

**Draft Report | 10/2/2020**

## **Town of Vienna, VA**

### **Leaf Collection Program Evaluation**

Prepared by:







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October 2, 2020

David Donahue, P.E., Deputy Director  
Department of Public Works  
Town of Vienna  
127 Center Street S  
Vienna, VA 22180

**Subject: Draft Town of Vienna Leaf Collection Program Evaluation**

Dear Mr. Donahue,

NewGen Strategies and Solutions, LLC (NewGen) is pleased to submit to the Town of Vienna (the Town) this report that details our draft evaluation of the Town's Leaf Collection Program. This document represents the results of our analysis of the forecasted costs of providing leaf collection and delivery service to the Town's customers and recommendations regarding alternative programs. Our evaluation also includes benchmarks of similar programs in surrounding jurisdictions.

It has been a distinct pleasure to work with the Town of Vienna on this project. The dedication and assistance provided by Town Department of Public Works staff was essential to the completion of this study and should be acknowledged. Thank you for the opportunity to work with the Town on this important project.

Sincerely,

Eric Callocchia  
Executive Consultant  
**NewGen Strategies and Solutions, LLC**



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## Section 1

# PROJECT BACKGROUND AND SCOPE OF WORK

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### Project Background

The Town of Vienna (Town) operates a Leaf Collection Program that begins on October 1<sup>st</sup> each year and concludes on March 31<sup>st</sup> of the following year. The program is managed within the Public Works Department utilizing the Town's Street Maintenance workforce under the direction of the Operations Superintendent, the Deputy Director of Public Works, and ultimately the Director of Public Works. The program provides leaf collection service to all residents within the Town's corporate limits, the processing of leaves into mulch, and delivery of the mulch to both residents and businesses within the Town on an as requested basis. Any mulch left over is currently hauled to businesses that will accept the material for free before March 31<sup>st</sup> each year, which is the date the Town's operating permit expires. The program is funded by general tax revenues and there is no cost to the residents or businesses at the time of collection or delivery.

The Town engaged NewGen Strategies and Solutions, LLC (NewGen) to evaluate the Town's Leaf Collection Program and answer several specific questions:

- How much does it cost the Town to operate its current Program?
- What are the policies, methodologies, and costs of similar programs in the surrounding area?
- How much would it cost to conduct leaf operations elsewhere, such as at another site in or out of town?
- How much would it cost the Town to run a marketing program to encourage residents to mulch leaves on their own property?
- Is there an environmental benefit to mulching on a resident's own property?
- Would having residents mulch on their own property result in cost reductions, such as reductions in labor and equipment costs to collect and process leaves?
- Would there be a cost and operational benefit to limit collection to three passes rather than the current four to six?
- Is there a more cost-effective way to run the program while maintaining the current level of service?
- Should the Town divert a certain amount of leaves to landscape companies when picked up, instead of after being stockpiled and ground?
- If the Town stopped leaf collection and or delivery what would the cost (if any) to the Town be?

This report details NewGen's evaluation and our findings, conclusions, and recommendations related to the questions above.

### Scope of Work

To answer the questions posed above, NewGen developed a Scope of Work comprised of the following tasks:

#### *Task 1 – Project Kickoff Meeting / Data Collection*

NewGen requested all relevant data from the Town to complete the evaluation and met with Town staff to review the goals of the study.



### ***Task 2 – Regional Benchmarking***

NewGen reviewed the leaf collection programs of the Towns of Herndon and Leesburg, the Cities of Fairfax and Falls Church, and Fairfax and Arlington Counties in order to benchmark their program costs, operations, and key metrics compared to Vienna's program.

### ***Task 3 – Evaluate Current Leaf Collection Program Costs***

NewGen compiled the full cost of the Town's program and estimated future costs based on several scenarios that provide the same level of service as the Town provides currently.

### ***Task 4 – Operational Site Visit and Interviews***

NewGen staff visited the Town's DPW facility and the site the Town uses to process leaves. NewGen also drove leaf collection routes and inspected the Town's equipment. NewGen interviewed DPW staff to gather input on the current program and possible alternatives.

### ***Task 5 – Estimate Alternative Leaf Collection Program Costs***

Based on the information gathered during Town staff interviews, NewGen developed alternative program costs that provide alternative levels of service and have different cost impacts to the Town.

### ***Task 6 – Report and Presentation***

NewGen has compiled the evaluation's results into this narrative report, and will attend a work session with Town Council to discuss the leaf collection program's current operation and future service options.



## Section 2

### CURRENT LEVEL OF SERVICE COSTS

NewGen's first task was to compile the costs of the Town's existing program. While the study is based on the latest available actual data, there are several major assumptions that are included in the study's cost projections.

#### Major Study Assumptions

In order to project the operating and capital expenses of the Town's leaf collection program, several major assumptions were made. These assumptions were developed with input from Town staff.

#### Cost Escalation Assumptions

NewGen's cost projections are based on the latest available actual data. In order to project future costs, escalation and inflation factors must be assumed. NewGen's financial model includes the Town's leaf collection operating and capital budgets, each of which are assigned the inflation factors outlined in Table 2-1.

Table 2-1  
Operating Budget Escalation Factors

	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Operating Expenses	2.50%	2.50%	2.50%	2.50%	2.50%
Capital Costs	5.00%	5.00%	5.00%	5.00%	5.00%

The Town's leaf collection operating costs are inflated at 2.5% per year beginning in FY 2021. Any operating costs added under alternative programs are included at their inflated cost. The Town uses a capital replacement cost inflation factor of 5.0% per year, which is reflected in the vehicle replacement schedule provided to NewGen as a part of the evaluation.

#### Service Area and Service Level Assumptions

NewGen's analysis includes projecting the future costs of the Town's program under the current level of service and several alternative levels of service. In order to project costs in each case, NewGen assumes that the FY 2020 amount of leaves collected and the FY 2020 demand for leaf deliveries will remain constant over the five-year projection period. Any increase or decrease in residential demand for leaf deliveries may impact the projections developed during NewGen's study.

#### Allocation of Equipment Capital Costs

The Town currently owns and operates all the equipment needed to run the Leaf Collection Program, although not all of the equipment is used exclusively for the program. In order to calculate the true cost of the program, NewGen assigned percentages to assets based on their time used for leaf collection. Some equipment, such as leaf collectors, are 100% dedicated to leaf collection. Other assets, such as tandem

## Section 2

trucks, are assigned 20% to leaf collection based on the program running from October through March each year, which is half of the year. The assets considered in this analysis are listed below from oldest to newest.

**Table 2-2**  
**Town of Vienna Leaf Collection Asset List**

<b>Asset #</b>	<b>Description</b>	<b>Useful Life</b>	<b>Age (Yrs.)</b>	<b>Purchase Price</b>	<b>% Allocated to Leaf Collection</b>
148	Leaf Machine Box	N/A	26	\$3,403	100%
172	Leaf Machine Box	N/A	23	\$3,750	100%
131	W.H.O. P10143HD525 Tub Grinder	15 years	17	\$131,100	100%
258	2006 ODB LCT600 Leaf Collector	15 years	14	\$15,009	100%
83	2007 Volvo VHD64B Tandem Dump Truck	15 years	14	\$106,174	20%
176	Leaf Machine Box	N/A	14	\$4,620	100%
2084	2007 Chevrolet Colorado 1/2 Ton Pickup Truck	10 years	13	\$14,439	20%
28	2007 Chevrolet Kodiak C7500 Dump Truck	12 years	13	\$77,450	20%
200	2007 ODB LCT650 Leaf Collector	15 years	13	\$17,298	100%
38	2010 Volvo VHD64B Tandem Dump Truck	15 years	11	\$120,201	20%
65	2010 Volvo VHD64B Tandem Dump Truck	15 years	11	\$120,201	20%
194	ODB LCT650 Leaf Collector	15 years	9	\$18,653	100%
171	2010 O.D.B. LCT650 Leaf Collector	15 years	9	\$18,653	100%
27	2012 Ford F450 with 1 Ton Dump Body	15 years	9	\$47,400	20%
195	John Deere 544K Rubber Tire Loader	15 years	9	\$157,292	20%
147	Leaf Machine Box	N/A	8	\$5,450	100%
92	2012 Ford F450 with 1 Ton Dump Body	15 years	8	\$48,769	20%
57	2013 Ford F450 with 1 Ton Dump Body	15 years	7	\$41,309	20%
60	2015 Chevrolet Silverado Pickup	10 years	5	\$23,505	20%
70	2015 Ford F150 1 Ton Crew Cab	12 years	5	\$44,325	20%
144	Bobcat A770 Skid Steer Loader	12 years	4	\$61,511	20%
41	2017 International Model 7300 2 Ton Dump Truck	12 years	4	\$107,250	20%
163	2018 John Deere 544K-II Rubber Tire Loader	15 years	3	\$176,939	20%
193	ODB LCT650-GAS Leaf Collector	15 years	2	\$31,644	100%
140	Bobcat A770 Skid Steer Loader	12 years	1	\$64,949	20%
32	2020 Ford F150 1/2 Ton Pickup Truck	10 years	0	\$25,994	20%

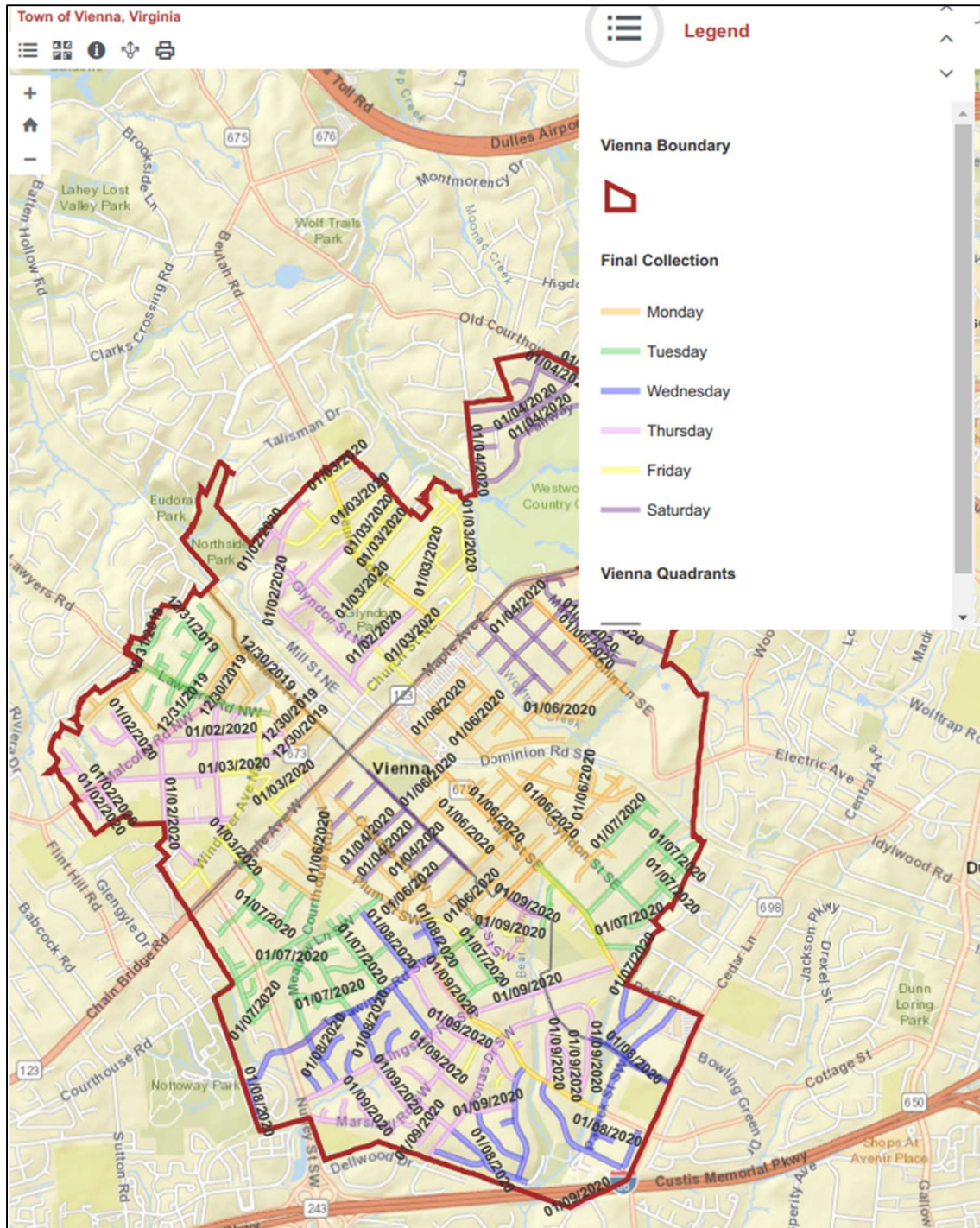
Based on the useful life of the Town's assets, the tub grinder is the only asset that has reached the end of its useful life. This report discusses the various options the Town has to replace the grinder, including renting or contracting out grinding services.

The allocations shown above impact only the replacement cost of each asset. The operating, maintenance, and fuel costs provided to NewGen by the Town have already been adjusted for costs incurred during the Leaf Program season.

## Existing Level of Service

The Town currently uses existing Public Works staff to operate the leaf collection program without any additional temporary workers. Residents rake leaves to the edge of their property and the Town uses leaf loaders trailing behind tandem trucks to vacuum up the leaves. The following map shows the FY 2020 routes and the final collection day for that year's program.

**Exhibit 2-3: Current Service Area and FY 2020 Routes**





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The following exhibits show examples of the Town's leaf collection rolling stock, specifically a Leaf Loader and a Tandem truck.

**Exhibit 2-4: Vehicle #171 – Leaf Loader**



Exhibit 2-5: Vehicle #38 - Tandem Truck



The Town has made at least four passes to collect leaves in the past three fiscal years. In FY 2018 six passes were made, in FY 2019 five were made, and in FY 2020 four passes were made. The Town has collected over 8,600 cubic yards (CY) each year since FY 2018, as shown in the table below.

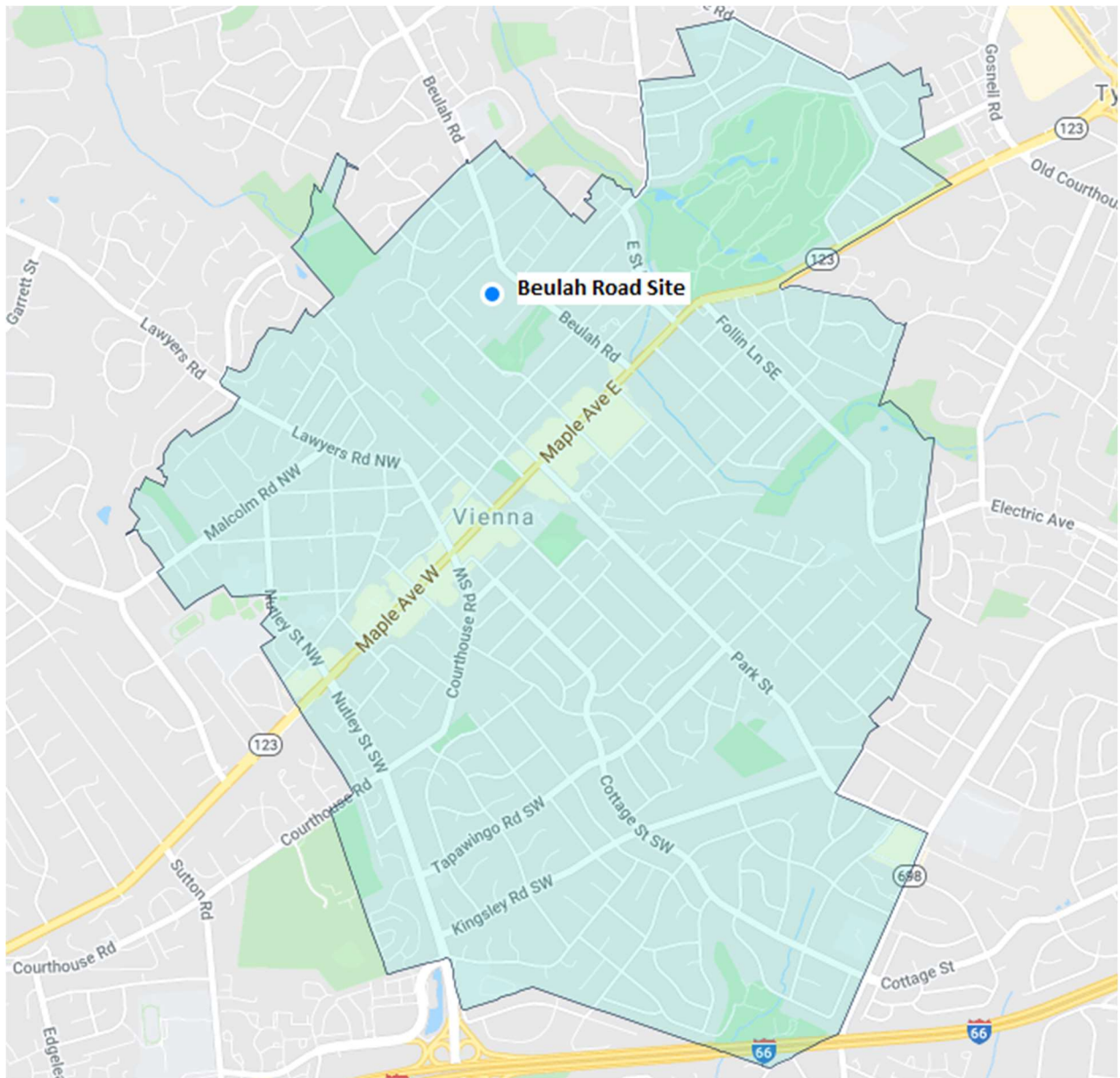
**Table 2-6**  
**Total Leaf Volume Collected (CY) – Past Three Fiscal Years**

	FY 2018	FY 2019	FY 2020
<b>Total Passes</b>	6	5	4
<b>Volume Collected (CY)</b>			
October	217	168	217
November	3,493	3,493	2,730
December	5,292	5,264	4,872
January	399	126	833
<b>Total Collection Volume (CY)</b>	<b>9,401</b>	<b>9,051</b>	<b>8,652</b>
<b>% Change</b>		<b>(3.7%)</b>	<b>(4.4%)</b>

The Town's tandem trucks transport the leaves to the Town's leaf grinding site, located in Beulah Road site, the location of which within the Town is shown below.



**Exhibit 2-7: Beulah Road Location within the Town**



The parcel at Beulah Road Park is about eight acres in size, and the Town's equipment and leaf storage piles take up about one acre of the parcel during the months of October through March. The leaf storage area, shown below, is a relatively flat gravel area surrounded by noise reducing walls.

Exhibit 2-8: Beulah Road Site (Ground Level)



Currently, the Town uses a tub grinder that they own to grind the leaves, shown below.

Exhibit 2-9: Vehicle #131 - Tub Grinder



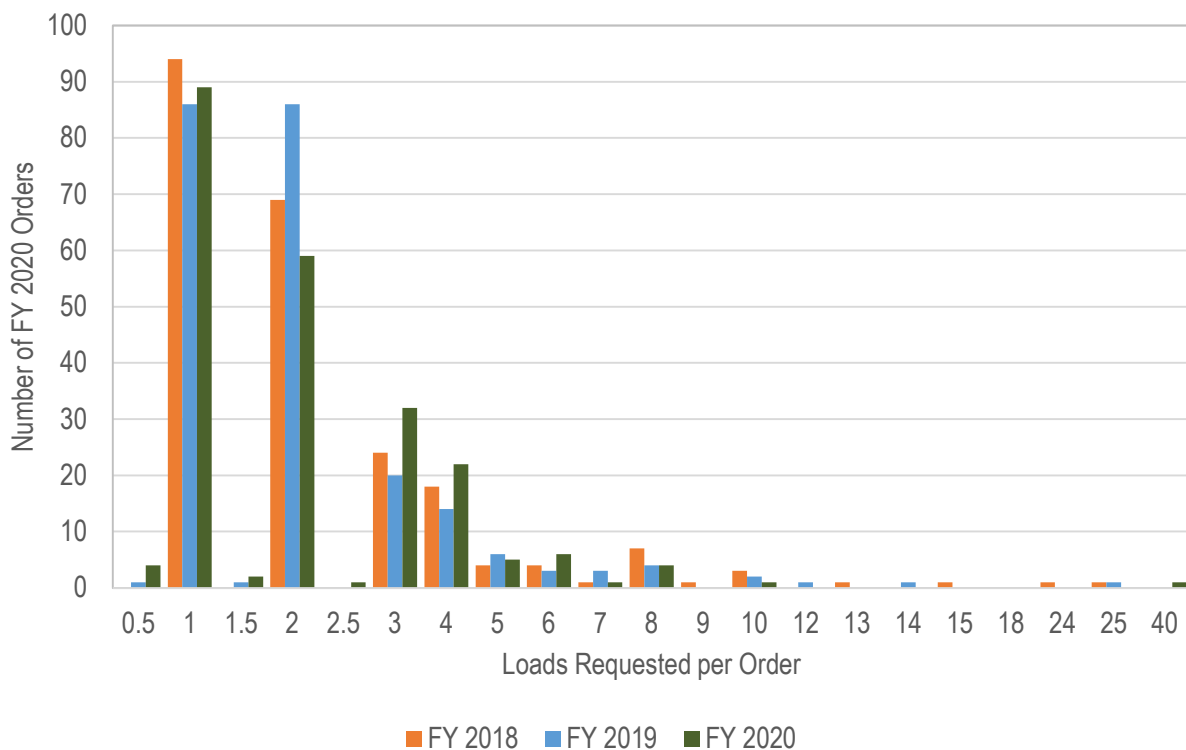
The ground up leaves are then stored at the Beulah Road site until residents and businesses request delivery of the mulch, typically beginning in January and continuing February, and sometimes early March. The total number of orders for the past three fiscal years is shown in the table below.

**Table 2-10**  
**Total Mulch Orders – Past Three Fiscal Years**

	FY 2018	FY 2019	FY 2020
January	181	149	135
February	206	153	95
March	-	24	-
<b>Total Orders</b>	<b>387</b>	<b>326</b>	<b>230</b>
<i>% Change</i>		<i>(15.8%)</i>	<i>(29.4%)</i>

The total number of orders has declined significantly over the past three years. Each order is for a certain amount of loads, with one load equaling three cubic yards of mulch. Most orders in each of the past three fiscal years have been for one or two loads, as shown in the load profiles in the following exhibit.

**Exhibit 2-11: FY 2018 – FY 2020 Load Profiles**



There has been a similar decline in the number of loads and total volume of mulch (in cubic yards) delivered to Town residents and businesses.

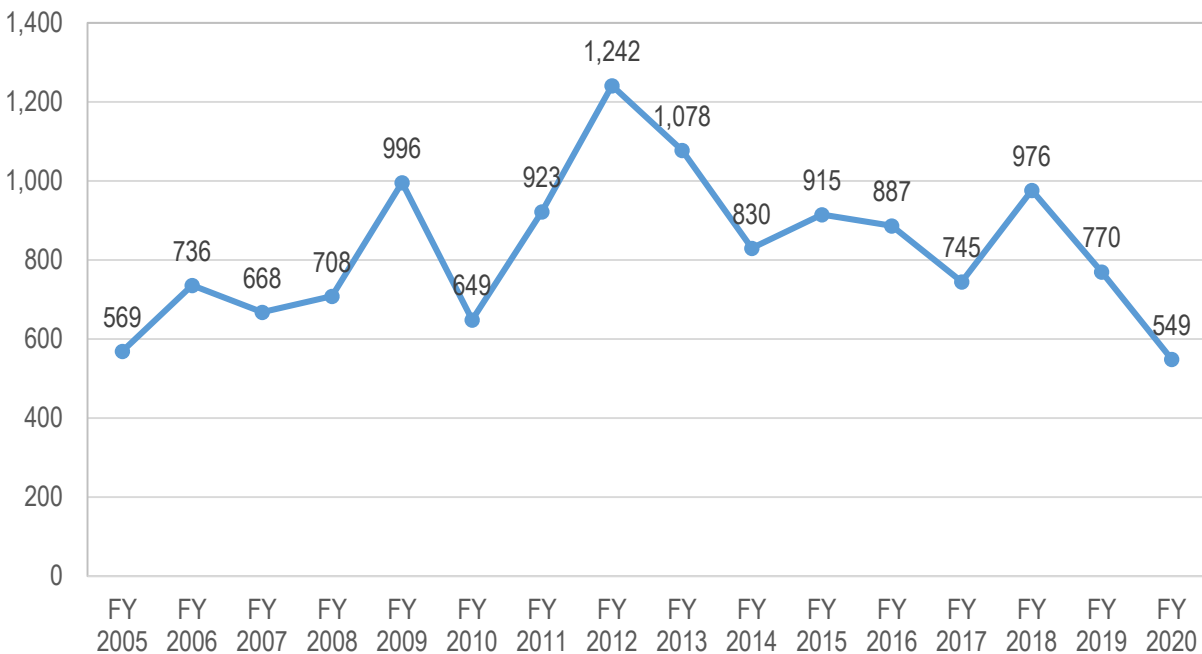


**Table 2-12**  
**Total Delivery Loads and Volume – Past Three Fiscal Years**

	FY 2018	FY 2019	FY 2020
January	517	364	318
February	459	324	231
March	-	82	-
Total Loads Delivered	<b>976</b>	<b>770</b>	<b>549</b>
% Change		(21.1%)	(28.7%)
Total Volume Delivered (CY)	2,927	2,309	1,646
% Change		(21.1%)	(28.7%)

Since FY 2005, the Town has seen an increase and then decrease in the number of mulch delivery orders, as shown in the following exhibit.

**Exhibit 2-13: Total Mulch Delivery Orders FY 2005 – FY 2020**



Since the program's peak in FY 2012 there has been a cumulative 55.8% decrease in the number of delivery orders, which equals a compound annual decrease of 9.8% per year. Over the same period of time, United State Census Bureau estimates show a compounding annual growth rate of 0.6% per year for the Town's population. NewGen's evaluation of future levels of service and cost projections assume that demand for this service will remain at FY 2020 levels.

## **Cost of Service under Existing Level of Service**

The baseline analysis during NewGen's study determined the total cost of the existing leaf collection program, including operating and capital costs.

### **Operating Costs**

The personnel costs related to the program are overtime pay and the related costs of benefits/taxes. While a lot of collection is completed during normal hours, only the overtime costs are accounted for as a part of the Leaf Collection Program costs. This is due to the fact that if the Town did not operate the Leaf Collection Program, then street staff would still be working normal hours. Other operational costs are fuel and the general maintenance costs related to the Town's rolling stock.

Historically, the Town has been able to dispose of excess mulched leaves at no cost. In FY 2020, the Town disposed of 3,400 cubic yards (CY) of mulched leaves at no cost through arrangements with local businesses, which represented about two thirds of the mulch processed during the program. The remaining one third was delivered to residents and businesses as part of the Town's delivery program. In late September 2020, the Town was notified that its largest disposal partner would no longer be operating as of November 2020. As of the time of this report, the Town is investigating alternative low or no-cost disposal options. In order to be conservative, NewGen is assuming that the Town will need to dispose the full amount of excess mulch at the local prevailing rate of \$35.00 per ton. The estimated annual cost of disposal is detailed as follows:

**Table 2-14**  
**Leaf Mulch Disposal Cost Estimate**

	<b>FY 2021 Estimate</b>
Total Cubic Yards (CY) (a)	3,400
Lbs. per CY (b) <sup>1</sup>	450
Total Lbs. (a) x (b) = (c)	1,530,000
Lbs per Ton (d)	2,000
Total Tons (c) x (d) = (e)	765
Cost per Ton (f)	\$35.00
<b>Total Annual Disposal Cost (e) x (f)</b>	<b>\$26,775</b>

This cost is in addition to the program's historical operating costs. The table below shows the FY 2021 requested leaf collection program operating costs, plus the additional disposal costs, projected through FY 2025.

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<sup>1</sup> High estimate for ground leaves, Richard & Skelton. Fact Sheet 2. Cornell Waste Management Institute. 1990.  
<https://ecommons.cornell.edu/bitstream/handle/1813/44808/YardWasteComposting2.pdf> 02 Oct 2020

**Table 2-15**  
**Projected Leaf Collection Program Operating Costs**

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>
Personnel	\$50,150	\$51,404	\$52,689	\$54,006	\$55,356
Rolling Stock Maintenance	\$23,425	\$24,010	\$24,611	\$25,226	\$25,857
Fuel	\$14,275	\$14,632	\$14,998	\$15,373	\$15,757
Disposal Costs	\$26,775	\$27,444	\$28,130	\$28,834	\$29,555
<b>Total Operating Costs</b>	<b>\$114,625</b>	<b>\$117,490</b>	<b>\$120,428</b>	<b>\$123,438</b>	<b>\$126,524</b>

As previously stated, the maintenance and fuel costs shown above have been adjusted for asset operation only during the Leaf Collection Program.

### Capital Costs

The Town capitalizes the major costs of replacing its leaf collection related assets including tandem trucks, pickup trucks, leaf loaders (vacuums), skid steers (front loaders), and leaf grinders. The costs to replace these assets ranges from about \$35,000 (pickup trucks) to over \$500,000 (grinders). The Town uses a four-year capitalization schedule for leaf collection assets. That is, the Town plans the replacement of these assets when issuing debt, and uses proceeds from debt to pay off the purchase of these assets over a four-year period.

### Rolling Stock Replacement Costs

The Town vehicles (rolling stock) related to the leaf collection program includes tandem trucks, pickup trucks, leaf loaders (vacuums), and skid steers (front loaders). Some of these vehicles are multi-purpose, and serve other uses throughout the year. For the purposes of calculating the cost of these assets that is related to the Leaf Program, NewGen assumed that 20% of the cost of multi-purpose assets should be attributed to the Leaf Collection program. If the Town were to discontinue the Leaf Program, then the Town would no longer be required to own the grinder and leaf loaders. However, the Town would maintain ownership of the various trucks, which would be put to other Public Works uses.

The table below shows a summary of the currently planned ten-year replacement schedule for the Town's leaf collection program, adjusted for the fact that the vehicles purchased would be used elsewhere throughout the Town for part of the year. The table excludes the Town's leaf grinder, which will be discussed separately.

**Table 2-16**  
**Leaf Collection Rolling Stock Ten-Year Replacement Plan**

#	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030
27	1 Ton Truck							\$63,155			
28	2 Ton Truck	\$158,792									
32	Pickup Truck										\$38,991
38	Tandem Truck					\$195,654					
41	2 Ton Truck									\$230,970	
57	1 Ton Truck								\$65,192		
60	Pickup Truck					\$31,208					
65	Tandem Truck			\$181,679							
70	1 Ton Truck							\$70,776			
83	Tandem Truck		\$174,691								
92	1 Ton Truck							\$63,155			
144	Skid Steer									\$98,418	
171	Leaf Loader					\$42,618					
194	Leaf Loader						\$44,200				
195	Loader								\$233,126		
200	Leaf Loader			\$39,454							
258	Leaf Loader		\$37,872								
<b>Total</b>		<b>\$158,792</b>	<b>\$212,563</b>	<b>\$221,133</b>	<b>\$ -</b>	<b>\$269,480</b>	<b>\$44,200</b>	<b>\$197,086</b>	<b>\$298,318</b>	<b>\$329,387</b>	<b>\$38,991</b>

The Town's replacement cycle is appropriate for the useful lives of the assets it plans to replace. Given the current level of service, the Town plans to spend an average of about \$176,000 per year over the next ten years on leaf collection related assets, excluding grinding equipment.

### **Leaf Grinder Ownership and Rental Options**

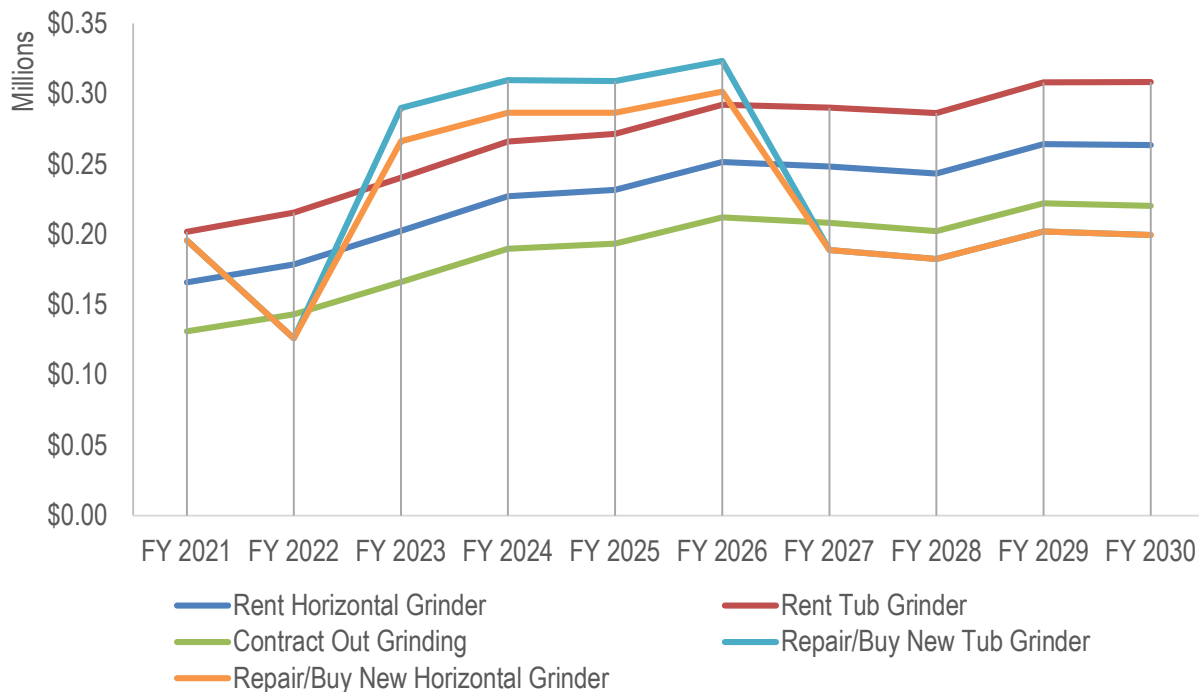
As of the time of NewGen's study, the Town's leaf grinder is non-operational and in need of repair. The Town has investigated several options related to the repair or replacement of its tub grinder. The options include repairing the grinder and purchasing a new one at a later date, renting a grinder and operating it with Town personnel, or contracting out the grinding operation to a private entity. The one-time and ongoing costs related to the grinder options are shown in the table below. NewGen makes the assumption that if the Town chooses to purchase a new grinder, then that purchase would take place in FY 2022. This also assumes that the current grinder's repairs would be complete for the FY 2021 program.

**Table 2-17**  
**Leaf Grinder Repair and Replacement Options**

	Cost	Timing	Funding
Repair Tub Grinder <sup>2</sup>	\$80,891	FY 2021	Capital
Rent Horizontal Grinder	\$60,000	Annually	Operating
Rent Tub Grinder	\$96,000	Annually	Operating
Contract Out Grinding	\$35,408	Annually	Operating
Buy New Tub Grinder	\$504,741	FY 2022	Capital
Buy New Horizontal Grinder	\$420,201	FY 2022	Capital

In each case shown above except the contract out option, the Town will continue to use its street maintenance personnel to run the entire leaf collection program. If the Town decides to contract out the grinding of the leaves, then Town personnel will operate the other aspects of the program and not the grinding. This may result in a more efficient use of Town personnel time while maintaining the same level of service within the leaf collection program. This will also reduce fuel and maintenance costs. The tub grinder accounted for 34% of FY 2020 maintenance costs and 6% of FY 2020 fuel costs. The following exhibit shows the total program cost under the various alternatives when adjusted for grinder fuel and maintenance costs.

**Exhibit 2-18: Long-Term Leaf Collection Program Cost by Grinding Alternative**



The increase in program cost from FY 2023 through FY 2026 for the new grinder alternatives is due to the capitalization of the replacement costs in those two scenarios, assuming the purchase is completed in FY

<sup>2</sup> Tub Grinder repair costs includes a 20% increase of the current estimate to account for unknown repairs that cannot be determined until the grinder is disassembled. The repair is assumed to take place in FY 2021.

2022. The scenario in which the Town contracts out the grinding operation to a third party assumes a reduction in costs due to reductions in the overtime and related benefits needed to be spent by the Town on its own personnel. All non-ownership scenarios (grinder rental or contracting out) include a reduction in maintenance and fuel costs related to the Town's grinder, which it would no longer need to maintain or operate.

The purchase of a new tub or horizontal grinder would increase the cost of the leaf collection program while the purchase is paid for over time. Contracting out the grinding operation may result in cost savings for the Town, as the ongoing operational costs of the program would be very similar to the current operation, however the Town would not incur the purchase and maintenance costs of a new grinder in the short term.

## Section 3

### ALTERNATIVE LEVELS OF SERVICE

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Task 5 of NewGen's scope was to evaluate the cost and level of service impacts of different approaches to the Town's leaf collection program. The Town's existing program provides an extremely high level of service, and Section 2 of this report detailed the alternative costs to maintain that level of service. Because of the high level of service currently offered, NewGen did not identify any ways in which to increase the current level of service.

Prior to September 30, 2020, NewGen identified three alternative options that would reduce the level of service to the Town's residential and business customers while also reducing the costs to the Town. However, two of these options depended on the Town's historical ability to dispose of excess leaf mulch at no cost beyond the labor, increased equipment maintenance and fuel needed to reach the disposal site. Given the fact that this may no longer be an option for the Town, the two alternatives would likely result in an increase in costs coupled with a reduction in service, which NewGen believes is not a viable path forward.

The third option assumes that the Town would cease all operation of the leaf collection program. Given the operational cost changes communicated to the Town in late September, this is the only option that NewGen identified as a potential alternative. This section will describe the three alternatives and develop cost projections for the one identified by NewGen as feasible.

#### Short Haul Service

The first alternative level of service would remove the leaf grinding and mulch delivery services currently provided by the Town. Previous to September 2020, Town staff identified a business willing to take 100% of the Town's unground leaves if the Town were to deliver the leaves directly to the businesses. One way to achieve this is by "short hauling" the leaves to the local business or businesses. This would still require the use of either the existing or alternative site, however leaf grinding would no longer take place. Instead, this area would be used as a staging area where tandem trucks would unload leaves after collection. The leaves would be transferred to larger trucks which would then take them to the local businesses. This change in the level of service would mean residents and businesses would no longer be able to schedule mulch deliveries.

The potential savings of the short haul alternative were dependent on the Town being able to dispose of all leaves at no cost. Due to the change in the Town's ability to do so, this option is no longer cost effective, especially given the reduction in service. In addition, unground leaves are not a desirable product and would be difficult to dispose of.

#### Direct Haul Service

The second alternative level of service would also remove the grinding and mulch delivery services currently provided by the Town. Under this alternative, the Town would collect leaves as they do now, but would not centralize leaf storage or grinding. Instead, the Town would immediately drive full tandem trucks to businesses who have been identified by Town staff as willing to take as much unprocessed leaf material as the Town is willing to deliver with no cost to the Town.



Similarly to the short haul alternative, the direct haul alternative was only cost effective when the Town had no disposal costs. Given the developments previously discussed, the direct haul alternative is no longer viable due to increased costs and a reduction in the level of service provided.

### Leaf Collection Program Elimination

The Town has the option of discontinuing the leaf collection program in any form, which would require residents to either:

- Hire a landscaping company to collect and dispose of their leaves
- Collect and bag leaves and leave them for the Town's general yard waste collection
- Compost a portion of leaves on their property and bag the rest as yard waste

The first alternative would increase costs on the residents that choose to hire private businesses to collect and dispose of their leaves, however it would reduce costs the Town due to the elimination of leaf collection, grinding, and disposal costs. However, it is unlikely that most residents will choose this alternative. Under the two other alternatives, the Town would be responsible for collecting the bagged leaves and disposing them as general yard waste at the Fairfax County landfill. The current cost per ton of disposal at the landfill is \$35.00. The following estimate of the net change to the Town's leaf collection costs assumes a leaf volume of 8,652, which is what the Town collected in FY 2020. In order to handle the increase in bagged leaves, Town staff estimates that a new Trash Hauler would need to be purchased at a cost of \$225,000. Additional vehicle maintenance and fuel estimates are based on existing vehicle maintenance records (average of 5.0% per year of vehicle cost) and fuel usage for a similar vehicle (\$2,000 per leaf season).

To calculate the disposal costs under this scenario, the total CY of loose leaves collected in FY 2020 was converted to weight in tons as follows:

**Table 3-1**  
**Bagged Leaves Disposal Cost Estimate**

	<b>FY 2021 Estimate</b>
Total Cubic Yards (CY) (a)	8,652
CY per Bag (b)	0.15
Total Bags (a) / (b) = (c)	57,680
Lbs per Bag (d)	45
Total Lbs (c) x (d) = (e)	2,595,600
Lbs per Ton (f)	2,000
Total Tons (e) / (f) = (g)	1,298
Cost per Ton (h)	\$35.00
<b>Total Annual Disposal Cost (g) x (h)</b>	<b>\$45,423</b>



**Table 3-2**  
**Program Elimination Cost Impact**

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>
Elimination of Leaf Collection Program	(\$114,625)	(\$117,490)	(\$120,428)	(\$123,438)	(\$126,524)
Additional Trash Truck Purchase (capitalized)	\$0	\$63,000	\$61,313	\$59,625	\$57,938
Additional Vehicle Maintenance (5.0% of truck value)	\$11,250	\$11,531	\$11,820	\$12,115	\$12,418
Additional Fuel (estimate based on current costs)	\$2,000	\$2,050	\$2,101	\$2,154	\$2,208
Additional Disposal Cost	\$45,423	\$46,559	\$47,723	\$48,916	\$50,138
<b>Net Impact on Town</b>	<b>(\$55,952)</b>	<b>\$5,649</b>	<b>\$2,528</b>	<b>(\$629)</b>	<b>(\$3,823)</b>

The Town would pay additional tipping fees to dispose of resident's bagged leaves, however the elimination of the leaf collection, grinding, and delivery program may result in overall cost savings for the Town. Cost savings would be greater if the Town were able to continue to dispose of leaves at no cost. At the time of this report, no method of doing so has been identified.

## Section 4

# REGIONAL BENCHMARKING

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### Benchmarked Leaf Collection Programs

Task 2 of NewGen’s scope of services involved the benchmarking of similar programs in the Northern Virginia area. The following leaf collection programs were evaluated as part of Task 2:

- Arlington County
- Town of Herndon
- City of Fairfax
- Fairfax County
- City of Falls Church
- Town of Leesburg

### Benchmarking Methodology

When comparing similar programs between jurisdictions, it is sometimes difficult to produce an “apples to apples” comparison. NewGen’s approach is to take a high level view of the major factors that define a leaf collection program, such as:

- Number/Frequency of Passes
- Program Date Range
- Annual Program Cost
- Total Households Served
- Residential Delivery
- Direct Charges

The following table shows a broad evaluation of the benchmarked jurisdictions and how they compare to the Town’s program.

Exhibit 4-1: Leaf Collection Program Benchmarking Summary

Jurisdiction	# of Passes	Program Date Range	FY 2020 Annual Cost	# of Households (rounded)	Residential Delivery?	Direct Charges?	Program Notes
Town of Vienna	Four to Six	October - March	\$245,000	5,500	Delivery	None	Leaves are collected, ground, and delivered on a first come first serve basis to residents and businesses.
Town of Herndon	Every Other Week (approximately Ten)	October - December	Unbudgeted, part of PW	5,200	None	None	Leaves are collected, stored, and brought directly to local businesses.
City of Fairfax	Four times in April (Tuesdays) and once every two weeks between October and December	October - January	Unbudgeted, part of PW	26,000	None	Leaf Levy is \$0.012 per \$100 AV	Leaves are collected and brought to Prince William County and a private business. Leaves are stored for a short time if necessary.
City of Falls Church	Four	October - Early January	\$179,000	6,000	Pickup	None	Leaves are collected, mulched, and are available at the Falls Church Recycling Center until supplies last.
Fairfax County	Three	November - January	\$2,383,000	394,500	Pickup	None	Leaves are taken to Pine Ridge Park on Woodburn Road, ground into mulch and distributed to various public sites around the county. Free leaf mulch is available for pickup while supplies last.
Town of Leesburg	Once every Five to Seven Business Days	October - December	Unbudgeted, part of PW	11,000	None	None	Grind at site, contact out mulch hauling to local businesses who take it at no cost.
Arlington County	Two Plus a follow up	November - December	Unbudgeted, part of Dept. of Environmental Services Estimate is \$980,000	33,000	Delivery	Program is included in \$306 annual refuse collection fee. \$75 per load for delivery.	Leaves are ground and stored in several locations then distributed to residents only and within the County (parks)

## Section 5

# FINDINGS AND CONCLUSIONS

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### Questions from the Town

- How much does it cost the Town to operate its current Program?
  - This is addressed in Section 2 of this report
- What are the policies, methodologies, and costs of similar programs in the surrounding area?
  - This is addressed in Section 4 of this report.
- How much would it cost to conduct leaf operations elsewhere, such as at another site in or out of Town?
  - NewGen discussed with Town staff the potential alternative sites identified by the Town and determined that they would not be an improvement on the current site, and therefore did not develop cost estimates related to moving the collection/grinding site. NewGen did not identify any outside Town locations suitable for leaf grinding and storage that would create efficiencies for the Town's program. The Town's current site is relatively centrally located and owned by the Town, resulting in low overhead costs. The Town is limited, however, by the operating permit it holds that mandates the leaf program only take place between October 1 and March 31 each fiscal year.
- How much would it cost the Town to run a marketing program to encourage residents to mulch leaves on their own property?
  - This depends greatly on the scope of the plan. The volume of leaves that residents would utilize for mulching combined with the level of effort involved in the process would not result in any cost savings for the Town. Any marketing program's impact would not reduce the amount of leaves that the Town processes enough to result in cost savings. However, as a matter of public policy, the Town may incur the cost of a marketing campaign to increase environmental stewardship within the Town.
- Is there an environmental benefit to mulching on a resident's own property?
  - There is a general consensus among environmental groups that mulching leaves has beneficial impacts on residential properties.<sup>3</sup> Some of the benefits include improved soil structure and the reduced need for fertilizer, reduction in polluting stormwater contaminants such as phosphorus, weed suppression, and the reduced burden on municipal and private service providers. In addition, the reduction in engine exhaust that would result from a reduced leaf collection, grinding, and/or delivery would benefit the environment.
- Would having residents mulch on their own property result in cost reductions, such as reductions in labor and equipment costs to collect and process leaves?

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<sup>3</sup> <https://www.usatoday.com/story/news/nation/2019/10/05/raking-leaves-fall-stop-now-keep-leaves-lawn-mulch-them/3853468002/>

- Having residents mulch on their own property would certainly result in cost reductions. However, if the Town were to discontinue leaf collection, most residents would instead bag their leaves for pickup and disposal by the Town, which would increase tipping fee costs to the Town. This impact is discussed in Section 3 of this report.
- Would there be a cost and operational benefit to limit collection to three passes rather than the current four to six?
  - There would be a cost benefit, although it would not be proportional to the reduction in passes due to large fixed costs associated with the program. NewGen estimates that reducing passes from six to three would reduce costs by about 20% due to vehicle maintenance, grinding, and delivery costs all remaining roughly the same. The operational benefit of any reduction in leaf collection would be that Town Public Works staff would be free to perform more of their regular street maintenance functions.
- Is there a more cost-effective way to run the program while maintaining the current level of service?
  - This is discussed in Section 2 of this report.
- Should the Town divert a certain amount of leaves to landscape companies when picked up, instead of after being stockpiled and ground?
  - This is discussed in Section 3 of this report.
- If the Town stopped leaf collection and or delivery what would the cost (if any) to the Town be?
  - This is discussed in Section 3 of this report.

## **Findings and Conclusions**

NewGen made the following findings and developed the following conclusions during the study.

- The Town's Leaf Collection Program provides an incredibly high level of service to Town's customers.
- The Town's program offers the highest level of service to its customers when compared to similar local programs.
- The Town uses in-house staff and assets to provide leaf collection, grinding, and delivery services throughout the Town in an efficient manner.
- The historical benefit of disposing leaf mulch at no cost was a main factor in the program's cost efficiency.
- As of November 2020, the Town will no longer be able to dispose the historically normal level of leaf mulch at no cost.
- Unless the Town identifies new disposal options, the cost of the Town's program will increase in future years to account for disposal costs.
- If the Town determines that the best course of action is to continue the program, then renting a grinder or contracting out the grinding operation may result in cost savings when compared to purchasing a new leaf grinder.
- If the Town determines that the best course of action is to discontinue the program, then the overall costs to the Town may remain fairly constant given that the Town would be responsible for much higher disposal fees for bagged leaves.