MSW collected by the City services and does not include MSW tipped at County Waste by individuals or other collection companies. It also does not account for MSW generated in the City, collected by private collection companies, and brought out of the City. SSR data is compiled in the same manner as MSW and faces the same data limitations. Construction and demolition debris accounts for any City generated construction and demolition waste (street repair) and all bulk material collected by the City collection services (furniture). Bulk material is put into County Waste dumpsters at a separate site in addition to being brought directly to the transfer station. This data accounts for both sets of information. All construction and demolition debris generated by property owners that utilize a private dumpster service is not accounted for in this table. An alternative method to this data collection is discussed in Section 5.11 Hauler licensing. It will fix all data limitations that are indicated above.

Scrap metal, tires, and electronic waste are all collected separately from MSW, SSR, and C&D/Bulk. They have direct billing that accounts for the weight during each service. This results in accurate accounting of all scrap metal, tires, and electronic waste that the City collects. Scrap metal and tire data is only available for City collection services. The Electronic waste collection event that occurs annually is the one of the two available for City residents (the second event being held by Rensselaer County) and captures nearly all of the electronic waste generated by the City of Troy.

Bio-solids and industrial solid waste data are unavailable at this time and are not included in the chart. The data will be accounted for once the alternative methods are implemented that are suggested in Section 5.11 Hauler Licensing.

This plan articulates the necessary first step for the City to collect and compile the waste stream data. Analysis of this data is limited due to lack of available data. Despite this, there are some observations that can be made. 2016 was the lightest year on record from 2012 to 2017. The first quarter of 2018 MSW tonnage are approximates per month. The deadline for payment of the first installment of the solid waste management fee in April, 2018 MSW tonnage appears to be trending below historical averages. It is expected that MSW will continue to decrease as both recycling and reuse options are expanded and education and outreach options are increased.

NYDEC provides a calculator (used in table 2.2) to project waste and recycling information over the course of the planning period (2019-2028). This calculator takes current waste data and population data to project this information.

City of Troy														2019-2028			
Year																	
Projected MSW Generation (Tons/yr)							2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	
MSW Diverted (Tons/yr)							18,853	18,891	18,929	18,967	19,005	19,043	19,081	19,119	19,157	19,195	
							2,305	1,386	1,413	1,442	1,471	1,500	1,530	1,561	1,592	1,624	
MSW Materials Composition (%)																	
Material	2018				2019			2020	2021	2022	2023	2024	2025	2026	2027	2028	
Newspaper	MSW Generated (Tons)	MSW Diverted (Tons)	% MSW Diverted	MSW generated (Tons)	MSW Diverted	% MSW Diverted	% MSW Diverted	% MSW Diverted	% MSW Diverted	% MSW Diverted	% MSW Diverted	% MSW Diverted	% MSW Diverted	% MSW Diverted	% MSW Diverted	% MSW Diverted	
Corrugated Cardboard	100.0%	18,848	1,704	9.0%	18,853	12.2%	7.3%	7.5%	7.6%	7.7%	7.9%	8.0%	8.2%	#NAME?	8.5%		
Paper	Other Recyclable Paper (Total)	5.6%	1,062	150	14.2%	1,062	60.0%	61.2%	62.4%	63.7%	64.9%	66.2%	67.6%	68.9%	70.3%	71.7%	
	Other Compostable Paper	8.0%	1,516	216	14.2%	1,516	37.0%	37.7%	38.5%	39.3%	40.0%	40.9%	41.7%	42.5%	43.4%	44.2%	
Metal	Total Paper	12.8%	2,411	345	14.3%	2,412	12.0%	12.2%	12.5%	12.7%	13.0%	13.2%	13.5%	13.8%	14.1%	14.3%	
	Ferrous/Aluminum Containers(Total)	6.7%	1,267	181	14.3%	1,267	14.0%	14.3%	14.6%	14.9%	15.2%	15.5%	15.8%	16.1%	16.4%	16.7%	
	Other Ferrous Metals	33.2%	6,255	892	14.3%	6,257	26.6%	35.7%	35.7%	35.7%	35.7%	35.7%	35.7%	35.7%	35.7%	35.7%	
	Other Non-Ferrous Metals (Total)	1.7%	329	42	12.9%	329	55.0%	56.1%	57.2%	58.4%	59.5%	60.7%	61.9%	63.2%	64.4%	65.7%	
	Total Metals	3.7%	706	92	13.1%	706	3.0%	3.1%	3.1%	3.2%	3.2%	3.3%	3.4%	3.4%	3.5%	3.6%	
	PET Containers	0.9%	163	22	13.8%	163	13.0%	13.3%	13.5%	13.8%	14.1%	14.4%	14.6%	14.9%	15.2%	15.5%	
Plastic	HDPE Containers	6.4%	1,197	157	13.1%	1,197	18.6%	56.1%	56.1%	56.1%	56.1%	56.1%	56.1%	56.1%	56.1%	56.1%	
	Other Plastic (3-7) Containers	1.1%	210	4	1.9%	210	62.0%	63.2%	64.5%	65.8%	67.1%	68.5%	69.8%	71.2%	72.6%	74.1%	
	Film Plastic	0.9%	177	3	1.8%	177	68.0%	69.4%	70.7%	72.2%	73.6%	75.1%	76.6%	78.1%	79.7%	81.3%	
	Other Plastic (Total)	0.2%	38	1	1.9%	38	85.0%	86.7%	88.4%	90.2%	92.0%	93.8%	95.7%	97.6%	99.6%	101.6%	
	Total Plastics	5.8%	1,087	21	1.9%	1,087	1.0%	1.0%	1.0%	1.1%	1.1%	1.1%	1.1%	1.1%	1.2%	1.2%	

Glass	Glass Bottles, Jars and Containers	6.4%	1,205	23	1.9%	1,205		1.0%	1.0%	1.0%	1.1%	1.1%	1.1%	1.1%	1.1%	1.2%	1.2%
	Other Glass (light bulbs, etc.)	14.4%	2,717	51	1.9%	2,717		11.2%	67.9%	67.9%	67.9%	67.9%	67.9%	67.9%	67.9%	67.9%	67.9%
	Total Glass	4.2%	786	0	0.0%	786		1.0%	1.0%	1.0%	1.1%	1.1%	1.1%	1.1%	1.1%	1.2%	1.2%
	Food Scraps	0.4%	73	94	127.8%	73		7.0%	7.1%	7.3%	7.4%	7.6%	7.7%	7.9%	8.0%	8.2%	8.4%
	Leaves, Grass, Pruning, Trimmings	4.6%	859	94	10.9%	860		1.5%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Organics	Total Organics	17.2%	3,245	2	0.1%	3,245		1.0%	1.0%	1.0%	1.1%	1.1%	1.1%	1.1%	1.1%	1.2%	1.2%
	Clothing Footwear, Towels, Sheets	5.2%	981	500	51.0%	982		1.0%	1.0%	1.0%	1.1%	1.1%	1.1%	1.1%	1.1%	1.2%	1.2%
	Carpet	22.4%	4,226	502	11.9%	4,227		1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Textiles	Total Textiles	4.4%	835	0	0.0%	835		1.0%	1.0%	1.0%	1.1%	1.1%	1.1%	1.1%	1.1%	1.2%	1.2%
	Total Wood	1.6%	303	0	0.0%	303		1.0%	1.0%	1.0%	1.1%	1.1%	1.1%	1.1%	1.1%	1.2%	1.2%
	DIY Construction & Renovation Materials	6.0%	1,138	0	0.0%	1,138		1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Wood	Diapers	2.4%	454	0	0.0%	454		1.0%	1.0%	1.0%	1.1%	1.1%	1.1%	1.1%	1.1%	1.2%	1.2%
Miscellaneous	Electronics	4.1%	779	0	0.0%	779		1.0%	1.0%	1.0%	1.1%	1.1%	1.1%	1.1%	1.1%	1.2%	1.2%
	Tires	2.1%	393	0	0.0%	393		1.0%	1.0%	1.0%	1.1%	1.1%	1.1%	1.1%	1.1%	1.2%	1.2%
	HHW	1.4%	258	9	3.5%	258		1.0%	1.0%	1.0%	1.1%	1.1%	1.1%	1.1%	1.1%	1.2%	1.2%
	Soils and Fines	0.7%	133	0	0.0%	133		1.0%	1.0%	1.0%	1.1%	1.1%	1.1%	1.1%	1.1%	1.2%	1.2%
	Other Composite Materials - Durable/Inert	0.4%	80	0	0.0%	80		26.0%	26.5%	27.1%	27.6%	28.1%	28.7%	29.3%	29.9%	30.5%	31.1%
	Total Miscellaneous	0.1%	21	0	0.0%	21		1.0%	1.0%	1.0%	1.1%	1.1%	1.1%	1.1%	1.1%	1.2%	1.2%
	Total Miscellaneous	1.8%	339	0	0.0%	339		1.0%	1.0%	1.0%	1.1%	1.1%	1.1%	1.1%	1.1%	1.2%	1.2%

2.3 DATA LIMITATIONS

The City only has data available from the City collection services, with none available from private collection services. Due to this limitation the solid waste history of the City is not comprehensive. The City has many large waste generators that are not captured currently. This can be remedied by altering the hauler permit code and making regular data requests. To achieve this goal, City recommendations for hauler code changes are made in Section 5.

The City has never requested data from large waste generators located within the City, like RPI or St. Mary's Hospital, so reporting is incomplete in this area. By streamlining these requests, the data gaps will begin to fill in, beginning with large institutions and expanding to smaller ones. A recycling and solid waste survey will be given to all large-scale generators with a requirement of compliance to be added to city code. Implementing these changes will ensure all necessary data gaps are filled prior to the 2028 plan, completing this plan's objective to increase accurate data.

The City does not have any data on the breakdown of waste generated by individual neighborhoods or data from private haulers. Only citywide data on material collected by the City's municipal collection is available. The lack of location data creates difficulties in fixing solid waste issues specific to neighborhoods. Comprehensive reporting on an annual basis must precede new data objectives. During the 2019-2028 planning period, waste reporting will be streamlined and available for the next plan in 2029. The collection of data is a critical first step in lessening the financial burden of waste management on the taxpayers.

Section 3 – Existing Solid Waste Management System

3.1 FACILITIES/ HISTORY

The City of Troy has not had a public solid waste management plan since the closure of its landfill. Without regular updates on the solid waste management policy and changes to the policy by the City, the public lacks a clear understanding of its municipal collection services. This lack of clarity over time has contributed to confusion and frustration surrounding Troy's solid waste management practices. This plan attempts to lay out the current and historical solid waste practices of the City and then proceeds to make recommendations for change that will have positive, clear outcomes.

One of the objectives of this plan is to create a clear understanding of solid waste processes so that the public can easily participate in the system. The plan will also bring the

City into compliance with NYS laws pertaining to Comprehensive Recycling Analysis.⁵ Troy has not had a CRA or a solid waste management plan nor has it in practice been involved with a planning unit. In 1991, a planning unit, the Greater Troy Solid Waste Authority, was created with Troy. This planning unit, however, was never actualized and no records exist of any formal meetings. The unit was formally dissolved by NYS in 2013.

3.1.1 LANDFILL AND RECYCLING FEE - 1968-1995

The City of Troy's modern solid waste history begins with the City of Troy Landfill located off Sherman Avenue in the Eastside Neighborhood on the former Troy airport site. Opening in 1969, the landfill operated without any State oversight or involvement. Concurrently, the City launched a municipal collection service, moving away from utilizing a private collection company.

The landfill site is approximately 95 acres. At the time of its opening in the late 1960's it was assumed that this site would provide unlimited waste disposal capacity. For most of the landfill's lifetime, it maintained a tip fee of over \$100 per ton. By comparison, the current 2018 average price per ton in the Capital Region is \$65. The revenue from the landfill's tip fees completely funded the municipal waste collection services throughout the landfill's lifetime and was an economic benefit to the City. However, it was later seen to present an environmental hazard that impacted the surrounding area.

By the late 1980's the New York State Department of Environmental Conservation and the City were in constant disagreement over proper landfill management. Despite the City's unwillingness or inability to properly manage the landfill according to then-current state regulations, the pressure applied by NYDEC and, ultimately, the involvement of the State Attorney General's office forced the City to close the landfill in 1992. As part of this landfill closure, an interim transfer station was constructed and operated from 1993 through November of 1995. Despite attempts to keep the landfill and the transfer station open, NYSDEC became reluctant to support the City in these efforts and forced them to manage the transition without assistance from New York State.

To help with the financial loss of the landfill, Troy reduced the tip fee at the landfill the year before the closure to \$55 per ton, down from \$110 per ton, to maximize revenue. An article from the Times Union in 1992 outlines this change in tip fee and reactions from the community at that time (*Come one, come all* Times Union 1992). The closure of the landfill was perhaps the biggest event affecting the City's solid waste programs in its history. The loan that was required to be taken at the time to close and cap the landfill is still being paid today as part of the MAC debt.

In 1988, the state legislature approved the NYS Solid Waste Management Act which required that every municipality in the state have a mandatory source separation ordinance

⁵ 6 NYSCRR Part 360.11

or local law in place by September 1, 1992. The City of Troy complied with this mandate in August of 1992.

In 1992, the City was inclined to privatize the municipal solid waste system. A stepping stone towards this was to comply with the State and now local recycling mandate and offer a private recycling collection service. Since the landfill tip fee revenue was coming to a close, Troy opted to pay for this new private recycling service through a fee. This was the first time in which the residents received a bill for any solid waste services.

As for municipal solid waste, the closure of the temporary transfer station in 1995 forced the City to seek other disposal options. The City began bringing all waste material to the Town of Colonie landfill. This process continued for over ten years until the private transfer station opened in 2009. All of the City's MSW collected by the municipal collection now goes to the transfer station in South Troy.

3.1.2 Transfer Station – 2009-2018

The transfer station in South Troy is located at 83 Water St. on a property owned by the Troy Local Development Corporation (TLDC). The Property is leased to County Waste, a division of Waste Connections Inc., the third largest solid waste services company in the United States. The TLDC's lease allowed County Waste to build out the building to operate as a transfer station, as long as it remains in compliance with NYSDEC. The City's benefit from the site is consistent access to waste disposal at a fixed rate through 12/31/14. The City operates as a "designee" of the TLDC under the lease. According to the lease, the rate per ton is variable after 12/31/14 and has been in the range of \$60 - \$62 since then. There will be an addendum to the lease in 2019, capping future increases by a set CPI annually.

There is a zero-dollar tip fee for SSR. The transfer station is open Monday through Friday 7:30am until 4:45pm and Saturday 7:00am until 12:45pm. The transfer station is open to both the general public and to the City for disposal. There is a significant number of days during which the transfer station closes earlier than their publicized times, requiring the City's sanitation trucks to go to County Waste's Albany facility. This increases both labor and transport costs for the city. The City is currently working with County Waste to level out these costs, so that the City is not adding unnecessary expenditures.

The transfer station has an up-to-date permit with NYSDEC that it maintains. Copies of the permit are sent regularly to the City upon renewal. The facility is permitted to take MSW, SSR, and C&D material. It is not permitted to take electronic waste (e-waste), household hazardous waste, or yard waste. The transfer station is permitted to accept a rolling average of 400 tons per day over 30 days with a maximum daily tonnage of 580 tons on any given day. The City generates an average of 60 tons per weekday according to a 5-year average. This keeps the City at only 15% of the transfer stations rolling capacity. The City currently utilizes the Alamo site to handle its yard waste, e-waste, HHW collection

events, scrap metal, and bulk collection. The organic management portion of Troy's program (currently co-located at the Alamo site) may be relocated to an alternative site in the future.

3.1.3 The Alamo

The City has utilized the Alamo site for almost two decades. The City does not pay the TLDC to use the Alamo site. The City has expanded usage options and availability of the Alamo over the years. The City began using the Alamo for yard waste exclusively. Scrap metal, tire storage, HHW collection events, and eventually bulk collection were also added at this site. Bulk collection at the Alamo is limited to drop off from smaller City vehicles. It is not protocol for grapple trucks to offload bulk waste at the Alamo. Due to financial and staffing limitations, the Alamo has not been adequately managed in over 3 years, resulting in the buildup of irregular material at the site. This culminated in 2017 when, due to an unfortunate series of events, NYSDEC inspected the Alamo. The inspection resulted in a notice that the site is not appropriately permitted or set up for general public.

This shutdown prohibited access to the Alamo by the general public, but did not impact City operations at the site. NYSDEC felt the risk of incorrect disposal was too great without a proper management plan and reliable staffing. The Alamo remains operational for internal City uses due to a municipal exemption. The Alamo can be reopened to the public following the filing of a site management plan with the NYSDEC that outlines 1) the type of material accepted, 2) how it is stored and the pertinent site registrations, 3) permits or exemptions related to each type of material. Additionally, NYSDEC requires the site be staffed during periods of public access to the site for disposal services.

Type	Truck #	Yardage	Truck Year	Age
ASL	10	20	2006	13
Rear Load	4	20	2003	16
Rear Load	5	20	2006	13
Rear Load	7	20	2009	10
Rear Load	9	20	2014	5
Rear Load	11	20	2014	5
Rear Load	13	20	2000	19

⁶ 6 NYCRR Part 360.14 (b) (1)

3.2 **TROY COLLECTION PROGRAMS**

3.2.1 **MSW Collection**

The City of Troy's municipal solid waste (MSW) collection services have been offered since the landfill opened. The closure of the landfill in 1992 saw an overhaul of municipal collection services due to financial constraints related to loss of landfill tip fee revenue. Since this overhaul, the department has slowly grown from 20 employees in 1993 to 29 in 2017. The addition of recycling collection – which the City started performing in 2001 – accounts for the growth.

As of September 2018, the City has six 20-yard rear loader garbage trucks and one automated side loader (ASL) 20-yard truck. When deployed, the rear loaders have one driver and two laborers while the side loader has only one driver with no laborers.

Sanitation vehicles and equipment are dated. While the City's current capital plan calls for new garbage and recycling trucks every other year, this has not historically been the case. This new capital plan must be adhered to in order to ease the financial burden of maintaining older equipment, frequent repairs and missed services. A description of the MSW vehicles, including age of the vehicles and yardage capacity, is included in Table 3.1.

MSW is collected in zones throughout the City once per week, outside of the Central Business District in the Downtown Neighborhood where it occurs more frequently. The Central Business District receives street side service two days per week and alley service three days per week, totaling five days per week of MSW services. The City does not have a public map of collection zones available at this time.

The City requires that MSW be placed in "heavy-duty plastic bags tied at the top or specially treated paper bags" and this material is to be placed "in water-tight, covered wooden, plastic, or metal containers." These containers must be marked for identification by the owner, either by name or street number. At this time the maximum amount of waste generated per household is limited to "50 pounds in weight or 20 gallons in capacity." Waste containers that are full must be placed at the curb adjacent to the premises or in the alley to the rear of the property no more than 12 hours before collection of solid waste in residential areas and no more than 10 hours before collection of solid waste in business areas of the City.

3.2.2 Bulk Collection

Bulk collection is a municipal service involving collection of waste material too large for garbage trucks. Bulk material is collected with a grapple truck and pickup trucks. Sanitation uses four grapple trucks, three pickup trucks and one larger one-ton pickup dump truck for bulk collection. The grapple truck is operated by one driver while the pickup trucks are sent out with one driver and one laborer.

Table 3.2 – Bulk and Yard Waste Truck Details

Type	Truck #	Yardage	Truck Year	Age
Grapple	150	20	2014	5
Grapple	154	20	2005	14
Grapple	158	20	2002	16
Grapple	159	20	2001	17
1 Ton Dump	63	3	2009	10
Pick up	23	1	2008	11
Pick up	39	1	2009	10
Pick up	59	1	2008	11

According to City Code every owner-occupied property is allowed to receive free pickup of bulk service annually as long as the amount is less than one (6'x6' sized; or two cubic yards) pickup truck load. Bulk collection is intended to be performed on demand. The property owner calls the DPW dispatcher and their pickup is scheduled for their next MSW service day. However, due to staffing capacity this is not how it always works. It has been a priority for the City since the mid 1990's to always keep the streets clean. This has allowed for the City to maintain cleaner streets, but has facilitated or encouraged illegal dumping, excess bulk dumping by homeowners, and overburdened bulk collection crews.

Illegal dumping and missed services due to staffing or equipment breakdowns are the two biggest bulk waste issues the City faces. There is little clarity regarding residential bulk material disposal. In the mid-1990s, Troy attempted to enforce a payment system for bulk material. After low compliance (40%), high illegal dumping rates and difficulty in differentiating the homes that paid versus those that did not, the program was discontinued. Since then bulk collection has continued with no major overhauls, excepting the new protocol in 2019, charging to collect bulk materials..

After its collection, bulk material is transported to the Alamo where it is placed into private roll-off containers. Grapple trucks go directly to the transfer station, instead of bringing material to the Alamo. The Alamo containers are picked up weekly. This material is

considered C&D material by the disposal company. Any bulk material brought directly to the transfer station is also considered C&D material, not MSW.

3.2.3 Recycling Collection

Recycling collection has been performed by the City since the early 2000s. When the City took over the recycling collection, they consolidated all collection days into one. Before this, each household would have three collection days: one for MSW, one for SSR, and one for bulk. By consolidating the collection days down to one per zone, labor and missed services were reduced.

The City has offered a zero-sort, single stream recycling (SSR) method of collection since County Waste started accepting this material at the transfer station in 2009. Although this method of recycling is much easier for the general public, it gives rise to a higher risk of contamination due to the lack of handling and inspection usually used in SSR collection. The City is currently assessing opportunities to reduce both single-stream recycling contamination as well as creating more cost effective sanitation collection protocol.

Table 3.3 – SSR Truck Details

Type	Truck #	Yardage	Truck Year	Age
Curb Hopper	14	20	2001	17
Long Side Loader	16	10	2006	12

Accepted SSR materials are placed “curbside” for municipal collection in blue 14-gallon bins provided by the City. The bins and the service are only provided to property owners who qualify for municipal collection services as outlined in City of Troy Code. These bins are dictated by the types of trucks used in SSR collection. Unlike the collection of MSW and bulk services, the SSR collection is performed by a driver and a laborer using two different trucks. Both of the trucks used are side loaders, a type of truck with very high sides for loading and no tipping mechanisms. Due to the logistics involved in emptying totes into these trucks, it is currently impractical to increase the size of our recycling containers. A major investment in vehicle upgrades would be needed to accommodate a larger collection container.

Communities across the United States are experiencing uncertainty within the recycling industry due to changes in the international markets in 2018. Although the City is in a relatively good position when it comes to local single stream recycling changes, the City’s recycling collection equipment is in need of an overhaul, but the impact of these international changes on future needs is unknown. The international recycling situation is discussed further in Section 5.3.1.

3.2.4 Food Waste/Composting/ Source Separated Organics (SSO)

The City does not currently offer any municipal source separated organics collection. There are, however, community efforts for food waste diversion and collection. There are several community gardens throughout the City that have on site compost piles. The organization or group that organizes each respective garden commonly allows garden participants to utilize the compost pile onsite. Troy Zero Waste, a local community organization, offers a weekly food waste drop off site at the Troy Waterfront Farmers Market every Saturday. This material is hauled by the organization to one of the local community compost piles in Troy. Market vendors and City residents utilize this free service.

In 2012, the City created a Citizens Working Group to research and make recommendations with regard to municipal composting in Troy. Their draft report was adopted by the City Council in 2012. The full report is attached to this document. The report made clear recommendations to the City, some of which have been adopted, others have not. The hiring of a recycling coordinator and removal of waste costs from the general taxes were the two most recent recommendations adopted.

In 2015, the City began developing a request for proposal (RFP) for a pilot food waste collection program for the City of Troy. As the date for issuing the RFP was approaching, the City experienced the tragic and untimely death of its Solid Waste Coordinator who was the project lead on the RFP. No further action has been taken.

As well, there will be efforts made to recover and re-distribute viable and usable foods back into the community via partnerships with local agencies, groups and non-profits. This will put the food to a better hierarchical purpose than any other options.

3.2.5 Yard Waste

Yard waste and tree debris are collected upon request by the City. This service is available to all property owners in the City. City Code currently requires yard waste be placed in brown paper bags or black plastic bags before pickup; tree debris must be bundled and be no more than 5 feet in length, 18 inches in diameter and weigh less than 75 lbs. The DPW dispatcher compiles a weekly list of call-in requests. Depending on available labor, the list is collected during the same day as MSW and SSR collection.

Yard waste collection is not currently a reliable service due to lack of available labor during the summer months. In the spring, the City schedules a regular yard waste collection for several weeks. During this time, the City will collect yard waste every week on the regular trash and recycling day. The City will occasionally offer this service in the fall.

All collected yard waste is brought to the Alamo and stored in a pile that after one year is approximately 4000 cubic yards. According to NYSDEC, this site is exempt for

registration or permitting because the total material onsite never exceeds 10,000 yards of material annually.⁷

Once or twice per year (depending on quantity generated), the yard waste pile has been ground into mulch and hauled away. This practice has been ongoing since at least 2011. Initially, ground mulch was given to residents. However, fewer and fewer residents took mulch and it became a burden to store all the ground material year after year. In recent years, the ground up mulch was found to have been contaminated at the collection source with plastic and metal materials. As a result, the ground material required screening prior to sale. The contaminated material was hauled away by the contractor to be screened off-site.

3.2.6 Construction and Demolition Debris

The City does not currently have a large-scale system for construction and demolition collection or recycling. Homeowners are prohibited from placing C&D debris in the streets for bulk pickup. Instead, they must rent a private dumpster through a permitting process overseen by Troy's Bureau of Code Enforcement. The County Waste transfer station accepts C&D debris. City-generated C&D debris is removed by contract vendors. Currently these bids do not require recycling. The City pays C&D rates for its bulk collection for the residents, including furniture and white goods (large appliances). There is no available data from outside municipal collection for C&D disposal rates.

3.2.7 Hauler Permits

Changes in City hauler permits are recommended in section 5.11. Currently the City does not enforce its laws pertaining to hauler permits. There is no indication that the City has ever enforced these laws. There are two separate laws that require hauler permits, each with different language in regards to process. These are City Code Chapter 234-4 *Permits for Private Haulers* and Chapter 247 *Article II: Private Collection*.

3.2.8 Recycling Laws

Recycling has been mandated in the City since 1992 pursuant to NYSDEC regulations. The service has been provided by the City for its residents since 1993. The history of Troy's recycling law is found in section 3.1.1. In the 2012, the Citizens Working Group recommended rewriting the City Code to include a food waste mandate. The City has not yet adopted a food waste recycling mandate. The State has a food waste landfill ban that would impact large generators that has not been passed as of this documents' publication.

⁷ 6 NYCRR Part 361-4.2

3.2.9 Enforcement Methods

The City utilizes three entities to report on and enforce its current waste and recycling laws. Two are City entities - the Bureau of Code Enforcement, and Department of Public Works (DPW), with the third being City residents. DPW and Code handle the enforcement process, while DPW staff and the public are responsible for reporting code violations. Currently, this involves calling in violations to dispatch in order to dispatch a code enforcement officer to document the violation. Because DPW staff see and handle the material most frequently, they are the primary reporting body.

The most significant violation problems are illegal dumping and bulk violations. Because of this, the City asks residents to report these types of violations when they see them so they can be handled in a timely manner. Public engagement can curtail problems faster than the City can find and fix them. Public participation is to be encouraged.

Once a violation has been documented, the City collects the items. Fines for violations of solid waste management are laid out in City Code. "Any person violating any provision of this article shall be guilty of an offense and, upon conviction thereof, shall be punishable by a fine not exceeding \$250 or imprisonment not exceeding 15 days, or by both such fine and imprisonment, for each offense. Each day that such violation continues shall constitute a separate violation." Fines and penalties for violating littering or bulk laws are outlined in City Code Chapter 188: Littering.

Sanitation laborers can refuse recycling bins if the contents do not comply with the published acceptable items. However, these refusals are not communicated to the generator (owner or occupant), who often assumes a missed service has occurred rather than a rejection. Proper communication to participants in the city collection services is addressed in Section 5.

3.2.10 Data Collection

County Waste provides an annual transfer station report which breaks down MSW, C&D, and SSR that the City brings to their facility. Unfortunately, this report does not capture any other generators besides the city collection services. Institutions like Russell Sage College, Rensselaer Polytechnic Institute, and Samaritan Hospital all utilize private collection services that do not report data to the City. This also does not capture source location data from the material collected. Annual waste reports and hauler permit data requests will give the City more data and allow for more effective analysis over time. Additionally, waste information from large generators within the City will enable calculations of citywide recycling rates to include generators beyond residential customers.

County Waste sent the transfer station data to the City annually before 2018. In 2018, monthly data from 2012 to 2018 were requested. This data was used to generate all graphs

and charts within this plan. Further analysis of historical data will need to be conducted once more information is available. The collection of data is a critical first step in lessening the financial burden of waste management on the taxpayers. There are more details on data in Section 2 and recommended changes can be found in Section 5.10.

Section 4 – Existing Administrative and Financial Structure

4.1. ORGANIZATION

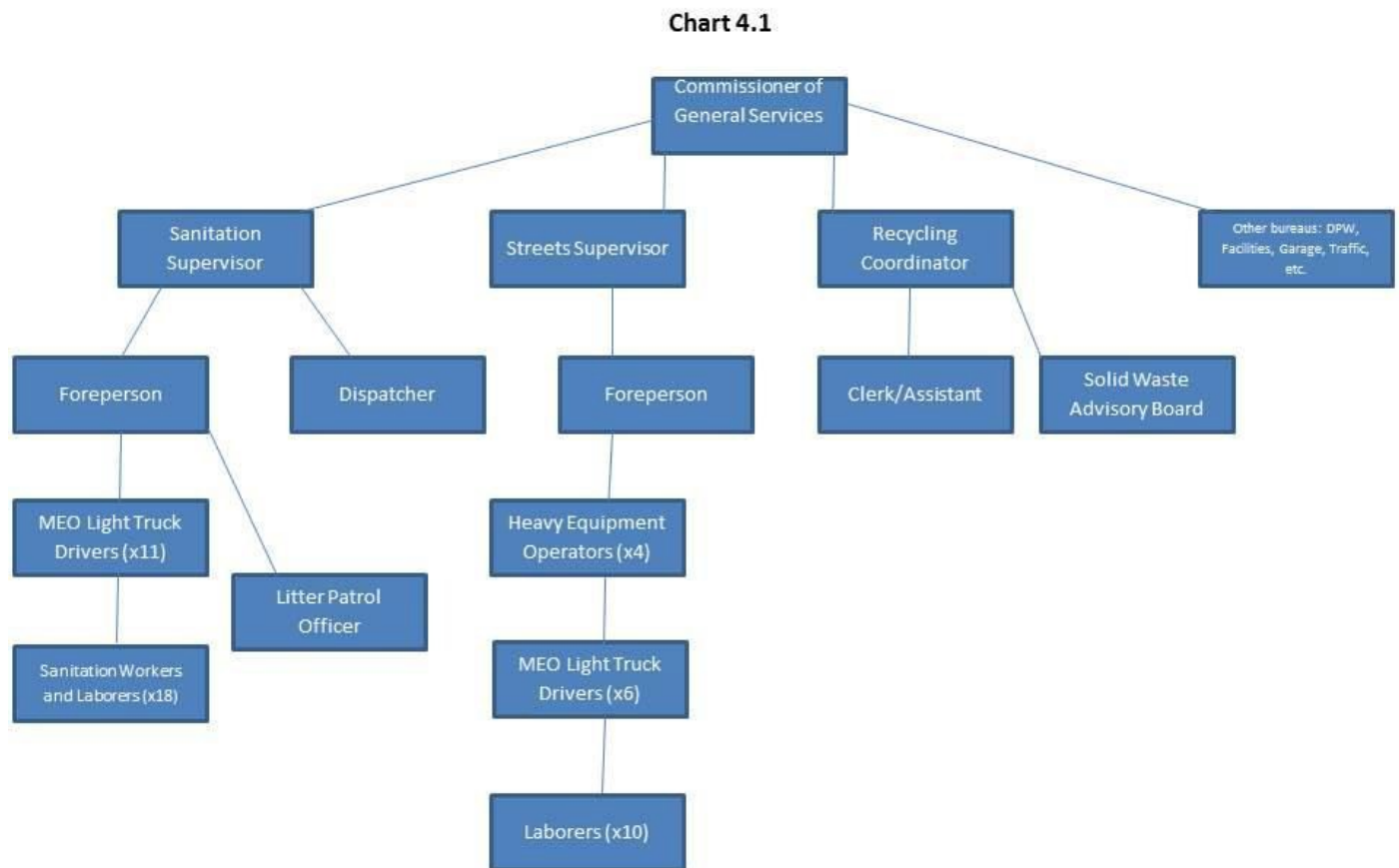
4.1.1 Department of Public Works

The City of Troy Department of Public Works (DPW) is organized into five bureaus: Central Garage, Facilities Maintenance, Streets, Sanitation, and Traffic. Sanitation and Streets are the two bureaus that handle solid waste, with Sanitation being responsible for primary collection. The following chart outlines the hierarchy of order within these two divisions. The DPW dispatcher handles all calls for DPW; this work includes requests for solid waste pickup, bulk collection, yard waste collection, and missed services.

2018 was a restructuring year for Sanitation and Streets. This was triggered by the loss of several employees through retirement and the hiring of a Commissioner of General Services in early 2018. Reporting to the commissioner, the supervisor position was divided into two - Sanitation Supervisor and Streets Supervisor - with two interchangeable forepersons below them. Once fully staffed, the new management structure creates better accountability and efficiencies in DPW related to waste services. The Litter Patrol Officer is a Sanitation position handling solid waste related code enforcement issues. The position has been unfilled for nearly a decade, but is expected to be filled before the end of 2019.

The Recycling Coordinator Position was created in 2017 and was filled in April of 2018. The Recycling Coordinator Position has been included in Ordinance #103, Ch234 as a permanent position.

Table 4.1 provides an Organizational Chart for the Department of Public Works.

Chart 4.1 – Organizational Chart: Bureau of Sanitation, Streets

4.1.2 Finance

The Sanitation Department operates on an annual budget of over \$3 million dollars. This has traditionally been funded through both property taxes and the recycling fee since the closure of the landfill in 1993 until 2017. In 2017, the City of Troy approved a new law establishing a solid waste management (SWM) fee to fund the sanitation budget. This separated the cost for solid waste management from local property taxes and eliminated and replaced the recycling fee. The SWM fee was set at \$160 per residential unit for 2018. The fee was the same for all generators and was calculated based on the total number of units. The SWM fee was billed as a separate bill entirely from property taxes and utilities. Although perceived as politically divisive at the time of its implementation, the removal of waste costs from general taxes in the form of a separate fee is a change that is recommended by NYSDEC, the U.S. Environmental Protection Agency, and in two separate reports issued to the City, one by a citizen working group and the other by a research firm

and RPI department. Additionally, a SWM fee is utilized by many other cities throughout NYS. A table listing their respective fees by unit is below.

Table 4.1 – 2018 Solid Waste Management Fees					
Municipality	Single Family	2 Family	3 Family	4 Family	Notes
City of Rochester	\$391	\$787	\$872	n/a*	
City of Plattsburgh	\$352	\$704	\$872	n/a*	
City of Rensselaer	\$256	\$520	\$768	n/a*	SWM fee billed quarterly
City of Schenectady	\$224	\$448	\$672	n/a*	
City of Troy	\$160	\$318	\$477	\$636	
City of Albany	\$0	\$180	\$360	\$540	
City of Buffalo	\$119	\$119	\$119	n/a*	Hybrid PAYT (annual fee)
City of Utica	\$79	\$158	\$237	n/a*	Hybrid PAYT (annual fee)
<i>*The Cities of Rochester, Plattsburgh, Schenectady, Utica, Buffalo and Rensselaer consider buildings with four or more units as commercial properties and do not provide residential collection services. However, some of these cities offer more expensive options for commercial properties not indicated in the above table.</i>					

From NYSDEC's solid waste management plan 2010 "Beyond Waste..."

"6.3.2 (a) Property Tax Most municipalities in New York State fund their solid waste and recycling programs using general revenues derived from property taxes. This system provides no incentive to the resident/taxpayer to reduce or recycle waste because the actual cost of waste disposal is hidden. Moreover, this approach, while simple and straightforward, leads to difficult budget decisions where investments in waste reduction and recycling compete with other critical public services, such as police, fire protection, libraries and schools. Those who waste less essentially subsidize their neighbors who waste more."

From U.S. EPA Economics of Waste Management and Land Cleanup webpage.

⁸ *Beyond Waste: A Sustainable Materials Management Strategy for New York State*, p.102 6.3.2(a) New York Department of Environmental Conservation, December, 2010,
https://www.dec.ny.gov/docs/materials_minerals_pdf/frptbeyondwaste.pdf

Municipal solid waste (MSW), otherwise known as “garbage” or “trash,” consists largely of waste discarded by households, businesses, and institutions. Economic studies focus on determining appropriate policies for MSW management, as well as measuring the negative external effects of MSW disposal, potential siting difficulties, and so on. The collection of MSW can be priced according to two different policies: traditional regulatory instruments (flat fees and local tax receipt-funded collection programs), and market incentives policies. Flat fees and local tax receipt-funded collection programs provide little incentive to reduce waste as the waste generator faces no extra costs in producing more waste each month. Approaches that include economic incentives increase unit costs and monetary rewards for reducing waste generation, and increasing composting and recycling. Examples of incentive structures include volume-based user charges, subsidies for recycling, and product charges that include the eventual costs of disposal. Economic studies that focus on the negative external effects of solid waste disposal have examined host community payments and hedonic pricing effects. Economic analyses are also conducted to better understand the process and justice issues surrounding placement of recycling, composting, and other municipal solid waste facilities.

From *Municipal Composting in Troy*:

“It is important for residents to understand their financial stake in the recycling and composting system. Currently, homeowners see no fee for the collection of solid waste, and a \$29 yearly fee for recycling collection, while the city spends more than \$80 per household per year to dump municipal garbage, and far more to pay for trash pickup and management equipment. These hidden costs result in people not being aware that their actions (failing to separate their waste stream) have real financial implications on themselves and their neighbors. The CWG-C recommends, as part of the implementation of a pay-as-you-throw (PAYT) system (and prior to it), the itemization of these costs in a method that makes them more transparent to residents. [...] The hidden cost for disposal results in a large percentage of residents believing that garbage collection is free. They are unaware that the cost of trash collection and disposal is included in the property tax. It is difficult for residents to understand the potential economic benefits of recycling without seeing the direct impact on their taxes”

The 2000 titled “Improving Troy’s Solid Waste Management Program” issued by the Green City Project report also recommends moving the cost of waste out of property taxes as discussed here.

“In 1999, Troy homeowners each paid \$217 for their trash pickup and disposal because they cannot see this charge as a line item on their property tax bills some residents have the misconception that garbage collection is free. Our survey of Troy residents showed that 35% of respondents were unaware that they paid for solid waste services in their property tax bill. There is no incentive to reduce the amount of

landfilled waste if there is no promise of reduced cost from diverting materials from the trash. Residents will not understand the economic benefits of recycling unless they are aware of the cost to citizens for garbage collection and disposal.”

The City’s SWM fee originally had a sunset clause and was directed into the general fund, but for the 2019 fiscal year was moved to the sanitation fund. Over the next several years, the Solid Waste Advisory Board has a goal of reducing the SWM fee in conjunction with the implementation of a hybrid Pay As You Throw (PAYT) program.

4.1.3 Outreach

The City historically has not provided effective outreach to residents when it comes to communicating the rules, regulations, and procedures of its solid waste services. The City’s website contains limited information for bulk requests, yard waste pickup, trash and recycling collection schedules, and what can be recycled. Recent efforts have made some progress to allow for improved communication, including the establishment of an online services page, as well as significant updates to instructions and content contained on the City’s municipal website, but further work is needed.

In April 2018, the City hired a recycling coordinator to perform a series of solid waste related tasks including expanded public outreach regarding solid waste and recycling programs. The recycling coordinator is also tasked with developing the City’s solid waste management plan, coordinating future recycling efforts, assisting in recycling education, ensuring the City’s compliance with NYSDEC reporting requirements⁹, and collecting recycling data for internal and external reporting. The coordinator began increasing outreach in 2018 by disseminating information with Household Hazardous Waste Day coupons and now serves as public contact available by phone for any and all recycling and solid waste management related questions. The coordinator has plans for assisting the City in the implementation of the recommendations within the CRA plan in Section 5, including expanding outreach.

4.1.4 Enforcement

As outlined in Section 3.2.9, the enforcement of the City’s solid waste laws currently occurs. When Sanitation and Streets employees tasked with removing material or city residents visually observe violations, these violations are communicated to the dispatcher. The violation is photographed as documentation. Then, the material is removed by DPW and a violation is issued by Code Enforcement. Once the position is filled, the litter patrol officer will issue trash violations and work with Sanitation to ensure that all violations are photographed. The photo is attached to a bill which sets forth the fine and is mailed to the property owner. In the event the fine is not paid, the total is re-levied on the property owner’s

⁹ 6 NYCRR Part 366

taxes for the following year. The fines and penalties are outlined in City Code Chapter 188-19 [b-d] shown below:

B. Any person committing an offense of illegal dumping as set forth in § 188-18 shall be guilty of a violation punishable by a fine, imprisonment, or both, for each offense. The fine shall be a minimum fine of \$200 for each occurrence, with the maximum fine not to exceed \$500 per offense. A sentence of incarceration shall not exceed 15 days per offense.

C. Fine; civil penalty. In addition to the collection of costs associated with the removal or cleanup of garbage, refuse or waste materials found in violation of this chapter by the City, any person violating this chapter shall be punished by a fine in City Court pursuant to Subsection A or B of this section or a civil penalty recovered in accordance with § 188-20 of this chapter in the following amounts:

Violation	Penalty
<i>First</i>	<i>\$100</i>
<i>Second</i>	<i>\$125</i>
<i>Third</i>	<i>\$225</i>
<i>Fourth</i>	<i>\$300</i>
<i>Fifth</i>	<i>\$350</i>

D. Fine; civil penalty options. In addition to the penalties imposed in § 188-19 of this chapter, the City Court may order a person to perform one or more of the following:

(1) Perform public service relating to the removal of litter or to the restoration of an area polluted by litter;

(2) Pay the person, or in the case of public property, the City, sustaining damages arising out of a violation of this chapter, plus the injured party's court costs and attorney's fees if action results in a civil proceeding.

4.1.5 Data Collection

Before 2018, data was not collected beyond an annual statement from the transfer station. The recycling coordinator position has begun to implement a system of data collection and reporting for the City. The creation of a body of complete and accurate solid waste data will allow Troy to discover and develop efficiencies in the system and increase recycling rates. The collection of data is a critical first step in lessening the financial burden of waste management on the taxpayers.

4.1.6 Advisory Board

The Solid Waste Advisory Board (“the Board”) was established by the City in May of 2018 to assist in the writing and development of the Solid Waste Management Plan. The board was created utilizing City Code Chapter 234-8 which reads.

At the discretion of the Mayor, an advisory board shall be appointed to review and work with the City administration on current and future recycling issues and programs. Said advisory board members shall be appointed by, and serve at the pleasure of, the Mayor and shall receive no financial compensation for their work. Advisory board members shall be residents of the City and shall not hold public office within the City administration. The advisory board shall consist of a minimum of five and a maximum of nine members. The advisory board shall have a Chair who shall preside at all meetings. Meetings of the advisory board shall be scheduled by the Chair in conjunction with the Mayor or his/her designated representative.

The Board met frequently from May through August in order to complete this document within the allotted time frame. The Board has provided regular feedback on each section of this document. The operation and input of the entire Board has been essential in the completion of a document of this magnitude. The completion and implementation of this plan and the continued assistance of the Board is an essential component of the City’s ability to achieve its objective to increase data collection and fulfill reporting requirements.

4.2 FINANCIAL STRUCTURE

4.2.1 Landfill and the Alamo

The closure of the landfill in 1992 resulted in the loss of significant revenue to the City in the form of tip fees. The landfill site now costs the City approximately \$15,000 annually in engineering and monitoring costs. The site currently houses a city solar array that results in a net savings of municipal electricity costs of approximately 20% of the City’s power. With the future addition of a second array, this number is anticipated to increase to 40% of the City’s power.

The Alamo does not cost the City any money in lease expenses. However, the site is owned by the TLDC which maintains a loan associated with the site. The Alamo site gives rise to expenses for the City related to the grinding of yard waste, removal of electronic waste, household hazardous waste collection event location, removal of recycled tires, and removal of bulk waste and scrap metal. Including all expenses associated with these services, the Alamo costs approximately \$100,000 each year. All expenses are related to the disposal material and this cost comes entirely out of the tip fee budget. As of April 2019, there are measures underway to reduce this expense by shifting which vendors the City

uses for handling some of the materials, how some materials are handled as HHW and additional cost-saving measures.

The Alamo generates no revenue from tip fees and sees modest revenue (approximately \$5,000) from scrap metal collection. Prior to March of 2019, the Alamo had a heavy machine equipment operator (HMEO) to maintain the site. This was usually a non-permanent assignment based on staff availability. The individual work from early spring until late fall (April – November). Snowplowing is the most important service of the HMEO in the winter months. Without a HMEO and a loader on site for a period of more than a week, the site becomes overburdened and requires a day of cleanup to become reorganized. As of July 2019, the City is working to have an HMEO onsite at least once a week. The HMEO is included in the Streets bureau budget. This bureau is responsible for keeping streets safe and clear. Both Streets and Sanitation services utilize the Alamo regularly for disposal.

The transfer station and its equipment, operated by County Waste, are privately owned. The building and land are leased to County Waste by the TLDC. The lease is effective through 2024 with an option for two (2) consecutive five (5) year lease extensions, through 2029 and 2034 respectively. The transfer station guarantees the City can dispose of MSW, SSR and C&D at a negotiated, reduced price and SSR at no charge. The City receives a monthly bill encompassing all material disposed of at the transfer station which includes a breakdown of material type into MSW, SSR, and C&D.

4.2.2 Funding Methods

The City is responsible for upgrades to waste collection equipment. There is state grant funding available for financial assistance related to recycling and waste reduction. The City has applied for, or is currently in the process of submitting for, the following NYSDEC grant programs:

- Municipal Waste Reduction & Recycling Program – NYDEC provides assistance for projects that further the primary strategy of the NYS solid waste management hierarchy. Troy has a grant application in development for recycling equipment to expand services and increase efficiencies.
- Household Hazardous Waste – A 50% matching reimbursement grant from NYDEC using the Environmental fund to incentivize municipalities to offer disposal options for waste materials that are potentially hazardous in homes.
- Electronic Waste – a 50% matching grant from NYDEC using the Environmental Fund to incentivize municipalities to increase recycling options for electronic waste, which is illegal to dispose of in MSW streams.
- Recycling Coordinator – A 50% matching grant from NYDEC to incentivize municipalities to create and keep a recycling coordinator position. These positions increase recycling participation and reduce MSW.

These grants require a 50% local match from the municipality. The latter three programs are annual grants which help offset the cost of HHW collection events, e-Waste Collection and the recycling coordinator position. All grant reimbursements go into the fund out of which the expenses were paid.

4.3 LAWS, REGULATIONS AND ORDINANCES

4.3.1 City of Troy Code 234 – Recycling and 247 - Solid Waste Code

City of Troy Code Chapter 234 requires recycling in the City. It also mandates that the municipality service all residential buildings that have 6 units or fewer, with all buildings with 7 or more units are required to recycle through private collection services. Approximately 87% of all units in the City are billed and receive City solid waste collection. The exact population that receives City solid waste collection is unknown.

The City's Solid Waste code does not allow commercial units to use City collection methods unless they are grandfathered in by being located in the CBD and currently receiving municipal collection services. The City does not offer SSR collection for commercial locations that generate more than the 14-gallon bins the City uses. The City is currently investigating the feasibility of revenue offsets from these commercial producers and considering a pilot program servicing a very limited number of these producers to determine if it is realistic to offer city services to these commercial entities.

Beginning in May of 2019, the City is also implementing a \$5.00 per rolling-tote handling fee for each event held within the city requiring pickup of solid waste. This includes both one-time events and regularly recurring events.

City of Troy Code Chapter 247 Solid Waste was updated in 2017. The changes included the creation of the solid waste management fee (SWM). The remaining changes adjusted the language to be clear with regard to what the City provides as solid waste collection. This included language clarifying what properties receive services from City Code Chapter 247-8 (B):

“Garbage, recycling and yard wastes. The collection and disposal of garbage, recycling and yard waste shall be provided to residential premises of six or fewer residential premises and to such other types of premises as the Commissioner determines to be necessary and/or desirable.”

4.3.2 City of Troy Code 188 – Littering

City of Troy Code 188-18 of the Troy City Code which defines what is considered illegal dumping and littering also governs acceptable bulk collection services and pricing for these services. Illegal dumping is defined in the City of Troy Code as:

“All categories of waste material, including but not limited to garbage, rubbish, bulk refuse, construction and demolition material, scrap metal or any similar type of waste material, shall only be placed for collection, either by private or municipal services, at the location from which the waste material was generated. Waste material deposited at a location within the City other than the location/property address from which the waste material was generated shall be considered illegal dumping and shall be subject to all appropriate fees, fines and penalties provided for in this chapter.”

Currently, owner-occupied properties with less than 6 residential units receive a flat fee of \$25 (for 6'x6'; 2 cubic yard) pickup truck loads of bulk material collection. Non owner-occupied residents do not receive this pricing, but instead are charged a per-item rate. The current system does not adequately address the problem of illegal dumping. Further, the terms of the City Code have not been clearly communicated to the public. Residents who might otherwise wish to comply do not know how to properly use the system in place which results in frustration and unknowing violations.

4.3.3 Other Laws

The following types of laws relating to solid waste recommended by NYSDEC are not yet established in the City of Troy:

- Green procurement
- Environmental justice
- Local product stewardship and
- Sustainability initiatives (solid waste).

(These components are also highlighted in Realize Troy (sections: 5.1.3, 5.3.2, 5.3.4 and 5.3.5), and as a duly-cited objective will be addressed within the coming years as well.)

The City also created a Joint Task Force on Sustainability in 2014 with City Code Part 53; however, the task force was never convened. The City of Troy is a registered Climate Smart Community accredited by New York State.

Section 5 – Alternatives to Current Solid Waste Management Practices

Section 5 covers recommended adjustments and alternatives to current solid waste management practices. The section is broken out into 15 subsections by NYSDEC recommended topics. Several subsections within Section 5 are dense due to their detail. A brief overview of the denser subsections is highlighted above the relevant subsection as an aid.

5.1 WASTE REDUCTION PROGRAMS

Other recommendations within this section qualify as waste reduction programs in addition to their respective sections. These items include:

- Enhance the visibility of municipal solid waste costs
- Expand education and outreach
- Create incentive-based pricing
- Expand enforcement programs
- Establish a recycle center
- Create a deconstruction permit
- Partner with non-profit organizations to divert edible food for human consumption
- Develop a food waste composting pilot program.

Each of these items is expanded upon in this section and is expected to reduce waste in addition to accomplishing their established goals.

5.2 REUSE PROGRAMS

5.2 – RECOMMENDATIONS FOR IMPLEMENTATION BY CITY

- EXPLORE REUSE CENTER OPTIONS WITHIN CITY LIMITS
- REPORT ON REUSE CENTER FEASIBILITY IN CITY IN 2020

The City of Troy does not currently have a municipal or a public-private option for reusable material donation or disposal within the City. Reuse centers are different from recycling centers because the material is not being broken down and remade into something else, but rather sold as is. There are local restore centers and salvage yards run by local nonprofits and private companies.

Troy residents need a more accessible reuse center option in order to prevent reusable materials from entering the waste stream. The amount of bulk waste that residents

dispose of annually that could be repurposed or reused is costly, wasteful and abundant. Troy can make a significant reduction to the waste stream through reduced labor for cleaning up large bulk dumping and decreased tip fees. This will reduce the financial and environmental impact on the City. Additionally, this waste stream reduction will give taxpayers access to a secondhand market to provide multiple life cycles to usable goods before they become waste.

A reuse center is an opportunity for public-private partnership. The City does not have the financial resources to launch its own at this time, but the need for such an enterprise is apparent. The development of a reuse center, coupled with the incentive-based pricing changes discussed later in this section, will offer residents a low cost or no cost option for disposal of large usable items.

Development of a Troy reuse center should be prioritized because of the financial, environmental, and public benefit that would be achieved. The research and development of a reuse center should be analyzed and prepared for the City in conjunction with the Solid Waste Advisory Board to be presented at the first annual reporting update in 2020. In addition, partnering with established restore centers that take donated goods should be encouraged by the City in order to immediately reduce our waste stream. This could be accomplished through a public-private partnership at the Alamo site.

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Explore Reuse Center Options within City Limits and Generate a Report on Feasibility in 2020 Update

i. Administrative/Technical

- a. *Quantitative and qualitative impacts* - The bulk waste quantity was 1791 tons in 2017. If a quarter of this was reusable, 400 tons would have been diverted from the landfill stream into a second hand market. As a qualitative note, the option should also reduce the incorrect disposal of bulk material on Troy streets.
- b. *Facility or program needs based upon the projected quantities and composition of waste* – The Solid Waste Advisory Board will need to convene, research, and report on this over a two year period. This report will expand on necessary requirements.
- c. *Summary of the cost data used for evaluation including life cycle analysis* – The Solid Waste Advisory Board does not receive financial payments, so the cost of this report will be nothing. The life cycle of the analysis will cover the rest of this planning period (2020-2028).
- d. *Impact or effect on natural resource conservation, energy production and employment creating opportunities* – The creation of the report will not impact any conservation efforts, energy production or employment opportunities. It will tie the public into the process through the Solid Waste Advisory Board and the resulting reports recommendations

should have positive impacts on resource conservation and employment creation opportunities.

- ii. Jurisdictional Impacts – neighboring planning units and municipalities effect on or how it affects them
 - a. *An assessment of interest in participation by other planning units* – Municipalities and planning units have not shown any interest in participating in the report. The resulting report's reuse center should garner interest from neighboring municipalities and planning units.
 - b. *Alternatives that would be available if planning units participated* – In the event of planning unit partnership on the report, it would increase the stakeholders at the table for location discussions.
 - c. *Comments and recommendations received from any neighbors* – None at this time.
 - d. *Assessment of the environmental justice impacts within the planning unit*- None at this time. An environmental justice component will be a part of the recommended report.

7) Selected Alternatives

- i. *Alternative chosen and reason why* – A report on a reuse center would not have been able to be produced quickly and without error in time for this plan. With the creation of a Solid Waste Advisory board, as per this plan, using the public board to create a report was deemed the best option.
- ii. *Detailed description of procedures for implementation* – Over 2019, the board will meet monthly to go over the details of the report. In 2020 January – March, the report will be finalized and in April 2020 it will be generated.
- iii. *Identification of expected qualitative and quantitative impacts* - See above.
- iv. *Assessment of the impact of the proposed recyclables recovery effort* – See above.
- v. *Identification of the administrative, financial and contractual requirements for this program's implementation* – The recycling coordinator will be required to sit on the board and assist in the report creation process. Beyond the labor, this report does not have any financial or contractual requirements.
- vi. *Identification of any new or modified laws ordinances or regulations that may be required to fully implement the alternative* - The report does not require any changes to current laws. The Solid Waste Advisory Board does require a law change which is attached.

Article VI

Solid Waste Advisory Committee

Sec. 247 — 20. Establishment of Citizens Solid Waste Advisory Committee.

At the direction of the Mayor a Solid Waste Advisory Committee shall be established. Committee will be composed of six residents of the City who are not employees of the City who are appointed by the Mayor and/ or such other City employee having specific knowledge of solid waste issues. The resident members will serve without compensation. The Mayor will appoint a City employee member to sit on the committee to act as a liaison.

Sec. 247 - 21. Chairperson. Terms of Office and Rules.

The Committee members may select a Chairperson by a majority vote. Two members of the Committee shall be appointed to four year terms, two members to three year terms and two members to two year terms. Each member shall be able to serve additional terms if willing to do so and if reappointed by the Mayor. The committee may establish its own rules.

Sec. 247 — 22. Responsibilities and Duties.

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The Committee shall be responsible to conduct annual reviews of the design and implementation of the City of Troy's Solid Waste Management Plan and to provide recommendations and advice to the Mayor and City Administration for the improvement of the SWMP and its' implementation as the Committee deems appropriate in connection with the annual updates. The Committee shall also be responsible to assist in the preparation and drafting of the next Solid Waste Management Plan to be issued in 2029 and to conduct the annual review process thereafter with respect to that plan. The Committee shall also provide advice and recommendations to the Mayor and the City Administration regarding various solid waste issues that may arise and that are not covered in the Comprehensive Recycling Analysis.

Sec. 247 — 23. Assistance of City Departments.

The committee through its Chairperson may request and shall be entitled to the assistance of various City Departments and shall be provided with information necessary and relevant in order for the Committee to perform its responsibilities with respect to the long term Solid Waste Management Plans and other solid waste issues.

Sec. 247 — 24. Reports.

The Committee will provide an annual report at a minimum to the Mayor regarding its review of the implementation of the Solid Waste Management Plan including any unforeseen problems associated with such plan. The Committee will provide a draft bi-annual report to the Mayor intended to be submitted to the State. The Committee may provide additional interim reports as it deems appropriate regarding the Solid Waste Management Plans or other solid waste issues.

- vii. *The inclusion of actions to be taken to maximize of economic markets of recyclables recovered* – The report will not require any actions. The report itself will address this question in relation to a reuse center
- viii. *Identification of the public education and related programs undertaken for implementation-* The report will not require any actions. The report itself will address this question in relation to a reuse center

5.3 RECYCLABLE RECOVERY PROGRAMS

5.3 – Recommendations for implementation by city

- monitor international recycling changes – Annual reports to city in each year of plan
- explore regional solutions to managing recyclable materials
- research and report on a modernized recycling collection system in 2024
- monitor and expand as needed textile recycling pilot program

- Consideration of re-opening the Alamo in 2020 as a full recycling center with proper state approval

5.3.1 International Recycling Changes

In January 2018, China, the largest global importer of recycled materials, implemented a .5% contamination rate limit across all imported recyclable material. This unexpected change in material restrictions had a significant and immediate impact on the global market, causing countless tons of recyclable materials to build up on boats, in ports, and in recycling centers worldwide. This backlog of material resulted in buyers having their pick of clean material and leaving contaminated material to stockpile.

Single Stream Recycling (SSR) is a convenient way of collecting recyclable materials without the demands of source separation. It also eliminates the visual inspection of each bin for contamination at its source. This has resulted in a higher average national contamination rate in SSR, compared to other sorted recyclables. SSR is the “dirtiest” type of material and is first to experience backlogs due to decreased demand in international markets. As a result, municipalities invested in SSR programs have or will begin to experience dramatic changes in the availability of buyers, as well as significant cost increases to provide SSR services.

The waste and recycling industry in the United States is seeking new solutions to the current market problems. It is likely major industry stakeholders will establish recyclable processing centers nationally for recycled materials in the future. However, there will be a period where other markets must fill in the void left by China. It is during this period that there is the most uncertainty. The duration of this period is unknown, which makes for difficulties in planning. However, the City of Troy is using this period as an opportunity to explore alternatives to the current system with the same interest that was given to SSR. Alternative services like composting, C&D recycling, reuse centers and waste reduction initiatives are given a front seat for consideration and implementation.

Shifts in the global recycling market do not mean that recycling will end. Neither speculation, nor abandonment of recycling systems will benefit the situation. The City of Troy is fortunate and appears to be protected from dramatic pricing impacts of local SSR changes. The City’s contract which establishes it as a designee through the TLDC with County Waste, the entity that operates the transfer station, guarantees a zero dollar (\$0) tip fee for recyclables through their lease term ending in 2024 with two opportunities for renewal. This gives the City a minimum of 5 years to implement alternatives changes in SSR outlined in this plan and continue to monitor changes in the SSR markets locally, regionally, and nationally.

The City will develop reports annually, as required by the DEC’s CRA stipulations, which will also outline the SSR situation. While the need to modify approaches to recycling will not go away, it is not a problem that the City of Troy faces alone. The City should

explore a regional approach to solid waste. Aside from the economies of scale to be realized through the consolidation of recycling efforts, areas of New York State that have active regional solid waste authorities or agencies were not as impacted by these international changes.

These recommendations should assist the City at least through 2024 to achieve its stated objectives. Though the duration of the period of uncertainty in the recycling industry is unknown, the City has ample time to monitor, prepare and carefully plan for the situation.

5.3.2 Recovery Programs (Paper, Metal, Glass, Plastic and Textiles) and Recycling Center

The City has provided the collection of recyclables since 2001. The City has two recycling trucks that serve residents; the vehicles are over 10 and 15 years old, respectively, and both require significant maintenance and upkeep. With uncertainty in the global recycling market expected to continue, any overhaul of Troy's municipal recycling collection system should be undertaken carefully. Research into a modernization of citywide SSR collection was underway in early 2018. The City will ensure the development of a plan that can be modified to navigate the new and rapidly changing markets. A new modernization plan of recycling collection will be researched and reported on in 2020.

A pilot textile recycling program was launched by the City in July 2018. Four containers were placed strategically around the City, in the Eastside, South Troy, Downtown, and Lansingburgh neighborhoods. The program is still in its infancy and no data has been generated yet. However, through education and outreach the expectation is to be able to increase the number of available textile containers. By supplementing the other textile donation programs throughout the local area, the City aims to increase awareness and access to the bins for residents. This will have the desired effect of diverting textiles from the waste stream.

The City currently utilizes the Alamo site as an exempt municipal transfer station to handle bulk waste, yard waste, scrap metal, electronic waste and tire recycling. The Alamo was historically open to the public for the disposal of waste and recyclable material, but does not currently provide effective site management or proper oversight. The reopening of the Alamo as a transfer and processing center for recyclable materials, compliant with NYSDEC regulations would be a great benefit to the City's solid waste management program.

The reopening of the Alamo to the public on a regular schedule with a site plan, NYSDEC approval, and proper management is a process which the city is currently exploring for viability. The major cost to the City would be the purchase of the site from the TLDC. The most recently appraised value was \$115,000. The purchase of the Alamo site does not have to occur before the recycling center opens. There will be no new equipment needed for the site and, at present, no major facility updates are required to reopen the site.

If the Alamo is opened to the public, NYSDEC requires that the site be staffed during public hours. The site is currently staffed with a HMEO, but not on a regular schedule. The City will be considering the purchase of the Alamo site from the TLDC within the next 4 years.

To ensure state compliance (as well as for reasons of ethics and environmental stewardship), available recycling options on site must be expanded because source separated recycled materials are still considered a commodity. It is also an opportunity to create employment opportunities, both in the materials separation sector and the sales of such commodities. Unlike SSR, the City should incur no additional costs. The diversity of these recycling options will be based upon the 2019 recyclable markets. Minimally, the items to be considered for acceptance here will include: sorted paper products, cardboard, glass, plastic, bulk plastic, electronic waste, tires, yard waste, and scrap metal. The City will make the determination of materials collection based on margin and viability. Any materials not processed by the City will continue to be handled by County Waste or other recycling partners. The benefits of owning this site may be even greater when considering other potential uses outlined in this section.

The City must monitor the SSR markets and maintain the current program with two major updates on a two and four year time line with an emphasis on continuing the County Waste lease through another five years beyond 2024. The city is considering whether the location for the recycling programs, including electronic waste, tire recycling, scrap metal recycling, textile recycling, yard waste diversion, should remain at the Alamo (while purchasing the site from the TLDC), or moved to an alternative site; with the options of potential expansion of recycling options on site to include sorted paper products, cardboard, glass, plastic, and bulk plastic for public use.

The timeline for reopening the Alamo on a limited basis is currently unknown. Additional cleanup and consideration of other locations will be assessed first. If the City follows this recommendation, it will achieve one of the objectives of this plan: to establish a recycling center.

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Monitoring and reporting on external and internal recycling factors with reports issued in 2020, 2022 and 2024

Open a processing /transfer facility for recyclable materials with state approval for a limited basis, beginning in 2020 or early 2021.

iii. *Administrative/Technical*

- a. *Quantitative and qualitative impacts-* The reports will give the public regular data and updates on the status of solid waste and recycling in the City. This is type of regular information will be new to the City and should increase interest in waste, waste reduction and recycling. The Recycling Center will allow the public to drop off bulk waste, recyclables (metal, plastic, paper and e-waste), and yard waste. By adding this facility,

the City can capture the 1700 tons of bulk material, much of which is usable furniture, and increase the recycling rate by incrementally decreasing the MSW amounts.

- b. *Facility or program needs based upon the projected quantities and composition of waste* –The Solid Waste Advisory Board (SWAB) will need to continue and develop reports in collaboration with the City. The recycling center will utilize a pre-existing waste facility, the Alamo, and work with the State to have any necessary permits to open it to the public on a limited basis in the first two years.
- c. *Summary of the cost data used for evaluation including life cycle analysis*- There are no costs associated with the reports as the SWAB does not get paid. The recycling center will not cost extra to run as the city employee staffing the facility is already present to manage city waste on site. As the recycling center grows and brings in more material, more investment can be made into the facility at the discretion of the City.
- d. *Impact or effect on natural resource conservation, energy production and employment creating opportunities*- The reports will not have any effect on natural resource conservation or energy production. They will not have a direct impact on employment creation; however, the experience of such a committee may increase desirable traits for a person seeking a job. The recycling center will not create any energy or immediate employment opportunities. It might increase employment opportunities if the City decides to expand hours of operation and increase labor on site.

iv. *Jurisdictional Impacts – neighboring planning units and municipalities effect on or how it affects them*

- a. *An assessment of interest in participation by other planning units* – No assessment was conducted of interest by other municipalities – it will be explored in the reports.
- b. *Alternatives that would be available if planning units participated* – More materials flowing through the recycling center could increase the revenue available to the City to increase the services the center offers.
- c. *Comments and recommendations received from any neighbors* – None.
- d. *Assessment of the environmental justice impacts within the planning unit* – There are not any negative environmental justice impact created by either of these two alternatives.

7) *Selected Alternatives*

- i. *Alternative chosen and reason why* - Monitoring recycling markets and developing annual reports was chosen due to the need for greater information in regard to changes in the recycling “climate”. Opening up a recycling center within the City for no immediate costs seems to be a simple straightforward option without placing financial burden on the City or taking years to develop a larger solution.
- ii. *Detailed description of procedures for implementation*- Once the Solid Waste Advisory Board is convened in 2019, the research and reporting will commence. The reports will be issued in 2020, and annually, beyond. The recycling center will need to have a site plan on file with the City and the State. In addition to this any permits, registrations, and exemptions need to be identified for what materials can be handled at the site. Finally, an operating schedule will need to be set up before opening.
- iii. *Identification of expected qualitative and quantitative impacts* – See above.

- iv. *Assessment of the impact of the proposed recyclables recovery effort* – The recycling center will give the public a secondary option for recycling beside curbside pickup for greater separation choices.
- v. *Identification of the administrative, financial and contractual requirements for this program's implementation*- The Solid Waste Advisory Board will conduct the research and reports. The Sanitation Bureau, within the Department of Public Works, will handle the recycling center, with one of the heavy operators acting as the on-site contact and the recycling coordinator acting as the on-call contact and fill in.
- vi. *Identification of any new or modified laws ordinances or regulations that may be required to fully implement the alternative* – None.
- vii. *The inclusion of actions to be taken to maximize of economic markets of recyclables recovered* – This will be addressed after usage is taken into account of the recycling center. *Identification of the public education and relations programs undertaken for implementation* – The reports will increase public education and relationship with solid waste as they will give the recycling coordinator the opportunity to continue to provide information to the public on a regular basis. The recycling center will act as a public relations program simply by being open and available, showing the City is committed to recycling and waste reduction.

5.4 ORGANICS RECOVERY PROGRAMS

5.4 – Recommendations for implementation by city

- partner with local non-profit organizations to establish food gleaning programs to recover usable food for redistribution and human consumption
- maintain clean mulch and compost product
- expand food waste drop off program at location to be determined
- partner with an established composting vendor to test viability of managing a small-scale aerated static pile facility until such point as the city is able (with qualified labor and/or qualified volunteer facilitators) to manage and process the organic materials from intake through output.
- pilot food waste collection program in 2021
- explore regional solutions for food waste over planning period

The City does not currently have a municipal organics recovery program. To supplement community and privately offered programs, the following recommendations are proposed:

The City will develop viable partnerships with local non-profit organizations and agencies to assist in the development of food gleaning programs. This will divert food for its highest hierarchical level: human consumption.

The City has been collecting yard waste and brush from the residents for decades. This material accumulates annually and is mulched and hauled away.

Locations for a proposed compost facility are currently in exploratory phases. Once enough information has been collected, the most prudent location will be determined. This

site is not expected to accommodate much material in the pilot and early phases of the testing; however, it is important to test operation and management before expansion. This test will be conducted over the course of 2020 and 2021. If this is a successful pilot, and a clean mulch and compost product can be manufactured, the City can begin a pilot collection program for SSO to begin in 2021.

The reason for what might appear to be an extended timeline for the implementation of a food waste recycling program pilot in Troy is that SSO collection programs require processors to accept the collected material. The lack of food waste processing locations like compost facilities or anaerobic digesters is the greatest limiting factor to the collection process. Therefore, it is important that material can be processed internally in order to maintain a municipal collection program.

If the manufacturing of compost and mulch is successful between 2020 and 2021, the location can become a registered facility which would allow for the acceptance of the maximum quantity of material. Currently, after grinding, there are approximately 2,000 yards of material. Based on the testing, this could result in the acceptance of up to 500 yards of food waste annually or approximately 10 yards of food waste per week at the site. Based upon industry averages of household generation of food waste, a site could handle a pilot SSO collection program of 250-400 households. A Pilot for these households would operate until other food waste processors are started or established. A report outlining an expansion will be presented at the second annual update in 2021.

The expansion of food waste processors locally would be beneficial not only to the City of Troy, but also the region. A regional approach to food waste management, in conjunction with other solid waste practices, would diversify the options for local municipalities when it comes to best practices in “reduce, reuse, and recycle.” Rather than all local municipalities relying on a single large processor of a single type of material, a network of regional food waste processing facilities could potentially manage the total amount of organic waste produced in the City of Troy and the Capital Region. The single regional processor approach has led to problems like the Albany landfill price escalations at County Waste’s material recovery facility. A diverse regional approach will ensure that Troy has access to food waste processors in the future.

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Collect and process yard waste from the City internally into mulch and compost, expanding to include food waste drop off and eventual food waste collection into this process.

v. *Administrative/Technical*

- a. *Quantitative and qualitative impacts-* The creation of a yard waste processing area through mulch and compost is intended to eventually create an avenue for food waste to be used as a feedstock and to increase the size of the facility to take in non-municipal

yard waste. These eventualities will have direct impacts on the waste stream once they are implemented.

- b. *Facility or program needs based upon the projected quantities and composition of waste* – The anticipated needs of this program will be in a location to be determined after complete comparisons of benefits and challenges have been assessed. Other materials needed for the program to be implemented are already on site or owned by the City, including a loader. The addition of the food waste drop off would require further oversight relating to managing the process. The eventual collection of food waste and usage of the site as such will require further permitting or registration with the DEC and either private partnership for the collection or investment in collection vehicles.
 - c. *Summary of the cost data used for evaluation including life cycle analysis*- The compost and mulch plans will not incur any additional costs since the movement of yard waste in unground form was always part of the work requirements of the heavy operator at the designated location. The eventual expansion of services to food waste collection will require analysis by the Solid Waste Advisory Board (SWAB) to give exact cost data. Food waste drop off by the public at the designated location for composting will not cost anything, but will require additional labor by the heavy operator to the amount of one hour per day open to the public.
 - d. *Impact or effect on natural resource conservation, energy production and employment creating opportunities*- This recommendation will not have immediate impact on energy production or employment opportunities. It does create opportunities for natural resource conservation related to yard waste and food waste streams and the introduction of local compost and mulch into the City. In the future, the food waste diversion and collection alternative will create employment opportunities. Exactly how many will be discussed in the report by the SWAB.
- vi. *Jurisdictional Impacts – neighboring planning units and municipalities effect on or how it affects them*
- a. *An assessment of interest in participation by other planning unit*– No assessment was conducted.
 - b. *Alternatives that would be available if planning units participated*- If other planning units participate in the alternative, a larger facility would be needed, but would also be justified.
 - c. *Comments and recommendations received from any neighbors* – None
 - d. *Assessment of the environmental justice impacts within the planning unit* – Increased access to edible food, clean mulch and compost may allow people who have not had prior access to this food availability, clean soil in their yards to begin gardening and learning about these processes and remediating soils that have not had quality materials added to them in a number of years.

7) Selected Alternatives

- i. *Alternative chosen and reason why* – See above
- ii. *Detailed description of procedures for implementation* – A site management plan will be worked on in collaboration with NYDEC by Spring of 2021
- iii. *Identification of expected qualitative and quantitative impacts* – See above.

- iv. *Assessment of the impact of the proposed recyclables recovery effort* – The expansion of yard waste operations through a mulch/composting program should increase the future likelihood of this collection program continuing. It also allows the opportunity for the City to manage some food waste drop off and future collection processes. These all tied in together can account for over a quarter of the waste stream if implemented citywide. Although this alternative does not address a citywide approach, but it is the beginning of a program that could become one.
- v. *Identification of the administrative, financial, and contractual requirements for this program's implementation* – The Sanitation Bureau within DPW, specifically the recycling coordinator, will oversee the implementation of this project. Financially, the program will not cost anything more. However as it moves along, it will cost additional labor to expand the program if desirable. Contractually, it will not require any until a pilot food waste collection program is deemed doable. This is expected to be decided on by the City and the SWAB in 2022.
- vi. *Identification of any new or modified laws ordinances or regulations that may be required to fully implement the alternative* - None.
- vii. *The inclusion of actions to be taken to maximize of economic markets of recyclables recovered* - The expansion of operations outside of the City and its residents can maximize potential economic markets of the recyclables. Allowing private and other municipalities to pay the City to drop off yard waste or food waste at the site, if the site can handle it, would maximize the economic market.
- viii. *Identification of the public education and relation programs undertaken for implementation*- Having an in-house mulch and compost facility opens the opportunity for the City to tour the site with the public and have demonstration days to educate the residents and others on the process of composting, mulching and food waste/yard waste management.

5.5 C&D REDUCTION INCLUDING DECONSTRUCTION, REUSE AND RECOVERY PROGRAMS

5.5 – RECOMMENDATIONS FOR IMPLEMENTATION BY CITY

- CREATE DECONSTRUCTION PERMIT
- ESTABLISH FIRST TIME HOMEBUYER C & D EDUCATION PROGRAM
- CREATE DATABASE OF ALL RECYCLING, REUSE, SALVAGE AND DECONSTRUCTION SERVICES

The City of Troy does not currently have any construction and demolition recycling. Many successful municipal guides exist for C&D recovery and recycling. Because the City of Troy has no preexisting C&D recycling infrastructure, it will be important to establish protocols for this recycling method. Construction and demolition debris is a constant element in a legacy city like Troy. Whenever the City's unique architectural history and building materials can be salvaged or recycled, they should be. This can be facilitated through a C&D recycling facility and expanded deconstruction education. The EPA has found that "[if] residential housing designed from 2000 to 2050 allows for the recovery of just 25% of construction debris, the resulting material would be enough for nearly two-thirds of the housing units built over the following 50 years."

Deconstruction permits give contractors the opportunity to take apart a building to sell, recycle, or landfill parts in individual pieces instead of landfilling an entire building through demolition. It is recommended that the City create a deconstruction permit that is cheaper than the current demolition permit. Adding this permit will educate contractors and property owners who are unaware of the deconstruction option. The end goal is to achieve a construction and demolition recycling rate, separate from SSR. Due to low utilization rates, the City has no C&D recycling-related data. Once hauler permits are updated and enforced, the City can begin capturing C&D data which will allow for analysis to establish baseline recycling rates. Syracuse, NY has a deconstruction permit and RFP that should be considered when the City develops its own C&D program. The timeline for creating the deconstruction permit should be the end of 2019. A deconstruction request for proposal, in addition to a demolition request for proposal, will take more time to research and should be done before the 2021 bi-annual update fulfilling the related objective of this plan. The goals of these RFP's are to create an option other than demolition that results in materials being recycled and reused.

First-time homeownership is growing in the City of Troy. C&D deconstruction and salvage opportunities are not properly taught to residents or future residents who attend first time home buyers' workshops. Working with first time homebuyer programs on a C&D education program will give the City the opportunity to educate potential buyers to proper recycling techniques for construction debris.

Related to this, an online resource of all available C&D recycling, salvage, and deconstruction services will be published by the City. This clearinghouse should include all recycling, reuse, and reduction services available within the region. This clearinghouse should be finished before the end of 2019, with annual updates to add or remove information as needed.

Establishing a recycling and C&D recycling clearinghouse and creating first time homebuyer education surrounding deconstruction fulfill the objective of this plan related to increased public outreach and education. Achievement of this objective will be explored with local non-profit partners such as TRIP, CEO, TAUM, and others.

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Creation of a deconstruction permit, C&D education program and an online database for C&D recycling services

vii. *Administrative/Technical*

- a. *Quantitative and qualitative impacts-* The three alternatives will not have immediate quantitative impacts. They will, however, increase awareness of what construction and demolition recycling and reuse options are available in the City. In doing so, this should

eventually have a quantitative impact, which will be measurable after these steps are taken.

- b. *Facility or program needs based upon the projected quantities and composition of waste* – The deconstruction permit will be modeled after the Syracuse permit and will just require a verification program to ensure the permit is being used for deconstruction. The education and database will be created by the recycling coordinator and will not need anything except regular offerings and updates.
 - c. *Summary of the cost data used for evaluation including life cycle analysis-* None as there is no financial investment required. The cost impact or savings from these programs will be collected over the planning period.
 - d. *Impact or effect on natural resource conservation, energy production, and employment creating opportunities-* There is no expected energy production, however, there would be employment *opportunities created by implementation of this objective*. The diversion of construction and demolition debris from the landfill is expected to have a positive impact on the local reuse market for resource conservation.
- viii. *Jurisdictional Impacts – neighboring planning units and municipalities effect on or how it affects them*
- a. *An assessment of interest in participation by other planning units* – No assessment was done.
 - b. *Alternatives that would be available if planning units participated-* The alternatives chosen do not require planning unit participation. The database will feature all available vendors from across many planning units.
 - c. *Comments and recommendations received from any neighbors-* None.
 - d. *Assessment of the environmental justice impacts within the planning unit-* The impact of this type of permitting would establish a baseline of safe and required handling of materials in locations which had no such protections previously.
- ix. *Selected Alternatives*
- i. *Alternative chosen and reason why-*The three alternatives listed above were chosen in order to increase awareness of construction and demolition reuse and recycling. Taking this initial small step of creating a permit, homeowner education courses, and an online database of services seems simple, doesn't cost anything, and would increase awareness.
 - ii. *Detailed description of procedures for implementation* - In 2019 and 2020, the database and the C&D education will begin. Both will become available before the end of 2021. The form of education will either be in online information or courses, community meetings, webinars, or other outreach options facilitated and promoted by the recycling coordinator, the Solid Waste Advisory Board and affiliated partners. The deconstruction permit will be created and enacted in 2020. It will use the Syracuse permit as an example.
 - iii. *Identification of expected qualitative and quantitative impacts* - See above.
 - iv. *Assessment of the impact of the proposed recyclables recovery effort* - The hope is that by increasing awareness of the alternatives to landfilling construction and demolition debris, the debris will not become waste at all and will enter into the reuse market. The effects of these

alternatives on the construction and demolition stream will not be known until the end of this planning period.

- v. *Identification of the administrative, financial, and contractual requirements for this programs implementation* - The Sanitation Bureau and the recycling coordinator will oversee the education and the database. The deconstruction permit will be issued through the City Clerk's office in collaboration with the recycling coordinator.
- vi. *Identification of any new or modified laws ordinances or regulations that may be required to fully implement the alternative* - Regulation changes will be made to current demolition permits in 2020, so they will be more expensive than the new deconstruction permits.
- vii. *The inclusion of actions to be taken to maximize of economic markets of recyclables recovered* - The reuse alternatives in 5.1 will assist in the maximization of the economic markets related to the alternatives suggested.
- viii. *Identification of the public education and relation programs undertaken for implementation*- The online database and the C&D education will both act as education and public relation programs. The recycling coordinator will oversee the implementation of these programs as part of accomplishing this objective before the end of 2021.

5.6 INCENTIVE BASED PRICING

5.6 – Recommendations for implementation by city

- consolidate all solid waste collection procedures under City Code Ch. 247
- issue annual tip fee outlining acceptable bulk collection items and disposal costs
- create base hauling fee for bulk collection based upon yardage and items
- create sanitation fund to separate waste costs and revenues from general fund
- develop and implement hybrid p.a.y.t. system: 2020 report, 2021 implementation
- eliminate solid waste management fee sunset clause with potential reduction of fee upon implementation of PAYT

5.6.1 City Code 188 and 247 – Bulk Pricing Adjustments

Chapter 247 of the City Code addresses solid waste and municipal collection. In Part 188: Littering, the code covers collection of bulk materials. This section does not clearly outline the system for bulk material collection. As such, it should not only be moved to 247, but also be rewritten to provide a clear outline of how the City collects bulk material, an explanation of the services it offers, and related costs.

NYSDEC recommends exploring the concept of incentive based pricing for solid waste management. This is based upon the S.M.A.R.T. method of waste reduction (Save Money and Reduce Trash) outlined in NYSDEC's 2009 "Beyond Waste" State Solid Waste

Management Plan.¹⁰ It is recommended that the City adjust its bulk collection as follows to incentivize waste reduction and reduce solid waste costs.

The City will issue an annual tip fee sheet, outlining the cost of disposal for all waste items with pricing adjusted based on market conditions. Each item will have a tip fee attached to it. The starting list will consist of: 30 gallon contractor bag, single bulk refuse items, appliances with Freon, appliances without Freon, 30 gallon bag C&D, tree debris above 3 feet in length and 12 inches in diameter, and tires (with and without rim). There will be separate categories for: electronic waste, household hazardous waste, and propane tanks. The goal of itemizing this list annually is to increase awareness of the actual costs of disposal related to each item. The intention of tip fees is that all of the above material will be accepted at the listed price, whether handled at a city-run site, or hauled to an alternate site. This is the least expensive option of disposal for tax payers.

The next least expensive option will be to schedule a bulk collection at a residence with the City DPW dispatcher for a hauling fee based upon the amount of material collected. The price will be a hauling fee based on the yardage plus the tip fee schedule. The hauling fee will be adjusted annually on the tip fee schedule. Establishment of a clear hauling and tip fee procedure for waste collection fulfills objective 4 related to enforcement of illegal dumping and trash violations outlined in City Code Chapter 188. If a bulk collection is not scheduled with the City, it will be considered a first offense violation. A violation fee will be attached to the tip fee and the hauling fee.

All of these procedures will provide property owners with a clear and consistent system to allow for the collection of bulk material by the City. The City will continue to offer free collection days of certain materials like household hazardous waste, electronic waste, scrap metal and more. The City may choose to offer a free bulk collection service for either a scheduled month or day. These recommendations should assist in the fulfillment of the objective of this plan to create clear solid waste processes.

5.6.2 Sanitation Management Fee and Sanitation Fund

In 2000 and 2012, two separate reports were issued concerning the City of Troy's solid waste situation – one regarding municipal composting, the other outlining the benefits of PAYT. Both of these reports recommended the removal of solid waste costs from the general taxes to delineate the exact costs of solid waste disposal to the taxpayer. The City of Troy complied with these recommendations in late 2017. A Sanitation management fee was established in 2018. The law has a sunset clause of 1 year.

¹⁰Beyond Waste: A Sustainable Materials Management Strategy for New York State New York Department of Environmental Conservation, December, 2010, https://www.dec.ny.gov/docs/materials_minerals_pdf/frptbeyondwaste.pdf

It is recommended that the solid waste management fee remain in place as a permanent funding source for sanitation and a stepping stone to Pay as You Throw, in accordance with NYSDEC and other previous recommendations. This sanitation management fee will continue to increase public awareness of the cost of municipal solid waste collection and serve as a foundation for the establishment of a PAYT system.

In addition to keeping the sanitation management fee in place it is recommended that the City set up a separate fund for sanitation. This sanitation fund will account for all related solid waste expenses and revenues. By establishing such a fund, the future of solid waste will become financially stable and ensure that Sanitation operates outside of the General Fund. The department is in serious need of large equipment upgrades. The establishment of a separate fund will ensure that these large capital investments will occur as necessary rather than relying on consistently deteriorating collection vehicles that are over a decade old for critical collection services. Additionally, potential future tip fee revenues and recycling savings can be made more transparent in the Sanitation fund.

These recommendations are in the best interest of the Sanitation Bureau and the property owners in order to ensure the City continues to reduce MSW and increase recycling rates, while properly managing its waste collection department. The creation of a separate sanitation budget fund, continuation of the SWM fee, and streamlined billing procedures will assist in the fulfillment of the objective of this plan to create clear processes for the City and property owners and to increase appropriate participation in the collection process.

5.6.3 Pay As You Throw (PAYT)

The PAYT model of solid waste collection has been recommended to the City in conjunction with the sanitation management fee. The success of PAYT systems is evidenced in both the State and in the Country. PAYT systems reflect an equal and fair method of waste disposal that bases costs on actual volumes or weight.

There are two primary methods of PAYT systems. One refers to a bag system through which a municipality only collects solid waste that is put out in a specific type of bag designated by the municipality. These waste bags are sold in various locations within the municipality. The sale of bags covers the cost of waste collection for the entire municipality. The City of Utica, NY currently utilizes a hybrid PAYT bag system, where they are billed an annual solid waste management fee and pay per bag.

The other primary PAYT system refers to a volume-based method which utilizes carts. In this system every property owner is given the opportunity to utilize a select size of cart for their specific needs. The carts vary by size – as small as 13 gallons and as large as 96 gallons. The size of the cart that is serviced weekly indicates the waste costs. The property owner is able to change their cart size based on trash volumes. Buffalo, NY, and San Francisco, CA currently utilize a hybrid of this cart-based PAYT method, where they are

billed an annual solid waste management fee and pay a different annual fee per cart used depending on the size of the cart.

From a collection and management standpoint, the differences between these two types are drastic and involve very different forms of investment. There are many examples of municipalities that have found success with PAYT systems that should be reviewed for research. The prior separation of the SWM fee has positioned the City for the implementation of a hybrid PAYT program.

The City should develop and implement a PAYT system for its residents to create fair and equal costs for property owners related to solid waste services. This process will involve a full cost-benefit analysis of all types of PAYT systems, including how each would operate within the City of Troy and potential costs of implementation. The breakdown and analysis, together with delivery of a subsequent report and decision, will occur in 2019 and possibly into 2020, with implementation of the selected PAYT system during 2020, or early in 2021.

Regardless of which system is ultimately chosen, a hybrid PAYT system creates incentive-based pricing while passing along potential savings through reduction in the volume of solid waste disposal. This methodology separates out costs into an annual sanitation management fee and PAYT costs. The sanitation management fee covers capital expenses, the cost of hauling material, debt services, and other fixed expenses.

The PAYT fees are intended to cover variable costs, the tip fees, and fluctuating costs in the recycling marketplace. In this way, the PAYT fees can fluctuate annually based upon usage, changes in waste costs, and savings based upon recycling. The hybrid PAYT system will ensure that sanitation is properly funded while allowing for the fair and equitable cost allocation and potential savings to be shared by property owners.

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Bulk collection tip fee schedule, sanitation fund, and Pay as You Throw research/report with implementation

x. *Administrative/Technical*

- a. *Quantitative and qualitative impacts* - These alternatives will have a quantitative impact of reducing the city's solid waste stream. Incentivizing waste reduction through financial means reduces waste. The exact numbers are not known, but will be discussed in the Pay as You Throw report. The quality of the City's solid waste program is also expected to improve as the City will be properly funding its sanitation department and "extra" services will be priced accordingly.
- b. *Facility or program needs based upon the projected quantities and composition of waste* – There are no facilities needed to implement these alternatives. The program needs are

related to public education and internal management of the new system. The Solid Waste Advisory Board will be convened regularly in 2019 in order to finish the report on Pay as You Throw in a timely manner.

- c. *Summary of the cost data used for evaluation including life cycle analysis* - There is no cost data related to these alternatives at this time. There are no known costs in implementing the programs besides changes in labor practices and associated revenue from these changes. The unknown costs associated with this analysis are dependent on the type of PAYT system selected.
- d. *Impact or effect on natural resource conservation, energy production and employment creating opportunities*- There are no effects on natural resource conservation, energy production, or employment opportunities related to these alternatives.

8) *Jurisdictional Impacts – neighboring planning units and municipalities effect on or how it affects them*

9) *An assessment of interest in participation by other planning units.* - Neighboring planning units were not consulted regarding these alternatives.

- e. *Alternatives that would be available if planning units participated*- These alternatives do not lend themselves to partnering with planning units, until an expansion of recycling collection systems is made.
- f. *Comments and recommendations received from any neighbors*- None
- g. *Assessment of the environmental justice impacts within the planning unit* - The PAYT program will address its own environmental justice impacts.

10) *Selected Alternatives*

- i. *Alternative chosen and reason why*- The alternatives are: issue an annual tip fee schedule that outlines the costs associated with non-regular waste collection and disposal (bulk collection), creation of a sanitation fund, and to research, report on and implement a hybrid pay as you throw system within the City. They were chosen as they assist in the financial stabilization of the solid waste system in Troy, while making the public aware of the costs of solid waste for the City in order to reduce the amount of waste being thrown out and, through that, the costs of solid waste services.
- ii. *Detailed description of procedures for implementation*- The tip fee schedule and sanitation fund will both be implemented January 1 2019. Starting on that date, the policies related to sanitation funding within the City and the method of billing for bulk collection and how much it costs will all be adjusted. The pay as you throw alternative will be researched and reported on in 2019. Before the end of 2020, a decision will be made on what pay as you throw method is best for Troy. This method will then begin implementation in 2020 and 2021. The SWAB will perform the research and give their findings to the City for the report.
- iii. *Identification of expected qualitative and quantitative impacts*- See above.
- iv. *Assessment of the impact of the proposed recyclables recovery effort* – The bulk collection program is anticipated to increase the awareness of waste sufficiently to encourage the use of recycling centers and reuse programs. The PAYT program, when implemented, will also reduce the overall amount of material destined for the landfill. The report will predict the expected reduction based upon participation.

- v. *Identification of the administrative, financial, and contractual requirements for this program implementation-* The sanitation fund will be the responsibility of the comptroller's office as it is purely financial management. The tip fee schedule will be issued and managed by the Sanitation Bureau. The department will collect more data related to bulk collection. There are no contractual requirements with either of these alternatives. The pay as you throw program will require a large administrative and financial change when it is implemented. The extent of this will be researched and reported on by the SWAB in 2020.
- vi. *Identification of any new or modified laws ordinances or regulations that may be required to fully implement the alternative –* In order to implement the tip fee schedule, the sanitation fund and the pay as you throw program, the Troy City Code will need to be updated. The pay as you throw report will make recommendations as to the way the new law will be worded in 2020. For the sanitation fund and the tip fee schedule, the laws will have to be changed to allow for the methods to be used. This will have to be done in 2019 for implementation in 2020 and 2021.
- vii. *The inclusion of actions to be taken to maximize economic markets of recyclables recovered –* The tip fee schedule will include certain recyclable materials at a cost or for free, depending on the current state of recycling markets., Tthis will adjust annually. The pay as you throw program will also account for the cost of recycling and compost collection in the report.
- viii. *Identification of the public education and relation programs undertaken for implementation-* In order to properly implement the bulk collection changes, a public relation program will have to be undertaken in 2019 & 2020. The recycling coordinator will have already met with the necessary neighborhood groups to discuss the Solid Waste Management Plan including these recommendations. More will have to be done to reach a greater audience.

5.7 WASTE DISPOSAL OPTIONS

Waste disposal options such as landfilling within the city limits and combustion are not selected alternatives to the current system. The recommendation is to maintain current plans related to waste disposal options through the planning period (2019-2028).

Administrative/technical impact

a. *Quantitative and qualitative impacts -* These alternatives would not have a quantitative impact on reducing the city's solid waste stream

b. *Facility or program needs:* None, this option is not being utilized

- h. *Summary of the cost data used for evaluation including life cycle analysis -* There is no cost data related to not using these alternatives at this time.
- i. *Impact or effect on natural resource conservation, energy production and employment creating opportunities-* The likely effects to non-utilization of these options would be improved solid waste handling and a greater diversion percentage.

Jurisdictional impact

- xi. *Neighboring planning units and municipalities effect on or how it affects them*
- An assessment of interest in participation by other planning units.* - Neighboring planning units were not consulted relating to these alternatives.
 - Alternatives that would be available if planning units participated-* These alternatives do not lend themselves to partnering with planning units at this time.
 - Comments and recommendations received from any neighbors-* None.
 - Assessment of the environmental justice impacts within the planning unit* - None.

5.7.1 Municipal Solid Waste (MSW)

Significant investment and upgrades are necessary to ensure the City can continue to provide reliable solid waste services to the public. The following recommendations are made for MSW services:

- The City should continue to replace old equipment with new equipment at the optimum frequency relative to maintenance, operating, and capital costs. Data to support the replacement frequency should be documented. Examples from other municipalities should be available as a reference.
- The City should make available to residents, property and business owners clear information regarding all existing, proposed, and enacted waste and recycling processes. Information should be provided regularly and frequently and in various formats, including through traditional media and City-managed communication platforms. Given the large rental population, public outreach must go beyond property owners alone to reach the transient population in order to be effective.
- The City should create maximum weight and volume limitation rules for MSW collection from properties using municipal collection. These rules will help establish a maximum amount of waste a property owner can put out for collection by municipal services.

5.7.2 Bulk

Recommended changes to bulk collection have been outlined previously in this section. The City should continue to make the necessary equipment upgrades in accordance with the current capital plan in order to handle the changes in bulk collection which will be critical in the future.

5.8 ENFORCEMENT PROGRAMS

5.8 – Recommendations for implementation by city

- fill litter patrol officer (LPO) position
- advocate public's role in reporting violations

- explore technology to ease reporting and create transparency and accountability
- require property addresses be visible at solid waste collection areas
- explore housing court creation to expedite solid waste violation processes

In conjunction with the articulation of clear cost and collection processes, the City of Troy must implement new rules governing the enforcement of MSW violations. The litter patrol officer is a position which has been vacant for over a decade. In order to ensure the efficacy of the new procedures, this position will need to be recreated and filled before the end of 2019. The litter patrol officer must have the same regulatory authority as a code officer, but will work within the Sanitation Bureau. Staff tasked with enforcing trash violations must work with Sanitation employees in order to maintain constant communication. Drivers and laborers generally witness most violations first and are able to discern patterns of violations in areas across Troy, e.g. alleys routinely utilized for illegal dumping or improper waste disposal practices.

The public will also serve an important role by participating in the process of reporting violations in their neighborhood and near their homes. This will work only if the public understands how to report a violation and that they must contact DPW to have certain materials collected to avoid a violation. A second litter patrol officer must be hired if violations warrant more enforcement. The timeline for update on control of violations will occur during the 2020 update.

There are a variety of additional tools available to municipalities which empower the public to take a greater role in reporting issues in their community. These technologies help cities identify and resolve a variety of reported issues more quickly while providing internal ownership of each problem. Platforms like *SeeClickFix*, *CitySourced*, *City View* and *Citizen Connect* allow the public to engage with the City on neighborhood issues, while expanding accountability for City staff to resolve reported violations, and generate valuable data for use by the municipality to analyze for future improvements to services.

Further assistance is needed to make positive changes to the City's solid waste enforcement policies; the following recommendations are made to achieve this objective:

- The City should require that home addresses be visible wherever solid waste is collected. This ensures that the solid waste can be correctly identified with the property when a violation is issued.
- The City should invest in a streamlined and transparent form of reporting and enforcement. There are existing technologies, mobile apps, and programs that allow residents to report solid waste violations and other problems to the City publicly.
- Although not specific to solid waste, it is recommended that the City explore the possibility of establishing a dedicated housing court to expedite adjudication and payment of solid waste-related violations.

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Fill and maintain the litter patrol officer position and utilize technology to ease reporting and increase the public's role in reporting violations.

xii. *Administrative/Technical*

- a. *Quantitative and qualitative impacts.* -The LPO will be the first major enforcement measure the City has taken toward its waste stream in the last 20 years. There is no data available related to current enforcement. These alternatives will both create waste enforcement and collect data through the reporting technology to allow for insights to quantitative and qualitative impacts on the waste stream. Expectation is that recycling numbers will increase and violations/fines will increase.
- b. *Facility or program needs based upon the projected quantities and composition of waste.* -The alternative needs no new facility. The new technology will require staff training and the LPO will go through regular code training. Neither of these requires facilities or new programs.
- c. *Summary of the cost data used for evaluation including life cycle analysis.* -The funding for the LPO employee was taken from a foreman who retired in 2018 and was not going to be replaced. The increased annual cost of the technology services is expected to be covered by the increase in issued violations and fines. Both are expected to be paid out throughout the planning period without changes in expenses.
- d. *Impact or effect on natural resource conservation, energy production and employment creating opportunities.* -The LPO is a new job. Other than this singular job, no other natural resource conservation, energy production, or employment opportunities will be created with these alternatives.

xiii. *Jurisdictional Impacts – neighboring planning units and municipalities effect on or how it affects them*

Other planning units were not consulted in regard to these two alternatives, There are no local .planning units that are expected to either benefit from or provide alternatives to these two recommendations.

xiv. *Selected Alternatives*

- i. *Alternative chosen and reason why.* - Litter Patrol Officer and public reporting technology were chosen as the alternative because there are currently no formal solid waste enforcement programs and creating a formal single person to handle all enforcement is key. Additionally, tapping into available reporting technologies to manage all issues increases accountability to the public and responsiveness.
- ii. *Detailed description of procedures for implementation.* -The City anticipates that the litter patrol officer position will be filled in by the end of 2019 with the technology also chosen and in startup phase in late 2019.
- iii. *Identification of expected qualitative and quantitative impacts* -See above.

- iv. *Assessment of the impact of the proposed recyclables recovery effort* - Enforcement is expected to reduce waste and increase recycling as materials that are commonly disposed improperly can be disposed of through recycling streams.
- v. *Identification of the administrative, financial, and contractual requirements for this programs implementation.* -The litter patrol officer will report to the Sanitation Bureau and will cost the city in total salary and benefits of \$60 to \$70,000 per year. However, a foreperson position that was retired in 2018 and it paid similarly is not being filled going forward. The position is also expected to increase revenue from fines and violations. The technology is budgeted for at \$19,000 annually and is expected to also increase revenue from fines and violations to cover this added expenditure.
- vi. *Identification of any new or modified laws, ordinances or regulations that may be required to fully implement the alternative.* -None needed.
- vii. *The inclusion of actions to be taken to maximize economic markets of recyclables recovered.* -The litter patrol officer will develop strategies for maximizing recyclables in collaboration with the recycling coordinator.
- viii. *Identification of the public education and relation programs undertaken for implementation.* -The technology implemented will have public notices tools distributed through email, app notifications, and smartphone notifications. This will increase public participation and public relations related to all things solid waste and more.

5.9 EDUCATION AND OUTREACH

5.9 – Recommendations for implementation by city

- maintain recycling coordinator position throughout planning period
- increase number of recycling events offered annually
- expand education and outreach opportunities outside of annual events
- publish map of solid waste collection zones on website

In 2018, the City hired a recycling coordinator to assist with public education and outreach associated with MSW and SSR services. Maintaining this position will be critical moving forward to increase participation in alternative waste streams like SSO, create a recycling center drop-off facility, and expands recycling events, programs, and other educational opportunities. The City should offer three expanded opportunities for public outreach and education.

First, the City should expand the number of annual recycling events. Currently, the City offers one large Household Hazardous Waste event annually in the fall. Historically, this event allowed 300 people to come and pre-register for two months ahead of the event. The event was advertised online and with a press release to all media outlets. The event pre-registration fills up annually. As per the recommendations related to incentive-based pricing and creation of a city recycling center, there will need to be a charge for certain materials that the public believes are picked up for free.

Expanding recycling events that offer free or less expensive options for disposal of material allows for easier handling by the City as well as reduced costs and more consistent availability for residents. Some of the programs currently offered, like Household Hazardous Waste Day, can be offered twice per year with the assistance of available NYSDEC funding grants. This will enable costs to be split over several events, allowing for increased usage without increasing costs for the City.

Offering a regular electronic collection day provides residents a free option to dispose of e-waste without incurring the updated tip fee rate. The number of recycling events should go to two annually in 2019, then up to four annually by 2024, if deemed necessary and of value. The viability of four events annually should be evaluated with recommendations for future increase or decrease of recycling event usage.

Second, the City should expand their public outreach and education opportunities. Outreach should be conducted regularly and annually, and should be separate from recycling events. The development and implementation of frequent public education opportunities by the recycling coordinator is a positive step. Additionally, participating in regular public organization meetings such as Troy Zero Waste and scheduled neighborhood meetings will give residents direct access to have questions and concerns addressed in a timely manner.

Finally, the City should publish a map of collection zones on the City website. Making this information available online provides the public direct access to this information without the need to call the DPW dispatch. The addition of online resources will also fulfill the objective related to establishing clear solid waste collection processes.

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Maintain recycling coordinator position throughout the planning period and increase the number of events offered annually

xv. *Administrative/Technical*

- a. *Quantitative and qualitative impacts-* The recycling coordinator position is an integral connection from the City government to the community and in implementing this plan. Without this position, the implementation of the plan falls on the waste advisory board and onto anyone who would take on the work within the City. The quantitative impacts are going to be seen in the data collected and the annual solid waste reports the coordinator will produce. Qualitatively, having access to a specific person for all solid waste and recycling questions decreases this burden on other employees in the City. The number of recycling events offered annually will increase the amount of non-regular recyclable materials that are properly disposed of annually. Over time, the data from this will provide a clear picture of optimal event timing and numbers.
- b. *Facility or program needs based upon the projected quantities and composition of waste-* The recycling events traditionally have been held at the Alamo and the City will continue

to do so as it becomes a recycling center. The recycling coordinator does not have any facility or program needs.

- c. *Summary of the cost data used for evaluation including life cycle analysis*- The cost of a recycling event is currently budgeted. Until there are more events held, there is no exact cost per person available or data based upon type of material disposed. The recycling coordinator position also does not have any life cycle analysis done.
- d. *Impact or effect on natural resource conservation, energy production, and employment creating opportunities*- The recycling coordinator position is an opportunity for employment. The events hold a volunteer opportunity and an overtime possibility for current employees. There are no natural resource conservation or energy production impacts of these alternatives.

xvi. *Jurisdictional Impacts – neighboring planning units and municipalities effect on or how it affects them*

- a. *An assessment of interest in participation by other planning units*- No assessment available.
- b. *Alternatives that would be available if planning units participated*- If other planning units participate in the recycling events, the events will be bigger and more expensive, but also would accommodate a greater number of people.
- c. *Comments and recommendations received from any neighbors*- None.
- d. *Assessment of the environmental justice impacts within the planning unit* – There are several potential environmental justice impacts of the education and outreach objectives. Most importantly, this will empower and engage residents and businesses in areas of the city which have previously not had the framework in place to be part of these environmentally sustainable processes and practices.

7) *Selected Alternatives*

- i. *Alternative chosen and reason why*- Maintaining the recycling coordinator position and increasing the number of recycling events are the selected alternatives. Maintaining a position related to the implementation of this plan is critical to the implementation of this plan. Increasing the number of recycling events offered annually should be simple and straightforward while not costly at first.
- ii. *Detailed description of procedures for implementation*- The recycling coordinator position is currently filled and needs no implementation. The Household Hazardous Waste Day needs to be doubled and a citywide recycling/reuse event may be added,. Initially this will be done by halving the number of attendees and going to two events per year. After costs are ironed out, the number of events or attendees can be increased above two.
- iii. *Identification of expected qualitative and quantitative impacts* - See above.
- iv. *Assessment of the impact of the proposed recyclables recovery effort* – The recycling events are expected to bring in a greater variety of materials, especially after the recycling center is open to the public. This will decrease the demand for the basic services the event offers and will open them up to more people.
- v. *Identification of the administrative, financial and contractual requirements for this program's implementation*- The recycling coordinator is overseen by the Commissioner of General Services and the events are overseen by the recycling coordinator. The financial

requirements for these are the salary of the coordinator, which is partially paid for by the DEC, and the cost of the events. The cost of the events per attendee and by type of material are unknown at this time.

- vi. *Identification of any new or modified laws ordinances or regulations that may be required to fully implement the alternative* - None.
- vii. *The inclusion of actions to be taken to maximize of economic markets of recyclables recovered* - The recycling coordinator will maximize economic advantages of each recycling event each year.
- viii. *Identification of the public education and relations programs undertaken for implementation* - The recycling coordinator position is solely responsible for all public education related to recycling and will continue to expand the public relations surrounding recycling and waste reduction in the city. The recycling events offer an opportunity to connect with the attendees about recycling in the City.

5.10 DATA COLLECTION AND EVALUATION PROGRAMS

5.10 – Recommendations for implementation by city

- create annual solid waste report
- solid waste advisory board becomes permanent
- develop local and regional partnerships for data collection and evaluation

The City hired a recycling coordinator in 2018 to, among other things, assist in data collection, evaluation, management, and monitoring of all solid waste processes. This position will continue to fill in the many data gaps outlined in Section 2. The compilation of accurate waste information is critical to the future of solid waste planning in the City and for properly completing a Comprehensive Recycling Analysis as required by New York State. It is also recommended that an annual solid waste report be generated, with the assistance of the Solid Waste Advisory Board, encompassing an overview of the prior year of the City's solid waste services. This will serve to enhance the transparency sought throughout the process.

The Solid Waste Advisory Board should be established as a permanent board under City Code, the purpose of which is to advise the City on solid waste issues and to provide a resource throughout the analysis of new data. The Solid Waste Advisory Board's structure, roles and responsibilities should be outlined within the City Code. This will provide valuable insight and feedback that will improve the reporting and evaluation process of many future solid waste plans and allow for the implementation of recommendations within this plan.

Troy needs to research the development of improved regional and local partnerships for potential wider data analysis. In collaboration with local educational institutions, the city could provide relevant solid waste data for analysis through relevant educational programs. The City is only a part of the larger Capital Region waste stream. Being able to monitor annual trends over a larger scale will be not only important, but ultimately provide a

framework for future collaborations and be more cost effective and critical to the City's ability to do the best job possible for the taxpayers.

6 CRR-NY 360.11

Create a schedule for annual solid waste reports published by the City, create a permanent solid waste advisory board and develop regional partnerships for data collection and evaluation.

xvii. *Administrative/Technical*

- a. *Quantitative and qualitative impacts*- The quantitative impacts of these alternatives are not known. The indirect impact of the SWAB will be evaluated in the next plan. The qualitative impacts of these will be through public interactions and access to solid waste information. In the past, the city has not provided much information to the public in relation to solid waste. This change will alter the public's perception of waste for the positive.
- b. *Facility or program needs based upon the projected quantities and composition of waste*- No facility or program is needed for the alternatives. The recycling coordinator will handle the reports in collaboration with the committee, on which the recycling coordinator will sit.
- c. *Summary of the cost data used for evaluation including life cycle analysis*- There are no costs to these alternatives.
- d. *Impact or effect on natural resource conservation, energy production and employment creating opportunities*- There are no impacts on the natural resource conservation, energy production or employment creating opportunities from these alternatives.

xviii. *Jurisdictional Impacts – neighboring planning units and municipalities effect on or how it affects them*

- a. *An assessment of interest in participation by other planning units* - No assessment was conducted.
- b. *Alternatives that would be available if planning units participated*- If the planning units neighboring Troy participate, these alternatives will have to be rethought as they will require greater authority.
- c. *Comments and recommendations received from any neighbors*- None.
- d. *Assessment of the environmental justice impacts within the planning unit* – Determination of locations for the various initiatives throughout the city over the ten-year cycle of this plan will be done in a just and equitable manner, giving equal consideration to all districts within the city. As the plan is implemented and these initiatives are rolled out, there will be continued attention given to this work being done in an appropriate and diligent manner.

7) *Selected Alternatives*

- i. *Alternative chosen and reason why* - The City has chosen to create a schedule for annual solid waste reports to be published by the City, create a permanent solid waste advisory board, and develop regional partnerships for data collection and evaluation.

- ii. *Detailed description of procedures for implementation* - The solid waste reports will begin in 2020 in the spring and cover the year prior in solid waste. They will continue on an annual basis throughout the planning period. The Solid Waste Advisory Board, which assisted in the development of this plan, will become a permanent body as a committee and meet monthly throughout the planning period in order to assist in various solid waste related projects. Over the course of the planning period, regional data collaborations should be explored as needed. These do not have an implementation date.
- iii. *Identification of expected qualitative and quantitative impacts* – See above.
- iv. *Assessment of the impact of the proposed recyclables recovery effort* – There are no direct impacts from these alternatives; the indirect impacts are discussed in other alternatives. The regional data collaboration should evolve into a planning unit in which Troy can participate.
- v. *Identification of the administrative, financial, and contractual requirements for this program implementation* – The Department of Public Works will oversee the reports, the Solid Waste Advisory Board and the data partnerships.
- vi. *Identification of any new or modified laws ordinances or regulations that may be required to fully implement the alternative* – The Solid Waste Advisory Board will be put into law in the new 247 code part of the 2019 budget.
- vii. *The inclusion of actions to be taken to maximize the economic markets of recyclables recovered* – None related to these alternatives.

Identification of the public education and relation programs undertaken for implementation- The solid waste report will be an annual chance for the public to understand the solid waste scene from the year prior

5.11 HAULER LICENSING

The City currently mandates that waste haulers apply for permits annually with the City. The City Code has two separate sections pertaining to hauler permits: 234-4 and 247-5. These two sections are contradictory and neither permit has been created, implemented, or enforced. The City must rewrite these contradictory pieces and begin enforcing hauler permits in 2019. With the code changes, certain data requirements must also be met in order to increase the accountability of these haulers and provide the City with more information on internal waste generation.

Specifically, these new permits must require annual information and quarterly data updates. Additionally, to acquire a permit from the City, a hauler must provide proof of NYS Hauling Permit (in compliance with NYS code 364-4-1).

The recommended changes to required annual information are as follows:

- descriptions of vehicles that will be operating within the City limits and
- an annual permit fee
- Creation of possible opportunity for reduction in hauler permit fee if the hauler also signs a contract with the City.
- Creation of tiered permitting fees (dependent on the type of materials hauled).

The proposed quarterly data reporting requirements are as follows:

- amount of material hauled over the course of the quarter, by material type
- Name, address, other materials accepted, and operator information of the destination sites for materials hauled.

In the event that the quarterly data requirements are not met, a permit shall not be issued for the following year. Most municipalities require a hauler permit in some capacity to operate within the respective municipality. Data reporting is also required from private waste collection entities in order for municipalities to comply with data requirements to the State.

Hauler licensing is a consolidation of the code as it is currently written to allow for easier enforcement.

Selected Alternatives

- I. *Alternative chosen and reason why*- See above – Hauler licensing has not historically been enforced, in order to facilitate enforcement procedures, the code should be re-written.
- II. *Detailed description of procedures for implementation* – Re-written code will be presented to and adopted by the City Council before the end of 2019. All haulers known in the city will be notified in late 2019 and enforcement will begin in 2020.
- III. *Identification of expected qualitative and quantitative impacts* – The expected outcomes are increased data collection submission from the haulers. This will give the City a better grasp of the overall waste picture and allow for better quantitative and qualitative analysis.
- IV. *Assessment of the impact of the proposed recyclables recovery effort* – None apart from increasing awareness of potentially unknown recycling haulers.
- V. *Identification of the administrative, financial, and contractual requirements for this program's implementation*- The administrative aspects of this adjustment are minimal, consisting of managing the filings on an annual basis and contacting haulers. Financially, the implementation is expected to bring in revenue from the hauler permits on an annual basis.
- VI. *Identification of any new or modified laws ordinances or regulations that may be required to fully implement the alternative* – The modified law is attached below.
- VII. *Actions will be taken to maximize the economic opportunities of recyclables recovered-*

Identification of the public education and relation programs undertaken for implementation



Commissioner of General Services City Of Troy, NY
 433 River Street
 5th floor, Suite # 5001 Troy, NY
 12180

Application is hereby made to the Commissioner of General Services for the issuance of a commercial hauler's permit, pursuant to (code and chapter) of the Troy City Code. This code requires any person, firm or corporation be permitted in order to engage in the business of collecting and transporting solid waste, bulk waste, post-consumer organic materials, post-consumer recyclable materials for disposal (including but not limited to: single-stream recyclables, construction and demolition debris, scrap commodities and textiles) within the City of Troy, NY.

A separate permit shall be required for persons, firms or individuals performing deconstruction work. The deconstruction permit shall require comprehensive reporting of quantities of materials re-purposed, recycled and disposed.

This application must be submitted annually fifteen days before the last business day of the month of January. Each application made is good for a period of one year. Permit may be obtained in the City Clerk's office. Failure to comply with this requirement will result in loss of permit and violation fees to be incurred.

All permit holders will be required to fill out quarterly collection reports and file them with the Commissioner of General Services. These reports must include types of materials collected, weight/ volume of material collected and location where the material is disposed of each quarter. If the reports are not filed within 30 days of the end of the prior quarter, the permit will be revoked. The permit can be reinstated if the agency provides the required data. A new permit will not be issued the following year until the agency becomes compliant with data reports.

The applicant shall file with his/her application a certificate or affidavit of insurance, also naming the City of Troy as an additional insured on a non-contributing basis, executed by representatives of a duly qualified insurance company, evidencing that said insurance company has issued liability and property damage insurance policies covering the following:

All operations of the applicant or any other person, firm or corporation employed by him/her in solid waste collection within the corporate limits of the City.

The disposal of such solid waste to and within the designated and approved treatment and/or disposal facility.

Protecting the public and any person from injuries or damages sustained by reason of carrying on the work of solid waste collection and disposal.

The certificate or affidavit shall specifically evidence the following amounts of insurance coverage, which shall remain in effect for the term of the permit, and shall provide that written notice shall be given to the City Clerk thirty days prior to any change in the conditions of the certificate or affidavit or any expiration or cancellation thereof:

- Commercial general liability and contractual liability on an occurrence basis with the following limits of coverage: bodily injury, property damage and personal injury, One Million Dollars (\$1,000,000) each occurrence/Two Million Dollars (\$2,000,000) general aggregate.
- Professional Liability/Errors & Omissions of at least One Million Dollars (\$1,000,000) each occurrence/Two Million Dollars (\$2,000,000) aggregate *(If applicable)*.
- Workers compensation insurance as required by law and including employer's liability insurance. Statutory disability benefits insurance as may be required by law.
- Comprehensive Automobile Liability coverage on owned, hired, leased, or non-owned autos with limits not less than One Million Dollars (\$1,000,000) combined for each accident because of bodily injury sickness, or disease, sustained by any person, caused by accident, and arising out of the ownership, maintenance or use of any automobile for damage because of injury to or destruction of property, including the loss of use thereof, caused by accident and arising out of the ownership, maintenance or use of any automobile.
- Commercial umbrella coverage of Five Million Dollars (\$5,000,000).

Each policy of insurance required shall be in form and content satisfactory to the City Corporation Counsel, and shall provide that:

- The insurance policies shall not be changed or cancelled until the expiration of thirty (30) days after written notice to the City of Troy

Corporation Counsel's Office.

- The insurance policies shall be automatically renewed upon expiration and continued in force unless the City of Troy Corporation Counsel's Office is given sixty (60) days written notice to the contrary.

No work shall be commenced under the contract until the selected proposer has delivered to the City or his/her designee proof of issuance of all policies of insurance required by the Contract to be procured by the selected proposer. If at any time, any of said policies shall be or become unsatisfactory to the City, the selected proposer shall promptly obtain a new policy and submit proof of insurance of the same to the City for approval. Upon failure of the selected proposer to furnish, deliver and maintain such insurance as above provided, this Contract may, at the election of the City, be forthwith declared suspended, discontinued or terminated. Failure of the selected proposer to procure and maintain any required insurance shall not relieve the selected proposer from any liability under the Contract, nor shall the insurance requirements be constructed to conflict with the obligations of the selected proposer concerning indemnification.

A permit may be refused or revoked if the applicant shall have been convicted of a misdemeanor or felony which in the judgment of the Commissioner renders the applicant an unfit or undesirable person or if the applicant shall fail to meet and/or demonstrate the ability to meet the requirements of this article to the satisfaction of the Commissioner, and from such a determination such permit may be refused or revoked by the City Clerk.

Conditions of obtaining a permit are as follows:

- all commercial collectors must file a plan setting forth the procedure, means and methods by which they will handle the materials
- make, model, VIN and license plate number of any vehicle being used for collection and transport
- document listing standard operating procedures used for transport, as well as method of disposal/removal
- permit number must be listed on the establishment's website, as well as visibly posted in any physical structure
- adherence to materials pick-up and roll-off/dumpster placement and removal requirements for allowed timing in the Downtown Business District: between the hours of 6:00am through 9:00pm
- as per ordinance 247.4 (addressing penalties for offenses) failure to follow this requirement shall result in the following punitive and increasing fines (for multiple failures) and eventual loss of permit:

(1) Any person violating any provision of this article shall be guilty of an offense and, upon conviction thereof, shall be punishable by the following fines:

Offense	Fine
1st	\$250
2nd	\$350
3rd	\$500
4th	\$750
5th	\$1000

(2)

A person or entity violating any provisions may also be punished by imprisonment of no more than 15 days.

(3)

Each day that a violation continues after the fifth offense shall constitute a separate offense punishable by the maximum fine set forth above and/or imprisonment of 15 days.

(4)

Payment for violation shall be remitted within 30 days.

(5)

A monthly interest charge of 3% shall be added to any delinquent violation charge.

This permit usage plan must be approved by the Commissioner of General Services prior to issuance of said permit.

Applicant/company name: _____

Additional stakeholders associated with same:

SS# or EIN: _____

Address: _____

Phone #: _____ Email: _____

Type of service (check all if applicable):

Residential: _____

Commercial: _____

In so making this application, the applicant agrees that if granted this permit, their respective company will conduct their business pursuant to the regulations set forth in (chapter/code) duly adopted by the City Of Troy, NY (date) as well as any amendments thereto. Should applicant fail to conduct their business thusly; violation fees shall be assessed, the fine amount dependent upon the significance of failure. Should further violations occur, said permit may be revoked forthwith.

The applicant also acknowledges the requirement that any hauler doing business in or through the city limits shall also submit quarterly reports stating the quantity of materials/commodities being hauled and the location of their disposal. As a (mandatory) verification of this requirement of this permit, current and past disposal destination reporting may be requested directly from the processing or disposal facility as deemed necessary by the City Of Troy, NY. A hauler not remitting this information may not be reissued a new permit.

In signing this application, applicant also agrees that any and all disposal facility reports, scale-tickets or other information pertaining to their materials processing may also be requested by the City of Troy, NY.

Further, the applicant agrees to pay all regular fees assessed for the use of any facilities in the City of Troy, NY, as well as any fees the City of Troy, NY may incur in handling or management of materials transported by said hauler. In the event that the applicant fails to make payment of these fees, the applicant agrees that any costs incurred by the City of Troy, NY in enforcing its rights, including but not limited to interest, penalties, court costs and attorney fees, shall be assessed to and collected from the applicant.

If applicant discontinues service in the City of Troy, NY, the requirements of said permit shall be revoked. Proof of discontinuation of service may be requested by the City of Troy, NY from applicant.

Date: ____

Applicant(s) signature: _____

Printed name(s): _____

Sworn before me this ____ day of _____, 20 ____

Notary public: _____

Submit this form and appropriate tiered payment for your annual hauler permit fee

\$200 if you are a small business with only one hauling vehicle

\$250 per truck if your business has between 2-10 trucks

\$225 per truck if your business has between 11-25 trucks

\$200 per truck if your business has over 26 trucks

To:

City of Troy, NY City Clerk

433 River Street, 5th Floor, City Hall, Troy, NY 12180

Upon receipt and processing of this application, a magnetic tag with a permit number will be mailed to you and will need to be visibly displayed on your vehicle any time it is within the city limits of Troy.

For official use only:

Application receipt date: _____ Fee attached: YES: _____ NO: _____

Disposal plan attached: YES: _____ NO: _____ Permit #: _____

Date issued: _____

5.12 PRIVATE SECTOR MANAGEMENT AND COORDINATION OPPORTUNITIES

Private sector management and coordination opportunities are not selected specific alternatives at this time. However, they are acknowledged as part of other alternatives. The City should periodically explore a public-private partnership when it comes to solid waste management. All factors should be considered when analyzing direct service costs associated with privatization of existing City services. SSO pickup, SSR, bulk, and MSW should all be considered separately. It is recommended to do this twice over a planning period or as new services is slated to come online.

5.13 MANAGEMENT OF WASTE THROUGH THERMAL TREATMENT TECHNOLOGIES

Management of waste through thermal treatment technologies is not a selected alternative at this time. The City should not invest in thermal treatment technologies for itself during this planning period. However, if they are brought from a private or public entity to the City the proposal should be considered. Thermal treatment technologies can have benefits to a municipality as long as the environmental impacts are insignificant. Partnership with other municipalities exploring this option of waste management should also be considered as they arise.

5.14 FLOW CONTROL

Flow control is not a selected alternative at this time. The City should maintain all State mandated recycling laws as they are written. Although flow control can be useful, the City does not have the infrastructure to handle more than it already mandates when it comes to recyclables.

5.15 GREEN PROCUREMENT

Green Procurement is not a selected alternative, but, it is recommended to ensure the current procurement policies are in line with the State's recommended guidelines. The City must become current with New York's Green Procurement guidelines. In 2008,

Executive Order 4 created a NYS Green Procurement and Agency Sustainability Program. It will be beneficial for the City to incorporate these recommendations into its contracts and procurement guidelines in the long term. Additionally, staying up to date on new specifications as they are issued by New York State will incorporate an environmentally friendly approach to the City's purchasing policies. By incorporating green procurement specifications, the City would purchase known reusable, recyclable, or compostable materials, rather than buying material that needs to be landfilled or disposed as hazardous waste. Green procurement procedures are easily measurable once established and have measurable impacts on the waste stream. The suggested timeline for implementing this

policy is 2020, before Solid Waste Advisory Board's first bi-annual update that year. This alternative is not expected to have a direct impact on the waste stream.

Section 6 – Implementation Schedule

The City should implement the recommendations in section 5 within this plans planning period of 2019 through 2028. Each subsection refers to a timeline within the discussion; if relevant each subsection has a timeline on the Section 6 chart. It should be noted that some of the recommendations have ambitious timelines. It is important that the City follow through despite this in order to achieve the objectives outlined in the Executive Summary before the end of the planning period.

It was previously noted that publication of this plan is the first step toward achieving compliance with New York State law regarding municipal solid waste management planning. This is the City of Troy's first CRA, produced in accordance with NYS guidelines. The City should adhere to all existing NYS laws pertaining to solid waste management.

This preliminary timeline does not yet delineate responsible parties for implementation. We will spend a portion of the first year of this plan making these determinations and assigning schedules to such.

Reporting for The City's first annual review (in 2020) will have a more detailed and complete timeline for the ten-year plan.

City of Troy Solid Waste Management Plan (2019-20128) - 10 Year Implementation Schedule										
Year	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Activity										
ReUse Programs										
<u>ReUse Center</u>										
Household Donation Options	On Going									
Research Center/Partnership Plan										
Plan Update	Report									
Recycling Programs										
<u>Monitor National Recycling Situation</u>	On Going									
Recycling Contract	Lease Up									
Bi- Annual Recycling Update	Update									
<u>Textile Recycling</u>										
<u>Household Hazardous Waste</u>										
Increase Annual Events	2 events per year									
Recycling Center	4 events per year									
PILOT - Open Alamo April - Oct.	Evaluation									
Update on Recycling Center										
Alamo Site Buy or Lease	Report									
Open Recycling Center (Year Round)										
Education & Outreach										
<u>Recycling Coordinator</u>	On Going									
<u>Increased Event Offerings</u>	2 events per year									
Hauler Licensing										
<u>Hauler Permit Law</u>										
Notification to Haulers										
Permit Solicitation										
Annual Notice/Data Requests	On Going									

City of Troy, New York

Solid Waste Management Plan (2019 - 2028)

City of Troy Solid Waste Management Plan (2019-20128) - 10 Year Implementation Schedule										
Year	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Activity										
Organics Recovery										
<u>Food Waste/ Source Separated Organics</u>										
Pilot Compost Piles										
SSO Drop off for Residents - Alamo - April -Oct										
Feasibility Study										
SSO Pick up Pilot- 2 years										
SSO/Food Waste report										
<u>Yard Waste</u>										
Create Separate Mulch and Compost piles										
Screen Material	On Going									
Open Alamo for Private Yard Waste	PILOT OPEN									
Registered Compost/Mulch Facility										
<u>Regional Approach</u>										
Develop Regional Food Waste Group	Research Regional Group									
Incentive Based Pricing										
<u>Solid Waste Management Fee</u>	On Going									
<u>Hybrid PAYT</u>										
Research types and applicability										
Implement Hybrid PAYT	Implementation									
Evaluation	REPORT									
<u>Bulk Pricing</u>										
Implement Clear Bulk Waste Pricing										
Alamo Furniture Donation	On Going									
Report	Report									
Waste Disposal										
<u>Trash Disposal</u>										
New Equipment Investment	On Going									
<u>Bulk Disposal</u>										
New Equipment Investment	On Going									

City of Troy, New York

Solid Waste Management Plan (2019 - 2028)

City of Troy Solid Waste Management Plan (2019-20128) - 10 Year Implementation Schedule										
Year	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Activity										
C&D Demolition, Reuse & Recovery										
<u>Deconstruction Permit</u>										
Generate a Deconstruction Permit										
City Deconstruction RFP										
Create an RFP for deconstruction										
Issue RFP for Demolition Jobs										
<u>Homeowner Education</u>	On Going									
<u>Salvage Yard</u>										
public-private opportunity research										
Salvage yard Opportunity Update										
<u>Recycling Clearinghouse</u>										
Online Database of Recycling and Reuse services	On Going									
Thermal Treatment Technologies										
<u>No Major Plans</u>										
Waste Reduction Programs										
<u>Green Procurement</u>										
NYC DEC Green Procurement Law-current	On Going									

City of Troy, New York

Solid Waste Management Plan (2019 - 2028)

City of Troy Solid Waste Management Plan (2019-20128) - 10 Year Implementation Schedule										
Year	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Activity										
Enforcement Programs										
<u>Litter Patrol Officer</u>	1 LPO	Update		2 LPO if needed						
<u>Address Visibility</u>										
Research Cost of Implementation										
Implement across City										
<u>Solid Waste Advisory Board</u>										
bi-annual updates		Update		Update		Update		Update		
Assist in New Plan (2029 Publication)								New Plan		
Data Collection & Evaluation										
<u>Recycling Coordinator</u>										
Annual Solid Waste Report	On Going									
<u>Collect Missing Data</u>										
Update Plan with New Data	On Going									
<u>Regional Approach</u>										
Research Possible Regional Options										
Join or Create a Planning Unit										
Flow Control										
<u>Maintain Recycling Mandates</u>	On Going									
Private Sector Opportunities										
<u>RFP for Services</u>										
RFP for Solid Waste Services for Comparison										
Explore ReUse Partnership Opportunities		Report								

City of Troy, New York

Solid Waste Management Plan (2019 - 2028)