

Stormwater Master Plan

Summary and Recommendations

Town of Halton Hills
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Agenda

- Introductions
- Stormwater 101 – Some Background
- Goals and Objectives
- Work Completed
- Summary of Assessment and Recommendations
- Summary of Estimated Costs
- Conclusions and Next Steps



Stormwater 101

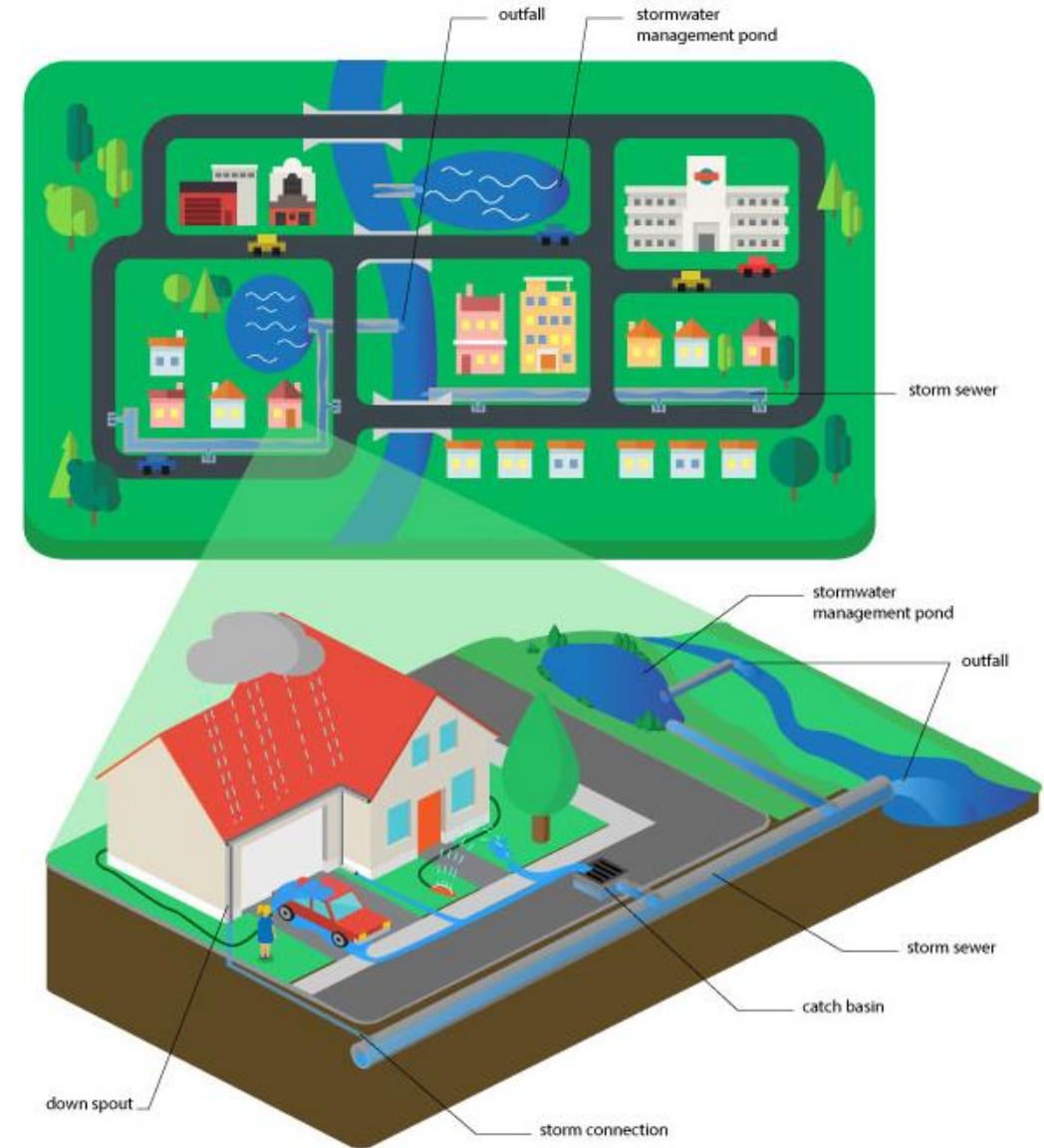
What is Stormwater?

Stormwater: rainwater, melted snow or water that runs off of our roofs, driveways and roads rather than soaking into the ground. It either flows into rivers and waterways or is channeled into storm sewers.

What is Stormwater Management?

Capture/collection, storage/treatment and conveyance of water in response to rainfall and snowmelt. Legislative requirements have evolved significantly from traditional “drainage.”

- Hazard protection
- Volume reduction
- Quality treatment
- Watershed health



Goals and Objectives

A Master Plan was carried out as per the Municipal Engineers Association Municipal Class Environmental Assessment requirements for Master Planning under the Ontario Environmental Assessment Act.

The Master Plan updates the Town's understanding of the condition, performance, constraints and opportunities of its existing stormwater infrastructure and supports Municipal Consolidated Linear Infrastructure Environmental Compliance Approvals (CLI-ECA) requirements.

The Master Plan also provides synergy with a number of Town Asset Management initiatives, improving the Town's understanding and management of its assets and will assist in identifying opportunities and addressing issues before stormwater assets fail or are otherwise unable to fulfil their intended purpose.

Work Completed

Investigations

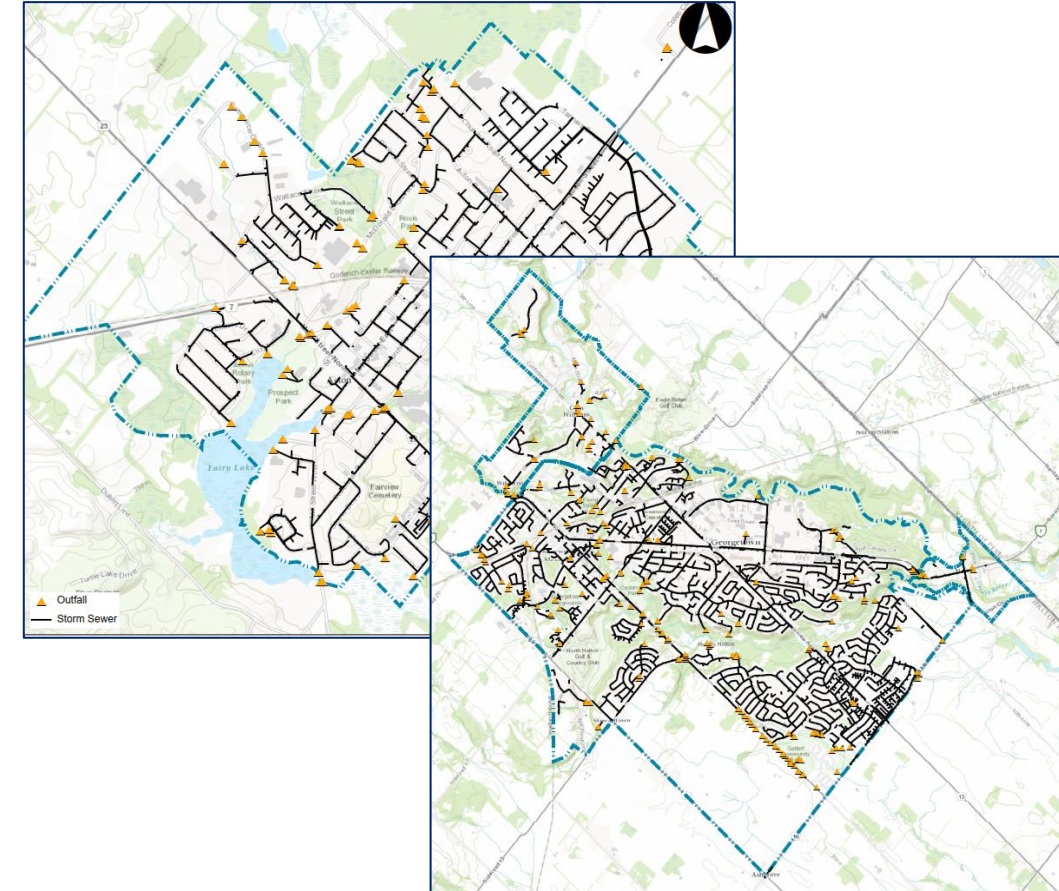
- IDF Curve Update, and Climate Change Assessment
- SWM Pond Survey and Sediment Sampling Results
- SWM Pond Water Quality Sampling
- Storm Sewer Condition Assessment
- Existing Storm Sewer Network GIS Data Update
- Flow Monitoring (10 Locations)
- Dual Drainage Model Development and Calibration
- Review of Flood Complaints

Analysis and Recommendations

- SWM System Performance Assessment
- Areas of Focus (Sag and Spill Areas, Pipe Conditions Issues, Undersized Pipe)
- Identification of Suitable Remediation Efforts
- Evaluation and Prioritization of Projects
- Life Cycle Cost Estimates
- Preferred Solutions for 15 Highest Priority Projects

New Dual Drainage Hydraulic Model

1. Import storm infrastructure from the Town's GIS layer
 - 3,509 Storm Sewers
 - 3,251 Maintenance Holes
 - 151 Catch Basins
 - 172 Outfalls
2. Incorporated Culverts and Stormwater Management Ponds
3. Considers Town's topography
4. Delineated sub catchments
5. Calibrated model with data collected from 10 level loggers placed in the storm system (6 in Georgetown, 4 in Acton) with available rainfall data for each storm event
6. Carried out capacity assessment
 - Overland flow routes (including sag/spill areas)
 - Storm sewers

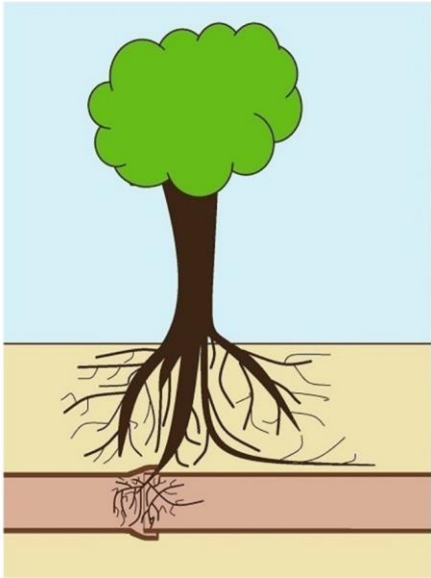


Storm Infrastructure Condition Assessment

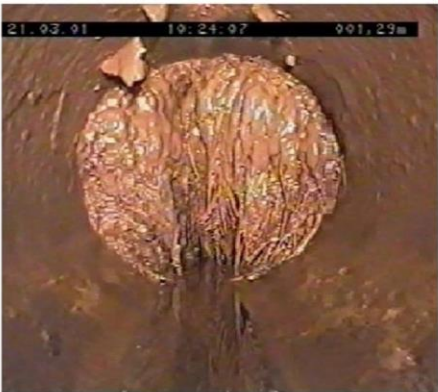
Zoom camera inspections were completed using the NASSCO pipeline assessment grading system for a significant portion of storm sewers, focused on older areas to characterize the condition of the Town’s storm sewer infrastructure – particularly in legacy areas.

Results

3,240 zoom camera inspections were performed for 2084 pipe segments totaling 95 km*.



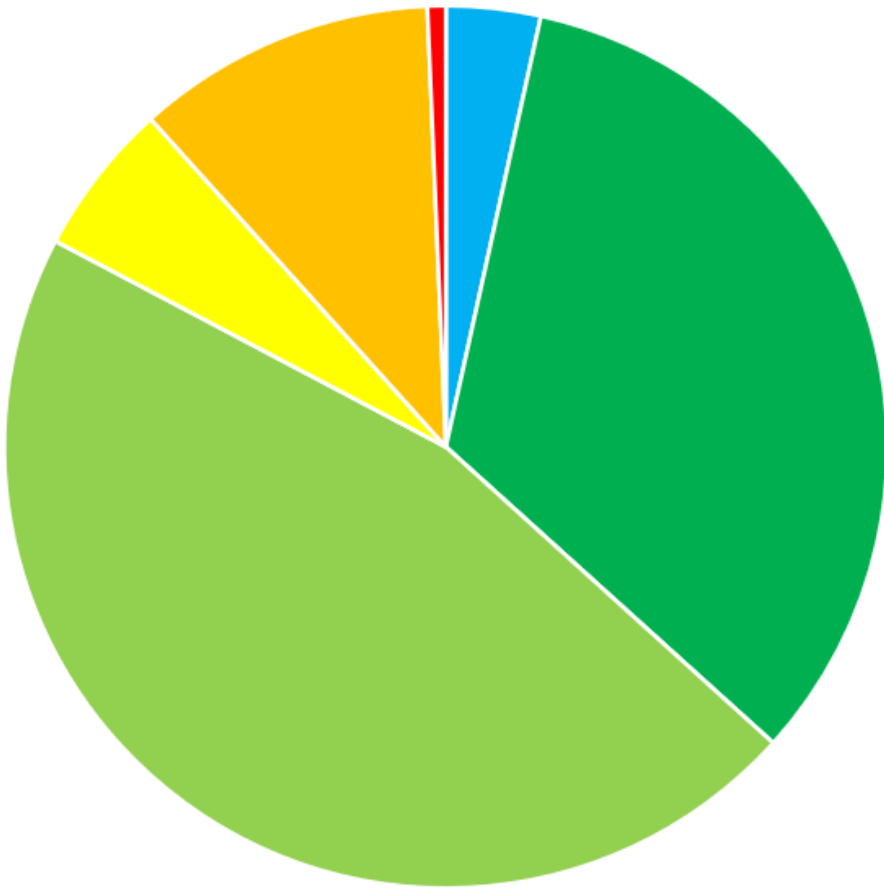
Grade 1



Grade 5

Example from: <https://www.sciencedirect.com/science/article/abs/pii/S1618866716300449>

HH Storm Sewer Condition Grades



■ Not Accessible ■ Good ■ Fair ■ Poor ■ Bad ■ Failure

* Approximate Totals

Critical Project Areas and Evaluation

- A list of 140 projects were identified, 43 of which had critical issues.
- Projects were evaluated according to below criteria. The 15 highest priority projects were identified, and concept level solutions and cost estimates developed.

Criteria	Weight (%)
1 Cost Per Benefitting Property	25
2 Benefiting Drainage Area (Ha)	10
3 Construction Schedule	5
4 EA Schedule	10
5 Constructability Risk	10
6 Overall Capital Cost	10
7 Operation and Maintenance Requirements	10
8 Service Life of Existing Infrastructure to be Replaced	5
9 Water Quality Impacts	10
10 Downstream Trunk/Outfall Impacts	5
Total	100

Total Costs – Conceptual Level Estimates and Annual Maintenance Costs

43 Critical Projects

- Top 5 Critical Private Property Flood Risk Mitigation Projects
 - \$5,200,000 Capital Construction Cost + \$22,000/year Operation & Maintenance Cost
- Next 10 Top Critical Priority Projects
 - \$2,000,000 Capital Construction Cost + \$115,000/year Operation & Maintenance Cost
- Remaining (28) Critical Projects
 - \$19,500,000 Capital Construction Cost + \$780,000/year Operation & Maintenance Cost

Existing Infrastructure

- Estimated annual maintenance costs of existing infrastructure
 - \$2,500,000/year

Summary & Conclusions

Master Plan study and report complete.

- Analysis of SWM system complete, deficiencies identified.
- 43 critical projects, 15 top priority projects developed and costed at conceptual level.
- Annual maintenance of existing and proposed infrastructure estimated.
- Report was open for public review (February 5th to March 7th 2025): <https://letstalkhaltonhills.ca/stormwater-management-master-plan>
- Fulfilled the Municipal Engineers Association Municipal Class Environmental Assessment requirements for Master Planning under the Ontario Environmental Assessment Act.

Next Steps

- The Master Plan Report has been finalized. Policy, engineering, monitoring and additional recommendations are included for consideration.
- Staff will review the recommendations of the Master Plan and prepare potential implementation strategies for consideration in future budgets.
- In addition to current general tax levies and development charges, possible funding strategies include other financing practices, or the establishment of a user fee (stormwater rate).

Thank You

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