

DATE OF MEETING | APRIL 6, 2020 |

AUTHORED BY | POUL ROSEN, DIRECTOR, ENGINEERING

**SUBJECT | DOWNTOWN SIDEWALKS AND TREE REPAIRS**

## **OVERVIEW**

### **Purpose of Report**

To provide Council with an opportunity to repair and restore sidewalks that have localized tree root damage in the Downtown. |

### **Recommendation**

That Council direct Staff to complete sidewalk / tree repairs at the prioritized locations in the Downtown in 2020.

## **BACKGROUND**

Within Downtown Nanaimo, there are approximately 300 boulevard / decorative trees of varying species, age, and condition. Many of these trees are located in close proximity to sidewalks and other areas provided for pedestrians. It is common, over time, for the tree roots to damage the sidewalk such as lifting concrete panels, bricks or curbs. This can create a trip hazard and can make the walking surface undesirable especially for those with mobility challenges. The damaged sidewalk areas are often very localized around the tree, and only require repair in the root zone; however, the tree itself presents an obstacle to the repair.

Examples of tree sidewalk heaving:





Street trees are a valuable part of the environment and streetscape. They provide much needed greenery, habitat, human health and environmental benefit. Unfortunately, in some locations, the trees when installed years ago, were not provisioned with adequate root soil and space, and so have adapted to their environments by expanding under the sidewalk, curb or road. Street or decorative trees are generally not expected to live out their entire life cycle. As trees age, they mature; however, eventually degrade due to disease, insects, or physical damage. It is necessary to balance between the benefits of a mature tree, its state of health, and the damage to the streetscape. Making choices that affect trees, in particular in the downtown, can be a sensitive subject.

Generally, in a high value street environment, keeping the trees vigorous and healthy is a high priority. This means periodic replacement of trees that have reached the end of their useful life. Some trees, because of location, size, age, species or other factors, warrant special consideration or treatment.

When sidewalks are heaved or damaged by roots, a trip hazard can result. Although Staff respond to these hazard reports in accordance with the City's defined level of service; it is not practical to completely eliminate the risk since it is an ongoing process, as the tree grows.

## **DISCUSSION**

In an effort to bring sidewalks up to standard and meet the expectations of the walking public, Staff have developed a plan to prioritize and implement sidewalk/tree repairs. In many instances, the tree either will remain in place or be replaced with a suitable species, with an improved environment for the roots. There are a few locations where the tree is too close to buildings or obstacles and creates an accessibility barrier for those with mobility challenges. In those locations, the tree may need to be removed entirely.

The approach for remediating sidewalk / tree damage will vary depending on the significance of the tree, the species, location, and root condition. Although the most cost effective approach is usually to remove the tree; the full spectrum of options will be considered on a case by case basis.

Factors Staff will consider when prioritizing locations include, generally in order of priority:

Factor
Pedestrian Safety
Pedestrian Volumes
Pedestrian Accessibility
Sidewalk Condition
Tree Health
Tree Age / Expected Lifespan
Tree Type / Species
Tree Root Space / Structure Adequacy
Beautification / Aesthetics

Given the substantial number of trees in the downtown, and the many locations the sidewalk has been impacted, it is not practical to repair these all at once. It is proposed that we start small and tackle a few of the highest priority locations in 2020. This will give Staff, Council, and the community a chance to become familiar with the process and the results.

The options considered for each tree / location include:

Option	Description	Pros	Cons	Factors to consider
1	Remove tree and restore sidewalk (no tree replaced at that specific location)	<ul style="list-style-type: none"> <li>low capital and ongoing cost</li> </ul>	<ul style="list-style-type: none"> <li>loss of tree</li> </ul>	<ul style="list-style-type: none"> <li>tree health species and age</li> <li>pedestrian accessibility</li> </ul>
2	Remove tree, add root structure, restore sidewalk, and replant suitable species	<ul style="list-style-type: none"> <li>lower ongoing cost</li> </ul>	<ul style="list-style-type: none"> <li>higher capital cost</li> <li>loss of mature tree</li> </ul>	<ul style="list-style-type: none"> <li>tree health, species and age</li> </ul>
3	Remove sidewalk and recast concrete with adjustments / location	<ul style="list-style-type: none"> <li>keeps existing tree</li> </ul>	<ul style="list-style-type: none"> <li>substantial ongoing costs</li> <li>will not provide a stable long term pedestrian surface</li> </ul>	<ul style="list-style-type: none"> <li>frequency / cost of recurrent sidewalk replacement</li> <li>significance of tree</li> </ul>
4	Remove and replace sidewalk with alternate materials suitable for pedestrian realm	The use of innovative materials and processes presents a risk; however, there is potential benefit that something new could reduce costs, improve service and protect trees.		

For 2020, the following actions / locations are proposed for repair / remediation, they are:

1. Commercial at Skinner (three trees) – Scope would include:

Remove trees, remove damaged sidewalk, install tree root cell structure, restore sidewalk and plant new suitable trees.

2. Skinner Street near Bastion Road – East side of Skinner there is a Linden tree with structural damage that needs to be removed. Unfortunately, the sidewalk width in that location is insufficient to provide universal accessibility with a tree present. That tree will be removed and the sidewalk restored.
3. A trial using rubberized asphalt at the base of some trees around the Vancouver Island Conference Center will be undertaken. The rubberized asphalt is expected to be effective; however, it may not last more than a few years.

Funding for the work in 2020 can be found within the existing 2020 - 2024 Financial Plan. A budget of \$40,000 can be established by transferring funds from:

- a. \$6,000 CC4628 Urban Forestry
- b. \$34,000 Engineering Project Contingency

A complicating factor is that some of the trees in the downtown are memorial / donation trees and have plaques associated with them. Staff will attempt to contact the donors and provide options, that will include reinstating or returning the plaque. If Staff are not able to make contact with the donors, the plaques will be retained for a period of time for potential reclamation.

Over the long term, it would be ideal to develop an annual program that remediates the top priority locations each year, based on the principles and practices outlined in this report. Locations that are being watched closely include: Commercial Street, Front Street, Victoria Crescent, Wesley Street and Nicol Street. These locations, along with others, will be reviewed in subsequent years and repairs made on a priority / need basis.

Should Council proceed, Staff's intention would be to use the lessons learned in 2020 to inform a long-term annual program. The benefits are that mobility challenges would not be left to fester, injury claims would be reduced, and the public would become accustomed to the program. Trees would be replaced on a rational basis, ensuring the streetscape remains attractive. This is a form of asset management for street trees that provide a number of benefits to the urban environment. |

## **OPTIONS**

1. That Council direct Staff to complete sidewalk / tree repairs at the prioritized locations in the Downtown in 2020.
  - The advantages of this option: Safe sidewalk space would be restored in high traffic areas of the downtown. Although trees are very important, choosing this option would demonstrate that safe sidewalk space takes priority, in particular, in high pedestrian traffic areas. Starting small will demonstrate the process with an aim to build trust and confidence in the outcome.

- The disadvantages of this option: Several trees will need to be removed and replaced. The replaced trees will be younger and will take some years to become mature and provide the same benefit the existing trees do.
  - Financial Implications: The costs for 2020 are expected to be approximately \$40,000. The budget for the 2020 work can be found by allocating funds from within the current 2020 Financial Plan.
2. That Council direct Staff to maintain the status quo and not remove any trees.
- The advantages of this option is that it would minimize or eliminate public concern around the removal of trees.
  - The disadvantages of this option is that the pedestrian realm in the vicinity of the tree will continue to be compromised and parts of the sidewalk may need to be closed or removed to maintain a safe public space.
  - Financial Implications: There will be nominal short term costs for removing the sidewalk around the tree. As the tree continues to grow, the damage will extend farther and may impact the curb and road and eventually repair costs could be substantial.

#### **SUMMARY POINTS**

- Downtown Nanaimo has hundreds of decorative trees, a small number of which are nearing the end of their useful life and are causing damage to the sidewalk and road.
- The sidewalks in these locations need to be repaired to ensure the area is safe for pedestrians.
- Where there is sufficient sidewalk space the trees will be replaced with appropriate species in an improved soil structure to reduce the risk of future problems.

#### **ATTACHMENTS:**

Attachment A – Photos of Downtown Sidewalks and Tree Repair

#### **Submitted by:**

Poul Rosen  
Director, Engineering

#### **Concurrence by:**

Bill Sims  
General Manager, Engineering & Public Works

Laura Mercer  
Director, Finance