

Downtown Water Strategy

Date: April 17, 2018

To: Planning and Growth Management Committee

From: Chief Planner and Executive Director, City Planning and Acting General Manager, Toronto Water

Wards: 20, 27 and 28

SUMMARY

This report recommends the use of the Downtown Water Strategy to guide implementation of the Downtown Plan.

The Downtown Water Strategy (the Strategy) identifies infrastructure improvements that are required to accommodate population and employment growth in the Downtown. Downtown is Canada's largest employment cluster with over 500,000 jobs, relying on Union Station, the subway system and the surface transit network to provide access to a city-wide and regional workforce. Close to 240,000 people live Downtown, with more than 7,500 residents added annually over the past 5 years. The Downtown, and the South of Eastern and Liberty Village areas have the potential to reach between 850,000 and 915,000 jobs by 2041.

Toronto Water utilizes a comprehensive process to program capital works projects that ensure a state-of-good-repair and service level enhancement for its infrastructure. Toronto Water is also incorporating the impacts of future growth to 2041 in its infrastructure studies to identify additional infrastructure improvements to be considered in its capital works program, so that infrastructure capacity is available to support future growth.

The Strategy recognizes challenges associated with the limited space available in the City's road allowance to accommodate additional infrastructure as well as capacity constraints imposed by groundwater infiltration and wet weather flows. A number of aligned initiatives, including those related to energy and resilience, are addressed in the Downtown Water Strategy to ensure integrated planning and implementation.

To ensure growth is supported by the timely provision of infrastructure, the Downtown Plan is further supported by four other infrastructure strategies:

- Downtown Parks and Public Realm Plan
- Downtown Community Services and Facilities Strategy

- Downtown Mobility Strategy
- Downtown Energy Strategy

These five strategies set priorities for infrastructure investment, and guide implementation of the Downtown Plan, which encompasses a 17-square-kilometre area from Bathurst Street to the Don River and from the waterfront to about the CP rail corridor/Rosedale Valley Road. Each strategy outlines a series of transformative ideas and actions intended to align infrastructure planning with long-term growth. The Strategy supports the implementation of the Downtown Plan by informing the Complete Community Assessment and other requirements as part of the Planning Rationale for development applications.

Implementation of the Downtown Water Strategy will be undertaken through the capital works program of Toronto Water, informed by several infrastructure studies that are currently underway. Investments in water-related infrastructure to address capacity constraints associated with growth, as set forth in the Downtown Water Strategy, will be reported out to City Council through the individual projects and implemented through the capital works program of Toronto Water. Toronto Water and City Planning will work together to prioritize projects that resolve capacity deficiencies and to identify where development may need to be held until the servicing improvements to support growth are implemented. Monitoring of development and growth trends will inform adjustments to the implementation of projects in the capital works program.

RECOMMENDATIONS

The Acting General Manager, Toronto Water and the Chief Planner and Executive Director, City Planning recommend that the Planning and Growth Management Committee:

1. Direct the Chief Planner and Executive Director, City Planning, in consultation with the Acting General Manager, Toronto Water to use the Downtown Water Strategy attached as Attachment 1 to this report to guide implementation of the Downtown Plan.
2. Direct the Acting General Manager, Toronto Water to use the Downtown Water Strategy to inform the 2019-20 Capital Budget.
3. Direct the Acting General Manager, Toronto Water and the Chief Planner and Executive Director, City Planning to use the Downtown Water Strategy as a reference to review development applications within the Downtown Plan area as follows:
 - a. to inform the necessary infrastructure required to support the development application;
 - b. to assess the potential cumulative impact of other applications and previous approvals to determine the City's ability to secure the necessary infrastructure to support development; and

c. use planning mechanisms, including holding provisions, as necessary to ensure that growth and infrastructure needs are aligned.

FINANCIAL IMPACT

There are no direct financial implications resulting from the implementation of the recommendations in this report. Investments in water-related infrastructure to address capacity constraints associated with growth, as set forth in the Downtown Water Strategy, will be implemented through the capital works program of Toronto Water.

As the water infrastructure studies underway are brought to completion – including the Toronto Optimization Study, Waterfront Sanitary Servicing Master Plan Environmental Assessment Update, and Basement Flooding Protection Program Study – projects recommended through those studies will be considered for inclusion in the capital works program. Deficiencies in the infrastructure for Downtown will be reviewed to identify specific zones of concern that need attention. These will be mapped against state-of-good repair and service level enhancements to identify synergies, including cost savings where both improvements coincide. This will be an ongoing process as development conditions change over time and may require revisions to past recommendations for infrastructure improvements.

Detailed infrastructure timing and funding will need to be prioritized against other City-wide capital projects and operating impacts both funded and unfunded, as well as the City's financial and resource capacity to deliver additional infrastructure works that will inform and guide the future Capital Budget Plan and Operating Budget processes. The timing and provision of the necessary infrastructure to support growth in the Downtown will be a collective responsibility with the development industry for building a livable Downtown. This may require that the City manage, as appropriate, development to align with the delivery of the growth-related infrastructure. The Downtown Plan provides mechanisms to assist in coordinating the provision of infrastructure including: the requirement that developers undertake a Complete Community Assessment for their proposals that will determine and address their infrastructure (physical, community service facilities, green and parkland) requirements to support growth; the potential use of a "Holding symbol" in the event that growth is outpacing the necessary infrastructure requirements; and opportunities to integrate and/or provide infrastructure within or in the area of the proposed development.

Toronto Water and City Planning will continue to work together to prioritize projects related to future growth in five-year increments. Where capacity deficiencies are identified, development may have to be held until the infrastructure improvements and capacity upgrades are implemented by the City. Or, if permitted by the City, developers may make suitable arrangements to undertake the necessary infrastructure improvements themselves.

Toronto Water will work with the City's Major Capital Infrastructure Coordination office to review opportunities for coordination with other utility work and planned infrastructure investments related to streets, transit and energy, among others.

The Interim Chief Financial Officer has reviewed this report and agrees with the financial impact information.

DECISION HISTORY

TOcore:

At its May 2014 meeting, Toronto and East York Community Council (TEYCC) considered a staff report entitled "Comprehensive to the Core: Planning Toronto's Downtown," which launched TOcore: Planning Downtown, and directed staff to develop an integrated planning framework and infrastructure growth strategy for Downtown to enable long-term liveability and competitiveness. The report can be found here: <http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2014.TE32.47>

At its December 2015 meeting, City Council adopted a staff report entitled 'TOcore: Planning Toronto's Downtown – Phase 1 Summary Report and Phase 2 Directions' and directed City Planning and Toronto Water staff, to develop a water infrastructure assessment for Downtown. The report can be found here: <http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2015.TE12.43>

At its October 2017 meeting, City Council adopted a staff report entitled, 'TOcore: Proposed Downtown Plan' and directed staff to undertake stakeholder and public consultation on the five Downtown infrastructure strategies, including the Water Strategy, and report back by mid-2018 with final strategies and any recommendations for future work to implement the strategies such as capital approvals, Environmental Assessments and/or Master Plans. The report can be found here: <http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2017.PG22.1>

Technical Studies and Aligned Initiatives:

Sanitary and Combined Sewers Capacity Assessment Guidelines

Toronto Water has developed criteria for the assessment of sewers and is preparing supporting guidelines to be used by developers to demonstrate available infrastructure capacity to service their developments on a site-specific basis, in cases where a master servicing plan does not exist. A master servicing plan provides a comprehensive and optimal set of solutions to resolve infrastructure deficiencies based on effectiveness and efficiency. In the absence of a master servicing plan, or until such time as a master servicing plan has been completed, the criteria and guidelines will help establish a consistent and effective approach for developers to analyze capacity on a site-specific basis. The Assessment Guidelines, once finalized, will be available for developers on the City's website.

Groundwater Policy

In the past, groundwater has been discharged from the foundation drains of some developments in the Downtown into the City's sewers in the absence of approvals, as required by the City's Municipal Code 681 – Sewers. In response, Toronto Water has

implemented a reporting requirement for owners of all new developments to identify their plans to discharge groundwater to the City's sewers, and to demonstrate that existing sewers have adequate capacity. Toronto Water is also preparing a policy for groundwater discharge that will provide direction on the amount of groundwater that may be discharged to the City's sewer systems from developments in the future. The City's Design Criteria for Sewers and Watermains will be updated to recognize the additional demand on infrastructure capacity by groundwater infiltration. A new groundwater policy is anticipated to be completed in 2018.

Development Charges By-law Review

Investment in water-related infrastructure related to future growth will be funded through Development Charges, or funded as local improvements by individual or groups of developers, depending on the scope of the work. The City's Development Charges By-law is updated every five years and it will be considered by Executive Committee at its April 2018 meeting. When infrastructure assessments associated with the Toronto Water Infrastructure Strategy are completed, relevant improvements will need to be incorporated into the City's Development Charges By-law.

Toronto Green Standard

The Toronto Green Standard (TGS) is a set of sustainable performance measures required for new development through the planning process. The TGS implements the Wet Weather Flow Management Guidelines, which includes requirements for water balance (stormwater runoff), water efficiency, and erosion and sediment control which helps reduce stormwater runoff and potable water consumption while improving the quality of stormwater that discharges to Lake Ontario. The TGS also includes as core a higher performance measure for water balance for development seeking to meet Tier 2 incented through the TGS Development Charge Refund Program.

Deep Lake Water Cooling and Sewer Heat Recovery

The Downtown Energy Strategy identifies opportunities to access Toronto Water infrastructure to capture low-carbon thermal energy sources. For example, Toronto Water has experience with Deep Lake Water Cooling (DLWC), which involves the shared use of infrastructure in collaboration with Enwave Energy Corporation. DLWC can provide energy efficient cooling for buildings in the Downtown. Another potential low-carbon energy source is heat recovered from new wastewater infrastructure. Expanded involvement with DLWC projects or sewer heat recovery projects would have to be reviewed on a case-by-case basis to confirm alignment with Toronto Water's business goals and objectives.

COMMENTS

TOcore Overview

'TOcore: Planning Downtown' (the Study) has been a comprehensive and integrated look at Toronto's Downtown, its relationship to the city and region around it, and the

planning framework governing growth, development and the provision of infrastructure. The Study area is bounded by Lake Ontario to the south, Bathurst Street to the west, the mid-town rail corridor and Rosedale Valley Road to the north and the Don River to the East.

Initiating the TOcore Study in 2014, Council recognized that growth was outpacing the City's ability to secure the infrastructure necessary to support growth. It signaled that a new planning direction for Downtown was required and that it should be accompanied by an infrastructure growth strategy. Without integrated planning of growth and infrastructure along with a balancing of residential and non-residential growth, the liveability of Downtown and the competitiveness of the city as a whole was seen to be compromised.

The purpose of the Study is to ensure growth continues to positively contribute to Toronto's Downtown as a great place to live, work, learn, play and invest by determining how future population and employment growth will be accommodated and shaped, and what physical and social infrastructure will be needed, where it will go and how it will be secured.

Led by City Planning, the Study has been a collaboration among sixteen City divisions and two offices, as well as with several supporting agency partners.

Through TOcore, staff has developed a 25-year Downtown Plan to ensure that Downtown Toronto remains the thriving, liveable, and connected heart of a successful and prosperous city and region. To guide implementation, the Downtown Plan is supported by five infrastructure-related strategies that address: parks and public realm, community services and facilities, mobility, energy and water.

Strategy Background and Overview

The purpose of the Downtown Water Strategy is to support the identification and implementation of infrastructure improvements that will accommodate future growth. This will be achieved by leveraging existing processes currently used to plan, prioritize and coordinate infrastructure projects for state-of-good-repair and service level enhancement.

The Strategy outlines actions to enhance water supply, wastewater and stormwater infrastructure, and implement the strategy through the Toronto Water Capital Program, as detailed in the Strategy Highlights section, below.

Growth and Challenges

Toronto's Downtown functions as the economic and cultural hub of the city and region. Downtown is the most prominent location for development activity in the City and contains the largest percentage of proposed development. Downtown currently accounts for 38% of the residential units and 40% of the non-residential gross floor area (GFA) proposed in the entire city.

Much of the residential growth Downtown between 2012 and 2016 took place south of Queen Street. Almost 50% of all Downtown growth occurred in the King-Spadina and Waterfront West neighbourhoods. The Bay Corridor, King-Parliament and Waterfront Central saw moderate increases accounting for 36% of new residents.

Downtown's population is projected to more than double from approximately 200,000 people in 2011 to a potential population of 475,000 by 2041. Downtown is Canada's largest employment cluster with over 500,000 jobs. By 2041, Downtown, together with the "shoulder" areas of South of Eastern and Liberty Village, has the potential to reach between 850,000 and 915,000 jobs.

Growth-related challenges as identified in the Downtown Water Strategy include:

Pace and Magnitude of Growth

The pace and magnitude of growth occurring Downtown is consuming the capacity of Toronto Water's infrastructure faster than projected. The increasing height and density of many proposed developments is placing unanticipated stress on the water infrastructure systems. It is essential to link projected growth with the ability to upgrade water infrastructure to accommodate Downtown's future residents, workers and visitors.

Ageing Infrastructure and Tall Buildings

As infrastructure such as sewers age, they become leaky allowing groundwater to infiltrate. Infiltration can displace existing residual capacity in the sewer that can be used for future growth.

As more tall buildings are constructed in the Downtown, deeper foundations need to be excavated to accommodate parking. The excavations can intercept groundwater, which in the past has been discharged to the sewer. Inflows of groundwater to the sewer can displace existing residual capacity in the sewer that can be used for future growth.

Ability to Implement Improvements within Limited Space

Improvements to infrastructure may include the upsizing of pipes to provide capacity for future growth. This may not be feasible since space under the road allowance may be too limited to allow for upsizing. Alternative solutions would then have to be considered in this type of situation.

Strategy Highlights

The Downtown Water Strategy includes the following priority actions:

1. Water supply infrastructure:

- Complete the Toronto Optimization Study to assess water supply system performance and identify deficiencies to be resolved.
- Complete a plan to upgrade watermains with the potential to increase fire suppression capabilities.

2. Wastewater infrastructure:

- Resolve capacity constraints related to the Scott Street Sewage Pumping Station service area within the Downtown.

- Implement initiatives to reduce the impacts of wet weather flow to optimize sewer capacity.
 - Update hydraulic models, when new information becomes available, to increase the accuracy for determining infrastructure upgrades.
3. Stormwater infrastructure:
- Complete the Basement Flooding Protection Program studies and, based on the results, schedule specific infrastructure improvements through the Toronto Water Capital Works Program.
 - Incorporate relevant provincial stormwater management requirements (e.g., runoff volume control) from the MOECC Low-Impact Development Stormwater Guidance Manual, with updates of the City's Wet Weather Flow Management Guidelines.
 - Update the City's Wet Weather Flow Management Guidelines.
 - Complete the Green Streets Technical Guidelines and implementation strategy.
4. Implement the Downtown Water Strategy:
- Resolve infrastructure capacity constraints, identify specific zones of concern, and prioritize related improvements for inclusion in the Toronto Water Capital Works Program.

The following provide specific examples of how growth-related challenges are or will be addressed by the Downtown Water Strategy:

Notwithstanding that the City will use best efforts to ensure that infrastructure is available to accommodate future growth, some developments may require the use of a Holding By-law until infrastructure improvements to increase capacity can be completed.

Infiltration of groundwater into existing sewers will be reduced by completing programs to find and fix deficiencies in the sewers, thereby creating additional capacity in the sewers for future growth, and deferring the immediate need to upsize a sewer.

A Groundwater Policy is in the process of being completed and will regulate the amount of groundwater from new tall buildings that may discharge to the sewers. This will create additional capacity in the sewers for future growth.

Application of the Toronto Green Standard and newly completed Green Streets Technical Guidelines will provide alternatives that could free up capacity in existing sewers by diverting inflows and therefore deferring the immediate need to upsize sewers.

Additional examples may be found in the Downtown Water Strategy (Attachment 1).

Process and Engagement

City Planning and Toronto Water collaborated in the preparation of the Downtown Water Strategy to ensure alignment of the objectives of both Divisions. Discussions with the Environment and Energy Division have also helped to shape the Strategy.

While the Downtown Water Strategy was being prepared, it was introduced to the community and other stakeholders at various stages of its development for feedback, as part of the TOcore public consultation process. This included information provided about the Strategy on the City's website, an online survey on a summary of the Strategy, and seeking input from the public and stakeholders at public meetings and presentations, workshops, an exposition, and at a meeting with the Financial District Business Improvement Area. Further details of the TOcore engagement process in Phases 1 through 3A can be found on the project website: www.toronto.ca/tocore.

Next Steps

This report recommends the use of the Downtown Water Strategy by Toronto Water and City Planning to support growth and achieve the objectives of the Downtown Plan. The Strategy supports the implementation of the Downtown Plan by informing the Complete Community Assessment and other requirements as part of the Planning Rationale for development applications. The Strategy is considered a "living document" and will be reviewed and updated as necessary on an ongoing basis to ensure its relevance and use as a key implementation tool for the Downtown Plan.

Toronto Water will:

- Complete the various infrastructure studies as described in the Downtown Water Strategy, as well as aligned and supporting initiatives where appropriate, in order to identify the scope of improvements to water infrastructure that will accommodate future growth.
- Implement improvements to water infrastructure in a sustainable manner, utilizing existing processes to prioritize and coordinate projects for the Capital Works Program.

- Make adjustments for the implementation of projects in the Capital Works Program, when necessary, based on information from the monitoring of development trends over time by City Planning.

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SIGNATURE

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ATTACHMENTS

Attachment 1: Downtown Water Strategy