



Hamilton

INFORMATION UPDATE

TO:	Mayor and Members City Council
DATE:	May 2, 2019
SUBJECT:	Mortality Rate of Newly Planted Trees (ES19016) (City Wide)
WARD(S) AFFECTED:	City Wide
SUBMITTED BY:	Craig Murdoch Director, Environmental Services Public Works Department
SIGNATURE:	

During the January 29, 2019 Public Works Budget Presentation, information was requested regarding the mortality rate of newly planted trees within the City of Hamilton. This Information Update provides Council information on tree mortality rates, and actions the Forestry Section undertakes to maximize the survival of newly planted trees.

Trees in the urban environment are important resources that play a role in providing multiple ecosystem enhancements, including air and water filtration, carbon storage, storm water run-off control, temperature moderation, cultural impacts, improved aesthetics, and increased property values.

Due to the recent impacts of the Emerald Ash Borer and other factors such as the 2013 ice storm, reducing the loss of trees in our urban forests is especially important. In response, Forestry Staff have implemented many tree planting initiatives. The success of these initiatives has reduced the negative impact these threats are having on the urban tree canopy cover percentage of the City. A recent analysis of the urban tree canopy indicated that the canopy coverage has remained relatively consistent at approximately 21% between 2006 and 2017.

To mitigate the impact of Ash tree removals and to eventually increase the City of Hamilton's tree canopy cover percentage, the Forestry Section strives to improve the success of tree planting programs by continually reviewing the processes involved in successful installations and by making improvements based on the successes of the previous season.

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Current processes that have been implemented to ensure successful tree establishment are as follows:

- Sources of tree material are held to strict specifications to ensure that trees are sourced from reputable suppliers and trees are grown in the appropriate hardiness zones. At the time the trees are received from the growers and prior to installation, Forestry Staff inspects all new trees to ensure the tree's health and structure meets our specifications. The inspection ensures there are no wounds present, no insect or disease issues, and the tree's root system is not damaged.
- All proposed locations for newly planted trees are inspected prior to installation by Forestry Staff to ensure the location meets a tree's requirements for establishment, for example: soil, moisture and light exposure, overhead obstructions, which all dictate species used.
- Newly planted trees are held to the City of Hamilton specific planting specifications for coniferous and deciduous trees. These standards are based on industry standards for survivability. These processes are verified through quality control site visits, which are completed for every tree after installation.
- All newly planted trees are mulched according to the City of Hamilton's mulching specifications based on industry standards. Mulching at the time of planting improves the tree's establishment by holding onto soil moisture, moderating soil temperature, and reducing soil compaction. A natural, coarse wood chip is used as the mulch layer.
- All newly planted trees are properly watered after planting. For large trees planted in road allowance / boulevard locations, a water bag is installed at the time of planting and filled weekly. Trees requested through the free street tree planting program, which are planted in the road allowance in front of a homeowner's property, are encouraged to be watered by the resident.
- Information pamphlets about new trees is provided to residents if the tree is in the road allowance to engage the resident in the tree's success.
- In times of drought, tree planting is suspended, and communication is provided to residents to water the newly planted trees adjacent to their properties, and City watering programs are increased in frequency and extended to established hard surface trees (sidewalk trees).

Mortality in trees is important to measure to plan for program improvements. Forestry Staff completed a review of newly planted trees in 2018. The 2018 mortality study was completed on a sub-sample of the 6986 trees planted in both the road allowance in front of a homeowner's property, and boulevards city-wide. The trees within the review were

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planted in 2017. The trees were chosen at random and half were planted in the spring and half were planted in the fall. The trees were assessed visually to determine their health, and to provide Forestry Staff insight into the success of the 2017 tree planting season, as well as provide a process to continue to monitor the success and effectiveness of tree health initiatives.

Key results of the review are as follows:

- Of the trees planted in the Spring (May – June 2017):
 - 77% were in good condition
 - 7% were in fair condition
 - 3% were in poor condition
 - 13% were dead

- Of the trees planted in the Fall (October – November 2017):
 - 69% were in good condition
 - 10% were in fair condition
 - 21% were in poor condition
 - 0% were dead

Based on the review completed, the 2017 overall mortality rate was 6.7%. This rate is consistent with several other Ontario municipalities we polled who estimate that their street tree mortality rate is between 5-10%.

Forestry Staff have reviewed the process used in 2018 and determined a few areas for improvement. To further monitor the mortality rate in newly planted trees, a review will be completed in 2019. The 2019 review will include all trees within the 2018 review, as well as a new group of trees planted in 2018. The review will include a larger subset of the 13,486 (large caliper and whips) trees planted in 2018, and planned for 2019, to provide more data. In 2019, to further improve planting processes and ease the management of assets, all caliper size trees planted in 2019 will be digitally mapped and inventoried.

Once the 2019 review is completed, an Information Update will be provided to Council.

APPENDICES AND SCHEDULES ATTACHED

N/A