



July 19, 2021

MEMO TO : Park Board Commissioners

FROM : Donnie Rosa - General Manager, Vancouver Board of Parks and Recreation

SUBJECT : **Urban Forest Watering Program – Board Briefing Memo**

Dear Commissioners,

The purpose of this memo is to provide an overview on the various measures undertaken by the Park Board Urban Forestry team to protect Vancouver's urban forest during times of drought and extreme heat.

Background

Vancouver's urban forest is a defining feature of the city's identity and provides innumerable services contributing to the social, ecological, and economic well-being of the community. The Park Board is responsible for the care, custody and control of all trees on streets and within parks and golf courses. Urban Forestry plants an average of 2,000 trees per year along city streets and in boulevards. The extreme weather conditions being experienced across the region, with temperatures reaching record highs during the recent heat dome event, coupled with low monthly rainfall has raised concerns over the survival of Vancouver's urban forest and highlighted some of the challenges and shortfalls of the current watering program.

Urban Forest Watering Program

Every year, Urban Forestry staff set up a watering program to help care for new trees. Once the planting season is complete, all newly planted trees are divided into watering routes geographically. Given the often challenging conditions for street trees, the watering program is mostly focused on these areas. Trees in each route are allocated as equitably as possible to make the routes efficient. A two-week turnaround is targeted for each route:

- Urban Forestry has four trucks each with a 400-gallon capacity tank, run by four dedicated staff;
- Urban Forestry also utilizes Engineering Services' flusher trucks to water large stretches with depressed boulevards and medians; this service is normally utilized later in the summer when drought is more prevalent;
- a liquid compost extract is also applied to the new trees during the regular watering cycle; this extract helps the establishment of the trees and aids in generating a greater resilience.

Every year, additional trees (often struggling 2 and 3-year-old trees) need to be added to the watering program, which affects the team's ability to maintain a 2-week cycle for each route.

Watering Bags

One of the most requested services from residents asking for tree watering are watering bags. Watering bags seemed a promising addition to our water program. The hope was that the bags would allow for slower dispensing of the water, allowing for better infiltration into the soil and that



residents would help by refilling the bags throughout the week. Unfortunately, a number of issues have been identified:

- **Water Delivery and Effectiveness**
 - promotion of poor root growth within a small area surrounding the root ball, discouraging outbound roots and possibly causing collar rot;
 - inconsistent release rate after initial use because of silt and dirt;
 - ineffective around mature trees as there are no feeder roots around the trunk.
- **Installation and Handling**
 - increased time required for installation, collection and storage;
 - increased staff safety concerns; hypodermic needles have been discovered in bags; dog feces and urine are often found with bags making collection very unhygienic.
- **Sustainability**
 - non-recyclable and not repairable once damaged (typically by line trimmers or sharp objects);
 - significant per unit cost.

Due to these concerns, watering bags are only used where trees appear to be significantly drought stressed and when residents have requested them and have ensured they will be regularly filled.

Communications

Every year, tags are attached to newly planted trees requesting residents and businesses to help by watering these trees if they are able to do so. As the summer progresses, Park Board Communications also publishes stories and messaging aimed at encouraging Vancouverites to help water public trees.

Responding to the Heat Wave

The low rainfall the region has experienced these last few months and June's heat dome has taken its toll on all plantings, including both young and mature trees. This has resulted in significant impacts on the watering program.

- **Increasing 3-1-1 Requests**

Between April 1 and July 12, 128 watering requests have been received, which far exceeds the average of 31 requests received during the previous six years for the same timeframe (started tracking watering requests in 2015).
- **Growing Number of Watering Locations**

Over 350 more locations have been added to watering routes to cover specific 2- and 3-year old trees, including all maples planted in 2019-20 as the early drought has hit these trees very hard.

A two-hour pre-shift overtime was added to each watering route when the heat wave began. The pre-shift overtime allowed staff to:

- ensure the 2-week watering schedule is maintained despite the added trees;
- water along streets where vehicular and pedestrian traffic become problematic at other times of the day; and
- complete watering requests received through 3-1-1 and from other City staff where trees are struggling and requiring water.



Should additional watering be required, the Urban Forestry team may be able to leverage other staff to double shift Park Board watering trucks or even run them during the weekend. Additionally, staff are in discussions with Engineering Services to utilize their services earlier than usual this summer.

Maples have been hit exceptionally hard by the early drought conditions, extending beyond the typical stresses seen on juvenile trees. A significant number of mature trees are also being affected, such as the ones along Pacific Boulevard. Urban Forestry will continue to work with Communications and look for opportunities for targeted communication to promote watering these trees, such as working with the local Business Improvement Associations (BIA).

Implications of Sustained Drought

Short-term impacts of the lack of water include death of yearlings, dieback in mature trees, increased limb failures, and increased mortality. These may not show up until subsequent years. Long-term implications are harder to predict, even on trees that are currently struggling. Growth stunting and life span shortening may become a consequence of sustained drought.

Future Considerations

Urban Forestry continues to look for ways to improve the health of the urban forest and providing newly planted trees with the best start is paramount. Some of the recommendations being considered include:

- requiring a minimum of three years on the watering program for all juvenile street trees, with a minimum frequency target of every two weeks to ensure deep root watering;
- setting-up a service contract with local suppliers for additional emergency watering when needed;
- developing a watering program for park trees beyond the first year after planting;
- expanding the watering fleet size and staffing to match the needs of the urban forest, such as adding a dedicated truck for all parks and natural areas, and a large volume truck (such as a tanker or flusher truck);
- developing a digital solution for creating and tracking watering routes;
- increasing the replacement bond beyond two years for trees planted by developers, and include a commitment of watering maintenance during the critical establishment phase.

Regards,

A handwritten signature in black ink, appearing to read "Donnie Rosa".

Donnie Rosa *(they/she)*
General Manager - Vancouver Board of Parks and Recreation

/sd/dm/jm/ag/clc

Copy to: PB Senior Leadership Team
City Arborist
PB Communications