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## **2021 CAPITAL BUDGET BRIEFING NOTE**

### **Basement Flooding Protection Program – Program Status Update and Project List: 2021 to 2025**

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#### **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. Ward by ward progress updates are provided to summarize the progress to date on Basement Flooding studies, infrastructure upgrades, and subsidies granted for private property flood protection devices.

City Council has directed the General Manager of Toronto Water to submit an updated five year list of Basement Flooding Protection Program capital projects through the annual Capital Budget submission process. Accordingly, this briefing note provides a list of projects proposed for construction initiation in 2021 through 2025.

As directed by City Council on December 17, 2019, the attached ward profiles and list of projects, organized by ward, provide communication to Councillors regarding rate-supported studies and projects proceeding in each ward.

#### **Background:**

The Basement Flooding Protection Program (BFPP) increases the resilience of the City of Toronto by making "Toronto more resilient to climate change, including the hazards of flooding and heat". Specifically, Toronto Water contributes to the achievement of action items B1.1, B1.2, and B1.3 of the Toronto Resilience Strategy through its efforts to upgrade municipal drainage infrastructure, its continuous contributions to research, and its annual consideration of the program's accomplishments. Toronto's Resilience Strategy can be found at:

[https://www.toronto.ca/ext/digital\\_comm/pdfs/resilience-office/toronto-resilience-strategy.pdf](https://www.toronto.ca/ext/digital_comm/pdfs/resilience-office/toronto-resilience-strategy.pdf)

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>

Since the inception of the program, severe rain events have continued to highlight the importance of completing Basement Flooding studies for the entire city, improving the level of service of the City's infrastructure, and increasing the city's resilience to extreme weather. On July 8, 2020, a severe storm impacted the west end of the City, affecting an area stretching from northwest Etobicoke to the downtown core, resulting in the basement flooding of numerous homes. The storm was at its most intense in the Black Creek watershed where it exceeded that of a 100 year return period storm event.

### Basement Flooding Studies

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

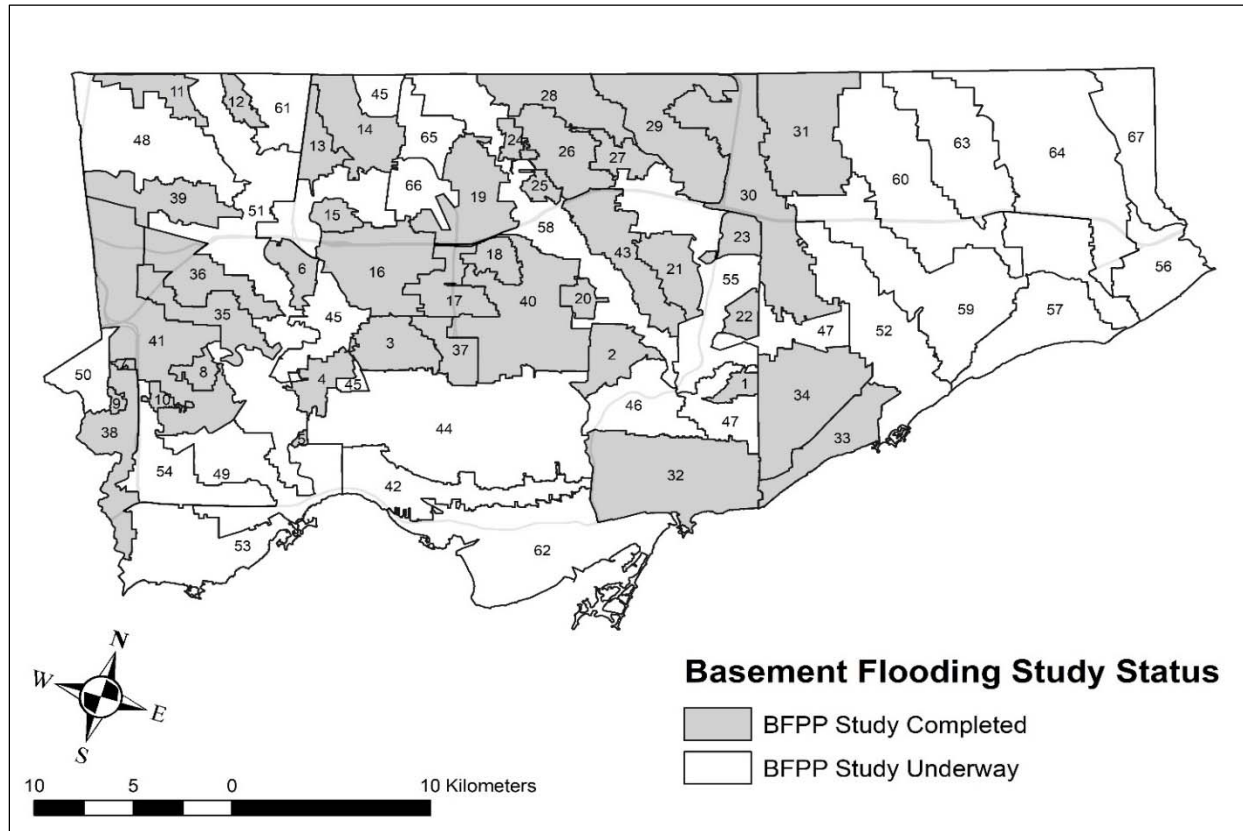
As of October 1, 2020, studies have been completed for 42 Basement Flooding Study Areas. 25 study areas are underway, of which one study is scheduled to be completed in 2021 (Study Area 45). Study Areas 42, 44, and 62 commenced in 2019 and, due to the size and complexity of the downtown area, are projected for completion in 2023. 21 study areas, Study Areas 46 through 61, and 63 through 67, were awarded in August 2019, and are scheduled for completion in 2022. Opportunities to expedite study schedules are continually sought and implemented through the duration of studies.

Figure 1 depicts the status of the 67 Basement Flooding Study Areas.

Toronto Water is committed to providing City Council with an updated schedule when there is a change in schedule (e.g. advancement or delay of a study start) that exceeds one year. As all studies are underway, and studies were commenced as reported in the 2019 briefing note, a schedule update is not required.

All Basement Flooding studies are scheduled for completion in or before 2023. Once all studies have been completed, the necessity to revisit previously completed study areas will be evaluated.

**Figure 1 – Status of Basement Flooding Study Areas**



### Implementation of Infrastructure Upgrades

Infrastructure upgrades to municipal drainage systems 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 2020, it is projected that approximately \$535 million will have been spent on construction and activities supporting construction (engineering, design, studies, flow monitoring, etc.) within the BFPP.

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>

Properties are considered to be benefitting if they move from not meeting the targeted levels of service for drainage to meeting the enhanced levels of service upon completion of infrastructure upgrades. The targeted levels of service, as previously adopted by City Council consist of the 100 year design storm for drainage systems, and the May 12, 2000 design storm (as recorded at Oriole Yard) for sanitary drainage systems.



Approximately 65% of the total value of recommended infrastructure improvement projects identified to date do 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. The attached ward profiles in Schedule A provide further information on the implementation status in each ward.

Due to construction cost escalation, the \$32,000 cost per benefitting property threshold is being reviewed with a view to determining an appropriate threshold value going forward. Toronto Water will provide City Council in November 2020 with an update on the rules governing the prioritization of projects within the BFPP. City Council's decision regarding this report will be reflected in the BFPP's 2022 Capital Planning Budget Briefing Note.

#### External Funding of the BFPP

Toronto Water will continue to explore external funding opportunities for Basement Flooding Projects as they become available, and as Basement Flooding Projects fit potential funding program eligibility parameters.

#### Basement Flooding Protection Subsidy Program

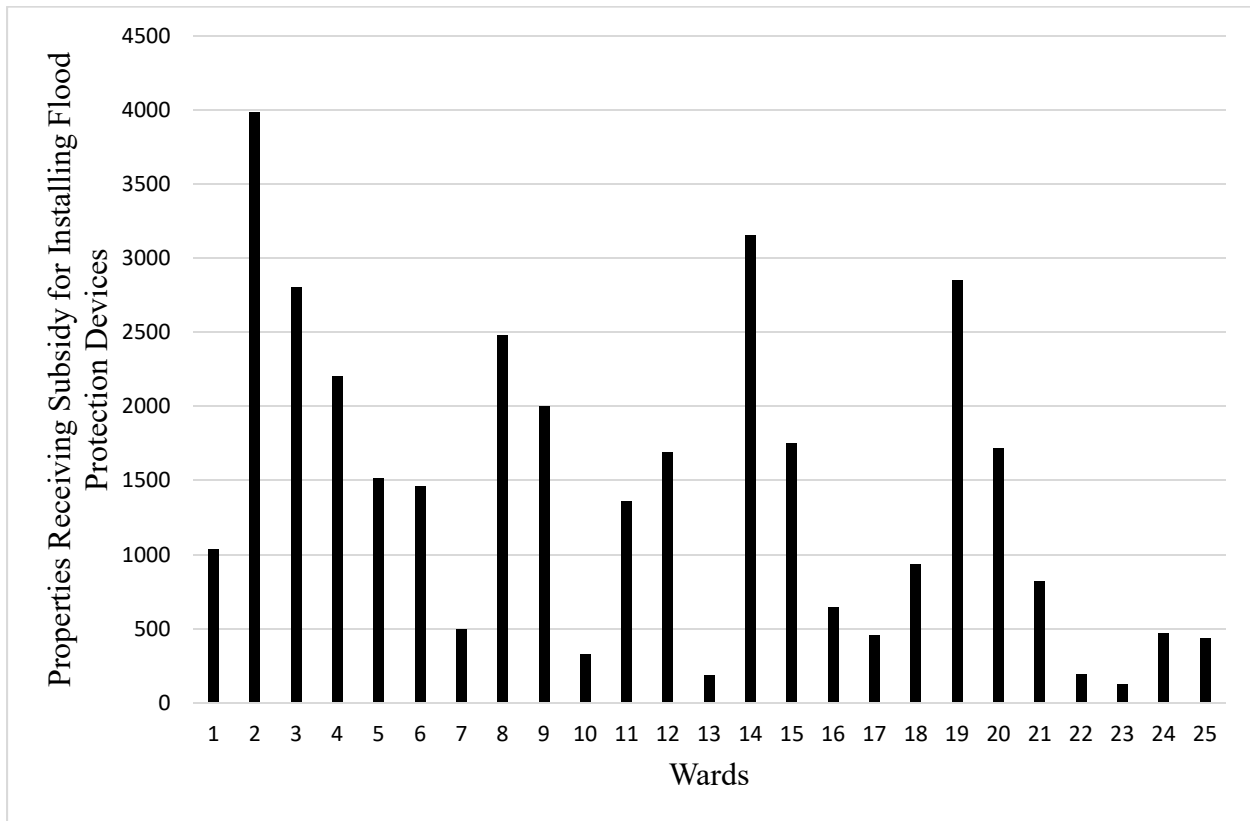
The City's Basement Flooding Protection Subsidy Program (BFPPSP) offers property owners of single-family, duplex and triplex residential homes financial assistance of up to \$3,400 per property to install flood protection devices, including a backwater valve, sump pump, and pipe severance and capping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

The BFPPSP 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 35,100 homes have installed flood protection devices. This has resulted in \$59.7 million in total subsidy payments issued to property owners by Toronto Water as of June 30, 2020. The number of subsidy applications approved by the City varies considerably from ward to ward as shown in Figure 3.

**Figure 3 - Number of Properties Receiving a Subsidy for Installing Flood Protection Devices by Ward (up to end of June 2020)**



**Key Points – BFPP Program:**

- The costs associated with managing, designing, and constructing Basement Flooding Protection Program solutions increases annually. With the cost per benefitting threshold being set in 2011, the impacts of this annual inflation are being felt, with more projects each year costing more than the fixed cost threshold value. Toronto Water is presenting a modified approach for the prioritization of implementation projects, to adjust for inflationary impacts, for City Council consideration in November 2020.

**Key Points – Ward Profile Summaries (Schedule A):**

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 studies, construction of infrastructure upgrades, and participation in the subsidy program is provided.

A substantive acceleration of study efforts has been initiated, with the goal of increasing and accelerating the delivery of drainage system upgrades in the City. 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 studies along with different shading to identify the portions of each ward where studies have been completed, are ongoing, or are planned to begin;
- A pie chart and table illustrating the proportion of each ward where a 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 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 2020 calendar year have been estimated. The pie charts represent the portions of the ward where 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 June 30, 2020 are provided.

**Key Points – Project List 2021-2025 (Schedule B):**

- Table 2 (attached) contains a 5-year list of projects organized by year and by Ward. This list reflects Toronto Water's 2021 Capital Budget, and the 2021 to 2025 Capital Budget Plan.
- This Briefing Note uses the best available scheduling information at the time of writing. Schedule and scope change requests matching the schedules and scopes proposed in this Briefing Note may have not yet been submitted to the Infrastructure Coordination Unit (ICU). Likewise, since the writing of this briefing note, the need for project changes may have arisen that are shown in the tables in this BN. As change requests are processed, the

City's website (T.O. INview) will be updated and may not reflect some proposed schedules and scopes within this Briefing Note.

- The scheduling of construction projects is subject to change, due to capital coordination issues and regulatory approvals which may be necessary. Schedules are updated throughout the year through submissions to the Infrastructure Coordination Unit. These updates are regularly uploaded to the City's website.
- The projects presented in the 5 year list were identified from the 42 completed Basement Flooding studies as of October 1, 2020. To ensure that as many projects as possible are initiated without delay, moving forward, recommended projects from studies will be assigned for preliminary design at the same time those projects are presented to the public as part of the Basement Flooding study process. Should solutions need to change as a result of feedback received through the public review process, sufficient time exists within the engineering design process to incorporate such changes prior to construction taking place.
- This briefing note only lists those projects that have been removed, during 2020, from the long-term capital plan and moved into the BFPP deferred projects list, upon completion of preliminary design. The list does not include projects that had been moved into the BFPP deferred projects list through budget submissions in prior years.

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