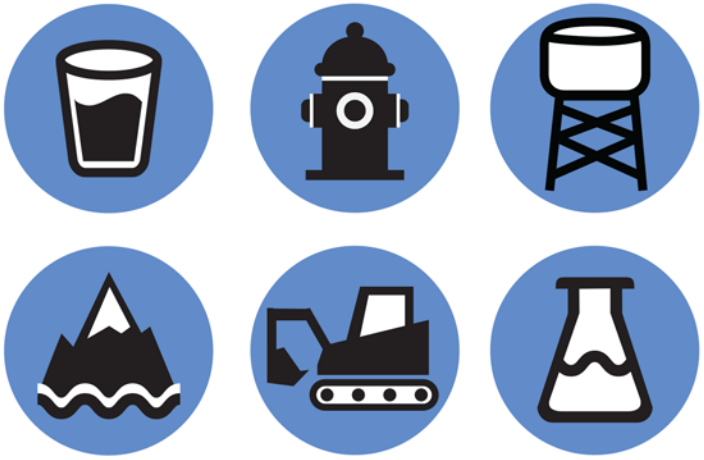
Seattle Public Utilities

2019 WATER SYSTEM PLAN



Our Water. Our Future.

APPENDICES

Volume 2

August 2019

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Seattle Public Utilities

2019 Water System Plan

Revised Final
August 2019

VOLUME 2
APPENDICES

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SEATTLE PUBLIC UTILITIES
2019 WATER SYSTEM PLAN

APPENDIX B

WATER SYSTEM INVENTORIES

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SEATTLE PUBLIC UTILITIES
2019 WATER SYSTEM PLAN

B. WATER SYSTEM INVENTORIES

APPENDIX B-1
Water Facilities Inventory Form

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Washington State Department of Health
Division of Environmental Health
Office of Drinking Water

WATER FACILITIES INVENTORY (WFI) FORM

ONE FORM PER SYSTEM

Quarter: 1
Updated: 01/22/2018
Printed: 2/28/2018
WFI Printed For: On-Demand
Submission Reason: Pop/Connect Update

RETURN TO: Central Services - WFI, PO Box 47822, Olympia, WA, 98504-7822

1. SYSTEM ID NO.	2. SYSTEM NAME	3. COUNTY	4. GROUP	5. TYPE
77050 Y	SEATTLE PUBLIC UTILITIES	KING	A	Comm

6. PRIMARY CONTACT NAME & MAILING ADDRESS

WYLIE V. HARPER [WQ QA DIRECTOR]
SEATTLE PUBLIC UTILITIES/WQ LAB
800 S STACEY ST
SEATTLE, WA 98134

7. OWNER NAME & MAILING ADDRESS

SEATTLE, CITY OF
RICKY A. SCOTT DEPUTY DIR.
PO BOX 34018
SEATTLE, WA 98124-4018

8. OWNER NUMBER: 005246

STREET ADDRESS IF DIFFERENT FROM ABOVE

ATTN
ADDRESS
CITY STATE ZIP

STREET ADDRESS IF DIFFERENT FROM ABOVE

ATTN
ADDRESS 700 5TH AVE # 4900
CITY SEATTLE STATE WA ZIP 98124

9. 24 HOUR PRIMARY CONTACT INFORMATION

Primary Contact Daytime Phone: (206) 684-7880
Primary Contact Mobile/Cell Phone: (206) 790-5669
Primary Contact Evening Phone: (xxx)-xxx-xxxx
Fax:
E-mail: xxxxxxxxxxxxxxxxxxx

10. OWNER CONTACT INFORMATION

Owner Daytime Phone: (206) 684-7414
Owner Mobile/Cell Phone:
Owner Evening Phone:
Fax:
E-mail: xxxxxxxxxxxxxxxxxxx

WAC 246-290-420(9) requires that water systems provide 24-hour contact information for emergencies.

11. SATELLITE MANAGEMENT AGENCY - SMA (check only one)

- [x] Not applicable (Skip to #12)
- [ ] Owned and Managed
- [ ] Managed Only
- [ ] Owned Only

SMA NAME: _____ SMA Number:

12. WATER SYSTEM CHARACTERISTICS (mark all that apply)

- [ ] Agricultural
- [x] Commercial / Business
- [x] Day Care
- [x] Food Service/Food Permit
- [ ] 1,000 or more person event for 2 or more days per year
- [x] Hospital/Clinic
- [x] Industrial
- [x] Licensed Residential Facility
- [x] Lodging
- [x] Recreational / RV Park
- [x] Residential
- [x] School
- [ ] Temporary Farm Worker
- [ ] Other (church, fire station, etc.): _____

13. WATER SYSTEM OWNERSHIP (mark only one)

- [ ] Association
- [x] City / Town
- [ ] County
- [ ] Federal
- [ ] Investor
- [ ] Private
- [ ] Special District
- [ ] State

14. STORAGE CAPACITY (gallons)

398,000,000

- SEE NEXT PAGE FOR A COMPLETE LIST OF SOURCES -

WATER FACILITIES INVENTORY (WFI) FORM - Continued

1. SYSTEM ID NO.	2. SYSTEM NAME	3. COUNTY	4. GROUP	5. TYPE
77050 Y	SEATTLE PUBLIC UTILITIES	KING	A	Comm

15	16	17	18										19			20	21						22	23	24			
	SOURCE NAME	INTERTIE	SOURCE CATEGORY										USE				TREATMENT						DEPTH		SOURCE LOCATION			
Source Number	LIST UTILITY'S NAME FOR SOURCE AND WELL TAG ID NUMBER. Example: WELL #1 XYZ456 IF SOURCE IS PURCHASED OR INTERTIED, LIST SELLER'S NAME Example: SEATTLE	INTERTIE SYSTEM ID NUMBER	WELL	WELL FIELD	WELL IN A WELL FIELD	SPRING	SPRING FIELD	SPRING IN SPRINGFIELD	SEA WATER	SURFACE WATER	RANNEY / INF. GALLERY	OTHER	PERMANENT	SEASONAL	EMERGENCY	SOURCE METERED	NONE	CHLORINATION	FILTRATION	FLUORIDATION	IRRADIATION (UV)	OTHER	DEPTH TO FIRST OPEN INTERVAL IN FEET	CAPACITY (GALLONS PER MINUTE)	1/4, 1/4 SECTION	SECTION NUMBER	TOWNSHIP	RANGE
S01	CEDAR RIVER									X			X			Y		X		X	X			125000	SW SE	19	22N	07E
S02	TOLT RIVER									X			X			Y		X	X	X				83280	NW SW	32	26N	09E
S03	RIVERTON HTS #1				X									X		Y		X		X			275	3200	NE NW	21	23N	04E
S04	BOULEVARD		X											X		Y		X		X			293	2000	NW NW	16	23N	04E
S05	RIVERTON HTS #2				X									X		Y		X		X			280	1800	NE NW	21	23N	04E
S06	RIVERTON HTS WF			X										X		Y		X		X				5000	NE NW	21	23N	04E
S07	RENTON/71850	71850 L													X	Y						X		3800			00N	00E

WATER FACILITIES INVENTORY (WFI) FORM - Continued

1. SYSTEM ID NO.	2. SYSTEM NAME	3. COUNTY	4. GROUP	5. TYPE
77050 Y	SEATTLE PUBLIC UTILITIES	KING	A	Comm

	ACTIVE SERVICE CONNECTIONS	DOH USE ONLY! CALCULATED ACTIVE CONNECTIONS	DOH USE ONLY! APPROVED CONNECTIONS
25. SINGLE FAMILY RESIDENCES (How many of the following do you have?)		160347	Unspecified
A. Full Time Single Family Residences (Occupied 180 days or more per year)	160347		
B. Part Time Single Family Residences (Occupied less than 180 days per year)	0		
26. MULTI-FAMILY RESIDENTIAL BUILDINGS (How many of the following do you have?)			
A. Apartment Buildings, condos, duplexes, barracks, dorms	13305		
B. Full Time Residential Units in the Apartments, Condos, Duplexes, Dorms that are occupied more than 180 days/year	0		
C. Part Time Residential Units in the Apartments, Condos, Duplexes, Dorms that are occupied less than 180 days/year	0		
27. NON-RESIDENTIAL CONNECTIONS (How many of the following do you have?)			
A. Recreational Services and/or Transient Accommodations (Campsites, RV sites, hotel/motel/overnight units)	0	0	
B. Institutional, Commercial/Business, School, Day Care, Industrial Services, etc.	13486	13486	
28. TOTAL SERVICE CONNECTIONS		173833	

29. FULL-TIME RESIDENTIAL POPULATION

A. How many residents are served by this system 180 or more days per year? 743796

30. PART-TIME RESIDENTIAL POPULATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A. How many part-time residents are present each month?												
B. How many days per month are they present?												

31. TEMPORARY & TRANSIENT USERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A. How many total visitors, attendees, travelers, campers, patients or customers have access to the water system each month?												
B. How many days per month is water accessible to the public?												

32. REGULAR NON-RESIDENTIAL USERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A. If you have schools, daycares, or businesses connected to your water system, how many students daycare children and/or employees are present each month?	158000	158000	158000	158000	158000	158000	158000	158000	158000	158000	158000	158000
B. How many days per month are they present?	31	28	31	30	31	30	31	31	30	31	30	31

33. ROUTINE COLIFORM SCHEDULE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
* Requirement is exception from WAC 246-290	270	270	270	270	270	270	270	270	270	270	270	270

34. NITRATE SCHEDULE	QUARTERLY	ANNUALLY	ONCE EVERY 3 YEARS
(One Sample per source by time period)			

35. Reason for Submitting WFI:

☐ Update - Change ☐ Update - No Change ☐ Inactivate ☐ Re-Activate ☐ Name Change ☐ New System ☐ Other _____

36. I certify that the information stated on this WFI form is correct to the best of my knowledge.

SIGNATURE: _____ **DATE:** _____

PRINT NAME: _____ **TITLE:** _____

WS ID	WS Name
77050	SEATTLE PUBLIC UTILITIES

Total WFI Printed: 1

SEATTLE PUBLIC UTILITIES
2019 WATER SYSTEM PLAN

B. WATER SYSTEM INVENTORIES

APPENDIX B-2
Water System Management and Operator Certification

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Water System Management and Operator Certification

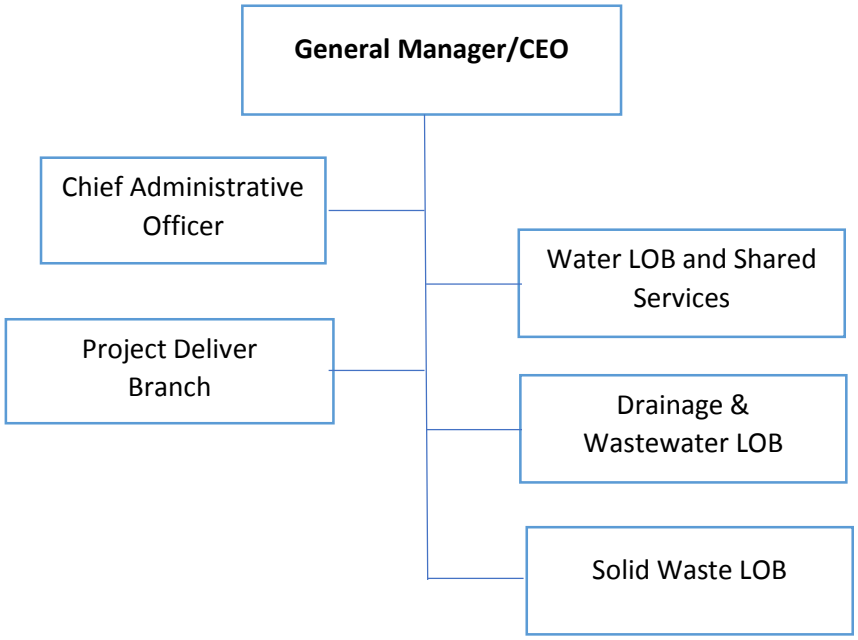
February 2018

Seattle Public Utilities (SPU) reorganized its organizational structure since the *2013 Water System Plan*. Of note is consolidation of information technology and human resource functions into centralized City of Seattle departments. Also, the branch structure was realigned to correspond to Lines of Business (LOBs): Water, Solid Waste, and Drainage & Wastewater.

An explanation of the management structure and personnel at SPU is provided here, followed by a description of SPU's current operator certifications and training programs. Also included is a description of SPU's apprenticeship program to train new recruits.

Management and Organizational Structure

An organizational chart for SPU, which shows the current departmental structure, is provided below. A brief explanation of the role of the General Manager/Chief Executive Officer, Chief Administrative Officer, and each SPU branch is provided below.



Seattle Public Utilities Organizational Structure

General Manager/Chief Executive Officer

The General Manager and Chief Executive Officer (GM/CEO) is responsible for making sure the utility carries out the mission adopted for SPU. The GM/CEO has responsibilities typical of a water superintendent, such as developing budgetary requirements, assuring effective performance of the water system, and implementing City ordinances and utility policies regarding water service.

Chief Administrative Officer
The Chief Administrative Officer has responsibility over the following functions that support all the lines of business:

- Finance and Administration
- Customer Service
- Office of Utility Services[1]
- Communications
- Environmental Justice and Social Equity
- Human Resources
- Corporate Policy and Intergovernmental Relations

Project Delivery Branch
The Project Delivery Branch (PDB) provides a variety of engineering and engineering support services to clients within and outside of SPU. PDB provides project management, engineering, design, survey, drafting, basemapping, construction specification and contract preparation, project cost estimating, geotechnical, materials testing, construction inspection, and contract payment services. Registered professional engineers and land surveyors reside in this Branch, as well as elsewhere in SPU. PDB executes SPU capital projects from start to completion, and provides specific services as appropriate on projects developed by other City departments, other agencies, and developers. PDB applies asset management principles and practices to achieve the triple bottom line goals of customer satisfaction, environmental protection/enhancement and cost efficiency. The Development Services Office is located within PDB and provides assistance and approvals for new utility services.

Water Line of Business and Shared Services Branch
The Water LOB branch is responsible for planning, operations and maintenance of all assets associated with the water utility. Divisions within the branch include Water Planning & Program Management, Watershed Management, Drinking Water Quality and Water Operations & System Maintenance. The Water Quality Division operates the state certified laboratory and includes several water quality inspector positions which have Backflow Assembly Tester (BAT), and Cross Connection Control Specialist (CCS) certification. The Shared Services Division supports multiple LOBs and includes maintenance, SCADA support and systems operations.

Drainage & Wastewater LOB and Solid Waste LOB
These two branches provide services analogous to the Water LOB for the other two lines of business within SPU.

Operations Planning and Scheduling (OPS)
SPU's regional water supply system has multiple objectives that must be met and operational risks that must be actively managed:

- water resource management for people and for fish
- water quality source to tap

[1] Provides climate resiliency, environmental review, asset management and economic services.

- pressure and flow in the transmission and distribution system
- system outages – called 'clearances' - for construction and major maintenance
- flood management and hydropower generation

In 2008, SPU established an Operations Planning and Scheduling (OPS) function that is supported by a core team. The OPS core team membership consists of:

- OPS Team Lead (as assigned)
- System Control Center Manager
- System Control Center Supervisor
- Clearance Work Order Process and Transmission and Distribution Operations representative
- Water Resources/River and Reservoir Operations representative
- Transmission and Distribution Business Areas representative(s)
- Water Quality and Treatment Business Area representative(s)

The OPS Team meets each week so establish a weekly web-based Water System Operating Plan (WSOP). OPS is responsible for developing, deconflicting and communicating (via the WSOP) the plan and schedule for operation of the water system to meet all of the objectives for the regional water system. OPS also reviews, approves, and schedules construction and major maintenance ('clearances') that affect system operations, as well as maintains a schedule of clearances (received, approved and scheduled, in-progress).

The System Control Center, which operates 24/7, is responsible for operating the regional water system according to the WSOP, using best judgment where there are no specific instructions and responding to unusual and emergency situations. In addition, the System Control manages the configuration of the system, detects and directs response to water system emergencies, and coordinates and approves all construction and maintenance activities that require access to water system facilities (headworks, treatment, pump stations, gate houses, etc) or that may have an impact on water system.

Operator Certification

SPU is committed to meeting the requirements of the Water Works Operator Certification Program administered by the Washington State Department of Health (DOH) in conjunction with the Water and Wastewater Operator Certification Board of Examiners under the authority of Chapter 70.119 RCW and the comprehensive program regulations contained in Chapter 246-292 WAC. Under this program, water systems must employ certified operators to carry out various water system functions as part of treatment and distribution systems.

Certification Requirements

SPU is classified as a "Group A" public water system. The Group A classification requires that SPU have certified operators in charge of all active, daily, and technical operations of the water system. In meeting this requirement, SPU maintains certified personnel throughout the utility for a variety of water system operations. This

certification includes water treatment plant operators at the Tolt and Cedar Water Treatment Facilities, which are operated and maintained by private entities under contract by SPU. Required Classifications include Water Distribution Manager (WDM) Levels 3 and 4, Water Treatment Plant Operator (WTPO) Levels 3 and 4, and Cross Connection Control Specialists (CCS) depending on the requirements of specific positions. Table 1 shows the current listing of mandatory water works operator positions and required certification levels for SPU as they relate to the organizational structure of the utility. This list is updated on an annual basis for utility staff and submitted to DOH for their review. Additionally, SPU also has internal SPU certification requirements for lower level positions (involving level 1, and 2 certifications), that are not detailed out here.

Table 1
Mandatory Waterworks Personnel Certifications

Branch	Division	Position	Required Certification
Water LOB and Shared Services	Drinking Water Quality	Drinking Water Director	WDM 4
		Utility Service Inspection Manager	WDM 3, CCS
	Utility Operations & Maintenance	Water Maintenance Manager	WDM 3
		Water Supply Operations Manager	WDM 3
		Water System Supervisor	WDM 3
	Water Operations & System Maintenance	Water Transmission and Distribution Director	WDM 4
		Water Transmission Manager	WDM 3
		Water Pipe Distribution Manager - North End	WDM 3
		Water Pipe Distribution Manager - South End	WDM 3
		Water Pipe Distribution Manager -All City	WDM 3
External Contractors	Contract Treatment Operations	Tolt Facility Manager	WTPO 4
		Tolt Chief Operator	WTPO 3
		Tolt Operator (multiple positions)	WTPO 3
		Cedar Facility Manager	WTPO 4
		Cedar Operations Supervisor	WTPO 3
		Cedar Operator (multiple positions)	WTPO 3

Certified operators are either on-site or on call for all critical water system operations. SPU also ensures that certified operators are in charge of all segments of the water system as appropriate. Certified operators staff the Control Center, and the two primary water treatment plants, 24 hours a day. Also, water system operations and pipe district managers for the Water Operations & System Maintenance Division of SPU's Water LOB Branch maintain necessary Water Distribution Manager certifications.

Training

All certified personnel for SPU renew their certificates on an annual basis and enhance their professional growth in the field by accumulating at least three college-related credits or continuing education units (CEUs) every three years. Personnel meet the CEU requirements through a combination of external and internal training opportunities. External opportunities include State-sponsored classes through the Washington Environmental Training Resource Center (WETRC). Examples of classes offered

through this program include “Chlorination System Operation and Maintenance” and “Basic Electrical.” Internally, SPU takes advantage of a wealth of expertise from a variety of professional staff to offer CEU approved classes. Examples of classes offered through this internal training include:

- National Incident Management System (NIMS)
- Cross Connection Control
- Operations Math
- Corrosion Protection
- Watermain Installation and Print Reading
- Successful Watermain Shutdowns

Apprenticeship Program

As budget has allowed, SPU has provided on-the-job training through its two-year Apprenticeship Programs. The purpose of SPU’s Apprenticeship Program is to develop and continually improve its field talent, while being prepared to meet the increasingly complex and heavily regulated utility staffing needs of the future. The program recruits, hires, and trains apprentices in the Water and Drainage and Wastewater (DWW) lines of business. SPU’s goal is to hire up to 12-15 candidates each for Water & DWW for a total of 24-30 in each class. Beginning in 2020, the program also plans to expand journey-level training and skill development to improve effectiveness, efficiency, and career progression opportunities in existing field staff.

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SEATTLE PUBLIC UTILITIES
2019 WATER SYSTEM PLAN

B. WATER SYSTEM INVENTORIES

APPENDIX B-3
Water Treatment Chemicals

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Water Treatment Chemicals
2017

Facility	Chemical
Tolt Water Treatment Facility	Liquid Oxygen
	Carbon Dioxide
	Chlorine
	Ferric Chloride
	Hydrofluorosilicic Acid
	Lime
	Cationic Polymer
	Anionic Polymer
	Sodium Bisulfite (has not been used)
	Sodium Hydroxide
Cedar Water Treatment Facility	Liquid Oxygen
	Chlorine
	Lime
	Sodium Bisulfite
Landsburg Diversion & Pre-Treatment Facility	Sodium Hypochlorite
	Hydrofluorosilicic Acid
Seattle Wells*	Sodium Hypochlorite
	Sodium Hydroxide
	Hydrofluorosilicic Acid
In-Town Reservoir Treatment Facilities	Sodium Hypochlorite
	Salt (used for on-site hypochlorite generation)

Notes:

* Indicates the facilities are only used seasonally during the high demand period. Chemicals may not be stored on site during the off season.

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SEATTLE PUBLIC UTILITIES
2019 WATER SYSTEM PLAN

B. WATER SYSTEM INVENTORIES

APPENDIX B-4
Asset Inventories

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Table 1 Tolt Water Treatment Facility Design Parameters	
Type:	Direct Filtration with Raw Water Ozonation
Capacity:	120 mgd
Ozone Generation	
Type:	LOX Feed
Number of units:	Two duty, one standby
Capacity:	2,388 lbs/day each
Applied dose:	2.9 mg/l (average)
	4.8 mg/l (maximum)
Production	1,651 lbs/day (average)
	4,775 lbs/day (maximum)
Ozone Contacting	
Type:	Fine bubble diffusion w/baffled contactor
Number of units:	Two parallel trains
Capacity:	60 mgd each
Contact time:	31.6 minutes (theoretical)
Flocculation	
Type:	Hydraulic flocculation w/baffled serpentine flow
	Pumped jet flash mix for chemical addition
Number of units:	Two parallel trains
Capacity:	60 mgd each
Detention time:	26.5 minutes (theoretical)
Filtration	
Type:	Anthracite mono-medium, with air/water backwash
Number of units:	Six (each with two bays)
Capacity:	24 mgd each
Rate:	12 gpm/sq ft
Bed depth:	72 inches
Clearwell	
Type:	Baffled concrete, cast-in-place
Number of units:	One (two equal halves)
Total volume:	7.4 MG
Washwater Recovery	
Type:	Settling/drying basins
Number of units:	Four
Capacity:	1.385 MG each
FTW/Equalization Basin	
Volume:	1.485 MG
Treatment Chemicals	
Ferric chloride:	Primary coagulant
Cationic polymer:	Primary coagulant/coagulant aid
Anionic/nonionic polymer:	Filter aid and washwater solids settling aid
Gaseous chlorine:	Disinfectant residual
Carbon dioxide:	pH and alkalinity adjustment
Lime:	pH and alkalinity adjustment
Hydrofluosilicic acid:	Fluoride addition
Sodium bisulfite:	Excess ozone quenching

Source: Process Design Criteria (February 2001), CDM PHILIP, SPU updated in 2006 and 2011

Notes:

FTW = Filter to Waste
gpm/sq ft = gallons per minute per square foot
lbs/day = pounds per day
LOX = Liquid Oxygen
mgd = million gallons per day
mg/L = milligrams per liter
MG = million gallons

Table 2 Cedar Water Treatment Facility Design Parameters	
Landsburg	
Chlorination	
System	Chorine Gas
Goal	Minimze entry of nuisance and invasive species at Lake Youngs
Fluoridation	
System	Hydrofluosilicic Acid
Target Residual	0.8 mg/L
Lake Youngs	
Plant	
Type:	Raw Water Ozonation and Ultra Violet Disinfection
Capacity:	180 mgd
Intake and Raw Water Pump Station	
Pump type	Submersible
Number of units:	7
Size	2 @ 20 mgd, 5 @ 40 mgd
Ozone Generation	
Type:	LOX Feed
Number of units:	2
Design concentration of ozone	6 - 12 %
Capacity:	825 lbs/day @ 12 % each (nomimal) 1250 lbs/day @ 6 % each (peak)
Applied ozone dose	0.3 - 0.6 mg/L (typical) 0.8 mg/L (peak)
Ozone Contacting	
Type:	Fine bubble diffusion
Flow direction	Counter-current
Contactor type	Pipeline
Number of units:	Two parallel trains
Volume	0.61 MG
Contact time:	9.8 min @ peak capacity
Ultra Violet Disinfection	
Design basis	3-log Cryptosporidium
Method	Medium pressure
Dosage	40 mJ/sq cm
Contactor type	Closed vessel
Number	13 total
Capacity:	18.4 MGD each
Clearwell	
Type:	Pre-stressed Concrete
Number of units:	2
Total volume:	20 MG
Treatment Chemicals	
Gaseous chlorine:	Disinfectant residual
Lime:	pH and alkalinity adjustment
Sodium Bisulfate	Excess ozone quenching

Source: Design Criteria (Updated July 12, 2004), CH2MHILL; SPU updated in 2006 and 2011

Notes:

lbs/day = pounds per day
mgd = million gallons per day
min = minutes
mg/L = milligrams per liter
LOX = Liquid Oxygen
MG = million gallons
mJ/sq cm = millijoules per square centimeter

Table 3 Seattle Well Fields Treatment Facilities		
Disinfection	System	Sodium Hypochlorite
	Target Dosage	1.0 to 1.4 mg/L
Fluoridation	System	Hydrofluosilicic Acid
	Target Dosage	0.8 mg/L fluoride*
Corrosion Control	System	NaOH Addition
	Target pH	8.2

* Historically, fluoride dose has been 1.0 mg/L. Reduction made in early 2011.

Source: Updated by SPU in October 2011

Table 4
Reservoir and Well Chlorination Facilities

	Year[a] Chlorination Facility Constructed	Type of Chlorination	Target Chlorine Residual (mg/l)	Redundancy	Condition
Outlet (Primary) Disinfection					
Roosevelt Reservoir	1996	Sodium Hypochlorite	1.1 - 1.3	One main storage tank, one day tank, and peristaltic pumps for sodium hypochlorite injection.	Treatment equipment is in good condition.
Volunteer Reservoir	1954	Chlorine gas 150-lb cylinders	1.2 - 1.3	Has one chlorinator and no sodium hypochlorite injection equipment or storage tanks.	Treatment equipment is in good condition.
Residual Maintenance (Secondary) Disinfection					
Beacon Reservoir	1987	Sodium Hypochlorite	1.0- 1.2	Two peristaltic pumps. Only one main storage tank.	Upgraded in 2000. Began operation as covered reservoir in 2009.
Bitter Lake Reservoir	2001	On-site Hypochlorite Generation	0.9	Backup pumps available. Can add sodium hypochlorite as a back up method.	Treatment equipment is in good condition.
Boulevard Park Well	1987	Sodium Hypochlorite	1.0 - 1.4	Backup pumps available. Well can be shut down if a disinfection equipment failure occurs.	Treatment equipment is in good condition.
Eastside Reservoir	1987	Sodium Hypochlorite	0.8	Backup pumps available. Can add sodium hypochlorite as a back up method of disinfection.	Treatment equipment is in good shape.
Lake Forest Park Reservoir	2002	On-site Hypochlorite Generation	0.9 - 1.1	Two peristaltic pumps. Can add sodium hypochlorite as a back up method of disinfection.	Treatment equipment is in good shape.
Lincoln Reservoir	2004	On-site Hypochlorite Generation	1.0 - 1.3	Two peristaltic pumps. Can add sodium hypochlorite as a back up method of disinfection.	Treatment equipment is in good condition.
Maple Leaf Reservoir	1996	Sodium Hypochlorite	1.0 - 1.3	One main storage tank, one day tank, and peristaltic pumps for sodium hypochlorite injection.	Reservoir is out of service for reconstruction (covering). Treatment equipment is in good condition.
Myrtle Reservoir	2007	On-site Hypochlorite Generation	0.9 - 1.0	Two peristaltic pumps. Can add sodium hypochlorite as a back up method of disinfection.	Treatment equipment is in good shape. Began operation as covered reservoir in 2008.
Magnolia Reservoir	1994	Sodium Hypochlorite	0.8 - 1.0	Two storage tanks and two metering pumps.	Condition of the equipment is good.
Riverton Well	1987	Sodium Hypochlorite	1.0 - 1.4	Backup pumps available. Well can be shut down if a disinfection equipment failure occurs.	Condition of the equipment is good.
West Seattle Reservoir: Inlet/Outlet and Trenton Outlet	1998	Sodium Hypochlorite	1.0 - 1.2	One main storage tank, one day tank, and peristaltic pumps for sodium hypochlorite injection.	Treatment equipment is in good condition.

Source: Reimer, 1999; Capron, 2011; Green, 2011; Nilson 2011

a In some cases, the year constructed is approximate. Some facilities have had equipment upgrades.

Table 5
Transmission Pipelines

Pipeline Name	Material Type	Largest Diameter (inches)	Length (feet)
430 Pipeline	Cast Iron	30	178
	Concrete Cylinder	42	1,849
	Steel	42	22,643
550 Pipeline	Steel	72	41,006
8th Ave S Pipeline	Concrete Cylinder	24	4,462
Bel Red Road	Concrete Cylinder	24	2,718
	Steel	12	30
Cedar East Side Supply Line	Cast Iron	36	134
	Concrete Cylinder	36	53,499
	Steel	72	637
Cedar River Pipeline 1	Steel	72	85,796
Cedar River Pipeline 2	Concrete Cylinder	51	10,053
	Ductile Iron	52	11
	Steel	60	71,235
Cedar River Pipeline 3	Ductile Iron	48	38
	Steel	72	86,749
Cedar River Pipeline 4	Concrete Cylinder	60	3,428
	Reinforced Concrete	72	31,687
	Steel	72	18,530
Contactor Pipe Line 4	Steel	78	3,675
Contactor Pipe Line 5	Steel	78	3,730
Des Moines Pipeline	Cast Iron	20	14
	Concrete Cylinder	24	18,197
Finished Pipeline 4	Steel	78	13,720
Finished Pipeline 5	Cast Iron	24	17
	Concrete	84	333
	Steel	78	2,991
Lake Youngs Bypass 4	Steel	78	3,006
Lake Youngs Bypass 5	Steel	78	2,999
Lake Youngs Supply Line 4	Steel	92	35,712
Lake Youngs Supply Line 5	Steel	78	35,612
Lake Youngs Tunnel	Concrete	96	11,302
	Steel	96	6
Lake Youngs Tunnel Connection	Cast Iron	24	6
	Steel	72	233
Landsburg Tunnel	Concrete	96	10,129
Maple Leaf Pipeline	Steel	54	26,164
Mercer Island Pipeline	Cast Iron	20	1,384
	Concrete Cylinder	30	9,659
	Steel	30	5,094
	Unknown	20	21
NE 24th St	Cast Iron	16	2,273
NE 8th Pl	Concrete Cylinder	24	3,783
	Ductile Iron	24	174
	Steel	20	30
Olive St Pipeline	Cast Iron	30	2,055
	Concrete Cylinder	36	337
	Ductile Iron	30	374
Ozonation Overflow Line	Steel	54	875
Reg Basin Bypass	Concrete Cylinder	66	3,026
	Steel	66	6
S 146th St Pipeline	Concrete Cylinder	30	5,209
	Ductile Iron	30	32
	Steel	24	65
S 154th St Pipeline	Ductile Iron	36	6,203
	Steel	36	13
Soos Reservoirs 640 Zone	Cast Iron	14	5,470
	Ductile Iron	24	16,555
	Steel	48	1,785
South Fork Tolt Pipeline	Concrete	72	841
	Steel	72	25,820
Tolt East Side Supply Line	Concrete Cylinder	48	52,557
	Steel	54	1,221
	Unknown	16	8
Tolt East Side Supply Line Extension	Concrete Cylinder	48	7,657
	Ductile Iron	24	614
	Steel	48	5,441
Tolt Pipeline 1	Concrete Cylinder	66	56,300
	Ductile Iron	54	17,769
	Steel	81	54,379
Tolt Pipeline 2 Ph I	Steel	60	12,302
Tolt Pipeline 2 Ph II	Steel	60	21,498
Tolt Pipeline 2 Ph III	Steel	81	20,950
Tolt Pipeline 2 Ph IV	Steel	60	32,127
Tolt Pipeline 2 Ph VIa	Steel	87	8,598
Tolt Tieline	Steel	44	7,913
Tolt Treatment Facility Inlet	Steel	90	2,711
Transmission Connection	Steel	60	1
West Seattle Pipeline	Steel	54	25,591
Total		**96**	**1,021,247**

Source: Mantchev, 2012, based on SPU GIS

Pipeline lengths are from Arc lngth field, and include both raw and treated water pipelines.
Excludes all pipelines in the Northwest Subregional System and some pipelines in the Southwest Subregional System which are also Seattle distribution mains.

Table 6 Treated Water Reservoirs						
Reservoir	**Year Constructed**	**Total Capacity (MG)**	**Number of Cells**	**Overflow Elev. (feet)[a]**	**Under- Drain**	**Construction Type**
Regional and Sub-Regional Reservoirs - Covered						
Eastside	1989/90	31.9	1	560	Yes	Reinforced concrete tank. Below grade.
Lake Forest Park	1961/62	60	2	550	Yes	Hyplon-lined, reinforced concrete slab. Floating cover added in 2003.
Maple Leaf	2012	61.06	2	430	Yes	Reinforced concrete tank. Below grade.
Riverton Heights	1979/80	20.1	1	460	Yes	Reinforced concrete tank. Part below grade.
Soos North	1989/90	6.5	1	640	Yes	Reinforced concrete tank. Above grade.
Soos South	1989/90	6.5	1	640	Yes	Reinforced concrete tank. Above grade.
West Seattle	2010	29.21	1	440	Yes	Reinforced concrete tank. Below grade.
Distribution System Reservoirs - Covered						
Bitter Lake	1956/57	21.3	1	509	Yes	Reinforced concrete slab. Hypolon liner and floating cover added in 2001.
Beacon	2009	48.12	1	326	Yes	Reinforced concrete reservoir. Below grade.
Lincoln	2006	12.7	1	326	Yes	Reinforced concrete reservoir. Below grade.
Magnolia	1993/94	5.5	1	330	Yes	Reinforced concrete tank. Part below grade.
Myrtle	2008	4.86	1	498	Yes	Reinforced concrete reservoir. Below grade.
View Ridge	1977/78	2.5	1	276	Yes	Reinforced concrete tank. Below grade.
Distribution System Reservoirs - Open - Out-of-Service[b]						
Roosevelt	1910	50.3	1	326	Yes	Unreinforced concrete slab. HDPE liner.
Volunteer	1901	20.5	1	430	No	Unreinforced concrete slab.

Updated 2018

a Nominal elevation based on North American Vertical Datum (NAVD 88).

b Roosevelt and Volunteer Reservoirs were removed from service on April 1, 2013, following the completion of the new buried Maple Leaf Reservoir. The need to retain emergency storage at these locations is being evaluated as part of SPU's water system seismic study that is currently underway. That analysis may indicate the need to keep these uncovered reservoirs for emergency storage, which would entail a different set of design and operations and maintenance considerations compared to the potable reservoirs in service. In the future, these reservoirs may be needed as potable water storage, in which case they would be covered.

Table 7
Standpipes and Elevated Tanks

	Year Const.	Capacity (MG)	Base Elev. (feet)[a]	Overflow Elev. (feet)[b]	Diameter (feet)	Tank Height on Riser (feet)	Tank Material	Date of Last Inspection	Interior Coating		Exterior Coating		Seismic Upgrade (or Date Scheduled)
									Typec	Date Applied	Type[e]	Date Applied	
Regional and Sub-Regional System													
Standpipes													
Foy[f,g]	1933	1.0	495	590	46	-	Riveted Steel	Aug 16	Vinyl	1980	Lead base	2017	To be determined
Elevated Tanks													
Beverly Park	1959	2.0	460	585	105	35	Welded Steel	Apr 15	CTE/epoxy[h]	1985	Zn/Alkyd[h]	1985	To be determined
Myrtle #2	1946	1.0	506.5	585	84.25	NA	Riveted Steel	Nov 17	epoxy	2010	polyurethane	2010	2003
Richmond Highlands #1[f]	1954	1.0	492.5	590	86	25	Welded Steel	Nov-99	CTE	1954	Lead base	1981	1995
Richmond Highlands #2	1958	2.0	488.5	590	101	35	Welded Steel	Aug 12	polyurethane	2012	polyurethane[i]	2012	1995
Others													
Control Works NE Tank	1925	0.3	437	512	NA	-	Riveted Steel	Oct 97	polyurethane	1994	epoxy/urethane[j]	1994	1994[d]
Control Works SW Tank	1925	0.3	437	512	NA	-	Riveted Steel	Nov 97	polyurethane	1994	epoxy/urethane[j]	1994	1994[d]
Distribution System													
Standpipes													
Charlestown	1996	1.3	424	498	58	-	Welded Steel	Feb 99	epoxy	1996	epoxy/urethane	1996	To be determined
Queen Anne	2008	1.9	460	530	75	-	Welded Steel	May 17	epoxy	2007	urethane / epoxy / acrylic polyurethane[k]	2007	Not needed
North Trenton	1932	1.2	296	330	92	-	Riveted Steel	Jul 16	Vinyl	1979	Lead base[l]	1990	To be determined
South Trenton	1932	1.2	296	330	92	-	Riveted Steel	Jul 16	Vinyl	1979	Lead base[l]	1990	To be determined
Volunteer Park	1907	0.9	460	530	50	-	Masonry/Riveted Steel	Mar 17	Vinyl	1981	Lead base	1981	To be determined
Elevated Tanks													
Magnolia Bluff	1947	1.0	369	480	86	25	Welded Steel	Apr 16	epoxy	1988	Zn/Alkyd[m,n]	1988	1993[d]

Updated 1/9/2018

a Top of concrete base, based on North American Vertical Datum (NAVD 88).

b Nominal elevation based on North American Vertical Datum (NAVD 88).

c CTE = Coal Tar Enamel; p-urethane = Monolithic polyurethane lining

d May need additional seismic upgrades.

e epoxy = NSF epoxy primer and intermediate coats; and a polyurethane top coat; Zn/Alkyd = Zinc yellow primer and silicone alkyd enamel top coat.

f WDOH has approved decommissioning pending activation of remote starting capability of Bitter Lake Pump Station diesel.

g Foy Standpipe was evaluated for decommissioning, but near term plans are for tank to remain in service.

h Scheduled for internal and external recoating in 2019-20.

i 1993 seismic upgrade added all new steel to legs and riser, and coated legs and riser with a non-lead alkyd enamel paint system. Tank bowl recoated in 2012.

j Base of tank in building. Above the roof: epoxy prime coat and polyurethane top coat (in 1994); Inside the bldg: moisture cured polyurethane primer and top coats (in 1998).

k Exterior coating consists of zinc-rich urethane primer then epoxy followed by acrylic polyurethane top coat.

l Trenton tanks were power tool cleaned and overcoated with an urethane/epoxy/urethane paint system in 1990.

m Magnolia Bluff was commercially blasted and coated with a non-lead alkyd system. Some lead remains on the tank.

n 1993 seismic upgrade added all new steel to legs and riser, and coated legs and riser with a non-lead alkyd enamel paint system. The bowls still have the lead based primer as noted.

Table 8

Decommissioned Standpipes and Elevated Tanks[g]

	Year Taken Off-Line	Year Const.	Capacity (MG)	Base Elev. (feet)[a]	Overflow Elev. (feet)[b]	Diameter (feet)	Tank Height on Riser (feet)	Tank Material	Date of Last Inspection	Interior Coating		Exterior Coating		Improvements Needed If Returned to Service	Current Uses
										Type[c]	Date Applied	Type	Date Applied		
Regional and Sub-Regional System															
Elevated Tanks															
Myrtle #1	2012[d]	1919	0.5	506.5	584.5	46	-	Riveted Steel	Feb 96	Vinyl	1982	Lead base Touch-up	1983 2009	Internal recoating.	
Distribution System															
Standpipes															
Barton	2012	1927	1.4	277	326	80	-	Riveted Steel	Jan 98	CTE	1960	Lead base	1981	Internal recoating, roof repairs, drain improvements (air gap), and reconnection.	
Woodland Park	2003[e]	1925	1.0	356	430	50	-	Riveted Steel	Oct 98	Vinyl	1984	Lead base	1980	Reconnection	
Elevated Tanks															
Maple Leaf	2009	1949	1.0	431	530	84.25	25	Welded and Riveted	Jan 98	epoxy	1988/95	Lead base[f] Touch-up	2011	Internal recoating and reconnection.	Communications tower

Updated 1/9/2018

a Top of concrete base, based on North American Vertical Datum (NAVD 88).
b Nominal elevation based on North American Vertical Datum (NAVD 88).
c CTE = Coal Tar Enamel
d This tank has been drained and is not in use, but is still connected to the system.
e Disconnected and decommissioned in 2009.
f Maple Leaf has some remaining red lead primer then coated with moisture cured urethane primer and top coats.
g Decommissioned facilities have been drained, disconnected from the water system or in process of being disconnected, but not demolished, and can be returned to service after the improvements shown are made.

Table 9
Regional and Sub-Regional System Pump Stations

	Pump #	Manufacturer	Model	Design Flow (gpm)	Head (feet)	Speed (rpm)	Horse-Power	Comments
Bothell Way	1	De Laval	T36/30	38,200	80	450	900	
Burien	1	Allis Chalmers	209-648-501	2,000	180	1,760	125	2000+ gpm diesel pump permanently installed adjacent to pump station building; local start
	2	Allis Chalmers	209-732-501	3,000	180	1,760	200	
	3	Worthington	10-LNHS-18	6,000	180	1,775	350	
Control Works	1	De Laval		1,200		1,760	25	Standby use only
Eastgate	1	Byron Jackson	18-KXH-1-STG	4,250	145	1,770	200	
	2	Byron Jackson	18-KXH-1-STG	4,250	145	1,770	200	
	3	Byron Jackson	18-KXH-1-STG	4,250	145	1,770	200	
Fairwood	1	Aurora	411 BF	750	220	1,750	75	Emergency pump connections for
	2	De Laval	A0615L	2,000	215	1,750	150	diesel pump.**
Foy	1	Ingersoll Rand	10 LR 18A	6,000	165	1,785	300	
	2	Ingersoll Rand	8 LR-18S	4,440	165/290	1,778	400	165 ft. head with 15.43";
	3	Ingersoll Rand	8 LR-18S	4,440	165/290	1,778	400	290 ft. head with 18" impeller
Highland Park	1	Worthington	10 LNH 18	5,500	175	1,775	300	
	2	Worthington	10 LNH 18	5,500	175	1,775	300	
	3	Ingersoll Rand	6 AFV	1,400	140	1,770	60	This pump can be powered by diesel generator*
Lake Hills	1	Peerless	8AE17A	5,000	160	1,780	250	Connections for portable diesel pump installed nearby
	2	Peerless	8AE17A	5,000	160	1,780	250	to pump from Cedar to Tolt gradients
Lake Youngs	1	Fairbanks Morse	7000 AW	7,700	182	1,185	500	One pump can by operated on Cedar Treatment backup
	2	Fairbanks Morse	7000 AW	7,700	182	1,185	500	power generator, can start remotely during outage
Maple Leaf	1	Patterson	18X14 MAC	10,300	156	1,180	500	Can be powered by mobile diesel generator*
	2	Patterson	18X14 MAC	7,200	156	1,180	350	Generator connected and stored behind PS building
Maplewood	1	Worthington	20 LN 28	17,750	108	720	600	Standby booster pump, not used since 1980s
North City	1	Worthington	12 LN 14	6,500	113	1,775	250	
	2	Worthington	12 LN 14	6,500	113	1,775	250	
Trenton	1	De Laval		1,000	225	1,845		Water Turbine Powered, remote start
	2	De Laval		3,000	225	1,200		Water Turbine Powered, remote start
TESS	1	Worthington	8 LP 13	1,600		1,770	100	TPL1 must be closed at Welcome Road LV to run this pump
	2	Aurora		3,500	272	1,800	100	Diesel 5,000 gpm pump permanently installed; local start, pumps to clearwell

Updated July 2019

Notes: **Unless otherwise noted in the Comments column, pumps are driven by electric motors, and have no permanent on-site backup power generator.**

*SPU has two portable (mobile) CAT generators for water pump stations, each rated 750 KW at 4160 volts. One is stored at Highland Park Pump Station and one is stored at Maple Leaf Pump Station. The generators are test run monthly, refueled when tank drops below half-full, and serviced twice per year, and batteries are replaced every 3 years. Each can be moved and activated within 24 hours to several distribution pump stations as noted in Table 10.

**In addition to the diesel pumps noted in the Comments column, SPU has two mobile diesel pumps stored at the Operations Control Center (900 and 2000 gpm).

Table 10
Distribution System Pump Stations

	Pump #	Manufacturer	Model	Design Flow (gpm)	Head (feet)	Speed (rpm)	Horse-Power	Comments
Augusta	1	Aurora	411 BF	300	102	1,750	15	Pumps 1 and 2 are continuous
	2	Aurora	411 BF	300	102	1,750	15	duty; alternating daily
	3	Aurora	411 BF	1,200	102	1,750	40	
	4	Aurora	411 BF	2,400	113	1,750	100	Fire flow pump
Bitter Lake	1	Gould	3405	4,000	162	1,775	200	
	2	Gould	3405	4,000	162	1,775	365	Diesel driven; remote start by end of 2019
	3	Gould	3405	4,000	162	1,775	200	
Broadway ***	1	Fairbanks Morse	2844C	4,700	245	1,781	400	First Hill at Broadway PS
	2	Fairbanks Morse	2844A	2,800	237	1,784	250	First Hill at Brodaway PS
	3	Fairbanks Morse	K65226	4,000		1,150	300	Old Broadway Pump
Dayton Ave.	1	De Laval	56064	1,400	110	1,750	50	
	2	MP		100	100	3,450	5	
First Hill ***	3	Fairbanks Morse	2824C	2,800	180	1,775	200	First Hill at Jefferson
	4	Fairbanks Morse	2824C	4,900	190	1,775	350	First Hill at Jefferson
Green Lake	1	De Laval	98851	900	331	1,750	93	Decommissioned. Water turbine powered
Interbay	1	Worthington	10 LN 18	3,500	110	1,185	125	Low service
	2	Worthington	8 LA 4	3,500	230	1,785	300	High service
Lincoln	1	Worthington		3,900	117	1,540	125	Water turbine powered, remote start
Northgate	1	Allis Chalmers	205-603-502	5,500	182	1,760	300	Emergency PS
	2	Allis Chalmers	205-603-501	5,500	182	1,760	300	Emergency PS
Queen Anne	1	Berkeley	B2TPMS	170			5	Variable frequency drive
	2	Berkeley	B2TPMS	170			5	Variable frequency drive
	3	Berkeley		450			15	Variable frequency drive
	4	Berkeley		2,400			40	Fire flow pump
Roosevelt	1	Allis Chalmers	201-052-501	3,000	110	1,760	100	
	2	Allis Chalmers	201-052-501	3,000	110	1,760	100	
Scenic Heights	1	Aurora	411 BF	450	95	1,750	20	
	2	Aurora	411 BF	450	95	1,750	20	
	3	Aurora	411 BF	1,100	100	1,750	40	
	4	Aurora	411 BF	1,100	100	1,750	40	
SW Spokane	1	Allis Chalmers	207-52-510	4,000	290	1,760	400	Can be powered by diesel generator.*
	2	Allis Chalmers	207-52-510	4,000	290	1,760	400	
Viewridge	1	Layne		2,500		1,750	100	To 326 zone
	2	Layne		3,500		1,750	350	To 530 zone
Volunteer	1	Allis Chalmers	201-194-502	4,000	108	1,760	125	
	2	Allis Chalmers	201-194-501	4,000	108	1,760	125	
Warren Ave.	1	Allis Chalmers	207-521-510	4,000	265	1,770	350	Can be powered by diesel generator.*
	2	Allis Chalmers	207-521-509	4,000	265	1,770	350	
West Seattle	1	Ingersol Rand	10 AFV	4,500	62.3	1,750	100	Can be powered by diesel generator.*
	2	Ingersol Rand	11 AFV	4,500	62.3	1,750	100	

Updated July 2019

Notes: **Unless noted in the Comments column, pumps are driven by electric motors, and have no permanent on-site backup power generator.**

*SPU has two portable (mobile) CAT generators for water pump stations, each rated 750 KW at 4160 volts. One is stored at Highland Park Pump Station and one is stored at Maple Leaf Pump Station. The generators are test run monthly, refueled when tank drops below half-full, and serviced twice per year, and batteries are replaced every 3 years.

**In addition to the diesel pumps noted in the Comments column, SPU has two diesel pumps stored at the Operations Control Center (900 and 2000 gpm).

*** First Hill pump station has two pumps, they are labeled 3 and 4. The pumps work in conjunction with pumps 1 and 2 and the Broadway pump station.

Table 11
Metered Connections by Classification and Size

CLASSIFICATION	CONNECTION SIZE (inches) 3/4	1	1-1/2	2	3	4	6	8	10	12	20	TOTAL
Residential[1]	149,558	17,509	1,325	470	1	3	1	1	-	-	-	168,868
Commercial[2]	6,239	4,889	3,586	4,565	499	973	383	129	38	7	2	21,310
Fire Service	524	1	8	650	27	1,615	1,337	756	29	6	-	4,953
RETAIL SERVICE TOTAL[3]	156,321	22,399	4,919	5,685	527	2,591	1,721	886	67	13	2	195,131

Source: SPU Meter Count By Connection Size Report, July 1, 2017.

[1] Includes single-family residences, duplexes, and other residential services.

[2] Includes mulit-family residences, commercial properties and municipal services.

[3] Includes services in Shoreline, Lake Forest Park, and other locations outside the City of Seattle.

Table 12
Interties From Seattle Public Utilities to Other Purveyors
As of June 2018

SPU Station	Meter Size (inches)	Service Location	Comments/Notes
CITY OF BELLEVUE			
47	8	128th Ave SE & SE 56th ST	
55	6	128th Ave SE & Newport Way	
56	8	128th Ave. SE & Newport Way	
58	12	145th Pl. SE & SE 28th Street	
59	8	132nd Ave. SE & SE 26th Street	
60	10	14509 SE Newport Way	
61	24	152nd Ave. NE & NE 8th Street	
62	12	132nd Ave. NE & Bel-Red Road	
63	10	132nd Ave. NE & NE 24th Street	
65	10	140th Ave. NE & 40th Street	
66	8	Mercer Is. Pipeline & 108th Ave. SE	Bellevue is planning to replace this meter in 2020, at the same general location but with a large meter.
124	8	124th Ave SE & SE 38 PL	
182	10	14509 SE Newport Way	
198	TBD	TBD	Bellevue is planning to add another TESSL meter station in the vicinity of NE 8th & 136th Ave in 2021.
CITY OF BOTHELL			
95	10	TRPL R/W - 104TH NE	
96	8	NE 180TH & 88TH NE	
99	6	TRPL & 96TH NE STA 1335	
CEDAR RIVER WATER AND SEWER DISTRICT			
30	8	141st Ave SE and SE 171st Way	
166	10	19201 SE Petrovitski Road	
187	10	FWPL4 at NE corner of Control Works property	
COAL CREEK UTILITY DISTRICT			
48	8	129th Ave SE & SE 73rd ST	
52	12	128th Ave SE & SE 70th ST	
54	4	132nd Ave SE & SE 96th ST	Meter not used, for backup only.
CITY OF DUVALL			
111	4	TOLT RIVER PIPELINE	
112	6	TRPL - STA 657 + 29	
CITY OF EDMONDS			
110	10	SE Corner N 205TH & Fremont AV	Emergency Intertie only.
HIGHLINE WATER DISTRICT			
41	12	Des Moines Way S & S 207th Street	
42	16	160th Ave S & Military Road S	
43	12	Des Moines Way S & S Normandy Road	
CITY OF KIRKLAND			
72	12	140th Ave. NE & NE 70th Street	
74	10	132nd Ave. NE & NE 113th Street	
75	16	132nd Ave. NE & NE 85th Street	
LAKE FOREST PARK WATER DISTRICT			
188	8	Tolt Pipeline ROW & NE 195th St	Emergency Intertie only.
CITY OF MERCER ISLAND			
67	12	SE 43rd Street & 89th Ave SE	
68	6	SE 40th Street & 97th Ave SE	
171	10	E Mercer Way & Mercer Island Pipeline Right-Of-Way	Mercer Crest Water Association was taken over by City of Mercer Island.
197	3/4	E Mercer Way @ Mercer Island Pipeline	
CITY OF NORTH BEND			
190	8	101 R @ SCL PP "RT 1-73"	
NORTHSHORE UTILITY DISTRICT			
81	6	Tolt Pipeline ROW & 119th Ave. NE	
83	10	Tolt Pipeline ROW & 112th Ave. NE	

Table 12
Interties From Seattle Public Utilities to Other Purveyors
As of June 2018

SPU Station	Meter Size (inches)	Service Location	Comments/Notes
NORTHSHORE UTILITY DISTRICT (continued)			
85	6	Tolt Pipeline ROW & 104th Ave. NE	
86	20	88th Ave. NE & NE 180th Street	
89	6	64th Ave. NE & NE 185th Street	
90	6	64th Ave. NE & NE 185th Street	
92	6	40th Place NE & NE 195th Street	
93	12	Tolt Pipeline ROW & NE 195th Street	
94	10	132nd Ave. NE & NE 132nd Street	
OLYMPIC VIEW WATER AND SEWER DISTRICT			
107	8	8th Ave. NW & NW 205th St.	
108	8	Fremont N. & N. 205th St.	
109	8	Fremont N. & N. 205th St.	
192	6	24th Av NW & NW 205th St.	
CITY OF REDMOND			
164	10	Trilogy Parkway NE & NE 125th Street	
165	10	160th Ave NE & NE 104th Street	
185	6	NE 172nd Street & Tolt Pipeline #2	
186	10	Trilogy Parkway NE & NE 125th Street	
CITY OF RENTON			
33	6	9602 S 160TH ST	
34	8	CRPL 4 - ST HWY 5 - C	
36	6	7TH - JONES ST - PL R/W	
37	3	PLAT RENTON	
38	6	CRPL & 84TH AV S	
39	10	CRPL RW & LK YOUNG WY	
179	10	Logan St & 2nd	Formerly SPU direct service to Boeing Renton plant.
180	10	Logan St & 2nd	Formerly SPU direct service to Boeing Renton plant.
196	8	7501-8001 S 153rd Pl	Serves Boeing/Longacres.
NORTH CITY WATER DISTRICT			
101	10	8th Ave NE & NE 160th Street	
102	10	16th Ave NE & NE 192nd Street	
103	6	32nd Ave NE & NE 195th Street	
104	8	8th Ave NE & NE 185th Street	
191	8	NE 195th St & 47th Pl NE	
193	8	NE 185th & 5th Ave NE	
194	8	NE 185th & 8th Ave NE	
SKYWAY WATER AND SEWER DISTRICT			
1	8	84th Ave. S & S 134th Street	
5	8	Beacon Ave S & S 124th Street	
172	6	Cornell Ave S & S 112th Street	
SOOS CREEK WATER AND SEWER DISTRICT			
27	10	148th Ave SE and SE 192nd Street	
28	10	SE 164TH Street and 132nd Ave SE	
29	8	SE 160TH Street and 114th Ave SE	
181	6	147th Ave SE and SE Petrovitski Road	
189	10	SE 164th & 132nd SE (next to Sta.28)	
CITY OF TUKWILA			
13	10	South Center Parkway & Tukwila Parkway	
14	8	West Valley Hwy & S 162nd Street	
15	8	Christensen Rd. & Baker Rd	
16	6	53rd Ave S & S 160th Street	
183	12	E Marginal Way & S 112th Street	
168	12	7749 E Marginal Way S	
169	8	51st Ave S & S Leo Street	
170	12	W. Marginal Place & S 102nd St.	
173	6	47th Ave S & S Victor Street	

Table 12
Interties From Seattle Public Utilities to Other Purveyors
As of June 2018

SPU Station	Meter Size (inches)	Service Location	Comments/Notes
WOODINVILLE WATER DISTRICT			
53	8	TPL1 at pipeline station 1120	
57	6	TPL1 at pipeline station 1061	
76	4	TPL1 at 124th Ave NE	
77	6	132nd Ave NE & NE 140th Street	
78	8	TPL1 at Welcome Road Valve Station	
79	8	TPL1 at Avondale Road	
80	8	TPL1 at 168th Ave NE	
123	6	TPL1 at pipeline station 1197	
125	6	TPL1 at pipeline station 1049	
167	6	15002 132nd Ave NE	
195	6	132nd Ave NE & NE 144th Street	
KING COUNTY WATER DISTRICT #20			
19	16	12th Ave S & S 112th Street	
23	6	14th Ave SW & SW 149th Street	
126	8	8th Ave S & Aqua Way	
127	6	Des Moines Memorial Dr. & S 112th Street	
128	6	Military Road & S 125th Street	
129	6	Military Road & S 128th Street	
130	6	14th Ave S & S 112th Street	
132	8	4th Ave SW & SW 108th Street	
133	10	4th Ave SW & SW 128th Street	
134	4	Ambaum Blvd SW & SW 132nd St.	
135	6	14th Ave S & S Director Steet	
136	10	8th Ave S & S 146th Street	
KING COUNTY WATER DISTRICT #45			
20	8	4th Ave SW & SW 108th Street	
176	6	12th Ave SW & SW 106th Street	
184	6	8th Ave SW & SW 99th Street	
KING COUNTY WATER DISTRICT #49			
25	8	16800 DesMoines Wy S	
139	10	10TH AV SW - SW 149TH	
140	12	DesMoines Way S. & 160th Ave S	
142	8	8TH AV SW - SW 146TH	
143	10	DESMOINES WY & AMBAUM	
KING COUNTY WATER DISTRICT #90			
45	10	132ND AV SE & SE 128TH	
KING COUNTY WATER DISTRICT #119			
116	4	ODELL STA 612 THRU 36 30	
117	6	34801 TOLT PL RW	
KING COUNTY WATER DISTRICT #125			
8	6	CRPLs 1,2 & 3 and S 131st Street	
9	6	42nd Ave S & S 160th Street	
10	8	Pacific Highway S & S 160th Street	
17	10	8th Ave S & S 146th Street	
119	6	CRPLs 1,2 & 3 and S 124th Street	
120	8	E Marginal Way & S 115th Street	
121	4	Military Road & S 135th Street	
174	10	2400 S 146th Street	Boeing Fire Service.
175	10	2400 S 146th Street	Boeing Fire Service.