WASTEWATER UTILITY

Wastewater Utility Definitions by Hyperlink

U-LOCAL FACTORS		
Local Factors	Is the Local Factors Description the same as the previous year's?	Please complete the Yes/No field for whether the Local Factors Description is unchanged from the previous year. If the answer is "Yes", then skip to field 25 and complete both field 25 Soils condition and 26 Do you contribute power to the grid? (the database will be updated with the previous year's Local Factors Description for fields 1 through 24). If the answer is "No", then complete all Local Factors Description fields from 1 to 26.
	Local Economic Conditions	Describe any unique economic conditions local to your utility. Is your Utility growing? What is the major industry in your utility? Does the industry significantly affect your wastewater systems?
	Growth Rate	Estimate the percentage population growth of the municipality or region during the last year.
	Approach to Automation	Describe the utilities philosophy on automation. Also include what automation is currently in use and any future changes (e.g. how many pumps & reservoirs are on SCADA or similar?). Is the utility trying to move towards 100% automation?
	Age	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 sewer main breaks?
	Need for Influent and/or Effluent Pumping	Is there a need for influent pumping into the wastewater treatment plant? Are the influent pumps large power consumers? Is there a need for effluent pumping? Are the effluent pumps large power consumers?
	Local Water Use Patterns	Is water consumption high in the Utility? What is the per capita volume of water consumed daily? Are residential or non-residential (ICI) properties high consumers?
	% Combined System	What percentage of your sanitary sewer system comprises combined sewers? Describe any specific areas in the system where this occurs (e.g.. Downtown, Suburbs, ICI parks etc.). Does the combined sewer system need more of less maintenance?
	Length of System	Does the length of your system cause field staff to spend an a-typical amount of time driving from site to site? Do you feel that this impacts your labour maintenance and operational costs to above a typical utilities levels?
	Retention Time in Collection System	What is the retention time in the collection system? Does the sewage become anaerobic by the time it reaches the sewage treatment plant? Are odour control chemicals used in the collection system because the sewage has become anaerobic?
	Inflow and Infiltration (I/I)	Is the level of I/I in your Utility low, medium of high? Is I/I considered a problem in the utility? What is the main source of the I/I? Does it impact the operation and maintenance costs of the utility?
	Seasonal Population Variations	Are there large seasonal population variations in the utility? Is there a University that impacts sewage flow? Are there large festivals or seasonal events that impact the flow?
	Regulations	Does your utility have to adhere to any unique regulations or by-laws which affect the way the utility operates?
	Incorporation of Co-Gen	Is there a co-generation facility at the WWTP?
	Climatic Conditions	What is your average summer air temperature (May through September)? Average winter air temperature (October through April)? Do you believe climatic conditions affects the operations of your WWTP or collection system?
	Unit Processes	Are there any unique unit processes at your WWTP that make its operation and maintenance distinct from a regular plant?
	Design Capacity/Facility Size	Is there room at your WWTP for future growth and capacity? Do any current site restrictions impact operations and maintenance?
	Level of Emergency Preparedness	What is the level of emergency preparedness at the utility? Does the utility have an emergency plan? Is there a chain of command in emergency circumstances?
	Odour Control	Is there odour control at the WWTP? Is there odour control in the collection system or at some of the pumping stations? What types of chemicals are being used for odour control?

Wastewater Utility Definitions by Hyperlink

	Fraction of Work that is Out-Sourced	Describe the utility's approach to outsourcing work to external contractors. What percentage of work is out-sourced to external contractors in your utility?
	Percent of Unionized Workforce	What percentage of the workforce in unionized? Do you believe this impacts operations and maintenance?
	Shared Services	What services are shared in your utility? For example fleet, HR, IT, finance, customer billing etc. Who are services shared with? For example , water treatment, water distribution, transportation or the all city departments.
	Combined Billing (Water/ Wastewater)	Is there combined billing in your utility? For example do customer utility bills include both water and wastewater charges? Do they also include hydro?
	Wholesale vs. Retail Billing	Does the utility sell services to wholesale customers or only to retail customers? Describe how wholesale customers are billed. Note that wholesale customers are utilities that collect revenue from their customers and then pay you to treat and/or dispose of their sewage.
	# of Wholesale Customers	How many wholesale customers do you have and who are they? Wholesale customers collect the wastewater from individual service connections and direct wastewater flows to a regional trunk system. For example, the Region of York treats wastewater from the Town of Aurora and Richmond Hill who are wholesale customers of the Region.
	# of Retail Customers	How many retail customers do you have? Retail customers include residential and ICI customers who you bill individually for your services.
	Staffing Turnover Rate	*Calculate by taking the "number of employees who have left the organization within the calendar year / (number of employees as of January 1st + number of employees hired during the calendar year)". Includes part time but not temporary employees.*
	Soil Conditions	Describe the surrounding soil conditions in which the sewer mains are buried. pH levels, soil type and other characteristics of the soil that affect the pipe materials and are affected by the climate.
	Do you contribute power to the grid?	Yes/no answer required. Please provide details if power is contributed to the grid.
U-RATES AND FINANCING		
Labour Rates	*Collection System and Treatment Plant Field Staff*	*Add the hourly wages paid to field staff according to the different classes defined by your certifying provincial authority. Rates should exclude all benefits paid by the employer on the employees behalf.*
Certification of Field Staff	*Certified Collection System and Treatment Plant Field Staff*	Enter the number of certified field staff employed at each certification level for the collection system and the treatment plant (where certification is based on experience and the successful completion of training and examinations to the requirements of the Provincial Regulator). Record only the highest certification gained by any one staff member, unless that staff member is cross trained between treatment and collection, whereupon a second certification may be added.
Billing Rates	Metered Residential Water Use	Yes/no answer is required with further explanation to be placed in the notes field.
	Billing Rates, Residential	Describe how the residential sewer rates are calculated for example based on percentage of water consumption and an access charge.
	Metered Industrial/ Commercial/ Institution Water Use	Yes/no answer is required with further explanation to be placed in the notes field.
	Industrial/Commercial/Institution Sewer Rates	Describe how the industrial/ commercial/ institution sewer rates are calculated. For example, are rates based on percentage of water consumption and an access charge?
	Cost of customer billing	What is the total annual cost of customer billing for the wastewater utility? Report this figure regardless of whether billing is an internal or external activity.
Surcharge Fees	Surcharge Fees – BOD, COD, TSS, Oil and Grease, TKN, Phosphorus	Yes/no answer is required with further explanation to be placed in the notes field.
***Capital Project* Financing**	Do you finance with DCC?	Yes/no answer is required. DCCs are Development Cost Charges levied by municipalities onto developers in return for allowing land to be developed. Some municipalities use these revenues specifically for funding local capital projects.

Wastewater Utility Definitions by Hyperlink

Utility Performance Measures	Do you finance with Debt?	Yes/no answer is required. Debt is typically a bank loan or municipal bonds.
	Do you finance with Pay as You Go?	Yes/no answer is required for whether no debt is issued to pay for capital projects.
	Principal paid on debt	How much of the wastewater utility's principal debt was paid off during the year being benchmarked?
	Interest paid on debt	How much interest was paid on the wastewater utility's debt during the year being benchmarked?
	Principal outstanding	How much principle debt did the wastewater utility have outstanding at the end of the year being benchmarked?
	Total wastewater operating cost	The sum of all annual operating costs (O&M and indirect charge-backs) for wastewater treatment and collection/trunk systems. Include costs for all plants and systems in the wastewater utility whether benchmarked individually or not. Includes all costs related to infrastructure that the utility owns and operates Excludes capital costs and costs paid for regional wastewater treatment.
	Regional wastewater treatment operating cost	The total *operating* cost of regional wastewater treatment charged by the regional organisation(s). Applies only to collection system utilities. Excludes debt payments.
	Total population served by the wastewater utility	Total population, *excluding ICI equivalents*, served by all wastewater utility infrastructure in the municipality (collection/trunk systems and all treatment plants). *Note that this number may well be different to the City's recorded population and, where possible, should estimate the typical number of residents receiving service.*
	Volume of Wastewater Treated	Total annual volume of all daily flows that enter the treatment plants in ML. For collection only systems, this should be the total annual volume that the municipality contributes to the regional wastewater trunk system.
	Sewer rate for a typical residential connection/meter (based on consumption of 330 m^3/year of water)	The current year's (i.e. the year of data collection, not the historic year) annual sewer user rate for a typical size single family residential service connection (i.e. for a detached house) consuming 330 m^3/year of water (equivalent to 3 people at 300L/person/day). Historically we have collected data based on a 4" service connection, however for some municipalities this is not the typical size. The typical size should be the most common (i.e. in most cases at least 50% of the single family connections). For municipalities with metered SF residential water connections, the annual sewer rate charged to the customer will usually include the base fee (may be based on the water meter size) X the frequency of base fee charge + a consumption fee based on the annual price per cubic meter X 300m^3. For municipalities without metered SF residential water connections, the annual sewer user rate charged to the customer will include the flat fee X the frequency of flat fee charge.
Customer Service	Do you track and log customer calls?	Answer "Yes" only if there is a publicized phone number that the public can call to make a complaint or inquiry regarding the wastewater utility AND these calls are tracked and logged (for example, complaints may be about a blocked sewer or odour from a wastewater treatment plant).
Climate Characteristics	Total Precipitation	The sum of the total rainfall and the water equivalent of the total snowfall observed during the year. *If not recorded by the City, local airports often provide this data to Environment Canada that is accessible through their website.*
	Total Rainfall	The total rainfall, or amount of all liquid precipitation such as rain, drizzle, freezing rain, and hail, observed during the year. *If not recorded by the City, local airports often provide this data to Environment Canada that is accessible through their website.*
	Total Snowfall	The total snowfall, or amount of frozen (solid) precipitation such as snow and ice pellets, observed during the year. (expressed as mm of equivalent rainfall where 10mm of snowfall = 1 mm of rainfall)
	Total Rainfall During CSO Season	The rainfall, or amount of all liquid precipitation such as rain, drizzle, freezing rain, and hail, observed during the CSO season (defined as the time period during which your sewer system experiences CSOs, will differ from city to city). Only applicable to sewer systems with CSOs.

Wastewater Utility Definitions by Hyperlink

	Average Summer Temperature	The average temperature from May 1st to September 30th.
	Average Winter Temperature	The average temperature from October 1st to April 30th.

WASTEWATER COLLECTION

Wastewater Collection Definitions by Hyperlink

C-DESCRIPTION		
Volume Conveyed and Population Served	Population served	The population, *excluding ICI equivalents*, served by the collection system. This includes the population of all wholesale and retail customers. *Note that this number may well be different to the City's recorded population and, where possible, should estimate the typical number of residents receiving service.*
	AAF	Annual average flow = "Total Annual Flow from the collection system (ML) / 365 (days)"
Pipes	Average nominal diameter	This is a length weighted average of the nominal pipe diameters. = ((length of pipe at diameter x)(diameter x) + (length of pipe at diameter y)(diameter y) + …..) / total length of pipe Where diameter x = average diameter of diameter range x, for example for range 201mm–300mm, the average diameter is 250.5 mm, therefore diameter x = 250.5.
	Length D1 – D2 (km)	Kilometre length of sewer main that has a diameter in the range Dia.1 to Dia.2
	Total Length (km)	Total length of gravity sewer and forcemains - excluding service connections - in your sanitary collection system. Include combined sewers. Exclude stand alone storm or drainage sewers and sewers located within your WWTPs.
	Length of forcemains	Where data is available, enter the total length of sewer in "Total Length (km)" line for each age range specified (e.g. 0-24 years); the total length of main based on all age ranges should automatically calculate. Next, describe the material type associated with each age range by indicating what percentage of pipe - PVC, HDPE, Steel etc - is present. The end column, "**Material Length (km)**", will automatically calculate the total length for each pipe material present. Note, if the material breakdown for each age group is unknown, enter the percentage of unknown pipe to the "unknown %" material line. THE MATERIAL PERCENTAGE MUST BE ENTERED FOR EVERY AGE GROUP USED, PERCENTAGE MUST ALWAYS TOTAL 100%.
Material Age and Lengths	Material and Age Lengths	Where data is available, enter in the "Total Length (km)" line the total length of main your system comprises for each age range specified (e.g. 0-24 years). The total length of main based on all age ranges should automatically calculate. Where data is available, provide the percentage of the length in each age range for each material (e.g. 20% of total length for an age range may be PVC). The column "Material Length (km)" will automatically calculate the length in km for each pipe material from the % of pipe materials in each age range and the length of pipe in each age range. Or if only the total lengths for each pipe materials are known (not the % in each age range), enter these in the "Material Length (km)" column. The % material columns should sum to 100%.
	Material Length	The column "Material Length (km)" will automatically calculate the length in km for each pipe material from the % of pipe materials in each age range. Or if only the total lengths for each pipe materials are known (not the % in each age range), enter these in this column.
System Component and Characteristics	Trunk system	This is a jurisdictional term usually pertaining to the ownership of the sewer pipe. For example usually a city owns collection system sewer pipes and a Regional District owns sewer trunks even though the pipes may be of similar diameter (typically the trunk systems are larger diameter as they require higher capacities). Each utility should choose only one category; collection or trunk system. If the system includes both trunk and collection system pipes, it is considered a collection system.
	Collection system	This is a jurisdictional term usually pertaining to the ownership of the sewer pipe. Often, City's own collection system sewer while Regional District's own trunk system sewers (where trunk systems typically have larger average diameters than collection systems as they require higher overall capacities). Each utility should choose only one category: collection or trunk system. If the system includes both trunk and collection system pipes, it is considered a collection system.

Wastewater Collection Definitions by Hyperlink

	Classification of system	This is the Classification given to the collection system by the Provincial Regulatory Agency - Class I, Class II, Class III, Class IV (note there may be differences in classification between the provinces). A specific definition of your given class should be provided in the notes field.
	# of manholes	Total inventory of manholes on the sanitary and combined sewers. Does not include vents.
	# of service connections	Number of residential + ICI property connections to your sewer system. A "Y" connection (a branched connection to the sewer which connects two buildings) connected to buildings is considered as two connections
Pump Station Component and Characteristics	# of pump stations	The number of sanitary and combined pump stations within the collection or trunk system broken out by pump station capacity (refer to pump station flow range below). Exclude pump stations servicing only stormwater sewers or influent pump stations located within wastewater treatment plants.
	# of P.S. with backup power	Number of sanitary and combined pump stations equipped with an additional power supply, such as a diesel generator, to power critical equipment in case of a power failure. Not all equipment in the pump station would need to be powered by the back-up generator. For example, if only the duty pumps receive back up power then the pump station would still be designated as having backup power. Exclude pump stations servicing only stormwater sewers or influent pump stations located within wastewater treatment plants.
	Pump station flow ranges	Record the number of sanitary and combined pump stations for each flow range. Determine a pump stations flow range by summing all of its duty and standby pump capacity together. Example, a station with two 25l/s duty pumps and one 25l/s standby pump would give a total capacity of 75l/s. **Note that we are not trying to determine actual flow capacities, rather we are determining an approximate inventory of pump station size and distribution**. Exclude pump stations servicing only stormwater sewers or influent pump stations located within wastewater treatment plants.
	Total Number of Pump Stations	*The total number of sanitary and combined pump stations within the collection or trunk system, regardless of capacity. Exclude pump stations servicing only stormwater sewers or influent pump stations located within wastewater treatment plants.*
	Total pump (stations) capacity	Sum of all the pump station capacities as defined by "Pump Station Flow Ranges" above.
	Total pump (station) horsepower	Sum of the pump station horsepower for all pumps (including standby) in all pump stations in the collection/trunk system. Exclude pump stations servicing only stormwater sewers or influent pump stations located within wastewater treatment plants.
	% Redundancy of Pumps in System	% Redundancy of pumps in system = total Hp of all standby pumps / total Hp of all pumps. Exclude pump stations servicing only stormwater sewers or influent pump stations located within wastewater treatment plants.
I&I Issues	Area of collection system	Approximate area covered by collection system (km²), could also be called the serviced area.
	Combined or Semi-Combined System	System where stormwater and sanitary wastewater are both conveyed in the same sewer system and treated together at the wastewater treatment plant. (A semi-combined system receives flow from foundation drains)
	% Combined	% Combined = Sewer pipe length that has combined sewage and stormwater flow / (combined length + separate sanitary length)
	Have you implemented an infiltration/ inflow program?	Infiltration/ Inflow program includes Proactive or Passive Detection of non-sanitary liquid flows. Proactive Detection includes smoke detection, dye detection, TV inspection, flow monitoring and rain monitoring. Passive Detection observes sewer flow problems such as flow back ups. (An example I/I program, link checked Feb 2009, can be found at: www.kingcounty.gov/environment/wastewater/II.aspx)
	Would you characterize infiltration/ inflow as a problem in your utility?	Does the utility believe I/I is an issue in their utility? This is not an empirical question but more of an indication of the level of effort the utility is putting towards characterizing and investigating I/I in their utility.
Age	Original date of construction	Date of first construction of the plant or collection system i.e. the oldest structure on site. Collected to gauge the type of assets and associated O&M issues that the City may have, or will, experience.

Wastewater Collection Definitions by Hyperlink

	Average age	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 "x" is the average of the age range, for example, x = (0 – 24 years)/2 = 12.
C-MAINTENANCE		
Sewer Blockages	# of blocked sewers	# of blocked sewers = total number of blocked sewers that caused sanitary and combined sewer systems to back up, which required the deployment of equipment and labour to clear, regardless of reason (e.g., roots, greases, debris, poor hydraulics or structure). Exclude service connection blockages.
	# of blocked sewers in separate sewer system	A separate sewer system is designed not to receive any storm water flow (i.e. not a combined system). In a system where some areas are combined and some are separate please allocate the blockage to the appropriate system. For example if 10% of your total system is combined and is contained in the older sections of town but the sewer blockage occurs in a newer sub-division, the blockage is in the separate sewer system and should be included in this field. See also # of blocked sewers
	# of blocked sewers in combined sewer system	*A combined sewer system is designed to receive both storm and sanitary flow. In a system where some areas are combined and some are separate please allocate the blockage to the appropriate system. For example if 10% of your total system is combined and is contained in the older sections of town and the sewer blockage occurs in an older area, then this blockage should be included in this field. See also # of blocked sewers.*
	# of blocked sewers that were repeat occurrences	Includes all blocked sewer main locations where more than one blockage occurred during the year (count each location).
Blocked Sewers Causes	# of blocked sewers caused by roots	See also # of blocked sewers. The main cause of the blockage was due to tree roots.
	# of blocked sewers caused by grease	See also # of blocked sewers. The main cause of the blockage was due to grease.
	# of blocked sewers caused by debris	See also # of blocked sewers. The main cause of the blockage was due to debris.
	# of blocked sewers caused by poor hydraulics	See also # of blocked sewers. The main cause of the blockage was due to poor hydraulics.
	# of blocked sewers caused by structure	See also # of blocked sewers. The main cause of the blockage was due to structure.
	# of blocked sewers with unknown causes	See # of blocked sewers. The main cause of the blockage was due to reasons that cannot be categorized or are unknown.
Service Connection Issues	# of blocked service connections	Number of blockages within the service connections for which the municipality is responsible. Only includes blockages that substantially restricts the flow in the service connection and have a commitment of equipment and labour deployed to service.
	Responsibility for service connection - sewer main to house	Answer yes or no whether the municipality is legally responsible for maintaining the entire length of the service connection from the sewer main to the house
	Responsibility for service connection - sewer main to property line	Answer yes or no whether the municipality is legally responsible for maintaining only the service connection length only from the sewer main to the property line
Sanitary Flooding Causes	# of connections with sanitary flooding caused by connection blockages	# of connections with sanitary flooding where the main cause was service connection blockage, for which the municipality was responsible. Consider the two definitions above regarding municipal responsibility.
	# of connections with sanitary flooding caused by pump station failures	# of connections with sanitary flooding where the main cause was pump station failure, for which the municipality was responsible. *Flooding due to the failure of private pump stations that are not the responsibility of the municipality should not be counted.*
	# of connections with sanitary flooding caused by main blockages	# of connections with sanitary flooding where the main cause was mainline sewer blockages, for which the municipality was responsible.
	# of connections with sanitary flooding caused by other causes	# of connections with sanitary flooding where the main cause was due to other causes, for which the municipality was responsible. Consider the two definitions above regarding municipal responsibility.
	Total # of connections with sanitary flooding	*Total # of connections with sanitary flooding caused by a backup of sewage in the collection system or other non-rainfall related failure, for which the municipality was responsible .*

Wastewater Collection Definitions by Hyperlink

Service Connection Maintenance	# of emergency service connection repairs	*Repairs/replacements to service connections causing interruption to your crews daily work schedule - drop everything and go! - that if not made may imminently compromise life, property or the environment. Only includes repairs/replacements for which the municipality is responsible. Service connections are defined as the sewer pipe between the sewer main and the property line.*
	# of planned service connection repairs	*Repairs/replacements to service connections that can be added into a crews regular working schedule, which are unlikely to imminently compromise life, property and the environment. Only includes repairs/replacements for which the municipality is responsible. Service connections are defined as the sewer pipe between the sewer main and the property line.*
Mainline Sewer Maintenance	# of emergency sewer repairs	*Repairs to mainline sewers causing interruption to your crews daily work schedule - drop everything and go! - that if not made may imminently compromise life, property or the environment. These are spot repairs not sewer replacements (e.g. less than 10m of pipe replaced) performed by either dig-down or trenchless methods. Only includes repairs for which the municipality is responsible.*
	# of planned sewer repairs	*Repairs to mainline sewers that do not disrupt a crews regular working schedule (i.e. can be incorporated into working schedules over time) that if not made are unlikely to imminently compromise life, property and the environment. These are spot repairs not sewer replacements (e.g. less than 10m of pipe replaced) performed by either dig-down or trenchless methods, but includes sewer relining from one manhole to another. Only includes repairs for which the municipality is responsible.*
	# of emergency pump station repairs	Repairs to pump stations that involve the use of tools and are due to breakdowns *that if not made imminently may compromise life, property or the environment.*
	Length relined	Total length of sewer mains that are relined including all cement lining of cast iron mains.
	Length replaced	Total length of sewer main replaced in a planned situation (non-emergency).
Mainline Sewer Inspection	Length inspected by CCTV - New *and rehabilitated* mains	*Total length of brand new and rehabilitated mains CCTV inspected immediately following their installation or rehabilitation (including rehabilitation of spot repairs), primarily for quality purposes or to check completion of work.*
	Length inspected by CCTV - Existing mains *for maintenance planning*	*Total length of existing mains CCTV inspected to assess their condition, primarily for repair and rehabilitation planning purposes. Exclude CCTV inspection that follows the completion of repairs.*
	Length inspected by CCTV - Total	Total length inspected by CCTV, which does not include length inspected by zoom camera. This includes the sum of both CCTV inspection of new installations and existing sewer pipes.
	Length of system that can be inspected by CCTV	The length of the system that can be inspected by CCTV. Can be calculated by taking the system's total sewer length, and subtracting the length of pipe where it is impossible to inspect by CCTV inspection, if any.
	Target Length of sewer CCTV 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*

Wastewater Collection Definitions by Hyperlink

Mainline Sewer Cleaning	Length of system cleaned (*single pass)*	Report the length of main cleaned that used hydraulic or mechanical methods to remove grease, sediment, roots and debris etc. from sewer main interiors, for maintenance purposes. Do NOT double count sewers that are cleaned on two or more occasions. This metric is used to see how much of your system received cleaning, not the total amount of cleaning completed. If a main was cleaned more than once do not add these cleanings to your total. 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 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 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.*
	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.*
	Length of system that can be cleaned	The length of the system that can be cleaned. Can be calculated by taking the total sewer length, and subtracting the length of pipe where it is impossible to clean, if any.
	Cumulative length cleaned during the year (sum of all cleaning)	Report the total length of sewer cleaned during the year that used hydraulic or mechanical methods to remove grease, sediment, roots and debris etc. from sewer main interiors, for maintenance purposes. Include length specified above + the additional lengths from cleaning pipes on a second, third or further occasion. Exclude lengths cleaned immediately prior to slip-lining or any other pipe rehabilitation work, as such cleaning relates to capital reinvestment not general maintenance.
	Cumulative length 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 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.*
C-ENVIRONMENTAL & CUSTOMER ISSUES		
Reliability Issues - Mainline Overflows Reported to Regulator	Total # of reported overflows	The number of times an overflow from the collection system has to be reported to the regulatory agency, also called sanitary sewer overflows (SSOs). Combined sewerage overflows to an outfall are not included in the number of reported overflows nor are any overflows allowed by the regulatory agency. However, occurrences when a combined sewer system has an overflow that is not from an outfall pipe, e.g. from a manhole, should be included. Should be a sum of all reported overflows due to internal blockage, external blockage, capacity limitations, pump station failures and other.

Wastewater Collection Definitions by Hyperlink

	# of reported overflows due to internal blockage (e.g. internal obstruction, collapse)	See also Total # of reported overflows. The main cause of overflows (SSOs) is due to internal blockage.
	# of reported overflows due to external blockage (e.g. tree root)	See also Total # of reported overflows. The main cause of overflows (SSOs) is due to external blockage.
	# of reported overflows due to capacity limitations (e.g. high rainfall)	See also Total # of reported overflows. The main cause of overflows (SSOs) is due to capacity limitations.
	# of reported overflows due to pump station failures	See also Total # of reported overflows. The main cause of overflows (SSOs) is due to pump station failures.
	# of reported overflows due to other factors	See also Total # of reported overflows. The main cause of overflows (SSOs) is due to other (or unknown) factors.
CSO Issues	*Total number of CSOs*	*The total number of Combined Sewer Overflows (CSOs) within your combined sewer network. Exclude Sanitary Sewer Overflows (SSOs), which typically have different reporting requirements, and are thus considered separately.*
	Total volume of all CSOs	The total volume of combined sewer overflow (CSO) discharges. Exclude volumes from Sanitary Sewer Overflows (SSOs), which typically have different reporting requirements, and are thus considered separately. Please provide detail on how the CSO volume was estimated in the Notes field.
	# of days of beach closure due to wet weather CSOs	The number of days of beach closure due to wet weather CSOs.
	Notes, Combined Sewer Reliability Issues - please provide detail on CSO measurement	Please provide detail on how the number of CSOs and the CSO volume are estimated including answers to the following questions (1) What is the precision in measurement of CSOs (minute or hour)? (2) What is the delay between measurement of CSOs? Real time measurement, daily, weekly or monthly survey? (3) What is the method of recording whether a CSO has occurred? Visual mark for e.g. a bottle? Electronically measured high level (local or SCADA)? (5) How is the CSO volume estimated? E.g. from rainfall estimates?
Pump Station Failures - Reported to Regulator	Total # of *reported* pump station failures	*# of pump station failures reported to a regulatory body due to mechanical faults rather than capacity or design issues (the metric is used to measure the mechanical reliability of stations).*
	# of pump station failures due to motor failure	# of failures reported to a regulatory body due to pump motor failure. See also # of pump station failures.
	# of pump station failures due to instrumentation or PLC/SCADA failure (e.g. pressure or level transmitter)	# of failures reported to a regulatory body due to instrumentation or PLC/SCADA failure (including pressure or level transmitter). See also # of pump station failures.
	# of pump station failures due to valve failure	# of failures reported to a regulatory body due to valve failure. See also # of pump station failures.
	# of pump station failures due to clogged bar screen	# of failures reported to a regulatory body due clogged bar screens. See also # of pump station failures.
	# of pump station failures due to genset/ standby power/ transfer switch failure	# of failures reported to a regulatory body due to genset, standby power or transfer switch failure. See also # of pump station failures.
	# of pump station failures due to operator failure	# of failures reported to a regulatory body due to operator failure. See also # of pump station failures.
	# of pump station failures due to other reasons	# of failures reported to a regulatory body due to operator other or unknown reasons. See also # of pump station failures.
Customer Service	# of wastewater related customer complaints	# of customer complaints received at the customer service center that were related to *sanitary and combined* wastewater collection systems. Include blockages (in sewers or service connections), overflows, odours etc. A complaint requires a follow-up action to be taken and does not include general inquiries or requests for new service connections.
	# of combined sewer related customer complaints	The number of customer complaints related *specifically* to Combined Sewers. A complaint requires a follow-up action to be taken and does not include general enquires.

Wastewater Collection Definitions by Hyperlink

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 undertake the preliminary assessment (not necessarily complete the full repair etc)?
	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 undertake the preliminary assessment (not necessarily complete the full repair etc)?
	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 undertake the preliminary assessment (not necessarily complete the full repair etc)?
	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 undertake the preliminary assessment (not necessarily complete the full repair etc)?
C-ENERGY		
ENERGY	Pump Station Energy Consumption	Energy consumed annually through operation of the collection systems pump stations. Includes electricity, diesel for pump station back-up generators and natural gas for heating. Do NOT include the energy used at the works yard, offices or vehicle use.
	Electricity consumed	Amount of electricity consumed annually while operating collection system pump stations.
	Natural gas consumed	Amount of natural gas in GJ consumed annually while operating and maintaining the system pump stations. If data is provided in m3, then multiply by 0.0373 to convert to GJ.
	Diesel consumed	Amount of diesel consumed annually while operating and maintaining the system pump stations, excluding diesel used in vehicles.
	Total energy consumed	Sum of the energy consumed in kWh in the operation and maintenance of the system pump stations. Energy sources include electricity, natural gas, and diesel and are converted to kWh using standard conversions.
	Total energy purchased	Cost of energy consumed in the system pump stations for each energy source . Energy sources include electricity, natural gas, and diesel. All energy purchase costs should include the direct cost of energy, its delivery, distribution, taxes, surcharges and similar costs.
C-LABOUR		
FTEs	FTE – Full Time Equivalent for employees	Full-time equivalent 1 FTE = 2080 hours = 52 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. Includes both permanent and temporary staff. Contracted FTEs include equivalent FTEs for all staff employed by an outside company.
	Collection FTEs	See FTE – Full Time Equivalent for employees' definition. Collection FTEs are the full time equivalents of the employees working on the collection system. Includes both permanent and temporary staff.
	Contracted FTEs	See also definition of "FTE". Contracted FTEs are employees working on the collection system that work for an organization external to the City/ Region.
	Field staff	See also definition of "FTE". *Total number of field* employees who work in the wastewater collection system *including pump station* staff 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".
	Technical/engineering staff	See also definition of "FTE". Engineers, chemists, technician used in collection system operations and maintenance. Does not include design and construction staff associated with capital projects.

Wastewater Collection Definitions by Hyperlink

	Supervisor/support staff	See also definition of "FTE". Full time equivalent employees in supervision and administration (and dedicated indirect staff such as finance, fleet, customer services etc) which support the wastewater collection system and are based at the public works yard or similar.
	Pump station field FTEs	See also definition of "FTE". The full-time equivalent employees for the collection system field staff that work specifically on the pump stations (pump station field FTEs are a subset of collection system field FTEs).
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 accidents incurred 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, however the average should be calculated.
	# 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. Also record total # of hours taken for field employees for use in the availability calculations
	# of safety training hours per field employee	Average number of safety training hours per field employee.
	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).
Availability	Total # of safety training hours for actual employees	The total number of safety training hours taken for all 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 field staff employees that excludes safety training hours but includes conferences, seminars etc. Actual employees refers to the number of field FTEs as entered in the section previous.
	Total # of sick hours for actual employees	The total number of sick hours taken by 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 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	The total number of vacation hours taken by 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. Actual employees refers to the number of field FTEs as entered in the section previous.
	Total other paid 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 paid 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. Actual employees refers to the number of field FTEs as entered in the section previous.

Wastewater Collection Definitions by Hyperlink

	Total paid hours for actual employees	Total number of standard paid hours recorded for all 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; do not include overtime hours that are paid in lieu, or that are accrued from working a normal shift on a statutory holiday. If actual hours are not available, calculate as "# of actual field staff x average number of recorded overtime hours per field staff per year less any hours previously described".
	Cost of overtime hours	This is the total cost of overtime hours recorded in the above box. Use actual cost of overtime hours where possible, or an approximate cost such as: total overtime hours x average cost per overtime hour.
Retirement Issues	# of field employees in age bracket ##-##	Number of field employees that are within the given age bracket.
	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.
Productivity and Unit Costs	*Unit cost of cleaning with a flusher truck - flushing only*	*Unit cost of sewer cleaning with a flusher truck - flushing only = Total cost to clean sewers with a flusher truck - flushing only / length of sewer cleaned. Units of $/km.*
	Unit cost of cleaning with a flusher truck - root cutting	*Unit cost of sewer cleaning with a flusher truck - root-cutting = Total cost to clean sewers with a flusher truck - root-cutting / length of sewer cleaned. Units of $/km.*
	Is the full vehicle cost included in the cleaning unit costs?	Answer "Yes" only if the cleaning unit costs include the full cost of vehicles used for cleaning, i.e. including vehicle maintenance and allowing for depreciation of vehicle capital costs.
	Is the full equipment cost included in the cleaning unit costs?	Answer "Yes" only if the cleaning unit costs include the full cost of equipment used for cleaning, i.e. including equipment maintenance and allowing for depreciation of equipment capital costs.
Cost of CCTV	CCTV unit cost (in-house)	Unit cost ($/km) for the total length of CCTV inspection by in-house crews all inclusive of labour, equipment and overhead costs. For CCTV undertaken by an outside company, record the unit cost under "Unit cost of CCTV (contracted services)".
	CCTV unit cost (contracted services)	Unit cost ($/km) for the total length of CCTV inspection by an outside company through a contracted service all inclusive of labour, equipment and overhead costs. For CCTV undertaken by in-house crews, record the unit cost under "Unit cost of CCTV (in-house)".
	CCTV length (km/day)	Average length of main per day that a crew inspects using CCTV. Include data for internal and contracted staff if available. Should be normalized per crew (e.g.. if there are 3 crews and the 3 crews can CCTV a total of 3km/day, then the data for CCTV length/day should be 3/3 = 1km/day).

Wastewater Collection Definitions by Hyperlink

	Is the cost of CCTV video image recording included?	Answer yes or no. Does the unit cost of CCTV inspection includes the cost of recording a video or digital image of the sewer? Provide details in the Notes field.
	Is the cost of CCTV analysis included?	Answer yes or no. Does the unit cost of CCTV includes the cost of sewer condition rating according to a condition assessment rating scale (e.g. WRc) and creating of a condition assessment database? Provide details in the Notes field.
	Is the cost of CCTV digital filing included?	Answer yes or no. Does the unit cost of CCTV includes the cost of converting the video images into a digital format (e.g. MPeg) along with meterage data? Provide details in the Notes field.
	Is the full vehicle cost included in the CCTV unit costs?	Answer "Yes" only if the CCTV unit costs include the full cost of vehicles used for CCTV, i.e. including vehicle maintenance and allowing for depreciation of vehicle capital costs.
	Is the full equipment cost included in the CCTV unit costs?	Answer "Yes" only if the CCTV unit costs include the full cost of equipment used for CCTV, i.e. including equipment maintenance and allowing for depreciation of equipment capital costs.
C-COSTS		
Costs - Contracting	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 collection system operations are undertaken by an external company or contracted service, then answer Yes. *(ex. OCWA, EPCOR)*
	Estimate for % of O&M work provided by a contracted service	An estimate for the percentage of O&M work that is externally contracted (i.e.. excluding capital) rather than completed in-house. The following calculation can be used for this estimate: Contracted Services (External) / (Wages + Contracted Services (Internal) + Contracted Services (External)). 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 (e.g. electrical work, emergency repairs, etc).
O&M Costs	Pipes O&M cost	All Operations & Maintenance cost allocations for pipe inventory (including sewer, service connections, manholes, etc.). Total System O&M cost = Pipes O&M cost + Pump Station O&M cost. Exclude capital costs (if minor capital cannot be separated out, indicate the $ limit for minor capital in the Notes field). Capital costs of replacements of pipe etc should be recorded under the Capital Reinvestment cost. Capital costs of new pipes etc should be recorded under the New Capital Investment cost. See also definitions for Wages, Equipment and Materials, Contracted Services (Internal), Contracted Services (External), Energy and Staff Training - only apply to pipe system inventory excluding pump stations.
	Pump station O&M cost	All Operations & Maintenance cost allocations for pump station inventory. If pump station costs cannot be identified, a percent of collection system O & M costs will be estimated. Total System O&M cost = Pipes O&M cost + Pump Station O&M cost. Exclude capital costs (if minor capital cannot be separated out, indicate the $ limit for minor capital in the Notes field). Capital costs of pump replacements etc should be recorded under the Capital Reinvestment cost. Capital costs of new pumps etc should be recorded under the New Capital Investment cost. See also definitions for Wages, Equipment and Materials, Contracted Services (Internal), Contracted Services (External), Energy and Staff Training - only apply to pump stations.
	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 wastewater utility staff that is extraneous to the wastewater 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 (e.g. engineers undertaking supervision of pipe inspection work).

Wastewater Collection Definitions by Hyperlink

	Equipment and Materials (Supplies)	Cost of equipment and materials required for operations, maintenance or support activities and staff. Includes for example courier costs, postage, equipment rentals, repairs (parts), laundry, safety supplies, telephone, uniforms, vehicle (**not** vehicle fuel - see energy), equipment, insurance, and building utility fees for solid waste, garbage and sewer.
	Contracted Services – Internal	Cost of work completed by an internal municipal department that relates to operations, maintenance or support and is charged back to the wastewater utility as a contracted cost. Includes for example charge back for radio equipment and building services such as garbage collection and recycling. 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 (e.g. engineers undertaking supervision of pipe inspection work).
	Contracted Services - External	Cost of work completed by an external contractor or business that relates to operations, maintenance or support and is charged to the wastewater utility as a contracted cost. Includes for example advertising, building repairs, ground maintenance, hauling services, contracted janitorial services, vehicle and equipment rentals, consulting engineering fees related to non-capital work and fleet. Excludes external contracted costs for capital construction related work.
	Energy	Cost of all energy used in the operation and maintenance of the distribution/transmission/integrated system. Energy used at the works yard, offices or vehicle use should only be included under the pipes and total system O&M cost energy fields (not under pump stations). 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 water consumed in the collection / trunk system and the cost of rent, property taxes and permit fees for the collection/ trunk system.
	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
	Total Collection System O&M Cost	Sum of the actual O&M costs incurred in the operation of the collection/trunk system (excludes capital costs, indirect costs, transfers to reserves and debt/interest charges). Total System O&M cost = Pipes O&M cost + Pump Station O&M cost. Revenues are only included where they are recoveries for work done by wastewater utility staff that is extraneous to the utility (for example, for lab tests for other utilities).
Actual Indirect Costs	Charge-Backs	The total cost of all indirect services that the utility paid under the collection system budget. Indirect services include Admin, Human Resources, Finance, Customer billing, Insurance, IT (including GIS and other information management systems except for Maintenance Management Systems as these are considered O&M) and any other similar costs.
Capital Costs	Capital cost	The costs for all capital projects including reinvestment in the existing system and new investment for upgrades and expansions to handle growth. Include both contracted capital work and internal costs associated with capital work such as wages for capital engineering staff i.e. design, tendering, studies, etc. Capital projects cover equipment and large maintenance expenditures that cannot be funded through the operating budget. Capital projects should be divided into the two categories given below:

Wastewater Collection Definitions by Hyperlink

	New capital investment	A project to expand the system to handle growth and upgrade to a higher level of service. Projects which serve one or more purpose (maintenance and expansion) should be prorated in order to also capture the capital applied for reinvestment activities. Include both contracted capital work and internal costs associated with capital such as wages for capital engineering staff i.e. design, tendering, etc. Includes new capital costs for utility systems components (for example: pipes - including valves, hydrants, reservoirs etc - pump stations and meters).
	Capital reinvestment	A project which substantially maintains the life of the utility systems. 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. Projects which serve one or more purpose (maintenance and expansion) should be prorated in order to also capture the capital applied for investment activities. Include both contracted capital work and internal costs associated with capital such as wages for capital engineering staff i.e. design, tendering, etc. Includes capital reinvestment (i.e. replacement and relining) costs for utility systems components (for example: pipes - including valves, hydrants, reservoirs etc - pump stations and meters).
	Notes, Capital Cost	What is your limit for minor capital that is included under the O&M budget? Do you have separate capital reserves for pipes and treatment? Do you have separate capital reserves for new capital and reinvestment?
Financing	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. If the capital reserve is for the full wastewater utility them the net change value should be prorated between the collection system and each treatment plant (for example, by replacement value).
	Current Capital Reserves	The total value for the capital reserve 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. If the capital reserve is for the full wastewater utility, the value should be prorated between the collection system and each treatment plant (for e.g. by replacement value).
	Current Year O&M Budget Allocation	Approved operations and maintenance budget for the upcoming year (the year of data capture, typically 1 year after the year data is collected for). Collect separately for wastewater collection system.
	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). Collect separately for the wastewater collection system.
Maintenance Planning	Total maintenance hours	Total Maintenance hours = Preventative maintenance hours + Planned (scheduled) hours + Unplanned (breakdown) hours + Other hours. Include both internal and external maintenance hours (e.g. some systems outsource all breakdown work therefore they should estimate all maintenance hours, both internal and external). Maintenance hours completed by operations staff should
	Preventative maintenance hours	Preventative maintenance hours = # of hours spent on regularly scheduled and periodic maintenance as directed by vendor (time spent preventing equipment breaking down as specified by the vendor). Include both internal and external maintenance hours (e.g. some systems outsource all breakdown work therefore they should estimate all maintenance hours, both internal and external). Maintenance hours completed by operations staff should also be included in this section.
	Planned maintenance hours	Planned (scheduled) hours = # of hours spent by maintenance staff on routine maintenance tasks that are identified through observation, etc (time spent maintaining equipment after it is observed that the equipment is at risk of breaking down). Include both internal and external maintenance hours (e.g. some systems outsource all breakdown work therefore they should estimate all maintenance hours, both internal and external). Maintenance hours completed by operations staff should also be included in this section

Wastewater Collection Definitions by Hyperlink

	Unplanned maintenance hours	Unplanned (breakdown) hours = # of hours spent by maintenance staff on high and low emergency work (time spent repairing equipment after it has broken down). High emergency work covers breakdowns that 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 work covers breakdowns which may not result in loss of service or are protected by equipment redundancy, maintenance shall be deployed as the earliest convenience. Include both internal and external maintenance hours (e.g. some systems outsource all breakdown work therefore they should estimate all maintenance hours, both internal and external). Maintenance hours completed by operations staff should also be included in this section.
	Other maintenance hours	Other hours = # of hours spent by maintenance staff on minor, low priority tasks that can be assigned during slow periods and any work that does not fit into the other maintenance work categories (time spent on fill in maintenance work). Include both internal and external maintenance hours (e.g. some systems outsource all breakdown work therefore they should estimate all maintenance hours, both internal and external).
	Notes, Maintenance Planning	How is the number of emergency maintenance hours recorded? Is it recorded on the Maintenance Management System? Is the number of overtime hours used as an estimate for emergency work? Is there emergency work performed by external contractors that is not recorded nor included in the number of emergency maintenance hours? Is emergency work performed entirely by external contractors?
C-REPLACEMENT		
Replacement Values	Replacement value total system	The amount of money needed to replace all of the existing infrastructure. The replacement value shall include all engineering costs, construction, supervision, taxes, etc (excluding land purchasing). If this value is developed by a calculations based on unit values times the number of units, unit replacement values shall be estimated based on average construction costs over the last 5 years. For example, if 20 main replacements have been constructed over the last five years, the average unit cost per km of main can be estimated from all 20 construction projects (excluding inflation).
	Sewer mains	The amount of money needed to replace all of the existing sewer collection infrastructure. Include gravity sewer mains, *service connections,* manholes, storm overflows, inspection chambers and pumped mains. Also see "Replacement value total system" definition.
	Pump Stations	The amount of money needed to replace all of the existing sewer wastewater pumping stations. Include wet wells, valve chambers, pump-houses compounds and similarly related infrastructure (but not the sewer main, see above). See "Replacement Value" definition.
	Storage Facilities	The amount of money needed to replace all of the existing storage facility infrastructure. Includes any off-line storage facilities within the collection system, for example combined sewer overflow storage tanks. See "Replacement value total system" definition.
	Other supporting infrastructure	Include any other elements of the wastewater collection system not included in the previous sections. Please provide a brief explanation of what this may include in the notes section.
	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

Wastewater Treatment Plant Definitions by Hyperlink

T-DESCRIPTION		
Volume Conveyed	Population served	The population, *excluding ICI equivalents*, served by the wastewater treatment facility. This includes the population of all wholesale and retail customers. Both current and design population are required for the wastewater treatment plant. *Note that this number may well be different to the City's recorded population and, where possible, should estimate the typical number of residents receiving service.*
	ADWF (ML/d)	The Average Dry Weather Flow is the average daily flow from the driest month of the year (ML/d). Both current and design ADWF are required for the wastewater treatment plant. Minimum value of: "Total Monthly Flow (ML) / Total days in that month (days)"
	MDF (ML/d)	The Maximum Daily Flow is the maximum flow to the wastewater treatment plant recorded over a 24 hr period during any one year. *(May also be referred to as daily peak flow rate)* Both current and design MDF are required for the wastewater treatment plant.
	PWWF (L/s)	The Peak Wet Weather Flow is the highest flow to the wastewater treatment plant that occurs due to wet weather (includes volume that bypasses the plant if this occurs on the same day, does not include any instantaneous spike in flows due to surges from pumping). Both current and design PWWF are required for the wastewater treatment plant.
	AAF (ML/d)	The Annual Average Daily Flow is the "Total Annual Flow to the WWTP (ML) / 365 days" Both current and design AAF are required for the wastewater treatment plant.
	% Residential	Percentage of total annual volume of wastewater that is from residential sources. Typically % ICI + % Residential = 1. Some wastewater treatment plants constantly receive a large portion of stormwater inflow and infiltration, and then % ICI + % Residential + % Inflow = 1 (if this is the case, answer Yes to the question "Is there a combined system contributing to plant inflow?" and all three % should be provided).
	% ICI	Percentage of total annual volume of wastewater that is from non-residential (i.e. industrial, commercial and institutional) sources. Typically % ICI + % Residential = 1. Some wastewater treatment plants constantly receive a large portion of stormwater inflow and infiltration, and then % ICI + % Residential + % Inflow = 1 (if this is the case, answer Yes to the question "Is there a combined system contributing to plant inflow?" and all three % should be provided).
	Is there a combined system contributing to plant inflow?	Provide a Yes or No response to this question as to whether the collection/trunk system connected to the treatment plant has pipe with combined sewage and stormwater flow.
	% Inflow (by volume)	Percentage of total annual volume of wastewater that is from combined inflow. This applies for the plants that answer Yes to the question "Is there a combined system contributing to plant inflow?" as they receive a large portion of stormwater inflow and infiltration with their sewage flow. For these plants % ICI + % Residential + % Inflow = 1.
	Primary capacity	*Primary treatment design maximum daily flow (daily peak flow rate).*
	Secondary capacity	*Secondary treatment design maximum daily flow (daily peak flow rate).*
	Tertiary capacity	*Tertiary treatment design maximum daily flow (daily peak flow rate).*
	Disinfection capacity	*Disinfection design maximum daily flow (daily peak flow rate).*
	Plant Classification	The Classification given to the treatment plant by the Provincial Regulatory Agency - Class I, Class II, Class III, Class IV (note there may be differences in classification between the provinces). Be specific of the definition of this class category in the notes fields following the data fields.
	# of days where daily flows > 90% of design MDF	Number of days that the daily flow to the WWTP is greater then 90% of the design MDF (see above for definition of MDF)
Liquid Stream Treatment	Is the Liquid Stream Treatment Descriptions the same as the previous year's?	Please complete the Yes/No field for whether the Liquid Stream Treatment Description is the same as the previous year's. If the answer is "Yes", then skip to the Solid Stream Treatment heading (the database will be updated with the previous year's Liquid Stream Treatment Description). If the answer is "No", then complete the Liquid Stream Treatment Description fields (if some of the fields are the same as the previous year's, then note this as "Same as previous year" also if there are only minor changes, please note this, for example under Influent Pump Station note "Same as previous year's, except increase in Hp")

Wastewater Treatment Plant Definitions by Hyperlink

	Influent pump station	A pump station which pumps wastewater directly into a treatment plant process. The pump station does not necessarily have to be on the plant site. For example, the McCarthy pump station in the City of Regina is considered an influent pump station even though it is located 5 km outside the boundary of the wastewater treatment plant. It is considered an influent pump station because, no other wastewater joins the system between the pump station and the plant and the pump station includes a portion of the wastewater treatment plant headworks. The influent pump station is considered part of the treatment plant not the collection system.
	Headworks	Headworks includes the preliminary treatment infrastructure and often includes septage/ industrial waste receiving. For example, bar screens, aerated grit channels, and infrastructure needed for septage or industrial waste receiving.
	Primary treatment	Primary treatment, physical operations remove material that will either float or readily settle out by gravity.
	Secondary treatment	Secondary treatment, biological and chemical processes remove the soluble organic matter that escapes primary treatment. It may also remove more of the suspended solids. Some examples of secondary treatment are: oxidation ditches; trickling filters; conventional activated sludge; lagoons; and biological nutrient removal.
	Solids Retention Time	Also defined as the mean cell residence time, the mass of the organisms in the secondary reactor (i.e.. activated sludge reactor, trickling filter and solids contact tank, extended aeration tank) divided by the mass of organisms removed from the system each day. Measured in days.
	Chemical phosphorous removal	Plants which add chemicals into the process to remove phosphorous.
	Nitrification	Plants that have a unit operation for nitrification, the biological process by which ammonia is converted first to nitrite and then to nitrate. Nitrification can be achieved either in the same reactor used in the treatment of the carboneous organic matter or in a separate stage reactor.
	Biological nutrient removal plant	Plants which use a series of anoxic and aerobic cells to achieve biological nitrogen and phosphorous removal.
	Tertiary treatment	Includes filtration of the secondary effluent.
	Disinfection	Disinfection refers to the selective destruction of disease-causing organism. Disinfection can be attained by chemical agents, (most commonly oxidizing agents, including chlorination and ozonation), physical agents, mechanical means and radiation (for example ultraviolet radiation.)
	Effluent pump station	Pump station which pumps effluent from the treatment process to final disposal location.
	Hauled waste	Industrial waste or septage trucked to the treatment plant.
	Denitrification	Plants that have a unit operation for denitrification, the biological process by which nitrate is converted to nitrogen and other gaseous end products. The process of carbon oxidation nitrification/denitrification may be combined into a single system, or in separate reactors with methanol or another suitable organic source for dentrification.
	Receiving environment	The environment that the effluent is discharged into (for example freshwater stream or saltwater ocean coastline).
Solids Stream Treatment	Primary sludge thickening	The process used to increase the solids content of the primary sludge by removing a portion of the liquid fraction (e.g.. flotation, centrifugation and gravity belts). Excludes gravity settling. Sludge thickening should be considered separately from clarifiers used to separate solids in the primary or secondary treatment processes. Only answer Yes if there is a separate sludge thickening process (this may be completed using gravity thickeners, flotation thickeners, centrifugal thickener etc.).
	Secondary sludge thickening	The process used to increase the solids content of the secondary sludge by removing a portion of the liquid fraction (e.g.. flotation, centrifugation and gravity belts). Excludes gravity settling. Sludge thickening should be considered separately from clarifiers used to separate solids in the primary or secondary treatment processes. Only answer Yes if there is a separate sludge thickening process (this may be completed using gravity thickeners, flotation thickeners, centrifugal thickener etc.).

Wastewater Treatment Plant Definitions by Hyperlink

	Co-thickening	The process used to increase the solids content of the combined primary and secondary sludge by removing a portion of the liquid fraction (e.g.. flotation, centrifugation and gravity belts). Excludes gravity settling. Sludge thickening should be considered separately from clarifiers used to separate solids in the primary or secondary treatment processes. Only answer Yes if there is a separate sludge thickening process (this may be completed using gravity thickeners, flotation thickeners, centrifugal thickener etc.).
	Sludge stabilization	Sludge stabilization reduces pathogens, reduces offensive odours and inhibit the potential for putrefaction by either lime stabilization, heat treatment, anaerobic digestion, aerobic digestion and composting.
	Sludge dewatering	The physical (mechanical) unit operation used to reduce the moisture content of sludge.
	Biosolids reuse	Reuse/recycling of the biosolids. Includes mine reclamation, silviculture, composting and pelletization.
	Class A+	As defined by the Infraguide at: http://www.infraguide.gc.ca/docs/SWW6-BiosolidsManagementPrograms.pdf. Also called Category 1 by Infraguide: is a high-quality biosolids product equated with the definition of exceptional quality (EQ) in the EPA Rule and Class A compost in the British Columbia Organic Matter Recycling Regulation. The product is nearly pathogen free (same as Category 2 or EPA Class A). The primary difference between categories 1 and 2 is the reduced content of pollutants (e.g. heavy metals) in Category 1. Category 1 biosolids would typically have unrestricted use and can be retailed in some jurisdictions in Canada.
	Class A	As defined by the Infraguide at: http://www.infraguide.gc.ca/docs/SWW6-BiosolidsManagementPrograms.pdf. Also called Category 2 by Infraguide: is equivalent to the EPA Class A (similar to British Columbia), and is near pathogen free (less than 100 MPN per gram). The pollutant concentrations in Class A or Category 2 are the same as in Class B or Category 3, which places restrictions on its use.
	Class B	As defined by the Infraguide at: http://www.infraguide.gc.ca/docs/SWW6-BiosolidsManagementPrograms.pdf. Also called Category 3 by Infraguide: is equivalent to EPA Class B (similar to British Columbia). The biosolids in this category contain less than two million MPN fecal coliforms per gram of total solids, dry weight. Pollutant concentrations are the same as Category 2 but because of the higher pathogen content, Category 3 biosolids typically have the most restrictions in regard to end use including site management restrictions.
	How do you deal with final disposal of sludge?	Yes/no answer is required for whether biosolids are either trucked or pumped to final disposal.
On/Off Site Sludge Processing	Biosolids processed onsite at the WWTP	Biosolids produced at the WWTP are processed on-site at the WWTP.
	Biosolids from other plants also processed at the WWTP	Biosolids produced at other WWTPs within the City/Region are also processed at the WWTP.
	Biosolids processed off-site (internally)	Biosolids from the plant are transported off-site for treatment either at another WWTP or at a stand alone facility, internal to the City/Region.
	Biosolids processed off-site (externally)	Biosolids from the plant are transported off-site for treatment either at another WWTP or at a stand alone facility, external to the City/Region.
	Is the Sludge Processing Treatment Descriptions the same as the previous year's?	Please complete the Yes/No field for whether the Solids Disposal Description is the same as the previous year's. If the answer is "Yes", then skip to the Truck Hauled Waste heading (the database will be updated with the previous year's Solids Disposal Description). If the answer is "No", then complete the Solids Disposal Description fields (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 Sludge Stabilization Technology note "Same as previous year's, except was out of operation May to June")
Truck Hauled Waste	Hauled waste	Industrial waste or septage trucked to the treatment plant.
	Hauled Waste Monitoring	Describe how the Hauled Waste Monitoring program works at the treatment plant. Hauled waste is the industrial waste or septage trucked to the treatment plant.
	Hauled Waste Charges	Describe the fee structure of the hauled waste (industrial waste or septage) trucked to the treatment plant.

Wastewater Treatment Plant Definitions by Hyperlink

	Hauled Waste Volume	Total volume of hauled waste (industrial waste and septage) trucked to the treatment plant in ML.
	Cost of Hauled Waste Program	Total cost of receiving hauled waste at the treatment plant. Includes labour, equipment and contracted costs for monitoring, enforcement, annualized capital costs etc.
	Revenue from Hauled Waste Program	Total revenue from receiving hauled waste at the treatment plant.
	Average BOD Strength of Loads	Average BOD concentration (mg/L) for the hauled waste loads.
	Average TSS Strength of Loads	Average TSS concentration (mg/L) for the hauled waste loads.
	Total # of Loads	The number of loads of trucked hauled waste accepted at the treatment plant.
Source Control	# of Source Control FTEs	The number of Full Time Equivalent (2080 hours = 1 FTE) staff who work on the source control program.
	# of ICI Connections	Total number of ICI (industrial, commercial and institutional) connections within the sanitary (or combined) sewer system.
	# of Industrial Permits or Overstrength Surcharge (previously # of ICI Discharge Permits)	Total number of connections that have discharge permits or for which overstrength fees/charges apply under the source control program.
	Cost of Source Control Program	Total cost of the source control program. Includes labour, equipment and contracted costs for monitoring, enforcement etc.
	Revenue from Source Control Program	Total revenue from source control program, includes all revenue received from industrial surcharge fees *(e.g. permits; fines, inspection or volume/load charges etc.)*
	# of WWTP upsets	Number of WWTP upsets due to overstrength sewage.
	# of ICI samples analysed	Number of samples from ICI discharges to the sewer system that were analysed either in-house or by an external laboratory.
	# of Self-Sampled Results Received	Number of sample test results submitted by ICI Permit Holders or under a Code of Practice
	# of industry visits	Number of visits to ICI customers for source control.
	# of non-compliant discharges	Number of industries that have occurrences of permits or codes of practice in non-compliance.
	# of bylaw convictions	Include the number of convictions that result in fines or other penalties. (Must be a legally binding conviction).
	Original date of construction	Date of first construction of the plant i.e. the oldest structure on site.
Age	Years since last major upgrade	Number of years since a major upgrade at the treatment plant. A major upgrade would include any major process change or expansion.
	BOD	Average daily influent TBOD concentration (mg/L) and Average daily effluent TBOD concentration (mg/L) collected separately. Record Total BOD and carbonaceous BOD separately
T-REMOVAL		
Contaminant Removals	cBOD	Average daily influent cBOD concentration (mg/L) and Average daily effluent cBOD concentration (mg/L) collected separately. Record Total BOD and carbonaceous BOD separately
	TSS	Total Suspended Solids. Average daily influent TSS concentration (mg/L) and Average daily effluent TSS concentration (mg/L) collected separately.
	TKN	Total Kjeldahl Nitrogen. Average daily influent TKN concentration (mg/L) and Average daily effluent TKN concentration (mg/L) collected separately.
	Ammonia	NH3. Average daily influent ammonia concentration (mg/L) and Average daily effluent ammonia concentration (mg/L) collected separately.
	TP	Total Phosphorus. Average daily influent TP concentration (mg/L) and Average daily effluent TP concentration (mg/L) collected separately.
	TN	Total Nitrogen. Average daily influent TN concentration (mg/l) and average daily effluent TN concentration (mg/l)
	Mass of contaminant (Total BOD, CBOD, TSS, TN, NH3, TP, TN) removed	Mass of contaminant removed (kg) = (Average influent contaminant concentration (mg/L) – average effluent contaminant concentration (mg/L)) x AAF (ML/day) x 365 (days)
	Volume disinfected	Volume of effluent disinfected by either chlorination, ozonation or ultraviolet radiation annually during the disinfection period.
	Total Coliform	The concentration of coliform organisms in the wastewater effluent. The total coliform group includes four genera in the Enterobacteriaceae family, including; Escherichia, Klevisella, Citrobactor and Enterobacter. If the plant has seasonal disinfection, values should be reported only during this period.

Wastewater Treatment Plant Definitions by Hyperlink

	E.Coli	The concentration of the Escherichia coliform in the wastewater effluent. If the plant has seasonal disinfection, values should be reported only during this period.
	Fecal Coliform	The concentration of the fecal coliform in the wastewater effluent. If the plant has seasonal disinfection, values should be reported only during this period.
Biosolids Treatment and Handling	Is there a Region wide sludge/biosolids Handling Program	Yes/No answer is required. If the region/city transfers sludge between any of the facilities for additional treatment or disposal, please answer Yes. If each plant has independent processing and disposal practices the answer is No.
Stabilization	Mass of sludge delivered for stabilization (dry tonnes)	Mass (dry tonnes) of solids delivered to the stabilization process (for example, digestion, composting, and pasteurization) facilities. Includes any sludge received from other plants. Mass of biosolids delivered for processing in dry tonnes = % dry solids x "mass (tonnes) or volume (m^3) of wet solids delivered to processing facilities". Assume wet solids have similar density to water, i.e. 1 tonne = 1 m^3.
	Does this mass include a digester supernatant recycle?	Yes/No answer is required. Does the Mass of sludge delivered for stabilization include a digester supernatant recycle?
	Does this include sludge/biosolids from another plant?	Yes/No answer is required. Does the Mass of sludge delivered for stabilization include sludge/biosolids from another plant?
	Percentage of TSS as VSS in sludge Feed	The percentage of total suspended solids which are volatile in the sludge feed to the stabilization process which are volatile. (Total suspended solids = the volatile solids + the inert solids)
	Mass of biosolids remaining after stabilization (dry tonnes)	Mass (dry tonnes) of biosolids remaining after processing/stabilization before dewatering, storage or disposal. Mass of biosolids remaining after processing in dry tonnes = % dry solids x "mass (tonnes) or volume (m^3) of wet solids remaining after processing". Assume wet solids have similar density to water, i.e. 1 tonne = 1 m^3. Includes any sludge received from other plants.
Dewatering	Volume of sludge/biosolids delivered for dewatering	Annual volume of sludge / biosolids delivered for dewatering (please convert flow rate based on hours the dewatering equipment is in operation - for example if your centrifuge feed rate is 1 m^3/hr only operating 8 hours a day = 8 m^3. Includes any sludge received from other plants.
	% solids in sludge/biosolids dewatering feed	Annual average % solids in the sludge/biosolids feed to dewatering equipment (i.e. centrifuge, belt press, rotary drum thickener)
	% solids of dewatered sludge / biosolids	Annual average % solids of dewatered sludge (i.e.. after dewatering by centrifuge, belt press, rotary drum thickener)
	Are you using polymer to aid dewatering	Yes/No answer is required. Is polymer utilized to ensure a higher solids capture rate in the dewatering process.
	Polymer Dosage	What is the dosage of polymer added in the dewatering process, in kilograms of active polymer per tonne of dry solids.
Hauling/Pumping Off-site	Mass of sludge/biosolids removed off-site for processing	The mass of the biosolids/sludge trucked or pumped to another internal wwtp or treatment facility. Note, additional processing at off-site locations completed by an external company are considered as final disposal and are not included in this data. Mass of biosolids removed in dry tonnes = % dry solids x mass (tonnes) or volume (m^3) of wet solids. Assume wet solids have similar density to water, i.e. 1 tonne = 1 m^3.
	% solids removed off-site for processing	Percent solids of biosolids/sludge trucked or pumped off-site for processing at internal WWTP or treatment facility.
	Mass of sludge/biosolids removed off-site for final disposal	The mass of sludge/biosolids trucked or pumped off-site for final disposal. Note, final disposal includes additional processing at off-site locations if completed by an external company. Mass of biosolids removed in dry tonnes = % dry solids x mass (tonnes) or volume (m^3) of wet solids. Assume wet solids have similar density to water, i.e. 1 tonne = 1 m^3.
	% solids removed off-site for final disposal	Percent solids of biosolids/sludge trucked or pumped off-site for final disposal.
Incineration	Mass of sludge/biosolids to incineration	Mass of biosolids/sludge delivered to the incineration process. Includes any sludge received from other plants.
	Mass of ash removed	Mass of ash removed from the treatment plant site for final disposal (ash produced by incineration of biosolids only). Mass of ash removed in dry tonnes = % dry solids x mass (tonnes) or volume (m^3) of wet solids. Assume wet solids have similar density to water, i.e. 1 tonne = 1 m^3.

Wastewater Treatment Plant Definitions by Hyperlink

Disposal Category	Land Application (liquid)	Yes/no answer is required with further explanation to be placed in the notes field. Land Application of biosolids in liquid form (less than 15% solids) spread onto soil surface or injected into the soil for fertilization, irrigation and reclamation, including application to agricultural lands, forests, mine reclamation sites, parks, and golf courses.
	Land Application (cake)	Yes/no answer is required with further explanation to be placed in the notes field. Land Application of biosolids in cake form spread onto soil surface or incorporated into the soil. Some of the biosolids is applied to agricultural lands, forests, mine reclamation sites, parks, and golf courses.
	Land Application (pellets - Class A Biosolids)	Yes/no answer is required with further explanation to be placed in the notes field. Land Application of biosolids in pellet form spread onto soil surface or incorporated into the soil. Pellets are created from heat drying to destroy pathogens and eliminate water.
	Sale of Compost	Yes/no answer is required with further explanation to be placed in the notes field. Sale of compost applies only to those facilities who gain revenue from the sale of composted biosolids. Composting is the decomposition of organic matter by microorganisms in an environment that controls the size and porosity of the pile, thereby facilitating an increase in temperature to destroy most pathogens.
	Sale of Class A biosolids	Yes/no answer is required with further explanation to be placed in the notes field. Sale of Class A biosolids applies only to those facilities who gain revenue from the sale Class A biosolids.
	Landfill Disposal	Yes/no answer is required with further explanation to be placed in the notes field. Landfill Disposal is the disposal of biosolids to a landfill site where biosolids are not beneficially reused.
	Incineration	Yes/no answer is required with further explanation to be placed in the notes field. Incineration of biosolids involves firing biosolids at high temperatures in a combustor or combustion device. http://www.epa.gov/epaoswer/non-hw/compost/biosolid.pdf
	Other	Yes/no answer is required with further explanation to be placed in the notes field. Other should be explained further in the notes. If it is trucked off side to another plant for processing please indicate.
	Primary Method of Disposal	If more than one of the above biosolids disposal methods was selected, indicate the primary method of disposal used, i.e. where the majority of the biosolids go for disposal.
T-ENVIRONMENTAL ISSUES		
Environmental Regulations	Environmental discharge Regulations	The environmental discharge limits specified in the plant's permit to operate (Certificate of Approval). Excludes biosolids testing.
	Total BOD Limit	The environmental discharge limits specified in the plant's permit to operate (Certificate of Approval) for Total BOD. Please provide both the limit value and the permit conditions, for example 25 mg/L and maximum monthly average.
	cBOD Limit	The environmental discharge limits specified in the plant's permit to operate (Certificate of Approval) for cBOD. Please provide both the limit value and the permit conditions, for example 25 mg/L and maximum monthly average.
	TSS Limit	The environmental discharge limits specified in the plant's permit to operate (Certificate of Approval) for TSS. Please provide both the limit value and the permit conditions, for example 25 mg/L and maximum monthly average.
	TKN Limit	The environmental discharge limits specified in the plant's permit to operate (Certificate of Approval) for Total Kjedahl Nitrogen. Please provide both the limit value and the permit conditions, for example 10 mg/L and maximum monthly average.
	Ammonia Limit	The environmental discharge limits specified in the plant's permit to operate (Certificate of Approval) for Ammonia. Please provide both the limit value and the permit conditions, for example 10 mg/L and maximum monthly average.
	NO3 Limit	The environmental discharge limits specified in the plant's permit to operate (Certificate of Approval) for Total Nitrates. Please provide both the limit value and the permit conditions, for example 10 mg/L and maximum monthly average.

Wastewater Treatment Plant Definitions by Hyperlink

	TP Limit	The environmental discharge limits specified in the plant's permit to operate (Certificate of Approval) for Total Phosphorus. Please provide both the limit value and the permit conditions, for example 10 mg/L and maximum monthly average.
	PO4Limit	The environmental discharge limits specified in the plant's permit to operate (Certificate of Approval) for Phosphates. Please provide both the limit value and the permit conditions, for example 10 mg/L and maximum monthly average.
	Faecal Coliform Limit	The environmental discharge limits specified in the plant's permit to operate (Certificate of Approval) for faecal coliforms. Please provide both the limit value and the permit conditions, for example 1,000/100mL and maximum monthly average.
	E.coli Limit	The environmental discharge limits specified in the plant's permit to operate (Certificate of Approval) for E. coli. Please provide both the limit value and the permit conditions, for example 100 counts / 100mL and maximum occasions.
	Volume Limit	Some Certificate of Approval's include limits on the volume of wastewater effluent which can be discharged. This would be included as a Volume Limit. Please provide both the limit value and the permit conditions, for example 100 ML/day and maximum daily value.
Compliance - *Spills, Exceedences, and Bypasses*	# of reported surcharges or unregulated overflows	The number of times a surcharge from the wastewater treatment plant has to be reported to the regulatory agency. Surcharges which do not have to be reported to the regulatory agency should not be included. *(Excludes CSOs and SSOs, which are reported in the wastewater collection datasheets, and Plant Bypasses which should be recorded separately). An example of a surcharge is a high flow condition which results in a spill to the surrounding area. Distinction between a surcharge and bypass is a surcharge is an uncontrolled spill to the surrounding area and a bypass is a controlled release of untreated or partially treated wastewater to the receiving body.*
	# of non-compliances	The number of times permit limits are exceeded. If the non-compliance contains more than one parameter (i.e. out of compliance on BOD and TSS) each parameter is recorded as one non-compliance. Only out of compliance if the Certificate of Approval STATES you are out of compliance. For example – if you have a monthly TP limit and you are over the limit 6 days of the month but the average for the month isn't over the limit, you are not out of compliance. Includes non-compliances for volume limits.
	# of Opportunities to be Out of Compliance	The Certificate of Approval designates the number of times it is possible to be out of compliance. For example, if you have a daily TP compliance with monthly TSS and BOD requirements the opportunities to be out of compliance are 365 times on TP, 12 times on BOD and 12 times on TSS. Therefore you have 365+12+12 = 389 opportunities to be out of compliance. Include the opportunities to be out of compliance if you have a volume limit, based on monthly average or annual average, e.g. add 12 or 1.
	Total # of standard noncompliance days	The total number of standard noncompliance days (SNDs) is the sum of all noncompliance days relative to all operating/discharge permits issued to the utility for an individual facility. Violation of daily requirements count as 1 SND, those for weekly requirements count as 7 SNDs, those for monthly requirements count as 30 SNDs, and those for quarterly requirements count as 90 SNDs. If in violation of more than a single effluent quality standard at the same treatment facility on the same day, only a single SND is counted. (Reference AWWA QualServe)
	# of *Raw Sewage* Plant Bypasses	The number of occurrences that raw sewage bypasses the wastewater treatment plant even if it is not out of compliance with the plant's permit to operate (excludes secondary plant bypasses).
	ML of *Raw Sewage* Plant Bypassed Flow	Total volume of sewage bypasses (excludes secondary plant bypasses), ML.
	Is it possible for the plant to have a *raw sewage* plant bypass?	Yes/No answer as to whether the plant can have a plant bypass where the raw sewage bypasses the wastewater treatment plant. Plants that can not have a bypass will not be shown on the PM graph for "# of bypasses".
	# of Secondary Plant Bypasses	*The number of secondary plant bypasses even if it is not out of compliance with the plant's permit to operate (excludes raw sewage plant bypasses).*
	ML of Secondary Plant Bypassed Flow	*Total volume of secondary sewage bypasses (excludes raw sewage plant bypasses), ML.*

Wastewater Treatment Plant Definitions by Hyperlink

T-ENERGY		
Energy	Energy Consumed Annually	For each of the key energy sources consumed at the wastewater treatment plant, an estimate of consumption in each area of the plant shall be made. The plant areas have been separated into influent pumping, primary treatment (including headworks), secondary/tertiary treatment, disinfection, biosolids and heating/lighting, odour control and effluent pumping. All energy purchase costs should include the direct cost of energy, its delivery, distribution, taxes, surcharges and similar costs.
	Electricity consumed	Amount of electricity consumed annually while operating and maintaining the plant. *Excludes cogenerated electricity which is accounted for with biogas consumption.*
	Natural gas consumed	Amount of natural gas in GJ consumed annually while operating and maintaining the plant. If data is provided in m^3, then multiply by 0.0373 to convert to GJ.
	Oil consumed	Amount of oil consumed annually while operating and maintaining the plant.
	Propane consumed	Amount of propane consumed annually while operating and maintaining the plant.
	Diesel consumed	Amount of diesel consumed annually while operating and maintaining the plant, excluding fuel used in vehicles.
	Biogas	*Total amount of biogas consumed by the plant for heating annually and the amount of biogas that is used in co-gen for electricity. Excludes the amount of gas that is wasted through flaring (report in m^3). Biogas consumption is the conversion of methane produced by anaerobic digestion into heat, electrical and mechanical energy through a boiler.*
	Steam	Amount of steam consumed annually by the plant for heating purposes.
	Has an energy audit been completed for the plant?	Answer yes or no if an energy audit on the treatment plant has been conducted
	If yes, what year was the last audit completed in?	Insert year of the last audit
	Total energy consumed	Sum of the energy consumed in kWh in the operation and maintenance of the wastewater treatment plant. Energy sources include electricity, natural gas, oil, propane, diesel, biogas and steam and are converted to kWh using standard conversions. If any of the specific energy sources are not consumed, then please enter 0 into the cell, otherwise it will be assumed to be used but will show as no data.
	Total energy purchased	Cost of energy purchased for consumption during the routine operations and maintenance of the wastewater treatment plant. Energy sources that might be purchased include electricity, natural gas, oil, propane and diesel. All energy purchase costs should include the direct cost of energy, its delivery, distribution, taxes, surcharges and similar costs.
	Biogas Flared	Total amount of biogas that is wasted through the flare (report in m^3)
	Cogenerated Electricity	Total amount of co-generated power consumed by the plant annually (typically measured in kWh). Co-generation is the conversion of methane produced by anaerobic digestion into electrical, thermal and mechanical energy through an engine. Please provide only the co-gen electricity portion only. This value will not be included in the electricity consumption (this would lead to double counting).
Chemical Consumption	Chemical Consumption	All costs for chemicals including the cost of delivery used at the wastewater treatment plant. The value should only include the chemicals consumed this year and not the total amount of chemicals purchased.
	Chemical	Name of the Chemical used in the treatment plant.
	Amount Consumed (Chemicals)	Annual consumption of this chemical at the treatment plant. The value should only include the chemicals consumed this year and not the total amount of chemicals purchased.
	Used For (Chemicals)	Select what the chemical is used for from the drop down selection. For example: Chlorine is used for disinfection.
	% Concentration	% concentration or the strength of the solution. This is the batch strength of dry chemicals mixed with water in a tank or amount of dilution. If chemical is supplied as a liquid solution and fed as shipped from the supplier, the information should be available from the chemical supplier. The concentration is required to determine the chemical dosage.

Wastewater Treatment Plant Definitions by Hyperlink

	Annual Cost (Chemicals)	Annual cost for each chemical listed in the table. The value reported should only include the cost for the chemicals consumed this year and not the total cost of chemicals purchased.
	Unit Cost (Chemicals)	Unit cost of each chemical used in the table. Enter only the $ value in this column, enter the unit value in the column to the right.
	Unit	See Unit Cost (Chemicals). This column is only for the unit value.
	Total Chemical Costs	All costs for chemicals consumed including the cost of delivery.
T-LABOUR		
Labour FTEs	FTE	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. Includes both permanent and temporary staff and "contracted" includes equivalent FTEs for all staff employed by an outside company.
	Employee FTEs	FTE - Full Time Equivalent for employees' definition. Wastewater Treatment Plant FTEs are the full time equivalents of the employees working on the wastewater treatment plant.
	Contracted FTEs	See "FTE" - Full Time Equivalent for employees' definition. Contracted FTEs are employees working on the wastewater treatment plant that work for an organization external to the City/ Region.
	Field staff	See also "FTE" definition. Employees who work in the plant 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".
	Laboratory staff	See also "FTE" definition. Includes the number of FTEs who work in the laboratory providing service to wastewater treatment plant.
	Technical/engineering staff	See also "FTE" definition. Engineers, chemists, technician working in plant operations. Does not include design and construction staff associated with capital projects.
	Supervisor/support staff	See also "FTE" definition. Full time equivalent employees in supervision and administration (and dedicated indirect staff such as finance, fleet, customer services etc) which support the wastewater treatment plant and are based at the treatment plant.
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 accidents incurred 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.
	# of safety training hours per field employee	Average number of safety training hours per field employee.
Availability	Total # of safety training hours for actual employees	The total number of safety training hours taken for all 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 field staff employees that excludes safety training hours but includes conferences, seminars etc. Actual employees refers to the number of field FTEs as entered in the section previous.
	Total # of sick hours for actual employees	The total number of sick hours taken by 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.

Wastewater Treatment Plant Definitions by Hyperlink

	Total # of long term leave hours for actual employees	The total number of long term leave hours for all 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 (incl. Stats)	The total number of vacation hours taken by 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 paid hours for actual employees	*Include all other paid hours where field staff were unavailable for work (e.g. family issues, bereavements).*
	Total # of union paid hours for actual employees	Total # of union paid 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. Actual employees refers to the number of field FTEs as entered in the section previous.
	Total paid hours for actual employees	Total number of standard paid hours recorded for all 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.
	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.
T-COSTS		
Contracting	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 plant operations are undertaken by an external company or contracted service, then answer Yes. *(ex. OCWA, EPCOR)*
	Estimate for % of O&M work provided by a Contracted Service	An estimate for the percentage of O&M work that is externally contracted (i.e., excluding capital) rather than completed in-house. The following calculation can be used for this estimate: Contracted Services (External) / (Wages + Contracted Services (Internal) + Contracted Services (External)). 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 plants will have a percentage between 0% and 100%. Details of the activities that are contracted out should be provided in the Notes field (e.g. biosolids disposal, electrical work, emergency repairs, etc).

Wastewater Treatment Plant Definitions by Hyperlink

O&M Costs	Wages (O&M Total including Biosolids)	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 wastewater utility staff that is extraneous to the wastewater utility (for example, when lab staff perform tests for other municipalities). Excludes internal costs for capital construction related projects (e.g. hydraulic modeling). Also excludes internal costs for GIS staff as these are considered under indirect costs as they are IT related. For technical and engineering internal costs include only the costs that is directly related to operations and maintenance (e.g. for chemical engineers undertaking ongoing process optimization for the plant).
	Equipment and Materials (Supplies) (O&M Total including Biosolids)	Cost of equipment and materials required for operations, maintenance or support activities and staff. Includes for example chemical cost, courier costs, postage, equipment rentals, repairs (parts), laundry, safety supplies, telephone, uniforms, vehicle and equipment insurance, and building utility fees for solid waste, garbage and sewer.
	Contracted Services – Internal (O&M Total including Biosolids)	Cost of work completed by an internal municipal department that relates to operations, maintenance or support and is charged back to the wastewater utility as a contracted cost. Includes for example charge back for radio equipment and building services such as garbage collection and recycling. Excludes internal costs for capital construction related projects (e.g. hydraulic modeling). Also excludes internal costs for GIS staff as these are considered under indirect costs as they are IT related. For technical and engineering internal costs include only the costs that is directly related to operations and maintenance (e.g. for chemical engineers undertaking ongoing process optimization for the plant).
	Contracted Services – External (O&M Total including Biosolids)	Cost of work completed by an external contractor or business that relates to operations, maintenance or support and is charged to the wastewater utility as a contracted cost. Includes for example advertising, building repairs, ground maintenance, hauling services, contracted janitorial services, vehicle and equipment rentals, consulting engineering fees related to non-capital work and fleet. Excludes external contracted costs for capital construction related work.
	Energy (O&M Total including Biosolids)	Cost of all energy used in the operation and maintenance of the treatment plant. All energy purchase costs should include the direct cost of energy, its delivery, distribution, taxes, surcharges and similar costs.
	Staff Training (O&M Total including Biosolids)	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 water consumed for treatment and the cost of rent, property taxes and permit fees for wastewater treatment plant operations.
	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
Actual Indirect Costs	Charge-Backs	The total cost of all indirect services that the utility paid under the collection system budget. Indirect services include Admin, Human Resources, Finance, Customer billing, Insurance, IT (including GIS and other information management systems except for Maintenance Management Systems as these are considered O&M) and any other similar costs.
Biosolids Costs	Biosolids Stabilization Cost	These include all costs for the Biosolids Stabilization activities; i.e. labour, equipment, materials energy and contracted costs associated with digestion, fermentation and in-house composting (either on or off site). List the processes for which costs have been included in the Notes field on the datasheets. Odour control O&M costs should be included in the biosolids stabilization costs where the odour control processes are directly related to biosolids stabilization operations. See also Wages, Equipment and Materials, Contracted Services (Internal), Contracted Services (External), Energy and Other definitions. Revenue from compost sales (if composting is done in-house) should be included.

Wastewater Treatment Plant Definitions by Hyperlink

	Energy Recovery Savings (-ve) under Biosolids Stabilization Cost	The energy cost savings resulting from utilization of digester gas (through co-generation or biogas) should be included with the biosolids stabilization cost only where the energy is used outside of the biosolids side of the plant, either offsite or in the liquid waste processing side of the plant, for example in the clarifiers. Calculate from the "unit cost of energy ($/kWh of electricity or $/GJ of natural gas))" * "Consumption of digester gas outside of the solids side of the plant (kWh of GJ)". Enter as a negative number as this is a credit to the costs.
	Energy Recovery Savings (-ve) under Biosolids Storage and Disposal Cost	The energy cost savings resulting from utilization of steam produced by incineration should be applied to the biosolids disposal costs only where the energy is used outside of the biosolids side of the plant, either offsite or in the liquid waste processing side of the plant, for example in the clarifiers. Calculate from the "unit cost of electricity ($/kWh)" * "Consumption of steam outside of the solids side of the plant (kWh)". Enter as a negative number as this is a credit to the costs.
	Biosolids Dewatering Cost	These include all costs for the Biosolids Dewatering activities; i.e. labour, equipment, materials energy and contracted costs associated with mechanical dewatering. List the processes for which costs have been included in the Notes field on the datasheets. Odour control O&M costs should be included in the biosolids dewatering costs where the odour control processes are directly related to biosolids dewatering operations. See also Wages, Equipment and Materials, Contracted Services (Internal), Contracted Services (External), Energy and Other definitions.
	Biosolids Storage and Disposal Cost	These include all costs for the Biosolids Storage and Disposal activities; i.e. labour, equipment, materials energy, contracted and other costs associated with: storage lagoons, landfill tipping, land disposal, pumping off-site, trucking off-site, composting completed by an external company, incineration and pelletization. If the costs of trucking off-site or tipping fees are known, record them in the separate data fields. List the storage and disposal activities for which costs have been included in the Notes field on the datasheets. Odour control O&M costs should be included in the biosolids storage and disposal costs where the odour control processes are directly related to biosolids storage and disposal operations. See also Wages, Equipment and Materials, Contracted Services (Internal), Contracted Services (External), Energy and Other definitions.
	Biosolids Processing Cost	Sum of Biosolids stabilization and dewatering costs. Includes all costs for the Biosolids Processing activities; i.e. labour, equipment, materials energy and contracted costs associated with mechanical thickening, mechanical dewatering, digestion, fermentation and in-house composting (either on or off site). Biosolids processing begins when mechanical energy is added (i.e. it excludes gravity thickening but includes mechanical thickening).
	Total Biosolids Management Cost (Processing + Storage + Disposal)	Sum of the "Biosolids Stabilization Cost", "Biosolids Dewatering Cost" and the "Biosolids Storage and Disposal Cost" plus any additional miscellaneous costs non-specific to either processing or storage and disposal such as public relations costs. If the Biosolids Processing Cost is unknown or incomplete, no data should be entered into this field.
Capital Costs	Capital cost	The costs for capital projects including reinvestment in the existing system and new investment for upgrades and expansions to handle growth. Include both contracted capital work and internal costs associated with capital such as wages for capital engineering staff i.e. design, tendering, studies, etc. Capital projects cover equipment and large maintenance expenditures that cannot be funded through the operating budget.
	New capital investment	A project to expand the system to handle growth and upgrade to a higher level of service. Projects which serve one or more purpose (maintenance and expansion) should be prorated in order to also capture the capital applied for reinvestment activities. Include both contracted capital work and internal costs associated with capital such as wages for capital engineering staff i.e. design, tendering, etc. Includes new capital costs for utility systems components (for example: pipes (including valves, hydrants, reservoirs etc), pump stations and meters).

Wastewater Treatment Plant Definitions by Hyperlink

	Capital reinvestment	A project which substantially maintains the life of the utility systems. 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. Projects which serve one or more purpose (maintenance and expansion) should be prorated in order to also capture the capital applied for investment activities. Include both contracted capital work and internal costs associated with capital such as wages for capital engineering staff i.e. design, tendering, etc. Includes capital reinvestment (i.e. replacement) costs for utility systems components (for example: pipes (including valves, hydrants, reservoirs etc), pump stations and meters).
	Notes, Capital Cost	What is your limit for minor capital that is included under the O&M budget? Do you have separate capital reserves for pipes and treatment? Do you have separate capital reserves for new capital and reinvestment?
Financing	Plant Replacement Value	The amount of money needed to replace all of the existing infrastructure. The replacement value shall include all engineering costs, construction, supervision, taxes, etc (excluding land purchasing). Total value for each type of infrastructure is calculated by multiplying the unit value by the number of units (where appropriate). Unit replacement values shall be estimated based on average construction costs over the last 5 years. For example, if 20 main replacements have been constructed over the last five years, the average unit cost per km of main can be estimated from all 20 construction projects (excluding inflation).
	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. If the capital reserve is for the full wastewater utility them the net change value should be prorated between the collection system and each treatment plant (for example, by replacement value).
	Current Capital Reserves	The total value for the capital reserve 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. If the capital reserve is for the full wastewater utility, the value should be prorated between the collection system and each treatment plant (for e.g. by replacement value).
	Current Year O&M Budget Allocation	Approved operations and maintenance budget for the upcoming year (1 year after the year of data collection). Collect separately for each wastewater treatment plant.
	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). Collect separately for each wastewater treatment plant/system.
Maintenance Planning	Total maintenance hours	Sum of all maintenance hours below. = Emergency Maintenance + Urgent Maintenance + Corrective Maintenance + Preventative Maintenance + Inspections + Capital + Other hours.
	Emergency maintenance hours (unplanned & unscheduled)	Emergency hours = # of hours spent by maintenance staff on emergency work (repairing equipment after it has broken down). Emergency work requires rapid response in order to protect life, property, or the environment. Emergency maintenance must be deployed as soon as possible and may require the use of overtime. Include both internal and external maintenance hours (e.g. some systems outsource all breakdown work therefore they should estimate all maintenance hours, both internal and external). Use total hours and non-paid hours (in the case of overtime). Emergency maintenance hours completed by operations staff should also be included in this section.
	Urgent maintenance hours (unplanned & unscheduled)	Urgent maintenance hours = # of hours spent by maintenance staff on maintenance work that causes you to interrupt your daily schedule but is not captured under emergency work (above). Urgent work may not result in loss of service as the system is protected by equipment redundancy, and maintenance is deployed at the earliest practical convenience. As a guide include work that would cause you to interrupt your daily maintenance plan. Include both internal and external maintenance hours (e.g. some systems outsource all breakdown work therefore they should estimate all maintenance hours, both internal and external). Urgent maintenance hours completed by operations staff should also be included in this section.

Wastewater Treatment Plant Definitions by Hyperlink

	Corrective maintenance hours (planned & scheduled)	Corrective maintenance hours = # of hours spent by maintenance staff on routine corrective maintenance tasks. This is work that does not impact the normal schedule of work; that can be scheduled in advance, but is corrective in nature. Includes maintenance on redundant equipment that breaks down, but can be planned rather than undertaken immediately as an emergency or urgent response. Include both internal and external maintenance hours (e.g. some systems outsource all breakdown work therefore they should estimate all maintenance hours, both internal and external). Corrective maintenance hours completed by operations staff should also be included in this section.
	Preventative maintenance hours (planned & scheduled)	Preventative maintenance hours = # of hours spent on regularly scheduled and periodic maintenance as directed by vendor or other maintenance guide (time spent preventing possible break down, and extending the lifecycle of assets as specified by the vendor). Include both internal and external maintenance hours (e.g. some systems outsource all breakdown work therefore they should estimate all maintenance hours, both internal and external). Preventative maintenance hours completed by operations staff should also be included in this section.
	Inspection hours (planned & scheduled)	Inspection = # of hours spent inspecting the condition of equipment according to a planned schedule. This should include inspection time spent by both maintenance staff and operations staff. Note: Some utilities include inspections in their Preventative Maintenance program. If this is your situation, insert "0", but check the box that indicates that your PM hours include Inspections) Inspection hours completed by operations staff should also be included in this section. An estimate is acceptable in cases where your Operations staff do not conduct inspection against a Work Order. Inspection hours completed by operations staff should also be included in this section.
	Capital project hours (planned & scheduled)	Capital projects hours = # of hours spent by maintenance staff on the construction or implementation of equipment or facilities that are new. This is differentiated from true maintenance work. (Maintenance staff working on capital work may result in growing maintenance backlogs). Capital project hours completed by operations staff should also be included in this section.
	Other maintenance hours	Other hours = # of hours spent by maintenance or operations staff on other work that is not captured by any of the above categories.
T-CUSTOMER SERVICE		
Customer Service	# of odour complaints	Number of odour complaints by the public relating to the WWTP.
	# of residences within 1 km from the WWTP	This measures residential proximity to the wastewater treatment plant, include each individual apartment or condo as 1 residence. Enter zero if there are no residences within a 1 km radius from the plant.