STORMWATER

Stormwater Definitions by Hyperlink

S-LOCAL FACTORS		
Local Factors	Stormwater	Precipitation that does not infiltrate into the ground or evaporate due to impervious land surfaces, but instead flows onto adjacent land or water areas and is routed into drain/sewer systems. From website http://weather.about.com/library/g/blglossary_s.htm
	Are the Utility Local Factors the same as the previous year's?	Please complete the Yes/No field for whether the Utility Local Factors are the same as the previous year's. If the answer is "Yes", then skip to S-Description (the database will be updated with the previous year's Utility Local Factors). If the answer is "No", then complete the local factor fields 1 to 8. (if some of the fields are the same as the previous year's, then note this as "Same as previous year's" also if there are only minor changes, please note this, for example under 4 Impact on Receiving Environment "Same as previous year's, except add text "Added oil-grit separators on 4 of the 10 outfalls"). Note anything that is unique to your municipality or this year's data that would explain any unusual data.
	Meteorological Conditions	Describe the average meteorological conditions in your area such as the average winter air temperature, average annual rainfall, frequency of heavy rainfall etc. Also describe the actual meteorological conditions that occurred during that year. Describe how the local climatic conditions affect the operations of your stormwater management system.
	Geographical Characteristics	Describe the geographical characteristics in your area such as topography, groundwater levels etc. Describe how the local geographical characteristics affect the operations of your stormwater management system.
	Geomorphology	Describe the geomorphology of your area such as soil types and depths. Describe how the local geomorphology affects the operations of your stormwater management system.
	Impact of Stormwater on Receiving Environment	Describe the local impact of stormwater on the receiving environment, for example discuss the sensitivity of the receiving environment such as presence of salmonid species, other discharges into waterways such as from erosion.
	Historical Stormwater Servicing	Describe the history and chronology of stormwater servicing in the area.
	Regulations	Does your utility have to adhere to any unique regulations or by-laws which affect the way the utility operates?
	Age of System Components	What is the historical age of the utility? Do you believe the age of the utility affects the operations and maintenance costs of the utility? Does it affect the number of sewer blockages or main breaks?
	% of land area serviced by municipal drainage system	What % of the land area within the municipality is serviced by the municipal drainage system.
S-DESCRIPTION		
Volume Conveyed and Population Served	Urban	In Urban areas the predominant land use is typically estate residential and the population density is typically high with small lot sizes. Also in urban areas stormwater customers typically but not always have direct connections from roof top gutters to the underground storm sewer pipe system. The percentage of impervious area will be greater than 15% in urban areas.
	Rural	In Rural areas the predominant land use is typically agricultural and the population density is typically low with large lot sizes. In Rural areas stormwater customers typically but not always are serviced by above ground ditches and swales. The percentage of impervious area will be less than 15% in rural areas.
	Total Serviced Population	Population, *excluding ICI equivalents,* of the City or Region that is serviced by the stormwater system: collect separately the serviced population in the urban area, rural area and the total.
	Area of Stormwater Collection System	Area serviced by the storm sewer pipe system and overland drainage system (e.g. swales): (including combined system): collect separately the pipe system area within the urban area, rural area and the total. Units of km².

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S-LOCAL FACTORS		
	% of Catchment that receives water quality treatment	For separate stormwater systems the % of stormwater which receives water quality treatment will be based on the % of the watershed area which is served by a water quality treatment system. Treatment should include ponds for quality, oil-grit separators and other treatment technologies. If a pond's primary purpose is for flood control and was not designed for treatment then the pond should no be considered as providing treatment. Treatment does not include ditches as it is difficult to determine whether they are for quality or quantity. Treatment should not include catch basins as they are not typically cleaned prior to every storm.
	Target for stormwater treatment as a % of the catchment area	Current target for the amount of stormwater that requires treatment as a percentage of the watershed area. See above definition for what denotes water treatment processes.
	Combined system	A wastewater collection and treatment system where domestic and industrial wastewater is combined with storm runoff. Please answer "Yes" or "No" to verify if your municipality has a combined system.
	% Combined	% Combined = Sewer pipe length that has combined sewage and stormwater flow / total sewer pipe length
Design Criteria	Return period design criteria for major system	The return period design criteria in # of years for the major system. Where the major stormwater system includes all stormwater facilities identified in the master drainage plan that facilitate the conveyance of stormwater runoff on a basin-wide or regional basis (e.g. canals, creeks etc). Major system drainage ways are flow paths used only during major storms when the minor systems are overloaded.
	Return period design criteria for minor system	The return period design criteria in # of years for the minor system. Where the minor stormwater system includes all stormwater facilities used for the conveyance, control or storage of stormwater runoff for local benefit only (e.g. sewer, swales, ponds etc).
System Components and Characteristics	Storm sewers	Please answer "Yes" or "No" in the first field to verify if your municipality has storm sewers. If "Yes" please also provide total length of storm sewers in km in the second field.
	Storm forcemains	Please answer "Yes" or "No" in the first field to verify if your municipality has storm forcemains. If "Yes" please also provide total length of storm forcemains in km in the second field.
	Combined sewer length	If your municipality has a combined system, please also provide total length of combined sewers in km.
	Ditches / Storm water Swales in Urban Areas	Please answer "Yes" or "No" in the first field to verify if your municipality has ditches/swales in urban areas (typically greater than 15% impervious area). If "Yes" please also provide total length of ditches/swales in km in the second field. Ditches and swales are open depressions or wide, shallow ditches that intermittently contains or conveys runoff. Can be used as a BMP to detain and filter runoff.
	Ditches / Storm water Swales in Rural Areas	Please answer "Yes" or "No" in the first field to verify if your municipality has ditches/swales in rural areas (typically less than 15% impervious area). If "Yes" please also provide total length of ditches/swales in km in the second field. Ditches and swales are open depressions or wide, shallow ditches that intermittently contains or conveys runoff. Can be used as a BMP to detain and filter runoff.
	Stormwater underground storage facilities	Please answer "Yes" or "No" in the first field to verify if your municipality has underground storage facilities for stormwater. If "Yes" please also provide # of underground storage facilities in the second field.
	Stormwater treatment facilities	Please answer "Yes" or "No" in the first field to verify if your municipality has stormwater treatment facilities. If "Yes" please also provide # of stormwater treatment facilities in the second field and the volume capacity of the facilities in the third field.
	Dry detention ponds	Please answer "Yes" or "No" in the first field to verify if your municipality has dry detention ponds. If "Yes" please also provide # of dry detention ponds in the second field and the volume capacity of the ponds in the third field.
	Wet detention ponds (Quality & Quantity)	Please answer "Yes" or "No" in the first field to verify if your municipality has wet detention ponds (for quality and quantity). If "Yes" please also provide # of wet detention ponds that control both quality and quantity in the second field and the volume capacity of the ponds in the third field.

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S-LOCAL FACTORS	
Wet detention ponds (Quantity only)	Please answer "Yes" or "No" in the first field to verify if your municipality has wet detention ponds (for quantity only). If "Yes" please also provide # of wet detention ponds whose main purpose is to control quantity in the second field and the volume capacity of these ponds in the third field.
Wet detention ponds (Quality only)	Please answer "Yes" or "No" in the first field to verify if your municipality has wet detention ponds (for quality only). If "Yes" please also provide # of wet detention ponds whose main purpose is to control quality in the second field and the volume capacity of these ponds in the third field.
Stormwater Pump stations	Please answer "Yes" or "No" in the first field to verify if your municipality has stormwater pump stations. If "Yes" please also provide # of stormwater pump stations in the second field.
Total pump station horsepower	Sum of the pump station horsepower for all pumps (including standby) in all pump stations in the stormwater system (including those connected to drainage swales, ditches and storm sewers).
Gates and floodboxes	Please answer "Yes" or "No" in the first field to verify if your municipality has gates and floodboxes. If "Yes" please also provide # of gates and floodboxes in the second field. Floodgates are control structures used to stop flow from a receiving waterway, back into the floodplain/drainage area. Gates can be either the type where flows are only able to flow in one direction (e.g.. flap gates), or where flows are stopped altogether in both directions, either manually or automatically, (e.g.. sluice gates). A floodbox generally consists of a culvert through a dike with a gate at the outlet. The purpose of a floodbox is to allow the gravity discharge of internal drainage water from behind the dike into the main watercourse during times when the external water level is lower than the level behind the dike.
Catch Basins	An entryway to the storm drain system, usually located at a street corner (from http://www.forester.net/sw_glossary.html). Please answer "Yes" or "No" in the first field to verify if your municipality has catch basins. If "Yes" please also provide # of catch basins in the second field.
Stormwater Manholes	Please answer "Yes" or "No" in the first field to verify if your municipality has stormwater manholes facilities. If "Yes" please also provide # of stormwater manholes in the second field.
Storm Sewer Service Connections	Please answer "Yes" or "No" in the first field to verify if your municipality has storm sewer service connections, defined as service connections from lots to the main storm sewer. If "Yes" please also provide # of connections.
Culverts	Please answer "Yes" or "No" in the first field to verify if your municipality has culverts, defined as short pipe sections for drainage under a road, driveway, railroad or other embankments. If "Yes" please also provide # of culverts.
Oil-grit separators	Please answer "Yes" or "No" in the first field to verify if your municipality has oil-grit separators (also commonly called oil-water separators or water quality inlets). Oil-grit separators typically consist of a series of chambers that promote sedimentation of coarse materials and separation of free oil from stormwater. If "Yes" please also provide # of oil-grit separators.
Spill Containment Catch basins	Please answer "Yes" or "No" in the first field to verify if your municipality has spill containment catch basins. Spill containment catch basins treat major spills in high accident areas. If "Yes" please also provide the # of spill containment catch basins.
Trash racks	*Write "Y" if the municipality owns and/or maintains any trash racks. Trash racks are defined as a structural device used to prevent debris from entering a pipe spillway or other hydraulic structure.*
Diversion structures	*Write "Y" if the municipality owns and/or maintains any diversion structures. Diversion structures are defined as a structure specifically designed to divert water from one pipe, watercourse or facility to another*
Energy Dissipater	*Write "Y" if the municipality owns and/or maintains any energy dissipaters. Energy dissipaters are defined as any engineered device that dissipates the energy of flow within a creek or piped system.*
Outlets to receiving waters	*Write "Y" if the municipality owns and/or maintains any outlets to receiving waters. Outlets to receiving waters can be defined as a narrow passage that discharges water from a natural or engineered system into a watercourse.*

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S-LOCAL FACTORS		
	Subsurface infiltration facility	*Write "Y" if the municipality owns and/or maintains any subsurface infiltration facilities. Subsurface infiltration facilities reduce the volume of stormwater runoff leaving a site by capturing runoff for storage underground and allowing the stored runoff to percolate through the soil.*
	Watercourses	*Write "Y" if the municipality owns and/or maintains any watercourses. A watercourse is defined as a brook, stream, river or artificially constructed water channel.*
	Fish ladders	*Write "Y" if the municipality owns and/or maintains any fish ladders. A fish ladder is defined as an inclined water channel structure with a series of baffles or weirs that helps fish gain upstream passage.*
	Surface infiltration facility	*Write "Y" if the municipality owns and/or maintains any surface infiltration facilities. Surface infiltration facilities reduce the volume of stormwater runoff leaving a site by capturing runoff and allowing percolation through the soil. Surface infiltration facilities can include rain gardens, swales, green roofs or retention ponds that are designed to retain water and encourage infiltration.*
	Inlets	*Write "Y" if the municipality owns and/or maintains any inlets. An inlet is defined as a narrow engineered passage for water to enter a system.*
	Grills/screens	*Write "Y" if the municipality owns and/or maintains any grills or screens. A grill or screen is a grid of wire or a sheet of material with a pattern of holes or slots, usually used to stop large particles from passing while allowing the passage stormwater.*
	Hydrodynamic separator	*Write "Y" if the municipality owns and/or maintains any hydrodynamic separators. Hydrodynamic separators are engineered units with a settling or separation unit to remove sediment and other pollutants commonly found in stormwater runoff.*
Age	Average age	This is a length weighted average of the pipe ages. = ((length of pipe at age x)(age x) + (length of pipe at age y)(age y) + …..) / total length of pipe. Where age x = average age of age range x, for example for range 0 – 24 years, the average age is 12, therefore age x = 12. Or for pump station and ponds, this s a number weighted average of the pump station/pond ages. = ((# of PS or pond at age x)(age x) + (l# of PS or pond at age y)(age y) + …..) / total number of PS or ponds. Where age x = average age of age range x, for example for range 0 – 24 years, the average age is 12, therefore age x = 12.
	Original construction date	Date of first construction of the storm sewer system i.e. the oldest structure on site.
Climate Characteristics	# of days with rainfall > 10mm	# of days during the year that the main weather station in the area received rainfall (not snowfall) greater than 10mm in depth.
	Total Precipitation	Total precipitation for the year including both rainfall and snowfall.
	Total Rainfall	The total rainfall, or amount of all liquid precipitation such as rain, drizzle, freezing rain, and hail, observed during the year.
	Total Snowfall	The total snowfall, or amount of frozen (solid) precipitation in cm such as snow and ice pellets, observed during the year. (expressed as mm of equivalent rainfall where 10mm of snowfall = 1 mm of rainfall)
	Average Summer Temperature	The average temperature from May 1st to September 30th.
	Average Winter Temperature	The average temperature from October 1st to April 30th.
Watershed Characteristics	Overall % Effective Impervious Area	Watershed area weighted average effective impervious area (i.e. (Watershed area A * % EIA for watershed A + Watershed area B * % EIA for watershed B + ….+ Watershed area X * % EIA for watershed X)/(Total watershed area))
	Overall % Total Impervious Area	Watershed area weighted average total impervious area (i.e. (Watershed area A * % TIA for watershed A + Watershed area B * % TIA for watershed B + ….+ Watershed area X * % TIA for watershed X)/(Total watershed area))
	Overall riparian integrity	Riparian integrity is defined as the % of the riparian corridor (30m on each side of the watercourse) which has native vegetation cover. This % is calculated by dividing the area of native vegetation cover within the corridor by the total area of the corridor. Native vegetation is defined as the native vegetation for that area, may be closed canopy, woody vegetation or grasses.

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Stormwater Definitions by Hyperlink

S-LOCAL FACTORS		
Strive for Excellence	Is your municipality ISO 14001 certified?	Please answer "Yes" or "No" to indicate if your municipality is ISO 14001 certified.
S-WATERSHED		
Watersheds	Watershed X	Watersheds are defined as drainage areas that contain only one unique discharge point; whereas catchments are defined as having multiple discharge points or receiving inflow from upstream tributary areas that are outside of the catchment points. Catchments are also areas where there may not be any open streams, but where there is a stormwater system which discharges into an existing water body.
	Length of water course	Length of primary watercourse within the watershed.
	Total area of watershed X	Total area of watershed X.
	% Urban	% of the total area of watershed X that has a land use classification of urban.
	% Agricultural	% of the total area of watershed X that has a land use classification of agricultural.
	% Undeveloped / Forested	% of the total area of watershed X that has a land use classification of undeveloped or forestry.
	Is a stormwater monitoring program in place in Watershed X?	Yes/no answer is required with further explanation to be placed in the notes field.
	B-IBI for Watershed X	BIBI is a multimetric index that combines a number of individual metrics into one value. The index includes identifying and counting the invertebrate community inhabiting local watercourses. This information may be available from the local University / College if they have studied the Benthic Index for local watercourses. For more information see http://www.salmonweb.org/salmonweb/bibi/biomonitor.html
	Area of Watershed X where a BIBI is utilized	What area of watershed X is the BIBI utilized in (units km²).
	% Total Impervious Area for Watershed X	Impervious surfaces are those that prevent, or reduce, infiltration into the underlying soils and include roads, parking lots and roofs. % Total impervious area (%TIA) is the percentage of the watershed area that is covered by impervious surfaces. It can be measured in 2 ways a) by direct measurement of rooftops, pavement, roads, parking lots etc from orthophotos or air photographs or b) by applying typical percentages of total impervious area to various land use classes use Table 1 on tab "TIA Table". (from GVRD document "Proposed Watershed Classification System for Stormwater Management in the GVS&DD Area" May 1999)
	% Effective Impervious Area for Watershed X	% Effective Impervious Area (%EIA) is an estimate of the equivalent impervious area and is expressed as a % of the total watershed area. This parameter is always less than total impervious areas because some areas drain to terrain where stormwater infiltrates - the usual example is a roof whose gutters discharges to a lawn rather than a drainage system. (from GVRD document "Proposed Watershed Classification System for Stormwater Management in the GVS&DD Area" May 1999) For example if the %TIA = 40% but the estimate of runoff to watercourses corresponded to 35% impervious, then %EIA = 35% (i.e. approximately an additional 5% is infiltrating before runoff).
	Riparian integrity for Watershed X	Riparian integrity is defined as the % of the riparian corridor (30m on each side of the watercourse) which has native vegetation cover. This % is calculated by dividing the area of native vegetation cover within the corridor by the total area of the corridor. Native vegetation is defined as the native vegetation for that area, may be closed canopy, woody vegetation or grasses.
	Notes, Description of Existing or Proposed TSS Monitoring Program	Please provide a brief description of your existing and/or proposed TSS monitoring program
	Background TSS level up stream of outfall	Average annual background TSS level (in mg/L) in the water course upstream of the outfall(s).
	TSS Downstream of outfall	Average annual background TSS level (in mg/L) in the water course downstream of the outfall(s).
	# sampling occurrences	Also sampling frequency, the number of times that samples were taken during the year

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S-LOCAL FACTORS		
	avg # of hours after a rainfall event that sampling occurs	The average # of hours after a rainfall event that lapsed before sampling occurred.
	Total # of samples per year	The total # of samples that were taken in the year.
S-ENVIRONMENT		
Stormwater Monitoring Program	Do you have a stormwater monitoring program?	Yes/no answer is required with further explanation to be placed in the notes field.
	Cost of the stormwater monitoring program	Annual cost of stormwater monitoring program including all labour, materials and contracted services etc for the planning, sampling, analysis and reporting of the stormwater monitoring program.
Environment	Benthic Index of Biological Integrity (B-IBI) (Watershed)	A multimetric index that combines a number of individual metrics into one value. The index includes identifying and counting the invertebrate community inhabiting local watercourses. This information may be available from the local University / College if they have studied the Benthic Index for local watercourses.
	Do you measure quantity (flow)?	Quantity as in flow/runoff into receiving waters. It could be peak flows, average annual flow, total annual flow etc. Please indicate what you measure (AAF, PAF etc) in the notes field of this section.
	Riparian Setback in Urban Areas	The distance from the waters edge (ordinary highwater mark) within urban areas that is to remainin a natural state.
	Riparian Setback in Rural Areas	The distance from the waters edge (ordinary highwater mark) within rural areas that is to remainin a natural state.
Beaches	Do you have beaches in your municipality?	Please answer "Yes" or "No". This includes all beaches within the municipality regardless of whether they are owned or operated by the City. If the answer is "No" then all remaining fields under the heading "Beaches" can be left blank as they are not applicable.
	# of days beaches are NOT available for swimming due to closures for wet weather events	The summation of all days that the beaches within the municipality were not available for swimming due to wet weather event closures. For example City X has 2 beaches in its boundaries and 1 beach was not available for swimming for 18 days in that year & the other beach was only available for swimming for 20 days in that year (both due to wet weather event closures) the total number of days beaches in that municipality were not available for swimming due to wet weather event closures would be 38 days.
	# of days beaches are NOT available for swimming due to closures for other reasons	The summation of all days that the beaches within the municipality were not available for swimming due to closures other than wet weather events. For example City X has 2 beaches in its boundaries and 1 beach was not available for swimming for 10 days in that year & the other beach was only available for swimming for 5 days in that year (both due to other closures) the total number of days beaches in that municipality were not available for swimming due to other closures would be 15 days.
	# of days beaches are open	The summation of all days the beaches within the municipality are scheduled to be open for swimming. For example in City X the beaches are open from June 1 to September 1 = 92 days per beach which equals 184 days for the 2 beaches within that municipality.
	# of spills into the stormwater system	# of spills of deleterious substances that appear in the stormwater system
	# of spills that reached the receiving water	# of spills that were found to have reached receiving waters
Flooding Issues	# of calls regarding flooding during wet weather	Total # of calls regarding flooding that occurred during wet weather events in that year. Floods can be described as temporary rises in flow or stage of any watercourse or stormwater conveyance system that results in stormwater runoff exceeding its normal flow boundaries and inundating adjacent, normally dry areas.
	Basement	# of basement calls regarding flooding that occurred during wet weather events in that year.
	Yard	# of yard calls regarding flooding that occurred during wet weather events in that year.
	Lowland	# of calls regarding flooding lowland flooding calls that occurred during wet weather events in that year.
	Road Closures	# of calls regarding flooding that occurred during wet weather events in that year and caused road closures.

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S-LOCAL FACTORS		
	Total # of Calls regarding flooding during wet weather	Total # of calls into the call center regarding flooding occurrences during wet weather events in that year. Should be a sum of the calls regarding flooding in basements, yards and lowland and road closures.
	Total # of Rainfall events that generate calls regarding flooding	Total # of individual rainfall events that generated calls into the call center (the definition of a rainfall event may differ for each municipality).
	# of occurrences of rainfall events greater than the major system design criteria	The number of occurrences of rainfall events which exceed the maximum design criteria for which the system was designed. (i.e.. maximum intensity or total volume of rainfall)
	# of occurrences of rainfall events greater than the minor system design criteria	The number of occurrences of rainfall events which exceed the minimum design criteria for which the system was designed. (i.e.. maximum intensity or total volume of rainfall)
	# of serviced properties experiencing flooding	# of serviced properties/lots that experience flooding, e.g. not just based on calls but by area that is affected and number of properties in that area. To assess the potential for damage to property including transportation and related accidents that can occur during flooding.
S-REPLACEMENT		
Replacement	Replacement Value	The amount of money needed to replace all of the existing stormwater infrastructure based on multiplying unit replacement values by the number of units (for example Catchbasins). Unit replacement values for stormwater system assets shall be estimated based on average construction costs over the last 5 years. For example, if 20 storm sewer replacements have been constructed over the last five years, the average unit cost per km of sewer can be estimated from unit costs for all 20 construction projects (excluding inflation). Replacement values shall include all engineering costs, construction, supervision, taxes, etc. These costs shall also incorporate the costs associated with maintaining service to customers during construction, restoring ground conditions to pre-construction conditions, and avoiding other infrastructure such as water lines and fibre optic cables (excluding land purchasing). Note: include only infrastructure that has a defined service life and will be replaced at the end of its life.
	Confidence Rating	Rate how confident you are with the values provided. Allocate a rating of 3 down to 1 according to whether your supporting data set is: 3. robust and fully auditable 2. partially anecdotal, often requiring some degree of interpretation 1. anecdotal
	Unit Value (Replacement Value)	Unit value is the average $/unit for each of the infrastructure except for average $/m for linear assets such as storm sewer.
	Total Value (Replacement Value)	Total value of each type of infrastructure can be approximated for example, by multiplying the unit value for forcemain by length of forcemains in m.
	Replacement Value of storm sewer infrastructure	Sum of the replacement values for storm sewer infrastructure only, i.e. sewers, force mains, catch basins, manholes and service connections (see also "Replacement value" definition above and definition for "Capital reinvestment for storm sewer infrastructure" under Capital Costs). Excludes the replacement value for ditches, pump stations, culverts, gates, Spill Containment Catch Basins and treatment and storage infrastructure. This will be used for a performance measure "Capital reinvestment for storm sewer infrastructure.
S-CUSTOMERS		
Customers	Total value of settlements paid by municipality	Total value paid out in insurance settlements arising out of flooding, wildlife, disruption or death, odour complaints in one year. The claim may have occurred in the previous year.
	Do you log and track customer calls?	Answer "Yes" only if there is a published phone number that the public can call to make a complaint or inquiry regarding stormwater (for example a complaint about a spill into surface waters from the stormwater sewer system) AND these calls are tracked and logged.
	# of stormwater related customer complaints	The total number of customer complaints received that were related to stormwater issues, for e.g. blocked catch basins, flooding.
	Do you perform customer surveys?	Yes/no answer is required with further explanation to be placed in the notes field (e.g. how frequently are the surveys performed, who is surveyed?). If possible, please provide a copy of your customer survey for reference.

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S-LOCAL FACTORS		
	Year of most recent customer survey	Provide the most recent year when a customer survey was performed, for example 2004.
	Number of customer survey responses received	Provide the number of survey responses received from customer surveys
	Do you implement educational programs with customers to control or minimize the adverse impacts of stormwater?	Yes/no answer is required with further explanation to be placed in the notes field.
	Cost of educational programs	Cost of educational programs associated with stormwater
Target Response Times	Emergencies occurring during working hours	When a site visit is made in response to a call that is received during working hours for an emergency, what is the target maximum amount of time between receiving the call and the O&M crew being on-site to complete an assessment? (An emergency threatens property, environment, health, and/or safety. Examples include visible spills/discharges and flooding)
	Emergencies occurring after working hours	When a site visit is made in response to a call that is received after working hours for an emergency, what is the target maximum amount of time between receiving the call and the O&M crew being on-site to complete an assessment? (An emergency threatens property, environment, health, and/or safety. Examples include visible spills/discharges and flooding)
	Non-emergencies occurring during working hours	When a site visit is made in response to a call that is received during working hours for a non-emergency, what is the target maximum amount of time between receiving the call and the O&M crew being on-site to complete an assessment?
	Non-emergencies occurring after working hours	When a site visit is made in response to a call that is received after working hours for a non-emergency, what is the target maximum amount of time between receiving the call and the O&M crew being on-site to complete an assessment?
Costs - Contracted Services	Are *significant portions of* your operations externally provided by a contracted service?	Yes/no answer is required with further explanation to be placed in the notes field. If *significant portions of* the stormwater system operations are undertaken by an external company or contracted service, then answer Yes.
	Estimate for % of O&M work provided by a contracted service	An estimate for the percentage of O&M work that is externally contracted (ie. excluding capital) rather than completed in-house. The following calculation can be used for this estimate: Contracted Services (External) - Labour / (Wages + Contracted Services (Internal) - Labour + Contracted Services (External) - Labour) or if the split between labour and other contracted services is unknown, the calculation should be Contracted Services (External) - Other / (Wages + Equipment and Materials + Contracted Services (Internal) - Other + Contracted Services (External) - Other). If all O&M work is completed in-house then enter 0%. If all operations are externally provided by a contracted service then the % will be close to 100%. Most systems will have a percentage between 0% and 100%. Details of the activities that are contracted out should be provided in the Notes field (eg electrical work, emergency repairs, etc).
S-COSTS		
O&M Costs - Separate Stormwater System	Total Pump Station O&M Costs	All Operations & Maintenance cost allocations for the pump system inventory. Include all costs associated with operating and maintaining the stormwater pump stations. The total O&M cost for stormwater pump system inventory should be collected and where possible, provide a breakdown for the different cost sub categories of wages, equipment and materials, internal contracted services, external contracted services, energy and other. The associated O&M costs for summer time pumping for irrigation purposes at the request of residents should not be included.

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S-LOCAL FACTORS		
	Facilities - Stormwater System O&M cost	All Operations & Maintenance cost allocations for the stormwater system inventory of treatment *facilities (ponds, rain gardens, infiltration basins, etc.)*. Include all costs associated with operating and maintaining treatment facilities. Exclude pump station O&M costs as these are collected separately and Linear Urban and Linear Rural costs. The total O&M cost for treatment facilities inventory should be collected and where possible, provide a breakdown for the different cost sub categories of wages, equipment and materials, internal contracted services, external contracted services, energy and other.
	URBAN Linear - Stormwater System O&M cost	All Operations & Maintenance cost allocations for the stormwater system inventory in the urban areas. Include all costs associated with operating and maintaining urban stormwater system inventory such as storm sewers, catch basins, manholes and debris basins. Exclude pump station and facility O&M costs as these are collected separately. The total O&M cost for urban stormwater system inventory should be collected and where possible, provide a breakdown for the different cost sub categories of wages, equipment and materials, internal contracted services, external contracted services, energy and other.
	RURAL Linear - Stormwater System O&M cost	All Operations & Maintenance cost allocations for the stormwater system inventory in the rural areas. Include all costs associated with operating and maintaining rural stormwater system inventory such as ditches, swales, stormwater ponds and debris basins. Exclude pump station and facility O&M costs as these are collected separately. The total O&M cost for rural stormwater system inventory should be collected and where possible, provide a breakdown for the different cost sub categories of wages, equipment and materials, internal contracted services, external contracted services, energy and other.
	TOTAL - Stormwater System O&M cost	Total Stormwater System O&M cost = Total Pump Station O&M Costs + Facility O&M Costs + Urban stormwater system O&M cost + Rural stormwater system O&M cost. All Operations & Maintenance cost allocations for the stormwater system inventory in both the urban and the rural areas. The total stormwater O&M cost should be collected and where possible, the breakdown into the different cost sub categories of wages, equipment and materials, internal contracted services, external contracted services, energy and other.
Cost Categories	Wages	Cost of wages for internal operations, maintenance and support staff. Includes regular salaries, overtime, holidays paid sick time, casual wages, fringe benefits and meal allowances. Also includes revenues/recoveries that balance work performed by stormwater utility staff that is extraneous to the stormwater utility (for example, when lab staff perform tests for other municipalities). Excludes cost of wages for time worked on capital construction related projects (e.g. hydraulic modeling). Also excludes cost of wages for GIS staff as these are considered under indirect costs as they are IT related. For technical and engineering staff include only the cost of wages for time worked that is directly related to operations and maintenance.
	Equipment & materials	Cost of equipment and materials required for operations, maintenance or support activities and staff. Includes for example courier costs, postage, repairs (parts), laundry, safety supplies, telephone, uniforms, vehicle and equipment insurance, and building utility fees for solid waste, garbage and sewer.
	Contracted internal	Cost of work completed by an internal municipal department that relates to operations, maintenance or support and is charged back to the stormwater utility as a contracted cost. Includes for example charge back for radio equipment, vehicle rentals and building services such as garbage collection and recycling. Collect separately the labour and other portion of the contracted costs if available. Excludes cost of wages for time worked on capital construction related projects (e.g. hydraulic modeling). Also excludes cost of wages for GIS staff as these are considered under indirect costs as they are IT related. For technical and engineering staff include only the cost of wages for time worked that is directly related to operations and maintenance.

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S-LOCAL FACTORS		
	Contracted external	Cost of work completed by an external contractor or business that relates to operations, maintenance or support and is charged to the stormwater utility as a contracted cost. Includes for example advertising, building repairs, ground maintenance, hauling services, contracted janitorial services, consulting engineering fees related to non-capital work, vehicle and equipment rentals from external companies, and fleet. Collect separately the labour and other portion of the contracted costs if available. Excludes external contracted costs for capital construction related work.
	Energy	Cost of all energy used in the operation and maintenance of stormwater system related to the pump stations. This does NOT include the energy used at the works yard, offices or vehicle use. All energy purchase costs should include the direct cost of energy, its delivery, distribution, taxes, surcharges and similar costs.
	Staff Training	Includes association dues, membership fees, publications, conventions, training courses, conferences, travel associated with courses for operations, maintenance and support staff.
	Other	Include the cost of staff training, rent, property taxes and permit fees for the system.
Capital Costs	New Capital investment for stormwater system	A project to expand the stormwater system (urban and rural) to handle growth and upgrade to a higher level of service. Include both contracted capital work and internal costs associated with capital such as wages for capital engineering staff i.e. design, tendering, etc. Projects which serve one or more purpose (maintenance and expansion) should be prorated in order to also capture the capital applied for reinvestment activities. For example if a larger pump is installed, the capital should be prorated by percentage of increase capacity (or flow) to the new investment and remainder to the reinvestment. *New capital investment pertains to upgrades or addition of infrastructure made to existing infrastructure to handle growth or increase service levels. Acceptance for maintenance and assumed infrastructure should be excluded from this metric.*
	Capital reinvestment for stormwater system	A project which substantially maintains the life of the stormwater system (urban and rural). This is intended to be a measure of reinvestment to maintain current facilities and excludes expansion of system to handle growth and upgrading to a higher level of service. Include both contracted capital work and internal costs associated with capital such as wages for capital engineering staff i.e. design, tendering, etc. Projects which serve one or more purpose (maintenance and expansion) should be prorated in order to capture the reinvestment and new capital investment. For example if a larger pump is installed, the capital should be prorated by percentage of increase capacity (or flow) to the new investment and remainder to the reinvestment. *Capital reinvestment for the stormwater system includes both the linear and the vertical (treatment, retention, and storage components -ditches, pump stations, culverts, gates and treatment and storage infrastructure).*
	Capital reinvestment for storm sewer infrastructure	Capital cost of projects which substantially maintain the life of storm sewer infrastructure. The storm sewer infrastructure includes storm sewers, force mains, catch basins, manholes and storm sewer service connections (excludes ditches, pump stations, culverts, gates and treatment and storage infrastructure). This is intended to be a measure of reinvestment to maintain current storm sewer infrastructure and excludes expansion of system to handle growth and upgrading to a higher level of service. Include both contracted capital work and internal costs associated with capital such as wages for capital engineering staff i.e. design, tendering, etc. Projects which serve one or more purpose (maintenance and expansion) should be prorated. For example if a sewer is replaced with sewer of large diameter, the capital cost should be split between new investment (the additional cost to upsize the sewer) and reinvestment (the cost to replace the sewer with the same diameter. This capital cost will be used for a performance measure "Capital reinvestment for storm sewer infrastructure". *Capital reinvestm*
	Target reinvestment value as a % of total replacement value	The targeted reinvestment value should be given as a % of the total replacement value of the system, for the current year of data collection. For example, if total replacement value of the entire systems infrastructure is $100 million, and the target is to replace $1million dollars of infrastructure this year, then this years targeted replacement value is 1%.

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S-LOCAL FACTORS		
	Cost of Customer Communication	Includes all costs incurred by the Utility to communicate with customers, includes customer service centre wages, equipment and supplies, costs to produce brochures, costs to publish stormwater quality results on the internet, etc.
	Net Change in Capital Reserves	This is the difference between Capital Reserves at December 31st less Capital Reserves at January 1st of the year being benchmarked. Exclude rate stabilization reserves or operating reserves.
	Current Capital Reserves	The total value for the capital reserve for stormwater at the year end. Includes all reserve funds for future rehabilitation and expansions of the system. Doesn't include rate stabilization reserves or operating reserves.
	Development Cost Charge (DCC) for reinvestment	The total amount of funds used for capital reinvestment from DCCs.
	Current year O&M budget allocation	Approved operations and maintenance budget for the stormwater system for the upcoming year (the year of data capture, typically 1 year after the year data is collected for).
	Current year capital reinvestment budget allocation	Approved capital reinvestment budget for the upcoming year (the year of data capture, typically 1 year after the year data is collected for).
	Current year O&M budget derived from taxes	The amount of money in the current year O&M budget that is derived from taxes.
	Current year O&M budget derived from stormwater fees	The amount of money in the current year O&M budget that is derived from stormwater fees.
	Current year O&M budget derived from other sources	The amount of money in the current year O&M budget that is derived from other sources.
Financing	Do you have Stormwater fees?	Yes/no answer is required for whether the customers have to pay stormwater fees.
	Average annual residential stormwater fee/lot	If you have stormwater fees, please provide the current average annual residential stormwater fee paid per lot for the current year.
	Average annual non-residential fee/assessed value	If you have stormwater fees, please provide the current average annual non-residential stormwater fee paid per assessed value for the current year.
FTEs	Record of the Number of Full Time Employees (1 FTE = 2080 hrs)	Full-time equivalent 1 FTE = 2080 hours = 52 weeks x 40 hr week. Therefore, this number is not a measure of effort. It accounts for hours whether worked, taken as vacation or recorded as sick or other leave.
	Field	Employees who work in the stormwater system (both urban and rural including pump stations but not combined) and are involved in the day-to-day operations and maintenance. Does not include supervisors, support, or technical/engineering staff. Also referred to as "outside staff".
	Supervisor/Support	Full time equivalent employees in supervision and administration (and dedicated indirect staff such as finance, fleet, customer services etc) which support the stormwater system and are based at the public works yard or similar.
	Technical/Engineering	Engineers, chemists, technician used in stormwater system operations and maintenance. Does not include design and construction staff associated with capital projects.
	Estimate for % of Field FTEs working in Urban Area	Provide an estimate for the % of time that field FTEs for the stormwater system work specifically on the urban area (i.e. not on the rural area or pump stations).
	Estimate for % of Field FTEs working in Urban Area - Sewers	Provide an estimate for the % of time that field FTEs for the stormwater system work specifically on the storm sewers in the urban area. (includes all linear infrastructure associated with sewer such as catch basins, manholes etc.)
	Estimate for % of Field FTEs working in Urban Area - Ditches	Provide an estimate for the % of time that field FTEs for the stormwater system work specifically on the ditches in the urban area.
	Estimate for % of Field FTEs working in Urban Area - Other	Provide an estimate for the % of time that field FTEs for the stormwater system work specifically in the urban area but not on ditches or storm sewer. (Includes all non-linear infrastructure such as ponds, oil-grit separators etc.
	Estimate for % of Field FTEs working on Pump Stations	Provide an estimate for the % of time that field FTEs for the stormwater system work specifically on the stormwater pump stations.

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S-LOCAL FACTORS		
	Estimate for % of Field FTEs working in the Rural Area	Provide an estimate for the % of time that field FTEs for the stormwater system work specifically on the urban area (i.e. not on the urban area or pump stations).
Labour Issues	# of accidents with lost time	Number of accidents which caused the field staff to incur time off work. Exclude accidents incurred during capital construction.
	# of lost hours due to accidents	Total number of hours that field staff were not at work due to accidents. Exclude hours incurred for accidents that occurred during capital construction.
	# of sick days allowed per employee	This is the number of sick days allowed as stated in the collective bargaining agreement for the union. This number only includes the number of days before pay is reduced or long term disability is in effect. This number may be different for each labour category.
	# of sick days taken per employee	Average number of sick days taken per employee, including days taken because of sick kids or sick spouses. Excludes long term disability and any time paid by WCB.
	Is *any of your* capital construction completed in-house?	Answer "Yes" if capital construction is completed by in-house staff. There may be a link between accident frequency and the level of capital construction work that the field staff are involved in.
	% of capital construction work completed in-house	Estimate the percentage of capital construction work that is completed by in-house crews rather than externally contracted (as a percentage of total capital construction work).
Training	Average training hours directly related to stormwater per fte	Average number of stormwater training hours per stormwater employee. This includes conferences, seminars, and in-house training regarding stormwater management for both safety and other training. This should be a sum of safety training hours and other training hours.
	% of capital construction work completed in-house	Estimate the percentage of capital construction work that is completed by in-house crews rather than externally contracted (as a percentage of total capital construction work).
Availability	Total # of safety training hours for actual employees	The total number of safety training hours taken for all stormwater system field staff employees that includes confined space entry, safety meetings, hazardous chemical training, WHMIS etc. Actual employees refers to the number of field FTEs as entered in the section previous.
	Total # of other training hours for actual employees	The total number of other training hours taken for all stormwater system field staff employees that excludes safety training hours but includes conferences, seminars etc. Record for full time field staff only (not seasonal or part-time). Actual employees refers to the number of field FTEs as entered in the section previous.
	Total # of sick hours taken for actual employees	The total number of sick hours taken by stormwater system field staff employees. Equals the number of average # of sick days taken per employee * # of employees * 8 hours per day. Actual employees refers to the number of field FTEs as entered in the section previous.
	Total # of long term leave hours for actual employees	The total number of long term leave hours for all stormwater system field staff employees which is additional to sick days taken. Includes long term leave when staff are not replaced and hours paid by the Workplace Safety and Insurance Board or the Workers Compensation Board. If the employee was on WCB for the full year, then their long term leave hours should not be included. Actual employees refers to the number of field FTEs as entered in the section previous.
	Total # of vacation hours for actual employees (include stats)	The total number of vacation hours taken by stormwater system field staff employees that includes annual leave, maternity or paternity leave, leave without pay and statutory holidays. If the employee was on maternity or paternity leave for the full year, then their hours should not be included.
	Total # of other hours for actual employees	*The total number of other hours taken by field staff employees. Include all other paid hours where field staff were unavailable for work (e.g. family issues, bereavements). Actual employees refers to the number of field FTEs as entered in the section previous.*
	Total # of union paid hours for actual employees	Total # of union hours for actual employees. The total number of hours that field staff employees were unavailable for work due to union duties (and their time was paid for by the union), for example, to attend union meetings.

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S-LOCAL FACTORS		
	Total paid hours for actual employees	Total number of standard paid hours recorded for all stormwater system field staff excluding overtime hours. If total is unknown, it can be calculated by "# of actual field staff x average # of paid hours per field staff per year" where average # of paid hours per field staff per year is typically 2080 hours. Exclude hours for field staff that are on WCB, maternity leave or paternity leave for the full year. Actual employees refers to the number of field FTEs as entered in the section previous.
	Total available hours for actual employees	= Total paid hours – Total unavailable hours. Where total unavailable hours = vacation hours + optional training hours + safety training hours + sick hours + long term leave hours + union paid hours.
	Total overtime hours	Total number of overtime hours recorded for all field staff minus overtime hours paid in-lieu. Or, can be calculated by "# of actual field staff x average number of recorded overtime hours per field staff per year".
	Cost of overtime hours	This is the total recorded cost of overtime hours, or an approximate cost such as: total overtime hours x average cost per overtime hour.
Retirement	# of field employees in age bracket ##-##	Number of field staff employees that are within the given age bracket in the current year when the data sheets are being completed.
	What is the typical retirement age for field staff?	The objective of the question is to identify a potential staffing crunch due to retirement of field staff in the upcoming 5 to 10 years.
	# of field staff eligible to retire in X to X years	The calculations for these measures are based on assuming that staff are eligible to retire after either Y years of service or Z years old, whichever condition comes first. To report the number of staff that are eligible to retire in X years, you need to calculate for each field staff their age (z), years of service (y) and number of years until eligible for retirement (x). Where number of years until eligible for retirement can be calculated as follows: if Z > z then x = (Y - y) unless (z + (Y-y)) > Z then x = Z - z If z > Z then x = 0 For example, if Y = 30 and Z = 65 and Joe is 57 and has 10 years of service then he is eligible to retire after 8 years (65-57) because (57 + (30-10)) > 65. See also the Retirement template in the online Data Collection Resource Kit for calculations. This data should be provided based on the current year when the data sheets are being completed.

S-MAINTENANCE		
Maintenance Catch Basins	# of catch basins inspected	# of catch basins inspected to determine if they should be cleaned.
	# of catch basin sumps cleaned (hand)	Total # of catch basin sumps cleaned by hand. Some catch basins must be cleaned by hand due to their lack of accessibility, which prevents use of equipment. Sum of # of catch basin sumps cleaned after being inspected (hand) and # of catch basin sumps cleaned without prior inspection (hand). If you don not track whether the catch basin sumps are inspected before hand cleaning, provide the total # of catch basins sumps cleaned (hand.)
	# of catch basin sumps cleaned after being inspected (hand)	Total # of catch basin sumps cleaned by hand after an inspection determined it should be cleaned
	# of catch basin sumps cleaned without prior inspection (hand)	Total # of catch basin sumps cleaned by hand without a prior inspection
	# of catch basin sumps cleaned (mechanical)	Total # of catch basin sumps cleaned mechanically. The use of a combination of units to vacuum debris from the sumps of catch basins and catch basin manholes. Sum of # of catch basin sumps cleaned after being inspected (mechanical) and # of catch basin sumps cleaned without prior inspection (mechanical). If you don not track whether the catch basin sumps are inspected before hand cleaning, provide the total # of catch basins sumps cleaned (mechanical).
	# of catch basin sumps cleaned after being inspected (mechanical)	Total # of catch basin sumps cleaned mechanically after an inspection determined it should be cleaned
	# of catch basin sumps cleaned without prior inspection (mechanical)	Total # of catch basin sumps cleaned mechanically without a prior inspection.
	# of catch basins repaired	# of catch basins repaired (include both planned or unplanned repairs).

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S-LOCAL FACTORS		
	Target for catch basin cleaning as % of catch basins	As a percentage of the number of catch basins, the total annual target for catch basin cleaning. For example if the target is to clean every catch basin once every year, the target is 100%, if the target is to clean all catch basins 3 times a year then the target level is 300%.
Manholes	Do you visually inspect manholes?	Yes/No answer required for whether manholes are visually inspected
	# of manholes visually inspected	# of manholes visually inspected for condition.
	Target # of manholes to be visually inspected as a % of the system	As a percentage of the number of manholes, the total annual target for manhole visual inspections. For example if the target is to inspect every manhole once every year, the target is 100%, if the target is to inspect all manholes 3 times a year then the target level is 300%.
Ponds	Do you remove sediment from ponds?	Yes/No answer required for whether sediment is removed from stormwater ponds
	# of SW ponds removed of sediment	# of stormwater ponds cleaned of sediment.
	Surface area of SW ponds removed of sediment	Surface are of SW ponds cleaned in hectares (ha). The surface area is defined as limited by the design high water level for the pond.
	Volume of sediment removed from ponds	Total volume of sediment removed from ponds reported in m3.
	Cost to remove sediment from ponds	The cost to remove sediment from ponds during the year. Include both contracted work such as contractors, equipment hire etc. and internal cost such as wages, vehicle costs, etc.
Ditches	Do you clean ditches?	Yes/No answer required for whether ditches are cleaned.
	Length of ditches cleaned	Length of ditches cleaned in km.
	Length of ditches able to be cleaned	Length of ditches that it is possible for the municipality to clean during that year (some of the ditches may not be accessible or cleaning may be prohibited by the regulatory authority).
	Target length of ditches to be cleaned as a % of the system	As a percentage of the length of ditches, the total annual target for ditch cleaning. For example if the target is to clean the total length of ditches every year, the target is 100%, if the target is to clean the total length of ditches 3 times a year then the target level is 300%.
Sewers	# of planned sewer repairs	Regularly scheduled or preventative maintenance repairs to sewer mains that are identified through observation. The repairs may be performed by either dig-up or trenchless methods. Includes reaming & sealing, spot repair <10m and relining (i.e. excludes replacements).
	# of emergency sewer repairs	Repairs to sewer mains due to breakdowns (either high or low emergency). High emergency breakdowns may result in loss of service or other severe detriment to the utility (e.g. spill, etc.), maintenance must be deployed as soon as possible. Low emergency breakdowns may not result in loss of service or are protected by equipment redundancy, maintenance shall be deployed at the earliest convenience. These repairs may be performed by either dig-up or trenchless methods. Includes reaming & sealing, spot repair <10m and relining (i.e. excludes replacements).
	Length of system cleaned *(single pass)*	This is the length of main cleaned on at least one occasion during the year using hydraulic (e.g. high pressure flushing) or mechanical (e.g. rodding and chaining) methods to remove grease, sediment, roots and debris etc. from sewer interiors. Do NOT double count sewers that are cleaned on two or more occasions. Exclude lengths cleaned immediately prior to slip-lining, or any other pipe rehabilitation work, as such activity relates to capital reinvestment not general maintenance.
	Length of system cleaned with a flusher truck - flushing only (single pass)	*Total length cleaned using high pressure flushing. Exclude length cleaned by low pressure flushing or when root cutting was required. Do NOT double count sewers that are cleaned on two or more occasions. Exclude lengths cleaned immediately prior to slip-lining, or any other pipe rehabilitation work, as such activity relates to capital reinvestment not general maintenance.*
	Length of system cleaned with a flusher truck - root-cutting (single pass)	*Total length cleaned using high pressure flushing when root cutting was required. Do NOT double count sewers that are cleaned on two or more occasions. Exclude lengths cleaned immediately prior to slip-lining, or any other pipe rehabilitation work, as such activity relates to capital reinvestment not general maintenance.*

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S-LOCAL FACTORS		
	Length of system cleaned by other means (single pass)	*Report the length of main cleaned to remove grease, sediment, and debris etc. from sewer main interiors, for maintenance purposes by means other than flushing or flushing with root cutting. Do NOT double count sewers that are cleaned on two or more occasions. Exclude lengths cleaned immediately prior to slip-lining or any other pipe rehabilitation work, as such cleaning relates to capital reinvestment not general maintenance.*
	Target for sewer cleaning as a % of system length	As a percentage of the sewer system length, the total annual target for sewer cleaning. For example if the target is to clean every pipe once every two years, the target is 50%, if the target is to clean every pipe 3 times a year then the target level is 300%.
	Cumulative length of sewer cleaned	Total cumulative length cleaned using hydraulic (e.g. high pressure flushing) or mechanical (e.g. rodding and chaining) methods to remove grease, sediment, roots and debris etc. from sewer interiors. Count all lengths cleaned, for example if one sewer is cleaned three times in a year then its length should be recorded three times. Flushing the sewer main before CCTV inspection but not removing debris from the system should not be included in the length cleaned. Exclude lengths cleaned immediately prior to slip-lining, or any other pipe rehabilitation work, as such activity relates to capital reinvestment not general maintenance.
	Cumulative Length of system cleaned with a flusher truck - flushing only	*Total cumulative length cleaned using high pressure flushing. Exclude length cleaned by low pressure flushing or when root cutting was required. Exclude lengths cleaned immediately prior to slip-lining, or any other pipe rehabilitation work, as such activity relates to capital reinvestment not general maintenance.*
	Cumulative Length of system cleaned with a flusher truck - root-cutting	*Total cumulative length cleaned using high pressure flushing when root cutting was required. Exclude lengths cleaned immediately prior to slip-lining, or any other pipe rehabilitation work, as such activity relates to capital reinvestment not general maintenance.*
	Cumulative Length of system cleaned by other means	*Report the cumulative length of main cleaned to remove grease, sediment, and debris etc. from sewer main interiors, for maintenance purposes by means other than flushing or flushing with root cutting. Exclude lengths cleaned immediately prior to slip-lining or any other pipe rehabilitation work, as such cleaning relates to capital reinvestment not general maintenance.*
	Length CCTV inspected	Total length inspected by CCTV in km, which does not include length inspected by Aqua zooming. This includes the sum of both CCTV inspection of new installations and existing storm pipes.
	Target Length of Sewer Inspected as % of System	As a percentage of the sewer system length, the total annual target for visual and CCTV inspections. For example if the target is to inspect every pipe once every two years, the target is 50%, if the target is to inspect all pipes 3 times a year then the target level is 300%.
	# of manholes inspected by zoom camera	*Report the total number of manholes where zoom camera technologies have been used to survey either the manhole or sewer pipes associated with it. Include inspections on both new and existing systems.*
	Target # of manholes inspected by zoom camera	*As a percentage of the number of manholes, the total annual target for manhole inspected by zoom camera. For example if the target is to inspect every manhole once every year, the target is 100%, if the target is to inspect all manholes 3 times a year then the*
	# of sewer blockage removals	# of sewer blockage removals = # of blocked storm sewer occurrences in separate storm sewer systems. Exclude # of blockages in combined sewer systems. These sewer blockages could be due to a number of different causes such as roots, grease, debris, poor hydraulics or structure. Only includes storm sewer blockages (anything that substantially restricts the flow in a main storm sewer not a service connection) that have a commitment of equipment and labour deployed to service.
	Length of root cutting in sewers	Length of sewer where root cutting was performed. Units of km.
Pump Stations	# of visual inspections of pump stations	Number of visual inspections of equipment in pump stations.
	Target # of visual inspections per pump station per year	Target # of visual inspections to be made on an typical pump station per year. For example if the target is to inspect every each pump station on average once every week, the target is 52; if the target is to inspect each pump station on average once per month, the target is 12.

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S-LOCAL FACTORS		
	# of emergency pump station repairs	Repairs to pump stations that involve the use of tools and are due to breakdowns (either high or low emergency). High emergency breakdowns may result in loss of service or other severe detriment to the utility (e.g.; spill, etc.), maintenance must be deployed as soon as possible. Low emergency breakdowns may not result in loss of service or are protected by equipment redundancy, maintenance shall be deployed as the earliest convenience.
	# of pump station failures	Pump station failures that impacted the functioning of the stormwater system.
Unit Costs	Unit cost of catch basin cleaning (mechanical)	Unit cost of catch basin cleaning (mechanical) = Total cost of mechanically cleaning catch basins / # of catch basins mechanically cleaned. Catch basins cleaned mechanically are done by combination units. Exclude cost of inspection (if inspection cost cannot be separated out, record in field "Unit cost of catch basin cleaning (mechanical) - including inspection" instead.
	Unit cost of catch basin cleaning (hand)	Unit cost of catch basin cleaning (hand) = Total cost of cleaning catch basins by hand / # of catch basins cleaned by hand. Exclude cost of inspection (if inspection cost cannot be separated out, record in field "Unit cost of catch basin cleaning (hand) - including inspection" instead.
	Unit cost of catch basin cleaning (mechanical) - including inspection	Where catch basins are cleaned following inspection and the cost of inspection cannot be separated out, record as "Unit cost of catch basin cleaning (mechanical) - including inspection = Total cost of inspecting and mechanically cleaning catch basins / # of catch basins inspected and mechanically cleaned. Catch basins cleaned mechanically are done by combination units.
	Unit cost of catch basin cleaning (hand) - including inspection	Where catch basins are cleaned by hand following inspection and the cost of inspection cannot be separated out, record as "Unit cost of catch basin cleaning (hand) - including inspection = Total cost of inspecting and cleaning catch basins by hand / # of catch basins inspected and cleaned by hand.
	Unit cost of SW sewer cleaning with a flusher truck - flushing only	*Unit cost of SW sewer cleaning with a flusher truck - flushing only = Total cost to clean storm sewers with a flusher truck - flushing only / length of sewer cleaned. Units of $/km.*
	Unit cost of SW sewer cleaning with a flusher truck - root-cutting	*Unit cost of SW sewer cleaning with a flusher truck - root-cutting = Total cost to clean storm sewers with a flusher truck - root-cutting / length of sewer cleaned. Units of $/km.*
	Unit cost of oil / grit separator cleaning	Unit cost of oil / grit separator cleaning = Total cost to clean oil / grit separators / number of units. Units of $/separator cleaned