

2020

CANADIAN NATIONAL BENCHMARKING INITIATIVE

Stormwater Framework



AECOM

This page intentionally left blank.

Goal	KPI	Breakdown	Units
Ensure Adequate Capacity	# Rainfall Events > Major Storm	# Rainfall Events > Major Storm	occurrences
	# Rainfall Events > Minor Storm	# Rainfall Events > Minor Storm	occurrences
	Calls Regarding Flooding due to Public System Issues	Calls Regarding Flooding due to Public System Issues	#
	Culverts Inspected	Culverts Inspected	%
	Culverts Inspected < 3m	Culverts Inspected < 3m	%
	Culverts Inspected > 3m	Culverts Inspected > 3m	%
	Debris Barriers Inspected	Debris Barriers Inspected	%
	Ditch Length Cleaned	Length of Ditch Cleaned	%
	Ditch Length Cleaned that can be Cleaned	Length of Ditch Cleaned that Can be Cleaned	%
	Ditches Inspected	Ditches Inspected	%
	Length of Root Cutting in Sewers	Length of Root Cutting in Sewers	km
	Manholes Visually Inspected	Manholes Visually Inspected	%
	Pump Station Failures	Pump Station Failures	# / Pump Station
	Sewer Blockage Removals	Sewer Blockage Removals	# / 100 km of Sewer
	Sewer Length CCTV Inspected	Forcemain	%
		Gravity	%
	Sewer Length Cleaned	Forcemain	%
		Gravity	%
Time Spent Thawing Catch Basins	Time Spent Thawing Catch Basins	hours / basin	
Visual Inspections of Pump Stations	Visual Inspections of Pump Stations	# / Pump Station	
Have Satisfied and Informed Customers	Calls Regarding Flooding due to Public System Issues relative to People Served	Calls Regarding Flooding due to Public System Issues	# / 1,000 People Served
	Cost of Stormwater Education Program	Cost of Stormwater Education Program	\$/ 1,000 People Served
	Percent Attainment of Target Emergency Response Time After Working Hours	Attainment of Target Emergency Response Time After Working Hours	%
	Percent Attainment of Target Emergency Response Time During Working Hours	Attainment of Target Emergency Response Time During Working Hours	%
	Percent Attainment of Target Non-Emergency Response Time After Working Hours	Attainment of Target Non-Emergency Response Time After Working Hours	%
	Percent Attainment of Target Non-Emergency Response Time During Working Hours	Attainment of Target Non-Emergency Response Time During Working Hours	%
	Serviced Properties Experiencing Flooding	Flooding in Combined System	#
		Flooding in Separate System	#
	Serviced Properties Experiencing Flooding relative to People Served	Serviced Properties Experiencing Flooding	# / 1,000 People Served
Stormwater Related Customer Complaints	Stormwater Related Customer Complaints	# / 1,000 People Served	
Meet Service Requirements with Economic Efficiency	Cost to Remove Sediment from Ponds per Volume of Sediment Removed	Unit Cost to Remove Sediment from Ponds	\$/ m ³
	Facilities O&M Cost per Pond	Facilities O&M Cost	('000 \$) / pond
	Facilities O&M Costs per ML of Pond Capacity	Facilities O&M Cost	('000 \$) / ML
	Linear O&M Cost	Linear O&M Cost	('000 \$) / km of Sewer and Ditches
	Pump Station Energy Consumption	Diesel	kWh / Total PS HP
		Electricity	kWh / Total PS HP
		Natural Gas	kWh / Total PS HP
	Pump Station O&M Cost	Pump Station O&M Cost	\$/ HP
Stormwater O&M Cost relative to Catchment Area	Total O&M Cost	('000 \$) / km ² of Catchment Area	

CANADIAN NATIONAL BENCHMARKING INITIATIVE

Goal	KPI	Breakdown	Units
Meet Service Requirements with Economic Efficiency	Stormwater O&M Cost relative to System Length	Contracted External	('000 \$) / km of Sewer and Ditches
		Contracted Internal	('000 \$) / km of Sewer and Ditches
		Energy	('000 \$) / km of Sewer and Ditches
		Equipment and Materials	('000 \$) / km of Sewer and Ditches
		Other	('000 \$) / km of Sewer and Ditches
		Staff Training	('000 \$) / km of Sewer and Ditches
		Wages	('000 \$) / km of Sewer and Ditches
	Unit Cost of Catch Basin Cleaning	Unit Cost of Catch Basin Cleaning	\$ / basin
	Unit Cost of Catch Basin Inspections	Unit Cost of Catch Basin Inspections	\$ / basin
	Unit Cost of Oil Grit Separator Cleaning	Unit Cost of Oil Grit Separator Cleaning	\$ / separator
Unit Cost of Storm Sewer Cleaning	Unit Cost of Storm Sewer Cleaning per km	\$ / km	
Protect Public Health & Safety	Days Municipal Beaches Not Available for Swimming / Days Municipal Beaches are Open	Due to Other Reasons	%
		Due to Wet Weather Conditions	%
	Mass of Salt and Sand Used	Salt	tonnes / km Roadway Length
		Sand	tonnes / km Roadway Length
	Volume of Brine Used	Volume of Brine Used	m ³ / km Roadway Length
Protect the Environment	Area of Permeable Pavement	Area of permeable pavement	m ²
	Catch Basin Sumps Cleaned	Catch Basin Sumps Cleaned	%
	Cost of Stormwater Monitoring Program	Cost of Stormwater Monitoring Program	\$ / km ² of Catchment Area
	GHG Emissions	GHG Emissions	tonnes of CO2e
	Maintenance Visits per Fish Ladder	Visits per Fish Ladder	# / fish ladder
	Maintenance Visits per Hydrodynamic Separator	Visits per Hydrodynamic Separator	# / separator
	Maintenance Visits per Oil Grit Separator	Visits per Oil Grit Separators	# / separator
	Maintenance Visits per Outlet to Receiving Waters	Visits per Outlet	# / outlet
	Maintenance Visits per Stormwater Pond	Visits per Pond	# / pond
	Maintenance Visits per Subsurface Infiltration Facility	Visits per Subsurface Infiltration Facility	# / facility
	Maintenance Visits per Surface Infiltration Facility	Visits per Surface Infiltration Facility	# / facility
	Maintenance Visits per Watercourse Length	Visits to Watercourses per km	# / km
	Mass of Collected Materials	Mass of Collected Materials	1,000's of metric tons
	Number of Spills	Number of Spills	#
	Percent of Arterial Roads Cleaned	% Arterial Roads Cleaned	%
	Percent of Catch Basins Inspected for Sediment Accrual	% Catch Basins Inspected for Sediment Accrual	%
	Percent of Collector Roads Cleaned	% Collector Roads Cleaned	%
	Percent of Residential Roads Cleaned	% Residential Roads Cleaned	%
	Rural Riparian Setback	Rural Riparian Setback	m
	Spills that Reached the Receiving Environment	Spills Reaching the Receiving Environment	#
	Spills that Reached the Receiving Environment relative to Catchment Area	Spills Reaching the Receiving Environment	# / km ²
	Urban Riparian Setback	Urban Riparian Setback	m
	Weight of Material Collected / Weight of Sand Used	Weight of Material Collected / Weight of Sand Used	kg / kg

Goal	KPI	Breakdown	Units	
Provide a Safe and Productive Workplace	Field Accidents with Lost Time	Field Accidents with Lost Time	# / 1,000 O&M Labour Hours	
	Lost Hours due to Field Accidents	Lost Hours due to Field Accidents	# / 1,000 O&M Labour Hours	
	Sick Days Taken	Sick Days Taken	# / O&M Employee	
	Total Available O&M Hours / Total Paid O&M Hours	Total Available Hours	%	
	Total Overtime Hours / Total Paid O&M Hours	Overtime Hours	%	
	Unavailable O&M Hours / Total Paid O&M Hours	Expended Banked Time		%
		Long Term Leave		%
		Other		%
		Other Training		%
		Safety Training		%
Sick Time			%	
Union Paid Time			%	
Vacation		%		
Provide Reliable Service and Infrastructure	Average Annual Residential Stormwater Fee	Average Annual Residential Stormwater Fee	\$ / lot	
	Capital Reinvestment / Replacement Value	Capital Reinvestment / Replacement Value	%	
	Capital Reinvestment / Replacement Value (Linear Storm Sewer Infrastructure)	Linear Capital Reinvestment / Replacement Value	%	
	Capital Reinvestment Budget Spent / Budget Allocation	Capital Reinvestment Budget Spent / Budget Allocation	%	
	Emergency Pump Station Repairs	Emergency Pump Station Repairs	# / Pump Station	
	Emergency Sewer Repairs	Forcemain		# / 100 km of Storm Sewer Length
		Gravity		# / 100 km of Storm Sewer Length
	FTEs	Laboratory		# / 100 km Sewer and Ditches
		O&M		# / 100 km Sewer and Ditches
		Program Support		# / 100 km Sewer and Ditches
		Supervisor / Management		# / 100 km Sewer and Ditches
		Technical / Engineering		# / 100 km Sewer and Ditches
	Maintenance Visits to Dikes	Maintenance Visits to Dikes		# / km
	Net Change in Capital Reserves / Replacement Value	Net Change in Capital Reserves / Replacement Value		%
	Non Emergency Sewer Repairs	Forcemain		# / 100 km of Storm Sewer Length
		Gravity		# / 100 km of Storm Sewer Length
	O&M Budget Allocation	Other Sources		%
		SW Fees		%
		Taxes		%
	O&M Budget and Regional Fees relative to Catchment Area	O&M Budget		\$ / km ²
		Regional Fees		\$ / km ²
	O&M Budget and Regional Fees relative to Population	O&M Budget		\$ / capita
		Regional Fees		\$ / capita
O&M Budget Spent / Budget Allocation	O&M Budget Spent / Budget Allocation		%	
Stormwater O&M Cost + Capital Reinvestment Cost	Capital Reinvestment		('000 \$) / km of Sewer and Ditches	
	O&M		('000 \$) / km of Sewer and Ditches	

AECOM

David Main, BMgmt - Project Director

T: +1-604-444-6400

E: david.main@aecom.com

4th Floor, 3292 Production Way
Burnaby, BC, V5A 4R4, Canada

aecom.com

