

PW21074

ITEM 9.1



Hamilton

STORMWATER GAP EVALUATION

**PUBLIC WORKS COMMITTEE
DECEMBER 6, 2021**

CASSANDRA KRISTALYN

Public Works
Hamilton Water

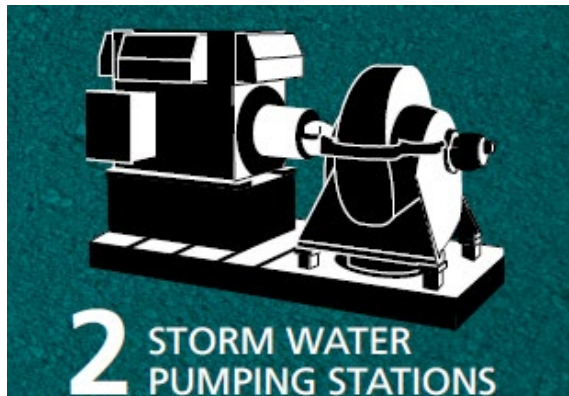
COUNCIL DIRECTION

- Stormwater Rate Program (PW19109) was provided to the General Issues Committee in follow up to previous discussions on the sustainability of the Stormwater Management Program (Dec 4/19)
- General Issues Committee Motion (Nov 23/20): That Hamilton Water staff complete evaluation of all City stormwater programs to:
 - Identify existing gaps
 - Immediate needs
 - Risks to the City (including risks from climate change)
 - Outline levels of service to achieve
 - Quantify funding requirements
 - Identify financing alternatives



GENERAL ISSUES COMMITTEE (RATE BUDGET) REPORT 20-020

INFORMATION

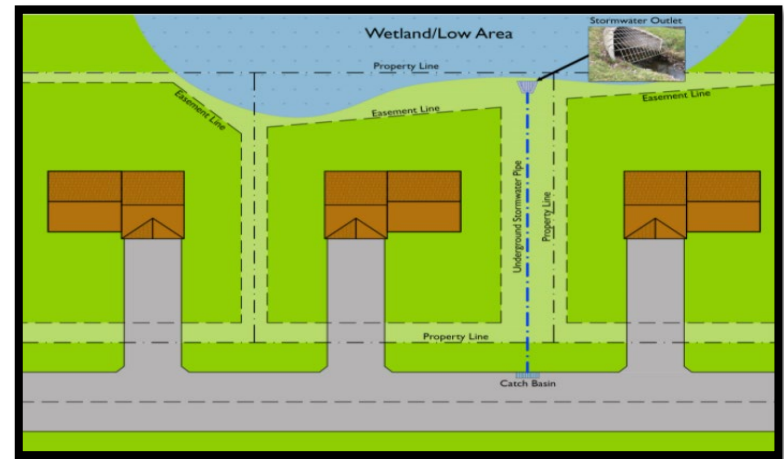
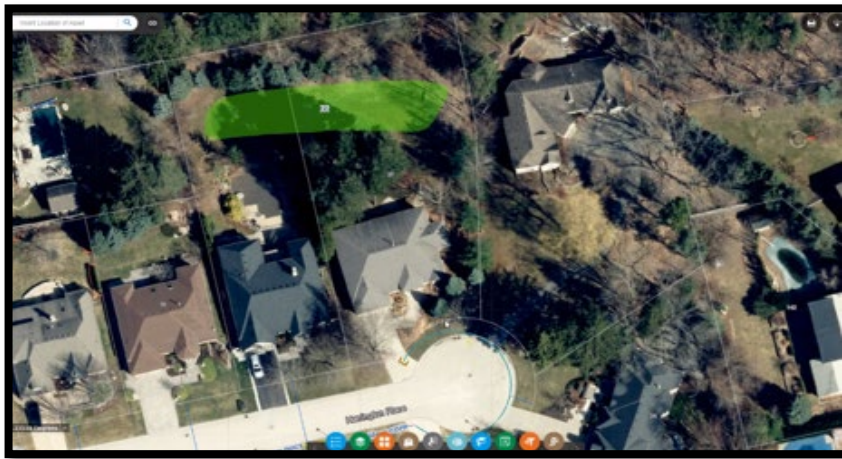


- 16 gaps identified in consultation with Planning Economic and Development (PED) and Public Works (PW)
- 2016 - SUBSTANTIAL REPLACEMENT VALUE (\$1.56B)
- 2020-year end quantities (referenced in Report PW21074 to provide more current insight into the gaps)
- 2019 restructuring of Stormwater Program – Transfer of Stormwater Program and Projects to Hamilton Water (HW)
- System pressures include growth and climate change impacts

EXISTING STORMWATER PROGRAM GAPS

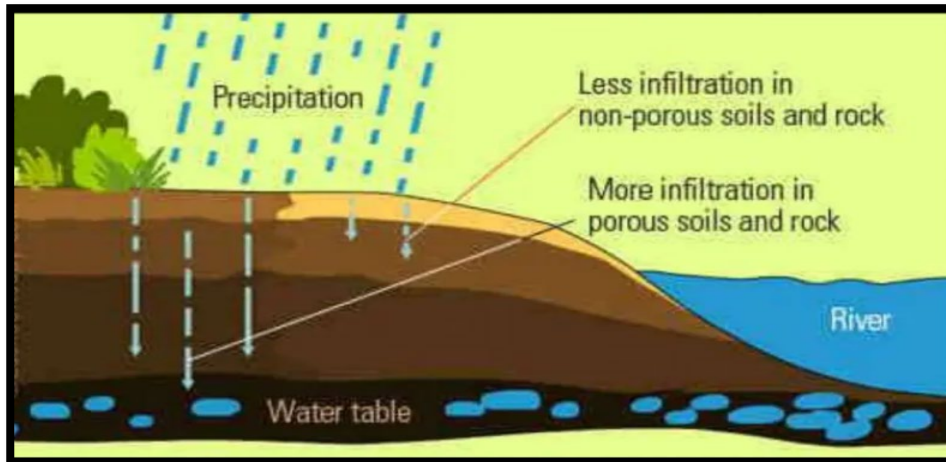
INCOMPLETE PROCESSES / LACK OF STANDARDS / GOVERNANCE

- Low Impact Development (LID) – Lack of standards results in varying degrees of functionality
- Private SW Infrastructure – No authority to inspect and enforce private stormwater assets
- Easements – No formal inspection or maintenance program



URBANIZATION AND GROWTH IMPACTS

- Community pressures to urbanize rural and industrial road cross sections
- Benefits of culverts and ditches inconsistently evaluated during redevelopment projects
- No holistic tracking system for downstream Storm Water facilities under growth conditions
- Insufficient level of infiltration in parkland



LACK OF FUNDING AND RESOURCES

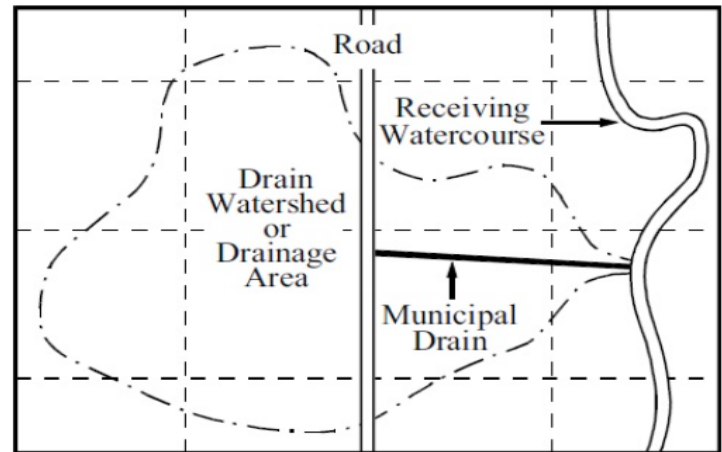
- Lack of resources and governance for management of lot level controls – Green roofs, on site storage and low impact developments (LIDs) are required to support intensification but inspection, maintenance and enforcement of these controls is not established or resourced
- Historically, insufficient capital budget to support maintenance of SW ponds – More ponds are being assumed by the City, existing pond clean out program has been accelerated, phragmites and invasive species control is putting pressure on budgets

**Hamilton City Hall
Green Roof Lot Level Control**

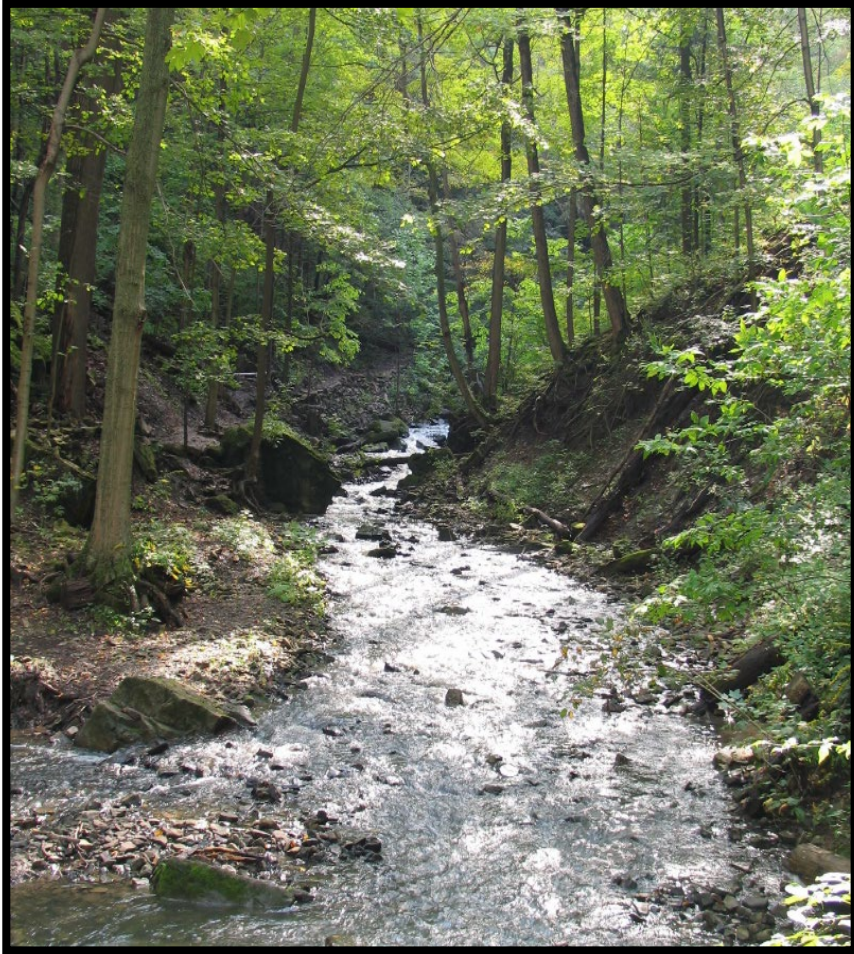


LACK OF FUNDING AND RESOURCES

- Limited resources in HW that oversee the Operations and Maintenance of SW assets and other drainage related infrastructure.
- Monitoring and management of quality of stormwater or natural watercourses has not been clearly established due to lack of resources
- Lack of resources to complete preventative maintenance on municipal drains



LACK OF MODELING OF MINOR/MAJOR SYSTEMS



- Lack of modeling analysis for the major SW system - The City is lacking a comprehensive model that accurately captures both minor and major systems
- As a result, the City is limited in its ability to rapidly conduct post flooding studies to identify and address any contributing factors to the flooding event
- The City has insufficient visibility on where these systems are undersized or where flooding risks may exist

ASSET MANAGEMENT

- Absence of a holistic asset management program for stormwater management facilities, such as watercourses, municipal drains or shorelines
- SW Asset Management Plan – Missing critical information such as asset ownership/location and condition



REGULATORY COMPLIANCE

- Incomplete inventory of Environmental Compliance Approvals for SW facilities
- Lacking emergency works agreements with two Conservation Authorities - Grand River Conservation Authority and Niagara Peninsula Conservation Authority



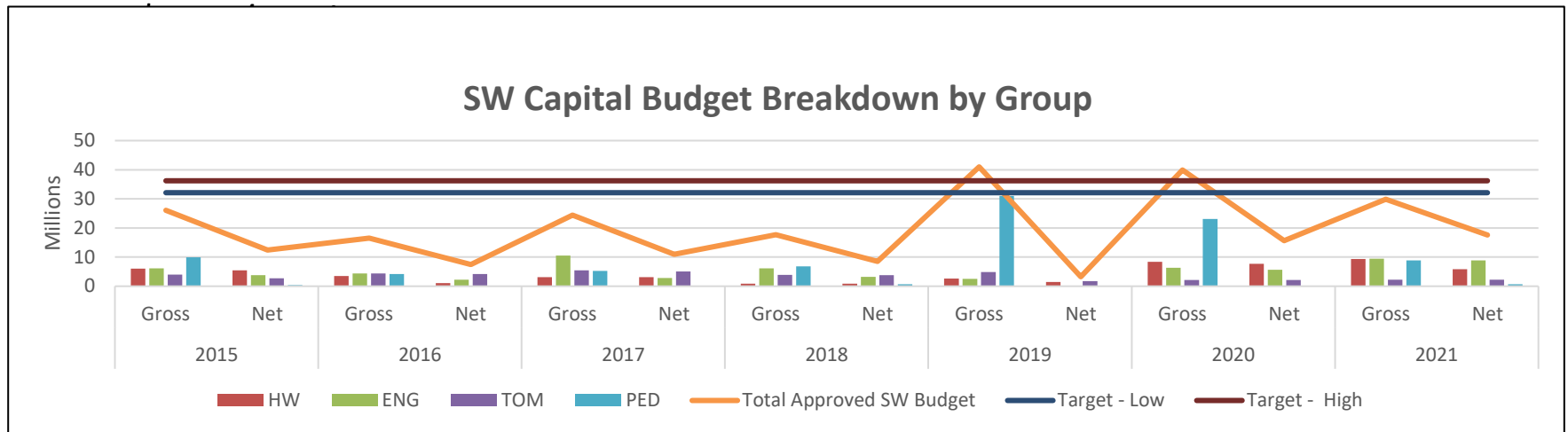
CLIMATE CHANGE AND EXTREME WEATHER



- Canada has experienced a 13% increase in average precipitation over the past half century
- Risk of damage from flooding and/or washout of private and public infrastructure
- Fluctuating lake levels – Impacting the SW infrastructure
- No universal predictive models, comprehensive guidelines or policies for managing climate change that are accepted across the board

LOS AND FUNDING REQUIREMENTS

- Minimum Level of Service not established for elements of the Stormwater Management Program.
- Hamilton Stormwater Management Program – Replacement value \$1.56B
 - Calculated annual re-investment need - \$32M/yr to \$36M/yr
 - City annual investment – Approx. \$22M/yr (Underfunded \$10M/year -



FINANCING ALTERNATIVES

- Water, Wastewater and Storm Rate Budget
- Tax Support Budget
- Dedicated SW Rate Program:
 - Based on run-off vs impervious surface (equitable program)
 - Several fee structures available
 - Significant impact to ICI sector (malls, power centres, etc)
 - Resource needs are unclear
- Incentive Programs – Lot level offsetting through LIDs & storage
 - Residential opportunity - small
 - ICI opportunity - large





Hamilton

QUESTIONS?