

Review of Leaf Management Options

Scarsdale Conservation Advisory Council

May 2014





Background

The Scarsdale Village Board adopted a Leaf Mulching Resolution in December, 2011 (see appendix).

The Village has since conducted mulching-in-place of fall leaves in deLima and Chase Parks. It also encouraged voluntary efforts by local landscapers and residents.

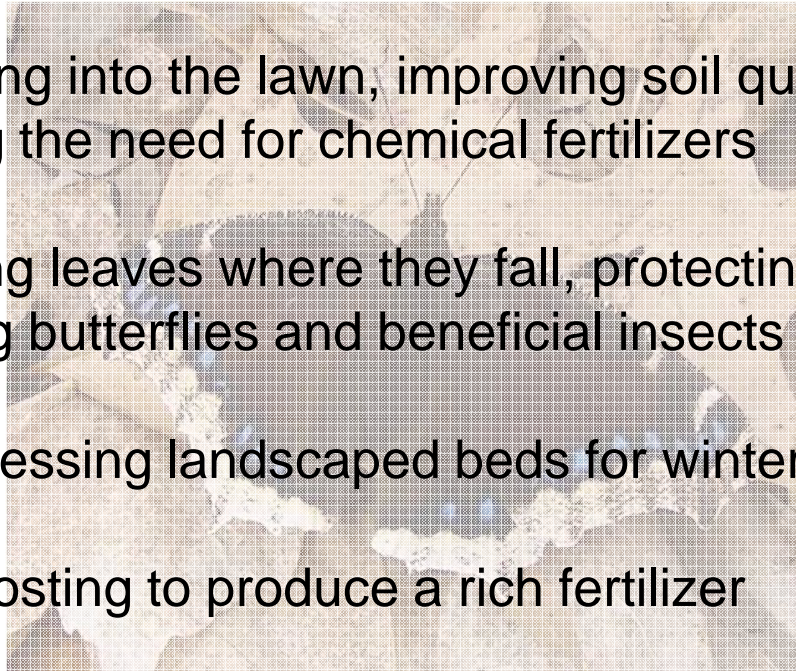
Subsequent public training sessions took place in the region, as well as in Scarsdale. Local municipalities have made varied strides in the effort to reduce organic waste, including leaves.



Preferred Outcome – Onsite Reuse

Environmentally, the preferred practice is to naturally reuse leaves on site.

- Mulching into the lawn, improving soil quality, and reducing the need for chemical fertilizers
- Leaving leaves where they fall, protecting overwintering butterflies and beneficial insects
- Top-dressing landscaped beds for winter
- Composting to produce a rich fertilizer





Policy Options

The CAC recommends that this option be pursued regardless:

- Continue and strengthen outreach to residents, highlighting the yearly expense to vacuum leaves versus the environmental benefits of onsite leaf reuse

The CAC provides these additional options* for BOT consideration:

- Charge for leaf vacuuming
- Reduction of leaf vacuuming frequency
- Discontinue leaf vacuuming, allow bagging

* No charge for pickup of bagged leaves

Options Grid

Option	Village Cost Reduction	Impact on Leaf Mulching	Resident Disruption
Education Alone	Least	Least	Least
Reduction of Leaf Vacuuming Frequency	Moderate	Moderate to Highest*	Moderate
Charge for Leaf Vacuuming	Adjustable – potentially Highest**	Adjustable	Adjustable
Discontinue Residential Leaf Vacuuming	Highest	Highest	Highest

* May best facilitate a transition to mulching, including support of partial mulching.

** Can be adjusted to entirely offset the cost of leaf collection.



Intensify Leaf Mulching Outreach

Current efforts are not reaching a wide audience

An investment is required to reach a more widespread audience: \$5-15K* yearly + part time coordinator

HOWEVER - avoided costs from neighboring communities' multiyear leaf mulching advocacy only efforts cannot yet be assessed

* Not an estimate. Intended to provide the scale of anticipated costs.



Public Education Outreach - Outline

Just prior to next leaf season:

- Survey residents' attitudes and knowledge
- Place signage at:
 - Schools, which already mulch
 - All parks and fields
 - DPW vehicles
 - Village Hall
 - Scarsdale train station
- Conduct a Village mailing dedicated to the topic
- Implement a pilot program among a group of leaf mulching residents, with standardized lawn signage (waiver from signage ordinance)
- Redouble vendor education efforts
- Stage frequent demonstrations
- Roll out a media effort



Gauge Resident Attitudes & Knowledge

The CAC has prepared a survey to gauge current resident practices and interest. Planned for Fall release.

Scarsdale Resident Leaf Mulching Survey

Leaf mulching is the practice of chopping leaves into small pieces. Mulching can be done with a lawn mower or a leaf shredder. Mulched leaves can be left on your lawn (they fall between the grass blades) or piled 3" or 4" deep on garden beds and around shrubs where they act as a protective layer in the winter and, in the growing season, prevent weed growth and help conserve water. Leaf mulch decomposes over time, adding important nutrients and structure to the soil; it makes lawns healthier.

Mulch-mowing can be done by both homeowners with small mowers or by commercial landscapers. Deep piles of leaves are no match for landscapers equipped with leaf mulching blades. The small pieces of leaf material that are left on the lawn after a deep pile has been mulched can be raked or blown around shrubs or simply redistributed around the lawn to slowly decompose and feed the soil.

In 2011 Scarsdale's cost of leaf collection was \$750,000, involving 14,000 labor hours and 7,074 truck trips out of the Village. Leaf mulching promises to mitigate these costs.

*** Required**

Have you heard of the idea of grinding leaves back into your lawn, also known as "leaf mulching"? *

- Yes
- No

How do you currently dispose of your fall leaves? *

- Leaves blown to curb
- Leaves are bagged
- Leaves are mulched
- Not sure

Who handles most fall leaves on your property? *

- Me
- My landscaper

If you had to pay more for leaf removal, would you consider changing your practice to mulching if your present cost is maintained? *

- Yes
- No

Would your landscaper be receptive to leaf mulching? *

- Yes
- No
- Don't Know

Would you be willing to refer your landscaper to educational resources?

Videos, workshops, printed material, and other online resources are available in both English and Spanish.

- Yes
- No

If your landscaper is not receptive, would you be willing to switch to one who practices leaf mulching? *

Experience has shown there is no additional cost for this service.

- Yes
- No

What concerns (if any) do you have about leaf mulching? *

While the concerns below aren't necessarily true, we want to understand any inhibitions.

- Impact on lawn's appearance
- Increased cost
- Don't understand how to do it
- My landscaper won't listen/understand
- Not enough leaves
- Too many leaves
- Other:

Are you aware that the school district and Village are currently leaf mulching and that it is cost-neutral? *

- Yes
- No

Do you want to learn more about being in a pilot program? If yes, please leave your contact information.

Email or telephone. We will not use this for any purpose other than to contact you.



ADDITIONAL OPTION 1

Charge for Leaf Vacuuming



Continue vacuum leaf collection

Charge properties in proportion to their square footage

Fees will range from under \$100 for small properties to thousands for large ones. Alternative fee schedules could be devised to mitigate extremes

The fee should be waived for properties which agree to mulch or otherwise dispose of leaves on their own

Compliance could be attained through a mix of fines, enforcement and resident reporting

A fee would encourage alternatives to leaf vacuuming: (biodegradable) bagging, removal by landscapers, mulching



CHARGE FOR LEAF VACUUMING

Pro / Con

Pro

Fee exemptions reward properties choosing alternate disposal methods, such as mulching

Residents retain the option to use vacuuming, the most efficient removal option

A fee can be adjusted over time given residents' response, and to gradually encourage substitution to mulching

An indirect tax is shifted to a fee that residents can opt out of

Con

Fees for large properties can be significant

Non-payment may be difficult to assess, particularly if piles are sited away from the offending property

Village staff time will be required for administration & enforcement



CHARGE FOR LEAF VACUUMING

Case Study: Portland, OR

Portland, OR charges for leaf removal. The program was recommended by the Citizen Budget Advisory Committee several years ago and was initiated exclusively due to loss of funding from the State Gas Tax that had previously covered the cost. The water department database is used for billing.

Residents may opt out if they have no street trees or they want to take care of the leaves themselves. A resident that opts out is responsible not only for leaves on the property but also for leaves in the street *in front* of their property.

A \$15 fee is charged for a single pickup. A \$30 fee is charged either for two pickups or a single pickup with blockaded street and removal of all street cars to ensure complete cleanup. The approach taken is based upon neighborhoods' canopy coverage.



ADDITIONAL OPTION 2

Discontinue Residential Leaf Vacuuming

Biodegradably bagged leaves would be collected by the Village

Cost to the Village of collecting bags is expected to be considerably less than vacuuming

Some communities charge for bag pickup. Official stickers could be produced at low cost and sold to landscapers and residents

The increased labor cost of leaf bagging would spur residents to consider alternatives, specifically leaf mulching

The Village could permit landscapers to drop off leaves at the transfer site, provided they have purchased a permit or coupons in advance



DISCONTINUE RESIDENTIAL LEAF VACUUMING

Pro / Con

Pro

Pushes residents either to mulch or otherwise dispose of their leaves, such as by bagging

Greatly offsets Village costs; bagging alone would be more labor efficient for the Village than vacuuming. **Village staff estimate \$150-200K in annual cost savings.***

Bagging alone is better than vacuuming; it decreases leaching of phosphorus and nitrogen into storm runoff, reduces street obstructions and storm drain blockage, and its increased cost will, over time, incentivize residents to mulch

Con

Bagging causes more net waste, even if bags are mandated to be biodegradable

“Implementation shock” when service is cancelled

Shifts expense of leaf disposal from Village to those residents who are unwilling to or cannot mulch

Fees charged by landscapers for bagging are likely to be more than blowing to curb with Village vacuuming

* Discussion between Village Manager, Deputy Village Manager, Superintendent of Public Works (Provided by Asst. to Village Mgr)



DISCONTINUE RESIDENTIAL LEAF VACUUMING Case Study: Greenburgh

Greenburgh previously collected leaf piles from October through December / January.

A public hearing was held in April 2012 to discuss changes to local law requiring that leaves be bagged for pickup. The law was passed later that month.

The town worked closely with the Greenburgh Nature Center to ensure the public received information about leaf mulching, and numerous training sessions were held.

The transition to bagging was “remarkably smooth”.

“Greenburgh did the right thing. Our new policy enabled the town to save money and to use our resources more efficiently. Our employees are able to focus their attention on cleaning up debris and keeping drains clear and we had more resources available to remove obstructions after the hurricane. Our new policy also encourages people to mulch their leaves—which is good for the lawns and good for the environment. I’m very pleased with the decision we made last year.” **Paul Feiner, Town Supervisor**

“You look back and say, ‘we must have been insane!’ In the past we spent two months every year, running at the finish line. Now it’s so easy we can’t even call it ‘Leaf Season’ anymore – we have to find a new name.” **Richard Fon, Deputy Commission of Public Works**

“It cannot be stressed enough how important the bagging of leaves became when faced with the monumental debris clearing task from Hurricane Sandy. Highway crews were able to focus on debris clearing with our heavy equipment, while the sanitation crews were able to collect bagged leaves after the daily refuse collections. Because the leaves were in bags, no heavy equipment was needed to perform leaf collection and the leaves were cleared by mid-December.” **Victor Carosi, Commissioner of Public Works**



DISCONTINUE RESIDENTIAL LEAF VACUUMING Case Study: White Plains

White Plains announced the elimination of leaf collection and backyard pickup and then rescinded both plans after community response.

It could be that the community reacted so negatively due to the following factors:

- No education campaign seemed to have accompanied cancellation of leaf removal.
- White Plains cancelled *both* leaf collection and backyard garbage pickup.

WPCNR THE COLLECTION NEWS. September 21, 2009: *The Mayor's Office informed WPCNR today that the city has received between 50 and 100 telephone calls in the last three weeks, demanding the city return to its policy of the past: picking up fall leaves at the curb and reinstate the so-called "backyard pickup," where sanitation workers enter the homeowners' property and transport the garbage containers to their trucks.*

Melissa Lopez, of the Mayor's Office announced today that Joseph Nicoletti, Commissioner of Public Works, architect of the new leaf-bag and no backyard pickup policy, is devising an alternative plan and the cost of returning to the former practice of sending crews to sweep up the leaves and retrieving garbage receptacles from backyards. Lopez said the other changes of separate day pickup for recyclable paper and recyclable containers was not being reviewed and would remain in effect. Lopez said if leaf-bagging is eliminated and backyard pickup is reinstated, some other service or services would have to be eliminated.



DISCONTINUE RESIDENTIAL LEAF VACUUMING Status in Southern Westchester

Municipality

Fall Leaf Collection

Ardsley	Bagged
Bronxville	Piles
Dobbs Ferry	Bagged
Eastchester	Piles
Elmsford	Bagged
Greenburgh (Unincorporated)	Bagged
Harrison	Piles
Hastings-on-Hudson	Bagged
Irvington	Bagged (as of Fall 2014)
Larchmont	Piles
Mamaroneck (Unincorporated)	Piles
Mamaroneck (Village)	Piles
Mount Vernon	Bagged
New Rochelle	Bagged (as of Fall 2014)
Pelham	Piles
Pelham Manor	Piles
Port Chester	Piles
Rye	Bagged
Rye Brook	Piles
Scarsdale	Piles
Tarrytown	Piles
Tuckahoe	Piles
White Plains	Piles or Bagged
Yonkers	Bagged



ADDITIONAL OPTION 3

Reduction of Leaf Vacuuming Frequency

Reduce leaf vacuuming interval to 2-3 pickups during the entire season

Guarantee frequent pickups for bagged leaves

Picking up the mass of leaves, but not all, supports residents who are willing to at least partially mulch

Examples of service reductions:

- Provide leaf vacuum pickups during balance of leaf season, but ending earlier
- Lengthen period between leaf vacuum pickups but promptly pick up bagged leaves



REDUCTION OF LEAF VACUUMING FREQUENCY

Pro / Con

Pro

Status quo is largely maintained for residents

Village's leaf collection costs are moderately reduced

Encourages moderate mulching of leaves; supports gradual community adoption of mulching

May be a useful transitional policy towards rescinding loose leaf (vacuuming) collection

Con

Could result in confusion if bagging versus vacuuming are not properly scheduled

May result in large leaf piles as residents or landscapers elect to wait for pickups, rather than bag



REDUCTION OF LEAF VACUUMING FREQUENCY

Case Study: White Plains

White Plains offers expedited pickup if leaves are bagged:

Bagging pickup: 3-5 days

Loose leaf pickup: 10-15 days

This is claimed to have resulted in a 50% reduction in vacuuming



Pro / Con Summary

Option	Pro	Con
Reduction of Service	<p>Status quo is largely maintained for residents</p> <p>Village’s leaf collection costs are moderately reduced</p> <p>Encourages moderate mulching of leaves; supports gradual community adoption of mulching</p> <p>May be a useful transitional policy towards rescinding loose leaf (vacuuming) collection</p>	<p>Could result in confusion if bagging versus vacuuming are not properly scheduled</p> <p>May result in large leaf piles as residents or landscapers elect to wait for pickups, rather than bag</p>
Charge for Leaf Vacuuming	<p>Fee exemptions reward properties choosing alternate disposal methods, such as mulching</p> <p>Residents retain the option to use vacuuming, the most efficient removal option</p> <p>A fee can be adjusted over time given residents’ response, and to gradually encourage substitution to mulching</p> <p>An indirect tax is shifted to a fee that residents can opt out of</p>	<p>Fees for large properties can be significant</p> <p>Non-payment may be difficult to assess, particularly if piles are sited away from the offending property</p> <p>Village staff time will be required for administration & enforcement</p>
Discontinue Residential Leaf Vacuuming	<p>Pushes residents either to mulch or otherwise dispose of their leaves, such as by bagging</p> <p>Greatly offsets Village costs; bagging alone would be far more labor efficient for the Village than vacuuming. Village staff estimate \$150-200K in annual cost savings.</p> <p>Bagging alone is better than vacuuming; it decreases leaching of phosphorus and nitrogen into storm runoff, reduces street obstructions and storm drain blockage, and its increased cost will, over time, incentivize residents to mulch</p>	<p>Bagging causes more net waste, even if bags are mandated to be biodegradable</p> <p>“Implementation shock” when service is cancelled</p> <p>Shifts expense of leaf disposal from Village to those residents who are unwilling to or cannot mulch</p> <p>Fees charged by landscapers for bagging are likely to be more than blowing to curb with Village vacuuming</p>





Appendices



Research

The CAC contacted these municipalities:

Greenburgh, NY – discontinued leaf vacuuming

Bedford, NY – strong leaf mulching initiative over the past several years

Irvington, NY – strong leaf mulching initiative over the past several years

Portland, OR – charges for leaf collection

White Plains, NY – eliminated and then reinstated leaf vacuuming after outcry

The CAC also studied these locales:

Bethesda, Maryland – free leaf collection, locally mulched

Binghamton, NY

Englewood – no fee

Dayton, OH – fines residents for loose leaves

Durham, NC – flat fee for enrollment in yard waste program

Henrico County, Virginia – charges past several free pickups

Madison, WI

McCandless, PA – sells yard waste bags

Milwaukee, WI

Montgomery County, MD – service charges. Code dictates that their system must be revenue neutral.

Naperville, IL – charges for yard waste in off season

New Providence, NJ – leaf vacuuming requires a \$50 permit

Owensboro, KY – sanitation fee covering all activity

Providence, RI

Southern Westchester – all municipalities as part of a survey of practices

St Louis, MO

Winston-Salem, NC



Board of Trustees 2011 Leaf Mulching Resolution

WHEREAS

In accordance with the Village of Scarsdale's Annual Fall Leaf Collection Program, leaves from residential properties are placed in piles at the curb line collected with leaf vacuum trucks by Village public works crews, said program budgeted for **Fiscal Year 2011/12 at \$742,125** [over \$800K is budgeted for 2014]

Often due to wind, rain or improper placement these leaf piles end up in the street narrowing vehicular travel lanes resulting in **traffic safety concerns**;

These leaves are also prone to blocking storm water access to catch basins resulting in **localized street flooding**;



Board of Trustees 2011 Resolution, pg 2

WHEREAS

A recent alternative development amongst Westchester municipalities is the practice and encouragement of **on-site leaf mulching** which **involves shredding leaves where they are and utilizing the shredded leaves as a winter mulch and/or compost for the lawn;**

The Sustainability Committee of the Village Board of Trustees met on December 5, 2011 to discuss whether leaf mulching is an alternative practice that the Village Board of Trustee should support and encourage;

The Sustainability Committee concluded that **on-site leaf mulching on public and private properties throughout the Village will result in environmental and economic benefits** including a reduction in Village leaf collection and disposal costs, enhanced safety and storm water drainage and improved quality and health of Village landscapes;



Board of Trustees 2011 Resolution, pg 3

RESOLVED

The Village of Scarsdale endorses and encourages all Village property owners and residents within the Village to help reduce the costs of leaf collection and disposal by the Village and make optimal use of this rich organic resource by mulching and/or composting leaves on their own property;

The Village encourages all local landscapers working within the Village to implement leaf mulching techniques on their clients' properties;

The Village shall promote on-site leaf mulching through a public education campaign utilizing the Village website, newsletter, brochures, handouts and workshops and for the Fall 2012 leaf season shall implement leaf mulching techniques at Chase and de Lima Parks.



Greenburgh Extended Case Study

Full study available here:

http://www.noambramson.org/uploads/2014/01/Greenburgh_Case_Study_Final.pdf

The Way It Was: Village Composting

EFFICIENT MATERIALS HANDLING

LEAF BAGGING VS. CURB COLLECTION



Compost site is on 7.5 acres of old swamp land which has been filled and leveled.



Thousands of dollars are saved each year by using compost for landscaping Village parks and roadsides.

COMPOSTING SITE

Leaves are transported to a composting site, which comprises approximately 7.5 acres of old swamp land which has been filled and leveled to handle the leaves and woodchips brought there each year. Berms exist on all sides of the area to shield it from residents and passers-by.

For collecting the leaves, we use 6 cylinder Ford engines-Linde Leaf Vacuum Machines. The trucks are equipped with 15 cubic feet boxes to serve as containers for the leaves. The size of the engines were changed a couple of years ago from 4 cylinder to 6 cylinder to give us more power. With the 4 cylinder, we had problems with wet leaves; with the 6 cylinder engines, we are able to pick up the leaves wet or dry. Once the leaves are collected the only equipment we use is a front end loader at the compost site to build the windrows.

Bagging was deemed impractical as total volume of loose leaves would have required an area about three times the size of our compost site.

We work some 50 days utilizing 20 men for a total of 1,000 mandays (including mechanic's time and mobilization of equipment in the fall and cleanup in winter). At \$85 per day per man, we expend \$85,000 in personnel costs for wages, salaries, overtime, and temporary services. There are 10 trucks utilized for 50 days at \$88 per day (operational costs/storage/depreciation/insurance included) for a total cost of \$44,000.00. We use five leaf vacuums for 50 days at \$40 per day (operational costs/storage/depreciation/insurance included) for a total cost of \$10,000.00.

Our leaf collection cost is a summation of the above costs, which equals \$139,000 per year. If we utilize the White Plains Transfer Station, we must add \$68,000 to that figure; if we go to the Croton Landfill, we must add the same \$68,000, but increase our truck costs and personnel costs by an undefined percentage to account for the travel time and need for additional equipment and personnel. There are also thousands of dollars saved for landscaping by using compost for making top soil for use in Village parks and road sides.

James Rice is Solid Waste Consultant to the Village of Scarsdale, New York.

WHEN Scarsdale, New York launched its leaf composting program 20 years ago, an initial key question was whether to have leaves bagged by property owners or provide curb collection. Bagging was deemed impractical, as total volume of loose leaves would have required an area about three times the size of our composting area. In addition, it would also require opening bags and stockpiling in windrows.

Therefore we decided curb collection by the Highway Department would be the most practical solution. The method selected was by vacuum machines which tend to shred the leaves and compact them to one-third original volume. The program went into effect in 1967 and has been considered rather successful. Based on 180 curb miles, it's estimated that cost is \$772/curb mile to pick up the leaves. Last year's records indicate that approximately 35,000 cubic yards of leaves were disposed of at the composting site—2,500 to 3,500 tons. (At the present rate for hauling to our landfill, it's estimated that the

Estimated cost for collection of leaves along the 180 curb miles is \$772/curb mile.

cost would have been approximately \$68,000.)

COLLECTION PROCEDURES

There are approximately 15,000 trees in the village system—mostly maple, elm and sycamore. Trees are planted along the approximately 180 curb miles of roadways, shedding leaves between mid-October and early December. Village crews collect all leaves, including those put on the curb by homeowners and landscape services. Average weight is 190 pounds per cubic yard, or a total of 2,850 tons for a 30,000 cubic yard year.

Equipment to collect leaves consists of eight leaf vacuums and 13 trucks. An additional old refuse collection truck has been modified to collect leaves by attaching a vacuum to the front end; this has not yet proved totally satisfactory. A steel hopper is being fabricated for mounting on the rear end of an available refuse collection truck. Similar units are in use throughout the county, most notably in Harrison and White Plains, with success. Front-end loaders are needed to scoop up leaves from the street and load

these hoppers. In using this type of leaf collection, it is wise to follow up with a street sweeper to gather what the front-end loader leaves behind. To permit having extra units available in the event of a breakdown, only 6 vacuums and 12 trucks are used at any given time. The leaf boxes mounted on the dump trucks are measured to hold some 15 yards of leaves. This translates into 2,000 trips during the course of the work season. The "window" for leaf collection is set for the period October 10 to December 15, some 54 working days (counting Saturdays).

Additional seasonal personnel are hired to assist in raking leaves and loading trucks. Some 12 such temporary personnel work from mid-October to the end of the program which is scheduled for mid-December of each year. Personnel are also borrowed from other DPW departments to assist in the leaf program when they are not needed by their home department.

Notification to homeowners of the leaf collection program is made by use of a flyer and map sent out in early October; additional weekly notices are shown via the government access channel on Cable-TV.

Analysis of methods for collecting and composting leaves at 20-year-old program in Scarsdale, New York.

James E. Rice