

**Scarsdale Conservation Advisory Council**

# **Sanitation Study**

**December 2017**

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## Executive Summary

The Scarsdale Conservation Advisory Council (CAC) Sanitation Study was undertaken at the request of the Board of Trustees (Board) in order to review sanitation services in Scarsdale. The goal of the study was to identify service and operations improvements and ways to increase recycling and reduce the amount of waste going into the trash.

The CAC reviewed the current services and operations of the Sanitation Division of the Scarsdale Department of Public Works (Sanitation Department), reviewed and compared services and operations in comparable municipalities in Westchester, researched options for increasing recycling and reducing the amount of trash and evaluated the feasibility of each option for Scarsdale.

Based on our research, findings and collaborative work with the Sanitation Department, the CAC recommends the following three additions to sanitation services:

1. Increase the frequency of commingled and paper recycling pickup to once per week
2. Launch weekly curbside pickup of food scraps for recycling
3. Site a furniture donation container at the Scarsdale Recycling Center

The CAC believes these service additions will be welcomed by the community and will provide a meaningful impact to increase recycling and reduce the amount of trash sent to the County incinerator.

To implement these recommendations, two changes are required: (1) commingled recycling pickup will move to the curb; and (2) pickups that fall on a holiday will not be rescheduled in that week. Although it is possible to implement the recommendations without any change to existing services, the proposed implementation in this report allows us to provide residents with a higher level of services while avoiding a significant impact to the budget.

No changes to trash, bulk, yard waste or leaf collection services are being recommended.

The estimated impact to the operating budget is between \$13,000 and \$26,000, which represents the fees to dispose of food scraps at a composting facility, and is based on a 25% to 50% resident participation rate. The estimated capital investment cost of implementing a furniture donation container is \$3,500. The addition of weekly food scraps pickup and weekly recycling will not require any additional labor or capital costs. The ability to implement these three changes without additional staff or major capital expense is due to recent operational efficiencies made by the Sanitation Department and the proposed changes to commingled recycling pickup and holiday weeks. The recommendations in this report have been vetted by the Public Works Superintendent and Sanitation Department and can be implemented in early 2018.

To support the rollout of these recommendations, the CAC recommends that the Board formally charge the CAC to work with the Sanitation Department, through the Public Works Superintendent, to:

- Provide outreach and education to residents for the new and expanded services
- Support the Sanitation Department rollout of the new and expanded services
- Provide the Board with a follow-up report, 12 months after implementation of the new and expanded services, which reviews the impacts of the additional services
- Update and refine the sanitation future planning roadmap (provided in this report) based on the follow-up report

Scarsdale maintains one of the highest levels of sanitation services and recycling rates in Westchester County. The recommendations in this report will enhance and expand these services for our residents while further increasing recycling and reducing waste. The CAC is pleased to present the recommendations in this report that will benefit both our residents and our environment.

## Introduction and Overview of the Sanitation Study

At the request of the Board, the CAC has undertaken a study of sanitation services and operations in Scarsdale. The purpose of this study was to review the current state of sanitation in Scarsdale and determine whether any changes in services would benefit the community and municipal operations. The goal of the study was to identify service and operations improvements and ways to increase recycling and reduce waste going into the trash while ensuring that any changes would be operationally feasible and financially sound.

The CAC undertook a lengthy and detailed process to review the current state of sanitation services in Scarsdale, research opportunities to enhance our services and collaboratively develop an implementation plan with our Sanitation Department.

### Overview of the CAC Sanitation Study process

<b>I. Background Research</b>	Reviewed Scarsdale sanitation metrics and created a baseline of what types and amounts of waste are handled by the Sanitation Department
	Reviewed current and historical Scarsdale sanitation services and operations
	Reviewed sanitation services, operations and metrics of other similar municipalities
<b>II. Change Research &amp; Evaluation</b>	Researched options to improve sanitation services and operations, increase recycling and reduce trash
	Evaluated each option to determine which made the most sense for Scarsdale and was feasible to implement
<b>III. Recommendations</b>	Worked collaboratively with the Sanitation Department to develop an implementation plan for the recommended changes
	Issued this report with recommendations to the Board and recommended steps for implementation
<b>IV. Future Planning Roadmap</b>	Developed a planning roadmap for near-term and long-term implementation
	If the recommendations in this report are approved, the CAC recommends a follow-up report be submitted to the Board after 12 months

The following sections provide an overview of each stage of the Sanitation Study process and our findings and recommendations to the Board.

## Background

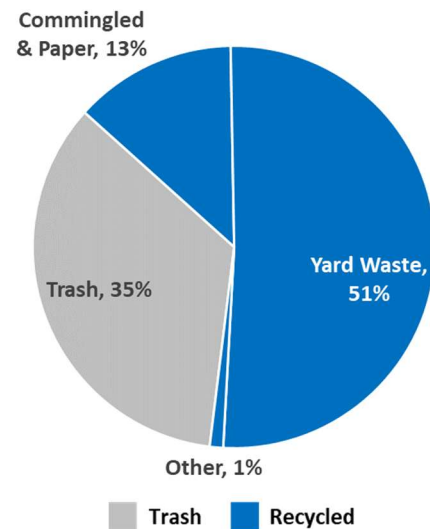
### Scarsdale Sanitation Metrics

*Data and metrics as the basis and starting point of the CAC study.* The CAC reviewed key current and historical Sanitation Department metrics to develop a baseline of the types and amounts of items collected and the changes in collection services that have been made over time by the Sanitation Department. This baseline was compared to the metrics of other municipalities in Westchester County as well as in greater detail to the municipalities which are most comparable to Scarsdale. These metrics inform the extent to which our current services need to stay aligned with what our residents currently dispose of and need to adapt to match residential disposal trends.

In 2016,<sup>1</sup> 19,092 tons of waste were generated by Scarsdale residents<sup>2</sup> and were handled by the Sanitation Department. This residential waste stream includes trash, commingled (plastic, metal, glass and cartons) recycling, paper recycling, yard waste, food scraps,<sup>3</sup> electronic waste, bulk metal and textiles. Of the 19,092 tons of total waste, 12,461 tons (65%) were recycled through one of Scarsdale’s recycling programs. This is the second highest overall residential recycling rate in Westchester County. Recycling programs include picked-up recyclables (commingled, paper, yard waste) as well as dropped-off recyclables at the Scarsdale Recycling Center (electronic waste, bulk metal, textiles and food scraps).

The 19,092 tons of waste can be broken down into the following categories:

- 6,631 tons of trash (35% of total)
- 2,491 tons of commingled and paper recyclables (13%)
- 9,765 tons of yard waste (51%)
- 205 tons of electronics, bulk metal and textiles (1%)



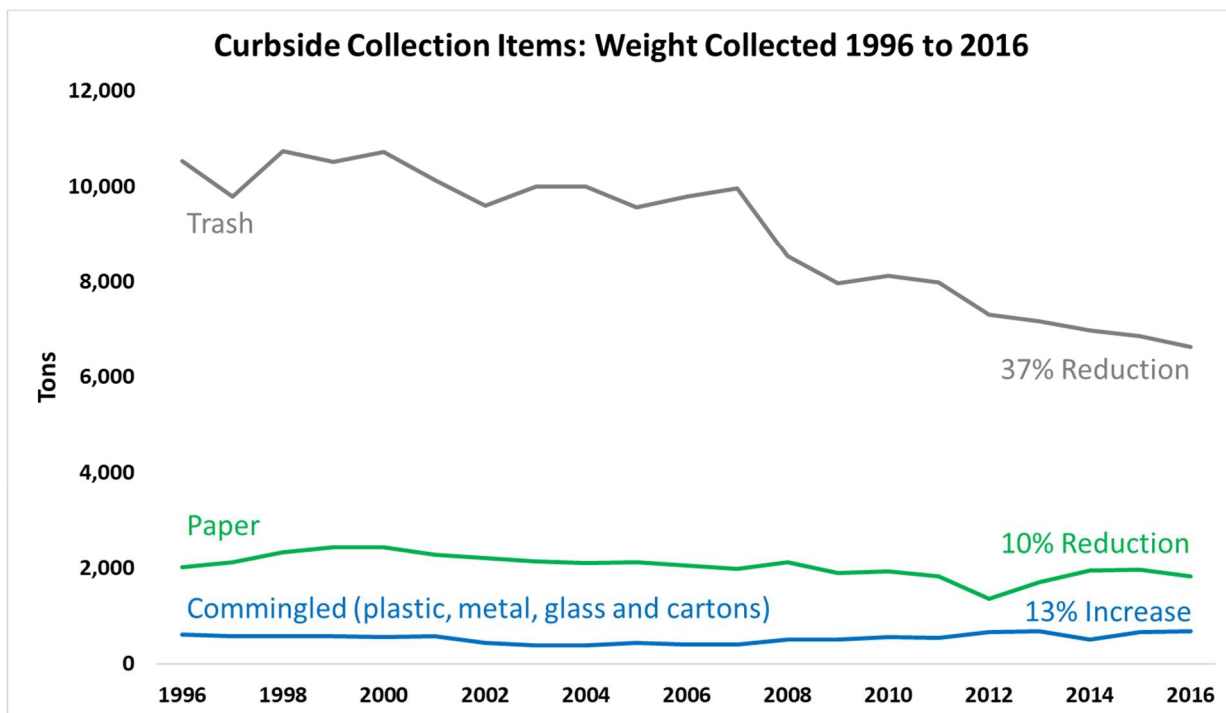
<sup>1</sup> 2017 year-to-date metrics are in-line with 2016 metrics

<sup>2</sup> Scarsdale also generates construction and demolition waste both from homeowners (e.g. renovations and new houses) and from the municipality (e.g. road repaving). This type of waste was not included in this study as they are handled by contractors and not directly through the municipality. It should be noted that our road millings are recycled into a Recycled Asphalt Product (RAP). RAP is then used in new asphalt application such as roads.

<sup>3</sup> Food scrap recycling was launched in 2017; For 2016 metrics, food scraps will appear within trash.

A deeper look at the numbers shows there's room for improvement in our recycling rate. Although Scarsdale has maintained one of the highest levels of total<sup>4</sup> recycling in the County, our recycling rate for commingled and paper lags behind some of our neighbors. In 2016, our total recycling rate of 65% was ranked second highest in the County while our recycling rate of 27% for commingled and paper was ranked eighth. The 65% total recycling rate is in large part driven by Scarsdale's high percentage of yard waste.<sup>5</sup> When considering the recycling rate, excluding yard waste, there is room for improvement by shifting more of the waste that currently is going into the trash into an existing or new recycling stream.

Trash has decreased significantly over the last 20 years. In addition to the increase in the percent of waste being recycled in Scarsdale, the amount of trash generated has decreased significantly over the last 20 years. Total trash in 2016 decreased by 37% since 1996 by weight. A significant portion of this decrease has occurred over the last 10 years with trash down 32% since 2006. The trend of reducing trash continues to the present day with an average reduction of 3.6% each year over the last five years.



<sup>4</sup> The total recycling rate includes commingled and paper, yard waste, bulk metal, electronic waste, textiles and food scraps

<sup>5</sup> Yard Waste consists of three main categories: brush (e.g. sticks, plant prunings, etc.), grass clippings and leaves. Leaves account for 4,652 (48%) tons of the 9,765 tons of yard waste. Although metrics for the weight of grass clippings disposed are not available, the Sanitation Department conducted a study of the number of homes that put out grass clippings for pickup. Approximately 55% of households put out grass clippings for pickup by the Sanitation Department.

*The volume of recyclables has increased over the last 20 years.* Commingled recycling has increased 13% while paper recycling has decreased 10% by weight over the last 20 years. The reduction in paper recycling weight is mostly due to the shift in the mix of items (e.g. fewer newspapers which are dense and heavy to more boxes which are light but bulkier) in this recycling stream and an overall reduction of paper as more documents are shifted to digital forms. The weight of many commingled items has also been reduced as packaging and containers increasingly shifts from heavier items such as glass to lighter items such as plastic. This shift is consistent with the observations of the Sanitation Department that the volume of recycling has increased over the years. Over the last 20 years the breadth of items that can be recycled has also significantly increased, especially since 2011 with the expansion of plastic recycling from types #1 and #2 plastic to all plastics #1 through #7 and 2016 with the introduction of carton recycling. Whether looked at by weight or volume, the percent of total waste these two recycling streams represent has increased significantly over the last 20 years.

*Waste is in the trash that can be recycled or donated.* However, even with our high level of recycling, Scarsdale still disposes of 6,631 tons of trash each year. This is over 40lbs per household every week, much of which can be recycled. Residential trash can be grouped into four categories:

1. Items that are recyclable in Scarsdale but are not being recycled (e.g. a can, bottle or food scraps thrown in the trash)
2. Items that are recyclable, but not in Scarsdale (e.g. cooking oil, batteries, etc.)
3. Items that could be donated (e.g. furniture)
4. Items that are not recyclable<sup>6</sup> or donatable (e.g. Styrofoam)

Addressing the above categories that are recyclable or donatable, as recommended in this report, will continue Scarsdale on its path of reducing our trash.

### Scarsdale Sanitation Services

*Service levels translate into recycling success.* The Scarsdale Sanitation Department provides one of the highest levels of sanitation services in Westchester County. In addition to providing a high level of service, the Sanitation Department is continually adding new recycling options, services and seeking operational efficiencies. The results of our sanitation services can be seen in the metrics; Scarsdale has one of the highest total recycling rates in Westchester. In 2016 Scarsdale had the second highest total recycling rate in Westchester at 65%. Over the prior five years, our total recycling rate has always been in the top four. However, there are areas where

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<sup>6</sup> While virtually any item is technically recyclable, for this report we will categorize as non-recyclable those items that either have no existing recycling program or cannot feasibly be recycled.

services could be enhanced to increase recycling and the level of service provided to our residents.

*Sanitation services provided to residents.* In Scarsdale, trash is picked up twice per week from the back of the driveway or near the house, yard waste is picked up weekly throughout the year, leaves are picked up in the fall without the need to bag them, bulk items are picked up weekly and a full-service recycling center is operated six days a week. Below is an overview of trash pickup for the 39 municipalities in Westchester that provide municipal sanitation services.<sup>7</sup> Scarsdale is one of only 11 municipalities that picks up trash twice per week at the back of the driveway or near the house.

<b>Trash Pickup Overview</b>		
2x per week	28	72%
Weekly	11	28%
<b>Total</b>	<b>39</b>	<b>100%</b>
House	13	33%
Curbside	26	67%
<b>Total</b>	<b>39</b>	<b>100%</b>
2x per week - House	11	28%
2x per week - Curbside	17	44%
Weekly - House	2	5%
Weekly - Curbside	9	23%
<b>Total</b>	<b>39</b>	<b>100%</b>

*Scarsdale’s recycling services can be improved.* The one area of sanitation where our service is below many of our neighboring communities is recycling pickup. Although Scarsdale offers back of the driveway/house pickup for commingled recycling, which is unique in Westchester, commingled and paper recycling are only provided every other week. In most other communities in Westchester (28 of the 39) recyclables are picked up every week. A key difference is that in other communities both commingled and paper recycling are picked up at the curb.

<sup>7</sup> Four municipalities in Westchester do not provide any sanitation services. In these municipalities - Bedford, Lewisboro, Pound Ridge and Somers – sanitation is contracted privately by residents.

## Recycling Pickup Overview

	<u>Commingled</u>		<u>Paper</u>	
Weekly	29	74%	28	72%
Every other week	10	26%	10	26%
1x per month	0	0%	1	3%
<b>Total</b>	<b>39</b>	<b>100%</b>	<b>39</b>	<b>100%</b>
House	1	3%	0	0%
Curbside	38	97%	39	100%
<b>Total</b>	<b>39</b>	<b>100%</b>	<b>39</b>	<b>100%</b>
Weekly - House	0	0%	0	0%
Weekly - Curbside	29	74%	28	72%
Every other week - House	1	3%	0	0%
Every other week - Curbside	9	23%	10	26%
1x per month - Curbside	0	0%	1	3%
<b>Total</b>	<b>39</b>	<b>100%</b>	<b>39</b>	<b>100%</b>

While Scarsdale does have one of the highest total recycling rates, if yard waste is taken out of this total our recycling rate falls to eighth in the County. While this is still a very good recycling rate, improvement can be achieved, and metrics point to weekly pickup as a driver for that improvement.

*Scarsdale Sanitation Department's history of service improvements and changes.* An important reason for Scarsdale's (and Westchester County's) high recycling rate is the continual updating of services throughout the years to meet the changing makeup of waste and desired services of our residents. Some of these changes occur at the County level and some are Scarsdale-specific programs. For example, in the first full year after Westchester County expanded plastic recycling to all plastics #1 to #7 (previously only #1 and #2 plastics were accepted), commingled recycling in Scarsdale increased 21%! Moreover, we are fortunate to have a Sanitation Department which is experienced in successfully implementing updated and new services.

Below is an overview of key sanitation service improvements:

- Addition of new items accepted in the recycling streams
  - Plastics coded 3 through 7 (2011)
  - H-MRF<sup>8</sup> (2012)
  - Cartons (2016)

<sup>8</sup> The H-MRF (Hazardous Material Recycling Facility) is a County facility located in Valhalla and accepts various household hazardous waste such as compact fluorescent bulbs, chemicals, propane tanks and other hazardous materials that cannot be disposed in the trash. The H-MRF is a dedicated facility that replaced periodic hazardous waste collection events hosted by the County.

- Addition of new items accepted at Scarsdale Recycling Center
  - Electronics (2004)
  - Textiles (2015)
  - Food Scraps (2017)

### Scarsdale Sanitation Operations

The Sanitation Department routinely analyzes its sanitation equipment and routes in order to most efficiently plan for collections. Over the years changes have been made to its fleet and routes in order to meet changes in resident usage and in what is accepted by the County. Likewise, this study has looked at the department’s equipment, fleet and routes, as well as budgetary considerations, in coming up with the recommendations herein. If the recommended service increases are put into effect, the CAC along with the Sanitation Department may need to reassess capital equipment needs, routes and process. Since the Sanitation Department is capital intensive with a long replacement cycle for equipment, decisions made today will impact future years. It will be imperative, after having evaluated the resulting metrics stemming from the recommendations of this report, to have a sanitation plan in place to guide any future capital investments. The CAC will make itself available to be part of that follow up study and planning stage with the Sanitation Department.

The primary capital equipment of this department are sanitation trucks and satellite vehicles used on the sanitation routes. As the fleet reaches its replacement cycle, consideration must be given to future plans for services when purchasing new trucks. Future capital plans are discussed further in the Recommendations section.

<b>Garbage Truck Inventory</b>					
<b>Truck No.</b>	<b>Use</b>	<b>Cab Age</b>	<b>Body Age</b>	<b>Mileage</b>	
103	Route	16	3	46,543	
104	Route	15	3	47,474	
108	Route	9	9	33,622	
109	Route	9	9	41,835	
112	Route	5	5	35,790	
114	Recycling Route / Spare	2	2	44,963	
106	Spare / Yard Truck	13	13	35,721	
110	Spare / Yard Truck	8	8	NA	
<b>Avg (All Trucks)</b>		<b>9.6</b>	<b>6.5</b>	<b>40,850</b>	
<b>Avg (Route Trucks)</b>		<b>10.8</b>	<b>5.8</b>	<b>41,705</b>	

In addition to the garbage trucks listed above, the Sanitation Department utilizes satellite vehicles to assist in picking up trash and recycling. Two types of vehicles are currently used: small three-wheeled one-person scooters (Cushmans) and pickup trucks with a refuse insert (Par-Kans). These satellite vehicles provide flexibility for our sanitation fleet. However, there

are certain downsides to these vehicles. The Cushmans are no longer manufactured and will need to be phased out as the current fleet retires. The Par-Kans have the benefit of a larger storage capacity than the Cushmans but are not as maneuverable as the Cushmans and are therefore not as quick picking up items at the back of the driveway. Both of these vehicles also require frequent trips to a larger garbage truck to dump their contents. During this dumping period the satellite vehicle spends time driving to and from the main truck and when dumping both vehicles are idle and not picking up from additional houses.

There are eight municipalities that outsource sanitation operations to private contractors. In these municipalities, the municipality contracts directly with the hauling company and residents still pay for sanitation services through taxes. Given that Scarsdale already has invested significant capital for its Sanitation Department operations, outsourcing operations is not a recommendation of this report. Maintaining operations by the municipality also provides for more flexibility to adjust services and operations as needed. If the Village or Board is interested in exploring outsourcing, this could be included as part of the 12-month CAC review and follow-up report.

## Change Research and Evaluation

### Options for Increasing Services, Increasing Recycling and Reducing Waste

After reviewing Scarsdale's metrics and services and comparing them to other municipalities, the CAC then researched and reviewed options to enhance services, increase recycling and reduce the amount of waste going into the trash. Options were explored related to operational, service and policy changes as well as education. While the primary focus was on ways to enhance services, increase recycling and reduce the amount of trash, the CAC also explored options for promoting reduction and reuse as these are even more preferable to recycling.

*Make it easier to recycle as the preferred method to increase recycling.* There are two predominant methods of reducing the amount of residential trash: (1) promote and make it easier for residents to recycle (or reduce, reuse or donate) which moves the items out of the trash into a recycling or another beneficial outlet; or (2) make it more difficult or expensive to throw out items in the trash. The CAC looked at options for both methods. While making it more difficult or expensive for residents to dispose of trash can have a significant impact on trash reduction, the CAC does not believe this method should be adopted for Scarsdale. Our community has a strong history of recycling and other reduction methods which can be seen in our historical metrics. We believe that by making it easier to recycle and by offering the option to recycle more items there will be a significant positive impact and that this method will be embraced by our community.

*Support local reuse and recycling.* When considering recycling options, the CAC also looked at various ways to increase local and on-site recycling and donation. For donations, we looked at methods for donating items to local non-profits that distribute items locally. For yard waste it is also preferable to increase on-site recycling<sup>9</sup> as it directly benefits our local environment.

## Evaluation of Options

*Improving services as the guiding principle.* Each option was evaluated against the guiding principles of improving services, increasing recycling, reducing the amount of trash and being operationally feasible and financially sound. Some of these options had been proposed within the last few years in Scarsdale such as changes to grass and leaf pickup. The public and Board discussion around these prior proposals was also considered in deciding whether it made sense to recommend such changes today. The CAC determined that the three recommendations in this report would provide the highest level of services to residents while also meeting the other guiding principles. Although many of the options are not being recommended in this study, the analysis and research herein can provide a planning roadmap for future service changes at a time when it may make sense for Scarsdale.

*Collaboration with Sanitation Department was imperative to recommendation development.* Importantly, the CAC met regularly and worked collaboratively with the Public Works Superintendent and Sanitation Department throughout this study to confirm the feasibility of each recommendation. All recommendations in this report have been vetted by the Public Works Superintendent and Sanitation Department and can be implemented in early 2018.

## Recommendations

Based on the findings of this study, the CAC recommends three changes to enhance Scarsdale's sanitation services:

1. Increase the frequency of commingled and paper recycling pickup to once per week
2. Launch weekly curbside pickup of food scraps for recycling
3. Site a furniture donation container at the Scarsdale Recycling Center

It is extremely exciting to be able to offer significant enhancements and new services to our residents with minimal impact to our budget and existing services.

*Summary of benefits of the additional service recommendations.* Weekly recycling will provide additional convenience to our residents while helping the Sanitation Department capture more of the currently recyclable items that end up in the trash. Curbside pickup of food scraps will make recycling food scraps much easier and open the program up to more residents who would

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<sup>9</sup> All yard waste collected by the Sanitation Department is recycled at a yard waste compost facility outside of Scarsdale. However, it is less expensive and better for the environment to recycle yard waste on the property where it was generated.

be willing to voluntarily participate if their food scraps did not need to be dropped off. The furniture collection container will provide residents a convenient way to dispose of unwanted furniture and household items to be reused and help those in need throughout Westchester.

*Minimal cost and changes.* These additional services can be implemented with minimal cost and changes to existing services. To implement these recommendations, two changes to existing operations are required: (1) commingled recycling pickup will move to the curb and (2) pickups that fall on a holiday will not be rescheduled to later in the week.

*Net benefit to residents.* Although two service changes are needed to implement these recommendations, residents will gain a significant increase and expansion in the total level of services received. With respect to bringing commingled recycling to the curb, this will match what is already done with paper recycling. Residents will also have a lighter load to bring to the curb each week and have less need for storage space for both commingled and paper recyclables. Regarding the change to pickup on holiday weeks, there are only 7 such holidays per year. As only half of the village is picked up on any particular day, the impact for each holiday will only be on half the village. Thus the total impact to a resident will only be on 3 to 4 weeks of the year.

*Sanitation Department efficiencies support the service additions.* The Sanitation Department is prepared to adjust their operations to increase recycling collection to a weekly schedule and to begin food scraps collection. Their ability to make these changes comes from implementing curbside commingled recycling, adjusting the holiday week schedule and other recent efficiency improvements. Although it was behind-the-scenes (since there was no change to services), the Sanitation Department revised their routes last year in an effort to increase the efficiency of the department. These new routes have been in place through 2017 and have made a meaningful impact on their operations which will help support the rollout of the additional services recommended in this report.

*Reasonable estimated financial impact of food scrap recycling program.* The addition of food scrap recycling will have an estimated impact on the operating budget of \$13,000 to \$26,000 due to the tipping fees for the food scraps. This range is based on a participation rate of 25% (1,400 homes) to 50% (2,800 homes) and is net of savings from the food scraps not being disposed as trash. Although a 75% to 100% participation rate is not expected within the first year of the program, even if participation did reach these rates the impact to the operating budget would only be \$39,000 at 75% participation to a maximum of \$52,000 at 100% participation.

*Estimated expense of furniture donation program.* The third recommendation, to add a furniture collection container at the Recycling Center through a partnership with Furniture Sharehouse, a local non-profit, will require a capital expense of approximately \$3,000 for the

container, and \$500 for signage. The pickup will be done by Furniture Sharehouse at no cost to Scarsdale and any furniture diverted from the trash will reduce our tipping fees. These items will be distributed by Furniture Sharehouse to individuals and families in need throughout Westchester.<sup>10</sup>

*The CAC to assist in program rollout, education and promotion.* Promotion, education and implementation of these changes is an important aspect of the proposed recommendations. The CAC can provide this support to the Public Works Superintendent and Sanitation Department. Included in any resolution of changes should be a formal charge for the CAC to work with the Sanitation Department on promotion, education and implementation.

*Concurrent adoption of recommendations is important for successful implementation.* It is important to note that the recommendations in this report are structured to be adopted concurrently and in conjunction with each other. Each change supports the recommendations as a whole and cannot be separated into individual changes without discussing other impacts such as costs.

### Why Weekly Recycling

*Convenience is key to recycling success.* Weekly recycling will provide our residents with a level of service that matches the rest of the Sanitation Department's best-in-class operations. Making recycling more convenient for homeowners by reducing the amount of space needed to store recyclables is expected to increase the amount of recycling by residents. In addition, the convenience of a weekly recycling pickup for both paper and commingled outweighs the convenience of back of driveway pickup solely for commingled recyclables. Weekly recycling also conveys to our residents the importance of recycling our waste over incinerating our trash.

*Alleviates residents' storage issues.* While many recyclable items have become lighter in weight (e.g. plastic containers instead of glass containers and more boxes than newspapers), these items have become bulkier. This causes both an inconvenience for our residents and increases the likelihood of some residents putting recycling in the trash when their recycling bins are full. Weekly pickup will alleviate this burden on residents and will likely increase recycling rates as a result.

*Reduces amount of recyclables handled weekly.* Weekly pickup will also reduce the amount of recycling put out each week since it will only be a week's worth of items. This reduced amount will make it easier to bring the items to the curb for pickup. This change is also expected to reduce the number of trips people take to the Recycling Center with their recycling which will

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<sup>10</sup> More information about Furniture Sharehouse can be found in Appendix E or on their website at [www.furnituresharehouse.org](http://www.furnituresharehouse.org)

free up time for the Recycling Center staff to expand recycling offerings such as the furniture collection container.

*Reduction in tipping fees from increased recycling.* Scarsdale does not pay tipping fees on commingled and paper recycling. Therefore any increase in recycling by moving recyclables out of the trash will reduce our trash tipping fees.

### Why Curbside Food Scrap Collection

*Diverting food is the most significant way to reduce trash.* Food scraps make up the largest portion of residential trash that is not currently recycled. The EPA estimates that food scraps make up 20% of residential trash, and residents participating in the current Scarsdale Food Scrap Recycling drop-off site program often assert that they now have “almost no trash.” Although we have a very successful food scrap recycling drop-off site program, providing our residents with a curbside service will significantly increase the ease, participation and amount of food scraps that are recycled. Just as in the past, the adoption of commingled and paper recycling routes increased recycling rates significantly, we anticipate a similar increase with the adoption of a route for food scraps.

*Weekly pickup of recyclables.* Weekly pickup of food scraps will bring this service to a level of operations on par with our other sanitation services. Items that are continually generated by residents (trash, commingled and paper recycling and yard waste) are all picked up at least weekly by the Sanitation Department. While there are certain items that must be brought to the Recycling Center (electronic waste, textiles and bulk metal) these tend to be infrequently generated waste items that would not warrant a weekly pickup. Food scraps are generated on a continual basis and in significant amounts by weight, justifying collection by the Sanitation Department as part of sanitation services. Moreover, the operations to pick up the food scraps can be added to existing operations and not result in additional labor or capital costs.

*Expectation of significant increase in recycling with the convenience of home pickup.* Based on a sampling of data collected over a few weeks this fall, for many residents making it to the recycling center every week is not feasible. While approximately 800 households have purchased a starter kit to participate in the food scrap recycling program, some are finding it difficult to schedule a weekly trip to the Recycling Center. In follow-up conversations with participants, the main reason for those who aren't participating fully or at all is the inconvenience of bringing their food scraps to the drop-off site. The drop-off site remains incredibly successful with more than 2 tons of food scraps per week being recycled, but as expected there is a cap to the number of households that can or are willing to drive their food scraps each week to the drop-off site. Providing a weekly pickup as part of sanitation services, will further enhance Scarsdale's level of services provided to our residents.

*Improvement in Scarsdale's recycling rate.* Increased participation in recycling food scraps can also provide a significant positive impact to our recycling rate. If just 25% of the community participates and recycles an average of 12 lbs.<sup>11</sup> per week, 441 tons of waste yearly would be diverted from the trash! This represents 7% of the total amount of waste currently going into the trash. In comparison, the drop-off site will likely collect about 80-90 tons this year. A table of the amount diverted and related costs based on participation is provided in Appendix B.

Given the ability to add weekly pickup of food scraps to our existing services with a manageable increase in tipping fees, it is recommended that this service be implemented in conjunction with the other recommendations in this report.

### Why a Furniture Donation Container

*Convenience is key to increased furniture donation.* Furniture that ends up in the trash is often heavy and often still useful. However, donating furniture can be difficult and inconvenient for residents. It is often difficult to transport more than a short distance, there is lack of clarity on available options, and many non-profits have minimum furniture requirements and/or fees for pickup and donation. A furniture collection container in partnership with Furniture Sharehouse would alleviate these issues.

*Supporting those in need in our community.* A Furniture Sharehouse collection container at the Recycling Center would also support those in need in the Westchester community. Furniture Sharehouse provides free furniture to economically disadvantaged individuals and families living in Westchester County. Their clients are referred by various social service agencies in Westchester County, and include: (1) those moving out of homeless shelters into permanent housing; (2) battered women and children escaping domestic violence, (3) working families struggling to stay above the poverty line; (4) young adults aging out of foster care; and (5) victims of fires or other natural disasters.

*Operationally feasible.* The Recycling Center has the space for this container (which can be obtained at minimal cost) and it would not require a material amount of supervision or time of our staff. The Furniture Sharehouse moving crew handles the pickup of items. The CAC would work with the Sanitation Department to develop a donation guide and signage to educate residents on what items are acceptable in the container.

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<sup>11</sup> 8-12lbs. per household per week is the average amount of food scraps generated based on conversations with similar communities that have implemented food scrap recycling programs and corresponds with the average collected at the Scarsdale drop-off site. This study assumes 12lbs. as a conservative estimate.

*Reduction in tipping fees.* A Furniture Sharehouse container in our Recycling Center would reduce the amount of our trash and the corresponding disposal fees as well as help those in need in our Westchester community.

### No Changes to Trash, Bulk, Yard Waste, or Fall Leaf<sup>12</sup> Services

The CAC strongly recommends that residents continue to receive twice a week trash picked up at the back of the driveway or near the house, weekly bulk pickup, weekly yard waste pickup and fall leaf pickup. It is exciting to be able to significantly enhance paper, commingled and food scrap recycling services without any reduction in these core sanitation services.

Based on the proposed service increases and ability to implement them without a change to any of these services, the CAC recommends maintaining the current level of these services. Although there is a cost to such service levels, the Scarsdale community has voiced its desire to maintain a high level of services.

### Future Planning: Roadmap

In addition to the recommendations made in this report, the CAC has drafted a preliminary planning roadmap for certain aspects of the Sanitation Department, such as equipment purchases and the impact of the CAC recommendations if implemented. Future planning will be dependent on the outcome of the adoption and implementation of the recommendations in this report, and a review of new services for a period of time after implementation.

*Equipment and potential future efficiencies from changes to truck fleet.* The CAC has reviewed the Sanitation Department data with respect to its fleet of trucks, including size, age, miles, average miles per year and other aspects. As trucks are replaced (or partially replaced<sup>13</sup>), there will be a need to review data and operations to determine the proper replacement truck. For example, it may make sense for the Sanitation Department to switch to split trucks for some or all of the fleet. Split trucks allow for the pickup of two items on the same visit so that commingled and paper recycling could both be picked up with just one visit to a house. Split trucks could have implications for picking up bulk items, dumpsters and the ability for satellite trucks to dump into them so the benefit of the split trucks will need to be weighed against these downsides. Based on a preliminary analysis, the CAC believes the addition of split trucks to the fleet will be a net benefit to the Sanitation Department, but additional analysis should be

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<sup>12</sup> Leaf pickup is handled by the Highway Department (not the Sanitation Department), but is included in this study as residents consider this part of their sanitation services.

<sup>13</sup> Garbage trucks consist of two separate sections: (1) the body of the truck where the waste items are held and (2) the cab and chassis which include the engine, wheels, cab, etc. These parts can be replaced separately if one part is still in good condition. Most recently the Sanitation Department repurposed two older chassis and put two new bodies on them rather than purchasing an entirely new truck.

conducted if the recommendations in this report are implemented as these new services will impact the cost benefit analysis.

*Reviewing metrics from recommended changes prior to future major equipment purchases is recommended.* The CAC has studied various types of sanitation vehicles that may bring greater efficiency to the current sanitation routes. Given that there may be changes to recycling pickup and the addition of food scrap pickup, the CAC recommends reviewing the impact of these changes and purchasing any new trucks one at a time in order to study the efficiency and performance results of any new vehicles purchased.

*Need for future review of satellite vehicles.* In addition to the large garbage trucks, the Sanitation Department also utilizes two types of satellite vehicles on its routes. These vehicles provide easier access for the back of driveway pickups. The downside of these vehicles is that they have limited storage and must make frequent trips to the main garbage truck on the route. This results in time back and forth from the truck and the time it takes to dump into the main truck during which time both the satellite and main truck are not picking up from any houses. The Sanitation Department has recently started switching the satellite vehicles to pickup trucks with refuse inserts. If commingled recycling is moved to the curb, only trash will need to be picked up back of the driveway. There may be options to adjust certain routes to use fewer satellite trucks and have the sanitation staff all on one main garbage truck. This would have implications for the type of garbage truck next purchased and so should be considered before any new garbage truck is purchased. For example, most of our existing trucks only have two seats in the truck cab, but trucks with a bench seat for 3-4 sanitation staff are available. It should also be noted that one type of the satellite vehicle, the Cushman, is no longer manufactured and replacement will not be possible as the existing fleet needs to be retired. Therefore, if it's possible to reduce the number of satellite vehicles needed this would be less of an issue.

*Use of alternative fuel and electric vehicles.* The CAC also recommends the use of alternative fuel and/or electric vehicles for future satellite vehicles and fleet purchases where feasible. The Sanitation Department has tested electric vehicle options and while previous models did not meet their needs, viable alternatives will likely be available in the near future.

*Recycling Center.* The Recycling Center is a beneficial, highly-utilized and well-loved Scarsdale service. The CAC recommends maintaining the Recycling Center, its current hours of operation, and all of the current offerings to residents.

*Potential Additions.* The CAC recommends the addition of a Furniture Sharehouse container, and may recommend similar beneficial additions in the future such as battery, plastic bag and cooking oil recycling as well as other items that cannot currently be

recycled in Scarsdale. Following are other items under consideration for the Recycling Center for the benefit of our Village residents and staff.

*Idling.* As noted in the truck inventory section, there are two garbage trucks that are used at the Recycling Center and as spare trucks. These trucks are used to collect trash and paper at the Recycling Center. Because the compaction equipment is powered by the engine, these trucks idle all day. Idling wastes fuel, creates emissions and causes wear and tear on the engine. Other municipal recycling centers utilize rolloff containers which can then be brought to the transfer station. Going forward the CAC recommends reconfiguring the Recycling Center to utilize rolloff containers for the deposit of trash and recycling. There would be a capital expense for the rolloff containers and bays to site them. In the interim, the trucks should not be idling more than the minimum amount needed for compaction.

*Beneficial use of unused space.* Located in the middle of the Recycling Center is Scarsdale's old incinerator building. Although only a very preliminary analysis has been completed, there may be a benefit to convert this building to an indoor transfer location for all of Scarsdale's waste. Large compactors, which could be supplied by the County, would be housed in the building and trucks would tip into these compactors. A transfer building would reduce the time needed for our trucks to dump at the County transfer station where trash and paper are currently brought. Further analysis would be needed to determine if the cost to upgrade the building would be paid back by our hauling efficiencies.

*Staff recycling education and assistance.* The Recycling Center is staffed full time by Sanitation Department employees who help residents with questions about the proper disposal of items. As new items become recyclable and other changes occur, all Sanitation Department staff should be routinely briefed on, shall be required to have a full understanding of what is accepted in each of the various bins at the Recycle Center, and shall be encouraged to assist residents in recycling items brought to the Recycling Center whenever possible.

*Need to study future data:* If the proposed recommendations are adopted and implemented, there will be new data to help inform this future planning roadmap. This new data will help inform future changes in routes, staffing, equipment and overall operations. If these recommendations are adopted, the CAC requests that the Board include in their resolution a charge for the CAC to issue an updated report after 12 months which includes a review of this future planning roadmap.

## Conclusion

The recommendations in this report will enhance services for our residents, increase recycling and reduce the amount of trash sent to the incinerator. These service additions and expansions can be implemented with only modest changes and cost. The Sanitation Department is prepared to include these recommendations in their operations in early 2018. As our waste stream has evolved, with recycling increasing and waste decreasing, our services need to change to reflect and support this positive trend. The recommendations in this report best fulfill the goal of meeting the current needs of our residents while also expanding services for our community.

Respectfully Submitted,  
Scarsdale Conservation Advisory Council

Ron Schulhof, chair  
John Auerbacher  
Jeanne-Marie Castiello  
Seema Jaggi  
Bernard Kobroff  
Michelle Sterling  
David Streicher  
Joan Weissman  
Duncan Wilson

# Appendices

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- A. What Happens to Our Waste
- B. Food Scrap Recycling Cost Estimates
- C. Service Schedules of Westchester Municipalities
- D. Overview of Primary Options to Increase Recycling and Reduce Trash
- E. Furniture Sharehouse Container Details
- F. Battery Recycling Details
- G. Cooking Oil Recycling Details
- H. Plastic Bag Recycling Details

## Appendix A: What Happens to Our Waste

Our waste is made up of trash and several types of recyclables. The following details what happens to each component after pickup.

*Trash.* All residential trash collected in Scarsdale is transported by Scarsdale trucks to a Westchester County transfer station in White Plains. From there the County, through a private contractor, hauls the trash in larger vehicles to an incinerator located in Peekskill. This incinerator, which burns all of the residential trash generated in Westchester, is located only 25 miles north of Scarsdale. Thus the trash we generate is burned into the air of the entire Westchester community.

There are three byproducts of the trash that is burned:

- Heat from the incinerator is used to generate steam which creates energy and powers approximately 67,000 homes.
- Ash, a portion of which is toxic, is trucked to an ash landfill located 160 miles from the incinerator. The ash represents approximately 25% of the weight and 10% of the volume of the original material.
- Exhaust (smoke) which goes into the air. This exhaust is filtered at the incineration facility. These filters are classified as hazardous waste when they need to be disposed.

While this facility does provide the benefit of generating electricity, there are significant negative byproducts, which are harmful to the environment and require additional disposal. It is therefore beneficial to reduce the amount of trash generated either by reducing our trash or finding an appropriate recycling stream. Moreover, it makes sense to use all of our resources for their highest beneficial use. Incineration is a dead end, whereas giving a bottle a new life as a new bottle, or food scraps new life as soil, is a higher beneficial use. We seek to not only avoid items going into the trash, but put items to their highest use in every circumstance.

*Commingled (plastic, metal, glass and cartons) and Paper Recycling:* All recycling collected through the Sanitation Department collection program is brought to large containers at the Recycling Center (commingled recycling) or to a transfer station in White Plains (paper recycling). From these locations, Westchester County picks up the full containers of recyclables and brings them to the Westchester County Material Recovery Facility (MRF) located in Yonkers. The materials are sorted at this facility and packaged for sale to recycling facilities. Because Westchester County operates a dual-stream recycling system (commingled is picked up separately from paper), the recycling collected is easier to sort and remains in good condition (e.g. paper isn't contaminated by liquids from bottles). This has resulted in a strong and

consistent demand for Westchester recyclables.<sup>14</sup> The recyclables are sold to recycling facilities and turned into new products, generating revenue for the County and avoiding tipping fees at the incinerator. In 2016, approximately \$5.2 million was generated from the sale of recyclables and approximately \$6.8 million was saved from avoiding tipping fees at the incinerator.

*Yard Waste:* Yard waste, including grass clippings, brush, leaves and all other yard waste collected by the Sanitation Department is composted and turned into soil.<sup>15</sup> Although Scarsdale no longer composts within the municipality, yard waste picked up throughout Westchester County is brought to compost facilities. The downside of this recycling process is that the compost facilities are located in upstate New York and in other states, requiring trucking the yard waste long distances. It is therefore more beneficial to recycle yard waste on the property where it is generated. Items such as grass clippings and leaves can be mulched back into the lawn and plant beds. While a yard waste pickup is needed for certain items such as brush and large plant prunings,<sup>16</sup> Scarsdale can significantly reduce the amount of yard waste generated through on-site recycling.

*Food Scraps:* Food Scraps collected are picked up by a private hauler and brought to the nearest food scrap compost facility, which is in Ulster County where the foods scraps are turned into compost. A private hauler is used because Westchester County does not provide this service. As with yard waste, on-site recycling through backyard composting is the most beneficial way to recycle food scraps. However, backyard composting is limited to fruit and vegetable scraps, coffee grounds and egg shells and requires actively managing the compost bin. The Scarsdale food scrap recycling program accepts ALL foods, including meat, bones, fish, dairy, bread, rice and pasta. It also accepts paper products such as napkins, paper towels, tissues, and wax and parchment paper, as well as other natural products such as wooden chopsticks, popsicle sticks and toothpicks.

*E-Waste:* Electronic waste is picked up throughout Westchester County and brought to an electronic waste recycling facility in Victor, NY. The electronics are taken apart and the materials are separated for recycling.

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<sup>14</sup> Westchester County's dual stream collection system has allowed it to weather the storm throughout periods when the recycled paper market was at a low. The CAC thus supports the Westchester County dual stream system and would not support its conversion to a single stream system.

<sup>15</sup> The Westchester County compost facility only accepts yard waste. Food Waste goes to a different, closer, compost facility which is able to accept food scraps.

<sup>16</sup> Although all yard waste, including brush and large plant prunings, could be recycled onsite it is not feasible on most properties in Scarsdale given the large number of plantings on suburban lots. In areas such as Northern Westchester with much larger properties, all yard waste can feasibly be recycled on-site. Hence, some of the northern municipalities do not have a municipal yard waste pickup.

## Appendix B: Food Scrap Recycling Cost Estimates

### Estimate of Food Scrap Recycling Impact on Tipping Fees

#### Assumptions

Number of Homes and Apartments	5,647
Total Tons Trash (2016)	6,631
Average lbs. per home per week	12
Trash Tip Fee	\$27.73
Food Tip Fee	\$57.50

#### Estimates of Food Scraps Volume and Impact of Tipping Fees

	Participation Rate	10%	15%	25%	50%	75%	100%
	Participation (Homes)	<b>565</b>	<b>847</b>	<b>1,412</b>	<b>2,824</b>	<b>4,235</b>	<b>5,647</b>
Food Scraps Recycled per Year (Tons)		176	264	441	881	1,321	1,762
% of Trash Recycled by Composting		3%	4%	7%	13%	20%	27%
Net Tipping Fees		\$5,248	\$7,867	\$13,115	\$26,230	\$39,336	\$52,451

## Appendix C: Service Schedules of Westchester Municipalities

Municipality	Who picks up Muni/Private	Pickup Frequency					Pickup Location				
		Trash	Commingled	Paper	Bulk Items	Yard Waste	Trash	Commingled	Paper	Bulk Items	Yard Waste
Scarsdale	Muni	2x per week	Every other week	Every other week	Weekly	Weekly	House	House	Curbside	Curbside	Curbside
Ardsley	Muni	2x per week	Weekly	Weekly	Weekly	Weekly	Curbside	Curbside	Curbside	Curbside	Curbside
Bedford	Private	-	-	-	-	-	-	-	-	-	-
Briarcliff Manor	Muni	2x per week	Every other week	Every other week	Weekly	Every other week	House	Curbside	Curbside	Curbside	Curbside
Bronxville	Muni	2x per week	Weekly	Weekly	By Appt.	Weekly	House	Curbside	Curbside	Curbside	Curbside
Buchanan	Muni	Weekly	Weekly	Weekly	Monthly	Monthly	Curbside	Curbside	Curbside	Curbside	Curbside
Cortlandt	Muni	Weekly	Weekly	Weekly	Monthly	Monthly	Curbside	Curbside	Curbside	Curbside	Curbside
Croton-on-Hudson	Muni	Weekly	Weekly	Weekly	Weekly	Every other week	Curbside	Curbside	Curbside	Curbside	Curbside
Dobbs Ferry	Muni	2x per week	Weekly	Weekly	Weekly	Weekly	Curbside	Curbside	Curbside	Curbside	Curbside
Eastchester	Muni	2x per week	Weekly	Weekly	Weekly	Weekly	House	Curbside	Curbside	Curbside	Curbside
Elmsford	Muni	2x per week	Weekly	Weekly	Monthly	Weekly	Curbside	Curbside	Curbside	Curbside	Curbside
Greenburgh	Muni	2x per week	Every other week	Every other week	Weekly	Weekly	Curbside	Curbside	Curbside	Curbside	Curbside
Harrison	Muni	2x per week	Weekly	Weekly	Weekly	Weekly	Curbside	Curbside	Curbside	Curbside	Curbside
Hastings-on-Hudson	Muni	Weekly	Weekly	Weekly	Weekly	Weekly (Spr / Fall) Bi-Weekly (Summer)	Curbside	Curbside	Curbside	Curbside	Curbside
Irvington	Muni	2x per week	Weekly	Weekly	Weekly	Weekly	Curbside	Curbside	Curbside	Curbside	Curbside
Larchmont / Mamaroneck (Town)*	Muni	2x per week	Weekly	Weekly	Weekly	Weekly	House	Curbside	Curbside	Curbside	Curbside
Larchmont / Mamaroneck (Town)*	Muni	2x per week	Weekly	Weekly	Weekly	Weekly	House	Curbside	Curbside	Curbside	Curbside
Lewisboro	Private	-	-	-	-	-	-	-	-	-	-
Mamaroneck (Village)	Muni	2x per week	Weekly	Weekly	Weekly	Weekly	House	Curbside	Curbside	Curbside	Curbside
Mount Kisco	Muni	Weekly	Weekly	Weekly	Weekly	Weekly	House	Curbside	Curbside	Curbside	Curbside
Mount Pleasant	Muni (outsourced)	2x per week	Every other week	Every other week	Weekly	Weekly	Curbside	Curbside	Curbside	Curbside	Curbside
Mount Vernon	Muni	2x per week	Every other week	Every other week	Weekly	Weekly	Curbside	Curbside	Curbside	Curbside	Curbside
New Castle	Muni (outsourced)	Weekly	Weekly	Weekly	Weekly	Every other week	Curbside	Curbside	Curbside	Curbside	Curbside
New Rochelle	Muni	2x per week	Every other week	Every other week	Weekly / By Appt.	Weekly	Curbside	Curbside	Curbside	Curbside	Curbside
North Castle	Muni (outsourced)	Weekly	Weekly	Weekly	Weekly	Monthly	Curbside	Curbside	Curbside	Curbside	Curbside
North Salem	Muni (outsourced)	Weekly	Weekly	Weekly	Weekly	Monthly	Curbside	Curbside	Curbside	Drop off	Curbside
Ossining (Town)	Muni (outsourced)	2x per week	Weekly	Weekly	Weekly	Weekly	Curbside	Curbside	Curbside	Curbside	Curbside
Ossining (Village)	Muni	2x per week	Every other week	Every other week	Weekly	Weekly	Curbside	Curbside	Curbside	Curbside	Curbside
Peekskill	Muni	Weekly	Weekly	1x per month	Weekly	Weekly	Curbside	Curbside	Curbside	Curbside	Curbside
Pelham	Muni (outsourced)	2x per week	Every other week	Every other week	Every other week	Weekly	House	Curbside	Curbside	Curbside	Curbside
Pelham Manor	Muni	2x per week	Every other week	Every other week	Weekly	Weekly	House	Curbside	Curbside	Curbside	Curbside
Pleasantville	Muni	Weekly	Weekly	Weekly	Weekly	Weekly	House	Curbside	Curbside	Curbside	Curbside
Port Chester	Muni	2x per week	Weekly	Weekly	Weekly	Weekly	Curbside	Curbside	Curbside	Curbside	Curbside
Pound Ridge	Private	-	-	-	-	-	-	-	-	-	-
Rye Brook	Muni (outsourced)	2x per week	Weekly	Weekly	2x/month	Weekly	House	Curbside	Curbside	Curbside	Curbside
Rye (City)	Muni	2x per week	Weekly	Weekly	Weekly	Weekly	House	Curbside	Curbside	Curbside	Curbside
Sleepy Hollow	Muni	2x per week	Weekly	Weekly	Weekly	Weekly	Curbside	Curbside	Curbside	Curbside	Curbside
Somers	Private	-	-	-	-	-	-	-	-	-	-
Tarrytown	Muni	Weekly	Weekly	Weekly	By Appt.	Weekly	Curbside	Curbside	Curbside	Curbside	Curbside
Tuckahoe	Muni	2x per week	Weekly	Weekly	Weekly	Weekly	Curbside	Curbside	Curbside	Curbside	Curbside
White Plains	Muni	2x per week	Weekly	Weekly	Weekly	Every other week	Curbside	Curbside	Curbside	Curbside	Curbside
Yonkers	Muni	2x per week	Every other week	Every other week	Weekly	2x per year	Curbside	Curbside	Curbside	Curbside	Curbside
Yorktown	Muni (outsourced)	2x per week	Weekly	Weekly	4x/year	4x per year	Curbside	Curbside	Curbside	Curbside	Curbside

\*Town of Mamaroneck and Village of Larchmont share services through a Joint Sanitation Commission

## Appendix D: Overview of Primary Options to Increase Recycling and Reduce Trash

The following is an overview of the primary options available to increase recycling, reduce trash and increase on-site recycling of yard waste. Each of these options was considered and evaluated. Details of the recommended options are included in the main section of this report. Additional options that may be recommended in the future are included as appendices.

<b>Increase Recycling</b>	
<b>Operational Changes</b>	<ul style="list-style-type: none"> <li>▪ Increase commingled and paper recycling pickup to weekly</li> <li>▪ Pick up additional items at home (e.g. food scraps)</li> <li>▪ Update recycling bins at Village locations               <ul style="list-style-type: none"> <li>○ Parks and pool (in progress)</li> <li>○ Downtown</li> <li>○ Village buildings</li> </ul> </li> <li>▪ Recycling one-day events (e.g. shredder truck, paint, etc.)</li> <li>▪ Take it or leave it shed</li> </ul>
<b>Accept Additional Items</b>	<ul style="list-style-type: none"> <li>▪ Furniture</li> <li>▪ Cooking oil</li> <li>▪ Batteries (rechargeable and regular)</li> <li>▪ Plastic bags</li> </ul>
<b>Policy Changes</b>	<ul style="list-style-type: none"> <li>▪ Mandatory use of “Oops” stickers by sanitation staff for recycling in plastic bags or improper sorting of items in trash and/or recycling</li> <li>▪ Expansion of mandatory recycling laws to any item with recycling available in Scarsdale (e.g. textiles, food scraps, bulk metal, etc.)</li> </ul>
<b>Education</b>	<ul style="list-style-type: none"> <li>▪ Updated signage at Recycling Center (with pictures)</li> <li>▪ Door tags for new residents about what can be recycled (or a campaign for all residents)</li> <li>▪ Holding zero-waste Village events</li> <li>▪ Provide recycling / food scrap pickup for public events on Village properties</li> <li>▪ Hosting Free Compost Give Back Days for residents</li> <li>▪ Food scrap recycling bin and compostable products at Village Hall</li> <li>▪ Water glasses (not disposable cups or bottles) at BOT meetings</li> </ul>

## Reduce Trash

<b>Operational Changes</b>	<ul style="list-style-type: none"><li>▪ Increase recycling pickup frequency</li><li>▪ Add additional items to recycling (either at curb or Recycling Center)</li><li>▪ Reduce trash pickup to once per week</li><li>▪ Limit number and/or weight of bins</li><li>▪ Require clear plastic bags for trash (no pickup if bags contain recycling)</li></ul>
<b>Policy Changes</b>	<ul style="list-style-type: none"><li>▪ Reusable bag initiative</li><li>▪ Expanded Polystyrene (aka “Styrofoam”) ban</li><li>▪ Pay-as-you-Throw cost structure</li></ul>
<b>Education</b>	<ul style="list-style-type: none"><li>▪ Include an overview of what happens to trash in Westchester in annual mailer to residents</li><li>▪ Publish sanitation metrics with suggestions on how to reduce the amount of trash generated</li></ul>

## Increase On-Site Recycling of Yard Waste

<b>Operational Changes</b>	<ul style="list-style-type: none"><li>▪ Require leaves to be bagged (no loose piles)</li><li>▪ Reinstitute composting of leaves in Scarsdale</li></ul>
<b>Policy Changes</b>	<ul style="list-style-type: none"><li>▪ Discontinue leaf pickup</li><li>▪ Discontinue grass clipping pickup</li><li>▪ Reduce frequency of pickups of yard waste</li><li>▪ Limit number of bags of yard waste allowed to be picked up</li></ul>
<b>Education</b>	<ul style="list-style-type: none"><li>▪ Leaf mulching education (completed: 2015 campaign and ongoing)</li><li>▪ Grasscycling education (completed: 2015 campaign and ongoing)</li></ul>

## Appendix E: Furniture Sharehouse Container Details

**Service:** Furniture collection container at Recycling Center

**Type of Item:** Used Furniture and Household Items (see below for full list)

**Capital Investment:** Approximately \$3,500 for container and signage

**Operating Cost:** -

**Staffing:** Minimal

**Recommendation:** Implement early 2018

### Overview

A furniture collection container, in partnership with Furniture Sharehouse, will provide residents with a way to donate furniture and other household items at the Recycling Center. A larger enclosed shipping container (similar to the electronic waste container) would be sited at the Recycling Center where residents can drop off accepted items in the container. Once the container is full, Furniture Sharehouse will pick up the items from the container. The container is stationary and does not leave the Recycling Center. Furniture Sharehouse, a local non-profit, then provides furniture free of charge to economically disadvantaged individuals and families in Westchester.

### Operations and Cost

The main cost for this service is to purchase the collection container. A used shipping container, which is what other municipalities with a Furniture Sharehouse collection container have used, is approximately \$3,000. Signage with donation guidelines and accepted items is approximately \$500. There would be minimal staff time required to operate the container which could be handled by existing staff at the Recycling Center. Staff would monitor the container as they do with all the other collection areas and assist residents with any questions. The container can be sited near the existing area where residents drop off trash and recycling. Collection is handled by Furniture Sharehouse at no charge. Any items put in this donation container rather than the trash would result in a savings on trash tipping fees. The Recycling Center has a truck scale and will be able to quantify the weight and associated tipping fee savings from this service.

### Where is the Furniture Donated

Furniture Sharehouse provides free furniture to economically disadvantaged individuals and families living in Westchester County, giving them the basic household furnishings that enable them to rebuild their lives and live with dignity. Their clients are referred by various social service agencies in Westchester County, and include: (1) those moving out of homeless shelters into permanent housing; (2) battered women and children escaping domestic violence; (3)

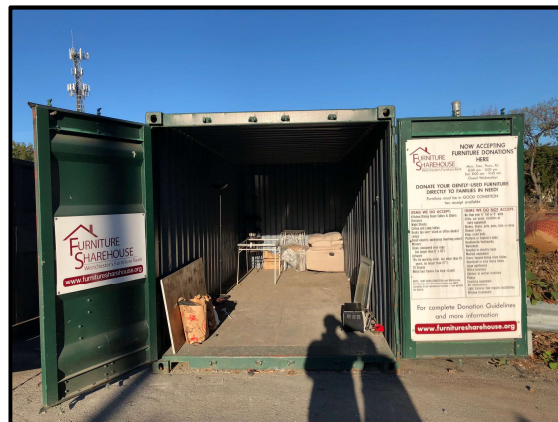
working families struggling to stay above the poverty line; (4) young adults aging out of foster care; and (5) victims of fires or other natural disasters.

### Accepted Items

- Sofas (no sleeper sofas and no sofas over 80" long)
- Sectionals (no one piece larger than 80", no recliners)
- Armchairs
- Metal bed frames (no king-sized)
- Mattresses, box springs
- Bunk Beds
- Kitchen / Dining Room Tables (legs must be removable, no glass-tops, no larger than 5' with leaves out)
- Kitchen / Dining room Chairs
- Dressers (no longer than 72")
- Occasional tables
- Shelving (no taller than 5 feet)
- Desks
- Bookcases
- Lamps
- Small electric appliances (in working order)
- Mirrors (no larger than 4' x 4')
- Clean, vacuumed area rugs (no larger than 8' x 10')
- Artwork
- Televisions - no longer than 27" and no more than 5 years old

### Furniture Sharehouse Collection Container at Town of Mamaroneck Recycling Center

The Town of Mamaroneck has hosted a Furniture Sharehouse Collection Container for a number of years at their recycling center.



## Appendix F: Battery Recycling Details

**Service:** Battery recycling bin at Recycling Center

**Type of Item:** Batteries (non-rechargeable and rechargeable)

**Capital Investment:** Weather proof enclosure for bins

**Operating Cost:** \$5,500 per year for 500lbs. of batteries per month

**Staffing:** Moderate

**Recommendation:** Consider reviewing as part of 12-month update; not recommended as currently available

### Overview

Non-rechargeable batteries (e.g. regular Alkaline AA, AAA, C, D, 9V, etc.) are not recyclable in Westchester. They are currently disposed of in the trash and are sent to the County incinerator. While these types of batteries are allowed to be incinerated, it is more beneficial to recycle the material in them and reduce the emissions that come with burning batteries.

Rechargeable batteries (often Lithium) are required to be recycled, since they contain more toxic materials, but must be brought to drop-off bins. Drop-off bins are usually located in electronics stores. Rechargeable batteries are not allowed to be disposed of in the trash. The cost of recycling rechargeable batteries is paid for by the battery manufacturers.

Battery recycling companies accept both types of batteries and recycle the materials. However, there are no collection bins for non-rechargeable batteries in Westchester.

### Operations and Cost

There are two main ways to collect batteries in bulk: (1) in large drums (they look like an oil drum) and (2) in multiple smaller boxes. The disadvantage to using a large drum, is that once batteries are collected over a certain weight they must be sorted by type (e.g. non-rechargeable and rechargeable in separate drums, with possible further sorting needed). Therefore, either the types of batteries collected would need to be limited or multiple drums would be needed. The reason batteries in drums needs to be separated is that shipping rechargeable batteries over a certain weight requires special handling. Batteries shipping in boxes under 66lbs. can contain mixed batteries. The disadvantage of this method is that there is more handling needed by sanitation staff to prepare the boxes for shipping. Both options would require the collection drums/boxes to be protected from the weather. Both options would also require most types of rechargeable batteries to be placed in plastic bags before being deposited in the bin to protect the battery terminals from touching. This is not required for regular alkaline batteries. If residents deposited rechargeable batteries without a plastic bag then sanitation staff would be required to handle this step.

## Drum Option Cost

- Purchase of drum(s): \$150 per drum
- Shipping cost: \$300 for up to 500lbs.
- Processing fee: \$0.40 per lb. (alkaline) and \$3.25 per lb. (lithium)

**Smaller Boxes Option:** \$50 per box that can hold up to 55 lbs. This cost includes the box, shipping and processing fee.

## Cost estimate based on 500 lbs. of batteries per month

### Battery Recycling Cost Estimates: Based on 500 lbs. per month

#### Assumptions

Alkaline (lbs. per month)	400
Lithium (lbs. per month)	100
Lbs. per Drum	500
Lbs. per Box	55

	<u>Drum</u>	<u>Boxes</u>
<b>Collection Estimates</b>		
Alkaline (lbs. per year)	4,800	4,800
Lithium (lbs. per year)	1,200	1,200
<b>Total lbs.</b>	<b>6,000</b>	<b>6,000</b>

#### Shipping

	<u>Drum</u>	<u>Boxes</u>
Number of Containers	12	109
Shipping Cost	\$300	\$50
	\$3,600	\$5,455

#### Processing Fee

	<u>Drum</u>	<u>Boxes</u>
Alkaline	\$0.40	Included in shipping
Lithium	\$3.25	Included in shipping
Sorting		
<b>Total</b>	<b>\$5,820</b>	<b>\$0</b>

<b>Total Cost</b>	<b>\$9,420</b>	<b>\$5,455</b>
<i>Price per lb.</i>	<i>\$1.57</i>	<i>\$0.91</i>

## Pictures of Drums and Boxes



55gal Metal  
Drum (500lbs)



55gal Plastic  
Drum (500lbs)



Collection  
Box (55lbs)

## Appendix G: Cooking Oil Recycling Details

**Service:** Cooking oil container at Recycling Center

**Type of Item:** Used cooking oil

**Capital Investment:** -

**Operating Cost:** -

**Staffing:** Minimal

**Recommendation:** Consider reviewing after rollout of Furniture Sharehouse container

### Overview

Cooking oil (in large amounts) is not currently accepted in the trash or at the Recycling Center. Used cooking oil still has a useful life and can be refined into new fuel oil.

A cooking oil recycling container could be sited at the Recycling Center and picked up by a private contractor for recycling. Since the used cooking oil is sold for recycling by the company that picks it up, there would be no charge for the Sanitation Department to receive a regular pickup of the used oil.

### Operations and Cost

A drum designed for collecting cooking oil would be sited at the Recycling Center. Residents would pour their used cooking oil into the drum which would have a top designed to easily collect the oil to prevent spills. When the drum is three quarters full, the Sanitation Department contacts the recycling contractor to pickup the drum and bring a replacement empty one.

There would be minimal staff time required to operate the container which could be handled by existing staff at the Recycling Center. Staff would monitor the container as they do with all the other collection areas and assist residents with any questions. There is no charge for the drum or pickup of the used cooking oil.

### Pictures of Cooking Oil Collection Containers with Easy Pour Lid



## Appendix H: Plastic Bag Recycling Details

**Service:** Plastic Bag recycling bin at the Recycling Center

**Type of Item:** Plastic bags and other recyclable soft plastics

**Capital Investment:** -

**Operating Cost:** \$7,200 per year based on 10 containers per month

**Staffing:** Minimal

**Recommendation:** Consider reviewing as joint project with other municipalities as part of 12-month update; not recommended as currently available

### Overview

Plastic bags are not accepted by the County in the commingled recycling stream. Bags and other recyclable soft plastic must be brought to stores such as grocery stores and pharmacies that have recycling bins. If collected properly, plastic bags can be recycled into new materials.

Providing residents with a convenient local location to recycling their plastic bags will likely lead to more of these items being recycled. Very few of the local retailers in Scarsdale provide plastic bag recycling bins. Since many residents already visit the Recycling Center for other items, this is a convenient location for a plastic bag recycling container.

### Operations and Cost

Plastic bag recycling companies usually require significant volumes to schedule a pickup. For example, most grocery stores aggregate the bags collected from many stores at a distribution center and have them all picked up from one location. This volume minimum for a pickup is higher than what is expected to be collected in a reasonable time at the Recycling Center.

It is possible to purchase plastic bag recycling bins that include prepaid shipping back to the recycling company. Indicative pricing for this type of bin is very expensive at \$60 per box for a 20" x 20" x 30" box. It is likely at least 10 of these boxes would be filled each month. At this rate the program would cost \$7,200 per year.

Another option may be to partner with other municipalities or the County to combine collections into a large enough volume to warrant a pickup and avoid these shipping costs. Further analysis and discussion with other municipalities would be needed.