

## Additional Information on Elm Wood Disposal and Pilot Program Results

### ISSUE

In December 2021, City Council approved a four-part approach to address the barriers of proper elm wood disposal.

1. Immediately discontinuing special handling fees for loads that are primarily elm wood;
2. Complete research to verify effectiveness of the \$50 flat fee for loads that are primarily elm wood;
3. Develop a coordinated cross-departmental communications and education strategy; and
4. Complete a pilot of a comprehensive behaviour change program targeting proper elm wood disposal.

This report provides an update on this work and seeks approval for ongoing work.

### RECOMMENDATION

That the Standing Policy Committee on Environment, Utilities and Corporate Service recommend to City Council:

1. That elm wood drop-off be included in Recovery Park;
2. That further information on the level of service, costs, and fee options for elm wood be brought forward in a future report on Recovery Park;
3. That business plan options for 2024-25 be prepared to sustain enhanced communication and education programs and develop additional programs to further reduce barriers to proper elm wood disposal.

### BACKGROUND

At its meeting held on October 4, 2021, the Standing Policy Committee – Environment, Utilities and Corporate, Services received the report, "[Near-Term Options to Reduce the Burden of Proper Elm Disposal](#)", and provided the direction:

That Administration report further on option 3D, including what types of Elm loads this would apply to and how it would be coordinated with further education efforts.

Option 3D was outlined in the report as the elimination of the Special Handling Fee and a \$50 maximum fee per load of elm wood.

At its December 20, 2021 meeting, City Council received the report "[Implementation of a \\$50 Flat Fee for Elm Disposal at the Landfill and Enhanced Education](#)" and approved:

That the Administration proceed with the approach outlined in this report including: research and implementation of \$50 flat fee for landfill loads that are primarily elm wood; enhanced education to mitigate the spread of DED; and piloting a comprehensive behaviour change program targeting proper elm wood disposal.

At its October 31, 2022 meeting, City Council approved the [Pathway to a Sustainable Urban Forest: Implementation of the Urban Forest Management Plan 2022-2031](#) in principle. It included the in-progress work on barriers to proper elm disposal as well as the Elm Inventory Capital project and proposed future work to diversify the urban forest and develop an invasive species management strategy.

### **DISCUSSION/ANALYSIS**

#### *Updated Information on Dutch Elm Disease and Elm Wood Disposal*

In 2022, there were no new cases of Dutch Elm Disease (DED) found in Saskatoon and the total number of cases found within city limits remains at three. The map in Appendix 1, *2021 Known Extent of Dutch Elm Disease in Saskatchewan*, prepared by Saskatchewan's Ministry of Environment, shows the proximity of DED to Saskatoon. The City of Saskatoon (City) continued to carry out its DED monitoring program in 2022. In 2022 there were 79 elm samples submitted, 47 infractions issued and the second year of the DED response plan for the Leif Erickson DED case was completed. In total, approximately 27 tonnes of stored elm wood were removed during the Montgomery and Leif Erickson DED responses.

In December 2021, the landfill discontinued special handling fees for elm wood. In 2022, loads that were primarily elm wood were tracked separately for the first time. The landfill received 1,506 loads of elm wood for disposal totaling 1,173 tonnes and resulting in \$142,000 in fees collected. Of the fees collected, \$14,000 or approximately 10%, was from residential customers and \$128,000 from commercial customers. Additional updates to data originally included in the October 2021 report on elm, DED, and elm wood disposal can be found in *Appendix 2 - Updated Data on Elm, Dutch Elm Disease (DED), and Elm Wood Disposal*.

#### *Research on Resident Elm Wood Knowledge and Behaviour*

Between April and August 2022, the City contracted Insightrix Research Inc. to conduct a survey and focus group to:

- Measure resident knowledge and awareness of DED and regulations on elm wood handling;
- Understand barriers to correct handling of elm wood; and
- Identify knowledge gaps and preferred communication channels for educating residents about DED.

A statistically representative online survey of residents living in the Saskatoon's elm-dense neighbourhoods was carried out between June 20-27. Quotas were set to

represent population by age, gender, and neighbourhood. The key findings from the survey included:

- Maintaining the health of the urban forest is important to residents and elm trees are valued for their beauty and shade.
- General knowledge of elm trees is relatively strong; however, specific knowledge gaps represent an opportunity for public education:
  - Identification of elm bark
  - Signs of Dutch elm disease
  - Illegal storage of or burning elm wood
  - Proper disposal of elm wood
- One fifth report having been in possession of elm wood within the past five years, mostly from cut or fallen branches or person to person transfer. However, most admit to improper disposal of this elm wood.
- Cost of disposal and lack of access to transport are the top barriers of disposing of elm wood at the City landfill. The proposed \$50 capped fee may still be a barrier for some.
- Young adults are least likely to follow Dutch Elm regulations and more commonly cite barriers to proper elm wood handling. They are also least likely to dispose of elm wood at the City landfill, even with the \$50 capped fee.

The full survey results are available in Appendix 3 – City of Saskatoon Dutch Elm Disease Survey Report.

A focus group was conducted in follow up to this survey to further explore findings. It was conducted through a 90-minute video-based online focus group. The conclusion from the focus group included:

- A critical knowledge gap exists with respect to elm identification as well as proper handling and disposal.
- Residents need a clear action plan including instructions about steps to follow if they are in possession of elm wood.
- The most effective communications were highly visible, targeted to residents that have elm trees on or near their property, and show a realistic contrast between the before and after of a DED outbreak.
- High cost of disposal and lack of access to a vehicle for transport are key challenges experienced by residents.

The focus group summary report is available in Appendix 4 – City of Saskatoon Dutch Elm Disease Focus Group Summary Report.

### *Elm Wood Behaviour Change Pilot*

In October 2022, building on the survey and focus group results, the City piloted five interventions to 500 households in Buena Vista (100 households per intervention) that directly addressed barriers to the proper disposal of elm wood, including:

1. Cost of proper disposal

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2. Lack of transportation to the landfill
3. Inability to identify elm wood
4. Uncertainty about regulations

The five interventions that were delivered in-person were:

1. Voucher for free elm wood disposal at the landfill that expired October 31, 2022;
2. Voucher for \$50 maximum fee for elm wood disposal at the landfill that expired October 31, 2022;
3. Optional Yard Sweep from a Parks employee, where the employee would offer to identify and remove any stored elm wood in the resident's yard;
4. Special Collection Service that the resident could request the City to pickup of elm wood from October 24-28, 2022; and
5. Control – only an Educational doorhanger was given to the resident.

The following table summarizes the results.

<b>Intervention</b>	<b>Number of interventions that brought elm wood to the landfill</b>	<b>Weight of elm wood disposed of at landfill</b>
1) Voucher – free	3	140kg
2) Voucher - \$50 maximum	0	0
3) Sweep	2	180kg
4) Special Collection Service	2	160kg

The impact of the intervention 5, which was education only, was not able to be quantified in elm disposal, but did show an increase of knowledge of elm and proper disposal in a post-pilot survey. The full description of methodology, interventions and results is available in Appendix 5 – Elm Disposal Pilot.

### *2023 Plan to Encourage Proper Elm Wood Disposal*

To continue and build off this data, research and pilot on proper elm disposal, Administration will collaborate to implement the following actions in 2023.

#### *1. Elm Wood Drop-Off at Recovery Park*

The opening of Recovery Park in the summer of 2023 presents an opportunity to provide convenient elm wood drop-off and to encourage proper disposal. As well, including elm wood as a separate accepted material from general waste signals that elm wood requires special handling. The drop-off of elm is proposed to be in the scaled area of Recovery Park regardless of the fee structure. This will allow loads containing elm wood to be more closely monitored and facilitate different handling requirements depending on the seasonal pruning ban or the quantity or size of wood being received.

No supplier has been identified to reuse, compost, or reclaim energy from elm wood waste through the Recovery Park RFP process, and therefore, at this time elm wood will

continue to be landfilled. The City will need to work with Saskatchewan Ministry of Environment for approvals to ensure that any measures that might make it more convenient for residents to dispose of elm wood or improve the efficiency of the City's handling of the material do not create new risks of DED spreading. This could include whether elm be collected in a separate bin from other mixed waste or wood waste, the frequency that materials should be landfilled, and whether there are different requirements during the pruning ban compared to when the ban is lifted.

The Waste Bylaw (Bylaw No. 9844) was updated in 2022. Elm is now designated as special waste in Schedule C of The Waste Bylaw due to the handling and disposal requirements in provincial regulations. In Schedule F, Waste Management Centre Fees, the fee for elm wood disposal remains the same as regular tipping fees. A change in fees would require an amendment to Schedule F of The Waste Bylaw. An update to Schedule F to amend other fees for Recovery Park materials is planned to be brought to Council in Q2 2023, and any amendment to elm wood disposal fees could be made at the same time.

Assuming a similar model to the current practice, where smaller loads of elm wood are dropped off with other regular waste in a bin and larger commercial loads are taken to the tipping face of the landfill, the estimated revenue using the current fee structure is estimated to \$142,000 per year. A reduction in fees charged to residential and/or commercial customers would result in a loss of revenue. If a fee change were to be effective at the opening of Recovery Park in the summer of 2023, the revenue impact for 2023 is estimated to be approximately \$75,000.

Previous reporting on elm disposal fees ([“Near-Term Options to Reduce the Burden of Proper Elm Disposal”](#) and [“Implementation of a \\$50 Flat Fee for Elm Disposal at the Landfill and Enhanced Education”](#)) provided alternative fee options and information on the advantages and disadvantages, noting a data gap on residential knowledge and behaviour.

The survey, focus group and pilot project provide data on residential knowledge and behaviour. The findings on the effectiveness of a \$50 maximum fee for elm wood disposal for residents include:

- The survey found that elm wood use, storage and disposal were the largest knowledge gaps, with 43% knowing elm wood could not be stored in Saskatchewan, 42% knowing it is illegal to burn elm firewood, and only 30% knowing elm wood must be immediately disposed of at the City landfill.
- 59% of residents in the survey identified cost to dispose of elm wood at the landfill as a barrier. This was the highest barrier identified.
- 47% of residents stated that they were likely to dispose of elm wood at the landfill if the cost would not exceed \$50 per trip. This is consistent with the behaviour of people who had elm wood over the past five years, with 46% taking correct handling measures (taking to landfill or having it handled by a landscaping company).

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- During the focus group, reactions to a \$50 disposal fee cap were mixed. Some felt it is fair while others say it is still a deterrent to proper disposal.
- During the focus group, how the maximum \$50 fee would work raised questions (such as what a load is, would the fee be lower for a few branches), suggesting that it may be difficult to communicate the maximum \$50 fee effectively.
- The pilot found that none of the 100 residents provided with a \$50 maximum fee voucher used it. A free disposal voucher was provided to 100 residents and three were used.
- The post-pilot survey with an open-ended question on how to encourage proper elm disposal found residents frequently stated free elm wood disposal at a certain location, education on identifying elm trees, and having crews pick up elm wood would encourage them to properly dispose of elm wood.

These results suggest that a \$50 maximum fee is unlikely to be an effective method to significantly alter behaviour to encourage additional proper disposal of elm wood by residents beyond the status quo. The results instead suggest that waiving all fees for elm wood disposal would have a more significant impact on resident behaviour. This research did not look at commercial elm disposal; however, residents in the focus group suggested a similar fee structure for commercial since they felt those fees are likely to be passed on directly to residents. The City has no control over the rates that our commercial customers charge their customers for elm wood disposal.

The table below updates the projected annual revenues from residential and commercial customers and the total revenue impact for the various options, including a \$50 maximum fee, entrance fees only, and no fee options using the actual elm wood received at the landfill in 2022.

	Revenue - Residential	Revenue - Commercial	Revenue- Total	Revenue Impact
Current Fees	14,000	128,000	142,000	-
Annual \$50 max	12,000	37,000	49,000	(93,000)
Annual Entrance fee only (\$15)	9,000	14,000	23,000	(119,000)
Annual No Fee	-	-	-	(142,000)

Administration recommends inclusion of elm wood at Recovery Park despite its current need to be landfilled to make it clearer to residents there is a convenient drop-off available, reinforce that elm wood requires special handling, provide the opportunity to set separate fees in the future that could incentivize proper elm wood disposal, and to continue work on developing alternatives to landfilling elm wood.

*2. Integrate Research and Pilot Results into Enhanced Communications and Education Activities*

The elm and DED annual awareness was outlined in [Appendix 2: Further Education and Communications Options](#) of the Implementation of a \$50 Flat Fee for Elm Disposal at the Landfill and Enhanced Education report. The annual DED Communications Plan budget is \$7,600 per year.

The statistically representative survey showed a low level of knowledge from residents on DED and proper elm wood disposal. Both the focus group and the pilot project provide insights on approaches that could improve resident knowledge, such as targeted communications, in-person information, and campaigns that visualize the tree loss that could occur with a DED outbreak. The pilot project demonstrated that the targeted and in-person communications resulted in an increased knowledge of the proper methods for elm wood disposal. While these communications and education approaches are effective, they cannot be implemented with the current resourcing.

For enhanced communications and education in 2023, \$30,000 is available in Solid Waste Reduction and Diversion Plan P.10016.01. The additional funding will be incorporated into the DED Communications Plan and will focus on:

- An awareness campaign on the impact of a DED outbreak with easy, actionable steps residents can take with their elm trees and elm wood waste;
- Targeted messaging and awareness to residents in elm-dense neighbourhoods; and
- Integrate elm messaging into all related City waste communications.

*3. Prepare Business Plan Options for consideration in the 2024-25 Budget*

While the steps above address some of the immediate barriers and knowledge gaps for proper elm wood disposal, to be effective these activities need to be sustained. As well, there are additional barriers to proper elm wood disposal that remain unaddressed. The following business plan options are being developed for consideration in the 2024-2025 multi-year budget.

- a. An operating business plan option to increase the annual communication and education budget for DED and proper elm wood disposal. The capital funding that has been allocated for enhanced communications and education for proper elm wood disposal will be exhausted at the end of 2023.
- b. A capital business plan option to further address the top barriers to proper elm wood disposal, including elm wood identification and ability to transport wood. The option will consider the pilot program interventions such as a sweep and collect program in elm-dense neighbourhoods, a collection program for elm wood waste during permitted pruning periods that could be a first phase of a bulky waste collection program, and enhancements to the tree/wood online identification tool.
- c. A 10-year capital plan for Recovery Park includes market development to expand diversion. For elm wood, opportunities could include reuse, composting, or energy

recovery from elm wood waste that is currently landfilled. The first step of this work would be a feasibility study of options. Any changes to the current approach of landfilling will need to be developed collaboratively with the Saskatchewan Ministry of Environment.

### **FINANCIAL IMPLICATIONS**

For the work on proper disposal of elm wood waste, \$110,000 was allocated from the capital project for the Solid Waste Reduction and Diversion Plan (P.10016.01). Of this budget, \$30,000 will be used for enhanced communications and education in 2023. Revenue from receiving elm wood at Recovery Park is projected to be \$75,000 in 2023 and then \$142,000 annually going forward. A change in fees to incentivize proper elm wood disposal would result in a reduction to revenue ranging from \$93,000 for a \$50 maximum fee to \$142,000 for waiving all fees.

Elm trees make up approximately one quarter of trees on City-owned land with a total of 27,713 elm trees identified to-date through ongoing elm mapping. The value of these City-owned assets is estimated at \$4,966 per average tree for a total value of \$137.6 million. Ecosystem services such as carbon sequestration, air quality, cooling, and stormwater management, provide an additional value of \$19,874 per tree over its lifetime or \$550.8 million. The number of private elm trees is unknown.

A DED outbreak would result in costs for tree removal and disposal, additional management for the remaining elm inventory, replacement of trees, as well as the depreciation of the value of the urban forest and ecosystem services. While the full costs are difficult to predict and it would take multiple years to move into an outbreak, modeling from Winnipeg, which has been managing DED since 1975, provides insights into potential costs if DED spreads. At its highest point Winnipeg saw 4% annual elm loss and is currently targeting 2% annual elm loss through its urban forestry management plans. Using this range applied to the City-owned inventory of elm trees, the annual loss of City-owned trees as a result of a DED outbreak could be between 550 and 1,000 per year. The annual cost for tree removal and disposal for this many trees would be between \$831,000 to \$1,663,000; this does not include the costs for replacing lost trees and additional management required to maintain loss rates at lower levels. The annual lost value of elm trees would be between \$2.8 million to \$5.5 million based on the value of the average elm tree. Ecosystem service losses, such as climate/heat regulation, carbon sequestration, water purification, sense of place/heritage and habitat provision would also occur but cannot be quantified at this time.

### **NEXT STEPS**

If approved, the Administration will proceed with the following actions as outlined above:

1. Elm Wood Drop-Off at Recovery Park;
2. Integrate Research and Pilot Results into Enhanced Communications and Education Activities; and
3. Prepare Business Plan Options for consideration in the 2024-25 Budget.

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Additional reporting will occur in Q2 2023, on the costs of Recovery Park's accepted materials and options to update to fees in Schedule F of The Waste Bylaw.

Future updates on DED and proper elm wood disposal will be included in regular reporting on *Pathway to a Sustainable Urban Forest: Implementation of the Urban Forest Management Plan 2022-2031* and *The Solid Waste Reduction and Diversion Plan*.

### APPENDICES

1. 2021 Known Extent of Dutch Elm Disease in Saskatchewan
2. Updated Data on Elm, Dutch Elm Disease (DED), and Elm Wood Disposal
3. City of Saskatoon Dutch Elm Disease Survey Report
4. City of Saskatoon Dutch Elm Disease Focus Group Summary Report
5. Elm Disposal Pilot

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