

Service Business Plan



Service Name Surface Water Drainage

Service Lead Name Cary Clark

Service Lead Title Manager of Development and Stormwater Engineering

Service Description

A public service to manage surface water drainage.

Strategic Alignment with Vision to Focus Plan

Supporting Sustainable Infrastructure and a Resilient Environment

Service Goals

Manage surface water drainage with the goal to reduce the risk of flooding and to support sustainable infrastructure and a resilient environment.

Current State

Customers & Their Expectations

This service is delivered to:

Residents, property owners, businesses, developers, builders/constructors, Planning & Building, Roads & Parks Maintenance and Council.

Expectations include:

- Flood and erosion protection for properties and structures
- Clean and safe creeks
- Protection of natural habitat, including trees
- Accessibility to trail systems along creeks, with well-maintained and attractive amenities
- Safety and risk avoidance related to flooding
- Delivery of approvals and permits in a timely and cost-effective manner
- Well-maintained storm water management ponds
- Well-maintained surface water drainage systems, including culverts and storm inlet grates
- Help addressing storm drainage concerns and complaints
- Inventory information and assessment of infrastructure condition
- Replacement of damaged infrastructure

	<ul style="list-style-type: none"> • Good storm water quality • Professionalism, expertise, innovation and education.
Existing Service Delivery	<p>The existing surface water drainage systems include:</p> <ul style="list-style-type: none"> • 11 major creeks and several minor creeks within the urban boundary, totalling 93 kms. • 1350 rural area culverts (16,000 m) • 900 urban area culverts (13,000 m) • 15,600 catchbasins • 27 storm water management ponds owned by the City • 14 City-owned oil and grit separator manholes. <p>This service is delivered in coordination with the Design & Construction and Asset Management sections of the Capital Works Department, Roads, Parks and Forestry (RPF), Halton Region, Conservation Halton, Niagara Escarpment Commission, Ministry of Environment & Climate Change, Ministry of Natural Resources and Department of Fisheries & Oceans.</p> <p>The service provides:</p> <ul style="list-style-type: none"> • Planning, design, construction, permits and inspection of surface water drainage systems • Assistance to residents and property owners in addressing concerns/complaints regarding drainage issues • Maintenance of creeks, road allowance drainage, catchbasins, storm inlet structures and oil and grit separator manholes • Site alteration review, permits, inspection and enforcement • In partnership with the Asset Management Service, collecting inventory information and assessing infrastructure condition for data management • Infrastructure renewal of storm sewers through road reconstruction projects, accomplished as a customer of Roads and Structures – Design and Construction for design of roads and storm sewers.
Existing Customer Engagement Tools / Methods	In person, telephone, 311, email, mail, City website, social media, newspapers, radio, television, media releases, public open houses, committee and Council reports.
Is this Service Provincially Legislated?	No N/A
For this Service are there Approved Service	Yes Conservation Authorities Act, Ontario Regulation 162/06, Department of Fisheries and Oceans Act, Canadian Environmental Protection Act Drainage By-law 56 2007, Site Alteration By-law 64-2014

Standards?

Programs

Surface Water Drainage Project Management – creeks, ditches, storm water management ponds, culverts	Oversee design, tendering, project management, contract administration and construction inspection of creek erosion rehabilitation projects, storm water management pond cleanouts, minor drainage improvements and culvert replacements.
Maintenance of Surface Water Drainage Systems	Inspect and maintain creeks clear of debris and blockages. Addressing drainage issues on City-owned road allowances and open spaces. Repairs are undertaken by RPM crews or where necessary by outside contractors.
Resident Drainage Customer Service	According to By-law 17-2018, address concerns/complaints from residents regarding storm water drainage. Inspect and assess issues. Make recommendations for actions where the City has responsibility.
Storm Water Management Design Review (for new development applications)	Provide storm water management design review services for new development applications. This is done in coordination with the Community Design and Development Review service.
Site Alteration Permitting and Administration	According to By-law 64-2014, provide site assessments, review of applications, issuance of permits, inspections and enforcement.
Storm Sewer Discharge	According to By-law 86-2002, provide site assessments, review of applications, issuance of approval, inspections, coordination of spills investigations with RPF and Halton Region and enforcement.

Recent Continuous Improvement Initiatives

On August 4, 2014 the City of Burlington experienced a major rain storm that caused extensive flooding. Council approved the addition of \$20M to the Storm Water Capital Budget over the next 10 years for infrastructure upgrades to mitigate flood risks. The design and construction of flood mitigation projects to reduce the risk of flooding have commenced.

Flood Mitigation creek improvements have been completed on Tuck Creek with the replacement of the Regal Road bridge and flow capacity improvements to the creek channel (Phase 1). Phase 2 construction is commencing in late 2019 with the creek improvements north and south of New Street.

Erosion protection and flood mitigation works on No.8 Sideroad as well as multiple rural culvert replacements have taken place in 2019 to improve drainage and flow conveyance to reduce the risk of roadway flooding.

Shoreline protection repairs took place in 2019 as a result of the record high water levels in Lake Ontario. This Climate Change impact is being assessed to develop a shoreline protection program.

The Creek Condition and Assessment Survey report of urban creeks was completed in March 2016. This provided updated creek erosion, infrastructure and debris details. This data is being used to prioritize future creek improvement projects. An additional Interim visual inspection was completed of all urban creeks in the Spring of 2019 to provide data between the comprehensive assessment, which is done every 5-6 years.

Environmental Considerations

Climate Change is impacting our weather. In order to address this impact, we are updating our Stormwater Design Standards. This includes modification of our storm design criteria and the implementation Low Impact Development design concepts.

Emerging Opportunities and Anticipated Risks

Emerging Opportunities	<ul style="list-style-type: none"> - New approaches to climate change modelling. - Improved communication with residents through public engagement, updates on City website, and social media. <p>LIDAR topographic survey data is now available to the City of Burlington. This provides us with improved topographic mapping and elevation data for stormwater and creek modelling as well as floodplain mapping.</p> <p>Consideration of LID opportunities in proposed developments and capital projects.</p> <p>Initiating a Municipal Natural Asset Initiative for Grindstone Creek, in partnership with Conservation Halton, City of Hamilton and Royal Botanical Gardens. We will coordinate with our Asset Management group to assess the value of our natural watershed assets and to work towards inclusion in our city-wide Asset Management Plan.</p>
Anticipated Risks	<ul style="list-style-type: none"> • Increasing flood risks to the City and private property owners due to climate change. • Aging storm water infrastructure increases the need for funding of repairs and replacements.
Enterprise Risk Considerations	Climate Change - Increasing number of severe weather events

Service Initiatives

Target Completion

Update the Stormwater Design Standards manual	Dec 2019
Completion of the Phase 2 Tuck Creek Flood Mitigation project	Dec 2020
Construction of Phase 3 of the Tuck Creek Flood Mitigation project	Dec 2021
Construction of Phase 4 Roseland Creek Erosion & Flood Mitigation project	Aug 2020
Coordinate with MTO on major QEW/403 improvements to ensure stormwater requirements are incorporated.	Dec 2020

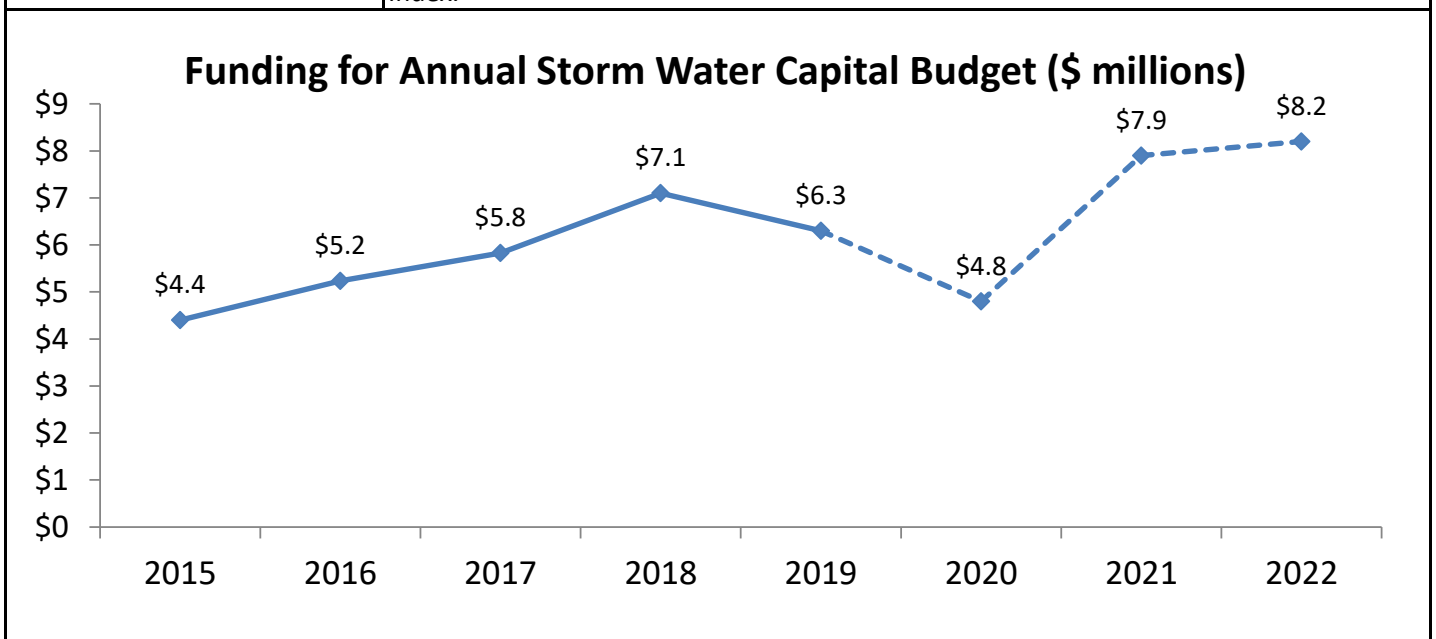
MEASURING SUCCESS

How much did we do?

Performance Measurement	2015 Actual	2016 Actual	2017 Actual	2018 Actual	2019 Forecast	2020 Forecast	2021 Forecast	2022 Forecast
Length of creek erosion control repairs completed (km) (existing 93km of urban creek)	0.39	0.07	1.98	1.22	0.94	0.98	1.19	1.27
Number of storm water management ponds cleaned out (existing 27 ponds)	1	1	2	1	1	1	2	2
Number of rural culverts replaced by Roads and Parks Maintenance and Development & Environmental Engineering (1350 rural culverts = 16,000m)	18	21	24	31	38	25	25	25

How well did we do it?

Performance Measurement	Funding for Annual Storm Water Capital Budget (\$ millions)
Story behind the data	Based on the approved 2019 Capital Budget & 2020-28 Capital Forecast. Major Flood Mitigation construction projects began 2018 with the reconstruction of the Regal Road Tuck Creek bridge. Continue considering infrastructure for flood mitigation improvements. Continue erosion control improvements to increase the Creek Condition Index.

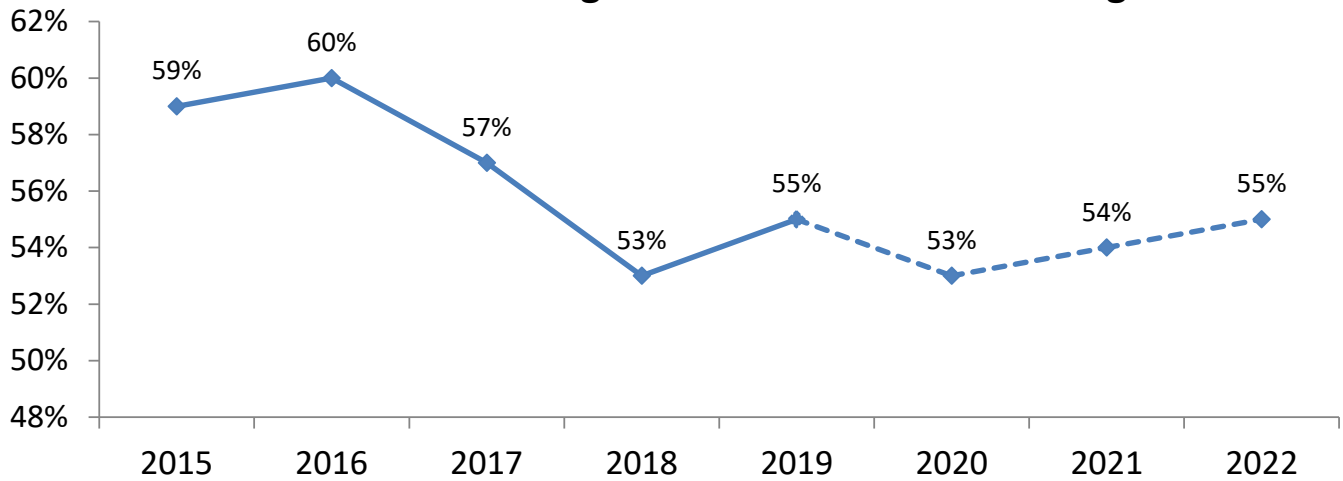


Performance Measurement	Storm Water Management Pond Condition Rating
-------------------------	--

Story behind the data

Environmental regulations are driving the cost of SWM Pond clean-outs up. We are reallocating more capital budget to this operation to maintain ponds in good working order.

Storm Water Management Pond Condition Rating



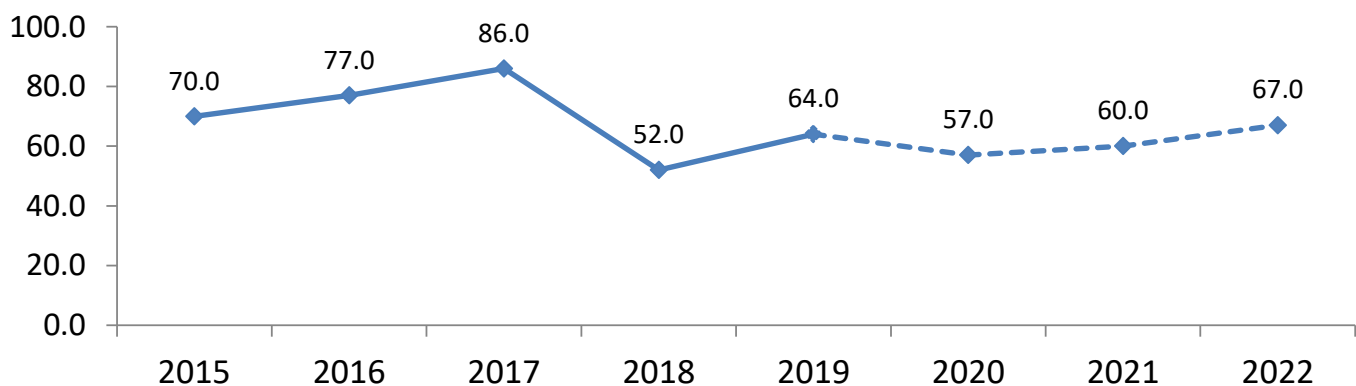
Performance Measurement

Oil and Grit Separator Manhole Condition Rating

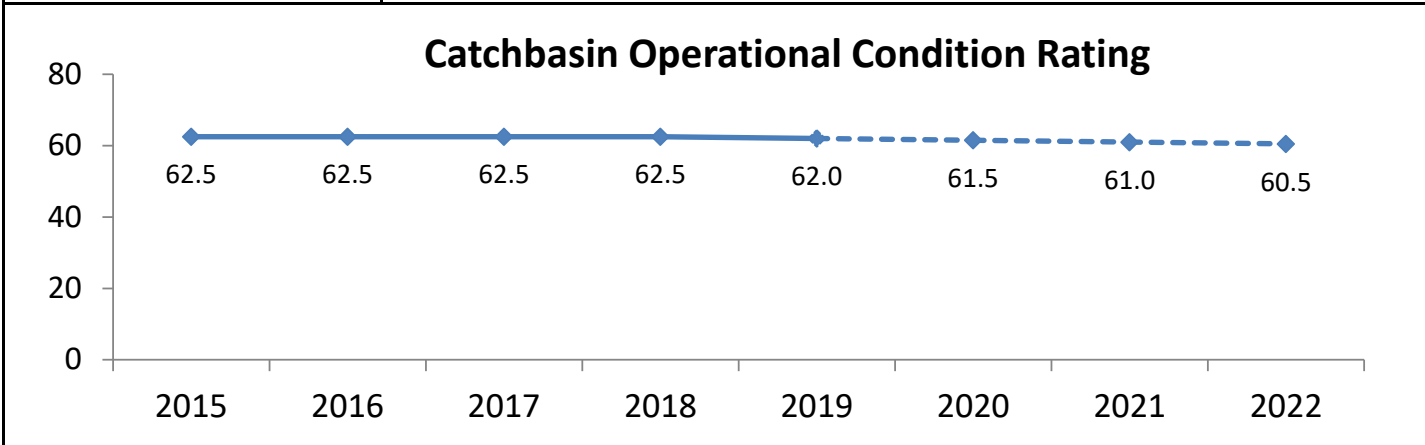
Story behind the data

The administration of the maintenance program has been shifted from RPF to Capital Works, to provide consistency with SWM Pond clean-out program. Further investigation and a detailed inventory was completed in late 2018/early 2019. This identified additional OGS locations. A complete condition assessment survey was undertaken to establish and prioritize the new work program. We now have up-to-date condition assessments which allow us to better plan the clean-out schedules and future budgets. As a result of the additional OGS locations, the index for 2018 was corrected, showing a significant reduction from last year's estimate of 87. This is a result of the additional OGS locations. As we move forward in the program, the index will increase as a result of the improved maintenance program.

Oil and Grit Separator Manhole Condition Rating



Performance Measurement	Catchbasin operational condition rating (average capacity of catchbasin to capture sediment)
Story behind the data	More catchbasins are being constructed in new subdivisions. Costs are marginally increasing on an annual basis due to increased number of catchbasins.
Where do we want to go?	As new development proceeds the number of catchbasins will increase. This will require an increase in funding to maintain the level of service.



Performance Measurement	Annual creek condition index (weighted average of % of kms of creeks in good condition)
Story behind the data	With the constant delivery of flood mitigation and erosion control projects in our creeks, the index is steadily increasing. We added 10 kms of creeks to the previously inspected 83 kms. The majority of the additional 10 kms were in good condition. This accounts for the slight increase in the Index values along with the progressive capital projects being completed
Where do we want to go?	Following the Aug 4, 2014 storm, our capital program has added the initiative to enhance the creek conveyance capacities along with the previous erosion control rehabilitation works. We are continuing to progress with both initiatives to gradually improve the overall Creek Condition Index.

