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2018 Capital Budget Briefing Note Basement Flooding Protection Program – Program Status Update

Issue:

City Council, through the creation of the City's Basement Flooding Protection Program, has directed staff to reduce the risk of basement flooding across the City through a combination of public drainage system improvements and through the use of policies, by-laws, and incentives to reduce flood risks on private and public properties.

This briefing note provides an update on Toronto Water's efforts to reduce the risk of basement flooding in the City. Specifically, ward by ward progress updates are provided to summarize the progress to date on Environmental Assessment studies, infrastructure upgrades, and private property flood protection device subsidies.

Background:

Basement Flooding Environmental Assessment (EA) Studies

Environmental Assessment (EA) studies are undertaken that assess the capacities of the City's existing storm, sanitary, and combined sewer drainage systems and recommend infrastructure improvements to these systems to reduce future basement and surface flooding. Deficiencies in private drainage systems are not identified and not assessed through the City's Basement Flooding EA studies.

The Basement Flooding Protection Program (BFPP) was expanded to be City-wide following the severe storm of July 8, 2013. This expansion resulted in the creation of new Basement Flooding study areas, bringing the total to 67 study areas. City Council, at its meeting on March 10 and 11, 2015, requested the General Manager, Toronto Water, to initiate and expedite the completion of new Basement Flooding EA studies for the remainder of the City, specifically Study Areas 42 through 67, and in the order of priority as shown in Schedule A to the report (December 18, 2014) from the General Manager, Toronto Water. The Council decision can be viewed at:

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2015.EX3.1>

As of September 30, 2017, EA studies have been completed for 32 Basement Flooding Study Areas. EA studies for eleven study areas are underway, of which one EA study is planned to be completed by the end of 2017 (Study Area 20), eight EA studies are planned for completion in 2018 (Study Areas, 34, 35, 36, 37, 38, 39, 40 and 41), and two EA studies are planned for completion in 2020 (Study Areas 43 and 45). The 32 completed Basement Flooding EA studies have recommended an estimated \$1.643

billion of infrastructure improvement projects. The EA Studies for Study Areas 42, 44 and 62 are scheduled to commence in 2018. Study Area 62 is hydraulically connected with Study Areas 42 and 44, which warrants its advancement. A preliminary schedule (subject to future adjustments) for undertaking Basement Flooding EA studies was provided in the December 18, 2014 Staff Report. Toronto Water is committed to providing City Council with an updated schedule when there is a change in the EA schedule (e.g. advancement or delay of an EA study start) that exceeds one year. As per the commitment in the 2014 Staff Report and following the update provided with the approved 2017 Capital Budget, the revised schedule for study areas 42, 44 and 62 are provided in Table 1.

Table 1: Revised Schedules for Basement Flooding Areas 42, 44 and 62

Basement Flooding Study Area	EA Study Start Year	Revised EA Study Start Year
42	2017	2018
44	2017	2018
62	2017	2018

Implementation of Infrastructure Upgrades

Infrastructure upgrades to reduce the risk of basement flooding are prioritized and scheduled, as per Council approved criteria to protect the greatest number of properties as soon as possible, within approved budgets, and are coordinated with other capital projects. By the end of 2017, it is projected that approximately \$349 million will have been spent on construction and activities supporting construction (engineering, design, studies, flow monitoring, etc.) within the BFPP. This includes completed and ongoing projects.

A key criteria in the decision to proceed with the design and construction of BFPP infrastructure upgrades is the requirement for storm sewer upgrade projects to cost less than or equal to \$32,000 cost per benefitting property. This threshold was adopted by City Council at its meeting of September 21, 2011. The adopted staff report can be found at: <http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2011.PW7.6>

Projects that meet the \$32,000 cost per benefitting property threshold at the completion of the EA stage, proceed to preliminary design. At the completion of preliminary design, projects that meet the \$32,000 cost per benefitting property threshold, proceed to detailed design and construction. While many projects meet the \$32,000 cost per benefitting property threshold, there are also many projects that do not meet it. Of the \$1.643 billion of recommended infrastructure improvement projects identified to date, approximately \$724 million or 44% of the total value did not meet the \$32,000 cost per benefitting property threshold. These projects have not been scheduled for implementation within the 5 year capital plan, in accordance with City Council direction. \$691 million of recommended infrastructure projects are in various stages of implementation. These stages include: under construction, in the design process (i.e. preliminary design or detailed design stages), and planned to begin the design process. The remaining \$228 million of recommended infrastructure projects have been constructed.

Basement Flooding Protection Subsidy Program

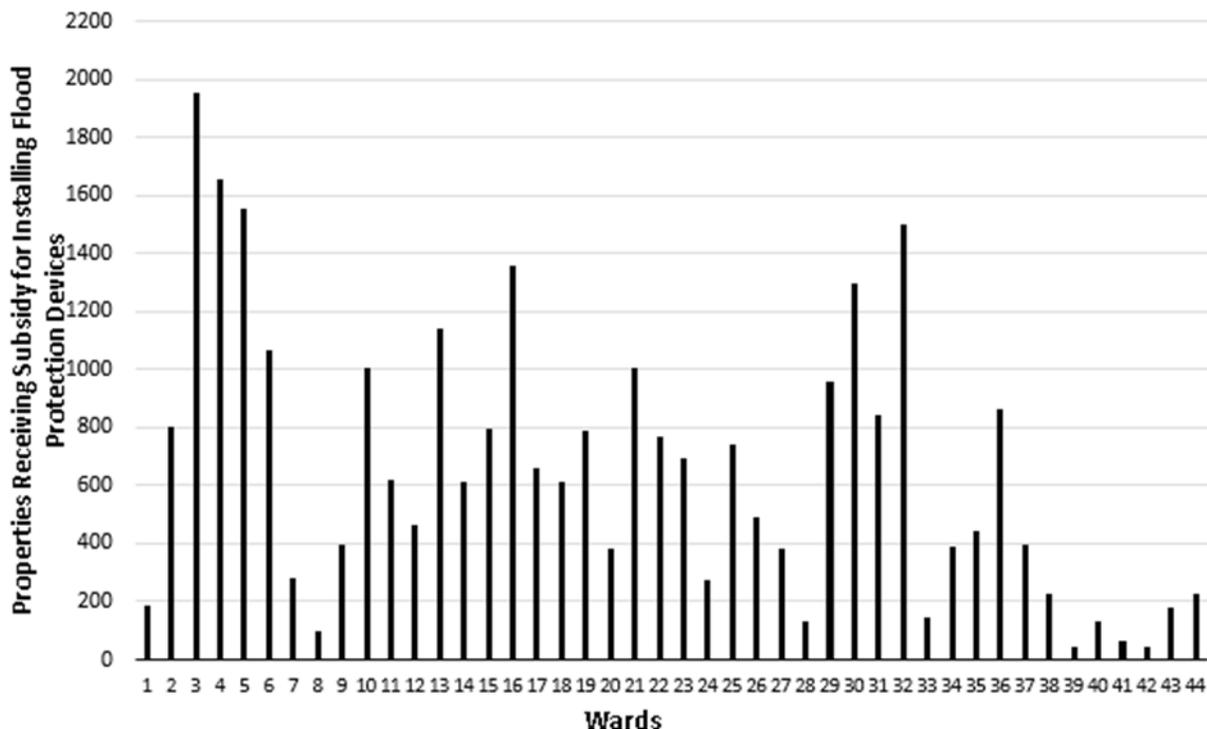
The City's Basement Flooding Protection Subsidy Program (BFPSP) offers property owners of single-family, duplex and triplex residential homes financial assistance of up to \$3,400 per property to install flood protection devices, including a backwater valve, sump pump, and pipe severance and capping of the home's storm sewer or external weeping tile.

The BFPSP was initially created for homeowners in response to the May 12, 2000 storm event, and was initially known as the "Voluntary Private Home Isolation from Public Sewer System Program". As a result of properties being impacted by subsequent storm events including the August 14, 2003, August 19, 2005 and May 17, 2006 storm events, the program was expanded City wide. City Council at its meeting in July 2006 adopted a report to expand the program City-wide and requested the General Manager of Toronto Water to incorporate funding to support the Program in its 2007 Capital Budget submission. The Council decision can be viewed at:

<http://www.toronto.ca/legdocs/2006/agendas/council/cc060725/pof6rpt/cl041.pdf>

Since the subsidy program was expanded City wide in 2006, over 28,700 applications have been approved with \$38.9 million in total subsidy payments issued to property owners by Toronto Water as of the end of June 2017. On average, the City currently issues approximately \$1,600 in subsidy payments to participating properties. The number of subsidy applications approved by the City have varied considerably from ward to ward as shown in Figure 1.

Figure 1: Number of Properties Receiving a Subsidy for Installing Flood Protection Devices by Ward (up to end of June 2017)



Key Points:

Progress in the Basement Flooding Protection Program varies considerably from ward to ward. This briefing note provides a ward by ward summary in Schedule A and highlights the accomplishments achieved to date. Specifically, the progress regarding EA studies, construction of infrastructure upgrades, and participation in the subsidy program is provided.

These summaries highlight that while significant effort has been expended, there still remains a great deal of effort to achieve the enhanced level of service to reduce the risk of basement flooding across the entire City.

The summary for each City ward includes:

- A map showing the limits of each ward, the private properties that have installed flood protection devices, and the boundaries for the EA studies along with different shading to identify the portions of each ward where EA studies have been completed, are ongoing, or are planned to begin;
- A pie chart and table illustrating the proportion of each ward where an EA study has been completed, is ongoing, and is planned to begin in the future.
- A pie chart illustrating the status of the infrastructure improvement works that were recommended through completed EA studies. The chart is subdivided into five categories, namely 'Constructed', 'Under Construction', 'Design Process Initiated', 'Planned for Design Initiation', and 'Deferred Projects'. To align with the typical budgeting cycle, expected construction costs to the end of the 2017 calendar year have been estimated. The pie charts represent the portions of the ward where EA studies have been completed. Infrastructure improvement costs for the portions of the ward not yet studied are not estimated within the provided values.
- As projects move through the implementation process, cost estimates are updated and replaced with actual costs, which results in variations in the values from year to year.
- Bar charts are provided to illustrate the accomplishments of the City's Basement Flooding Protection Subsidy Program, which provides financial assistance to pay for some of the costs of installing flood protection devices. Both program participation and program expenditure summaries up to the end of June 2017 are provided.

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