Portland Water Bureau

QualServe Performance Indicators
Water and Wastewater Utilities Survey
Benchmarking Summary Annual Report

2011

prepared by

AWWA

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Introduction

The primary objective of this initiative is to assess the performance of water and wastewater utilities using a variety of high-level measures. These measures are designed to help participating organizations improve their operational efficiency and effectiveness. Utility managers will use this information to determine where his/her utility's performance resides within the industry peer group. High-level indicators were selected as the starting point for the system because they are more likely to be recognizable and applicable to large numbers of utilities. This survey provides an opportunity to comment on next steps beyond this benchmarking. This survey represents the result of the efforts of various organizations and individuals. AWWA/Water Research Foundation staff brought together representatives from various organizations to develop performance indicators. During two workshops, these individuals set out to build on what others have already researched, developed, and communicated, and to do it in a way that might draw continuing support from utilities that will both provide and use performance indicator data. A narrower project scope was proposed as a start so participating utilities will have opportunities to decide which indicators have the most meaning to them, and those administering the proposed measurement system can learn how to build, finance, manage, and sustain an effective data delivery system. Developing a more detailed measurement system is planned for future periods, including the addition of lower-level indicators. Twenty-two performance indicators were selected for this project. This was expanded to 34 performance indicators in 2009. The QualServe business systems were chosen as an organizing framework to guide the design effort so the initial performance indicators database would be familiar to the many utilities participating in other elements of that program.

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Definitions

Values were derived from answers provided in the Qualserve Performance Indicators for Water and Wastewater survey. Most metric definitions, calculations, and purpose statements originate from the Qualserve Performance Indicators Report.

Participant Groups:
1) Water Operations represent those utilities designated as exclusively providing water services.
2) Wastewater Operations represent those utilities designated as exclusively providing wastewater services.
3) Combined Operations represent those utilities designated as providing both water and wastewater services.

Quartile Ranking: Top and bottom quartile can reflect either the 25th or 75th percentile, depending on the direction of favorable performance. For example, if a lower number reflects favorable performance (e.g., cost per employee), the top quartile value would represent the 25th percentile. This percentile would reflect the value above which 75 percent of the responses fall. The converse would apply if the top quartile reflected the 75th percentile. In this case, the percentile would reflect the value above which 25 percent of the responses fall.

Median: Represents the 50th percentile.

Direction of favorable performance for each indicator is designated by the top quartile. However, due to unique utility factors, the direction of good performance could change. There may be explanatory factors on a utility-by-utility basis that help inform the rationale for performance for these and other indicators. These indicators are identified with an asterisk (*) in the Performance Indicators Summary table beginning on p. 9.

Definitions, continued

Calculated metrics identified as outliers pertaining to those performance indicators using customer accounts data from wholesale/retail utilities were omitted from the report. This was due to wholesale/retail utilities not being separated as an independent group. In the future, it is planned to include a separate analysis for customer accounts related indicators for wholesale/retail utilities.

A designation of "na" reflects data was not available or not applicable for that metric.

Performance indicator reporting shows quartiles only if there were five or more responses and median only if there were three or more.

** Notes: Findings presented in this report are limited to content from this specific 2011 QualServe data set. Caution should be used when applying these findings to a broader population. Moreover, variations in the summary statistics reflect the different sample sizes or data sets used within each peer grouping. The data have been cut based on type of utility, region and population served and are mutually exclusive of one another. Please refer to page 6 for a detailed listing of the multiple data sets derived from the various peer groups.

Regions have been designated as per the U.S. Census Bureau definitions:

Region 1: MD,ME,NJ,NS,NY,PA

Region 2: AL,GA,KY,FL,MS,NC,SC,TN,VA

Region 3: IA,IL,IN,MI,OH,SD

Region 4: AR,AZ,CO,MO,NE,NM,TX,UT

Region 5: AK,CA,HI,MT,NV,WA

Participant Summary

Operational Summary

Water Only	41
Wastewater Only	4
Combined Operations	62
Total Participants	107

Regional Summary

Region I Northeast	
Water	6
Wastewater	1
Combined	5
	12
Region II South	
Water	8
Wastewater	1
Combined	21
	30
Region III Central	
Water	6
Wastewater	1
Combined	9
	16
Region IV Midwest	
Water	7
Wastewater	1
Combined	14
	22
Region V West	
Water	14
Wastewater	0
Combined	12
	26
International	
Water	0
Wastewater	0
Combined	1
	1
Total	107

Size of Population Served

0-10,000	
Water	4
Wastewater	0
Combined	4
	8
10,001-50,000	
Water	6
Wastewater	1
Combined	7
	14
50,001-100,000	
Water	4
Wastewater	0
Combined	15
	19
100,001-500,000	
Water	16
Wastewater	3
Combined	24
	43
More than 500,000	
Water	10
Wastewater	0
Combined	12
	22
Total	107

Participants

Region I

State Utility	Type
Anne Arundel County	J
Boston Water and Sewer Commission	J
Bristol County Water Authority	W
Fort Kent Water & Wastewater Department	J
Fox Chapel Authority	W
Halifax Regional Water Commission	J
Lancaster Area Sewer Authority	WW
Onondaga County Water Authority (OCWA)	W
Passaic Valley Water Commission	W
PHILADELPHIA WATER DEPARTMENT	J
United Water New Jersey	W
United Water Toms River	W

Region II

State Utility	Type
Anniston Water Works and Sewer Board	J
Beaufort Jasper Water and Sewer Authority	J
Charleston Water Systems (Commissioners of Public Wor	J
Chesapeake Public Utilities	J
Chesterfield Utilities	J
City of Corinth Gas & Water	W
CITY OF MANNING	J
CITY OF PALM BAY	J
City of Rock Hill, SC	J
City of Tampa Water Department	W
Columbus Water Works	J
Dalton Utilities	J
Davidson Water Inc	W
Georgetown County Water & Sewer District	J
Greenville Utilities Commission	J
Hanover County - Dept of Public Utilities	J
Hopewell Regional Wastewater Treatment Facility	WW
Louisville Water Company	W
Marion County Utilities	J
Memphis Light Gas and Water	W
Metro Water Services	J
Miami-Dade Water & Sewer	J
Newport News Waterworks	W
Orange Water and Sewer Authority	J
Owensboro Municipal Utilities	W
Powdersville Water District	W
Prince William County Service Authority	J
Rockdale Water Resources	J
Spotsylvania County Utilities/Public Works	J
Toho Water Authority	J

Region III

State Utility	Type
Citizens Water	W
City of Columbus, Division of Water	J
CITY OF LIMA UTILITIES	J
City of Naperville Department of Public Utilities	J
City of Rockford Water Division	W
City of Sioux City Water Treatment Plant	W
Commonfields of Cahokia Public Water District	J
Department of Water Works	W
Des Moines WRF	WW
Detroit Water and Sewerage Department	J
FORT WAYNE CITY UTILITIES	J
Holland Board of Public Works	J
Lansing Board of Water and Light	W
Montgomery County Water Services	J
Sioux Falls Water Purification Plant	W
Westfield Public Works	J

Participants II

Region IV

State	Utility	Type
	ACTON MUNICIPAL UTILITY DISTRICT	J
	Albuquerque Bernalillo County Water Utility Authority	J
	Arlington Water Utilities	W
	Beaver Water District	W
	Board of Water Works of Pueblo, Colorado	W
	Central Arkansas Water	W
	Central Bowie County Water Supply Corporation	W
	City of Austin, Austin Water Utility	J
	City of Boulder	J
	City of Denton	J
	City of Excelsior Springs	J
	City of Flagstaff	J
	City of North Richland Hills	J
	City of Peoria	J
	City of Phoenix Water Services Department	J
	El Paso Water Utilities	J
	Fort Bend County Municipal Utility District No. 25	J
	Fort Collins Utilities	J
	Lincoln Water System	W
	nashville rural water	W
	Salt Lake City Public Utilities	J
	Wastewater & Solid Waste, Public Works and Utilities, Cit	WW

Region V

State	Utility	Type
	Anchorage Water & Wastewater Utility	J
	City of Auburn Public Works	J
	City of Billings Public Works Department	J
	City of Bremerton Public Works and Utilities	J
	City of Corona	J
	City of North Las Vegas Utilities Department	J
	City of San Diego Public Utilities Department	J
	Coachella Valley Water District	J
	County of Kauai, Department of Water	W
	Crestview Mutual Water Company	W
	Helix Water District	W
	Honolulu Board of Water Supply	W
	Incline Village General Improvement District	J
	King County Water District NO. 90 (KCWD90)	W
	Las Vegas Valley Water District	W
	Los Angeles Department of Water and Power	W
	Marina Coast Water District	J
	North Marin Water District	W
	Portland Water Bureau	W
	PUD No. 1 of Wahkiakum County	W
	Rancho California Water District	J
	Running Springs Water District	J
	Sacramento Suburban Water District	W
	Sweetwater Authority	W
	Tacoma Water	W
	Virgin Valley Water District	W

Region International

State	Utility	Type
	Guam Waterworks Authority	J

Summary of Performance Indicators

Portland Water Bureau

		Water Utilities			Wastewater Utilities			Combined Utilities		
	Your Site	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile
Organizational Development										
Organizational Best Practice Index:										
Strategic Planning	4.0	5.0	4.0	4.0	N/A	4.0	N/A	5.0	4.0	4.0
Long-term Financial Planning	4.0	5.0	4.0	4.0	N/A	4.5	N/A	5.0	5.0	4.0
Risk Management Planning	4.0	4.0	4.0	3.0	N/A	3.5	N/A	4.0	4.0	3.0
Performance Measurement	3.0	4.0	4.0	3.0	N/A	3.0	N/A	4.0	4.0	3.0
Optimized Asset Management	4.0	4.0	3.0	2.5	N/A	4.0	N/A	4.0	3.0	3.0
Customer Involvement	3.0	4.0	3.0	2.0	N/A	2.5	N/A	4.0	3.0	3.0
Continuous Improvement	3.0	4.0	3.0	3.0	N/A	3.5	N/A	4.0	4.0	3.0
Total	25.0	28.0	25.0	22.8	N/A	25.0	N/A	29.0	27.0	23.0
Employee Health and Safety Severity Rate *	49.0	121.8	51.0	23.3	N/A	157.0	N/A	175.5	72.0	26.5
Training Hours per Employee	27.0	29.0	20.5	13.8	N/A	32.0	N/A	27.0	19.0	11.0
Customer Accounts per Employee (Water)	388.0	703.0	508.0	388.0				756.5	479.0	387.5
Customer Accounts per Employee (Wastewater)	0.0				N/A	838.0	N/A	862.0	504.0	381.5
MGD Water Delivered per Employee	0.19	0.31	0.27	0.16				0.38	0.25	0.20
MGD Wastewater Processed per Employee	0.00				N/A	0.51	N/A	0.32	0.21	0.15
Employee Turnover Rates *	5.70%	6.85%	5.26%	3.82%	N/A	4.27%	N/A	12.86%	8.48%	6.33%
Emergency Response Readiness	0.00%	0.23%	0.10%	0.10%	N/A	N/A	N/A	0.20%	0.10%	0.10%
Internal Employee Promotions	80.00%	100.00%	61.36%	50.00%	N/A	61.12%	N/A	100.00%	59.46%	40.00%
Retirement Eligibility *	10.1%	33.9%	27.3%	17.9%	N/A	42.6%	N/A	29.3%	17.6%	13.4%

Qualserve Performance Indicators for Water and Wastewater Utilities 2011 Survey

Summary of Performance Indicators

Portland Water Bureau	Your Site	Water Utilities			Wastewater Utilities			Combined Utilities		
		Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile
Customer Relations										
Customer Service Complaints per 1000 Customers	0.36	12.76	2.36	1.18	N/A	N/A	N/A	26.32	6.28	1.72
Technical Quality Complaints per 1000 Customers	5.60	8.93	2.66	0.93	N/A	N/A	N/A	15.62	5.64	2.28
Disruption of Water Service Rate per 1000 Customers										
Planned (less than 4 hours)	1.35	4.91	1.56	0.81				2.93	1.19	0.29
Planned (between 4 and 12 hours)	4.92	2.33	1.23	0.70				2.40	0.65	0.16
Planned (greater than 12 hours)	0.13	0.13	0.04	0.03				0.13	0.08	0.04
Unplanned (less than 4 hours)	0.28	7.38	2.56	0.74				4.81	1.79	0.79
Unplanned (between 4 and 12 hours)	2.00	5.61	1.52	0.46				2.19	0.63	0.35
Unplanned (greater than 12 hours)	0.15	0.14	0.05	0.01				0.43	0.12	0.07
Disruption of Sewer Service *										
Planned (less than 4 hours)	0.00				N/A	N/A	N/A	N/A	4.50	N/A
Planned (between 4 and 12 hours)	0.00				N/A	N/A	N/A	N/A	8.00	N/A
Planned (greater than 12 hours)	0.00				N/A	N/A	N/A	N/A	N/A	N/A
Unplanned (less than 4 hours)	0.00				N/A	N/A	N/A	2.77	0.48	0.18
Unplanned (between 4 and 12 hours)	0.00				N/A	N/A	N/A	10.00	5.00	1.00
Unplanned (greater than 12 hours)	0.00				N/A	N/A	N/A	N/A	N/A	N/A
Residential Cost of Water/Sewer Service:										
Monthly residential water using 7500 gallons per	$35.59	$42.13	$33.45	$25.68				$37.20	$28.34	$22.29
Average residential water bill amount for one mo	$20.05	$44.22	$30.04	$22.26				$33.42	$25.90	$19.91
Monthly residential sewer using 7500 gallons per	$0.00				N/A	$25.96	N/A	$42.90	$35.84	$26.89
Average residential sewer bill amount for one m	$0.00				N/A	$18.40	N/A	$39.23	$28.68	$21.54
Multi-service, monthly bill - combined service us	$0.00							$76.85	$59.10	$48.04
Multi-service, average residential combined bill f	$0.00							$64.10	$53.74	$46.31
Customer Service Cost per Account	$38.12	$67.01	$35.92	$27.80	N/A	N/A	N/A	$64.62	$48.34	$39.08
Billing Accuracy Rate *	10.90	24.50	11.10	5.80	N/A	N/A	N/A	17.05	4.80	1.35
Service Affordability										
Water Service Affordibility	0.48%	0.97%	0.69%	0.59%				0.82%	0.65%	0.51%
Wastewater Service Affordibility	0.00%				N/A	0.58%	N/A	0.91%	0.69%	0.50%
Stakeholder Outreach Index (%)	75%	75%	58%	33%	N/A	50%	N/A	83%	75%	58%

Summary of Performance Indicators

Portland Water Bureau

		Water Utilities			Wastewater Utilities			Combined Utilities		
	Your Site	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile
Business Operations										
Debt Ratio *	52.2%	46.2%	36.0%	25.4%	N/A	49.8%	N/A	49.9%	33.7%	18.3%
System Renewal / Replacement Rate:										
Water pipeline	0.8%	5.7%	2.8%	1.3%				15.7%	2.7%	0.8%
Water treatment facility and pumping	1.8%	12.7%	4.7%	1.5%				14.1%	6.7%	3.8%
Wastewater pipelines and collections	0.0%				N/A	N/A	N/A	20.8%	3.9%	2.1%
Wastewater treatment facility and pumping	0.0%				N/A	N/A	N/A	24.5%	5.8%	1.5%
Return on Assets	1.90%	2.88%	2.05%	0.93%	N/A	4.10%	N/A	2.10%	1.50%	0.35%
Cash Reserves (Days)	112	285	143	58	N/A	N/A	N/A	329	182	85
Energy Consumption Efficiency (kWh/MG) *										
For Water	8,391	27,791	17,689	3,793				30,996	22,119	14,481
For Wastewater	0				N/A	19,326	N/A	52,357	29,772	17,455
Triple-Bottom-Line Index (%)	60%	70%	55%	45%	N/A	30%	N/A	85%	70%	55%
Water Operations										
Drinking Water Compliance Rate (% Days)	100.0%	100.0%	100.0%	100.0%				100.0%	100.0%	100.0%
Distribution System Water Loss (%)										
Apparent Losses	3.91%	9.06%	3.87%	2.38%				11.27%	5.06%	2.00%
Real Losses	4.01%	11.48%	5.54%	3.48%				7.83%	5.01%	1.32%
Water Distribution System Integrity*	18.00	60.50	30.00	14.75				76.00	34.00	15.00
Operations Maintenance Cost Ratios:										
O and M cost per account	$324	$531	$362	$263				$483	$341	$210
O and M cost per MG processed	$1,841	$2,939	$2,164	$1,577				$2,615	$1,987	$1,503
Direct cost of treatment per MG	$60	$561	$383	$182				$804	$550	$317
Planned Maintenance Ratios:										
Planned maintenance ratio (hours)	54%	75%	54%	40%				78%	60%	36%
Planned maintenance ratio (cost)	54%	71%	53%	36%				71%	59%	28%
Current Water Demand (%) *	50.8%	80.7%	56.0%	37.1%				69.7%	50.5%	36.1%
Available Future Water Supply (Years)	30	42	36	14				38	23	19

Summary of Performance Indicators

Portland Water Bureau

		Water Utilities			Wastewater Utilities			Combined Utilities		
	Your Site	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile
Wastewater Operations										
Sewer Overflow Rate	0.00				N/A	3.30	N/A	4.35	1.75	0.98
Collection System Integrity *	0.00				N/A	2.50	N/A	18.95	9.05	2.95
Wastewater Treatment Effectiveness Rate	0.0%				N/A	100.0%	N/A	100.0%	100.0%	99.5%
Operations Maintenance Cost Ratios:										
O and M cost per account	$0				N/A	N/A	N/A	$457	$338	$240
O and M cost per MG processed	$0				N/A	$1,246	N/A	$3,673	$2,784	$1,535
Direct cost of treatment per MG	$0				N/A	$793	N/A	$1,892	$945	$629
Planned Maintenance Ratios:										
Planned maintenance ratio (hours)	0.0%				N/A	67.1%	N/A	80.4%	69.1%	59.4%
Planned maintenance ratio (cost)	0.0%				N/A	67.5%	N/A	76.7%	59.8%	39.6%

Organizational Best Practice Index:

Portland Water Bureau

Purpose:
To summarize a utility's implementation of management programs important to water and wastewater utilities.

The practices are the following:
Strategic Planning
Long-term Financial Planning
Risk Management Planning
Optimized Asset Management
Performance Measurement
Customer Involvement
Continuous Improvement

The scoring system is:
· This activity is fully implemented at our utility (5 Points)
· This activity is largely implemented, but there is room for improvement (4 Points)
· This activity is implemented, but there is room for substantial improvement (3 Points)
· This activity is implemented, but only occasionally or without uniformity (2 Points)
· This activity is not practiced at our utility (1 Point)
With seven practices each scoring between 1 and 5, the aggregate score at each utility will range between 7 and 35.

Detailed information for each of the seven practices can be found in the glossary of survey terms.

		Water Utilities			Wastewater Utilities			Combined Utilities		
	Your Site	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile
Strategic Planning	4.0	5.0	4.0	4.0	N/A	4.0	N/A	5.0	4.0	4.0
Long-term Financial Planning	4.0	5.0	4.0	4.0	N/A	4.5	N/A	5.0	5.0	4.0
Risk Management Planning	4.0	4.0	4.0	3.0	N/A	3.5	N/A	4.0	4.0	3.0
Performance Measurement	3.0	4.0	4.0	3.0	N/A	3.0	N/A	4.0	4.0	3.0
Optimized Asset Management	4.0	4.0	3.0	2.5	N/A	4.0	N/A	4.0	3.0	3.0
Customer Involvement	3.0	4.0	3.0	2.0	N/A	2.5	N/A	4.0	3.0	3.0
Continuous Improvement	3.0	4.0	3.0	3.0	N/A	3.5	N/A	4.0	4.0	3.0
Total	25.0	28.0	25.0	22.8	N/A	25.0	N/A	29.0	27.0	23.0

Sample Size	
Water Operations	40
Wastewater Operations	4
Combined Operations	59

Employee Health and Safety Severity Rate

Portland Water Bureau

Purpose:
To quantify the rate of employee days lost from work due to illness or injury.

Calculation:
Employee Health and Safety Severity Rate = 200,000 (Total Days Away from Work) / Total hours worked by all employees

Definitions:
· Total workdays away from work are obtained directly from OSHA Form 300A (or state counterpart) Summary of Work-Related Injuries and Illnesses.
· Total hours worked by all employees is the sum of hours actually worked by full-time, part-time, temporary and seasonal employees of the utility.

Visit www.osha.gov for a complete explanation of this indicator, including applicable definitions.

		Water Utilities			Wastewater Utilities			Combined Utilities		
	Your Site	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile
Employee Health and Safety Severity Rate	49.0	121.8	51.0	23.3	N/A	157.0	N/A	175.5	72.0	26.5

Sample Size	
Water Operations	26
Wastewater Operations	3
Combined Operations	47

Training Hours per Employee

Portland Water Bureau

Purpose:
To measure the quantity of formal training utility employees are actually completing. This indicator is expressed as the number of formal training hours per employee per year.

Calculation:
Training Hours per Employee = Total of qualified formal training hours for all employees / Total FTEs worked by employees during the reporting period

Definitions:
· Sum of all qualified formal training hours completed by all employees
· Total hours worked by all employees is the sum of hours actually worked by full-time, part-time, temporary and seasonal employees of the utility.

		Water Utilities			Wastewater Utilities			Combined Utilities		
	Your Site	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile
Training Hours per Employee	27.0	29.0	20.5	13.8	N/A	32.0	N/A	27.0	19.0	11.0

Sample Size	
Water Operations	36
Wastewater Operations	3
Combined Operations	54

Customer Accounts per Employee (Water and Wastewater)

Portland Water Bureau

Purpose:
This indicator is intended to measure employee efficiency.

Calculation:
Customer accounts per employee = Number of accounts / Number of full time equivalents

Definitions:
· Active Customer Account means all customer accounts that were billed for some or all of the reporting period. A single account may include service through more than one water service connection.
· A full-time equivalent (FTE) is the allocation of employee time equal to 2080 hours per year. Use of this term allows data to be normalized around a common measure. Part-time, temporary, and seasonal employees are converted to FTEs based on the total number of compensated hours. Employee time from contracts supporting utility operations and maintenance are applied in the same way. Employee time from engineering and construction of new facilities are not counted in these indicators.

		Water Utilities			Wastewater Utilities			Combined Utilities		
	Your Site	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile
Customer Accounts per Employee (Water)	388.0	703.0	508.0	388.0				756.5	479.0	387.5
Customer Accounts per Employee (Wastewater)	0.0				N/A	838.0	N/A	862.0	504.0	381.5

Sample Size	
Water Operations	37
Wastewater Operations	0
Combined Operations	59

MGD Water Delivered per Employee

Portland Water Bureau

Purpose:
This indicator is intended to measure employee efficiency.

Calculation:
MGD processed per employee = Average MGD delivered / Number of full time equivalents

Definitions:
· Average daily volumes distributed are calculated by dividing the total volume of water distributed during the reporting period by 365. Distributed water is the total volume of water entering the distribution system from all sources, including treatment facilities, well fields, individual wells, and purchased water connections.
· A full-time equivalent (FTE) is the allocation of employee time equal to 2080 hours per year. Use of this term allows data to be normalized around a common measure. Part-time, temporary, and seasonal employees are converted to FTEs based on the total number of compensated hours. Employee time from contracts supporting utility operations and maintenance are applied in the same way. Employee time from engineering and construction of new facilities are not counted in these indicators.

		Water Utilities			Wastewater Utilities			Combined Utilities		
	Your Site	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile
MGD Water Delivered per Employee	0.19	0.31	0.27	0.16				0.38	0.25	0.20

Sample Size	
Water Operations	39
Wastewater Operations	0
Combined Operations	59

MGD Wastewater Processed per Employee

Portland Water Bureau

Purpose:
This indicator is intended to measure employee efficiency.

Calculation:
MGD processed per employee = Average MGD processed / Number of full time equivalents

Definitions:
· Average daily volumes processed are calculated by dividing the total volume of wastewater processed during the reporting period by 365.
· A full-time equivalent (FTE) is the allocation of employee time equal to 2080 hours per year. Use of this term allows data to be normalized around a common measure. Part-time, temporary, and seasonal employees are converted to FTEs based on the total number of compensated hours. Employee time from contracts supporting utility operations and maintenance are applied in the same way. Employee time from engineering and construction of new facilities are not counted in these indicators.

		Water Utilities			Wastewater Utilities			Combined Utilities		
	Your Site	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile
MGD Wastewater Processed per Employee	0.00				N/A	0.51	N/A	0.32	0.21	0.15

Sample Size	
Water Operations	0
Wastewater Operations	4
Combined Operations	56

Employee Turnover Rates

Portland Water Bureau

Purpose:
To measure the rate of employee departures (voluntary, involuntary, retirement) per year as a percentage. Number of regular employee departures divided by average number of regular employees for the reporting fiscal year period.

Calculation:
Number of Regular Employee Departures
Employee Turnover Rates = x 100
Average Number of Regular Employees

Definitions:
Number of regular employee departures includes the number of regular employees who terminated from employment through voluntary, involuntary, or retirement reasons during the reporting fiscal year period. Regular employees are those employees who worked more than 1000 hours for the most recent annual basis of reporting. Average number of regular employees is the sum of the number of regular employees at the end/beginning of each month for the total of a 12-month fiscal year divided by 12.

		Water Utilities			Wastewater Utilities			Combined Utilities		
	Your Site	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile
Employee Turnover Rates	5.70%	6.85%	5.26%	3.82%	N/A	4.27%	N/A	12.86%	8.48%	6.33%

Sample Size	
Water Operations	34
Wastewater Operations	3
Combined Operations	53

Emergency Responce Readiness

Portland Water Bureau

Purpose:
To measure the total number of training hours on emergency response readiness training for all employees, expressed as hours per employee. The total number of training hours for all employees on emergency response readiness training is divided by total employee hours worked during the reporting period. This measure is a "subset" of the existing QualServe performance indicator "Training Hours Per Employee".

Calculation:
Total number of training hours for all employees on emergency response readiness training /
Total employee hours worked during the reporting period

Definitions:
Training hours on emergency response readiness training includes formal training by employees for emergency response, based on all utility-defined emergency response plans (includes all training for utility-defined emergency response plans). The sum of all qualified formal training on emergency response includes all employees for the most recent fiscal year reporting period. The total employee hours worked for the same reporting period includes full-time, part-time, temporary, and seasonal employees of the utility.

		Water Utilities			Wastewater Utilities			Combined Utilities		
	Your Site	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile
Emergency Response Readiness	0.00%	0.23%	0.10%	0.10%	N/A	N/A	N/A	0.20%	0.10%	0.10%

Sample Size	
Water Operations	24
Wastewater Operations	2
Combined Operations	33

Internal Employee Promotions

Portland Water Bureau

Purpose:
To measure the rate of internal employee promotions per year as a percentage. Expressed as number of internal promotions divided by total number of positions filled for the reporting fiscal year period.

Calculation:
Number of Internal Promotions
Internal Employee Promotions = x 100
Total Number of Positions Filled

Definitions:
Promotions are based on employees who transfer to a classification that involves an increase in responsibility, not just pay increases. The number of internal promotions is based on current regular or part-time employees during the reporting fiscal year, who were promoted to "fill" positions. The total number of positions filled is based on positions that were opened or "posted" and filled during the reporting fiscal year. If a promotion was made without an "opening" or "posted" position, it will be included as a promotion if the position remains as a "regular (full-time) position.

		Water Utilities			Wastewater Utilities			Combined Utilities		
	Your Site	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile
Internal Employee Promotions	80.00%	100.00%	61.36%	50.00%	N/A	61.12%	N/A	100.00%	59.46%	40.00%

Sample Size	
Water Operations	29
Wastewater Operations	4
Combined Operations	45

Retirement Eligibility

Portland Water Bureau

Purpose:
To measure the number of regular employees eligible for retirement within the next five years, as a percentage. Expressed as the number of regular employees eligible for retirement within the next five years, divided by the average number of regular employees.

Calculation:
Retirement Eligibility = Number of Regular Employees Eligible for Retirement within Next Five Years x 100 Average Number of Regular Employees

Definitions:
Retirement eligibility for each employee is based on known eligibility from age and employment history, according to a utility's retirement program and policies. Regular employees are those employees who worked more than 1000 hours for the most recent annual basis of reporting. Average number of regular employees is the sum of the number of regular employees at the end/beginning of each month for the total of a 12-month fiscal year divided by 12.

		Water Utilities			Wastewater Utilities			Combined Utilities		
	Your Site	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile
Retirement Eligibility	10.1%	33.9%	27.3%	17.9%	N/A	42.6%	N/A	29.3%	17.6%	13.4%

Sample Size	
Water Operations	38
Wastewater Operations	3
Combined Operations	51

Customer Service Complaints per 1000 Customers

Portland Water Bureau

Purpose:
This indicator measures the complaint rates experienced by the utility, with individual quantification of those related to customer service and those related to core utility services. It is expressed as complaints per 1000 customer accounts.

Calculation:
Customer Service Complaint Rate = (1000) # customer service associated complaints / # of active customer accounts

Definitions:
· Active Customer Account means all customer accounts of all classes that were billed for some or all of the reporting period. A single account may include service through more than one water or sewer service connection.
· A complaint is an expression of dissatisfaction conveyed to a utility employee acting in his/her official capacity. Complaints may be communicated orally or in writing. To clarify, a complaint is a request for action whereas an inquiry is a request for information.
· Customer refers to an individual service agreement for water or sewer service at a single property, regardless of size or billing category. An individual may own more than one property and be counted as a customer more than once. For example, an individual has three properties and each property has a meter. This utility would count this as three accounts.
· Customer service, in the context of these indicators, refers to relationship factors such as personal appearance, courteousness, helpfulness, professionalism, responsiveness, adherence to traffic laws while driving a vehicle, and timeliness. Also refers to customer support services such as turn-on/turn-off, billing, rate-setting, and communication. All utility employees should have assigned responsibility for good customer service, thereby helping the utility build a positive image within the community.

		Water Utilities			Wastewater Utilities			Combined Utilities		
	Your Site	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile
Customer Service Complaints per 1000 Customer	0.36	12.76	2.36	1.18	N/A	N/A	N/A	26.32	6.28	1.72

Sample Size	
Water Operations	30
Wastewater Operations	1
Combined Operations	42

Technical Quality Complaints per 1000 Customers

Portland Water Bureau

Purpose:
This indicator measures the complaint rates experienced by the utility, with individual quantification of those related to customer service and those related to core utility services. It is expressed as complaints per 1000 customer accounts.

Calculation:
Technical Quality Complaint Rate = (1000) # technical quality associated complaints / # of active customer accounts

Definitions:
· Active Customer Account means all customer accounts of all classes that were billed for some or all of the reporting period. A single account may include service through more than one water or sewer service connection.
Definitions:
· A complaint is an expression of dissatisfaction conveyed to a utility employee acting in his/her official capacity. Complaints may be communicated orally or in writing. To clarify, a complaint is a request for action whereas an inquiry is a request for information.
· Customer refers to an individual service agreement for water or sewer service at a single property, regardless of size or billing category. An individual may own more than one property and be counted as a customer more than once. For example, an individual has three properties and each property has a meter. This utility would count this as three accounts.
· Technical quality of service complaints are directly related to core services of the utility. They include complaints associated with water quality, taste, odor, appearance and pressure, sewage back-ups and overflows, disruptions of water or sewer service, disruptions of traffic, and facilities upkeep.

		Water Utilities			Wastewater Utilities			Combined Utilities		
	Your Site	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile
Technical Quality Complaints per 1000 Customers	5.60	8.93	2.66	0.93	N/A	N/A	N/A	15.62	5.64	2.28

Sample Size	
Water Operations	37
Wastewater Operations	1
Combined Operations	51

Disruption of Water Service Rate per 1000 Customers

Portland Water Bureau

Planned

Purpose:
This set of six indicators quantifies the numbers of water outages experienced by utility customers. Each is expressed as the number of customers experiencing disruptions per 1000 customer accounts per year.

Calculation:
Disruption Rate = (1,000) Number of customers experiencing disruption / Number of active customer accounts

Definitions:
· Active customer account means all customer accounts that were billed for some or all of the reporting period. A single account may include service through more than one water service connection.
· Disruption of (water) service means any and all conditions within facilities or the distribution system under control of the utility whereby a customer loses full water service or has normal delivery pressure reduced below 20 pounds per square inch during a repair. Specific exclusions include: complaints of low pressure that are unrelated to a system condition requiring repair work; repairs to service piping under control of the customer; and shut-offs for nonpayment of bills.
· Planned disruptions are those where prior notice is given to all affected customers. Planned disruptions include new construction tie-ins, and replacements of valves, hydrants, meters, and other appurtenances under non-emergency conditions.

		Water Utilities			Wastewater Utilities			Combined Utilities		
	Your Site	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile
Planned (less than 4 hours)	1.35	4.91	1.56	0.81				2.93	1.19	0.29
Planned (between 4 and 12 hours)	4.92	2.33	1.23	0.70				2.40	0.65	0.16
Planned (greater than 12 hours)	0.13	0.13	0.04	0.03				0.13	0.08	0.04

Sample Size	
Water Operations	25
Wastewater Operations	0
Combined Operations	41

Disruption of Water Service Rate per 1000 Customers

Portland Water Bureau

Unplanned

Purpose:
This set of six indicators quantifies the numbers of water outages experienced by utility customers. Each is expressed as the number of customers experiencing disruptions per 1000 customer accounts per year.

Calculation:
Disruption Rate = (1,000) Number of customers experiencing disruption / Number of active customer accounts

Definitions:
· Active customer account means all customer accounts that were billed for some or all of the reporting period. A single account may include service through more than one water service connection.
· Disruption of (water) service means any and all conditions within facilities or the distribution system under control of the utility whereby a customer loses full water service or has normal delivery pressure reduced below 20 pounds per square inch during a repair. Specific exclusions include: complaints of low pressure that are unrelated to a system condition requiring repair work; repairs to service piping under control of the customer; and shut-offs for nonpayment of bills.
· Planned disruptions are those where prior notice is given to all affected customers. Planned disruptions include new construction tie-ins, and replacements of valves, hydrants, meters, and other appurtenances under non-emergency conditions.

		Water Utilities			Wastewater Utilities			Combined Utilities		
	Your Site	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile
Planned (less than 4 hours)	0.28	7.38	2.56	0.74				4.81	1.79	0.79
Planned (between 4 and 12 hours)	2.00	5.61	1.52	0.46				2.19	0.63	0.35
Planned (greater than 12 hours)	0.15	0.14	0.05	0.01				0.43	0.12	0.07

Sample Size	
Water Operations	28
Wastewater Operations	0
Combined Operations	44

Disruption of Sewer Service Rate per 1000 Customers

Portland Water Bureau

Planned

Purpose:
This set of six indicators quantifies the numbers of water outages experienced by utility customers. Each is expressed as the number of customers experiencing disruptions per 1000 customer accounts per year.

Calculation:
Disruption Rate = (1,000) Number of customers experiencing disruption / Number of active customer accounts

Definitions:
· Active customer account means all customer accounts that were billed for some or all of the reporting period. A single account may include service through more than one water service connection.
· Disruption of (water) service means any and all conditions within facilities or the distribution system under control of the utility whereby a customer loses full water service or has normal delivery pressure reduced below 20 pounds per square inch during a repair. Specific exclusions include: complaints of low pressure that are unrelated to a system condition requiring repair work; repairs to service piping under control of the customer; and shut-offs for nonpayment of bills.
· Planned disruptions are those where prior notice is given to all affected customers. Planned disruptions include new construction tie-ins, and replacements of valves, hydrants, meters, and other appurtenances under non-emergency conditions.

		Water Utilities			Wastewater Utilities			Combined Utilities		
	Your Site	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile
Planned (less than 4 hours)	0.00				N/A	N/A	N/A	N/A	4.50	N/A
Planned (between 4 and 12 hours)	0.00				N/A	N/A	N/A	N/A	8.00	N/A
Planned (greater than 12 hours)	0.00				N/A	N/A	N/A	N/A	N/A	N/A

Sample Size	
Water Operations	25
Wastewater Operations	0
Combined Operations	41

Disruption Sewer Service

Portland Water Bureau

Unplanned

Purpose:
A set of three indicators (defined similar to existing QualServe Performance Indicator for "disruption of water service") quantifies the number of sewer service disruptions experienced by customers at the point of service connection. The indicator is calculated separately for disruptions of three different durations (less than 4 hours, between 4 and 12 hours, and more than 12 hours). For each of these three categories, the rate is expressed as the number of customers experiencing disruptions per 1,000 active customer accounts.

Calculation:

$$\text{Disruption Rate} = \frac{(1000)\ \text{Number of Customers Experiencing Disruptions of Duration Less Than 4 Hours}}{\text{Number of active customer accounts}}$$

$$\text{Disruption Rate} = \frac{(1000)\ \text{Number of Customers Experiencing Disruptions of Duration Less Between 4 and 12 Hours}}{\text{Number of active customer accounts}}$$

$$\text{Disruption Rate} = \frac{(1000)\ \text{Number of Customers Experiencing Disruptions of Duration More Than 12 Hours}}{\text{Number of active customer accounts}}$$

Definitions:
A disruption of sewer service is defined as a backup of flow into the customer's sewer from a utility caused backup, blockage or flow restriction (originating "downstream" of the customer's sewer connection). Active customer account means all customer accounts that were billed for some or all of the reporting period. An active account may include service through one or more sewer service connections.

		Water Utilities			Wastewater Utilities			Combined Utilities		
	Your Site	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile
Unplanned (less than 4 hours)	0.00				N/A	N/A	N/A	2.77	0.48	0.18
Unplanned (between 4 and 12 hours)	0.00				N/A	N/A	N/A	10.00	5.00	1.00
Unplanned (greater than 12 hours)	0.00				N/A	N/A	N/A	N/A	N/A	N/A

Sample Size	
Water Operations	0
Wastewater Operations	1
Combined Operations	31

Residential Cost of Water/Sewer Service (Monthly):

Portland Water Bureau

Purpose:
These indicators allow utilities to compare the residential cost of water and sewer service based upon both a defined quantity of water use and the average residential bill amounts for those services.

This indicator has several parts. A utility reports the individual costs in items 1 – 4 if possible, deferring to options 5 and 6 only if it cannot.
1. Bill amount for monthly residential water service for a customer using 7500 gallons per month,
2. Average residential water bill amount for one month of service,
3. Bill amount for monthly residential sewer service for a customer using 7500 gallons of water per month,
4. Average residential sewer bill amount for one month of service,
5. For multiple service utilities that cannot provide individual costs, the total monthly bill amount for residential water and sewer service for a customer using 7500 gallons of water per month, and
6. For multiple service utilities that cannot provide individual costs, the average residential combined water and sewer bill amount for one month of service.

Note: Includes any additional costs added to the bill for basic service that may include other taxes and fees required to be paid by the residential customer to retain basic service.

		Water Utilities			Wastewater Utilities			Combined Utilities		
	Your Site	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile
Monthly residential water using 7500 Gs	$35.59	$42.13	$33.45	$25.68				$37.20	$28.34	$22.29
Average residential water bill amount for one mth	$20.05	$44.22	$30.04	$22.26				$33.42	$25.90	$19.91
Monthly residential sewer using 7500 Gs	$0.00				N/A	$25.96	N/A	$42.90	$35.84	$26.89
Average residential sewer bill amount for one month	$0.00				N/A	$18.40	N/A	$39.23	$28.68	$21.54
Multi-service, monthly bill - combined service using 7	$0.00							$76.85	$59.10	$48.04
Multi-service, average residential combined bill for o	$0.00							$64.10	$53.74	$46.31

Sample Size	
Water Operations	41
Wastewater Operations	0
Combined Operations	62

Customer Service Cost per Account

Portland Water Bureau

Purpose:
This indicator measures the amount of resources a utility applies to its customer service program.

Calculation:
Customer Service Cost per Active Account = Total Customer Service Costs / Number of Active Accounts

Definitions:
· Customer Service Costs are all direct salaries, employee benefits, and direct costs including contracts, which are associated with providing the following services to customers, plus a proportional share of total utility indirect costs.
- Activation of new accounts (including meter and service installation costs)
- Meter reads, maintenance, and repair or replacement
- Preparation and delivery of bills
- Receipt and processing of payments
- Records maintenance
- Collection of delinquent accounts
- Processing of bankruptcies
- Provision of turn on / turn off services
- Receipt, investigation, and resolution of complaints
- Preparation and provision of outreach and educational materials including the Consumer Confidence Report
Specifically excluded are all costs associated with maintaining service pipelines and customer plumbing on the customer side of the meter if present, or service property line if no meter is present.

		Water Utilities			Wastewater Utilities			Combined Utilities		
	Your Site	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile
Customer Service Cost per Account	$38.12	$67.01	$35.92	$27.80	N/A	N/A	N/A	$64.62	$48.34	$39.08

Sample Size	
Water Operations	36
Wastewater Operations	2
Combined Operations	52

Billing Accuracy Rate per 10,000 Bills

Portland Water Bureau

Purpose:
This indicator measures the effectiveness of water and/or wastewater utility billing practices. The calculation shows the number of error-driven billing adjustments per 10,000 bills generated during the year.

Calculation:
Billing Accuracy = (10,000) (# of error-driven billing adjustments during reporting period) / # of bills generated during the reporting period

Definitions:
· Bill means the periodic statement of charges (volumetric, surcharges, and taxes) for water and/or sewer services which are calculated based on known volumes of water delivered or wastewater collected during a specific period of time.
· Error-driven billing adjustment is an adjustment to a customer's charges resulting from an error on the original bill actually sent to the customer, regardless of cause and including all such discoveries made by utility staff, the customer, or a third party. Errors include all those under control of the utility such as meter reads (whether by utility staff or the customer), data entry, and calculations or computer programming. Bills re-issued for estimated bills should NOT be included as a billing error.

		Water Utilities			Wastewater Utilities			Combined Utilities		
	Your Site	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile
Billing Accuracy Rate per 10,000 Bills	10.90	24.50	11.10	5.80	N/A	N/A	N/A	17.05	4.80	1.35

Sample Size	
Water Operations	29
Wastewater Operations	2
Combined Operations	47

Service Affordability

Portland Water Bureau

Purpose:
To measure the affordability of water and wastewater services to customers, as a percentage of household income. The average annual residential water and wastewater is divided by real median household income. Separate calculations are made for water affordability and wastewater affordability. Measured in percentage.

Calculation:

Water Service Affordability = $\frac{\text{Average annual residential water bill}}{\text{Real median household income}}$

Wastewater Service Affordability = $\frac{\text{Average annual residential sewer bill}}{\text{Real median household income}}$

Definitions:
Average annual residential bill is based on all residential customer accounts that were billed for some or all of the reporting period, averaged over the most recent fiscal y reporting period. Real median household annual income is based on latest data as reported by Census Bureau or other government agency for the area served.

		Water Utilities			Wastewater Utilities			Combined Utilities		
	Your Site	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile
Water Service Affordibility	0.48%	0.97%	0.69%	0.59%				0.82%	0.65%	0.51%
Wastewater Service Affordibility	0.00%				N/A	0.58%	N/A	0.91%	0.69%	0.50%

Sample Size	
Water Operations	35
Wastewater Operations	0
Combined Operations	57

Stakeholder Outreach Index (%)

Portland Water Bureau

Purpose:
Based on a self-assessment checklist, a stakeholder outreach (SO) index is calculated. Measured in percentage. 100% indicates high performance by a utility in processes and practices that engage directly with customers and stakeholders.

Calculation:
The Self-Assessment Checklist (see below) is used to calculate the index (%) for the most recent annual fiscal year period. The value assigned to each statement should be based on evidence that existed during the fiscal year to support the statement, as reviewed and rated by the senior management of the utility.

	Value			
	0	1	2	
Stakeholder Outreach (SO) Checklist	Not At All	Some Times	Always	Utility Score
We regularly conduct customer satisfaction surveys that result in a statistically significant measure (or set of measures) for customer satisfaction (0=never/rarely; 1=less than annual frequency; 2=at least annually).				
We use the results of customer satisfaction surveys to improve our processes, practices and systems (0=never/rarely; 1=less than annual frequency; 2 least annually).				
We regularly conduct a series of interviews or open forums or focus groups with key stakeholders (e.g., public officials, regulators, community representatives, special-interest groups, developers, contractors, etc.) to understand their views of our utility performance (0=never/rarely; 1=less than annually frequency for three groups or more; 2=at least annually for three groups or more).				
We provide numerous channels and interactions (two-way) with stakeholders through publicly-offered tours, speaking engagements, actively-managed booths/kiosks, etc., on a regular, periodic basis (0=never/rarely; 1=less than annual frequency for three or more channels/interactions; 2=at least annually for three or more channels/interactions).				
We provide numerous outreach programs/products on a regular basis to targeted stakeholders through the media, mailers, newsletters, etc. (0=never/rarely; 1=less than quarterly frequency for three or more programs/products; 2=at least quarterly for three or more programs/products).				
We regularly review all sources of stakeholder feedback and develop actions to address areas of dissatisfaction or opportunities for improvement (0=never/rarely; 1=less than annual frequency; 2=at least annually).				
TOTAL SCORE				
TBL INDEX (Divide Total Score by 12)				%

Stakeholder Outreach Index (%)

Portland Water Bureau

		Water Utilities			Wastewater Utilities			Combined Utilities		
	Your Site	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile
Stakeholder Outreach Index (%)	75%	75%	58%	33%	N/A	50%	N/A	83%	75%	58%

Sample Size	
Water Operations	39
Wastewater Operations	4
Combined Operations	58

Debt Ratio

Portland Water Bureau

Purpose:
The debt ratio quantifies the utility's level of indebtedness.

Calculation:
Debt Ratio = Total Liabilities / Total Assets

Definitions:
· Total liabilities are the entire obligations of the utility under law or equity. (They are categorized as such on the utility's financial statement. In essence, they are the total amount of dollars owed to others. Liabilities are defined and designated by the Government Accounting Standards Board (GASB) or the Financial Accounting Standards Board (FASB) (as applicable to each specific utility). They include outstanding bonds, outstanding long-term debt, outstanding short-term debt, payments owed to others, accounts payable, and deposits collected from customers.)
· Total assets are the entire resources of the utility, both tangible and intangible. (They are categorized as such on the utility's financial statement. They include the total value of properties and claims against others that are owned by the utility as expressed at original cost. Assets are defined and designated by the Government Accounting Standards Board (GASB) or the Financial Accounting Standards Board (FASB) (as applicable to each specific utility). They include accounts receivable, cash, inventories, service delivery facilities (less depreciation), cost of easements, cost of water rights, and all other items of value owned by the utility.).

		Water Utilities			Wastewater Utilities			Combined Utilities		
	Your Site	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile
Debt Ratio	52.2%	46.2%	36.0%	25.4%	N/A	49.8%	N/A	49.9%	33.7%	18.3%

Sample Size	
Water Operations	38
Wastewater Operations	4
Combined Operations	58

System Renewal / Replacement Rate (%):

Portland Water Bureau

Water

Purpose:
This indicator quantifies rate at which the utility is meeting its individual need for infrastructure renewal or replacement.

Calculation:
100*(actual expenditure and reserve / total present worth of renewal and replacement needs for each asset class)

Definitions:
· Water treatment facilities include all assets associated with treating source water to make it ready for distribution. They include those assets associated with disposal of solids accumulated during treatment.
· Water distribution system includes all piping, valves, hydrants, pump stations, storage facilities, service taps and meters, and other appurtenances conveying treated water to customers.
· Water miscellaneous assets include surface and ground water resources, source water storage facilities, office buildings, maintenance facilities, laboratories not associated with treatment process control, and land acquired to protect water resources.

		Water Utilities			Wastewater Utilities			Combined Utilities		
	Your Site	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile
Water pipeline	0.8%	5.7%	2.8%	1.3%				15.7%	2.7%	0.8%
Water treatment facility and pumping	1.8%	12.7%	4.7%	1.5%				14.1%	6.7%	3.8%

Sample Size	
Water Operations	33
Wastewater Operations	0
Combined Operations	45

System Renewal / Replacement Rate (%):

Portland Water Bureau

Wastewater

Purpose:
This indicator quantifies rate at which the utility is meeting its individual need for infrastructure renewal or replacement.

Calculation:
100*(actual expenditure and reserve / total present worth of renewal and replacement needs for each asset class)

Definitions:
· Wastewater collection assets include all piping, manholes, clean-outs, pumping facilities and force mains used to convey wastewater to a central location for treatment.
· Wastewater treatment facilities include all assets at each facility used to treat wastewater, treat and dispose of solids, and protect air quality.
· Wastewater miscellaneous assets include office buildings, maintenance facilities, and laboratories not associated with process control.

		Water Utilities			Wastewater Utilities			Combined Utilities		
	Your Site	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile
Wastewater pipelines and collections	0.0%				N/A	N/A	N/A	20.8%	3.9%	2.1%
Wastewater treatment facility and pumping	0.0%				N/A	N/A	N/A	24.5%	5.8%	1.5%

Sample Size	
Water Operations	2
Wastewater Operations	1
Combined Operations	39

Return on Assets

Portland Water Bureau

Purpose:
Return on assets measures the financial effectiveness of the utility.

Calculation:
Return on Assets = Net Income / Total Assets

Definitions:
· Net Income is titled as such on the utility's financial statement, and is defined and designated by the Government Accounting Standards Board (GASB) or the Financial Accounting Standards Board (FASB), as applicable to each specific utility.
· Total assets are the entire resources of the utility, both tangible and intangible. (They are categorized as such on the utility's financial statement. They include the total value of properties and claims against others that are owned by the utility as expressed at original cost. Assets are defined and designated by the Government Accounting Standards Board (GASB) or the Financial Accounting Standards Board (FASB) (as applicable to each specific utility). They include accounts receivable, cash, inventories, service delivery facilities (less depreciation), cost of easements, cost of water rights, and all other items of value owned by the utility.)

		Water Utilities			Wastewater Utilities			Combined Utilities		
	Your Site	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile
Return on Assets	1.90%	2.88%	2.05%	0.93%	N/A	4.10%	N/A	2.10%	1.50%	0.35%

Sample Size	
Water Operations	38
Wastewater Operations	3
Combined Operations	55

Cash Reserves (Days)

Portland Water Bureau

Purpose:
To measure the number of days of available cash reserve as an indicator f financial liquidity. Days of reserve available is based on undesignated cash reserves and continued cost of ongoing operations (according to the most recent fiscal year or last 365 days of cost of ongoing operations).

Calculation:

$$\text{Cash Reserve} = \frac{\text{Undesignated Cash Reserve Dollars}}{\text{Cost of Ongoing Operations, Average \$/Day}}$$

Definitions:
Undesignated Case Reserves are available cash used to pay the cost of ongoing operations; not committed to debit payments or other covenants. Ongoing cost of operations is the total annual utility cost of operations for the most recent fiscal year reporting period, divided by 365 to indicate $/day.

		Water Utilities			Wastewater Utilities			Combined Utilities		
	Your Site	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile
Cash Reserves (Days)	112	285	143	58	N/A	N/A	N/A	329	182	85

Sample Size	
Water Operations	40
Wastewater Operations	1
Combined Operations	51

Energy Consumption Efficiency (kWh/MG)

Portland Water Bureau

Purpose:
To measure the direct energy consumed to supply treated water and collect and treat wastewater expressed as kWh/MG. The direct energy consumed to supply treated w and collect and treat wastewater divided by the volume supplied/collected and treated on an annual basis. For annual volume of water supplied or wastewater collected/treated, a separate calculation is reported for water and wastewater in which all energy consumed annually is converted to KWh. Measured in kWh/MG. See belo

Calculation:

Energy Consumption Efficiency for Water = $\frac{\text{Direct energy consumed to supply treated water (kWh)}}{\text{Volume of water supplied (MG)}}$

Energy Consumption Efficiency for Wastewater = $\frac{\text{Direct energy consumed to collect and treat wastewater (kWh)}}{\text{Volume of wastewater collected and treated (MG)}}$

Definitions:
Annual energy consumption includes purchases of electricity, natural gas, fuel oil, propane (and other crude oil derivatives). Energy consumption efficiency is expressed kilowatt-hour per million gallons (KWh/MG). Annual energy consumed is based on purchases of electricity, natural gas and other fuels (minus stored amounts), all conver to kWh. Annual volume of water supplied or wastewater collected/treated is based on measured flows inn MG. Annual measures are for the same most recent fiscal year reporting period (provide data in attached Energy Efficiency Table).

Energy Consumption Efficiency*
Water Supply, Treatment and Distribution

Energy Type	Units	Annual Use	Equiv. kBt u/yr
Electricity	KWh		
Natural Gas	therms		
Fuel Oil #2	gallons		
Propane	gallons		
Other			
		Total	
Energy use time period covered above:			

Total Annnual Volume Collected/Treated	MG		
Energy Consumption Efficiency	kBt u/yr		

* Data reported should be based on annual values for the same reporting period (e.g., calendar year or fiscal ye

Energy Consumption Efficiency (kWh/MG)

Portland Water Bureau

		Water Operations			Wastewater Operations			Combined Operations		
	Your Site	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile
For water	8,391	27,791	17,689	3,793				30,996	22,119	14,481
For wastewater	0				N/A	19,326	N/A	52,357	29,772	17,455

Sample Size	
Water Operations	32
Wastewater Operations	0
Combined Operations	46

Triple-Bottom-Line Index (%)

Portland Water Bureau

Purpose:
Based on a self-assessment checklist, a triple-bottom-line (TBL) Index is calculated. The TBL represents a balanced view of environmental, social, and economic considerations. Measured in percentage, 100% indicates high performance by a utility in considering the environmental, social, and economic dimensions of utility processes and practices.

Calculation:
The TBL checklist shown below is used to calculate the index (%). The value assigned to each statement should be based on evidence that exists during the fiscal year to support the statement, as reviewed and rated by the senior management of the utility.

	Value			
	0	1	2	
Triple-Bottom-Line Index (%)	Non or Little	Some Evidence	Full Evidence	Utility Score
Our organization's policies, directions, and plans state our commitment to integrating and balancing environmental, social and economic goals.				
Our strategic plan sets environmental, social and economic TBL goal areas, with defined targets and objectives.				
We routinely communicate to all employess the organization's TBL goals, targets and objectives, and our performance in meeting them.				
Our organization has policies, management systems, and decision-making processes to effect the results of our TBL goals and objectives.				
The performance measures for our organization and its managers cover a balanced balanced view of environmental, social and economic outcomes.				
At least annually, our organization reviews and reports on its performance against TBL goal areas.				
Our organization regularly (at least annually) seeks out the views of customers, shareholders and the community about its strengths, abilities, objectives and strategies in addressing environmental, social, and economic concerns.				
Sustainability of natural resources and the environment is always considered in utility plans and ongoing operations.				
We regularly measure/report our utility's greenhouse gas emissions or carbon footprint and identify and implement ways to reduce it.				
We actively manage our utility-wide energy as shown by regular measures of energy consumption efficiency or an energy index calculation and strategies to improve our efficiency.				
TOTAL SCORE				
TBL INDEX (Divide Total Score by 20)				%

Triple-Bottom-Line Index (%)

Portland Water Bureau

		Water Utilities			Wastewater Utilities			Combined Utilities		
	Your Site	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile
Triple-Bottom-Line Index (%)	60%	70%	55%	45%	N/A	30%	N/A	85%	70%	55%

Sample Size	
Water Operations	37
Wastewater Operations	4
Combined Operations	56

Drinking Water Compliance Rate (% Days)

Portland Water Bureau

Purpose:
This indicator quantifies the percentage of time each year that a water utility meets all of the health-related drinking water standards in U.S. National Primary Drinking Water Regulations.

Calculation:
Drinking Water Compliance Rate (%) = (100) Number of days in full compliance / 365 days

Definitions:
· Definitions of regulated contaminants and treatment techniques are contained in 40 CFR Part 141 (the National Primary Drinking Water Regulations).
· Non-compliance refers to exceedance of an applicable primary maximum contaminant level or less than full compliance with an applicable treatment technique.

		Water Utilities			Wastewater Utilities			Combined Utilities		
	Your Site	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile
Drinking Water Compliance Rate (% Days)	100.0%	100.0%	100.0%	100.0%				100.0%	100.0%	100.0%

Sample Size	
Water Operations	38
Wastewater Operations	0
Combined Operations	59

Distribution System Water Loss (%)

Portland Water Bureau

Water

Purpose:
This indicator quantifies the percentage of produced water that fails to reach customers and cannot otherwise be accounted for through authorized usage.

Calculation:
Distribution Water Loss (% of distribution) = (100 [Volume of unbilled and authorized water + Volume of water unbilled and unauthorized + Volume of water from meter inaccuracies and data handling errors]) / Volume of water distributed

Definitions:
· Water losses are those water volumes that while under control of the utility do not find their way to authorized uses. Water losses consist of real losses and apparent losses. The former are true losses of water from the utility's system, up to the point of customer metering. Apparent losses consist of unauthorized use and inaccuracies associated with metering. Water losses occur throughout the water system, from source water intakes, transmission pipelines, treatment facilities, distribution pipelines and storage facilities. (For this indicator, the focus is on losses from the point's) of distribution through the points of customer service meters.)
· Distributed water is the total volume of water entering the distribution system from all sources, including treatment facilities, well fields, individual wells, and purchased water connections.
· The total volume of water billed to all classes of registered customers, the water supplier, and others.
· The total volume of total volume of used for authorized purposes but is not billed. Examples of un-billed authorized uses may include fire fighting and training, municipal uses such as flushing of mains and sewers, street cleaning, watering of municipal properties, public fountains, construction, tank drainage, storage tank overflows and frost protection

		Water Utilities			Wastewater Utilities			Combined Utilities		
	Your Site	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile
Apparent Losses	3.91%	9.06%	3.87%	2.38%				11.27%	5.06%	2.00%
Real Losses	4.01%	11.48%	5.54%	3.48%				7.83%	5.01%	1.32%

Sample Size	
Water Operations	34
Wastewater Operations	0
Combined Operations	53

Water Distribution System Integrity

Portland Water Bureau

Purpose:
This indicator quantifies the condition of the water distribution system, expressed the total annual number of leaks and pipeline breaks per 100 miles of distribution piping.

Calculation:
Frequency Rate = 100 (total number of leaks + total number of breaks) / Total miles of distribution piping

Definitions:
· Distribution piping includes all pipes, valves, hydrants, and other appurtenances conveying treated water between treatment facilities and the final point of utility control over customer service connections. Customer service piping downstream of that point is not part of the distribution system.
· Break means physical damage to a pipe, valve, hydrant, or other appurtenance which results in an abrupt loss of water. Please exclude any break, leak, or failure directly caused by the action of a utility staff person.
· Leak means an opening in a distribution pipeline, valve, hydrant, appurtenance or service connection which is continuously losing water. The rate of leakage may be stable or progressive. Please exclude any break, leak, or failure directly caused by the action of a person authorized by the utility.

		Water Utilities			Wastewater Utilities			Combined Utilities		
	Your Site	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile
Water Distribution System Integrity	18.00	60.50	30.00	14.75				76.00	34.00	15.00

Sample Size	
Water Operations	36
Wastewater Operations	0
Combined Operations	57

Operations and Maintenance Cost Ratios:

Portland Water Bureau

- O and M cost per account
- O and M cost per MG processed
- Direct cost of treatment per MG

Purpose:
Three indicators each are proposed for water utilities to quantify all utility costs related to operations and maintenance, with break-outs of those costs related to water treatment, as related to volumes processed and the number of active customers.

Calculation:
· O M Cost per Account = Total Operations Maintenance Costs (less depreciation) / Total number of active customer accounts
· O M Cost per MG Distributed = Total Operations Maintenance Costs (less depreciation) / Volume distributed during the reporting period (in MG)
· Direct Cost of Treatment per MG Distributed = Total Direct O M Costs for Water Treatment / Volume distributed during the reporting period (in MG)

Definitions:
· Active customer account means all customer accounts of all classes that were billed for some or all of the reporting period. A single account may include service through more than one water service connection.
· Total volume of distributed water refers to the total volume of water distributed by the utility during the reporting period. It is reported in millions of gallons.
· Total direct operations and maintenance costs for water treatment is the total costs for salaries, direct benefits, and direct operational and maintenance costs associated with treatment. It includes pumping costs only within treatment facilities but not those associated with delivery of water to treatment facilities.

		Water Utilities			Wastewater Utilities			Combined Utilities		
	Your Site	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile
O and M cost per account	$324	$531	$362	$263				$483	$341	$210
O and M cost per MG processed	$1,841	$2,939	$2,164	$1,577				$2,615	$1,987	$1,503
Direct cost of treatment per MG	$60	$561	$383	$182				$804	$550	$317

Sample Size	
Water Operations	37
Wastewater Operations	0
Combined Operations	54

Planned Maintenance Ratios (%):

Portland Water Bureau

- Planned maintenance ratio (hours)
- Planned maintenance ratio (cost)

Purpose:
This indicator is designed to allow comparison of how effectively utilities are investing in planned maintenance.

Calculation:
· Planned Maintenance Ratio in Percent (Hours) = (100) Hours of Planned Maintenance / (Hours of Planned + Corrective Maintenance)
· Planned Maintenance Ratio in Percent (Cost) = (100) Cost of Planned Maintenance / (Cost of Planned + Corrective Maintenance)

Definitions:
· Planned maintenance is all maintenance undertaken in advance of asset failure. Planned maintenance may be predictive or preventive.
· Corrective maintenance is all maintenance undertaken after asset failure.

		Water Utilities			Wastewater Utilities			Combined Utilities		
	Your Site	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile
Planned maintenance ratio (hours)	54%	75%	54%	40%				78%	60%	36%
Planned maintenance ratio (cost)	54%	71%	53%	36%				71%	59%	28%

Sample Size	
Water Operations	25
Wastewater Operations	0
Combined Operations	47

Current Water Demand (%)

Portland Water Bureau

Purpose:

To measure the current average annual water demand compared to available supply, expressed as a percentage. The most recent five-year average water demand is divid by average available water supply.

Calculation: **Retirement Eligibility =** $\frac{\text{Five-year average water demand (MG) x 100}}{\text{Average available water supply based on current yield (MG)}}$

Definitions:

The water demand for the most recent fie-year reporting period (annual or fiscal year) is summed for each year (Annual Volume in MG) and divided by five. The average available water supply is the annual volume available (MG) based on current yield within regulated, authorized withdrawals and delivery system or infrastructure limitatior

		Water Utilities			Wastewater Utilities			Combined Utilities		
	Your Site	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile
Current Water Demand (%)	50.8%	80.7%	56.0%	37.1%				69.7%	50.5%	36.1%

Sample Size	
Water Operations	30
Wastewater Operations	0
Combined Operations	44

Available Future Water Supply

Portland Water Bureau

Purpose:
To measure the number of years in the future for which projected supply exceeds projected demand expressed as years into the future from current year. The available future water supply is based on utility-defined scenarios for supply and demand considerations.

Calculation:
Available Future Water Supply = Future Year When Demand Exceeds Supply – Current Year

Definitions:
Future demand is based on considerations that represent a 90% reliability level for known/projected use. Future supply is based on considerations that represent a 90% reliability level for regulated supply limits and infrastructure projects that are planned/authorized/budgeted to deliver that future water supply. Additional information about your utility-defined scenario for supply and demand considerations is to be provided in a data collection form on future supply (see below).

		Water Utilities			Wastewater Utilities			Combined Utilities		
	Your Site	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile
Available Future Water Supply	30	42	36	14				38	23	19

Sample Size	
Water Operations	24
Wastewater Operations	0
Combined Operations	37

Sewer Overflow Rate

Portland Water Bureau

Purpose:
This indicator provides a measure of collection system piping condition and the effectiveness of routine maintenance by quantifying the number of sewer overflows per 100 miles of collection piping.

Calculation:
Sewer Overflow Rate = 100 (Total number of sewer overflows during the reporting period) / Total miles of pipe in sewage collection system

Definitions:
· An overflow refers to a discharge from a sewer through a manhole, clean-out, pumping facility, customer floor drain, or the drain in a fixture, if that discharge is related to limitations or problems with collection or treatment system components under control of the utility. Overflows caused by limitations or problems within customer-controlled piping and facilities are specifically excluded from this definition. A single limitation or problem can result in multiple overflows.
· A dry weather sewer overflow is an overflow from a combined sanitary/storm sewer experienced during weather conditions where the portion of flow attributed to storm water is negligible.
· The collection system is comprised of all gravity sewerage piping, manholes, pressure sewers and lift stations under control of the utility from the point of customer property lines to the treatment facility or point of interception by another wastewater utility. Portions of the collection system may convey both sanitary sewage and storm water.

		Water Utilities			Wastewater Utilities			Combined Utilities		
	Your Site	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile		Median	Bottom Quartile
Sewer Overflow Rate	0.00				N/A	3.30	N/A	4.35	1.75	0.98

Sample Size	
Water Operations	1
Wastewater Operations	3
Combined Operations	52

Collection System Integirty

Portland Water Bureau

Purpose:
This indicator provides a measure of the condition of a sewage collection system. The indicator expresses the number of collection system failures each year per 100 miles of collection system piping.

Calculation:
Failure Rate = 100 (Total number of collection system failures during the year) / Total miles of collection system piping

Definitions:
· Collection system means all gravity sewerage piping, manholes, pressure sewers and lift stations under control of the utility from the point of customer property lines to the treatment facility or point of interception by another wastewater utility. Portions of the collection system may convey both sanitary sewage and storm water.
· A collection system failure means a loss of capacity resulting from a flow restriction in gravity or pressurized sewer systems. Flow restrictions may be caused by deposition of foreign materials; structural failures of pipes, appurtenances, or manholes; deterioration of collection system materials; and root intrusion. Low spots in gravity sewers (sometimes called "swags") are failures if there is potential for deposition and diminished sewer capacity. If left unattended, collection system failures can result in cave-ins, back-ups or overflows. Maintenance activities such as sewer cleaning, rodding, root removal, and minor repairs to minimize infiltration or inflow are not collection system failures. Electrical and mechanical lift station failures unrelated to flow restrictions, electrical power outages at lift stations, and failures that occur on customer properties, are not counted as failures for the purpose of this indicator.
Excludes any failure directly caused by the action of a person authorized by the utility such as failure caused by incidental damage during construction/repair or incorrectly marked location.

		Water Utilities			Wastewater Utilities			Combined Utilities		
	Your Site	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile
Collection System Integirty	0.00				N/A	2.50	N/A	18.95	9.05	2.95

Sample Size	
Water Operations	1
Wastewater Operations	3
Combined Operations	44

Wastewater Treatment Effectiveness Rate (%)

Portland Water Bureau

Purpose:
This indicator quantifies a utility's compliance with the effluent quality standards in effect at each of its wastewater treatment facilities. The indicator is expressed as the percent of time each year that an individual wastewater treatment facility is in full compliance with applicable effluent quality requirements.

Calculation:
WWTER = 100 (365 – Total number of standard non-compliance days) / 365
If there are multiple facilities, an average is used.

Definitions:
· An operating/discharge permit is one issued through the National Pollutant Discharge Elimination System or its equivalent delegated state program.
· A standard non-compliance day is any day during which the wastewater utility, through actual monitoring, determines that it has not met one or more of its permitted effluent quality standards at an individual treatment facility.

		Water Utilities			Wastewater Utilities			Combined Utilities		
	Your Site	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile
Wastewater Treatment Effectiveness Rate (%)	0.0%				N/A	100.0%	N/A	100.0%	100.0%	99.5%

Sample Size	
Water Operations	4
Wastewater Operations	4
Combined Operations	54

Operations and Maintenance Cost Ratios:

Portland Water Bureau

- O and M cost per account
- O and M cost per MG processed
- Direct cost of treatment per MG

Purpose:
Three indicators each are proposed for wastewater utilities to quantify all utility costs related to operations and maintenance, with break-outs of those costs related to wastewater treatment, as related to volumes processed and the number of active customers.

Calculation:
· O M Cost per Account = Total Operations Maintenance Costs (less depreciation) / Total number of active customer accounts
· O M Cost per MG Processed = Total Operations Maintenance Costs (less depreciation) / Volume processed during the reporting period (in MG)
· Direct Cost of Treatment per MG = Total Direct O M Costs for Wastewater Treatment / Volume processed during the reporting period (in MG)

Definitions:
· Active customer account means all customer accounts of all classes that were billed for some or all of the reporting period. A single account may include service through more than one sewer service connection.
· Total volume processed refers to the total volume of wastewater processed by the utility during the reporting period. It is reported in millions of gallons.
· Total direct operations and maintenance costs for wastewater treatment is the total costs for salaries, direct benefits, and direct operational and maintenance costs associated with treatment. It includes pumping costs only within treatment facilities but not those associated with delivery of wastewater to treatment facilities nor those associated with discharge of treated solids or liquids leaving wastewater treatment facilities. Costs of solids treatment are included.

		Water Utilities			Wastewater Utilities			Combined Utilities		
	Your Site	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile
O and M cost per account	$0				N/A	N/A	N/A	$457	$338	$240
O and M cost per MG processed	$0				N/A	$1,246	N/A	$3,673	$2,784	$1,535
Direct cost of treatment per MG	$0				N/A	$793	N/A	$1,892	$945	$629

Sample Size	
Water Operations	2
Wastewater Operations	2
Combined Operations	52

Planned Maintenance Ratios (%):

Portland Water Bureau

- Planned maintenance ratio (hours)
- Planned maintenance ratio (cost)

Purpose:
This indicator is designed to allow comparison of how effectively utilities are investing in planned maintenance.

Calculation:
· Planned Maintenance Ratio in Percent (Hours) = (100) Hours of Planned Maintenance / (Hours of Planned + Corrective Maintenance)
· Planned Maintenance Ratio in Percent (Cost) = (100) Cost of Planned Maintenance / (Cost of Planned + Corrective Maintenance)

Definitions:
· Planned maintenance is all maintenance undertaken in advance of asset failure. Planned maintenance may be predictive or preventive.
· Corrective maintenance is all maintenance undertaken after asset failure.

		Water Utilities			Wastewater Utilities			Combined Utilities		
	Your Site	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile	Top Quartile	Median	Bottom Quartile
Planned maintenance ratio (hours)	0.0%				N/A	67.1%	N/A	80.4%	69.1%	59.4%
Planned maintenance ratio (cost)	0.0%				N/A	67.5%	N/A	76.7%	59.8%	39.6%

Sample Size	
Water Operations	0
Wastewater Operations	3
Combined Operations	44

Performance Indicators for All Participants

Portland Water Bureau

		All Participants		
	Your Site	Top Quartile	Median	Bottom Quartile
Organizational Development				
Organizational Best Practices Index				
Strategic Planning	4.0	5.0	4.0	4.0
Long-term Financial Planning	4.0	5.0	5.0	4.0
Risk Management Planning	4.0	4.0	4.0	3.0
Optimized Asset Management	3.0	4.0	4.0	3.0
Performance Measurement	4.0	4.0	3.0	3.0
Customer Involvement	3.0	4.0	3.0	3.0
Continuous Improvement	3.0	4.0	4.0	3.0
Total	25.0	29.0	26.0	23.0
Employee Health and Safety Severity Rate	49.0	160.8	68.0	25.5
Training Hours per Employee	27.0	29.0	20.0	12.0
Customer Accounts per Employee (Water)	388.0	730.5	486.0	387.5
Customer Accounts per Employee (Wastewater)	0.0	868.0	509.0	380.0
MGD Water Delivered per Employee	0.19	0.33	0.26	0.18
MGD Wastewater Processed per Employee	0.00	0.35	0.23	0.17

Performance Indicators for All Participants

Portland Water Bureau

		All Participants		
	Your Site	Top Quartile	Median	Bottom Quartile
Customer Relations				
Customer Service Complaints per 1000 Customers	0.36	16.42	3.64	1.25
Technical Quality Complaints per 1000 Customers	5.60	9.68	4.61	1.51
Disruptions of Water Service Rate				
Planned (less than 4 hours)	1.35	3.38	1.35	0.41
Planned (between 4 and 12 hours)	4.92	2.44	0.85	0.22
Planned (greater than 12 hours)	0.13	0.13	0.05	0.03
Unplanned (less than 4 hours)	0.28	6.68	2.21	0.77
Unplanned (between 4 and 12 hours)	2.00	2.63	1.04	0.36
Unplanned (greater than 12 hours)	0.15	0.23	0.09	0.03
Residential Cost of Water and/or Sewer Service				
Monthly residential water using 7500 Gs per mth	$35.59	$38.69	$29.55	$0.03
Avg. residential water bill amount for one month of service	$20.05	$37.85	$26.70	$21.07
Monthly residential sewer using 7500 Gs per mth	$0.00			
Avg. residential sewer bill amount for one month of service	$0.00			
Multi-service, monthly bill combined svc. using 7500 Gs per mt	$0.00			
Multi-service, avg. residential combined bill for one mth of svc	$0.00			
Customer Service Cost per Account	$38.12	$65.29	$45.51	$33.59
Billing Accuracy	$10.90	$17.75	$6.85	$1.75

Performance Indicators for All Participants

Portland Water Bureau

	Your Site	All Participants Top Quartile	Median	Bottom Quartile
Business Operations				
Debt Ratio	52.2%	48.58%	36.60%	21.88%
System Renewal / Replacement Rate				
Water pipeline	0.8%	6.83%	2.75%	0.95%
Water treatment facility and pipeline	1.8%	13.40%	6.50%	1.65%
Wastewater pipelines and collections	0.0%			
Wastewater treatment facility and pumping	0.0%			
Return on Assets	1.90%	2.50%	1.60%	0.60%
Water Operations				
Drinking Water Compliance Rate	100.0%	100.0%	100.0%	100.0%
Distribution System Water Loss	3.91%	10.06%	4.54%	2.15%
	4.01%	9.01%	5.21%	1.55%
Water Distribution System Integrity	18.0%	69.0%	33.0%	15.0%
Operations Maintenance Cost Ratios				
O and M Cost per Account	$324	$505	$342	$225
O and M Cost per MG Processed	$1,841	$2,675	$2,033	$1,516
Direct Cost of Treatment per MG	$60	$756	$475	$304
Planned Maintenance Ratios				
Planned Maintenance Ratio in Percent (Hours)	54%	77%	56%	36%
Planned Maintenance Ratio in Percent (Cost)	54%	71%	58%	33%
Wastewater Operations				
Sewer Overflow Rate	0.0			
Distribution System Water Loss	0.0			
Wastewater Treatment Effectiveness Rate	0.0%			
Operations Maintenance Cost Ratios				
O and M Cost per Account	$0			
O and M Cost per MG Processed	$0			
Direct Cost of Treatment per MG	$0			
Planned Maintenance Ratios				
Planned Maintenance Ratio in Percent (Hours)	0.0%			
Planned Maintenance Ratio in Percent (Cost)	0.0%			

Background - Frequency Distribution

Portland Water Bureau

		Type						Total	
		Water Only		Wastewater Only		Combined			
		Count	Percent	Count	Percent	Count	Percent	Count	Percent
What is your corporate structure?	Public (part of local governance, non-enterprise)	7	17.1%	0	0.0%	8	12.5%	15	13.8%
	Public (part of local governance, enterprise fund)	10	24.4%	2	50.0%	38	59.4%	50	45.9%
	Public (independent governance)	15	36.6%	2	50.0%	13	20.3%	30	27.5%
	Investor-owned (private or publicly traded stock)	3	7.3%	0	0.0%	0	0.0%	3	2.8%
	Other	6	14.6%	0	0.0%	5	7.8%	11	10.1%
	NA	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Total		41	100.0%	4	100.0%	64	100.0%	109	100.0%

		Type						Total	
		Water Only		Wastewater Only		Combined			
		Count	Percent	Count	Percent	Count	Percent	Count	Percent
What is your utility's form of Governance?	Board	31	75.6%	2	50.0%	25	40.3%	58	54.2%
	Government	10	24.4%	2	50.0%	37	59.7%	49	45.8%
	Other	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	NA	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Total		41	100.0%	4	100.0%	62	100.0%	107	100.0%

		Type						Total	
		Water Only		Wastewater Only		Combined			
		Count	Percent	Count	Percent	Count	Percent	Count	Percent
What utility memberships does your organization maintain?	AWWA	41	50.6%	1	16.7%	62	34.1%	104	38.7%
	AwwaRF	24	29.6%	1	16.7%	36	19.8%	61	22.7%
	WEF	12	14.8%	3	50.0%	48	26.4%	63	23.4%
	AMSA	0	0.0%	1	16.7%	20	11.0%	21	7.8%
	AMWA	13	16.0%	0	0.0%	27	14.8%	40	14.9%
	NAWC	3	3.7%	0	0.0%	10	5.5%	13	4.8%
	WERF	0	0.0%	3	50.0%	27	11.0%	30	7.8%
Total Respondents		81	114.8%	6	100.0%	182	111.5%	269	114.8%

Background - Frequency Distribution

Portland Water Bureau

		Type						Total	
		Water Only		Wastewater Only		Combined			
		Count	Percent	Count	Percent	Count	Percent	Count	Percent
Does your utility have taxing authority?	Yes	5	12.2%	0	0.0%	7	11.7%	12	11.4%
	No	36	87.8%	4	100.0%	53	88.3%	93	88.6%
	NA	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Total		41	100.0%	4	100.0%	60	100.0%	105	100.0%

		Type						Total	
		Water Only		Wastewater Only		Combined			
		Count	Percent	Count	Percent	Count	Percent	Count	Percent
Is your utility contract operated?	Yes	1	2.4%	1	25.0%	1	1.6%	3	2.8%
	No	40	97.6%	3	75.0%	60	98.4%	103	97.2%
	NA	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Total		41	100.0%	4	100.0%	61	100.0%	106	100.0%

		Type						Total	
		Water Only		Wastewater Only		Combined			
		Count	Percent	Count	Percent	Count	Percent	Count	Percent
Does your utility have fee setting authority?	Yes	30	75.0%	3	75.0%	50	83.3%	83	79.8%
	No	10	25.0%	1	25.0%	10	16.7%	21	20.2%
	NA	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Total		40	100.0%	4	100.0%	60	100.0%	104	100.0%

Background - Frequency Distribution

Portland Water Bureau

		Type						Total	
		Water Only		Wastewater Only		Combined			
		Count	Percent	Count	Percent	Count	Percent	Count	Percent
Services provided by your utility?	Raw Water Transmission	17	15.0%	0	0.0%	36	9.3%	53	10.6%
	Potable Water Treatment and Transmission	35	31.0%	0	0.0%	55	14.2%	90	18.0%
	Potable Water Distribution	38	33.6%	0	0.0%	62	16.1%	100	20.0%
	Wastewater Collection (Combined Sewers)	1	0.9%	1	10.0%	20	5.2%	22	4.4%
	Wastewater Collection (Separated Sewers)	1	0.9%	3	30.0%	56	14.5%	60	12.0%
	Waste Water Treatment	1	0.9%	3	30.0%	54	14.0%	58	11.6%
	Stormwater Collection	0	0.0%	0	0.0%	23	6.0%	23	4.6%
	Stormwater Treatment	0	0.0%	0	0.0%	10	2.6%	10	2.0%
	Reclaimed Water Treatment	3	2.7%	0	0.0%	18	4.7%	13	2.6%
	Reclaimed/Irrigation Water Distribution	5	4.4%	1	10.0%	21	5.4%	27	5.4%
	Electric Generation	5	4.4%	1	10.0%	8	2.1%	14	2.8%
	Electric Distribution	5	4.4%	0	0.0%	7	1.8%	12	2.4%
	Natural Gas Distribution	1	0.9%	0	0.0%	2	0.5%	3	0.6%
	Solid Waste Collection	0	0.0%	0	0.0%	9	2.3%	9	1.8%
	Solid Waste Transfer/Disposal	1	0.9%	1	10.0%	5	1.3%	7	1.4%

		Type						Total	
		Water Only		Wastewater Only		Combined			
		Count	Percent	Count	Percent	Count	Percent	Count	Percent
Please indicate your utility's interest in participating in future metrics and process benchmarking activities with other utilities to establish industry-wide performance indicators	High	27	67.5%	4	100.0%	40	67.8%	71	67.5%
	Medium	10	25.0%	0	0.0%	16	27.1%	26	25.0%
	Low	3	7.5%	0	0.0%	3	5.1%	6	7.5%
	NA	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Total		40	100.0%	4	100.0%	59	100.0%	103	100.0%

Background - Frequency Distribution

Portland Water Bureau

		Type						Total	
		Water Only		Wastewater Only		Combined			
		Count	Percent	Count	Percent	Count	Percent	Count	Percent
Please indicate whether total actual expenditures or total funds reserved was provided on the survey	Water Pipeline								
	Total Actual Expenditures	27	65.9%			33	53.2%	60	58.3%
	Total Funds Reserved	0	0.0%			10	16.1%	10	9.7%
	NA	6	14.6%			13	21.0%	19	18.4%
	Water Treatment Facility and Pumping								
	Total Actual Expenditures	25	61.0%			28	45.2%	53	51.5%
	Total Funds Reserved	6	14.6%			10	16.1%	16	15.5%
	NA	0	0.0%			21	33.9%	21	20.4%
	Wastewater Pipelines and Collection								
	Total Actual Expenditures			1	25.0%	31	50.0%	32	80.3%
	Total Funds Reserved			0	0.0%	9	14.5%	9	71.1%
	NA			0	0.0%	18	29.0%	18	17.5%
	Wastewater Treatment Facility and Pumpin								
	Total Actual Expenditures			1	25.0%	28	45.2%	29	28.2%
	Total Funds Reserved			1	25.0%	9	14.5%	10	22.2%
	NA			0	0.0%	22	35.5%	22	21.4%

Internal Employee Promotions

Portland Water Bureau

	Water Only				Wastewater Only				Combined				Total			
		Percentiles				Percentiles				Percentiles				Percentiles		
	Count	25	50	75	Count	25	50	75	Count	25	50	75	Count	25	50	75
Wholesale Population - # of Citizens - Potable Water Service	18	10,500	64,000	181,302					33	4,000	13,000	51,538	51	4,850	16,200	89,762
Retail Population - # Electric Generation - Potable Water Service																
Residential - # of Customer Accounts - Potable Water Service	39	13,164	48,243	109,884					58	18,512	34,750	78,316	97	17,478	41,644	92,623
Commercial / Industrial - # of Customer Accounts - Potable Water Service	38	1,330	3,842	11,103					56	1,271	2,657	6,394	94	1,283	3,332	8,035
Wholesale - # of Customer Accounts - Potable Water Service	21	2	5	12					38	1	3	7	59	2	3	10
Total Capacity(MGD) - Potable Water Service	38	21	73	155					59	20	45	98	97	20	50	131
Average Daily Flow(MGD) - Potable Water Service	40	6	21	62					59	9	21	57	99	8	21	60
Wholesale Population - # of Citizens - Wastewater Collection					2	N/A	N/A	N/A	18	2,250	21,046	52,598	20	1,552	15,000	45,390
Retail Population - # Electric Generation - Wastewater Collection																
Residential - # of Customer Accounts - Wastewater Collection					2	N/A	N/A	N/A	53	10,475	27,709	74,548	55	10,475	31,468	74,575
Commercial / Industrial - # of Customer Accounts - Wastewater Collection					2	N/A	N/A	N/A	51	1,038	2,050	6,325	53	1,074	2,117	5,566
Wholesale - # of Customer Accounts - Wastewater Collection					1	N/A	N/A	N/A	17	1	4	13	18	1	4	12
Total Capacity(MGD) - Wastewater Collection					2	N/A	N/A	N/A	46	14	35	69	48	14	35	70
Average Daily Flow(MGD) - Wastewater Collection					2	N/A	N/A	N/A	45	4	15	31	47	4	15	31
Wholesale Population - # of Citizens - Wastewater Treatment					1	N/A	N/A	N/A	21	4,000	30,000	55,000	22	5,414	30,884	111,250
Retail Population - # Electric Generation - Wastewater Treatment																
Residential - # of Customer Accounts - Wastewater Treatment					3	N/A	32,303	N/A	47	12,181	31,468	81,510	50	10,325	31,468	78,447
Commercial / Industrial - # of Customer Accounts - Wastewater Treatment					3	N/A	1,124	N/A	45	1,306	2,498	6,815	48	1,259	2,468	6,091
Wholesale - # of Customer Accounts - Wastewater Treatment					1	N/A	N/A	N/A	28	2	5	11	29	2	4	10
Total Capacity(MGD) - Wastewater Treatment					4	N/A	45	N/A	52	12	33	60	56	14	34	60
Average Daily Flow(MGD) - Wastewater Treatment					4	N/A	28	N/A	50	5	16	34	54	6	17	34

Internal Employee Promotions

Portland Water Bureau

	Water Only				Wastewater Only				Combined				Total			
		Percentiles				Percentiles				Percentiles				Percentiles		
	Count	**25**	**50**	**75**	**Count**	**25**	**50**	**75**	**Count**	**25**	**50**	**75**	**Count**	**25**	**50**	**75**
What percent of your utility's future capital improvement programs will be financed with debt?	27	25	50	70	3	N/A	48	N/A	46	39	61	80	76	34	55	77
What is your utility's typical time horizon for capital improvement programs in years?	41	1	2	2	4	N/A	2	N/A	58	1	2	2	103	1	2	2
What percent of your employees are represented by labor bargaining units?	28	65	76	91	3	N/A	95	N/A	31	66	75	91	62	65	75	92