Leaf Collection and Mulching Program
Additional Questions & Answers (Q&A) (April 8, 2022)

The Department of Public Works (DPW) has compiled the following Q&A from Town Council's March 21, 2022, public hearing along with subsequent questions that have been raised. DPW has provided the following responses using the best information available.

1. **Provide additional information on the fuel cost per hour calculations.**

   The 2020/2021 season analysis used the following fuel cost per hour assumptions.

Fuel Cost - Tandem Truck	$7.85 per hour
Fuel Cost - Pickup Truck	$3.00 per hour
Fuel Cost - Leaf Vacuum	$4.89 per hour

   The fuel cost per hour assumptions used in the analysis are derived from collected Town data for the total cost of the fuel consumed divided by the total engine hours for each type of equipment or vehicle used during the leaf operation. Using cost per hour instead of cost per gallon (or mile) accounts for the idle time and low speeds of the vehicles and equipment.

   For example, during the 2020/2021 season:

Total Tandem Fuel Cost	$7,758
Total Tandem Engine Hours	988
Tandem Fuel Cost	$7.85 per hour

2. **Clarify assumptions for the cubic yard to ton conversion.**

   The following conversions were used.
   - 1 cubic yard of leaves (unground) = 350 pounds (0.18 tons)
   - 1 cubic yard of leaves (ground) = 450 pounds (0.23 tons)

3. **Can we get a copy of the quote for truck rental or the County contract that shows truck rental prices as supporting documentation? Is there a fuel surcharge cost associated with the rental trucks?**

   The cost estimate for the truck rental is based on the attached Fairfax County contract. The contract does not specify a fuel surcharge. However, DPW is coordinating with the contract's vendor to confirm any surcharges.

   The analysis assumed a rental rate of $106 per hour.

4. **If we decide to sell mulch and charge like Arlington County, what is a realistic price and is our mulch regarded as good quality?**

   The price for mulch depends on which aspects of the program the Town aims to recuperate from the sale of the mulch. Based on the 500 loads delivered in 2021, the price of mulch per load needed

to recuperate the cost of the grinding, or $13,000, is $26 per truckload. To recuperate the difference in the total program cost, or $75,000, between current operations and the short-haul alternative, the price of mulch needed is $150 per truckload. The Town trucks used for mulch delivery hold 3 cubic yards of material and this mulch is delivered onto the resident's property.

Arlington County charges the following for leaf mulch delivery.

- 2.5 cubic yards for a set fee of $50.
- 5.0 cubic yards for a set fee of $75.

It should be noted that Arlington County does not offer delivery onto private property. It instead offers residents the following delivery location options.

- Curbside: You must have a minimum of 30 feet of open space away from parked cars and low-hanging wires for mulch delivery. If your delivery location is within a no parking zone, mulch will not be delivered. Any mulch left on the roadway or sidewalk must be removed by the resident within 24 hours. Mulch left longer than 24 hours may be removed by the County with no refund.
- Driveway: County vehicles can only deliver within 6 to 8 feet of the driveway apron.

Town staff also obtained examples of fees from local businesses that deliver mulch.

- Remington Mulch delivers leaf mulch for a $75 per load delivery fee plus $35 per cubic yard of mulch with a 10 cubic yard minimum. A minimum order would cost a local customer $425.
- Merrifield Garden Center delivers wood mulch for a $60 per load delivery fee and $30 per cubic yard up to 12 cubic yards. One full truckload would cost a local customer $420.

5. Any benefits or costs to renting larger trucks for Option 2?

Additional truck rentals decrease the amount of time it takes to haul unground leaves to Loudoun Composting.

We estimated that it would take approximately 354 tandem loads (21 cubic yards per load) to haul the 7,427 cubic yards of leaves collected in the 2020/2021 season to Loudoun Composting. Each of the Town's 3 tandem trucks can make 3 trips to Loudoun Composting per day. Based on this estimate, it would take 40 days, or 8 weeks, to haul 7,427 cubic yards of unground leaves to the disposal facility.

If the Town rents two 30-cubic yard dump trailers, we could increase our hauling capacity from 63 cubic yards to 123 cubic yards per trip. Assuming each Town and truck rental completes 3 trips to Loudoun Composting per day, the Town could complete the disposal of 7,427 cubic yards of unground leaves in 22 days, or 4 to 5 weeks.

The Town estimates that the cost to rent one 30-cubic yard dump trailer is $110 per hour. This rate includes the cost of the driver, fuel, and maintenance. At 9 hours per day for 22 days, the total rental cost for two larger trucks to supplement the hauling of leaves from the Beulah Road site is $21,780.

6. **Confirm that the cost calculations you presented were prepared by a Town citizen, and not the staff. Or, if it is a hybrid, I would like to know what the citizen's contributions were.**

   The calculations were performed by a Town citizen with multiple rounds of checks and verifications of data and assumptions by Town staff.

7. **WRT to the basic cost model, there are two components for which I need further clarification. The first is the scaling adjustment for Option 3. It seems to me that the manpower and equipment needs for all three options are driven primarily by the leaf collection schedule, which starts out at a moderate pace, has a high intensity phase in December, and then a less intense phase in January. I would predict that the shape of the collection schedule will not vary significantly whether 10,000 cubic yards or 7,500 cubic yards are collected, as it is driven mainly by mother nature (i.e., when the leaves fall, and when the snow starts falling). If that is the case, is it legitimate to apply a scaling factor to the option 3 base cost? Or, to put it another way, are the type of costs incurred in Option 3 (truck rental, mainly) scaleable in reality?**

   Due to the shape of the collection schedule described, the cost to collect one cubic yard of leaves is more expensive in early November and late December. This is due to the fact that the leaf collection rate increases during peak collection season. However, when viewed at the "entire season" level, the cost to collect leaves is reasonably scalable.

   Trucks rent on a weekly basis of 5 days per week at 9 hours a day totaling 45 hours per week. The weekly cost is $4,770 per truck per week. The following table outlines the truck rental cost comparisons for the 9,813 cubic yard leaf collection scenario, which is not subject to the scaling.

Total Cost for One 25-cubic foot Tandem Truck for 9 weeks (9 weeks * 45 hours per week * $106 per hour)	$42,930
Total Cost for Two 25-cubic foot Tandem Trucks for 4 weeks (4 weeks * 45 hours per week * $106 per hour)*2	$38,160
Total Rental Cost for 9,813 cubic yard Leaf Scenario	$81,090
Total Scaled Rental Cost for 7,427 cubic yard Leaf Scenario	$61,000

   Using the $81,090 truck rental cost associated with the 9,813 cubic yard leaf collection scenario (not scaled), the total program cost for Option 3 increases $20,000 from $389,000 to $409,000.

   Unground leaf delivery costs and tipping fees are reasonably scalable and have a linear increase based on the unit cost.

8. **Another major assumption in the cost model is the roughly 100K assigned to labor costs for mulch delivery. As the model shows, that is not a budget cost, but a fixed cost that is assigned to mulch delivery for the early part of the year. My question is: what are the other uses for those 1500 hours of labor? Are they time-sensitive?**

   DPW would utilize the labor hours to assist with the following seasonal, not time-sensitive tasks of
   - pavement repairs, patches from water main breaks, and potholes (weather permitting),
   - roadside ditch maintenance and cleaning, and
   - stormwater inlet inspections and maintenance.

9. **I will commend whoever came up with the model for its highly choreographed collection and disposal schedule. Option 3 costs are in the ballpark of the other 2 options only if it can be pulled off. With that in mind:**

    a. **How many 25-cubic ton dump trucks does the Town have?**

    The Town owns four tandem 25-cubic yard dump trucks. Three of these trucks are used for leaf operations, and one is used to assist with sanitation operations.

    b. **Are there provisions for maintenance for the Town trucks built into the assumptions?**

    Yes, the analysis includes provisions for the maintenance of vehicles and equipment.

    c. **What are the odds that a snowstorm would add another week or two to the truck rental needs?**

    Weather impacts are fairly likely during the leaf collection season which may increase the length and timing of the required truck rentals. The truck rental cost is approximately $4,770 per week per truck. The cost for the three truck rentals used during peak collection is an additional $14,310 per week.

10. **Assuming that we opt for Option 3, is there an "option" of picking up some mulched leaves at the Loudoun site and returning them for our citizens? The most efficient, I believe, would be to pick them up on trips to deliver unmulched leaves.**

    a. **If so, how much would it cost for the mulch, as well as how much additional handling would be required?**

    Yes, we can purchase leaf mulch from Loudoun Composting for $13 per cubic yard. The total mulch purchase price for 3,500 cubic yards is $45,500. In the long-haul option, the leaf boxes remain on the tandem trucks delivering the unground leaves to Loudoun Composting. With the leaf boxes on the trucks, we are unable to reload with leaf mulch. The leaf boxes replace the tailgate on these trucks and cannot be removed while there are leaves in the truck. A separate trip to Loudoun Composting is required under the long-haul option. A round trip to Loudoun Composting takes approximately 2 hours.

    Returning from Loudoun Composting with leaf mulch may be considered with the short-haul option where the unground leaves are delivered without the leaf boxes on the trucks. Loudoun Composting anticipates having sufficient leaf mulch capacity to supply the Town. However, they do not guarantee the timing nor the quantity of mulch available.

    b. **What does Loudoun Compost do with the leaves?**

    The leaves delivered to Loudoun Composting are ground into leaf mulch or turned into compost.

11. **The leaf Collection Scenarios & Costs handout/packet I gather was done by a town resident. If so, can you tell use who and if so why they were not identified as the author. It appears the Town DPW did it and hence it they did not, this was a bit misleading.**

    The calculations in the *Leaf Collection Scenarios & Costs (dated February 1, 2022)* packet were performed by a Town citizen with multiple rounds of checks and verifications of data and assumptions by Town staff. This data was summarized in a staff presentation titled *Leaf Collection and Mulch Program Alternatives (dated March 21, 2022)*. DPW will update both documents to clarify the original author.

12. **This same packet has a detailed trucking and pickup information. If followed/implemented the schedule is very tight with virtually no margin for breakdowns, weather delays, an increase in leaf volume, rising fuel costs etc. Can we have a more realistic schedule and cost breakout if this is being closely looked at.**

    The Option 3 schedule is an estimate based on the collection rates experienced in the 2020/2021 leaf collection season. Weather and other factors described above may add to the length and timing of rentals required. Option 3 included an additional 30 minutes for each trip to Loudoun Composting; however, additional time can be scheduled to account for weather and other delays. The truck rental cost is approximately $4,770 per week per truck. The cost for the three truck rentals used during peak collection is an additional $14,310 per week.

13. **What would be the cost if we mulched the leaves out in Loudoun and brought them back to the residents (we would have to charge to do this). How long would that take per truck.**

    The mulch purchase price at Loudoun Composting for 3,500 cubic yards is $45,500. A round trip to Loudoun Composting takes 2 hours. Refer to response 10a. for additional information.

14. **Could a one-year pilot and see how it goes, what are the true costs are and the actual timing.**

    Yes, a one-year pilot operation could be implemented.

15. **How many days do we run the mulching machine and how many days to we spend delivering mulch to residents.**

    Leaf grinding occurred for 6 days between 1/11/2022 and 1/21/2022.
    Mulch delivery occurred for 30 days between 2/3/2022 and 3/4/2022.

16. **How many leaf machines do we have and on average when busy how many crews are out collecting leaves.**

    The Town owns five leaf machines. Three leaf machines are routinely used with the three tandem dump trucks for leaf collection. Each machine requires three crew members and one driver.

17. Does Fairfax County have a leaf program that Vienna can utilize?

We can bring the leaves collected to the Fairfax County West Ox Road facility. Picking up leaf mulch from the Fairfax facility for delivery to Town residents is currently under discussion with Fairfax County.

If we were to bring our leaves to Fairfax, it would be either the Short-Haul or the Long-Haul option. If we can utilize the Fairfax facility, the distance is 18 miles round trip, and the current disposal cost is $44 per ton. Loudoun Composting is 33 miles round trip, and the disposal cost is currently $30 per ton. At $44 per ton, this would be a total of $64,680 for the 1,470 tons of leaves collected during the 2020/2021 season. Disposal costs at Loudoun Composting are now $30 per ton for a total of $44,100. The disposal cost would increase by $20,580 in this case.

Round trip mileage would be 15 miles less than going to Loudoun Composting for leaf disposal. The estimated time for delivering each load to Fairfax would be the same as Loudoun because of the long wait times at the Fairfax facility. For the 366 loads of leaves we picked up in the 2020/2021 season, this would represent 5,490 fewer miles driven but the fuel use would be similar because of lower speed roads and idle time associated with going to Fairfax. Tandem maintenance costs are also based on engine hours so there are no apparent savings in hauling to Fairfax.

If we get a commitment for the provision of leaf mulch from Fairfax, it would cost an additional $38,024 in labor and equipment to pick up and deliver mulch from the West Ox Road facility (see estimate below). The cost to purchase mulch would need to be factored in, as well as a reduced capacity to deliver to residents, because the total round trip time of 2 hours per load versus less than 1 hour per load would need further study.

	Using Beulah (6 miles per round trip at 45 minutes per load)	Using Fairfax (18 miles per round trip at 2 hours per load)
Number of Actual Deliveries to Residents in 2020/2021	497	497
Total Mileage	2,982	8,946
Total Hours	363	968
Fuel Cost at $7.85 per hour	$2,850	$7,599
Labor Cost at $55 per hour	$19,965	$53,240
Subtotal	$22,815	$60,839, (additional $38,024)

And the total additional cost would be:

Disposal Cost at $44 per ton versus $30 per ton	$20,580
Pick Up Mulch at I-66 Transfer Facility	$38,024
Cost of Mulch	Unknown
Total Additional Cost	$58,604, plus the cost of mulch.