

**To:** Alexandra Marshall, Acting Village Manager  
**From:** Jeffrey C. Coleman, PE, Superintendent of Public Works  
**Date:** December 27, 2023  
**Re:** Review of Sanitation Operations

**MEMORANDUM**  
*Department of Public Works*

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The Department of Public Works has undertaken a comprehensive review of sanitation and recycling operations and has identified options for service level changes. This report summarizes and documents the results of this analysis performed by the staff committee comprised of the Superintendent, Assistant to the Superintendent, General Foreman, Sanitation Foreman and Assistant Sanitation Foreman. Of particular importance is the historical perspective and changes to the ratios and volume of trash/recycling.

### **Current Operations**

The Sanitation Department currently consists of the following staff and equipment:

Staff:

- 1 Foreman
- 1 Assistant Foreman
- 1 Office Assistant
- 5 Motor Equipment Operators (MEO)
- 10 Sanitation Workers
- 8 Laborers
- 1 Seasonal Laborer (4 month)

Equipment:

- 11 garbage packers
- 1 lift gate truck
- 2 supervisor vehicles
- 8 Go-4 (1 additional Go-4 is assigned to the Downtown Caretaker)
- 5 pick up trucks with parcan inserts
- 1 Front end loader

### **Annual Budget**

The current 2023/2024 annual budget for Sanitation operations is \$2,740,169. All vehicle and equipment replacements are funded separately from annual capital budget appropriations. The Department is currently awaiting delivery of 3 garbage packers that were ordered in current and past budget cycles. Once delivered, the 3 oldest packers will be taken out of service.

### **Westchester County Refuse District No. 1**

The Village of Scarsdale belongs to Westchester County Refuse Disposal District No. 1. This taxing district appears as a separate tax line ("County Solid Waste") on resident's tax bill. The County is responsible for the

ultimate disposal and recycling of solid waste (garbage and trash), comingled recyclables, paper, e-waste, food scraps, and green waste (leaves and yard waste). The Scarsdale Public Works Department is charged on a subsidized basis, for each ton of solid waste that it disposes of at the County operated transfer stations. Similarly, the Department is also charged for each ton of green waste and food scraps disposed of through the County programs. There is no separate charge for Paper or Comingled recycling.

### **Current Operations and Level of Service**

The Village is broken down into 10 different routes (5 Monday/Thursday and 5 Tuesday/Friday). Each route consists of an MEO that drives a garbage truck and two Sanitation Workers that drive “scooters” (GO-4’s) to go down the driveways. On average, each route collects approximately 550 households with each employee picking up 183 houses per day. The Sanitation Division performs on an incentive program (task force), meaning that while staff are paid for eight hour work day, they may leave once their assigned route and related duties are complete.

The following summarizes each collection/service:

- Garbage - twice per week per household. back of driveway collection. Each team (3 workers) currently collects from 2,742 (548 per team) households per Monday and 2,666 (533 per team) households per Tuesday. A total of 32 tons of garbage is collected by each team on a Monday and 29.5 on a Tuesday.
- Food Scraps – weekly curbside – 1,671 households collected. 280 avg number of households collected per day on Monday and Tuesday.
- Paper and cardboard – every two weeks, collected curbside – 32 tons
- Comingled – every two weeks, collected back of driveway - 13.5 tons
- Yard waste – every week curbside (Thursday or Friday)- 45 to 65 tons
- Bulk trash – every week curbside (during second garbage collection) – weight included in garbage data.
- Six day per week resident access to recycling center.

### **Daily Staff Assignments**

The following indicates the daily staff assignments and activities associated with each assignment for a typical week.

#### **Monday:**

5 rear loading packers and 9 satellite trucks assigned to garbage collection, staffed by 5 MEO’s, 10 Sanitation workers. Each vehicle collects an average of 2.2 tons per day with a completion time of 11:17.  
1 small packer and 1 pick up/parcan staffed by 3 employees assigned to food scrap collection.  
1 staff assigned to yard operations.  
2 supervisors  
1 Office Assistant/customer service

#### **Tuesday:**

5 rear loading packers and 9 satellite trucks assigned to garbage collection, staffed by 5 MEO’s, 10 Sanitation workers. Each vehicle collects an average of 2.1 tons per day with a completion time of 11:00.  
1 small packer and 1 pick up/parcan staffed by 3 employees assigned to food scrap collection.  
1 staff assigned to yard operations.  
2 supervisors  
1 Office Assistant/customer service

#### **Wednesday:**

6 rear loading packers and 9 satellite trucks assigned to paper and comingled collection, staffed by 6 MEO’s, 12 Sanitation workers. Each vehicle collects an average of 1.4 tons of paper and 0.8 tons of comingled per day with an overall completion time of 14:15.  
1 staff assigned to yard operations.

2 supervisors  
1 Office Assistant/customer service

**Thursday:**

5 rear loading packers and 9 satellite trucks assigned to garbage/trash and yard waste collection, staffed by 5 MEO's, 10 Sanitation workers. Each vehicle collects an average of 1.9 tons per day with a completion time of 11:30.

1 staff assigned to yard operations.  
2 supervisors  
1 Office Assistant/customer service

**Friday:**

5 rear loading packers and 9 satellite trucks assigned to garbage/trash collection and yard waste staffed by 5 MEO's, 10 Sanitation workers. Each vehicle collects an average of 2.5 tons per day with a completion time of 11:20.

1 staff assigned to yard operations.  
2 supervisors  
1 Office Assistant/customer service

**Saturday:**

2 attendants in yard  
1 supervisor in office  
Collection of on-street garbage cans in Village Center and the five corners

## **Past Study and Analysis**

### **2005 - Matrix Study**

In 2005, the Matrix Consulting Group was engaged by the Village to perform a study of the Sanitation Division. The study focused on operations and made recommendations to the Village. The following recommendations were made at that time.

Matrix Recommendation # 1: The Matrix Consulting Group reviewed the current operations and practices of the Sanitation Division. They determined that the current method that the Village of Scarsdale uses for collection service is expensive. The high level of service that the Sanitation Division provides impacts the cost effectiveness of the program. Since refuse and commingled recyclables are collected back-of-driveway, this has a direct cost implication. This method requires that each route is staffed with three person teams. Each staff member must be assigned a piece of equipment. If refuse and commingled recycling were brought to the curb and they were picked up with an automated side loader, costs would be significantly cheaper.

Equipment Costs – Due to each person on the route having to have a separate piece of equipment, more equipment is required. This results in higher maintenance costs and higher capital expenditure costs. Matrix determined that an automated side loader would eliminate two pieces of equipment on each route. (The current price per GO-4 is \$42,000 with an anticipated service life of 10 years. The current cost of a rear load garbage truck is \$346,000 with an anticipated service life of 10 years.)

Larger route sizes – Currently the average route size for the Village of Scarsdale is 550 households per route. The recommended benchmark is 750 and 950 households per route (assuming different collection method). Automated side loader use would increase the average route size to 850 house per route with the number of routes being reduced from five to three.

Higher personnel costs – Having 5 routes per day with 3 people on each route comes with a higher cost for personnel than an automated side load operation. With automated collection, one Motor Equipment Operator is needed and this would result in lower personnel costs.

Matrix Recommendation # 2: Recyclable collections should be standardized. The commingled recyclables collection method should be the same as paper/cardboard collection. The division should move from back of driveway commingled collection to curbside. This would result in all items to be collected by the automated side loader (with some exceptions).

Matrix Recommendation # 3: The Sanitation Division should eliminate one route. The routes should be redesigned to incorporate geographical analysis to ensure efficiencies in collection. The collection of recyclables should be standardized; both co-mingled and paper/cardboard should be collected curbside. The additional crew should be utilized for bulky waste collections by appointment.

At the time, it was determined that the level of service desired, did not warrant any changes in operations.

### **2013 Route Consolidation Study**

Due to an increase in line of duty injuries and change in solid waste makeup, the Sanitation Division evaluated its operation to maintain the level of service with existing personnel and resources.

In 2013, it was found that yard waste collection (especially during the months of Apr – Dec) was often equal to the total tonnage collected by all 5 garbage collection routes. (The Village is divided into 5 collection routes, each requiring one 25-yard garbage packer and two Go-4 scooters.) For approximately 9 months each year, it was determined that a dedicated yard waste crew was needed and during peak months and a second crew was necessary to complete each collection zone.

Regularly, full attendance of the Department's workforce did not occur. During a typical year, at least 2 workers are on scheduled vacation leave, personal time, or absent due to short and long term illnesses/injury. This reality negatively impacts the daily operation of the department and as such management had reviewed a number of potential solutions to compensate for the manpower shortfalls. The most viable of them was to disband one of the five existing collection routes. The "109 Route" was an area largely consisting of the Edgewood and Arthur Manor neighborhoods and was proposed to be equally distributed among the four remaining routes. This option was optimal because it was geographically the smallest area and the proposed changes could be implemented without altering the collection days or other routes. On average, each of the remaining four daily routes would each see an increase of approximately 150 homes or 50 homes per Sanitation worker.

When implemented, management had additional flexibility to react to personnel shortages; fully staff a yard waste crew (two when necessary); provide support to the remaining 4 collection routes (crews); increase litter collection; and maintain staffing at the Recycling Center throughout the day.

Out-of-title pay was also reduced, as the yard waste crew consisted of the one truck, (1) MEO and (2) laborers. It was anticipated that any excess employees were re-assigned, on an as-needed basis, to assist other divisions of DPW.

This consolidation was implemented, but was shortlived as staffing levels returned to normal.

### **2017 Conservation Advisory Committee Study**

In 2017 the Conservation Advisory Committee reviewed the sanitation services in Scarsdale. The goal of the study was to identify service and operational improvements, and ways to increase recycling and reduce the amount of waste going into the trash. The recommendations of the study are as follows:

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. Have a furniture donation container at the recycling center.

#### **Weekly Recycling**

The recommendation to achieve weekly recycling was to have residents bring the commingled recycling to the curb. The idea of having weekly recycling would be that more people would recycle their items because it would be more convenient (being weekly). If recycling was more convenient then residents would need less room to store recyclables. Recyclable items would be lighter in weight because the pickup would occur weekly. It would make it easier for residents to carry the recyclables to the curb. Several residents spoke in opposition to having to bring the recyclables out to the curb. Ultimately it was not implemented.

#### **Weekly Curbside Food Scrap Pickup**

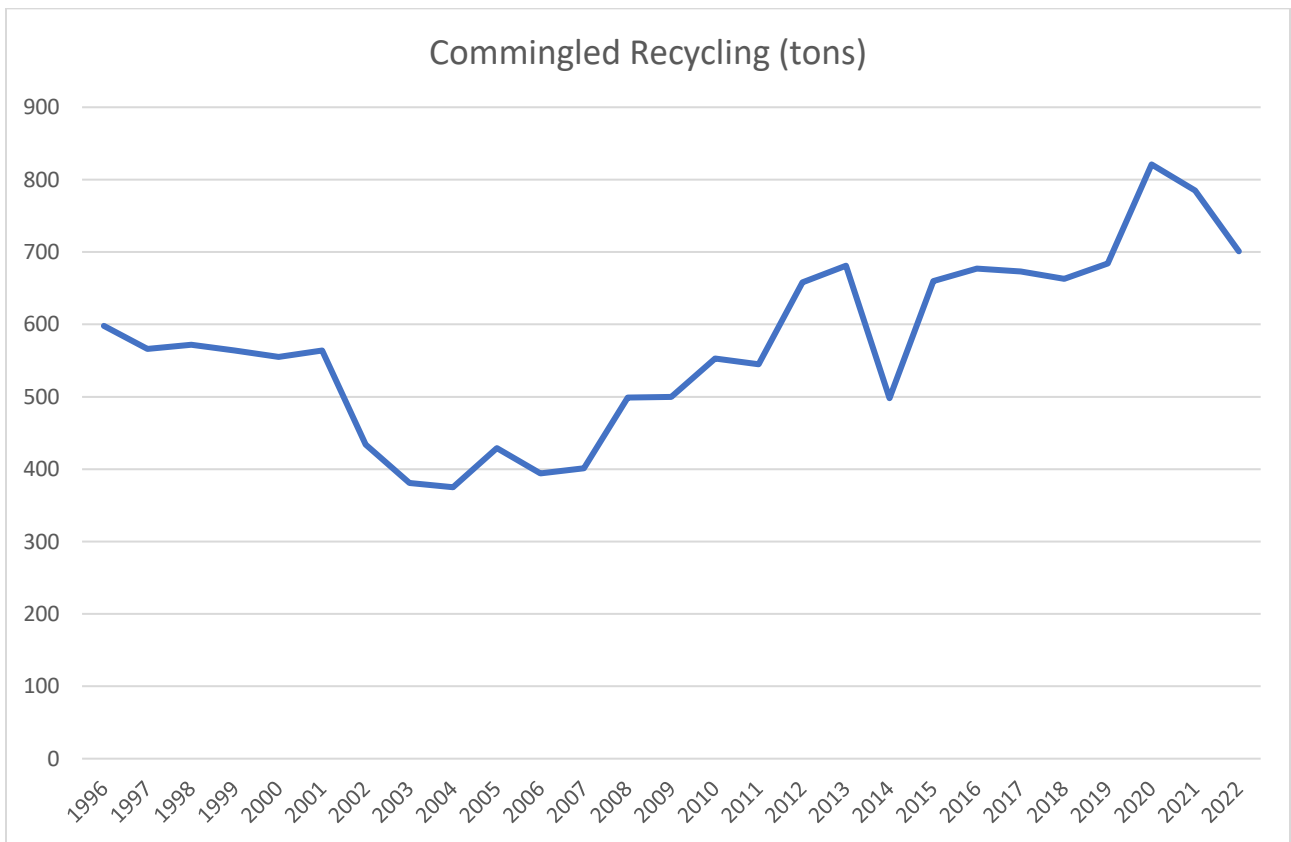
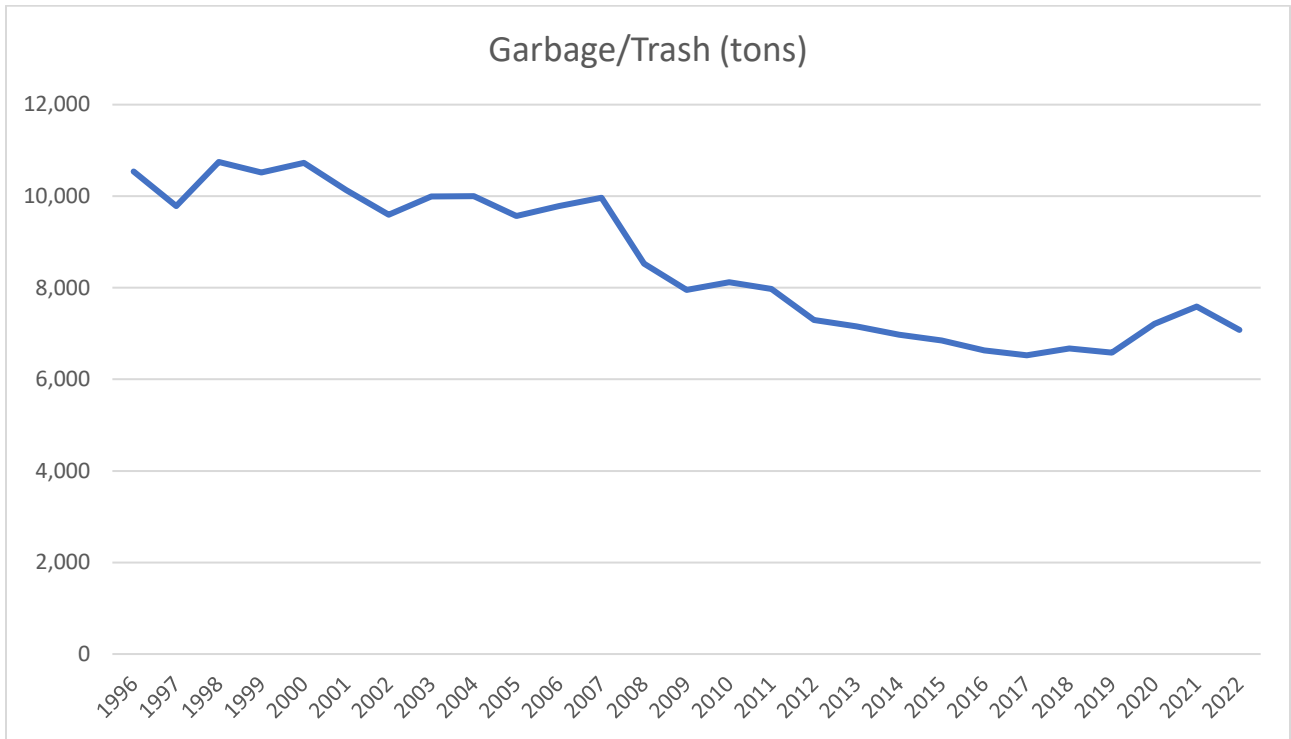
The pickup of weekly food scrap was implemented. This program has been successful with approximately 1,700 homes being signed up to be picked up weekly out of the 5,600 homes in Scarsdale. Currently about 5-6 tons are picked up weekly (both curbside and drop off). It should be noted that a percentage of households put out material for collection each week.

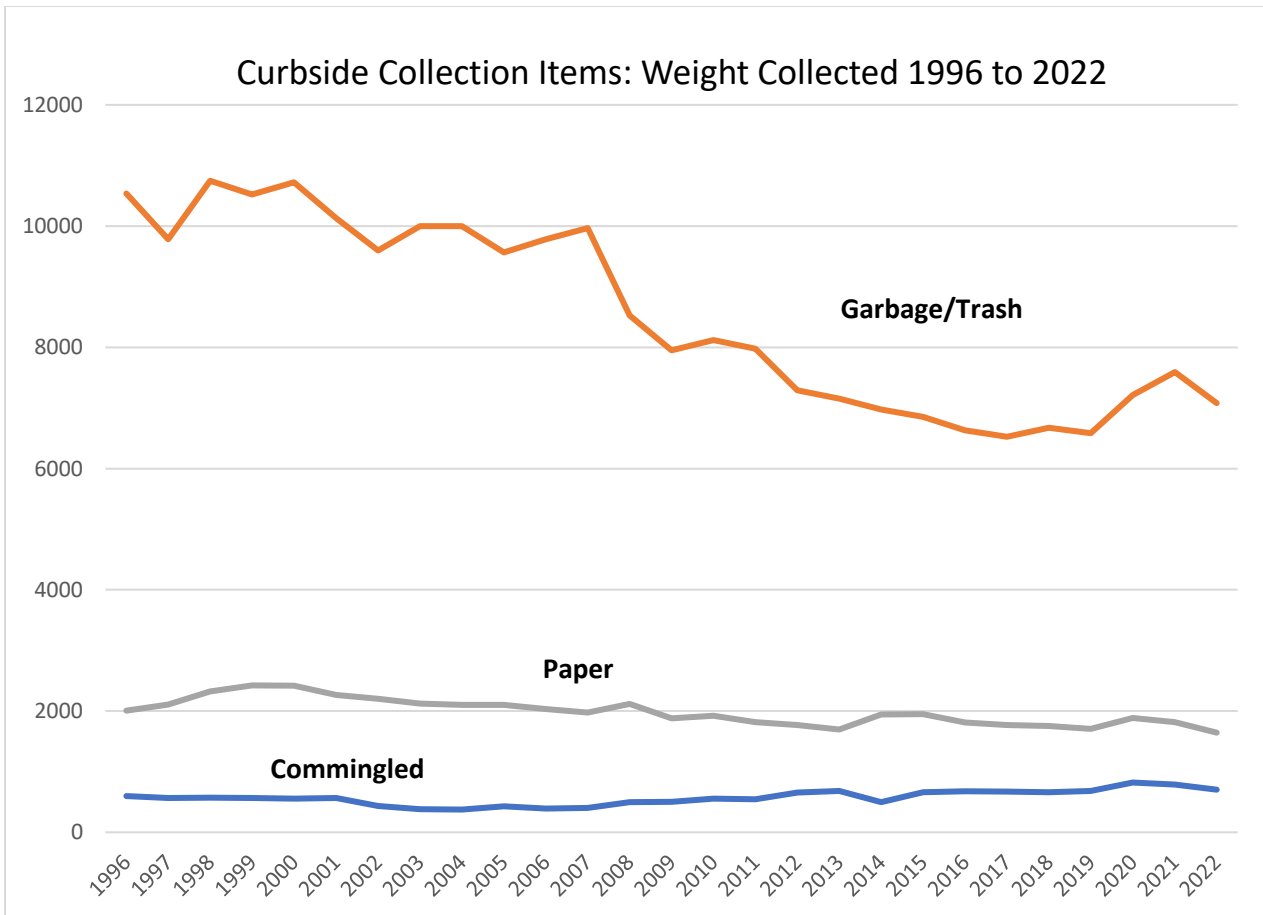
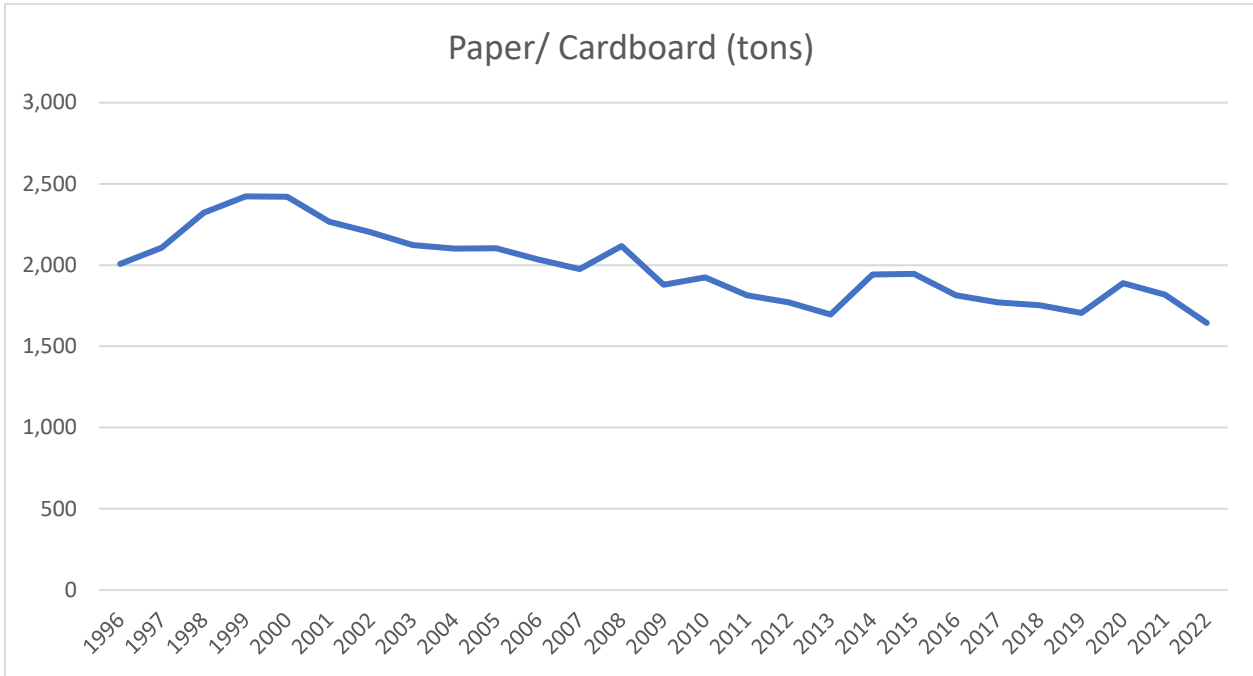
#### **Furniture donation container**

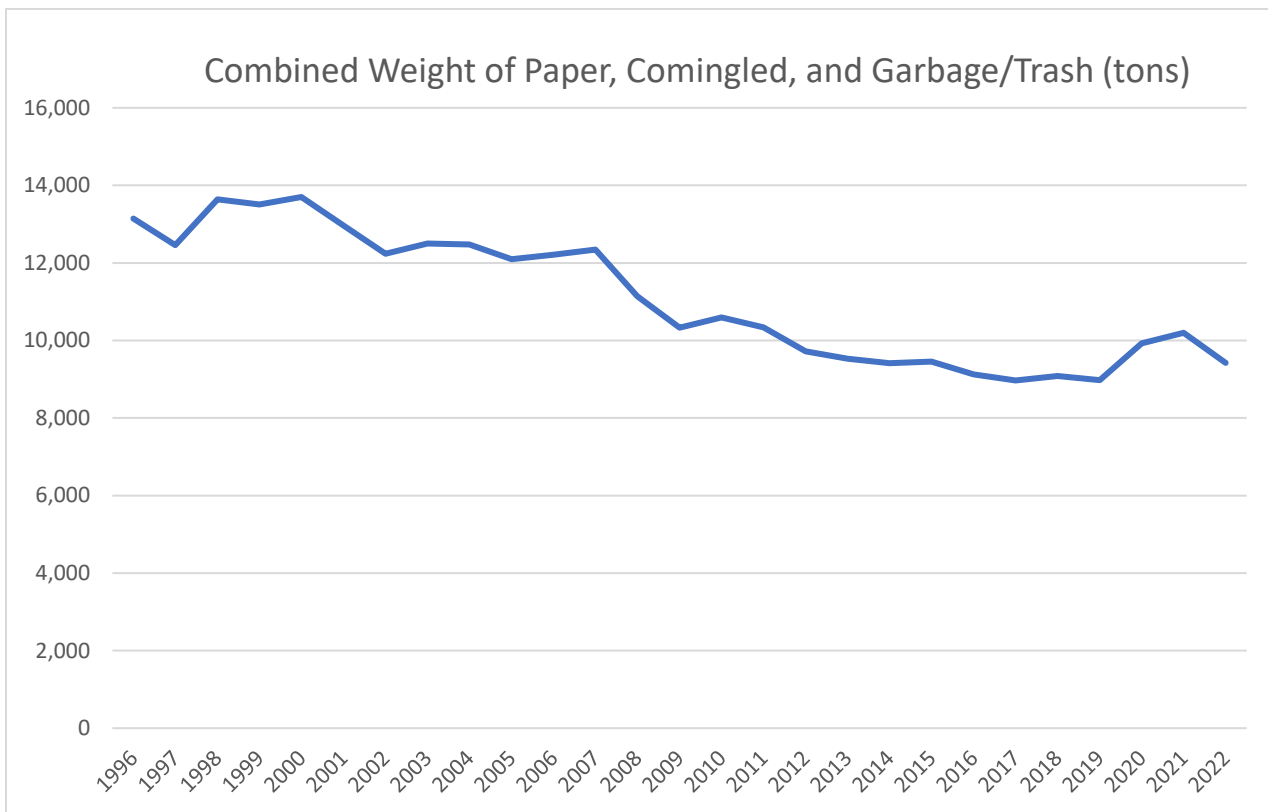
The furniture donation container was implemented at the recycling center. This has given the ability for residents to drop off furniture that is no longer needed, but in good condition, so it can be reused. The program is run by Furniture Sharehouse.

## Trends

The following charts graphically represent the historical trends in amount of each commodity collected by the Department between 1996 and 2022.







As indicated in the chart above, during the time period from 1996 to 2022, the total amount of material collected curbside (excluding yard waste and food scraps) has been reduced from a high of 13,700 tons in 2000 to 9,425 in 2022 (31% reduction). It should be noted that 2020 and 2021 were impacted by COVID related increases in disposal. Additionally, tropical storm IDA in 2021 resulted in an increase in trash due to flood debris collected by the Department.

**Yard Waste Collection**

The volume of yard waste collected curbside each week varies widely with seasonality and water weight. Anecdotally, the overall reduction in tree canopy and the decrease in lawn area due to home expansions, patio and pool construction has reduced the amount of yard waste collected. Data for this material is intermixed with the weight of materials from leaf collection and forestry operations and is unreliable for this analysis. Since it is placed curbside, the Department has the ability to supplement sanitation staff collection efforts with staff from the Highway Department during some times of the year.

**Service Changes Evaluated**

The following service changes were evaluated by the Department. These options were evaluated in combination with each other to develop each of the alternatives below.

- Commingled recycling collected weekly rather than every other week per household.
- Commingled recycling collected curbside rather than back of driveway.
- Paper collected weekly rather than every other week per household.
- Garbage collected once per week rather than twice per week.
- Garbage collected curbside rather than back of driveway.

<b>Garbage/Recycling Collection Options</b>										
Alt.	Garbage				Paper		Commingled			
	Back of Driveway	Curbside	Once per week	Twice per week	Every other week	Weekly	Every other week	Weekly	Back of driveway	Curbside
Current										
1										
2										
3										
4										
5										
6										
7										
8										

**Recommended Option**

After reviewing each of the possible alternatives, the change in cost for each, and what the Department believes to be preferred by the residents of Scarsdale, the Department has identified the following alternative for recycling collection operations. This option achieves the goal of once per week recycling collection per household and once per week paper collection per household while maintaining all other services as is.

Under the recommended option (option 2). Each resident would have their garbage and trash collected in the same manner and frequency as it currently is collected. Garbage would be collected on the same schedule, by the same staff and route and twice per week, back of driveway. Paper would be collected each week on Wednesday from all residents. Residents would be required to place cardboard/paper at the curb by 7:00 am for collection. Comingled recycling would be collected from half of the Monday/Thursday scheduled residents on Monday and the other half on Thursday. Comingled recycling would be collected from half of the Tuesday/Friday scheduled residents on Tuesday and the other half on Friday. On these days, staff would collect recycling and dump recycling at the recycling center as they do now. Upon completion of their commingled route, staff would complete garbage and trash collection as they do currently. Upon completion of the routes, garbage and trash would be dumped at the transfer station in White Plains.

Food Scrap collection will continue on Mondays and Tuesdays. Yard Waste collection will take place on Thursdays and Fridays.

During holiday weeks, the schedule will be altered to eliminate one garbage and commingled route for the week. Those collections would not be made up during the week and the route that is skipped would be rotated so that the number of missed collections for the year is approximately equal.

The foregoing, assumes some increase in recycling rates due to more convenient collection.

**Recommended Alternative Daily Staff Assignment**

**Monday:**

5 rear loading packers and 9 satellite trucks assigned to garbage collection staffed by 5 MEO's, 10 Sanitation workers. Each vehicle collects an average of 2.2 tons per day of garbage and an additional 1.5 hours and 0.2 tons of commingled with a completion time of 12:30.

1 small packer and 1 pick up/parcan staffed by 3 employees assigned to food scrap collection.

1 staff assigned to yard operations.

2 supervisors

1 Office Assistant/customer service

**Tuesday:**

5 rear loading packers and 9 satellite trucks assigned to garbage collection staffed by 5 MEO's, 10 Sanitation workers. Each vehicle collects an average of 2.1 tons per day of garbage and an additional 1.5 hours and 0.2 tons of commingled with a completion time of 12:30.

1 small packer and 1 pick up/parcan staffed by 3 employees assigned to food scrap collection.

1 staff assigned to yard operations.

2 supervisors

1 Office Assistant/customer service

**Wednesday:**

6 rear loading packers (No satellite trucks) assigned to paper and comingled collection. Staffed by 6 MEO's, 12 Sanitation workers. Each vehicle collects an average of 4.5 tons of paper with an overall completion time of 13:15.

1 staff assigned to yard operations.

2 supervisors

1 Office Assistant/customer service

**Thursday:**

5 rear loading packers and 9 satellite trucks assigned to garbage/trash collection staffed by 5 MEO's, 10 Sanitation workers. Each vehicle collects an average of 1.9 tons per day of garbage/trash and 0.2 tons of comingled with a completion time of 12:30.

2 rear loading packers assigned to yard waste, each staffed by an MEO and 1 Sanitation Worker.

1 staff assigned to yard operations.

2 supervisors

1 Office Assistant/customer service

**Friday:**

5 rear loading packers and 9 satellite trucks assigned to garbage/trash collection staffed by 5 MEO's, 10 Sanitation workers. Each vehicle collects an average of 2.5 tons per day of garbage/trash and 0.2 tons of comingled with a completion time of 12:30.

2 rear loading packers assigned to yard waste, each staffed by an MEO and 1 Sanitation Worker.

1 staff assigned to yard operations.

2 supervisors

1 Office Assistant/customer service

**Saturday:**

2 attendants in yard

1 supervisor in office

Collection of on-street garbage cans in Village Center and the five corners

**Transition**

While other collection options/schedules were investigated, the transition from current operations to the foregoing recommended operations will be the simplest to implement. There is no alteration of each resident's garbage or trash schedule and staff route assignments remain the same. It would be necessary to develop two sub routes ("A" and "B") for each route. Two calendars are current developed and sent each year. This change would require that 4 different calendars are developed and distributed. Individual notification may be necessary. No additional equipment would be needed. The cost to copy and mail a revised schedule is approximately \$10,000.

**Discussion on Automated Collection**

Automated collection involves the use of "one-arm" collection vehicles. Several neighboring municipalities utilize this type of vehicle for collection and several others continue to evaluate their use. The benefit of the operation is the reduction in cost due to the reduction in crew size from three to one. This collection method requires all can/carts being collected to be brought to the curb for collection. Since a specific type of can/cart capable of being lifted by the truck is required, the cost of the cans/carts and the management of the carts (replacement of missing and damaged carts) becomes the responsibility of the Village. The currently proposed option does not lend itself towards this collection method since the proposal is to collect garbage back of driveway. Paper/carboard collection, while it can be done, does not lend itself well to this automated collection as the boxes have to be broken down to fit in the can/cart and be able to be tipped into the truck without getting stuck in the can/cart.

Should the Village decide to move the collection location for comingled or garbage from the back of each driveway to the curb, use of automated collection could be further evaluated.

## Historical Data

	Bottles/Cans	MSW	Paper/ Cardboard	Organic Waste**
1996	598	10,537	2,008	7,082
1997	566	9,783	2,107	7,417
1998	572	10,748	2,322	7,511
1999	564	10,520	2,423	7,523
2000	555	10,725	2,420	6,084
2001	564	10,131	2,267	7,741
2002	434	9,599	2,202	8,553
2003	381	9,997	2,123	9,029
2004	375	10,001	2,101	9,661
2005	429	9,566	2,103	8,997
2006	394	9,783	2,035	19,919
2007	401	9,969	1,976	14,240
2008	499	8,524	2,117	14,998
2009	500	7,950	1,880	12,505
2010	553	8,118	1,924	12,624
2011	545	7,975	1,815	13,230
2012	658	7,293	1,770	17,480
2013	681	7,156	1,695	12,365
2014	498	6,975	1,943	14,781
2015	660	6,851	1,947	8,896
2016	677	6,631	1,814	9,765
2017	673	6,525	1,770	7,614
2018	663	6,671	1,753	8,696
2019	684	6,584	1,705	7,657
2020	821	7,214	1,888	10,572
2021	785	7,591	1,818	11,659
2022	701	7,080	1,644	8,172

\*All numbers are in tons

\*\* Includes fall leaf collection, waste from forestry operations