REPORT

Council

Meeting Date: September 18, 2023

FROM: Asset Management Department

DATE: September 5, 2023

SUBJECT: **Rainwater Management Financial Plan, Stormwater Fee Development and Consideration of Green Stormwater Infrastructure**

LOCATION: Town wide
WARD: Town-wide

RECOMMENDATION:

1. That the information on the Rainwater Management Financial Plan (RWMP), stormwater fee development next steps and consideration of green stormwater infrastructure be received.

2. That staff report back in 2024 with an update on the recommended stormwater fee structure and implementation plan.

KEY FACTS:

The following are key points for consideration with respect to this report:

- Staff reported on Phase 1 and Phase 2 of the RWMP and development of a stormwater fee at the July 11, 2023 Council meeting with a report entitled "Rainwater Management (RWM) Strategy update".
- Phase 1 estimated that the 30-year stormwater infrastructure needs total $639.8 million, including stormwater infrastructure life-cycle needs and climate resiliency improvements.
- Council requested additional information on how green stormwater infrastructure and public consultation will be considered in the future.
- There are a number of policies, guidelines and requirements from the town and regulatory agencies that support green stormwater infrastructure.
- The policy direction "*that green infrastructure be preferred and grey infrastructure only where necessary"* will be adopted under the Climate Action Plan with regards to implementation of stormwater infrastructure.

- Green Stormwater Infrastructure is and will continue to be a priority for town development and projects into the future.
- As part of future project implementation, a green infrastructure assessment and appropriate public consultation will be completed prior to construction.
- The Rainwater Management Financial Plan will develop a sustainable funding source (stormwater fee) to fund future stormwater projects.

BACKGROUND:

The Rainwater Management Financial Plan (RMFP) is to develop a stormwater fee to support the long-term implementation of stormwater infrastructure needs that will help protect and build resiliency against impacts of climate change.

On July 11, 2023, staff provided a report entitled “Rainwater Management Strategy Update” that outlined the completion of Phase 1 and Phase 2 of the Rainwater Management Financial Plan (RWMP) and stormwater fee development. The report estimated the stormwater infrastructure needs of $639.8 million and prioritized them over the next 30 years and informed council of the need to proceed with the development of a Stormwater fee, with report back planned in 2024.

At the July 11th meeting, Council approved the following motion:

‘that the Rainwater Management Strategy under development, and associated fees and studies, will ensure that green infrastructure be preferred and grey infrastructure only where necessary with a program of public consultation.’

A further motion was approved at the August 15th Council meeting as follows:

“*The staff be requested to report back on how current and future rainwater studies will address the Council direction of July 11th, which requires that green infrastructure be preferred and how public consultation will be incorporated”.*

The purpose of this report is to report back on Council’s motions regarding green stormwater infrastructure and how it will be incorporated going forward. The report also provides additional information on the remaining phases of the RWMP and stormwater fee development.

COMMENT/OPTIONS:

What is Green Stormwater Infrastructure?

The Ministry of the Environment, Conservation and Parks (MECP) definition for green stormwater infrastructure and LID BMPs as follows:

Green infrastructure (GI): *means natural and human-made (engineered) elements or systems that provide ecological and hydrological functions and processes. Green infrastructure can include components such as natural heritage features and systems, parklands, naturalized end-of-pipe stormwater management systems, street trees, urban forests, natural channels and floodplains, as well as LID BMPs (Low Impact Development Best Management Practices) (Table 1.2). At its core, green infrastructure is a fundamental approach to rainwater management that protects, restores, or mimics the natural water cycle while delivering environmental, social, and economic benefits.*

Low Impact Development (LID) *is a stormwater management strategy, system, or facility, that seeks to mitigate the impacts of increased runoff and stormwater pollution by managing runoff as close to its source as possible. LID comprises a set of human-made or engineered elements or systems used for the management of rainwater and stormwater runoff (Table 1.2). LID employs site design strategies that minimize runoff and distributed, small scale structural practices to mimic natural water cycle or predevelopment hydrology through the processes of infiltration, evapotranspiration, harvesting, filtration, detention and use of stormwater.*

Table 1.2 - Green Infrastructure and Low Impact Development

Green Infrastructure	
Natural (Rainwater Management) • Natural heritage features and systems • Parklands • Street trees and urban forests • Natural channels and floodplains	Human-made or Engineered (Rainwater and Stormwater Management) • Naturalized end-of-pipe stormwater management systems • LID facilities • Street trees and urban forests

Expanding on the above definitions, essentially, green stormwater infrastructure can be any natural, engineered or human-made infrastructure that mimic natural water cycle, mitigates the impact of increased runoff and stormwater pollution through one or more of the following mechanisms:

- Slowing down or retaining stormwater;

- Reducing stormwater flows through infiltration, evaporation, absorption and/or reuse;
- Cleaning stormwater through the removal of sediment and pollutants.

Grey stormwater infrastructure collects and conveys stormwater runoff. Examples from the town's stormwater network include storm sewers, catchbasins, concrete inlet and outlet structures, and culverts. The term grey is used because these examples are generally not designed to provide any runoff quantity control or quality treatment and designed to convey stormwater runoff as quickly and efficiently as possible from point A to point B.

Green and Grey stormwater Infrastructure work together.

The town's stormwater network includes both green and grey stormwater infrastructure. Green and grey work together to form an integrated and functional stormwater network that meets the town's stormwater needs and requirements.

Many factors need to be considered when evaluating the best solutions with regard to stormwater management and depend on the individual objectives, the particular location and situation as the different types of stormwater infrastructure provide a varied range of benefits. While green infrastructure such as storm ponds, ditches, and vegetated swales may be a preferred option to infiltrate or control runoff, it may not meet the particular need to manage the conveyance of runoff from more intense storms or may not be feasible in a particular location where topography or design is unsuitable. This is where a hybrid of green and grey solutions will work together to first manage the rain where it falls, then the overflow is conveyed using the grey infrastructure.

Does the town currently have green stormwater infrastructure?

The town's existing green stormwater infrastructure can be classified into three categories that are consistent with the MECP definition. The Town has numerous examples of green stormwater infrastructure for each category as listed below. More examples and details of the benefits of various types of Green Stormwater Infrastructure is included in Appendix A.

Natural
- creeks
- shoreline
- urban forest
- parklands

Engineered
- Stormwater Ponds wet & dry
- Roadside ditches
- Vegetated swales
- bioswales
- permeable pavement
- tree soil cells

Human-made
- Water quality control devices
- Infiltration chambers/trenches
- Underground storage facilities

How is Green Stormwater Infrastructure embedded into Town's Policy and Guidelines?

Every town project or study is guided by various policies, guidelines from the town including:

- The Official Plan
- Town Asset Management Plans
- Development and Capital Engineering Procedures and Guidelines

In addition, the development of a Climate Action Plan is a commitment in Council's 2023-2026 Action Plan and will be a key document which will set out the guiding principles surrounding the governance, strategy, risk management and metrics and targets to assess, respond to and quantify climate related risks and opportunities. The Climate Action Plan once completed will provide direction with regards to various "green infrastructure" initiatives that pertain to many asset groups such as Parks, Trees & Woodlots, Green Fleet, Energy Efficient Facilities as well as Stormwater infrastructure.

As the Climate Action Plan is developed, individual direction and guidelines for different initiatives and assets will be more fully defined. **The policy direction "*that green infrastructure be preferred and grey infrastructure only where necessary"* will be adopted under the Climate Action Plan with regards to implementation of stormwater infrastructure.** It may also include strategies that work toward preserving and/or restoring the natural environment as best as possible when undertaking such capital works.

Staff are also looking at developing a Key Performance Indicator (KPI) for green stormwater infrastructure and reported back to Council with other KPI's to provide increased awareness and transparency to the town's commitment to green stormwater infrastructure.

How has Green Infrastructure been considered and will continue to be a priority going forward?

Green stormwater infrastructure has been a priority and requirement for town projects and developments for a number of years and will continue to be a priority going forward. There are a number of regulatory agencies that provide guidance and procedure requirements that need to be adhered to. These include:

- Conservation Halton guidelines and requirements
- Credit Valley Conservation Authority guidelines and requirements
- Ministry of the Environment, Conservation and Parks (MECP) guidelines and requirements
- Department of Fisheries and Oceans (DFO) guidelines and requirements

- Ministry of Natural Resources (MNR) guidelines and requirements
- Ministry of Transportation guidelines and requirements
- Development-related Environmental Study Reports (ESRs)

Some capital projects or developments that <u>increase</u> stormwater runoff is required as part of legislation to incorporate quality and quantity control provided by green stormwater infrastructure.

One example is when a new subdivision is designed and built, the increased runoff from the new impervious area (roads, sidewalks, driveways, rooftops) must be dealt with from both a quantity and quality perspective. Grey stormwater infrastructure is needed to collect and convey the volume of runoff and green stormwater infrastructure is required for quantity control and quality treatment of the increased runoff. The stormwater network in a new subdivision is a combination of green and grey stormwater infrastructure working together as one system. A stormwater management pond is normally the green stormwater infrastructure of choice for quantity control and quality treatment of runoff from the new subdivision. The quantity control and quality treatment is a requirement, not an option, requiring formal approvals from the town and regulator agencies such as Conservation Halton and MECP.

Another example is the need to complete an ***Environmental Assessment*** **(EA)** when planning some types of capital works for municipal road, water and wastewater projects. The EA process is a planning tool used to identify the possible adverse effects of proposed infrastructure projects on the environment and informs the public about the project and gives interested parties the right to comment before the project is approved.

How do past and future projects prioritize Green Stormwater Infrastructure?

The various studies and assessments are completed based on town policies, regulatory agencies, and legislated requirements that all support and mandate green stormwater infrastructure. For example, the recommendations from the previously completed Stormwater Masterplan and Riverine studies will be further evaluated in the functional design, detail design stages before proceeding to construction. The detailed design process will also include public information sessions and will provide the public and stakeholders the opportunity to comment on all aspects of the project, including green stormwater infrastructure.

As study recommendations move forward as future individual projects, each project will complete a green infrastructure assessment if it is not already completed. The project will identify potential solutions to consider a range of green, grey and hybrid options. Each potential solution will be evaluated against the individual project needs and objectives based on the location,

situation, cost and benefits with green infrastructure being the preferred option. In many cases green and grey solutions are considered together to form an integrated and functional stormwater solution with green infrastructure preferred and grey infrastructure used to compliment and provide additional quantity control and safety benefits when necessary to meet the town's stormwater needs.

As an example of how evaluation and green infrastructure and public consultation was completed recently is the Wyecroft Road EA Study. This study recommended improvements to the corridor from Bronte Road to Kerr Street for all transportation modes. The results of the EA recommended the following green stormwater infrastructure options:

- water quality control devices
- underground infiltration chambers
- underground storage facility
- permeable pavement for sidewalk and multi-use pathway
- maintain flat-bottom, vegetated ditches where feasible.

The project next step will be to complete functional and detailed designs, analysis, and regulatory approvals to confirm the type and combination of green and grey stormwater infrastructure to be constructed to meet the stormwater runoff control and environmental requirements of the project.

A similar process will be followed for any of the future project recommendations from the various stormwater studies as they are approved in the capital budget to begin implementation.

There are numerous examples of Green Infrastructure Implementation across the town.

The town has a number of examples of green infrastructure that has been implemented as part of development or capital projects. A few examples are:

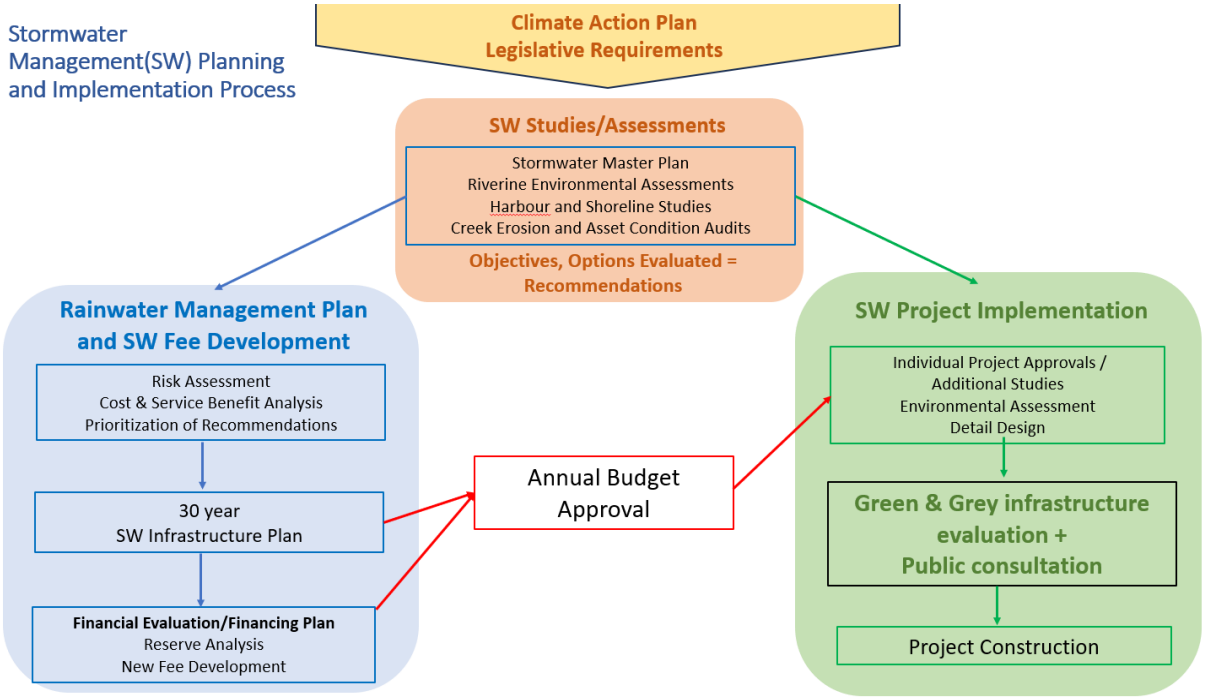
- Creek and Shoreline erosion rehabilitation projects are constructed using natural channel design principles and materials channel that supports healthy aquatic and terrestrial habitat.
- As part of the development in North Oakville, the town owns and operates 62 wet ponds (to date) which are an effective examples of engineered green stormwater infrastructure that provide both quantity and quality benefits.
- Vegetated swales along Fourth Line from Wyecroft Road to Speers Road and the ditch on the northwest side of the Metrolinx railway projects.
- A bioswale was constructed at Bronte Bluffs.
- North Operation Depot parking lot was constructed with permeable pavers.
- Downtown Lakeshore Road contains soil cells for the 93 street trees within the project limits.

What is the RWMP and Stormwater Fee Development purpose/scope?

Chart 1 below illustrates the RWMP scope of work and the relationship with the stormwater study recommendations, project implementation and budget approval process. Essentially there are three components:

1. Studies and Recommendations (Orange)
2. Planning, Evaluation and Funding Analysis (Blue)
3. Project Implementation (Green)

Chart 1 – Stormwater Management (SW) Planning, Financial Evaluation and Project Implementation Process



The recommendations from the various stormwater studies and assessments (orange section) have been determined based on the town policies and guidelines noted above.

The purpose of the RWMP (blue section) is to develop a long-term stormwater infrastructure plan supported by a sustainable funding model through the use of stormwater fee to fund various infrastructure improvements. The scope of work for the RWMP is to:

1. Evaluate risk, cost per property, service benefit for the recommendations from various stormwater studies/assessments.

2. Prioritize projects to develop 30-year stormwater infrastructure plan for renewal and enhancement and determine total requirement.
3. Assess funding options to finance the 30-year stormwater infrastructure plan and development of a new fee if required.

Once the RWMP evaluation and funding model has been developed, the long-term plan and recommended fee structure will be considered by Council for implementation.

The implementation of the individual projects (green section) will then follow the process described earlier to be further evaluated through additional studies and/or EA, detail design, public consultation before proceeding to construction.

The process is similar to how a Development Charges study is undertaken. Recommendations from various Master Plans (TMP, Recreation, Parks, Library MP, Fire, Transit) are analyzed and evaluated to determine the long-term plan and the total value of infrastructure to support growth. Analysis is completed to determine the amount to be recovered from development fees and determine the DC charge required over the long-term period to be collected to sustain the program. Once approved, then individual projects are incorporated into the capital forecast through the annual budget process and scope of work is refined through additional studies, detailed design and appropriate public consultation prior to construction. Every 5 years this master plan and DC charge calculation is repeated.

The RWMP and stormwater fee development process will also need to be reviewed every 5-6 years with updated studies, recommendations, costs to re-calculate the stormwater fee based on revised funding requirements.

What Stormwater work is still to come and how will green be incorporated going forward?

The majority of the project recommendations are in early stages of planning and have not begun the EA or detailed design phase. The nature and type of the project will determine the next steps and the applicability of the green infrastructure assessment.

For example, **Creek, Shoreline and Storm Pond projects** are considered green infrastructure as natural channel design principles and materials are used, and ponds provide water quality and quantity controls. Thus, no further green evaluation will be required and will proceed to the design phase.

Stormwater Masterplan projects will require additional stages of study, EA, analysis, design, and consultation which will begin once individual study areas are approved as part of the annual capital budget process. Projects will complete the

green infrastructure assessment with some recommended options already identified such as, new stormwater management facilities, vegetated berms, infiltration trenches/chambers and improvements to existing ditches and channels keeping in mind the main objective to mitigate risk of flooding from large, more intense storms.

Riverine Studies are all Municipal Class Environmental Assessment Studies and therefore follow the EA process noted above. Green alternatives were considered as part of the EAs and evaluated based on environmental, physical, social, and economic considerations to reduce risk and optimize flood protection from more intense storms. No further green evaluation will be required. Two of these studies have been complete and 3 are still in progress. Upon completion of the EAs, projects will move to detailed design stage as they are approved as part of the annual capital budget process.

For projects that are subject to the EA process will follow the described EA process above. For projects that are not subject to the EA process, they will complete a green infrastructure assessment, followed by consultation and design before construction begins.

What Green Stormwater Infrastructure would be funded by a stormwater fee?

As identified in the RWM Strategy report update in July, there is a total estimated needs of $639.8 million over the next 30 years which includes needs to both protect existing assets and incorporate enhancements to improve resiliency from climate change. Much of the opportunity for new green stormwater infrastructure is constructed as part of growth capital projects and new developments which are funded through development fees and charges, therefore, would not be included in the stormwater fee.

The capital work included in the proposed stormwater fee would include a significant allocation to green stormwater infrastructure with examples noted below:

- **Stormwater Network Maintenance** – maintenance activities are dedicated to green infrastructure or green activities that improve water quality such as maintaining ditches, water quality control devices and catchbasins.
- **Stormwater Network Rehabilitation/Renewal** – includes the rehabilitation and renewal of the town's green infrastructure including creeks, shoreline, stormwater management ponds and ditches/drainage improvements.
- **Stormwater Network Climate Resiliency Improvements** – options include a combination of green and grey infrastructure as the primary objective of this category is to mitigate the impact of the large, more intense storms that increase the risk of flooding located in established neighbourhoods and within the Harbours.

The stormwater fee will be updated on a periodic basis to reflect the revised project costs.

Next Steps for the RWM Plan and Development of a Stormwater Fee

The RWM plan and Stormwater fee is a multi-year project. The July 11th RWM plan update report provided details on the completion of Phase 1 and 2 and indicated that in order to update ageing infrastructure and incorporate improvements to adapt to the impacts climate change, the town will need to spend an average of $21.3 million every year over the next 30 years. Some of the funding currently comes from the town's capital reserves, but at least $12 million more will be needed each year to cover costs over the coming decades. The next step is to develop and evaluate a stormwater fee which will be undertaken in the next three interdependent phases:

- Phase 3 - Develop Fee Options
- Phase 4 - Public Consultation and Fee Selection
- Phase 5 - Fee Implementation

Staff is in the process of retaining a consultant team with experience in stormwater engineering and municipal finance to assist in the completion of Phases 2, 3 and 4. Development of the fee options includes various steps and analysis which anticipated to begin in September and continue into April/May of 2024.

Conclusion

Consideration of Green Infrastructure will continue to be a priority into the future.

Green stormwater infrastructure has been a priority and requirement for town projects for a number of years and will continue to be a priority as there are a number of policies, guidelines and requirements that support the application of green stormwater infrastructure.

As the town's Climate Action Plan is developed it will incorporate green stormwater infrastructure as a priority in the townwide policy framework.

Previous completed studies and projects have considered green stormwater infrastructure as part of legislative requirements.

For projects that are subject to the EA process will follow the described EA process above. For projects that are not subject to the EA process, they will complete a green infrastructure assessment, followed by consultation and design before construction begins.

In many cases green and grey solutions are considered together to form an integrated and functional stormwater solution with green infrastructure preferred and grey infrastructure used to compliment and provide additional quantity control and safety benefits when necessary to meet the project objectives.

A stormwater fee would provide a sustainable funding source to protect and enhance the stormwater network.

The purpose of the RWMP and stormwater fee development is to support the long-term implementation of stormwater infrastructure needs. Having a dedicated stormwater fee would provide a sustainable funding source support the $639 million recommended to ensure:

I. infrastructure is maintained in a good state and ensures our stormwater network functions properly;
II. enhancements to the network to provide more resiliency against impacts of climate change.

Staff is in the process of retaining a consultant team with experience in stormwater engineering and municipal finance to assist in the completion of Phases 2, 3 and 4. Development of the fee options includes various steps and analysis which anticipated to begin in September and continue into April/May of 2024.

Once the fee is approved, then projects identified in the 30-year stormwater infrastructure plan will be incorporated into the town's capital forecast to begin the project implementation. The current 2023 capital forecast only includes priority stormwater state of good repair projects.

CONSIDERATIONS:

(A) PUBLIC

Information and educational material related to stormwater management will be updated to assist members of the public with their questions regarding improving resiliency and adapting to impacts of climate change.

(B) FINANCIAL

There are no direct financial implications as a result of this report. As the development of the RWMP progresses, an overall financing strategy will be developed to fund the $639.8 million estimated in long-term needs. It should also be noted that as work on phase 3/4 of the strategy is completed, consideration for additional FTE requirements to support the implementation of the capital plan of this size as well as the on-going execution and collection of

the fee will be determined. Cost of the FTE support will be incorporated into the fee.

(C) IMPACT ON OTHER DEPARTMENTS & USERS

Asset Management, Transportation and Engineering, Parks and Open Space, Roads and Works, and Finance were consulted in the preparation of this report. Staff from these departments will be part of the project team in the development of the Town-wide Rainwater Management Strategy.

(D) CORPORATE STRATEGIC GOALS

This report addresses the corporate strategic goal(s) to:

- Accountable Government - Creating a long-term capital plan to improve rainwater infrastructure with a financial strategy is fiscally prudent and ensure efficient delivery of improvements.
- Environmental Sustainability – Effective management of the overall rainwater related infrastructure network helps to protect Oakville residents while preserving our natural environment, and increase our resiliency against climate change.

(E) CLIMATE CHANGE/ACTION

Severe storms can cause property damage and have harmful effects on the environment. Storm water management is crucial in protecting public safety and health, to reduce flood risks, control erosion and maintain water quality in local natural waterways. Creating a long-term plan to maintain and enhance stormwater infrastructure will help ensure stormwater continues to be managed effectively as well as adapt to the impacts from more frequent and severe rainstorms resulting from climate change**.**

APPENDICES:

Appendix A – Town Examples and Benefits of Green Stormwater Infrastructure

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