



September 26, 2023

Mary Stuart
Peoples Official Plan Coalition
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<https://popottawa.ca/>

Re: Submission from the Peoples Official Plan Coalition (POPC) on the draft Infrastructure Master Plan

Dear Mary Stuart,

This letter is in response to your letter of July 7, 2023. We appreciate the formal comments provided on behalf of the Peoples Official Plan Coalition on the City's summary of the draft Infrastructure Master Plan (IMP). Responses to these comments are provided below.

1. Hardening Critical and Vulnerable Infrastructure - Project Plans

POPC Comment (summarized)

POPC would like to see temporary and permanent solutions, and associated high-level budgets for projects, related to addressing climate vulnerability.

City Response

Descriptions of projects related to climate resiliency are presented below. Please note that the Infrastructure Master Plan is a growth-focused plan to support the growth management strategy as presented in the City's new Official Plan. Additional climate resiliency projects will be included in the City's Asset Management Plans, treatment plant Master Plans, and [Climate Resiliency Strategy](#).

Water Distribution System

High outdoor water demands resulting from drought conditions were used to evaluate the water distribution system under future conditions. Projects identified in the IMP support growth and are sized in consideration of peak summer demands that could occur under these conditions. From this perspective, all of the Water Master Plan projects contribute to addressing vulnerability to drought conditions. The list of all water projects can be found on the June 14 IMP display boards that are available on the [IMP web page](#). The project list will be updated in the draft final IMP that is presented to Council this fall.

The City also has contingency plans for maintaining basic water supply service under extreme drought conditions, when demands would otherwise exceed the design assumptions.

Wastewater Collection System

Extreme rainfall event data were used to simulate the hydraulic conditions in the City's trunk wastewater collection system and establish specifications for new projects aimed at supporting growth. New projects that have been identified are robust and capable of accommodating rainfall events that surpass the design criteria in order to improve system resiliency. The list of identified projects can be found on the June 14



IMP display boards that are available on the [IMP web page](#). The project list will be updated in the draft final IMP that is presented to Council this fall.

Stormwater Drainage Systems

The following projects related to the stormwater drainage system address climate vulnerability:

- Recommendations were made in the IMP to further review the Sewer Design Guidelines as they relate to the planning and design of stormwater infrastructure, including End-of-Pipe Stormwater Management (SWM) facilities.
- Overland drainage system studies for neighborhoods are underway to evaluate flooding risks, inform the City's renewal program, including the renewal of ditches. These studies are implemented under the City's Asset Management Program.
- Over the next 5 year, SWM facilities and City-owned bridges and culverts will undergo screening analysis and assessment of vulnerability to extreme weather events.
- Water, wastewater and stormwater infrastructure within floodplains will also be assessed for risks from riverine flooding.
- On-going floodplain mapping studies in partnership with Conservation Authorities supports the City's emergency response planning, asset management planning, and climate change adaptation planning. New policies in the Official plan require development to mitigate risks from more severe riverine flooding (350 year flood event).
- A Stormwater Management Retrofit Master Plan for the remaining developed areas of the City that were built with little or no stormwater management features will be prepared over the next 5 years at a total cost estimate of \$1.8 M. The focus of the plan is on mitigating the impacts of existing development on existing watercourses and beaches, but the plan will also consider the impacts of climate change and intensification.

Water Purification Plants

- Design of Lemieux Island Intake Improvements project is underway (\$40M). This project aims to mitigate the risk of frazil ice formation (an emerging climate-related issue) at the existing intake.
- To mitigate riverine flooding risk at the two water purification plants (Britannia and Lemieux Island Water Purification Plants), a contingency plan was established to address risks associated with spring freshet periods. The contingency plan provides direction on mobilizing short-term, temporary demountable flood protection measures based on specific trigger Ottawa River water levels. In addition, a permanent flood defense system (sheet pile wall) is recommended at both water purification plants (\$3.6M). The system would consist of a concrete flood wall complete with floodgates for access points and buried sheet piles to prevent seepage under the walls.

Wastewater Treatment Plant (ROPEC)

- A biosolids dewatering and storage expansion project (\$132M) needed to support growth will partially address risks to biosolids management during extreme weather events (restricted haulage offsite).
- Design of the expansion of the Chlorine Contact Tank (\$13.2M) and Plant Outfall (\$33.6M) upgrade projects that are needed to support growth will take flooding risks into consideration.
- The ROPEC Electrical Reliability project (\$57.7M) will modify power distribution to avoid sewage spills during electrical outages caused by extreme weather.



2. New technical specifications to build better for climate resiliency

POPC Comment (summarized)

POPC would like to see how resiliency and climate projections are reflected in the infrastructure modelling and how climate impacts will influence future infrastructure specifications.

City Response

Water Distribution System

Please refer to the response above under item 1. In addition, performance objectives under major failure and power outage scenarios were reviewed as part of the IMP and informed the identification of new projects. Following approval of the IMP, existing operational contingency plans for these conditions will be reviewed as needed to ensure that these objectives will be met in practice.

Wastewater Collection System

Please refer to the response above under item 1. For the central wastewater collection system, the Hurricane Frances rainfall event that took place on September 9, 2004 was used as a Climate Change “stress test” event for both the existing and future wastewater collection systems. The one-day rainfall volume of 140 mm recorded during this event aligns with climate model projections for the Ottawa area across two distinct emission scenarios and time periods. The current likelihood of this event taking place is estimated at a 1-in-700-year occurrence. The infrastructure recommended in the Wastewater Master Plan has been tested using extreme event scenarios to ensure that it is sufficiently resilient. Simulation of this event also informs the development of operational contingency plans.

A key adaptation strategy recommended in the Wastewater Master Plan is to implement an inflow and infiltration (I&I) reduction program to reduce flows entering the wastewater system in wet weather conditions. This program would mitigate the risk of basement flooding and limit sewage overflows to the Ottawa River as large rain events become more frequent. Hydraulic models calibrated with monitored flow data are used to identify areas of the system that show response to rainfall exceeding the City’s I&I allowance and will support identification of opportunities for I&I reduction. Please note that the City also increased its I&I design criteria in 2018 to address the impact of large rainfall events that are expected to be more likely as a result of climate change. These criteria are used to design local sewer systems that support development.

Stormwater Drainage System

The City uses a stress test approach to design new storm sewer systems. The approach starts with an initial sizing of the sewer system based on rainfall data associated with small events. An overland drainage system involving roads, easements, ditches, and watercourses is engineered to convey large events that exceed the capacity of the sewer system. A climate stress test then considers the system as a whole under extreme events (100-year rainfall intensities plus 20%) to evaluate the robustness of the system. The design of the system is then adjusted as needed to ensure that it meets the City’s performance criteria.

The IMP includes a Stormwater Management Strategy. This strategy considers how current climate change projections could increase design rainfall intensities compared to the City’s current stress test approach. Although these projections appear to be more extreme than the City’s current design



assumptions, more analysis is required to determine how the City's Sewer Design Guidelines should be updated to reflect these findings.

3. Green Infrastructure used for stormwater management

POPC Comment (summarized)

POPC would like the IMP to elaborate on the value and importance of wetlands in serviced areas. In addition, the POPC would like to see detailed plans to employ a much larger balance of green infrastructure for stormwater management.

City Response

At a watershed scale, headwater wetlands provide flood mitigation and stormwater services by detaining and slowing surface water run-off. In some circumstances, natural or constructed wetlands may serve a stormwater management function, especially for quantity control purposes. However, use of natural wetlands for stormwater management is not generally recommended, because of: (a) negative impacts on wetland habitat; (b) unpredictable responses and performance; (c) greater area requirements compared with engineered end-of-pipe facilities. The City addresses the conservation of wetlands through its natural heritage policies.

The IMP addresses Low Impact Development (LID) which is an important form of "green infrastructure" in the context of greenfield development, and in the context of the City's stormwater retrofit program for the City's existing development areas. The City has two existing retrofit plans (for the Pinecrest-Westboro and Eastern Subwatersheds areas) which the City is in the process of implementing. The Stormwater Management Strategy provides direction for completing a retrofit master plan for the remaining priority areas of the City.

Pilot LID projects have been implemented in several locations across the City and are being monitored for performance. These projects are informing local design specifications and long-term maintenance programs. The City is using this and other information to develop local LID design guidelines. This will support the implementation of effective and sustainable LID measures as part of greenfield development and the City's retrofit program. Detailed plans for employing green infrastructure are area-specific and beyond the scope of the IMP.

4. Integrating urban forestry objectives and stormwater management

POPC Comment (summarized)

POPC would like to see a pilot project on a significant scale that integrates urban forestry objectives and stormwater management in the inner urban area.

City Response

The City's policies for the urban forest acknowledge its role in management of urban run-off and stormwater. The policies and practices that promote maintenance and growth of the urban forest are also those that promote its stormwater functions: e.g. provision of space for trees, maintenance of pervious soft landscaping, provision of adequate, good quality soil, the use of suspended pavement and soil cells in hardscaped surfaces. The Urban Forest Management Plan outlines the City's actions in promoting the urban forest and its ecological services.



5. Carbon lens on infrastructure projects

POPC Comment (summarized)

POPC would like to see improvement in the Carbon lens by:

- **Recognizing both positive and negative impacts of projects on emissions;**
- **Considering a lifecycle approach to emissions; and**
- **Adopting standards on embodied carbon in construction.**

City Response

Budget 2023 was the first year that a climate lens was applied to new capital budget requests and was the first step towards building a climate change accounting framework to support decision makers. In April, Council approved staff's recommendation to revise Priority #5 of the Climate Change Master Plan from "Explore the feasibility of setting corporate carbon budgets, including piloting them in a small portion of the organization" to "Establish a carbon budget and accounting framework and explore the feasibility of including embodied carbon". With this new mandate, staff are looking to build on Budget 2023 for future budget exercises, including establishing a carbon budget, and are in exploratory discussions with other municipalities and the federal government around embodied carbon.

6. District energy systems

POPC Comment (summarized)

POPC did not see reference to district energy systems (DES) in the IMP and would like to know if they have been considered in specific areas, namely Lebreton, Gladstone, and in growth areas.

City Response

The draft final IMP report is more detailed than the summary documentation that has been posted for public review and does refer to district energy systems. Specifically, the IMP recognizes the importance of wastewater as a source of zero carbon heating and cooling for buildings. District energy systems that connect to wastewater infrastructure have been successfully implemented in Vancouver and others are planned for in Toronto, Mississauga and Halifax. Ottawa will soon be piloting its first Waste Energy Transfer system to support the Dream LeBreton development. The City is also exploring the feasibility of a district energy system for the Gladstone redevelopment. Opportunities to upscale district energy systems using wastewater will be explored as a key component of a Community Heating Strategy which is underway.

7. Beaver habitat management

POPC Comment (summarized)

POPC are concerned about the removal of beaver habitats and advocates for inquiring about installing flow devices in stormwater ponds to resolve beaver conflicts.

City Response

Stormwater management ponds are designed, managed and maintained to achieve the performance requirements outlined in their operating licenses. Responsibility and accountability for the performance



of this engineered infrastructure lies with municipal stormwater engineers, as required by Provincial law and regulations. The City does not currently support the use of flow devices in stormwater management ponds out of concern that they will interfere with the operation and maintenance of the facilities. City staff are currently reviewing best practices and this policy as part of the review of the City's Wildlife Strategy.

8. Tewin Infrastructure

POPC Comment (summarized)

POPC has concerns that Tewin will not pay for Tewin and that the current policies are not satisfactory to ensure that Tewin pays for itself.

City Response

The Tewin development is an integral part of the City's Official Plan as adopted by Council and approved by the Province. Annexes 10 and 12 of the Official Plan have established the principle that "Tewin pays for Tewin". Tewin has committed to fully pay for the services benefitting this new community. The required Tewin Secondary Plan, which will include a Financial Implementation Plan, will need to be approved by Council before development can occur and will need to demonstrate how this commitment has been achieved.

Please note that the Official Plan also indicates that Tewin is to pay for any oversizing of off-site infrastructure, in consideration of potential post-2046 growth in the area. Oversizing costs are normally financed by the City with potential recovery if and when future updates to the Official Plan call for additional growth in the benefitting area. It is important to note that the IMP is recommending a drinking water supply solution that will benefit both Tewin and the broader South Urban Community. The associated infrastructure costs are allocated accordingly, and therefore the City will likely need to contribute to financing of the oversizing costs. Decisions regarding the final sizing of the infrastructure, and the allocation of oversizing costs will only be made after Council approval of the IMP.

Conclusion

We trust that the above responses are satisfactory and will ensure POPC's support for Council's approval of the IMP this fall.

Regards,

A handwritten signature in blue ink, appearing to read "C. Rogers".

Christopher Rogers, P.Eng
Program Manager, Infrastructure Planning
Infrastructure and Water Services Department
City of Ottawa