REPORT

Council

Meeting Date: March 28, 2022

FROM: Community Infrastructure Commission

DATE: March 15, 2022

SUBJECT: **Roadmap for Town-wide Rainwater Management Strategy**

LOCATION:
WARD: Town-wide

RECOMMENDATION:

That the report entitled *Roadmap for Town-wide Rainwater Management Strategy* from the Community Infrastructure Commission, dated March 15, 2022 be received.

KEY FACTS:

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

- Town of Oakville declared a climate emergency in 2019 for the purposes of deepening the Oakville community commitment to protecting our economy, environment and community from climate change.
- Severe rainstorms can cause property damage and have harmful effects on the environment. Therefore it is critical that water runoff from storms and melting snow is managed effectively.
- Staff have been developing long-term asset management plans in response to the new legislation requirements under “Asset Management Planning for Municipal Infrastructure”.
- Over the years, much work has already been completed, including various studies, the storm water master plan, environmental assessments and capital improvements at our shorelines, harbours, bridges/culverts/pipes and erosion sites.
- Building on the previously-completed work, staff will undertake the development of a town-wide Rainwater Management (RWM) Strategy that will incorporate a holistic way of planning and implementing town-owned rainwater related infrastructure and natural assets.
- The multi-year project will provide a long-term capital plan roadmap, a supporting financing plan and will provide residents and Council information

about the town's strategy to improve resiliency and adapt to climate change to help protect both our natural assets and rainwater infrastructure.

- During the development of the strategy, improvements to the town's rainwater related infrastructure will continue to be implemented as part of our asset management planning and capital budget development.

BACKGROUND:

According to the Government of Canada's April 2019 Changing Climate Report, Canada is experiencing warming at twice the rate of the rest of the world, with Northern Canada heating up at almost three times the global average. In response to this report, the Town of Oakville declared a climate emergency in 2019 for the purposes of deepening the Oakville community commitment to protecting our economy, environment and community from climate change. Oakville has already experienced consequences attributed to the climate change crisis, such as the 2019 record setting high lake levels, shoreline erosion and flooding of our parks and trails, the ice storm of December 2013, and the effects of Emerald Ash Borer and other invasive species on our local forests.

In Southern Ontario, we are experiencing more intense and more frequent rainfall than ever. According to a recent Climate Projections report for this area, Heavy Precipitation Days(HPD) -10 mm are expected to increase by approximately 33 % and HPD - 20 mm by 12% over the next 30 years. In addition, the volume of precipitation for 1-Day and 5-Day events is expected to increase by 6 – 9 mm per event, which would be of concern as more rain will fall in less time. These severe rainstorms can cause property damage and have a harmful effect on the environment as they release pollution into our community and into our lakes. Therefore it is critical that water runoff from rain storms and melting snow is managed effectively.

Different areas in the town may experience different types of flooding:

- Riverine flooding is when extreme rain or melting snow causes the river to rise and spill over its banks into areas next to it.
- Lake flooding is when high water levels in the lake or storms cause the lake to overflow along the shoreline.
- Urban flooding is when drainage systems cannot handle the volume of rainfall and melting snow resulting in overland flow. Water may seep through building walls, floors, and back up into buildings through storm sewer pipes or surcharge from sanitary sewers.
- Basement flooding is when ground water and runoff water enter into the sanitary sewer system and causes backups (surcharging) of the mainline system into the home.

Each type of flooding is controlled through various types of infrastructure, natural assets and management techniques that work together to provide protection as a whole to the community. Jurisdiction over the different types of infrastructure is shared between the Town, Conservation Authorities and the Region with all three having an important role to play. Riverine flooding concerns are shared with the Conservation Authority who regulate the creek floodplains. Urban flooding is managed through the minor (storm sewer pipes) and major (overland flow route) storm drainage systems (including stormwater ponds) which are the responsibility of the town. Basement flooding related to surcharging (back up) of sanitary sewers is the responsibility of the Halton Region. Finally, the International Joint Commission (IJC) regulates the outflows of the Great Lakes with regard to upstream/downstream water levels. More information on the different roles and responsibilities of each is explained below:

Conservation Authority

Conservation Halton helps watershed managers to protect and preserve natural spaces; ensures environmental planning is an integral part of community development; maintains secure supplies of clean water; and protects communities from flooding. The main goals include protecting communities from natural hazards such as flooding, conserving our natural environment, and supporting their municipal partners in creating sustainable communities. The practices and programs include:

- **Watershed stewardship** - focused on encouraging and assisting private landowners with advice on environmentally friendly ways of managing properties that encompass natural features such as woodlots, wetlands, meadows, and creeks.
- **Environmental planning** - help municipalities and developers make informed and responsible choices for projects in the watershed through O.Reg.162/06 to ensure that works are not permitted in areas of natural hazards in order to protect land and water and prevent loss.
- **Watershed health monitoring and reporting** - regularly monitoring and reporting watershed conditions to help managing and rehabilitating the natural environment.
- **Flood protection and planning** - provides a water control and flood warning notifications to provide updates of potential flooding during weather events.
- **Drinking water source protection** – work with Hamilton Conservation Authority to ensure that activities that pose significant threats to our municipal drinking water sources cease to exist or never become significant.
- **Education and recreation opportunities** - provide access to natural areas and educational and recreational opportunities to help increase awareness of the importance of the watershed's natural spaces.

Staff at the town work closely with Conservation Halton on their flood protection and planning initiatives and rely on their ongoing watershed monitoring and reporting to

assist with our own capital forecast development and flood response activities. In addition, as part of O.Reg.162/06 the town coordinates the review of all property development applications with Conservation Halton.

Oakville also has a small section of riverine/creeks within the boundaries of the Credit Valley Conservation watershed in which staff would consult with above related items.

Halton Region (The Region)

Halton Region is responsible for managing the sanitary sewer mains that carry sewage (wastewater) from the homes to the wastewater treatment plants. The Region owns the sanitary sewer mains under the street up to the property line and is responsible for the ongoing maintenance and replacement of these pipes to ensure they function effectively. Sanitary sewer mains may become submerged during overland flooding events, allowing entry of ground water and runoff water into the main sewer main which can cause backups (surcharging) of the mainline system.

To increase the resiliency of the main wastewater collection system, the Region, has introduced a multi-year Basement Flooding Mitigation Program which includes various capital upgrades to help reduce stormwater infiltration and reduce the risk of future basement flooding. The improvements include rehabilitation of existing sanitary sewer mains, laterals and maintenance holes.

Homeowners own the pipe called the sewer lateral that connects from main sewer pipe at the property line to the home. This sewer lateral runs underground from the home to the sewer main and carries all the sewage from household drains such as toilets, showers, sinks, washing machine and dishwasher. Sewer laterals that are in substandard condition (e.g., cracks, holes, root damage) may create blockages or poor drainage that can prevent wastewater from flowing from a home to the municipal sanitary sewer system. This can leave a home at risk for sewer back up and basement flooding. The Region offers a number of Enhanced Basement Flooding Prevention programs to help home owners reduce risk of flooding and prevent damage.

- Sewer lateral pipe lining & repair subsidy
- Downspout disconnection subsidy
- Weeping tile disconnection & sump pump installation
- Backwater valve installation subsidy

Lake Ontario Level Research / Plan 2014

Recently there has been heightened interest on Lake Ontario water levels after record setting high levels were experienced in 2017 and again in 2019 causing closure of public parks/facilities as well as damage to public infrastructure.

Outflows from the Great Lakes are regulated by the International Joint Commission (IJC) via the Moses Saunders Dam located near Cornwall Ontario. Outflows are regulated with regard to upstream/downstream water levels; commercial navigation (too much water complicates commercial navigation); hydropower production and other factors. Originally outflows were regulated via Plan 1958D which was in effect for over 50 years, however, research indicated that over-time unnaturally compressed water levels were harming coastal ecosystems on Lake Ontario and the Upper St. Lawrence River. Therefore, over the course of 16 years a detailed review of alternative regulation plans considering scientific facts, ecosystems, public interests, navigation and hydropower production and other factors resulted in a new plan "Plan 2014", which was adopted in December 2016. Plan 2014 was intended to help to restore plant diversity and habitat for fish and wildlife by allowing more natural variability in water levels while continuing to provide benefits to commercial navigation, hydropower production, coastal impacts etc. In essence, Plan 2014 was to provide slightly higher highs and slightly lower lows in lake levels to benefit the ecosystem while still providing most or all of the historic benefits of lake regulation under Plan 1958D.

Shortly after Plan 2014 came into effect, southern Ontario experienced heavy precipitation in the winters of 2017 and 2019 and as a result, Lake Ontario and other Great Lakes experienced extremely high lake levels, with some setting new historic records. In Oakville, the harbours were negatively impacted as were waterfront parks such as Coronation Park and Bronte Heritage Waterfront Park. Other waterfront municipalities were also negatively impacted in both Canada and the United States. While IJC has noted that the extremely wet conditions were beyond those that can be managed by any regulation plan, in early 2020 they embarked on review of Plan 2014 with a commitment to finding the best solutions for managing lake levels and flows, especially during periods of extreme climate conditions. Based recent correspondence from IJC, and update from Phase 1 of their Plan 2014 review should be available in either Q1 or Q2 2022.

The information on regulation of Lake Ontario outflows is important to the town from a shoreline management perspective. The town retains coastal engineers to work on shoreline designs to mitigate shoreline erosion due to lake levels and wave action, and these designs incorporate "hard" armouring to project against lake elevations.

Town of Oakville

The town manages rainwater runoff flows and ensures there are a range of measures in place to decrease the risk of flooding and to reduce pollution. Effective management of the overall rainwater related infrastructure network helps to protect Oakville residents and businesses while preserving our natural environment. The

town has had a rainwater related network in place for over fifty years that we continue to enhance. Design standards have evolved over this time, where prior to 1980 the practice of rainwater management was limited; since then, the minor and major system combined generally conveys at least the 100 year event. The following is a summary of the various type of infrastructure the town is responsible for:

1. **The Minor Drainage System** - includes catch basins, storm sewer pipes, ditches, swales, and road culverts. These are typically sized to handle usual storm events such as the 1 in 5 year event. Maintaining the condition and functionality of this infrastructure is critical.
2. **The Major Drainage System** - includes overland flow routes such as road right-of-ways, man-made diversion channels, and natural waterways like creeks. This system handles flows that are too large for the minor system resulting from more severe storm events. Protecting our creeks from erosion and monitoring diversion channels is important in maintaining functionality of the overall network.
3. **Stormwater Management (SWM) Ponds** - a newer design practice that helps to control the flow of water into the major drainage system. These ponds help to contain large amounts of water so they don't enter a stream all at once, causing flooding and soil erosion. SWM ponds also improve water quality as the pond allows sediment to settle before water enters the stream.
4. **Shoreline Embankments** - protecting our shorelines is an important piece of managing the lake levels. Rainwater runoff is rain and melting snow that flows overland and makes its way to Lake Ontario through the town's rainwater drainage system and/or private drainage system.

Town Flood Response

The Town's storm water network operates effectively when undergoing typical and moderate rainfall and snow melt events. Heavy rainfall events combined with seasonal elements (leaves or snow banks) can pose challenges to the network which can result in localized flooding.

Town staff perform a number of activities to ensure the rainwater network operates as planned and that actionable responses are available if unexpected situations arise. These include:

- ***Pre-event Activities: Monitoring, Inspection and Maintenance –*** Staff utilize several weather/flood reporting services, including the Conservation Authorities and use this information to prepare for pre-storm event activities such as patrol inspections and pro-active works. Proactive works include clearing inlets / outlets and pushing back snow banks identified by patrol inspections when potential significant rainfall and/or fast melt scenarios are in the forecast.

- ***Service Calls:*** All flood related service calls are to be directed to ServiceOakville as this will allow the town to track the event and document activities for post review and/or follow-up.
- ***During-event Activities: Emergency support/response*** – During a storm event, staff monitors service calls and are deployed to inspect, service, support and remedy (where possible) emergency issues that arise such as clearing blockages or cordoning off and securing an area until flood waters subside.
- ***Post event support/response -*** Staff will respond to flood related service calls to examine cause and address public infrastructure elements if/when found to be the cause or contributor. If simple, the remedy to address the issue will be actioned in a timely manner. Often, an issue requires further review and potential for inclusion in future capital programs. Staff will also clean up roads and rights of way following a flood event where debris and material are left behind once flood waters subside.
- ***Post event reviews*** - Post event de-briefs are conducted to ensure simple remedies are completed and issues have been resolved and include adding the location to proactive inspection programs; more extensive investigation/engineering review and/or addition to the capital program for longer term improvements.

COMMENT/OPTIONS:

A significant impact of climate change is an increase in more intense and frequent rainfall which has lead the town to undertake various studies to assess how to improve our infrastructure to adapt and become more resilient. Coupled with the climate emergency, staff have been developing long-term asset management plans in response to the new legislation requirements under “Asset Management Planning for Municipal Infrastructure”. These efforts will now be combined as staff undertake the development of a town-wide Rainwater Management (RWM) Strategy.

Over the years, much work has already been completed, including various studies, the storm water master plan, environmental assessments and capital improvements at our shorelines, harbours, bridges/culverts/pipes and on erosion sites. Building on the previously-completed work, the RWM Strategy will incorporate a comprehensive way of planning and implementing of rainwater-related infrastructure in the future and will encompass all town-owned tangible and natural assets related to pipes, culverts, shoreline, harbor shoreline, piers, riverines, stormwater ponds and ditches.

The multi-year project will provide a long-term capital plan roadmap, a supporting financing plan and will provide residents and Council information about the town’s strategy to improve resiliency and adapt to climate change.

The town joins a number of other municipalities such as Mississauga, Kitchener/Waterloo, York Region, Markham and Toronto in the fight to better manage rainwater and rainwater run off as we begin to understand the ever changing environmental impacts of global warming.

Climate Adaptation Studies/Assessments

A summary of the various studies has been listed below, more details and outcomes, and improvement completed to date are included in Appendix A:

- **Stormwater Master Plan (SWMP) – 2019 -** study of the potential for Urban Flooding based on the capacity of the Town's minor system (i.e. storm sewers) and major overland flow routes (i.e. roadways).
- **Town Wide Flood Study – 2008 –** review of potential for riverine flooding along the Town's creek systems to identify the areas of concern at a high level which recommended more specific riverine studies to be completed: Munn's Creek; Sheldon Creek; Joshua's Creek; Lower Morrison/Lower Wedgewood Creeks and Fourteen Mile/McCraney Creeks.
- **Detailed Riverine Flood Improvement Studies – 2019-ongoing**: Sheldon and Munn's Creek Flood Mitigation Studies have been completed, while Joshua, Fourteen Mile/McCraney, and Lower Morrison/Lower Wedgewood studies are expected to be complete in 2022. The recommendations from the studies completed to date range in application from emergency preparedness; to minor improvements; to significant infrastructure upgrades.
- **Coronation Park Area Drainage Improvements – 2017 -** Class Environmental Assessment (EA) study to investigate whether drainage improvements within and around Coronation Park area would help to improve neighbourhood drainage and reduce flooding in Coronation Park. This study focused on minor storm system conveyance (e.g. pipes)
- **Coronation Waterfront Park Shoreline Assessment Study – 2022 -** an assessment of Coronation Park shoreline to provide options to reduce the potential for flooding in the park as a result of high lake levels as directed in the Flood Damage, Shoreline Restoration and Remediation report to Council in April 2020.
- **Harbours Risk and Flood Assessment Study - 2021 -** a flood impact study and assessment of the infrastructure in Oakville Harbour and Bronte Inner Harbour to identify improvements to help reduce the potential for flooding as directed in the Flood Damage, Shoreline Restoration and Remediation report to Council in April 2020.

- **Municipal Natural Asset Initiative Pilot Study – 2018** - The town participated as one of five Canadian municipalities in the Municipal Natural Assets Initiative (MNAI) pilot study to provide a better understanding of the stormwater management service and value that natural-based ecosystem features provide across the town. For the purposes of the study, the Maplehurst Avenue area was chosen which included Municipal Natural Assets (MNA) in the form of remnant channels, ditches, swales, and watercourses that traverse alongside roads, within parks, natural areas, urban forests and open spaces.

The recommendations within these various reports and studies will be reviewed as part of the overall RWM strategy where capital improvements can be assessed and prioritized across the entire network and can be aligned with the infrastructure renewal and replacement needs identified through various long-term asset management plans.

Infrastructure State of Good Repair/Renewal

Through the town's asset management planning, condition assessments are regularly completed on the various rainwater related assets to determine what renewal and rehabilitation works are required over the near term and long-term 25 year horizon. Some of this infrastructure is approaching end of life and could potentially require significant investment in the future. Therefore it is necessary to understand the upcoming life cycle needs along with the various climate adaptation recommendations in order to coordinate and prioritize the work overall and provide a sustainable long-term program and assess available funding. The condition assessments help to determine the asset renewal requirements and to develop rehabilitation strategies, schedules and budgets:

- **Storm sewers** – closed circuit television (CCTV) inspection of 10% of storm sewer pipes over 20 years of age are performed annually. In 2021, 20 km of storm sewer pipes identified in the Stormwater Master Plan as poor condition were video inspected to determine specific rehab and renewal plans.
- **Creek erosion** – creeks are inspected approximately every 5 years. A slope monitoring program will also be initiated in 2022. Assessment of all 132 creek reaches was performed in 2021 and staff are currently reviewing results to make recommendations for high priority erosion control works.
- **Shoreline** – are inspected approximately every 5 years. A shoreline condition assessment of all town shoreline infrastructure (not within Harbour) is currently underway and results will be available in the coming months.
- **Stormwater Management Ponds** – sediment surveys are completed on individual ponds on a schedule based on age and are identified for clean out once based on MOE guidelines.

- **Ditches and minor culverts** – annual assessment program to be developed and initiated in 2022 to identify capital improvement needs. The Status of Outstanding Issues list includes a Request for Report regarding the design standards for ditches and culverts in residential areas. This information will be included in a comprehensive report on ditches and culverts, to be completed after the 2022 annual assessment program is completed.
- **Piers** – At Oakville Harbour, the east pier was reconstructed approximately 10 years ago and the west pier was capped approximately 6 years ago; both are in good condition. During the next 20-25 years concrete spalling is expected and ultimately a new concrete caps will be required. The piers are inspected periodically by a coastal engineer. The east pier in Oakville harbour is much more exposed to storm events than the west pier. Both piers in Oakville harbour are owned by the Town. In Bronte harbour, the east pier is in fair condition and was refurbished approximately 30 years ago. The west pier is in poor condition and needs major restorative work. Both piers in Bronte are owned by the Federal Government through the Department of Fisheries and Oceans.

As long-term capital renewal and replacement needs are identified, decisions can be made to leverage these renewal opportunities to incorporate the various improvements to increase resiliency and optimize resources by fostering a “dig once” principle.

Roadmap to Develop *Town-wide Rainwater Management Strategy*

Now that these various studies and assessments have been completed, we have gained an improved understanding of the condition of our rainwater related infrastructure and natural assets including information on improvements that can help address vulnerabilities. Staff will now turn their attention to completing a Town-wide Rainwater Management (RWM) Strategy that takes a comprehensive approach to integrate the state of good repair and increase resiliency of the town’s rainwater related infrastructure. The RWM Strategy will encompass all town owned tangible and natural assets related to pipes, shoreline, harbour shoreline and piers, riverine, stormwater ponds, culverts and ditches.

The purpose of the strategy is to develop a long-term capital plan roadmap and supporting financing strategy that maintains the state of good repair and identifies improvements to help to mitigate impacts of climate change. The outcomes of the strategy will be:

- A defined capital program with needs identified and prioritized over the long-term;
- Defined actions to address climate change adaptation and improve resiliency;
- A financing plan including consideration and evaluation of a dedicated funding source for rainwater related infrastructure needs;

- A roadmap of capital plan renewal and improvements related to rainwater infrastructure;
- Provide residents and Council information on a Town-wide strategy to improve rainwater infrastructure resiliency and combat climate change.

This multi-year project involves three interdependent phases to develop the strategy and provide a sustainable funding source for the improvement of the infrastructure for the long term:

- **PHASE 1 – Identifying the Needs**: data collection, lifecycle needs assessments (condition and capacity), studies/modelling to determine vulnerabilities, setting criteria for level of service and identify capital work recommended to address vulnerabilities.
- **PHASE 2 - Building Policy and Long-term Plan**: development of Corporate Rainwater Infrastructure Prioritization Tool including evaluation criteria, analysis on return on investment/risk for evidence-based project development and prioritization of proposed works to produce the desired long-term capital plan.
- **PHASE 3 - Financing Strategy and Implementation:** Development and assessment of funding strategies to support the delivery of recommended rain water service improvement projects, public engagement strategy and implementation plan for the funding model and overall strategy.

Ultimately the RWM Strategy will provide a long-term capital plan roadmap, a supporting financing plan and will provide residents and Council information about the town's strategy to improve resiliency and adapt to climate change. Oakville is joined by other municipalities that have, or are currently, undergoing similar projects, which may provide research opportunities for both development and implementation of the strategy.

The first phase of the RWM strategy is expected to be complete by the end of 2022, followed by Phase 2 work in 2023. We anticipate an interim report will be brought to Council in mid-2023, where an overall assessment of the long-term capital needs and service level options will be presented and next steps determined.

Capital Works Completed or in Progress

The town has been managing rainwater related infrastructure for 50+ years, with ongoing renewal and rehabilitation work being completed as studies and routine condition assessments are completed as part of our asset management planning. Over the past several years, a total of $16.1 million in creek, shoreline and storm sewer capital work has been implemented with an additional $15.3 million in protecting waterfront park shoreline and harbour seawalls. The list below represents some examples:

- 16 Mile Creek West Shore Landscape Rehabilitation - $8.5 million
- Vista Promenade Shoreline Protection works - $2.7 million
- Shelburne Promenade Protection work at Sheldon Creek - $2.3 million
- Westminster Drive storm sewer outfall to support Coronation Park channel improvements - $1.1 million
- Morrison Creek West Reach 37 erosion works - $2.4 million
- Munn's Creek Reach 33-35 erosion works - $2.4 million
- Maplehurst storm sewer including upsizing and extension - $5.1 million

In addition, a number of the recommendations from the various studies have already been planned for in the ten year capital forecast.

- $7.5 million for the lining and/or replacements of storm sewer pipes with poor condition scores was included into the 2022-2031 capital forecast as a result of closed circuit television (CCTV) as recommended from Phase 1 of the SWMP.
- $1.6 million was included in the 2019 capital budget for the implementation of inlet control devices and high capacity inlet improvements as recommended in Phase 2 of the SWMP. This work is planned to be initiated in 2022.
- $4.9 million included in the 2021/2022 capital budgets for Westminster Drive storm sewer for a new trunk underground storm sewer system along Westminster Drive in the Coronation Park area as a result of the Coronation Park EA. Work is expected to be tendered in 2022 with construction to begin later in the year.
- $10.6 million included in the 2020-2023 capital budgets for Woodhaven Park Drive new storm sewers and ditch and outlet improvements as a result of the Coronation Park EA. Design work to be completed in 2022 with construction to begin in 2023.
- $3.5 million for Morrison Creek East Reach 39-45 identified in 2025 for creek rehabilitation works
- $5.3 million for Joshua's Creek identified in 2024-2027 for creek rehabilitation work.
- $2.8 million included in the 2022 capital budget for Seawall Rehab at Shipyard Park in Oakville Harbour and $0.9 million for Berta Point in Bronte Harbour as recommended in the Harbours Risk and Flood Assessment study.

Communication and Outreach

As part of the continuous improvement process, staff will review, update and utilize the Town website and existing communication channels to promote and provide education material to the general public to increase resiliency:

- What is stormwater management
- How resident can help protect their assets
- Link to Halton Region's basement flooding program

- How to report flooding
- Continue to work with our partners (Conservation Authorities and Halton Region) on increasing public awareness

As the RWM Strategy progresses, staff will determine the best options for public engagement and develop a communication plan as necessary.

Conclusion

The town has been managing rainwater related infrastructure for 50+ years with many capital works already been implemented and additional improvements planned over the next 10 years. To continue to build on this work, the town will develop a ***Town-wide Rainwater Management (RWM) Strategy*** that looks at a holistic way of planning and implementing rainwater-related improvements in the future and will encompass all town-owned tangible and natural assets.

During the development of the strategy, improvements to the town's infrastructure will continue to be incorporate into the capital forecast as part of ongoing asset management planning and capital budget development to continue our progress in protecting infrastructure and natural assets, improving resiliency and mitigating impacts of climate change.

The multi-year project will provide a long-term capital plan roadmap, a supporting financing plan and will provide residents and Council information about the town's strategy to adapt to climate change. This plan will reinforce Oakville's commitment to protecting our economy, environment and community from climate change.

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 mitigating impacts of climate change.

(B) FINANCIAL

There are no financial implications as a result of this report. As the development of the RWM strategy progresses, capital work will continue to be identified and prioritized within future capital budgets, and an overall financing strategy to be determined.

(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 following corporate strategic goal(s):

- 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.
- Environment – 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. Creating a long term capital plan to improve rainwater infrastructure will mitigate the impacts from more frequent and severe rainstorms and increase town's resilience to climate change.

APPENDICES:

Appendix A – Rainwater Related Studies and Reports

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