

# **Notice of Motion: Sidewalk Damage and Poplar Tree Review**

Prepared by: Urban Forestry, Parks and Open Spaces, and  
Life Cycle Management, Mobility  
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## 1.0 Background

Poplar trees (*Populus sp*) were a common choice for planting in Calgary communities due to their fast growth and stock availability. They were planted near sidewalks, infrastructure and pathways in compacted conditions where soil volume may not have been adequate to support their stature at full maturity. These historic patterns have led to problems today, whereby large canopy aging poplars with extensive and shallow root systems are causing sidewalk and pathway damage, intrusion into sewer lines and home foundations, and property damage from falling limbs and branches during storms. Planting practice changes since the 1980s, where a larger setback from infrastructure was required for poplar trees, has been protective in newer communities, so that poplar/concrete conflicts are more concentrated in established areas.

Currently, there are approximately 90,000 individual poplar trees in Calgary, contributing to about 20% of Calgary's tree inventory. This is in addition to native poplar trees, including Balsam poplar and trembling aspen stands, that are present within natural areas. While root system challenges are problematic, poplar trees provide significant shade, cooling, stormwater management, habitat and community character benefits throughout many of Calgary's mature suburbs. They contribute significantly to Calgary's urban canopy with broad branches that are a refuge on hot summer days for birds, wildlife and people enjoying yards, sidewalks and park spaces.

However, tree roots can cause extensive damage to pavements and concrete sidewalks, including cracking, uplifting, buckling and kerbing, particularly from trees like poplars with shallow root systems. In some studies, root damage has been found to be most significant within a 2 m radius of the tree trunk base, however an initial analysis of Calgary data suggests that up to a 10 m radius from a large poplar tree may be impacted by root system damage.

The Notice of Motion EC2025-0739 passed on July 29, 2025, tasked Administration with the following;

- Develop and report back to the Infrastructure and Planning Committee by the end of Q1 2026 a recommendation for an accelerated program to replace declining poplar trees within 5 metres of sidewalks in established communities with alternative tree species that have less invasive root systems;
- Include in its report the impacts on the urban tree canopy and provide a recommendation that for every poplar tree removed and replaced with an alternative species, another poplar tree be planted in a more suitable location;
- Include in its report the financial implications of both the tree and damaged sidewalk replacement. The poplar removal and damaged sidewalk replacement program is to be delivered at no cost to residents.
- Include poplar life cycle planning as part of the Urban Forestry Strategic Plan Update.

This report is the response to Notice of Motion EC2025-0739.

### 1.1 Poplar Tree and Sidewalk Damages Assessment

Urban Forestry (UF), under Parks and Open Spaces (P&OS), is responsible for the management of the public trees that contribute to Calgary's urban canopy. UF maintains over 500,000 individual tree assets, in addition to managing trees within naturally forested areas. UF has an obligation and a responsibility for managing Calgary's public trees in alignment with industry best practice. As such, UF upholds criteria for public tree removal to balance safety, tree health, infrastructure protection and community perspectives. UF technicians

conduct asset condition and risk assessments on trees within the inventory, in order to track health and monitor community risk.

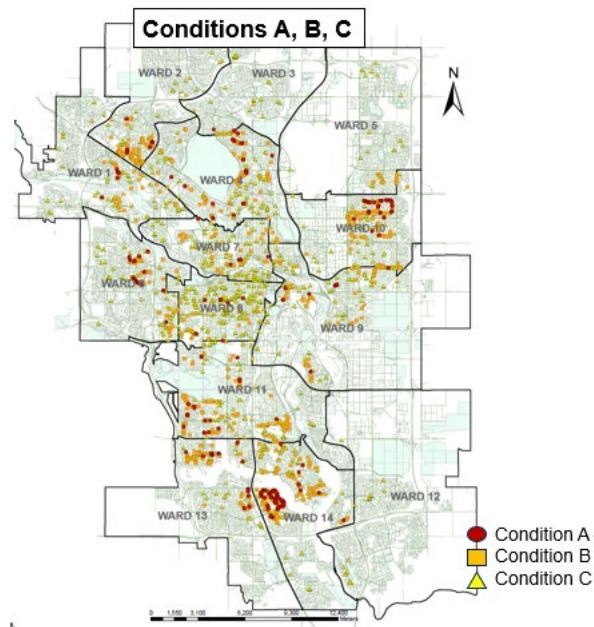
UF, Mobility Life Cycle Management (Mobility), and Parks and Pathways (Pathways) developed criteria to conduct the initial desktop scoping study with available data from the three corporate asset condition databases. Through consultation between the subject matter experts and initial data review the following basic criteria bounded the analysis:

- Poplar trees under a condition rating of 54% are in declining or poor condition. This relates to Condition ratings 1 (dead), 2 (poor) and the bottom 4% of 3 (fair) on the 1-5 asset condition scale.
  - These trees may meet the UF criteria for removal.
- Poplar trees over a condition rating of 55% are in good condition, this equates to the upper portions of condition rating 3 (fair), 4 (good) and 5 (excellent).
  - Both good and poor condition poplars can affect sidewalks and pathways and contribute to infrastructure damage.
  - Trees over 50 cm DBH (e.g. diameter at breast height, an industry standard measurement of diameter at approximately 1.5 m height from the ground) are more likely to be causing current damage. As smaller trees grow, they can contribute to future infrastructure damage.
- All poplar trees within 5 m of sidewalk concrete have the potential to cause damage, however, some species within the *Populosa* genus are more detrimental than others, such as *balsamifera*.
- Concrete damage was flagged at a severity rating of 3-5 on the asset condition scale. See Figure 1 for examples of sidewalk concrete damage.
- Poplar trees within 10 m of pathways have the potential to cause damage.
  - Pathway damage was flagged at an asset condition scale of “Fair” or “Poor”, as well as a bumps and cracks deficiency of “High”.

Desktop scoping was completed by analyzing the GIS asset data sets to identify potential locations where poplar tree roots are causing damage to sidewalks and pathways. All species of poplar trees (eg. *Populus* sp.: *angustifolia*, *balsamifera*, *canescens*, *deltoides*, *deltoides/balsamifera*, *grandidentata*, *jackii*, *nigra*, *salicaceae*, *tremula*, *tremuloides*, *tristis*, *X cultivars*) were buffered by a 5 m proximity to sidewalks and a 10 m proximity to pathways. Ground truthing was conducted at select sidewalk concrete locations to assess assumptions, and this found a positive correlation between sidewalk damage severity 3-5 and poplar tree presence within 5 m. This initial screening provided the target areas for site-specific assessments which would further identify tree health concerns, sidewalk and pathway damage, and provide contextual information to develop damage mitigation processes. Wards 4, 6, 10, 11, 13 and 14 currently have the most sidewalk concrete locations impacted by poplar trees (Fig. 2).



**Figure 1:** Sidewalk heaving damage due to the proximity of a shallow root system. This type of sidewalk damage is observed through many established communities across Calgary.



**Figure 2:** Declining poplars within 5 m of poor condition sidewalk concrete.

There are four conditions of poplars in proximity to sidewalks assessed in this analysis, with corresponding proposed actions and required budget estimates that will be described in more detail (Table 1). These are presented in order of declining risk, with the understanding that public risk due to damaged sidewalks is the

key driver of this notice of motion, however, both damaged sidewalks and unhealthy trees contribute to public safety risk.

- **Condition A:** 242 locations of poor condition sidewalk next to unhealthy poplar trees. These trees are proposed for removal and sidewalk replacement.
- **Condition B:** 1481 locations where healthy poplars are adjacent to poor condition sidewalk concrete. Tree and sidewalk mitigation measures would be based on site assessment.
- **Condition C:** 1438 unhealthy poplars are next to sidewalks without damage.
- **Condition D:** 7792 healthy poplars are next to sidewalks without damage.

**Table 1:** Sidewalk damage, pathway damage, and tree condition scenarios for action, with costs.

			Costing (Millions)				
Condition	Trees (Count)	Proposed Action	Trees	Sidewalks	Pathways	Total	
<b>A</b>	Damaged Sidewalks, Pathways & Unhealthy Trees	292	Replace all	\$1.32	\$0.91	\$0.15	\$2.38 M
<b>B</b>	Damaged Sidewalks & Healthy Trees	1,481	Trees: Remediate 85%, remove 15%* Replace sidewalks	\$1.51 \$0.50*	\$7.02	-	\$9.03 M
<b>C</b>	Quality Sidewalks & Unhealthy Trees	1,438	Replace trees	\$6.52	-	-	\$6.52 M
<b>D</b>	Quality Sidewalks & Healthy Trees	7,792	Continue monitoring	4 Year Budget Cycle Review			

Through a review of 311 service requests, wards 10, 11, 12, and 14 have the most significant volume of reported issues relating to sidewalk and pathway damage from tree root systems, with these wards contributing to over 160 311 Service Requests in a 13-month period from July 2024 through August 2025 (Figure 3). Commonly noted resident concerns include;

- Safety concerns: Slip, trip and fall hazards from uneven sidewalks. Uneven sidewalks often drain poorly, leading to water pooling and ice formation in winter, contributing to falls.
- Infrastructure and Property damage: Driveways, garage floors, underground wastewater lines, and retaining walls have been damaged by aggressive root systems.

- Accessibility: Uneven and heaving sidewalks can lead to inaccessibility for people relying on mobility aids and strollers.

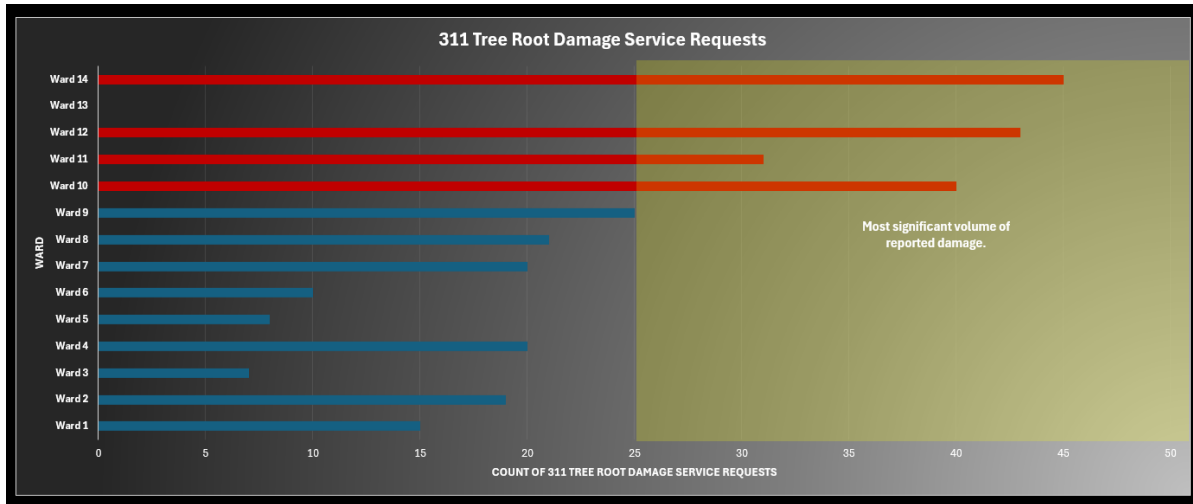


Figure 3: 311 service request log 2024/2025 regarding tree root damage to concrete and private property.

Some residents have noted that requests to The City have been made over several years. In some locations previous interim shaving, grinding, and asphalt repaving has occurred, and the tripping hazard has re-emerged from further root growth. Additionally, residents sometimes note issues after a tree is removed from the stump and root system left intact, as poplars can continue to aggressively sucker from their roots, contributing to on-going complaints.

### 1.2 Pathway Condition Assessment Details

The City of Calgary Mobility Business Unit assesses the asset condition of sidewalks and pathways on an annual basis. Results from the 2024 and 2025 pathway condition assessment completed by Mobility-Pathways and Trails identifies that up to 30% of all pathway segments in Fair or Poor condition, and approximately 20% of spot fail locations are within 10 m of a poplar (Table 2).

Table 2: 2024/2025 Pathway concerns within 10 m of a poplar tree

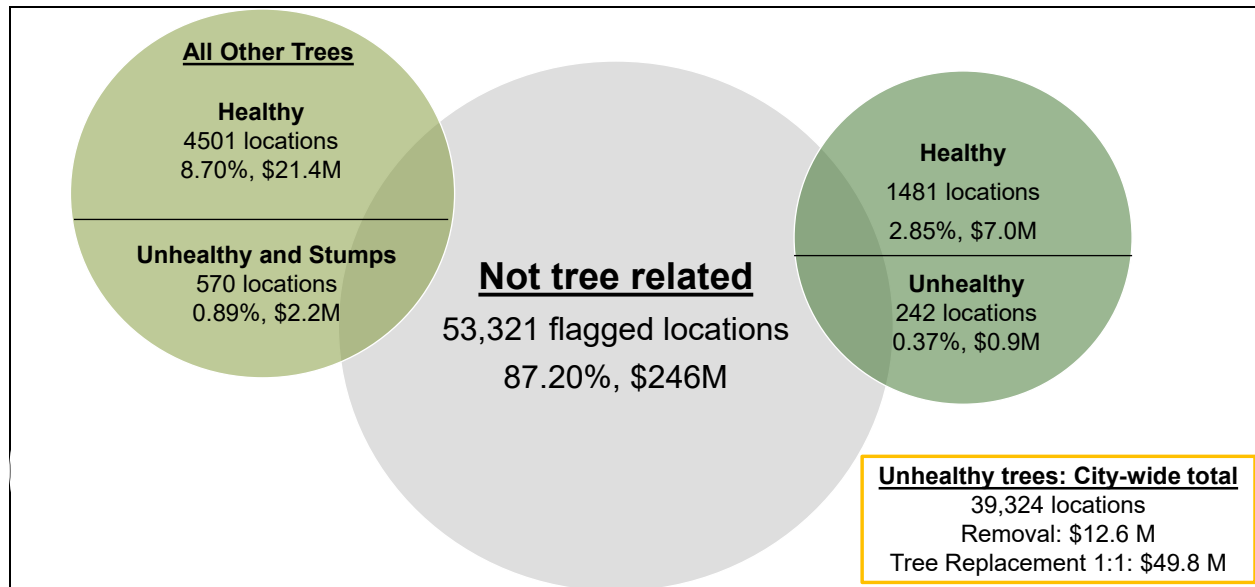
Pathway Issues within 10 m of Poplar tree	Result
Pathway Inspection Results – Asset Condition Rating (ACR) of <b>Fair or Poor</b>	52/172 - 30.2%
Pathway Inspection Results – Bumps and cracks rated <b>High deficiency</b>	66/245 - 26.9%
<b>Spot Fail</b> Locations – 311 and other maintenance requests	81/413 - 19.6 %
<b>Bump Grinding</b> – Contracted work to reduce pathway bumps	13/44 - 29.5 %

Where pathways have a high deficiency of cracks and bumps, these areas become prioritized for life cycle maintenance, including bump grinding, crack sealing, and if necessary, full pathway replacement. The

pathway maintenance work is critical to providing for a safe and accessible pathway system that mitigates some of the slip, trips and falls hazard for residents. Pathway repair work is completed on an annual basis. For this assessment, 50 locations corresponding to fair/poor asset condition are referenced for replacement.

### 1.3 Scale of Sidewalk Damage in Proximity to Poplars

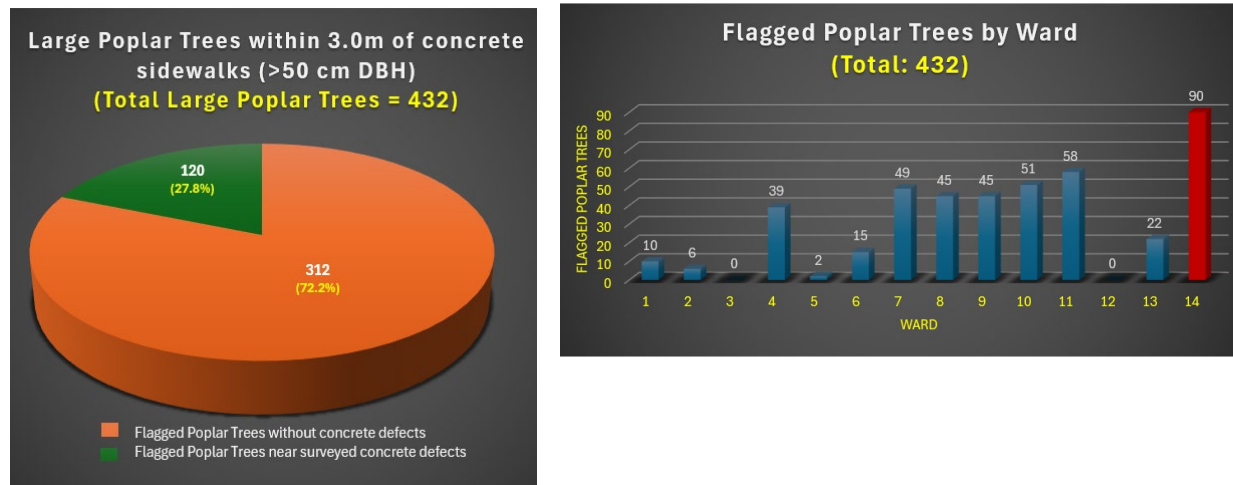
Sidewalk condition assessment is completed at a block level as part of the annual life cycle program. Data analysis shows that up to 3.22% of sidewalk concrete damage occurs within a 5 m proximity to poplar trees, with other tree species and stumps responsible for another 9.59% of city-wide sidewalk damage (Figure 4).



**Figure 4:** Poor condition sidewalk concrete associated with poplar trees, all trees, and unhealthy trees and stumps, and the concrete replacement costs.

#### Rate of Concrete Damage by Poplars

A further evaluation was conducted to estimate a method of future sidewalk damage near mature poplar trees. There are 432 large poplar trees (e.g. DBH >50 cm), within 5 m of sidewalk concrete with concrete defects present in 120 locations, an approximately 27% rate of damage (Figure 5). This analysis provides a method to estimate future sidewalk damage near mature poplar trees in the range of a 30% occurrence rate. This anticipation of future damage in proximity to mature poplars can assist UF, Mobility, and Pathways in developing forecasts for repairs and removals as poplar trees age.



**Figure 5:** Of 432 large poplar trees (eg. >50 cm DBH) within 3 m of sidewalk concrete, approximately 30% of the sidewalk concrete is damaged (e.g. severity 3-5). Ward 14 has the largest number of large poplar trees within 3 m of sidewalks.

The landscape guidelines changed pre-2007 to require a 5 m spacing between sidewalks and poplar trees in open spaces, and to require a 10 m spacing from back of curb, sidewalk, pathway, and driveway on boulevards and medians (as in the 2025 Calgary Development Guidelines and Standard Specifications: Landscape Construction (DGS 2025)). Trembling aspen (*Populus tremuloides*) and Swedish columnar aspen (*Populus tremula*) are not included in this setback distance. An evaluation was conducted to determine adherence for trees added to the inventory since 2007, in which approximately 50 poplar trees were found to be within the DGS specifications. For a planting period of 18 seasons and hundreds of thousands of trees installed, this is a very low percentage of non-compliance with City landscape guidelines (DGS, 2025). Overall, in the years since 2007 there has been good adherence to the landscape specifications, such that as current trees age 25 and younger grow, there should be fewer locations of poplar tree damaged sidewalks.

### Sidewalk Deterioration Modelling

The Major Mobility Asset Management team is developing an approach to sidewalk deterioration modelling. Early results suggest that the presence of trees has a **medium effect** on sidewalk deterioration. Factors in the sidewalk deterioration modelling include service age, sidewalk area, construction presence, soil type, and pedestrian density, as well as tree presence. The City-wide sidewalk concrete network has over 6600 locations where damaged sidewalks are within 5 m of any tree species, non-specific to poplars. The modelling process has found that the most significant influence on sidewalk deterioration is service age and sidewalk area/length, while the presence of trees has a more moderate impact. Poplar impact has not been assessed separately from other tree species in the deterioration modelling project.

## 2.0 Developing an effective, collaborative and prioritized approach

All damaged sidewalk and pathway locations that have been flagged through desktop screening require on-site assessment. A joint assessment approach with a UF risk assessment technician and a Mobility sidewalk

technician is recommended to assess poplar condition and potential for tree remediation or removal with sidewalk damage, concrete replacement potential, and other potential damage mitigation measures.

A general protocol has been developed to identify life cycle management approaches for tree management, sidewalk and pathway repair and replacement that address concerns of safety, accessibility, and tree canopy succession (Figure 7). Where a poplar tree is in poor condition, in addition to poor sidewalk/pathway condition, the tree would be prioritized for removal. For efficiency, proximate locations of other poplar trees and associated concrete damage would be managed in conjunction with these tree removals. Efficient and aligned mitigation measures may include staggered removals, block-based pruning for canopy reduction and streetscape understory planting to develop the conditions for canopy regeneration as sidewalk conditions are improved.

A general timeline for consideration is as follows, pending funding during the 2027-2030 budget cycle:

- Condition A: Damaged sidewalks and unhealthy trees would be addressed in 1-2 years. In the first season, the unhealthy tree would be removed, and in the second, a new tree would be planted.
- Condition B: Damaged sidewalks and healthy trees would be addressed in 3-4 years. The process of joint assessment detailed below would direct this work.
- Condition C: Quality sidewalks and unhealthy trees would be addressed in 1-4 years. UF tree risk assessment would direct removal prioritization over the next budget cycle.
- Condition D: Quality sidewalks and healthy trees would be assessed in the years 2031+ as part of general operating. As these trees continue to grow and age there is a potential for sidewalk damage that may be treated before larger issues arise, if early assessment dictates.

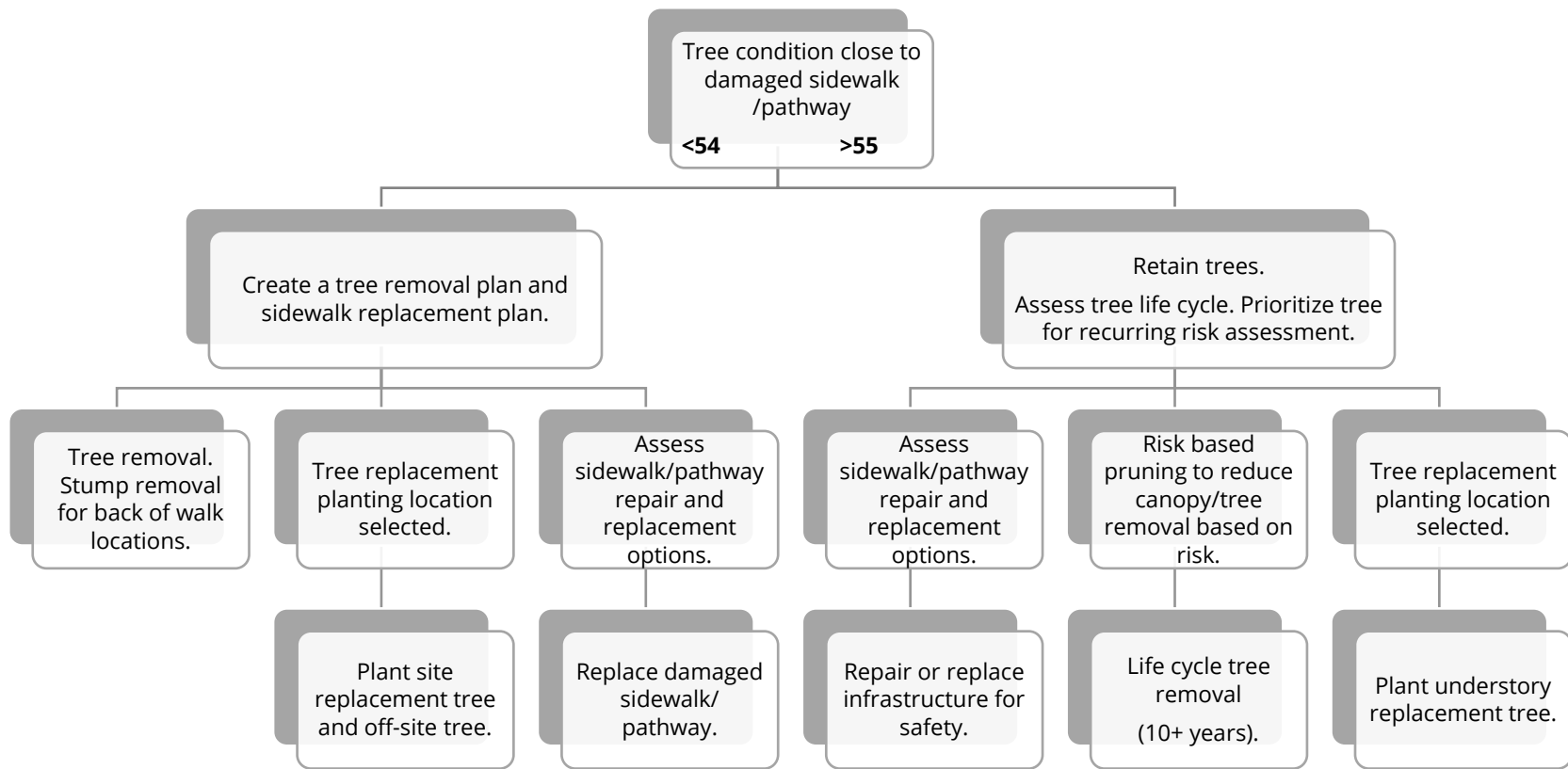


Figure 6: Outline of the poplar tree and sidewalk/pathway assessment and life cycle management process.

## 2.1 Field based site assessment

To effectively direct and prioritize the risk mitigation measures for sidewalks and trees a joint approach to field monitoring is recommended. A UF technician would conduct an assessment of each problematic tree, as well as a review of the trees within the overall streetscape. Criteria for tree removal would follow the Large Tree Succession Criteria guide developed by Urban Forestry, such that declining trees (<54% condition) would be tagged for removal, and healthy trees (>55% condition) would be identified for risk mitigation and future monitoring.

The Mobility technician would assess the extent of sidewalk concrete damage, and propose repair and replacement options, including what options could be implemented to retain the tree if it is in good condition and sidewalk replacement to follow tree removal if condition is poor. Tree removal, mobility asset repairs or replacements, and understory tree replacement planting would be conducted through a risk management lens that would attempt to harmonize the need for safe mobility as well as the benefits of a mature urban canopy.

For efficiency, a coordinated approach to pruning, removals, replacements, and infrastructure repairs would be undertaken with staggered removal to commence in the following years. Where poplar trees are recommended for pruning, the results of the streetscape review and mobility considerations would then place them in queue for removal in a planned manner over the next 5-10 years. Mobility and accessibility considerations of immediate sidewalk condition spot concerns, as well as block condition rating would be used to rank risk to public mobility. The size and/or height of the tripping hazard, along with accessibility and navigability concerns that reduce access, would rank the sidewalk and pathway maintenance areas of highest concern. The repair and replacement options would then be considered for both short to medium, and long-term infrastructure performance. Urban Forestry estimates that there may be 15% of the currently noted healthy poplars adjacent to damaged sidewalks that could be removed to repair sidewalk concrete and reduce safety risks to the community.

An iterative approach to retrenchment (e.g. canopy reduction pruning) for hazard reduction and tree removals would be implemented to retain community character and the positive benefits of the urban canopy cover provided by poplars. With the opening of the canopy through pruning, this can provide sunlight and space for understory and replacement of trees to establish in advance of mature tree removals.

Recommendations to balance sidewalk concrete replacement and the urban forest canopy poplar tree life cycle management are as follows.

- Reduce safety risk where sidewalk tripping hazards are present and poplar trees in declining condition have damaged sidewalk concrete. Declining trees should be removed, and the sidewalks replaced.
- Improve public safety and sidewalk accessibility where there is sidewalk damage in proximity to healthy poplar trees. A site-specific solution will be recommended such that there can be harmony between maintaining mature healthy trees and canopy cover and replace sidewalk with specialized intervention such as root barrier/rebar or rubber sidewalk to provide safe and accessible mobility for Calgarians. An estimated 15% of healthy trees near damaged sidewalks may need to be removed to address deficiencies and safety concerns adequately.
- Reduce public risk by assessing sidewalk concrete and poplar tree condition in an ongoing manner to inform life cycle maintenance and replacement, including additional budget requests if necessary to meet desired levels of service. Where unhealthy poplars are in proximity to good condition sidewalks proceed with removal on a risk-informed basis.

- Build Calgary's urban canopy by planting two trees for every removed poplar, including a more suitable species at the removal site, and a poplar in a park or natural area without infrastructure conflicts.

## 3.0 Financial investment required for the program

### 3.1 Poplar tree removal

The scope of work in the accelerated poplar and sidewalk replacement program could be rolled out over a period of 4 years, with a per tree cost as noted in Table 3. Removal costs are estimated as the average of large size class tree removals as there has not been a site assessment conducted. For the healthy trees that are near damaged sidewalks, there could be cost efficiencies to develop a single contract approach to retrenchment pruning and future removals, such that the contractor recognizes the multi-year nature and staged approach to successional management. In this way, The City may be able to reduce costs. Similarly, where replacement planting can be accommodated simultaneously within a streetscape there may be cost efficiencies during planting.

**Table 3:** Estimated Tree Removal and Replacement cost for poplar trees causing sidewalk damage

Activity	Cost
Poplar Tree and Stump Removal	\$2000
Tree Replanting, Two Trees	\$2532
<b>Total:</b>	<b>\$4532</b>

#### Maintaining Healthy Public Trees

The City currently assesses risk on approximately 50,000 trees, inventories another 100 000 – 200 000, and responds to over 16,000 311 requests annually. Using a risk-based priority model it then determines the annual removals of approximately 5,000-7,000 trees and the pruning of 22,000 trees through a combination of staff and contracted resources. Tree removals are currently funded out of the base Operating budget, with a trending cost of annual removals in the range of \$4 million. Annual maintenance costs are approximately \$15.3 million which equals approximately \$34 per tree annually for fair to excellent condition trees to monitor inventory, manage risk, and ensure long-term viability.

There is a current backlog of over 39,000 dead and declining trees requiring removal across all size classes, for an estimated removal cost of \$12.6 million, inclusive of the poor condition poplar trees near sidewalks (Table 4). Replacing the 39,000 removed trees with new trees has a cost of approximately \$50 million. In alignment with processes followed for other city assets, the enhanced tree removal and replacement cost is proposed to be incorporated as a capitalized budget item to increase investment and clear the backlog, without impacting the UF operational budget. Further, we have identified that many species of trees, including spruce, elm and ash can impact sidewalk quality depending on proximity and below-ground circumstances. UF would recommend that all dead and declining trees are addressed, and that risk assessment continues to prioritize tree removal and replacement. For more details, see Appendix B.

**Table 4:** Estimated cost of all tree removal backlog, including the tree and stump removal by size class, and replacement with a single tree with a 5-year watering regime. Tree removals are currently funded through operational base funding which creates a backlog deficit in maintenance activities.

Tree Classification	Tree Count	Removal Backlog	Tree Replacement (\$1266/tree, Unfunded)
Class A 0-10 cm	25,507	\$3,570,980	\$ 32,291,862
Class B 11-25 cm	7,586	\$2,617,170	\$9,603,876
Class C 26-50 cm	4,770	\$3,672,900	\$ 6,038,820
Class D 51-75 cm	1,248	\$2,046,720	\$1,579,968
Class E >75 cm	213	\$724,200	\$269,658
<b>Total</b>	<b>39,324</b>	<b>\$12,631,970</b>	<b>\$49,784,184</b>

### 3.2 Sidewalk replacement

The concrete rehabilitation program funds sidewalk repairs and replacements with a restricted budget leading to a year over year surplus of locations requiring treatment. This backlog of damaged sidewalk concrete has approximately \$246 million in unfunded repairs at over 53 000 flagged locations, while the sidewalk concrete replacement program is funded at \$5 million annually. Mobility completes both localized and block wide replacement depending on the extent of the damages to sidewalk concrete. The proposed accelerated sidewalk repair and replacement program would need to be aligned with life-cycle maintenance planning by areas as well as in coordination with the tree removal program with per site cost estimates as shown in Table 5. The sidewalk life cycle program would require additional annual investment to manage the damaged sidewalk locations impacted by poplar trees. The Sidewalk Deterioration Modelling project will support improved planning for sidewalk asset management across the City.

**Table 5:** Estimated Sidewalk Replacement cost details per tree damaged location

Sidewalk Concrete Details	
Average width of sidewalk per tree	1.398708 m
Average length of sidewalk per tree	5.086181 m
Average m <sup>2</sup> concrete replacement cost	456.4732 m <sup>2</sup>
Contingency	15%
<b>Total concrete cost estimate per tree</b>	<b>\$3734.495</b>

#### Sidewalk Rehabilitation Options

Data from the City of Edmonton Building Great Neighbourhoods program suggests that sidewalk rehabilitation using reinforced concrete over the roots of healthy large canopy trees incurs costs of approximately \$315/tree treatment for a typical treatment of 3 m by 1.4 m sidewalk width. This may be an

option for innovative concrete rehabilitation if there are contextually appropriate locations in proximity to healthy trees where a full standard sidewalk replacement may not be optimal for preserving healthy trees, and where other options could provide for a safe mobility experience.

### 3.3 Pathway repair and replacement

The 2025 annual pathway inspection identifies over 50 locations of poor to fair pathway condition within 10 m of poplar trees. The degree of damage noted at these locations informs the repair protocol. Surficial treatment whereby bumps can be ground down and cracks can be sealed until such time as full pathway replacement is necessary can often prolong the lifespan of a pathway while providing for safety and accessibility on an interim basis. The condition rating system of low, medium, and high damage drives the prioritization of pathway improvements. The City completes approximately 600 m of small asphalt repairs annually, based on inspection results and resident concerns. The cost of full pathway replacement of a 3 m width is \$300/linear metre. In 50 locations, assuming a 10 m replacement distance, this would equate to **\$150,000**. The repair and replacement of damaged pathways is currently being adequately addressed through existing practices.

### 3.4 Sidewalk Damage and Poplar Replacement Program Funding

An additional \$17.93 million capital funding would be required to action the declining poplar tree removal/replanting and sidewalk replacement as described by the notice of motion in the 2027-2030 budget cycle (Table 6). Additional operating funds are proposed for the 2031+ budget cycle for the ongoing condition assessment of good condition tree and sidewalk proximity locations and to develop future asset maintenance plans.

**Table 6:** Funding required to action the sidewalk damages and poplar replacement program

Condition	Count	P&OS Tree Replacement	Mobility Sidewalks and Pathways*	Total (Millions)
<b>A: Damaged Sidewalks &amp; Unhealthy Trees</b> *Damaged Pathway Locations	242 50*	\$1,320,000	\$905,000 \$150,000*	<b>\$2.38 M</b>
<b>B: Damaged Sidewalks &amp; Healthy Trees</b>	1481	15% Tree Removal \$1,510,000 85% Remediate \$500,000	\$7,020,786	<b>\$9.03 M</b>
<b>C: Quality Sidewalks &amp; Unhealthy Trees</b>	1438	\$6,520,000	-	<b>\$6.52 M</b>
<b>D: Quality Sidewalks &amp; Healthy Trees</b>	7792	Future costs TBD		

The challenge of aging and poor condition tree assets exists across all tree species in the city. Appendix B presents a summary of the current asset condition of the urban forest, with the associated projected costs for removals and annual maintenance. Further, all mature trees in proximity to sidewalks can cause concrete

damage. Common species other than poplar which can cause damage with large mature root systems are white spruce, American elm, and green ash. This issue arises throughout established neighbourhoods where trees have reached a diameter of over 50 cm. Non-species specific sidewalk rehabilitation and tree replacement Class 5 cost estimates for the replacement of all damaged sidewalks in proximity to all tree species are provided in Appendix B. This would support the overall outcome of improved sidewalk safety, accessibility, and reduced infrastructure damage, as well as improved tree related safety.

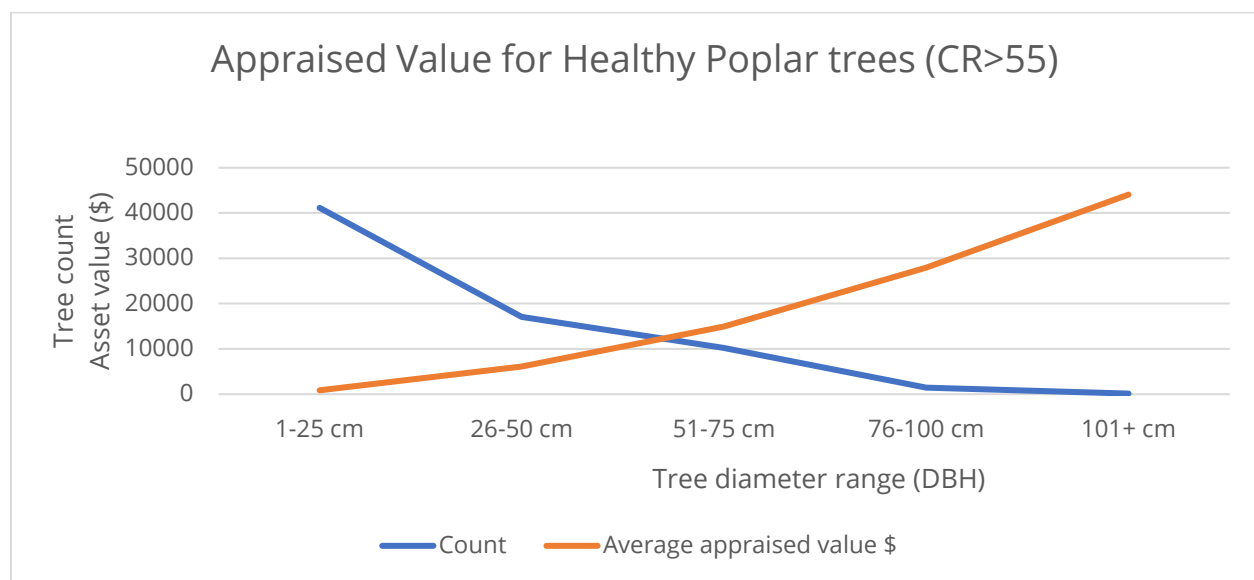
### 3.5 Poplar Succession and Tree Asset Value

Calgary has approximately 90,000 poplar trees of many species in the tree inventory, with those in fair to excellent condition valued at over \$337 million. This incorporates 97% of all poplars within the tree inventory with a condition rating >55 (e.g. Condition Rating 3-5). The contribution of healthy poplar trees in proximity to sidewalks to the urban canopy and to the city tree asset value is summarized in Table 7. Trees in poor and declining condition (e.g., Condition rating 1-2, <54) are not assigned an asset value.

**Table 7:** Poplar tree urban canopy coverage contribution estimate and asset value

		Trees (Count)	Urban Canopy m <sup>2</sup> (1,000's)	Canopy Contribution %	Tree Asset Value
<b>B</b>	Damaged Sidewalks & Healthy Trees	1,481	185	0.002%	\$18.5 M
<b>D</b>	Quality Sidewalks & Healthy Trees	7,792	974	0.012%	\$97.4 M

The overall poplar canopy contributes substantially to the urban canopy, as well as to The City's tree asset value, with the largest healthy poplars having the highest value (e.g. Class D and E, \$30 000+) and small, new poplars (e.g. Class A) assessed at \$565, equivalent to the value of a new tree asset (Figure 7).



**Figure 8:** Calgary's poplar tree count by size range and corresponding average appraised asset value.

Urban Forestry maintains a tree species list that will be referenced for replacement plantings of non-poplar trees at removal sites (DGSS, 2025). The intent of the replacement would be to increase canopy coverage into the future, with a diverse selection of site suitable street trees where no single species contributes to more than 15% to 30% of the public trees in a local area. The focus on expanding species diversity in Calgary's urban forest reduces the impact of coordinated tree maturity as well as enhances pest and disease resistance to create a healthy and resilient urban forest. Where suitable soil volumes and overhead space exist to support large and medium sized trees, these will be planted preferentially at the replacement locations (Appendix A).

The Urban Forest Strategic Plan is in progress and will address the life cycle management needs of aging trees, including poplars.

## 4.0 Community Communications

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To implement an accelerated poplar removal and replacement program as described, we would need to share information and offer education to residents in affected areas to help them understand the plan for their street and broader community.

A communications plan would be developed to share the long-term staggered removal, pruning and replacement plan in each impacted community, and to gather street-specific feedback. Tactics would likely include web content, targeted social media posts, in-community Bold signs, neighbourhood-specific sandwich boards and doorknob hangers, and opportunities for community members to meet and chat with Urban Forestry in the most affected neighbourhoods. Our communications could also be used to encourage residents to report problem trees through 311 for review.

We know that Calgarians appreciate the benefits of the mature canopy and tree-lined streets and in many cases do not want to see trees removed. However, they are also frustrated by uneven footing, accessibility issues, and damage to private property like driveways, foundations, and sewer lines from mature poplar tree roots. In some cases, aging trees also pose safety concerns as they could fall onto people and property.

Responding to these concerns, informing residents of the tree removal and replacement plan, and ensuring open communications will assist in building understanding for the accelerated poplar program. The communications cost to support this accelerated program is estimated to range from **\$50 000 - \$100,000**.

## 5.0 Conclusion

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The proposed accelerated Poplar Replacement and Sidewalk/Pathway repair program would require a significant investment of **\$17.93 million** to action a program inclusive of Conditions A, B, and C, for poplar tree removal and sidewalk replacement. This additional capital funding would be split between the (Program #422195) Urban Forestry -Lifecycle AIP capital fund and the (Program # A481354) Mobility – "RD - Concrete Rehabilitation" to address the backlog of work within our current capital plan and prioritization process in the 2027-2030 budget cycle. Administration will continue following a risk management approach that relies on site assessments carried out by Urban Forestry, Mobility-Sidewalks, and Pathways staff. Future budget requests will include enhanced investments to address declining assets such as poplar trees and damaged sidewalk concrete, with consideration for future tree growth and sidewalk deterioration modelling. Over the next 10 years, The City will continue to work towards poplar and large tree successional planning and sidewalk replacement to ensure resident safety, acceptable infrastructure condition, tree canopy rejuvenation, tree species diversity, and the preservation of community character. This work will be

coordinated with sidewalk concrete and pathway infrastructure repairs and replacement to provide for a safe and accessible community for Calgarians.

## Appendix A

Table A.1: Large and medium size trees from the Landscape Construction Guidelines (DGSS, 2025) that would be used as replacement for removed poplar trees where space and soil volume permits.

Family	Genus	Species	Example Cultivar	Common Name	Hardiness Zone	Tree size
<i>Sapindaceae</i>	<i>Acer</i>	<i>X Freemanii</i>	Jeffersred	Autumn Blaze Maple	3	Large
<i>Sapindaceae</i>	<i>Acer</i>	<i>Saccharinum</i>	Silver Cloud	Silver Cloud Silver Mape	3	Large
<i>Oleaceae</i>	<i>Fraxinus</i>	<i>Americana</i>	Durkar	Calypso White Ash	3	Large
<i>Oleaceae</i>	<i>Fraxinus</i>	<i>Pennsylvanica</i>	Foothills	Foothills Green Ash	2b	Large
<i>Fagaceae</i>	<i>Quercus</i>	<i>Macrocarpa</i>		Burr Oak	3	Large
<i>Malvaceae</i>	<i>Tilia</i>	<i>Americana</i>		Basswood (Linden)	3	Large
<i>Ulmaceae</i>	<i>Ulmus</i>	<i>Americana</i>		American Elm	2	Large
<i>Sapindaceae</i>	<i>Acer</i>	<i>Ginnala</i>		Amur Maple	3a	Medium
<i>Sapindaceae</i>	<i>Acer</i>	<i>Negundo</i>	'Baron'	Manitoba Maple Baron	2a	Medium
<i>Fabaceae</i>	<i>Gleditsia</i>	<i>Triacanthos</i>	Harve	Norther Acclaim Honey Locust	3b	Medium
<i>Ulmaceae</i>	<i>Ulmus</i>	<i>Davidiana</i>	Japonica	Japanese Elm	3	Medium

Appendix B

Table B.1: 2025 Urban Forest Asset Condition and Estimated Removal and Maintenance Costs. Currently Unfunded.

TYPE	CR1 (Dead)	CR2 (Poor)	CR3 (Fair)	CR4 (Good)	CR5 (Excellent)	CR 1-2 Removal Count	Dead / Poor Removal Backlog Cost	CR 3-5 Annual Maintenance Count	CR 3-5 Annual Maintenance Cost (\$34/tree)
CLASS A (0-10 cm)	21,824	3,683	42,370	66,223	52,709	25,507	\$ 3,570,980	161,302	\$ 5,500,398
CLASS B (11-25 cm)	3,527	4,059	65,722	75,267	6,247	7,586	\$ 2,617,170	147,236	\$ 5,020,748
CLASS C (26-50 cm)	1,774	2,996	46,471	54,688	6,138	4,770	\$ 3,672,900	107,297	\$ 3,658,828
CLASS D (51-75 cm)	412	836	14,742	12,986	1,156	1,248	\$ 2,046,720	28,884	\$ 984,944
CLASS E (>75 cm)	75	138	2,760	2,698	350	213	\$ 724,200	5,808	\$ 198,053
<b>Total</b>	<b>27,612</b>	<b>11,712</b>	<b>172,065</b>	<b>211,862</b>	<b>66,600</b>	<b>39,324</b>	<b>\$ 12,631,970</b>	<b>450,527</b>	<b>\$ 15,362,971</b>

Note: The current Capital funding for removals is \$500,000 annually, and operational funding in the range of \$4 million is used to prop up the removals budget rather than pruning and hazard reduction.

When sidewalk damage is considered in proximity to all tree species and stumps, an overall Capital investment of \$30.6 M would be required to address areas of concern for the desired outcome state of improved sidewalk safety and tree removals in alignment with current operational standards. This is presented through a similar approach for all trees, not including poplars (Table B.2)

Table B.2: Sidewalk damages class 5 cost estimate near all tree species

Condition: All Tree Species and Sidewalk Damage		Trees (Count)	Tree removal and 2x replacement	Tree remediation	Sidewalk Replacement	Class 5 Capital Cost Estimate
E	Damaged Sidewalks and Unhealthy Trees	394	\$1.79 M	-	\$1.5 M	\$3.29 M
F	Damaged Sidewalks and Healthy Trees	4501	\$3.06 M	\$1.53 M	\$21.4 M	\$25.99 M
G	Damaged Sidewalks and Stumps	176	\$0.62 M	-	\$0.7 M	\$1.32 M

There is a backlog of dead and poor condition trees across the City, in every size class and across many species (Table B.1). Urban Forestry is undertaking an expedited process of dead and poor condition tree removals, beginning with the Class A assets, where a large number of small, developer planted trees, have a negative aesthetic impact on community perception. The 2025/2026 winter target is to remove 10,000 dead Class A trees. The 10-year Urban Forestry Capital Plan has been developed to address the risks associated with dead and poor condition trees, and further work to remove and replace dead and dying tree assets will progress as funding is made available.

Figure B.1: Summary of the annual tree removal count and current (2025) removal backlog of dead and poor condition assets.

