5.9.6 Standby Power

Consideration should be given to the need for dedicated standby power and in some cases standby power may be required for some types of projects/facilities for continuous operation. Alternatives to dedicated standby power may be considered by the reviewing authority with proper justification. At a minimum, a power receptacle to the switchgear is required for the connection of a portable generator. Powered equipment and controls critical for water storage facility operation should be capable of using standby power. For more detail on standby power, see *DSG Chapter 9, Electrical Design*.

5.9.7 Multi-Use Facilities

Where a storage facility is to be integrated with other recreational uses (e.g. tennis or basketball courts), grass-covered recreational areas, or parking lots special consideration should be given to physical and sanitary security issues. Storage facility design should address the following:

- Locate hatches to storage cells and valve chambers that are physically separate and secure from public areas, but visible from adjacent streets to enable observation by law enforcement or security personnel.
- Provide physical security to intrusion for hatches, tank ladders and doors to valve chambers or other enclosures.
- Provide appropriate signs that clearly indicate areas that are for authorized personnel only.
- Provide lighting fixtures and features that give the necessary level of lighting for security without negative impacts to adjacent public areas. Lighting fixtures should be designed so that the wiring and/or bulbs are not exposed or easily accessed to preclude inadvertent damage or vandalism.

Refer to the current agreement between Seattle Parks and Recreation and SPU for specific items associated with multi-use reservoir sites. Contact Kim Serwold at kim.serwold@seattle.gov.

5.9.8 Landscaping and Weed/Pest Control

For detailed information on landscaping and weed and pest control, see *DSG Chapter 4, General Design Considerations*.

5.9.9 Access and Security

For detail on site access and security, see *DSG Chapter 15, Physical Security*.

5.9.9.1 General

The following are general considerations:

- Include SPU Security Plan requirements for general security and security design requirements for water facilities.
- If the storage facility site is not open for public use, provide a means of controlled access around the entire perimeter. If the site will be open for public use, provide a means of controlled perimeter access around the hatches, vents and vaults.

- Provide security alarms at access doors or hatches tied into the SCADA system.
- To the extent practicable, do not allow site features where unauthorized persons or materials can be easily concealed, such as structures, trees, or vegetation.

5.9.9.2 Personnel Access and Safety

A. Access

The design of access features for storage facilities should address the following:

- Vehicular access to hatches and ladders is required and must be sized to accommodate the size of the vehicles normally used in maintenance or inspection of the facility.
- Ladders, stairways, and catwalks designed to conform to OSHA requirements.
- Hatches placed to facilitate ease of maintenance and cleaning.
- Hatches sized to accommodate access for personnel with tools, inspection divers, and remotely operated vehicle (ROV) inspection/cleaning equipment. For larger facilities, this requirement typically results in one or more large equipment hatches, through which field equipment can be lowered, and one or more personnel access hatches.
- Provide ladders or stairways inside of storage cells.
- Ladders should be caged and have climbing or fall protection.

B. Egress and Emergency Escape

The following are egress and emergency escape features:

- Provide internal and external restraint support/safety equipment.
- Ensure unobstructed clearances to access/egress points.
- Provide any other features necessary to meet requirements associated with confined-space entries.

5.9.9.3 O&M

A. Lighting

- Permanent lighting fixtures should be provided to light hatch doors into storage cells and vaults and to provide visibility to the local work area perimeter.
- Permanent lighting fixtures should be provided to provide a minimum acceptable level of lighting within storage cells and vaults for routine inspections and maintenance.
- Power outlets should be easily accessible to all hatches for the operation of temporary lights within storage cells and vaults.
- Convenience outlets should within 6 feet of all mechanical equipment.

B. Ventilation

- Hatches to storage cells and vaults should be located to accommodate temporary ventilation equipment, including points for the introduction and exhaust of ventilation air.
- To the extent practicable, power outlets should be easily accessible to all hatches to better enable the operation of temporary ventilation equipment.
- Permanent ventilation system should be capable of eight exchanges per hour at all times.

C. Communication System

- Determine the methods of communication to be used by personnel during facility maintenance (e.g. radio, wire intercom) and provide appropriate equipment or appurtenances for their use.
- At a minimum, provisions for antenna mounts are one mount for every two communications lines. If there is only one communications line, then one mount is needed. Locations of the mounts are site specific. Roundup spare conduits for future installation should be considered.

5.9.10 Water Quality Monitoring/Sampling

At a minimum, water quality should be monitored weekly in open storage reservoirs. For closed reservoirs, water quality should be monitored every 2 weeks. At chlorine injection locations, remote monitoring should continuous. The following should be continually monitored:

- Chlorine residual
- pH
- Temperature
- Total coliform (TC)
- Heterotrophic Plate Count (HPC)

Other parameters may be measured case-by-case, depending on operational circumstances.

5.9.10.1 Sampling Points

At a minimum, design must provide sample points for withdrawal of water for continuous online measurement of chlorine residual, pH, and temperature at the following locations:

- Inlet to each storage cell
- Outlet from each storage cell

Provide sample ports from which to obtain manual grab samples for any type of analyses at the following locations:

- Inlet to the storage cell
- Outlet from the storage cell
- From varying depths of the storage cell, at a minimum from the top (75% level), middle (50% level), and bottom (20% level) of the cell

- If possible, in the center of the storage cell. (Center point sample line installation may require adding a small support structure to keep the lines from breaking.) The in-tank sample lines can be used to collect coliform samples after tank disinfection.
- If the extent of the horizontal footprint of the storage cell is large relative to the vertical height, add one or two additional locations across the cell in addition to the center point.

Sample ports should be easily accessible without the need to open hatches to the storage cell. Where practicable, the pipes from all sample ports should terminate at a single sampling station within a lockable cabinet at or near ground level outside the storage cell or within the valve chamber.

5.9.11 Disinfection and Dechlorination

SPU uses portable ascorbic acid dechlorination units for all dechlorination operations. The drain-down pipe from each storage cell must have a liquid chemical injection station for direct injection of ascorbic acid.

5.9.11.1 Booster Disinfection

Historically, SPU water storage facilities have received booster disinfection (chlorination). Booster chlorination may need to be considered for some existing storage facility sites should chlorine residual maintenance become a problem or a potential problem. Booster chlorination should be incorporated for new storage facilities located near the periphery of the distribution system where water demands may be initially low.

The following are major design considerations for booster chlorination at storage facilities:

- Footprint space for the chlorination storage and feed system facility
- Access and security for the chlorination facility
- Injection point(s) for the chlorine
- Post-treatment chlorine residual monitoring equipment and sampling points
- Point of diversion of potable water for the chlorine feed system
- Type of chlorination system: liquid commercial strength (12.5%) hypochlorite or on-site generation of hypochlorite. Gaseous chlorination systems must not be used.

5.9.11.2 Emergency Disinfection

Regardless of whether provisions are installed for booster chlorination, provide for facilities to apply emergency chlorination to each storage cell, to include the following:

- Hatches on top of each storage cell that can be used to introduce chlorine
- Sample withdrawal points from within the storage cell and on the outlet of the cell to measure chlorine residua.
- Minimum of two valves between the storage cell and the distribution system that can be closed during disinfection

5.9.12 Removal from Service

The following are key design features for the isolation and removal from service:

- Isolation valves on inlet and outlet lines
- Piping and valves to provide for bypass of the storage cell

5.9.12.1 Drain-Down Features

Note: This section was not completed for the 2010 edition of the DSG.

5.9.12.2 Drain-Down Discharge Points

A. Sewers

To the extent practicable, the discharge point for drain-down water should be the same point used for overflow water discharge. Whenever possible, the point of discharge should be a sanitary or combined sewer because dechlorination of the drain-down water is not required. If neither a sanitary or combined sewer is available, a storm sewer may be used, but dechlorination is required.

The maximum allowable drain-down water discharge rate to sewers should be based on the following:

- The hydraulics and sizes of the receiving sewer mains must be checked for any constraints and the maximum allowable dry-weather sewer capacity established.
- The acceptable minimum rate of discharge that meets operational requirements. If the operational minimum exceeds the maximum allowable dry-weather sewer capacity, the local sewer system may need to be modified, such as increase main sizes, re-lay mains to steeper grades, and/or add mains.
- The discharge flow rate design criteria must clearly establish the operational limits for the design flows, e.g. drain-down operations are limited to dry-weather conditions to preclude sewer surcharging, etc.

B. Open Water Bodies

The discharge of drain-down water to an open water body such as a lake, pond, stream, or salt water, should be avoided to the extent practicable and only if there are no sewers available or suitable for receiving the discharge. Provisions for dechlorination must be made with guidance from the SPU Water Quality Lab on a project-by-project basis. Some standard methods such as for hydrant testing are available but they are subject to change. To get the most current methods contact the SPU Water Quality Lab.

The rate of discharge to an open water body is highly case-specific. Discharge flow rates to streams will typically be the most limited to preclude scouring and sediment mobilization. It should be assumed that a permit will be necessary for stream discharges, such as a Hydraulic Project Approval (HPA) and/or an NPDES Water Treatment Plant General Permit. Therefore, the permits required must be determined before design. The specific requirements of the permit(s) are the basis for the maximum allowable design discharge rate.

For more detail on permits, see *DSG Chapter 2, Design Considerations for Permitting.*

5.9.12.3 Washdown Equipment

The following are SPU standards for washdown equipment:

1. The source of water to hose bibs must be potable water from the distribution system.
2. The washdown water piping system must be separated from the distribution system with an approved backflow prevention device.

The following are guidelines for washdown equipment:

- Provide hose bibs or washdown system connections at or near access hatches used for maintenance to each storage cell. Hoses may be permanently stored at or near a hose bib, depending on maintenance and security requirements. However, washdown hoses should never remain permanently attached to the bib to avoid the potential for cross connections. Bibs and hoses should have quick-disconnect fittings for ease of maintenance.
- For larger facilities, provide washdown hose connections in a pattern such that any part of the facility can be washed using a 100-foot-long hose.

5.10 CONSTRUCTION

The section describes design considerations for construction of water system infrastructure.

5.10.1 Requirements for Protecting Water Mains and Appurtenances

Any work on, connecting to, or near existing water mains must monitor and take steps to reduce construction impacts.

5.10.1.1 Conditions Requiring Protection and Protective Measures

Projects that involve roadway construction or repaving, utilities construction, or deep excavations for structures often create conditions that can affect existing water mains (Table 5-11). Pipe with lead joints, particularly bell and spigot joints in older mains, is susceptible to leaking and at high risk of failure if exposed to these activities.

Table 5-11 Common Construction Conditions and Protection Measures for Water Mains

Condition	Occurs When and Where	Pipe Protection Measure
Excessive loads	Haul routes for heavy construction equipment crossing over pipes Construction site entrances/exits Paving construction where excavations have reduced the cover over pipes	Steel plates in roadway Concrete pad Temporary cribbing Bridging Pipe relocation
Settlement	Dewatering of soils with higher water content around or adjacent to pipes Trench excavations adjacent to water pipes, e.g. excavations for sewer mains or duct banks that result in soil loss Tunneling and other large open excavations	Temporary pipe supports Shoring of adjacent deeper trenches, as applicable Use drilling methods for the installation of shafts / columns instead of vibratory methods to the extent practicable

	Excavations for other utilities below water pipes Vibration from construction equipment, e.g. driven piles, sheet piles, or stone columns Excessive loads Landslides	Establish clear tolerances for acceptable pipe settlement and provide field monitoring for settlement
Thrust restraint	Excavations behind thrust blocks (loss of bearing surface behind the thrust block) Excavation and exposure of water pipes that are under pressure (loss of pipe surface friction component of thrust restraint)	Locate thrust blocks prior to construction Avoid disturbing thrust blocks to extent practicable Use temporary thrust blocks or collars Avoid exposing pipes that are under pressure Avoid placement where future excavation may occur behind the thrust block. The clear area behind the thrust block should be determined with the consultation of a geotechnical engineer.
Contamination	Exposed water pipe joints w/in trench excavations that can fill w/ runoff or ground seepage water, particularly if main is depressurized Exposed water pipe joints within common trench excavations that have an active sewer main, particularly if water main is depressurized	Control runoff water to trench Sump pumps

5.10.1.2 Settlement

The water system must be protected from vibration and settlement to achieve its full, expected life. Vibration and settlement can cause joints to pull apart and leak or pipes to crack and catastrophically fail. Vibrations and settlement also reduce the flexibility of pipe joints, which can allow ground movement during an earthquake.

A. Monitoring and Protection

When a large project such as building construction, deep excavation, or tunneling takes place near the water system, SPU's main concerns are vibration and settlement of water mains. Any time a large project of this type is planned near an SPU facility, the design engineer should consider requiring settlement monitoring devices be installed on the facility before construction.

Various types of pipe have differing thresholds for both vibration and settlement. Cast iron lead joint pipes have the most stringent protection requirements. Some larger cast iron mains have virtually no allowable settlement.

See **Appendices B and C**, respectively, for standard requirements for settlement monitoring of cast iron and ductile iron pipe.

During construction, anytime a design engineer suspects settlement impacts near existing water mains, it should be brought to the attention of the Resident Engineer.

B. Liquefaction Zones

Allowable settlements should also consider liquefaction and landslide zones. Settlement from construction is more critical in liquefaction or environmentally critical areas (ECAs), where settlement has a higher potential. Within these zones, SPU has set strict limits. Only 50% of the settlement/deflection is allowed in liquefaction or ECA zones as compared with other locations.

C. Mitigation of Damaged Water Mains

When vibration monitoring is required, SPU will perform a pre- and post-construction acoustic leak survey of the existing water lines near the construction activities. If damage or leaking increases and is determined to be caused by the construction activities, the RE will send a written request to the contractor to restore damaged or destroyed property to its original condition. The contractor, not the owner or City of Seattle, must pay for and the repair or replacement of the pipe according to City Standard Specifications.

5.10.2 Removal and Abandonment of Existing Water Mains and Appurtenances

The following are SPU standards:

1. Where required for water main projects, removal of existing water mains and appurtenances must meet the requirements of Standard Specification 2-02.3(7)B.
2. All ends of abandoned water mains must be plugged. Pipes 12 inches or larger in diameter must be abandoned and filled in accordance with Standard Specification 2-02.3(5).
3. Water pipes designated on project drawings to be abandoned and filled must be filled with pumpable, flowable cement slurry that completely fills the pipe (Standard Specification 9-05.15).
4. After the record drawings (as-builts) have been incorporated into GIS, the design engineer must check that the abandoned pipe is properly shown.

5.10.2.1 Considerations for Disposal of Hazardous Materials

The design and specifications of projects that remove or abandon water facilities must identify pipes that are known to have or may have hazardous materials. The contractor needs this information to calculate the costs for special handling and disposal. The most commonly found hazardous materials in SPU's water system and considerations for their mitigation or removal are described in Table 5-12.

Table 5-12 Hazardous Materials associated with SPU Water System

Material	Prevalence in System	Mitigation/Removal
Asbestos Cement Pipe	Commonly used in water mains installed in 1940s and 50s. Uncommon now	Avoid removal and abandon in-place where possible. If removal is necessary, containment and filtration requirements must follow OSHA and WISHA
Lead Joints	Almost all joints in older cast iron pipe have lead seals. Most of SPU's distribution system is cast iron w/ lead joints and can be expected to have decades useful service if not physically disturbed	Recycled by crews for other crew work
Coal Tar-Lined and Coated Steel Pipe	SPU has coal tar coatings and or linings in the Cedar River Pipeline System as well as a few other steel pipes	If removed, disposal to a licensed hazardous waste landfill. Working and handling of coal tar materials must follow OSHA and WISHA standards.

5.10.3 Construction, Startup and Acceptance Procedures

The design and specifications of transmission and distribution water mains must address the potential impacts of construction and repair activities on the hydraulic and sanitary conditions of the water system. Such activities pose the greatest risk of microbiological contamination of new and existing water mains. Appropriate design and specification requirements are major elements to achieving hydraulic requirements and sanitary conditions after construction or repair of water mains.

See the following Standard Specifications for construction (installation), startup, and acceptance of new and repaired water mains and appurtenances:

- Section 7-11 Pipe Installation for Water Mains
- Section 7-12 Valves for Water Mains
- Section 7-14 Hydrants

For further information on design and operational practices to prevent contamination of water mains, see the Water Foundation publication, *Practices to Prevent Microbiological Contamination of Water Mains*.

5.10.3.1 Connections to City Water Mains

All connections of new or repaired water mains to the SPU water system are made by SPU Water Operations. See Standard Specification 7-11.3(9)A and Standard Plans 300a, 300b, and 300c.

5.10.3.2 Shutdown of Water Mains

Shutdown and isolation of new and existing water mains must be addressed as part of design. There are three major considerations for the shutdown and isolation of mains:

1. Provide adequate numbers of valves for the isolation of the new or repaired mains to minimize impacts to water service in the distribution grid
2. Work with SPU Water Operations to provide a means to depressurize and dewater the main for a shutdown
3. Consideration of which customers will be out of water and for how long. For customer impacts and service disruptions, see DSG section 5.10.4.

5.10.3.3 Construction and Repair Practices for Sanitary Control

The following section describes construction and repair practice for sanitary control.

A. Pre-installation Materials Storage and Handling

Proper handling and storage practices (Standard Specification 7-11.3[2]) are key elements for achieving sanitary conditions in water mains.

SPU requires a pre-installation taste and odor testing of water pipe (Standard Specification 7-11.2[2]) of non-approved pipe sources. Request a current list from the SPU Water Quality group.

B. Pipe Installation and Repairs

Controlling water and soil from entering pipes is a critical factor for achieving sanitary conditions in water mains. See Standard Specifications for sanitary control practices for water main construction and repairs:

- Section 7-11.3(2)A Handling of Pipe – General
- Section 7-11.3(5) Cleaning and Assembling Joints

5.10.3.4 Post-Construction or Repair Startup and Acceptance

A. Acceptance

After water main construction or repair, the following requirements must be met before SPU will accept the connection to the water system and place it into service:

- Hydraulic and structural integrity, as demonstrated by hydrostatic pressure testing
- Sanitary conditions, as provided by flushing, disinfection, and verified by water quality testing

B. Hydrostatic Pressure Testing

Water mains and appurtenances, including extensions from existing water mains greater than 18 feet, hydrants, and hydrant runs must meet the requirements of Standard Specification 7-11.3(11).

C. Cleaning and Flushing

After a water main installation has passed the hydrostatic pressure tests, cleaning and flushing must be completed per the requirements of Standard Specification 7-11.3(12)B.

D. Disinfection

The following Standard Specifications address water main disinfection procedures:

- Section 7-11.3(12)C Required Contact Time
- Section 7-11.3(12)D Form of Applied Chlorine
- Section 7-11.3(12)E Chlorine Dosage
- Section 7-11.3(12)F Point of Application for Liquid/Gas Disinfection
- Section 7-11.3(12)G Backflow Prevention Requirement
- Section 7-11.3(12)H Rate of Application
- Section 7-11.3(12)K Disinfection of Connections to Existing Water Systems

E. Water Quality Testing and Criteria

Following chlorine disinfection contacting, samples for bacteriological analysis must be taken per the requirements of Standard Specification 7-11.3(12) A.

All samples must meet the bacteriological criteria. If any sample does not meet the criteria, the installation must be flushed, and re-tested until acceptable bacteriological results are achieved as required by Standard Specification 7-11.3(12)M.

Post-installation taste and odor testing may also be required as described in and Standard Specification 7-11.2(3).

F. Dechlorination

Chlorinated water from the disinfection of water mains must be dechlorinated before discharge.

Depending on discharge location, water drained from pipelines before shutdown must also be dechlorinated.

Typically, SPU uses an ascorbic acid (vitamin C) injection system for dechlorination. The chlorine concentration acceptable for discharge may vary depending upon the type and point of discharge. Discharges to a combined sewer may have some chlorine residual. Discharged water that may enter the environment, either through direct discharge to the ground for infiltration or via a storm drain, should have zero chlorine residual. The design engineer should clearly establish the acceptable points of discharge and chlorine residual criteria in the contract specifications. On most projects, dechlorination of disinfection water is the contractor's responsibility.

5.10.4 Customer Impacts and Service Disruptions

The design engineer or project manager should coordinate with SPU's Communications and Customer Service Branch to determine timelines associated with water main shutdowns.

5.10.4.1 Customer Impacts

All known or potential impacts to customers associated with construction or repair of water system facilities must be identified. Community notification requirements vary depending on the following:

- Length or size of the project area
- Number of customer services impacted, including anticipated service disruptions
- Number and type of streets and street intersections in the project area
- Extent of work outside of public ROW, such as work within temporary or permanent easements
- Access to project area, including points of access, types of construction vehicles/equipment, and frequency of construction vehicle trips
- Length of time and schedule constraints of the project
- Work hours (day, night, weekends) needed to meet the project schedule and/or minimize community impacts

- Type of environmental impacts to the local community, including noise, dust, mud, and light

5.10.4.2 Service Disruptions

Service disruptions (water outages) are the impact of most concern to customers. Specific requirements for service disruptions must be established for each project. These requirements can vary depending on type of work, construction constraints, and schedule.

5.11 O&M

This section describes O&M elements common to all SPU water infrastructure. See the appropriate sections of this chapter for O&M design issues specific to the infrastructure under design consideration.

5.11.1 Water Easements

An easement gives SPU specific property rights on land that it does not own. These property rights may be temporary or permanent. Permanent rights typically include, the right to restrict activities or improvements by the land owner and gives SPU the right to install, operate, maintain, replace and have access to SPU utility infrastructure, such as pipes, fire hydrants, or valves. Easements must be project specific. Construction easements may differ from standard utility O&M easements because they are temporary and typically need a larger area. Table 5-13 lists SPU minimum width requirements for water main easements. This table is a guideline. Engineering judgment and future expansion may require larger easement areas. The size of the easement area for water infrastructure is also subject to the specifics of the site.

Note: SPU prefers to purchase property and own the land where facilities are installed. However, SPU realizes this is not always possible.

Table 5-13 SPU Minimum Water Easements

Inside Pipe Diameter or Nominal Pipe Diameter (inches)	Minimum Easement Width (feet)
<8 to 24	20
30 to 92	30

5.12 RESOURCES

Documents

1. Burlington Northern Santa Fe (BNSF) Utility Accommodation Policy, August 21, 1998
2. Burlington Northern Santa Fe (BNSF) Design Guidelines for Industrial Track Projects, October 21, 2001

3. Sound Transit Design Criteria Manual. Contact Joe Herold, joe.herold@seattle.gov or 206.386.9857
4. American Water Works Association (AWWA) Design Manuals for Water Supply Practices
5. American Water Works Association (AWWA) Pipe Materials Selection Manual
6. American Water Works Association (AWWA) Potential Techniques for the Assessment of Joints in Water Distribution Systems
7. American Water Works Association (AWWA) Maintaining Water Quality in Finished Water Storage Facilities
8. American Welding Society (AWS): D1.1 Structural Welding Code, Section 3; Workmanship
9. Washington Administrative Code (WAC); Chapter 246-290, Cross-Connection Control Public Water Supplies
10. Washington State Department of Health; Division of Drinking Water; Water System Design Manual.
11. Washington State Department of Health; Pipeline Separation Design and Installation Reference Design Guide
12. Seattle Parks Department; agreement on multi-use reservoir sites. Contact Kim Serwold, kim.serwold@seattle.gov or 206.733.9340
13. Seattle Public Utilities; Water System Plan – 2007. Contact Joan Kersnar
14. Trenchless Technology: Pipeline and Utility Design, Construction, and Renewal. Najafi, Mohammad, PhD, PE. WEF Press, 2004

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SEATTLE PUBLIC UTILITIES
2013 WATER SYSTEM PLAN

C. POLICIES, PROCEDURES AND STANDARDS

APPENDIX C-3
DESIGN STANDARDS AND GUIDELINES – PLAN REVIEW

SPU Design Standards and Guidelines, Chapter 18

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Chapter 18 PLAN REVIEW

This chapter of the Design Standards and Guidelines (DSG) describes the engineering plan review function at Seattle Public Utilities (SPU). Plan review at SPU covers a wide range of activities related to the review of plans for private development and public Capital Improvement Program (CIP) projects.

Standards are shown as underlined text.

The primary audience for this chapter is plan reviewers for SPU's Project Delivery Branch in the Project Management and Engineering Division.

18.1 KEY TERMS

The abbreviations and definitions given here follow either common American usage or regulatory guidance.

18.1.1 Abbreviations

Term	Abbreviation
CIP	Capital Improvement Program
DPD	Department of Planning and Development
DR	Director's Rule
Field Ops	Field Operations
FOM	Field Operations and Maintenance Branch
GSI	Green Stormwater Infrastructure
MOA	Memorandum of Agreement
MUP	Master Use Permit
PAR	Preliminary Assessment Report
PAT	Preliminary Assessment Tool
PDB	Project Delivery Branch
PMED	Project Management and Engineering Division
PRD	Plan Review Database
SDOT	Seattle Department of Transportation
SIP	Street Improvement Plan
SMC	Seattle Municipal Code
SPU	Seattle Public Utilities
USM	Utility Systems Management Branch
WAA	Water Availability Approval
WAC	Water Availability Certificate
WAI	Water Availability Inquiry

18.2 GENERAL INFORMATION

This section describes the authority for and general organization of the plan review function within SPU.

18.2.1 Authority

For plan review of projects, SPU exercises authority granted by the Seattle Municipal Code (SMC). Director's Rules (DR) further clarify this authority. SPU has a Memorandum of Agreement (MOA) with the Department of Planning and Development (DPD) and an MOA is pending with the Seattle Department of Transportation (SDOT) to exercise this authority and review projects on behalf of SPU through various development permits and a Public Works Contract.

SPU documents roles, responsibilities and financial agreements with SDOT and DPD through Memoranda of Agreement (MOA), which are typically updated every other year. The sections of the SMC, which authorize SPU's role in plan review, are described in SPU Client Assistance Memos(CAM's). These CAM's are delineated in Table 18-8 of DSG Section 18.6.4.

The SPU Plan Reviewer staff review plans to ensure that the SMC requirements for drainage, wastewater, water, and solid waste are met in project design. SPU provides plan review to ensure:

- Protection of SPU's infrastructure and the ability to serve current and future customers.
- Assurance that development by private developers and other agencies meet the requirements of the SMC that SPU enforces and design standards to protect existing SPU infrastructure and the construction of new SPU infrastructure.
- Assurance that plans for City construction meets design standards.

18.2.2 Organization

SPU works collaboratively with other departments and government agencies to protect City of Seattle (public) infrastructure. The SPU PMED Division will often need to rely on DPD, SDOT, or other municipalities or agencies to identify and refer to SPU those projects that may impact SPU facilities. SPU interests include protecting and managing the capacity and operability of its infrastructure. DPD and SDOT (via MOA's) work on SPU's behalf to protect SPU interests on private property and in the ROW.

Other work groups within SPU also become involved with plan review to protect SPU property, infrastructure, and related interests (Table 18-1). The SPU Plan coordinator will route plans to these other groups if specific triggers are attained or specific questions arise. Additionally, these SPU groups receive plans to review from other City of Seattle departments.

Table 18-1 SPU Sections Involved with Plan Review

Organization	Involvement
SPU PMED	Conducts more complex water, drainage and wastewater plan reviews
SPU Materials Lab	May review detailed plans to assure appropriate products or materials will be used
SPU Real Property	Reviews detailed plans for projects near SPU property or easements to assure SPU interests are protected. Obtains easements if SPU facilities are proposed on private property. Coordinates with jurisdictions in which SPU facilities are located. Main SPU point of contact in the street vacation process.
SPU Customer Service	Manages relationships with SPU customers, including establishing new water services and

Organization	Involvement
Branch	billing.
SPU Solid Waste Division	Reviews detailed plans to assure new construction allows for safe access to solid waste containers by property owners, citizens, and waste disposal employees and vehicles.
SPU Survey	Reviews plans for work in the ROW to protect City property. SPU Survey may also conduct or review surveys for SPU or other City projects.
SPU Field Operations and Maintenance Branch	Reviews plans to ensure that installed improvements can be operated and maintained using standard procedures. Reviews to ensure that planned improvements will not negatively affect the ability to operate and maintain existing SPU facilities. Coordinates plans and construction by SPU crews.
SPU Utility Systems Management Branch (USM)	Advises on complex policy issues that are escalated by SPU PMED.

18.3 TYPES OF PLAN REVIEW

The SPU PMED Division is involved in four general types of plan review: private development, CIP projects, other agency projects, and property-related reviews. The degree of SPU involvement may vary greatly depending on type of permit and project specifics.

18.3.1 Private Development Projects

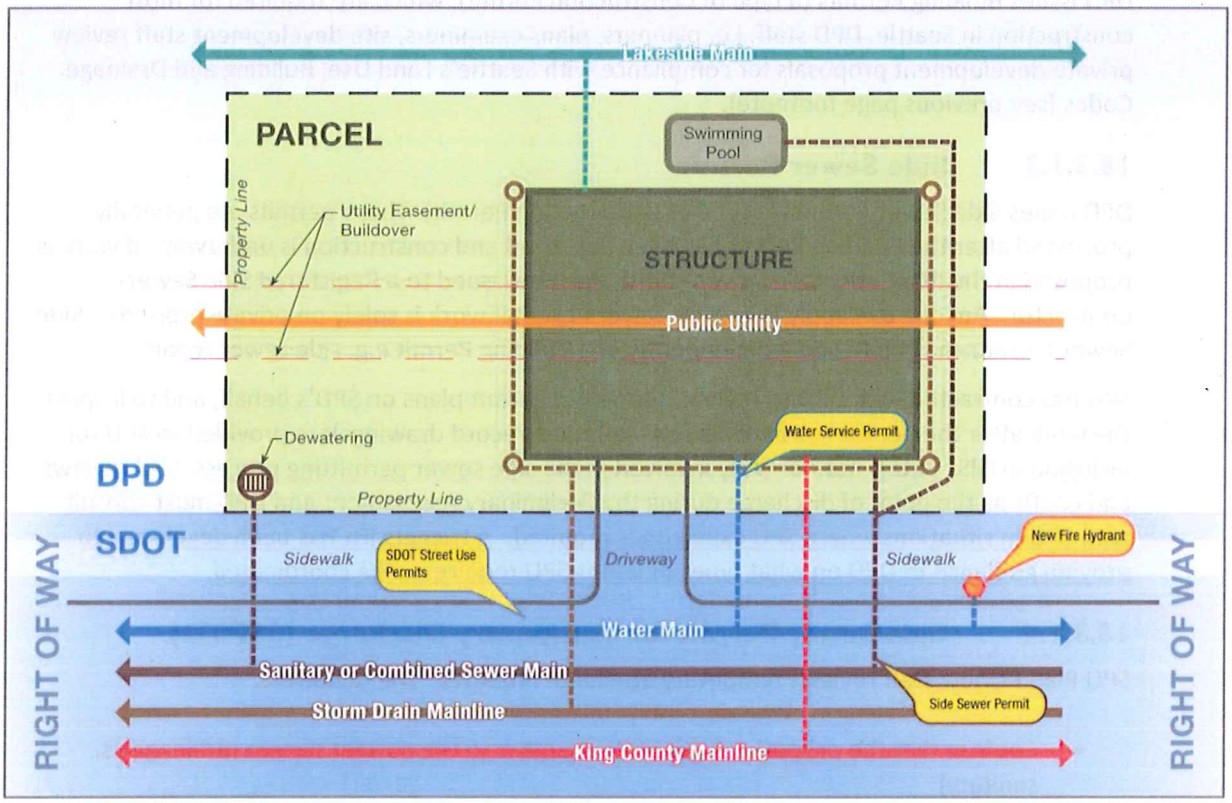
Private development refers to projects that are constructed by private parties and modify, build, or impact public water, stormwater, wastewater, or solid waste systems. The SMC regulates private development and requires development permits for most private development. Examples of private development include a new commercial building, subdivision of property, or redevelopment of a block.

City of Seattle development permitting is organized into two primary categories (Figure 18-1):

- **Parcel.** This development or redevelopment is on private property either owned by a private party or a public agency. DPD manages parcel based permitting through the Master Use, Building, and Side Sewer Permits and the plans are reviewed, approved, and inspected through the DPD permit process.
- **Right-of-Way (ROW).** This development or redevelopment is within the public ROW. SDOT manages ROW permitting through its Street Use Permit Process. Infrastructure review is managed by SDOT, however SPU Plan Review staff has an active role in the 30%, 60% and 90% design phases, as well as preliminary design guidance. ROW work can be conducted by a variety of entities including SDOT, SPU, SCL, Franchise Utilities, and private developers.

As shown on Figure 18-1, some permits may cross boundaries. For example, a Side Sewer Permit (a type of construction permit) is issued by DPD, although part of the permitted work occurs in the ROW. Similarly, permitting issues may cross boundaries because drainage or wastewater discharges from developed parcels can impact adjacent wetlands or SPU infrastructure.

Figure 18-1
Development Permit Boundaries for Plan Review



18.3.1.1 Preliminary Assessment

DPD administers a process called Preliminary Assessment, which provides private developers with a general set of requirements for their project. This is called the Preliminary Assessment Report (PAR). The PAR is completed prior to the Master Use Permit application intake (or Building Permit application, if no MUP is required) to notify developers of costly requirements that could affect their project. Each department is required to input information into an electronic tool called the Preliminary Assessment Tool (PAT).

18.3.1.2 Master Use Permit Review

DPD issues a general private development project approval called a Master Use Permit (MUP). SPU provides Preliminary Assessment comments during the MUP pre-submittal phase, but is not routed plans for review. This permit is issued before the detailed architectural and engineering plans are developed and submitted with the Building Permit application. DPD staff review development proposals for compliance with land-use regulations and SMC[1]. SPU plan reviewers do have the ability to attend DPD pre-submittal conferences for MUPs. SPU can request invitation to the meeting through the Preliminary Assessment Tool (PAT), or the applicant can

[1] The Seattle Land Use Code, Seattle Shoreline Master Program, SEPA, and the Environmental Critical Areas (ECA) Ordinance.

request that SPU attend.

DPD issues Building Permits (a type of Construction Permit), which are required for most construction in Seattle. DPD staff, i.e. planners, plans examiners, site development staff review private development proposals for compliance with Seattle's Land Use, Building and Drainage Codes (see previous page footnote).

18.3.1.3 Side Sewer Permit

DPD issues Side Sewer Permits (a type of Construction Permit). These permits are generally processed after the Building Permit has been approved and construction is underway. If work is proposed in the ROW, the Side Sewer Permit must be issued to a Registered Side Sewer Contractor, Anyone can apply for a Side Sewer Permit if work is solely on private property. Side Sewer Permits may be issued independently of a Building Permit e.g. side sewer repair.

SPU has contracted with DPD to review Side Sewer Permit plans on SPU's behalf, and to inspect the work after the permit has been issued. As-builts (record drawings)are provided to SPU for inclusion in GIS. SPU is not normally involved in the side sewer permitting process. SPU reviews and confirms the point of discharge during the Preliminary Assessment and DPD must consult with SPU in situations where SPU expertise is required. A triggers list has been developed to provide guidance to DPD on what types of issues SPU requires to be coordinated.

18.3.1.4 Side Sewer Permit for Temporary Discharge (SSPTD)

SPU Plan Review staff reviews temporary discharge requests. The reviewers:

- Confirm that the proposed Point of Discharge is to the correct system (drainage vs. sanitary)
- Ensure that the Point of Discharge is acceptable (i.e. the connection is not allowed directly to a manhole)
- Review proposed discharge rate for infrastructure capacity impacts

The Plan Reviewer must balance SPU's infrastructure needs with the project needs. If the proposed discharge rates are higher than the standard maximum rate allowed, the Plan Reviewer must determine that risks to the infrastructure are within acceptable range.

For proposed permanent and/or temporary discharges to the sanitary or combined sewer system, SPU may coordinate with King County Industrial Waste Section (KCIW) to confirm the allowed discharge flow rate. The Plan Reviewer communicates the allowed discharge flow rate to the project contact, and coordinates with the KCIW staff to have SPU conditions written into the King County Industrial Waste Permit.

Once SPU and KC are satisfied, the SPU Plan Reviewer informs the project contact and the DPD Plan Reviewer that the Side Sewer Permit for Temporary Discharge may be applied for and issued.

Note: At the time of publication, a new Dewatering Director's Rule is being finalized and the corresponding processes may change.

18.3.1.5 Street Use Permit

SDOT issues Street Use Permits, which are required for many activities in the public ROW, including construction projects. Types of Street Use Permits that may impact SPU infrastructure include Street Improvement Permit, Utility Permit, Shoring and Excavation Permit, and Street Tree Permits.

A. Street Improvement Permit (SIP)

The SIP plan is the most common plan SPU reviews because SPU infrastructure is generally located within the ROW. SDOT issues Street Improvement Permits (SIPs) for work as required by the Seattle Land Use Code, which is enforced by DPD and/or Street Improvements as required by the Right of Way Improvement Manual, which is enforced by SDOT. If DPD or SDOT requires street improvements, then a SIP is required and reviewed by SPU Plan Reviewers if facilities that SPU will own are constructed or existing infrastructure is impacted. SPU has the opportunity to review preliminary plans and attend design guidance meetings for SIP's at the 0-60% design phase and to provide formal review and comment at the 90% design phase.

B. Utility Permits

SDOT issues Utility Permits for the installation of underground utility mains, overhead wires and services in the public ROW. They include public utilities such as water, sewer, drainage mains and Green Stormwater Infrastructure; franchise utilities such as power, communication, gas, steam; and privately-owned facilities such as oil pipelines. This permit is one that SPU both reviews as an approver, and also requests from SDOT as an applicant. Many SPU projects need to obtain this permit. See DSG Chapter 2, Design for Permitting and Environmental Review

C. Shoring and Excavation Permits

Shoring and Excavation Permits are issued for excavations in or near a public ROW that could potentially affect the integrity of the ROW or utilities in the ROW. SDOT leads the review and may engage SPU to ensure SPU infrastructure is protected.

18.3.2 Other Projects

The SPU PMED reviews plans for SPU and other City departments Capital Improvement Program (CIP) projects.

18.3.2.1 SPU CIP Projects

Plan reviews of SPU CIP projects have many similarities to private development plan reviews, but are not part of the formal plan review process. The Plan Review section gets involved in SPU CIP projects based on their expertise, knowledge of a specific basin, or complexity of the project. Examples of SPU CIP projects include construction of a new water main, reservoir undergrounding, or installation of a new pump station.

18.3.2.2 Other City Department CIP Projects

The SPU Plan Review staff reviews plans for other City department CIP projects. For these projects, other City departments are the developer. As with the SPU CIP projects, these reviews have many similarities to private development plan reviews, but are part of different processes. If development or redevelopment is parcel based, then the DPD MUP and Building Permit process is followed. If in the ROW, the plans are routed to SPU PMED Plan Coordinator to be

assigned to a Primary Reviewer. Examples of other City plan review are construction of: a new Fire Station and related infrastructure; a new street with water, sewer and storm mains plus Green Stormwater Infrastructure (GSI); or a new facility that the Parks Department is building on Parks property that needs full frontage improvements including new water, sewer and storm mains extended. In particular, SDOT street reconstruction projects can have impacts on SPU infrastructure, especially drainage facilities.

18.3.3 Other Agency Projects

The SPU PMED reviews plans for work done in other municipalities or by other government agencies, where SPU interests are involved. Examples of this would be Sound Transit's Light Rail project or a project in Bellevue potentially impacting a SPU water transmission pipeline. These types of projects are categorized as either Major or Non-Major. For Major Interagency Projects (MIP) of high complexity, SPU typically assigns a project manager who assembles an in-house team for plan review.

18.3.4 SPU Property Related Projects

Property related plan review usually involves SPU property, easements or other property rights, street vacations, and proposed sales of City property. SPU must approve any actions that may threaten SPU property or property rights. The SPU PMED must determine the potential impact of property related action on any existing or planned SPU infrastructure. Usually, SPU Real Property coordinates these reviews, which involve SPU PMED only in more complex or higher risk situations. For many ROW actions, such as street vacations, SDOT leads review and SPU Real Property is the main point of contact for SPU.

18.4 SPU PLAN REVIEW PROCESS

SPU reviews plans either through informal coordination with other staff or through the formal plans routing process. *Coordination* refers to a simple conversation, email, or a meeting between an SPU plan reviewer and another City branch or department (or private development applicant) in which plans are reviewed or discussed. *Plans routing* is a more formal process by which SPU receives hardcopy or electronic plans for review.

18.4.1 Review Process with Routed Plans

The following is the SPU Plan Review Process:

1. The Plan Review Coordinator receives and logs plans into the Plan Review Database (PRD). A Primary Reviewer is assigned.
    a. Upon assignment, the Primary Reviewer screens to see if the project triggers the need for Conditional Reviewer(s) to review plan.
    b. If workload balancing or special skills are required, the Plan Review Coordinator consults with Primary Reviewer to assign Conditional Reviewer(s).
2. Primary Reviewer or Plan Review Coordinator will coordinate for plan to be reviewed by the Conditional Reviewer.

3. The Conditional Reviewer enters comments and corrections into the PRD and returns the marked up drawings to Primary Reviewer.
4. If workload balancing or special skills are required, Plan Review Coordinator consults Plan Review Supervisor.
5. If not, the Primary Reviewer screens to see if the project triggers the need for a Conditional Reviewer to review plan.
6. The Primary Reviewer arranges for plan to be reviewed by the Conditional Reviewer.
7. The Conditional Reviewer enters comments and corrections into PRD and returns marked up drawings to Primary Reviewer.
8. The Primary Reviewer reviews plans, resolves conflicts and issues, and enters final comments into the PRD.
9. The Plan Review Coordinator compiles final comments and sends them to the Point of Contact per plan review request.
10. The Plan Review Coordinator tracks and reports performance measures relating to the Plan Review process.

    Note: For more information, the SPU Plan Review Folder includes detailed process information, checklists, process diagrams, and other useful information. (J:\PDB\WS480\Public\Plan Review).

18.4.2 Coordination

SPU has regularly scheduled meetings to foster communication and coordination with other groups within SPU and other City departments:

- Representatives from SPU PMED, Operations and USM meet weekly to discuss drainage and wastewater utility issues that have come up during plan review. These issues have implications for policy, operations, or maintenance. During the meeting, the SPU reviewer consolidates branch comments onto a single set of plans.
- USM, Real Property Services, and SPU PMED hold monthly Build-over Meetings where they evaluate private proposals to build over SPU infrastructure.
- DPD, SDOT, and SPU PMED hold weekly meetings for both pre-submittal coordination and side sewer permitting. These meetings are used to discuss drainage and wastewater issues for projects seeking DPD or SDOT permits.
- SDOT holds semi-weekly meetings, which includes all reviewing departments. Pre-design guidance and 0%-90% design issues are discussed. SPU participates in these meetings by communicating requirements and coordinating water, drainage and wastewater concerns for projects seeking SPU approval on DPD or SDOT permits.
- SPU PMED attends monthly coordination meetings with SDOT to collaborate on SDOT's CIP program.

18.4.3 Master Use Permit Plan Review

SPU reviews preliminary MUP applications and communicates requirements using the Preliminary Assessment Tool (PAT). DPD takes input from SPU and other City departments and uses it to condition MUP decisions so that the applicant has information and approval to develop project plans for the building permit phase. Currently, SPU PMED receives MUP plans for water infrastructure reviews more often than for drainage or wastewater infrastructure. SPU PMED engineers return any comments directly to DPD. The SPU Solid Waste Division does not generally have any input to a MUP plan.

If the DPD reviewer observes issues or has questions on the following, they should coordinate with the SPU Plan Reviewer:

- System capacity
- Impacts to sensitive areas and public infrastructure
- Compliance with comprehensive plans and land use or drainage/sewer codes
- Resolution of unusual conditions, nonstandard designs, or exception requests

Generally, DPD staff split their project review workload into North of Denny review staff and South of Denny review staff. These DPD reviewers consult on triggered issues with the two SPU PMED review staff contacts, who are the north or south regions.

18.4.4 Preliminary Assessment Review

For this review, SPU plan reviewers focus on water, drainage and wastewater infrastructure. Applying for a Preliminary Assessment automatically triggers a Water Availability Certificate (WAC) review. SPU plan reviewers are assigned reviews on a weekly rotational basis. The SPU plan reviewer is responsible for projects forwarded from SDOT from 10 AM the previous day to 10 AM the designated day. A maximum of four projects is assigned per day.

18.4.4.1 Preliminary Assessment Review Process

SPU plan reviewers follow these steps to review Preliminary Assessments:

1. Access preliminary application information through Hansen Web Tools.
2. Select "Complete" button to route the project to DPD Administration who sends the Report to the applicant.
3. Use Route Back options as necessary. Occasionally, it may be best to contact the reviewer outside of the PAT via email or telephone. If a DPD build-over or main extension requirement is waived, then a comment is written in the internal comment field and the project must be routed back to the DPD Site Team.
4. DPD, SDOT and SPU meet biweekly to evaluate appeals of requirements that have been identified during the Preliminary Assessment.

Review City resources for each pertinent item on the Preliminary Assessment Resource List.

Table 18-2 Information Included in the Preliminary Assessment Tool (PAT)

Utility	Information to be provided in the Preliminary Assessment Tool
Water	The WAC is automatically triggered in PAT.
Drainage and Wastewater (D/WW)	Verify the following information input by DPD Site Team – Locations of existing public infrastructure (sanitary sewer, storm sewer or combined) and pipe sizes – Preliminary drainage control requirements including flow control, WQ treatment and/or green stormwater infrastructure (GSI) if required – Preliminary drainage water quality treatment requirements if required Waive or Concur with the following DPD-identified requirements: – If drainage or sewer main extension is required – If a build-over process is required Other additional areas of investigation: – If more than one possible connection point, the reviewer may suggest preferred pipe and location of connection – Potential capacity issues

18.4.4.2 Preliminary Assessment Performance Measures

The SPU service level agreement is to complete the Preliminary Assessment review within 48 hours of receipt from SDOT. If route backs are required, then an additional 48 hour window is allowed once the project enters SPU's queue a second time.

18.4.5 Water Plan Review

SPU reviews Water Utility plans as part of four related processes:

- Water Availability Certificate (WAC)--The Water Availability Certificate (WAC) is the most common process by which SPU confirms there is adequate domestic water flow and pressure for a new development. The developer may be required to pay SPU to perform hydrant flow tests and/or system model calibration in order to assure the water system can serve the project and surrounding area.
- Water Availability Inquiry (WAI)—Similar to a WAC, but is not related to a specific project.
- Water Availability Approval (WAA)--The Water Availability Approval (WAA) allows a developer to obtain a Building Permit for new development without obtaining a WAC from SPU. SPU has a MOA with DPD that allows DPD to issue the WAA in lieu of a WAC for certain smaller projects that will not require increased water services.
- Detailed Water Infrastructure and Water Service Plan Review.

18.4.5.1 Water Availability Certificate (WAC)

The Water Availability Certificate (WAC) is the most common process by which SPU confirms there is adequate domestic water flow and pressure for a new development. The WAC reviewer performs analysis and applies SPU water policy in determining the need for any water system improvements. The WAC reviewer estimates fire flow in determining requirements, but this is

subject to confirmation by the Seattle Fire Department. Under most circumstances, the SPU WAC Administrator completes these Certificates within five business days. DPD requires an approved WAC before it will issue a building permit for new development.

Not all projects require a WAC. DPD or SPU will determine whether a WAC is required based on a seven-item WAA checklist. If a developer meets all criteria listed on the checklist, DPD issues a Water Availability Approval without requiring a WAC from SPU. If project conditions change, DPD's Water Availability Approval can be invalidated. If so, SPU requires a WAC.

A. WAC Process

Normally the WAC is obtained during Preliminary Assessment, which automatically requests it. However, a developer can request assurance at any time that there is sufficient water available for a proposed new development. Or, at any time, a developer can complete a WAC request form and submit it to DPD. The SPU plan reviewer should follow the WAC process .

Tip: *DPD routes WAC requests with a site or utility plan to SPU for plan review. While the WAC typically indicates if a project needs to upgrade or build a new water main, SPU water policy can be unclear as to the best application of this requirement. If so, consult with the SPU Plan Review Supervisor.*

B. WAC Appeal

The developer can appeal WAC conditions by submitting a WAC Customer Appeal to the plan review supervisor. The appeals go through the following process:

1. Plan review supervisor conducts a bi-weekly meeting that includes the following:
    a. Engineering plan reviewer who developed the WAC
    b. Water lead
    c. Engineering Plan Review Manager
    d. USM Water Business Area Manager
    e. Customer Service (not at all meetings)
2. Meeting attendees decide whether to approve or deny the appeal, or possibly negotiate alternatives with the developer. On occasion, site visits or follow-up research may be required.
3. Engineering plan reviewer prepares and sends the developer a letter stating the decision.

The entire process should be completed within two weeks. Applicants who receive a denial letter may re-appeal if new information is presented that was not previously considered. When all appeals have been heard, if the applicant still believes the decision was in error, they can elevate the issue to the Project Management and Engineering Director in the Project Delivery Branch at SPU.

C. Water Availability Inquiry (WAI)

The Water Availability Inquiry (WAI) follows the same steps as the WAC process, but is based on a preliminary understanding of proposed land use. Under most circumstances, it is completed in

5 working days. If an SPU plan reviewer is unable to meet this goal, the reviewer should contact the plan review supervisor. The SPU plan reviewer follows these steps to prepare a WAI:

1. Checks project type and WAC policy to determine overall requirements.
2. Reviews the City's GIS to identify the size of the main. If the water system is substandard, City staff will indicate the process for required mitigation.
3. The WAI informs developer that fire flows are determined by the Fire Department and may require additional upgrades to water system.

D. Water Availability Approval (WAA)

The Water Availability Approval (WAA) allows a developer to obtain a Building Permit for new development without obtaining a WAC from SPU. SPU has a MOA with DPD that allows DPD to issue the WAA in lieu of a WAC for certain smaller projects that will not require increased water services.

18.4.5.2 Water Plan Review Procedure

SPU PMED may need to perform detailed plan reviews for new development projects that may impact SPU water infrastructure, examples are water main extensions and large water meter installations. See DSG Chapter #17 for Water Services.

The Water Plan Review procedure can be required for both private developments within City limits and within jurisdictions that SPU-owned systems are located.

The following resources may be useful in performing a detailed water plan review:

- For new and existing water mains, water project review is covered in the 2007 Water System Plan.
- For non-standard or complex issues or if the code is unclear, get additional assistance in the bi-weekly water appeal meeting.

Meetings with outside jurisdictions in SPU's water service area such as Shoreline, Tukwila, Bellevue, Kirkland, Mercer Island, Burien, Normandy Park, King County, and WSDOT may be scheduled as needed.

The SPU Primary Reviewer should follow the Drainage, Wastewater and Water Plan Review procedure in Appendix A.

18.4.6 Drainage and Wastewater Plan Review

This section describes general guidance for reviewing private development wastewater and drainage plans.

18.4.6.1 Stormwater Code Compliance

The SPU plan reviewer uses a number of established thresholds to determine Stormwater Code requirements for public and private development or redevelopment projects. There are 13 minimum requirements for all projects.(V.III, Chapter 2, page 2-30) Of these the requirements to maintain natural drainage patterns, amend soils, implement GSI, protect wetlands, ensure capacity, and comply with the Side Sewer Code are most often encountered by the reviewer.

Two additional minimum requirements (flow control and water quality) vary depending on project type and where the site ultimately drains. A tool was developed to assist the reviewer in identifying flow control requirements.

Additional system requirements may be identified. Drainage and wastewater thresholds for improvements and extensions within the City of Seattle are triggered by code (often a lack of available main in abutting ROW). If there is no sewer or combined main or if the sewer or combined main may be under capacity for the improvements, the SPU PMED Plan Reviewer may need to coordinate with USM and to determine the following:

- Delineation of service area
- Possible downstream hydraulic constraints
- Point of discharge (POD)
- Evaluation of service alternatives
- Determination of benefit of new or upgraded main to SPU

18.4.6.2 Review Procedure

The SPU Primary Reviewer should follow the Drainage, Wastewater, and Water Plan Review procedure in Appendix A.

18.4.6.3 Green Stormwater Infrastructure (GSI) Plan Review

Green Stormwater Infrastructure (GSI) is required under current Stormwater Code for projects with >2,000SF new and replaced impervious surface or >7,000SF total land disturbing activity. GSI limits the negative impacts of stormwater runoff by redesigning streets to take advantage of plants, trees, and soils to clean runoff and manage stormwater flows. Vegetated swales (biofiltration swales), permeable pavement, amended soils, and specific trees and vegetation allow soils to absorb water, slowing flows and filtering out many contaminants. SPU has coordinated with SDOT to develop general guidelines, plans, and specifications for GSI Design in the ROW. GSI options for ROW applications are included in the ROWIM. Additional resources and updated information are included on SPU's GSI website.

18.4.6.4 DRAINAGE AND WASTEWATER APPEALS

Applicants can appeal requirements or decisions relating to drainage or wastewater reviews. Appeals are sent to the Plan Review Coordinator who then schedules the appeal meeting and ensures that the package is complete and ready for the meeting. Appeals often involve ROW issues. The meeting generally includes representatives from SDOT, DPD, USM and PMED. Decisions are sent to the applicant within two weeks of the initial submittal. On occasion, follow-up investigation can be required either by the applicant or internally, which can delay the decision.

18.4.7 Survey Requirements and Monuments

City of Seattle survey and monument requirements are described in CAMs 1401 and 1402, respectively. CAM 1401 explains when a survey is required and general information regarding survey. CAM 1402 explains how to locate and identify a survey monument, the developer's

responsibility in verifying and protecting monuments, and how a developer gets approval to disturb a monument.

The SPU PMED Survey Plan Reviewer performs survey reviews as a service to SDOT. Through this review, street alignments, rights of way, and horizontal and vertical survey control data are verified.

The Survey Plan Reviewer uses City Survey records, City quarter section (engineering) maps, City ordinance records, County records, superior court cause documents, State and County survey control data bases, and occasionally field verification to confirm that the submitted plan or base map is a reasonable representation and interpretation of survey control.
The Survey reviewer may also be asked to review new plats, short plats and lot boundary adjustments submitted to SDOT. In the case of new plats, geometry, ROW, and control of re-aligned streets are checked, and ties to control outside of the plat are reviewed.

If the survey is incorrect, inadequate, or unverified, the reviewer may return the plan to the developer to correct before design review.

Survey review is also performed for SPU and SDOT CIP alignments.

18.4.8 Solid Waste Plan Review

The SPU Solid Waste Division in USM reviews Building Permit plans for larger multi-family, commercial and industrial projects to assure the following:

- Garbage trucks have sufficient access to dumpsters
- There is sufficient storage available for solid waste dumpsters
- Dumpsters can be safely moved from their storage location to the pickup location

Note: At the time of DSG publication, DPD identifies when Solid Waste should be involved and routes plans directly to the Solid Waste Division.

18.4.9 Build-overs

SPU may allow a developer to construct a permanent structure over an existing sewer or storm main located in an easement on private property subject to site specific engineering and maintenance requirements. If any or all of the requirements can't be met SPU reserves the right to reject the proposed build-over. SPU prefers re-routing the existing main around the proposed build-over if the longitudinal grade allows it to maintain the minimum velocity or less.

Real Property Services (RPS) is the primary point of contact and they work with the Plan Reviewer to determine that the City's rights and facilities are adequately protected. The developer must agree to pay the administrative costs plus excess future costs due to the project's construction. For detailed information on build-overs, see CAM 507.

Note: Build-overs are generally only approved for drainage or wastewater mains. Build-overs are almost never approved for water mains.

18.4.9.1 Build-over Review

The SPU plan reviewer must confirm:

1. That the casing pipe inside diameter is larger than the outside diameter of the bell of the sewer/storm main. The proposed pipe must be sized to convey the design flows for the entire basin under full "build-out" for the corresponding zoning.
2. The minimum steel casing thickness shall be ¼-inch. External loading may require thicker and stronger casing. Casing shall extend at least 5 feet beyond the edge of building foundation 1:1 influence line. Steel casing pipe is preferred, although ductile iron pipe may be used in certain circumstances. Use of any HDPE, PVC or any other plastic pipe is not allowed.
3. The sewer/storm main must be restrained joint within the casing pipe.
4. No private side sewer or storm connections are allowed within the casing pipe.
5. Casing spacers must be stainless steel to maintain line and grade of pipe and to prevent floatation. Place at bell ends with 9 feet maximum spacing.
6. An unobstructed 10 x 20 foot minimum access area (unobstructed) located on both sides of the building is preferred. If that is not feasible, SPU may allow one access area for future trenchless maintenance or repair. Larger diameter pipes may require larger access areas and easement widths.
7. A removable end cap or a 1 foot deep concrete plug must be included in order to seal the space between the casing the main.
8. Additional MHs may be required, as necessary.
9. The Seattle City Council must approve any easement legislation required prior to issuing the permit for construction.
10. Final as built plans must be filed in the SPU Records Vault.

18.4.9.2 Build-over Process

The following are the steps for a developer to request a build-over:

1. Real Property Services (RPS) circulates the owner's proposal to the SPU Plan Reviewer and to Field Operations for preliminary evaluation.

Participants discuss proposal in a scheduled build-over meeting

   a. If necessary, RPS coordinates a meeting with the property owner or their agent.
   b. RPS, after consulting with Plan Review and FOM, will advise if SPU can grant consent.

The Plan Reviewer conducts preliminary review and sends recommendations to RPS.

RPS sends letter to property owner with site specific requirements for modifying the wastewater/storm drainage main or denying the build-over request.

RPS includes an estimate of fee for processing of the request.

Developer signs and returns letter to RPS including the following:

a. Payment of fee for administrative costs in excess of the deposit.

b. Revised design document incorporating SPU preliminary comments prepared by a licensed engineer.

c. Three sets of finalized plans and profiles showing impact details on wastewater/stormwater mainline.

2. RPS routes revised plans to the Plan Reviewer.
3. SPU Plan Reviewer coordinates comments to the property owner.
4. RPS drafts a Consent Agreement for developer review, approval and acceptance.
5. Developer submits a copy of signed Consent Agreement and approved plans to RPS.
6. Once all changes are made and staff accepts the proposal, RPS schedules the build-over for City Council review and action.
7. Upon City Council approval, the Developer submits a copy of signed Consent Agreement, approved plans and payment of current fees to DPD to obtain a sewer permit
8. DPD and/or SDOT inspects construction of relocated or replaced drainage/wastewater main and obtains red-lined drawings. Before building occupancy, DPD must obtain SPU PMED final approval.

18.5 PLAN REVIEW ROLES AND RESPONSIBILITIES

Plan review at SPU is performed by a team as shown in Table 18-3. .

Table 18-3 SPU Project Management and Engineering Plan Review Team

SPU Position	Responsibilities
Engineering Plan Review Manager	Manages SPU PMED Plan Review Section
Plan Review Supervisor	Workload management and project assignment Preliminary Assessment Management Deals with exceptions
Plan Review Coordinator	Organizes and distributes plans for review Compiles comments and transmittals Provides general support Tracks and reports performance measure data
Primary Reviewer	Engineering plan review and project management Reviews projects for adherence to SPU DSG, City Standards, SMC and relevant DR's.
Conditional Reviewer	Supports Primary Reviewer by performing specialized reviews, as necessary for adherence to SPU DSG, City Standards, SMC and relevant DR's..

Other City of Seattle departments and groups within SPU share responsibilities for plan review. Table 18-4 shows an overview of the role of other City departments and SPU groups in plan review.

Table 18-4 Plan Review Roles and Responsibilities

Organization	Group	Role	Responsibilities
DPD	Multiple	Issue permits	Issues MUP, Building, Grading. and Side Sewer Permits Review to protect SPU interests when issuing permits Involve SPU as needed or agreed in the permitting process
SCL	Plan Review Team	Review	Assure customer service levels are met Protect citizens health and safety Review plans as needed to assure SCL interests are protected
SDOT	Street Use Operations	Issue permits; Review	Administers the Street Use Process Protect SPU interests when issuing permits Protect SDOT interests when reviewing plans Involve SPU as needed or agreed in permitting process
SPU	Customer Service	Authorize new water service	Assure WAC is issued before accepting new water service applications Accept plans from developers for water service review
SPU	USM	Conditional Review	Review plans as agreed with SPU PMED for projects with complex policy issues
SPU	Solid Waste	Conditional Review	Review building permit plans to assure safe access to dumpsters for residents and garbage trucks.
SPU	Survey	Conditional Review	Assure plans reviewed meet City survey standards Assure planned projects meet City ROW monumentation and future grade requirements.
SPU	Materials Lab	Conditional Review	Assure appropriate products and materials are used in construction projects involving SPU infrastructure.
SPU	Real Property Services	Conditional Review	Assure SPU and City property are protected Assure easements and other legal documents protect City property and interests
SPU	Field Operations & Maintenance	Conditional Review	Assure proposed projects do not negatively impact Operations' ability to operate or maintain SPU infrastructure
King County	Dept of Natural Resources (Wastewater Treatment Division)	Review	Protect King County wastewater interests Review plans for wastewater concerns as requested by SPU, Industrial Waster, Construction and Real Property are Sections where coordination takes place.

18.5.1 Coordination

Coordination with other Branches, Divisions, and Departments is critical to successful projects. Table 18-5 lists examples of when coordination is needed with other SPU groups and DPD. The list is not exhaustive.

Table 18-5 Plan Review Coordination and Conditional Reviewers

Department/Branch	Issues for Coordination
Field Operations and Maintenance	Access points to casing pipes Safety platforms for deep maintenance holes Inside drop vs. outside drop for MH's Access to public facilities in difficult to reach locations Confirming access locations in drive aisles, roads, & private property with SPU facilities Bends required in lines Backwater valves

	Pipe slopes less than or greater than allowable standards Project with limited overhead or horizontal clearance due to trees, overhead utilities, underground utilities, walls etc. Utility infrastructure to be decommissioned Other unique issue creating non-standard installation Non-standard location or complex/non-standard work by crews Connections & maintenance of water quality facilities such as storm filters or wet vaults Utility conflicts Proposed trees over/near mainline Opportunistic replacement of plastic or galvanized water services
Real Property Services	RPS initiates review for projects requiring an easement or Build-over Agreement. SPU coordinates with RPS easement issues with a build-over. RPS coordinates with outside jurisdictions and SPU facilities needs.
Materials Lab	Point load on pipes due to proposed adjacent improvements Angle of repose for trench adjacent to ex structures or utilities Use of epoxy for water proofing utilidor Casing pipe inspections Pipe bedding/support Trenchless installations Mix designs for porous pavements and structural inspections Review of non-standard products or materials Soil compaction tests
USM	SPU PMED and USM have a MOA that outlines areas the two branches must coordinate. This MOA includes a "Triggers" list that shows SPU PMED plan reviewers what types of project issues require coordination with USM
Construction Management	Casting surveys Constructability review Inspection services
DPD	SPU PMED and DPD have a MOA that outlines areas of coordination. This MOA includes a "Triggers" list that shows DPD Site Reviewers what types of project issues require coordination with PMED Plan Reviews. Coordination includes: Interpretation of the drainage code for on-site drainage review Side Sewer Permitting Main extension Temporary Construction Discharge Build-over or relocation inspections permitted by DPD Projects that may have significant impacts on SPU system capacity.
Customer Service	Review of large water services Review for Customer Service issues
Solid Waste	Review for access issues regarding large containers
Survey	Professional survey issues that are elevated by the Developer

18.6 RESOURCES

This section contains information available to SPU plan reviewers.

18.6.1 Codes and Authority

Table 18-6 describes relevant Authority for Plan Review Staff.

Table 18-6 Relevant Codes and Authority for Plan Review Staff

Code	Authority
Side Sewer Code (2010) SMC Chapter 21.16	Regulates construction/ use of service drains and side sewers in Seattle

Stormwater Code(2009) SMC Chapter 22.800	Regulates stormwater, flow control, water quality, temporarily during construction and permanently after construction.
Water Code (2007) SCM Chapter 21.04	Regulates current and future water demands, ensures high quality drinking water, and establishes rates for purveyors and customers.
King County Code KCC Title 28	Regulations for the disposal of industrial waste into the sewerage system and establish the fees and rules.

18.6.2 Director's Rules

Table 18-7 describes relevant Director's Rules (DR's) for Plan Review Staff. Director's Rules are administratively approved and signed by City Department Directors. They are legally binding rules that clarify how SMC will be implemented and enforced. Most DR's related to plan review are joint DPD and SPU Director's Rules, and can be located in Table 18-7 or on DPD's web site.

Table 18-7 Relevant Director's Rules for Plan Review Staff

DR Number	Description
2010-002*	Requirements for Design and Construction of Side Sewers(Drainage and Wastewater Discharges
2010-003*	Side Sewer Code Enforcement
2010-005**	Groundwater/Dewatering
2009-003	Vol. I Source Control Technical Requirements Manual
2009-004	Vol. II Construction Stormwater Control Technical Requirements Manual
2009-005	Vol. III Stormwater Flow Control and Water Quality
2009-006	Vol. IV Stormwater Code Enforcement Manual
2009-007***	Green Stormwater Infrastructure to the Maximum Extent Feasible (GSI to the MEF)

*Note: As of DSG publication date, this DR is slated for approval and implementation in early 2011.

**Note: As of DSG publication date, this DR is slated for approval and implementation in 2011.

***Note: As of DSG publication date, this DR is in active discussion with DOE. Best info available is the Draft dated Dec. 2009

18.6.3 Memoranda of Agreement and Understanding

Memoranda of Agreement and Memoranda of Understanding are binding documents between a minimum of two parties. Often two or more Departments or Branches/Divisions within a Department will have a MOA or MOU. There is an Agreements Library located on PMED's SharePoint site.

18.6.4 Client Assistance Memos

Table 18-8 describes relevant Client Assistance Memos (CAM's) for Plan Review Staff. Client Assistance Memo's are general in nature and aid the public in applying regulations.

Table 18-8 Relevant Client Assistance Memos for Plan Review Staff

Client Assistance Memo	Description
CAM 502	Grading Regulations in Seattle
CAM 503	Side Sewer Permits in Seattle
CAM 504	Side Sewer As-Built Plan Requirements
CAM 505	High Point Impervious Surface Calculation
CAM 506*	Side Sewer Permits for Temporary Dewatering on Construction Sites
CAM 507	Side Sewer Permits for Build-Over Agreements
CAM 509	Green Parking Lots
CAM 520	Rainwater Harvesting for Beneficial Use - Green Building CAM
CAM 1101	Drainage and Wastewater: Regulation of Development
CAM 1102	Sewer Submeter Program
CAM 1180	Design Guidelines for Public Storm Drain Facilities
CAM 1201	Water Availability Certificate
CAM 1202	Water Service Application
CAM 1301	Solid Waste: Information for Developers
CAM 1302	Building Material Salvage and Recycling
CAM 1401	SPU Survey Requirements
CAM 1402	What are Survey Monuments?

*To be updated with DR 2010-005 in 2011.

18.6.5 Administrative Procedures

18.6.5.1 Plan Review Billing Codes

Plan reviewer staff use Activity Codes to track their time:

Table 18-9 Plan Review Timesheet Codes

N480305	DPD Engineering Support
N480306	Other Plan Review
N480307	General Engineering
N480308	Water Availability Certificate
N480340	Design Standards and Guidelines
N480341	Code Development, Director's Rules and CAM's

18.6.5.2 SDOT Projects

Projects billed to SDOT are charged to one of three Activity Codes:

NS09029	Design Guidance
NS09030	Plan Review
NS09031	Inspection

When completing the timesheets, the Plan Reviewer enters the permit number in the Doc # field and a brief description of work performed in the Comment box on the HRIS timesheet. After

each pay period, SPU Finance sends a report that includes this information, and the Primary Reviewer reviews to ensure that all charges are appropriate before approving. SPU Finance then sends the approved billing to SDOT for processing.

Refer to the Plan Review billing process map SPU internal CIP projects with an assigned SPU project Manager have Activity Codes that Start with a C. (e.g. C305501)

18.6.5.3 DPD Projects

Currently, projects originated from DPD are billed to N480305 DPD Engineering Support.

18.6.6 Technology

The City uses a variety of software to manage and track plan review. To access these systems, the SPU plan reviewer should contact the appropriate IT department (Table 18-10).

Table 18-10 Technology Tools for Plan Review Staff

Software Name	Description	IT Dept.
Hansen Web Tools (HWT)	HWT provides a web based view of DPD's Hansen permitting application data, and other permitting application data (e.g.: GIS, EDMS.). HWT also provides additional functionality supporting interdepartmental permitting. This tool allows the reviewer to view project information and details from other City reviewers. Access to this system must be requested from DPD	DPD
Preliminary Assessment Tool (PAT)	PAT is an application within HWT that supports determination of Code requirements. It is used by DPD Land Use, DPD Site Team, SCL, SDOT and SPU. Access must be requested from DPD. PAT is used in the preliminary application process by Review Staff to provide early guidance and Code Requirements for all new private parcel development projects.	DPD
Plan Review Database (PRD)	PRD is an MS Access database used to track plans, archive comments & decisions for projects reviewed by SPU PMED. It is used for SDOT Street Use Permit plan review, for other Dept CIP plan review, and for other reviews that occurs in the Plan Review Section. Write access is requested from the Plan Review Supervisor, who then contacts the SPU IT service desk. Read access is available to all SPU staff and can be accessed through	SPU
Field Operations Mapping System (FOMS)	FOMS is a tool to graphically see Maximo work orders, O&M truck locations, and work order status and expeditiously gain O&M information. O&M truck locations are real time locations using GPS to locate them.	
Virtual Vault	Virtual Vault is a desktop tool to access to SPU infrastructure as-built information	
Maximo	Maximo is a desktop tool that enables access to O&M crew scheduling, work activities, and costs	

18.6.7 SPU Library and Storage Area

The SPU Library is located on SMT 45th floor. The library contains copies of industry standards to which SPU subscribes. It also contains engineering textbooks, City standards, and other technical engineering publications.

Physical copies of plans received by SDOT are stored in the PRD portion of Central Files on SMT 45th floor while plan review is in progress. At regular intervals, completed projects are packaged and sent for off-site archiving.

18.6.8 Mapping

Table 18-11 lists resources SPU plan reviewers and developers use to obtain property information. Physical maps are housed on the west side of SMT 45th Floor.

Table 18-11 Property Resources for Plan Review Staff

Resource Name	Description (if applicable)	Link/Location (if applicable)
General		
DPD CAM 233	(Sources for Property Information)	CAM 233
City GIS (Public)	Public Information	City GIS
City GIS (Internal Use)	Internal Access Information	ArcView & Utiliview
Microfilm Library	Public Information	Seattle Map Counter Public Resource Center SMT 20th Floor
City of Seattle Vault	400 Scale Water Maps and limited record water system drawings (as-builts). Limited wastewater and stormwater record drawings (as-builts). Sewer Cards (also available on-line) Reviewers have access to more accurate detailed information from the internal SPU on-line system.	Virtual Vault 700 Fifth Avenue SMT 47th Floor Seattle, WA 98104 (206) 684-5132 Hours: 8:00 AM to 4:30 PM, M-F
CAM 107 (DPD Public Records)	The CAM includes brief descriptions of records maintained by DPD along with locations and hours of operations, copy fees, and documents exempt from public disclosure.	CAM 107
Plat Maps	Official document that portrays subdivision boundaries, easements, restrictions, and legal descriptions.	KC Dept of Records & Elections and DPD Drainage/WW Desk in the ASC SMT 20th Floor
Water		
Water System Map Book	Public Information	Seattle Map Counter Public Resource Center SMT 20th Floor
SPU Customer Service Branch	Public Information General Index Cards (GI cards for historical info)	Water Service Account Executive (206-684-3000), M-F 8:00 AM to 5:00 PM 810 Third Avenue, Suite 600 Seattle, WA 98104
Drainage and Wastewater		
Sewer Cards	Historic mapping information (updated until 2001)	Map Information City of Seattle Vault Sewer and Drainage counter at DPD
SPU Engineer's Maps		See base maps
Sewer & Drainage Infrastructure Map Sheets		Seattle Map Counter Public Resource Center SMT 20th floor

If plan reviewer notes a discrepancy on GIS maps or sewer cards, verify using the mapping resources listed above, and then once confirmed that a correction is needed, complete a GIS change request to correct discrepancies. The depository is in the Plan Review Section currently on the west end of SMT 45th floor.

SEATTLE PUBLIC UTILITIES
2013 WATER SYSTEM PLAN

C. POLICIES, PROCEDURES AND STANDARDS

APPENDIX C-4
STANDARD, CONNECTION, AND ADMINISTRATIVE CHARGES RULE AND WATER RATES

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Seattle Public Utilities

Director's Rule

Title	Number	Rev. no.
Standard, Connection and Administrative Charges—Water Services	FIN-210.2	0
Responsibility	**Supersedes**	**Pages**
Finance Division	DR-2010-001	19
SPU Director's Approval Ray Hoffman	**Effective Date** April 1, 2012	

1. PURPOSE

To set fees for special recurring and nonrecurring water services provided by Seattle Public Utilities.

2. DEFINITIONS

Site-specific costs: For certain services, SPU will determine the cost related to that service based on the site. This site-specific cost will include labor, material, equipment, and any other cost related to that site and that service. Cost will vary between sites.

Time and materials: The cost of a service as calculated by SPU, including labor, equipment, materials, applicable permit fees and taxes, pavement restoration, overhead costs and any similar costs incurred by SPU while performing the service.

Normal hours: Times from Monday through Friday from 7:30 a.m. to 4:00 p.m., excluding those holidays observed by the City of Seattle.

Extended hours: Times from Monday through Friday from 4:00 p.m. to 9:00 p.m., from April through October, excluding those holidays observed by the City of Seattle.

After hours: Times other than normal or extended hours.

3. NEW WATER INSTALLATIONS AND MISCELLANEOUS SERVICE CHARGES

3.1 STANDARD CHARGES FOR INSTALLATION OF NEW SERVICE (EXCLUDING STREET-RESTORATION CHARGES) AND CONNECTION CHARGES

Domestic Services

Size (inches)	Installation Fee		Connection Charge
	Residential	*Arterial*	
¾	$2,167	$2,558	$920
1	$2,283	$2,682	$1,564

1 ½	**$5,152**	**$5,821**	**$3,036**
2	**$5,491**	**$6,361**	**$4,876**
3	**Cost ***	**Cost ***	**$10,120**
4	**Cost ***	**Cost ***	**$15,640**
6	**Cost ***	**Cost ***	**$30,360**

Fire Services

Size (inches)	Installation Fee		Connection Charge
	Residential	*Arterial*	
2	**$7,576**	**$10,508**	**$1,950**
4	**Cost ***	**Cost ***	**$6,256**
6	**Cost ***	**Cost ***	**$12,144**
8	**Cost ***	**Cost ***	**$19,504**

* All services 3 inches and larger will be based on a site-specific cost.

Plus, as required, Street Restoration charges as stated below.

Arterial streets include every street, or portion thereof, designated as such in Exhibit 11.18.010 of the Seattle Municipal Code.

The new service connection charge is based on the Connection Charge Unit Rate of **$920**. For application of connection charges, see policy/procedure SPU-DR-02-03, Connection Charge. Fire-only services are based on 40 percent of the corresponding new service connection charge. If a domestic service and a fire service are purchased together, contact an SPU Account Executive at 206-684-5800 to determine the applicable connection charge. The connection rate for meters 8 inches and larger is based on the unit rate of **$920**, multiplied by the appropriate meter equivalency factor:

- 8 inches **$48,760**
- 10 inches..... **$70,840**
- 12 inches..... **$95,680**
- 16 inches..... **$154,560**
- 20 inches..... **$224,480**
- 24 inches..... **$303,600**

If new service is being installed with developer water main, see section 4.6.

Any service request deemed by SPU to be nonstandard will be based on a site-specific cost.

Combination Fire/Domestic Services

Combination fire/domestic services are available in 4-, 6- and 8- inch sizes. These services require approval from the SPU Director or designee.

- All combination fire/domestic services will be based on a site-specific cost.
- Subject to the Connection Charge in section 3.1.
- Plus, as required, Street Restoration charges under section 3.1.

Other New Service Installation Standard Charges

- Pre and post-inspection..... **$327** per job site
- Street saw cutting..... **$497** per job site
- Arterial installations for 2-inch and smaller meters will be charged **$569** for traffic control if required. For 3-inch and larger meters, costs for traffic control will be considered in the site-specific cost.

All required City, County, and/or State, and other permits and fees are in addition to the standard charges listed above.

Within Seattle City Limits

- Permit Fee **$146**
- Traffic Control Plan Review..... **$172 per hour**
- Street Use Inspection Fee (initial and final) **$172**
- Premium Street Use Inspection (minimum 4 hours) ..... **$344 per hour**

Unincorporated King County

- Permit Fee **$140**
- Inspection Fee ..... **$150 per site**

City of Shoreline

- Permit Fee (one-day project)..... **$299**
- Inspection Fee (additional days)..... **$ 74.75 per day**

City of Lake Forest Park

- Permit and Inspection Fee (flat fee)..... **$200**

City of Burien

- Permit Usage Fee **$200**
- Inspection Fee (minimum 2 hours per site)..... **$ 75 per hour**

For ¾-inch and 1-inch services installed in conjunction with new water main construction, if ordered 30 days prior to estimated start of construction: **$533** reduction from standard charges.

For multiple ¾-inch and 1-inch services installed with a manifold: **$533** reduction from standard charges for each additional service.

For 2-inch and smaller domestic services installed concurrently with fire services in a common trench: **$533** reduction from standard charges.

Time and materials, but not less than the applicable standard charge, for all purveyor services, for all services tapped on transmission mains or for special circumstances as determined by the SPU Director or designee.

Contractor Standby Charge when site/contractor not ready as previously scheduled: **$562** per event

Isolation valve, if required:

- 8-inch **$7,749**
- 10-inch **$11,552**
- 12-inch **$15,713**
- 16-inch ..... site-specific cost

- Isolation valve installation is subject to the Street Restoration charges under section 3.1.

Ring and cover casting, if required:

- For new or existing ¾-inch, 1-inch and all fire service: **$314** additional
- For new or existing 1½-inch or 2-inch domestic services: **$683** additional

Automated meter reading equipment, if required by meter installation standards:

- 2 inches or smaller meter ..... **$239** additional
- 4 inches or larger, single-register, with fire service ..... **$239** additional
- 4 inches or larger, two-register, domestic or combo ..... **$422** additional
- 4 inches or larger, three-register, with fire service ..... **$602** additional in the same chamber

Service Conversions

All service size conversions will be based on a site-specific cost.

Note: Service conversions are subject to the Connection Charge in section 3.1.

Street Restoration

Street restoration costs are in addition to the above charges and will be assessed based on street paving type and condition. Charges will be based on a jobsite pre-installation inspection and in accordance with the requirements of the Seattle Department of Transportation's (SDOT) Street and Sidewalk Opening and Restoration Director's Rule 5-2009.

If the customer chooses to have street restoration work arranged by SPU, the fee for street restoration will be collected from the customer at the same time the fee for the new water service is collected. If the customer chooses a private contractor to perform the street restoration work, the customer must: (1) obtain SDOT approval of the contractor and the applicable SDOT permit; and (2) submit the SDOT permit number to SPU at the same time the customer submits payment to SPU for the new water service.

Street restoration costs for SPU water service work in Washington State Department of Transportation right-of-way, City of Burien, Skyway, City of Shoreline, City of Lake Forest Park and unincorporated King County are based on agreements with these cities or state agencies. Charge will be determined by jobsite pre-installation inspection by SPU and street restoration agreement with these jurisdictions.

3.2 SERVICE SIZE INCREASE

To increase service size of existing 2 inches and smaller service in the same location (within 30 inches of existing service) at customer request, applicable new service installation charge will be made (see section 3.1). No charge for meter removal or retirement will be made. Subject to limitations established by SPU Director or designee.

Exception: To renew and increase ½-inch or ¾-inch steel or plastic service to 1-inch copper service in same location (within 30 inches of existing service) at customer request: **$278**.

Size-increase request at a location exceeding 30 inches from existing service will also be subject to a new service installation charge (section 3.1) and service retirement charges (section 3.6) for the existing service.

Service size increases are subject to the Connection Charge and Street Restoration charges under section 3.1.

3.3 SERVICE SIZE REDUCTION (WITHIN 30 INCHES OF EXISTING SERVICE)

2 inches and under, when reduced to smaller size: **$308**

All other sizes: Site-specific cost

Service size decreases are subject to the Street Restoration charges under section 3.1.

3.4 METER TEST (AT REQUEST OF CUSTOMER)

Charge will be waived if tested meter is found to be over-registering.

Tests conducted at the meter shop:

- Meter shop test of 1 ½ inches and under **$378**
- Meter shop test of 2-inch meter..... **$399**
- 3-inch and larger meter **$544**

Field testing of 1-inch or smaller meters **$99**

Field testing retail-service meters
outside Seattle direct-service area..... **$608**

3.5 METER REMOVAL

- ¾- inch or 1-inch meter **$122**
- 1 ½ -inch and larger meter **$158**
- 3-inch and larger meter,
  time and materials, deposit **$800**
- Removal of illegal jumper..... **$88**

3.6 SERVICE RETIREMENT

Abandonment with or without meter removal. This charge also applies to a customer-requested service transfer from one abutting water main to another, not related to new water main construction:

- 1 inch and smaller: **$1,153**
- 1 ½ inch and 2 inches: **$1,229**
- 3 inches and larger..... **$5,007**

Additional service retirement charge for second trip due to contractor delay. When contractor needs continuous water service or some other condition requires SPU to return to job site to perform the retirement:

- 1 inch and smaller **$692**
- 1 ½ and 2 inches **$737**
- 3 inches and larger **$3,004**

Service retirements are subject to the Street Restoration charges under section 3.1.

Repaving happens after SPU visits the site. If a contractor repaves before this time additional costs incurred by SPU will be billed at Time and Materials.

3.7 METER RESET

For meter resets following customer-requested removals:

- ¾-inch meter **$220**
- 1-inch meter **$222**
- 1 ½ -inch meter **$462**
- 2-inch meter **$565**

For meter resets following credit-related removals:

- ¾-inch meter **$220**
- 1-inch meter **$222**
- 1 ½ -inch meter **$462**
- 2-inch meter **$565**

Install temporary service jumper:

- 2 inches and smaller: **$91**

Note: If reduction in size occurs at time of reset, then charge reduction fee only.

3.8 SPECIAL FIELD TRIPS

Investigating on-property loss of water:

- When loss of water is caused by actions taken on-property, the same charges apply as for meter turn-ons and shut-offs above.
- When investigating leaks on-property and it is found that the City water-service line is intact, the same charges apply as for meter turn-ons and shut-offs above.

Inspection services for re-inspection required because the requesting customer is not ready for inspection by deadline or stated date: **$262**.

Special meter read:

- For actual readings meters of all sizes ordered in connection with property ownership or occupancy changes **$98**
- For obstructed meter readings **$117**

- Adjust buried, obstructed or low meter boxes or valve boxes caused by customer installed landscaping or resurfacing (¾-inch to 2-inch meters) **$462**

Trim customer-installed vegetation obstructing meter boxes or fire hydrants: **$149**

Replace customer damaged lock: **$50**

3.9 STATEMENT OF COMBINED UTILITY ACCOUNT

Customer request for billing system screen-print statement of account activity for each 12-month period: **$7**

Customer request for formal statement of account activity, for each account number per 12-month period: **$54**

External utility request for water consumption information to be used for billing the retail services of that utility: **$2** per account for information covering any period of 12 months or less.

3.10 PROCESS RETURNED CHECK OR DRAFT

Includes checks returned for nonsufficient funds or other reasons which prevent processing: **$25**

3.11 CREDIT AND COLLECTION CHARGES

Meter shut-off or turn-on charge, including Fire Services. Charges are for each trip.

Meter size (inches)	Charges		
	Normal Hours	*Extended Hours*	*After Hours*
¾ to 2	**$144**	**$252**	**$530**
3 or larger	**$565**	**$670**	**$775**

- This charge may be suspended in special circumstances as determined by the Director of SPU or designee.
- No charge for the first trip for a credit-related turn-on during SPU normal business hours. Second and subsequent trips are subject to applicable standard charge above.

Late Payment Charge. Past due balances may be subject to a late payment charge that will include one or both of the following charges:

- Collection Notice Charge: **$10** for active account Urgent or Shutoff Notice, or closed account Final Notice.
- Delinquent Interest Charge: Monthly interest at the legal rate on past due balances.

Credit field visit: **$44**

3.12 DUPLICATE BILL PREPARATION

For all duplicate bills produced at customer request after original bill was produced: **$7**

3.13 DELAYED FINAL CUSTOMER BILLING

Customer request for final bill when notification is received more than 45 days after final bill date: **$39**.

3.14 ACQUISITION OF HYDRAULIC FLOW DATA

Where records are available for fire protection grading purposes: No charge.
SPU measures hydrant flow, flushes main, and prepares flow test report: **$1,599**

Contractor measures hydrant flow with SPU assistance, SPU flushes main and reviews flow test results prepared by contractor: **$841**

Performance of hydraulic analysis and report to determine best alternative to meet or exceed fire flow requirements: Time and materials with **$2,000** deposit.

Preparation of Hydraulic Modeling Simulation Report, when a flow test is not feasible, during a declared water emergency, or when a calibrated hydraulic model is available: **$326**

3.15 NONFIREFIGHTING HYDRANT USE PERMIT

Permit fee: **$176**

Charge for water use, if SPU determines water use will be less than 8,000 gallons per day:

- September 16 - May 15..... **$43** per day
- May 16 - September 15..... **$55** per day

Otherwise, a hydrant meter is required and commercial rates are charged.

During a declared water emergency, any hydrant permit users allowed to continue their permits will be charged at established surcharge commercial rate, if any.

Billing fee: **$51** for billing made by SPU for payment subsequent to hydrant permit use.

Hydrant valve and meter assembly: **$400** deposit for use of any SPU supplied hydrant equipment and material. Deposit refunded upon return of all equipment and material in same-as-issued condition. In the event of damaged equipment, SPU will keep a portion of the deposit equal to the cost of the damaged equipment, including overhead cost.

Installation and removal: **$103** each

Water use charged at the commercial rate or surcharge commercial rate if during a declared water emergency.

3.16 HYDRANT RESET

Set hydrant back or move closer to water main, where no re-tapping of main is required: **$7,367**, plus City or County permitting, plan review or inspection fees.

Plus, as required:

- Street Restoration charges under section 3.1.
- Pre and post-inspection: **$327** per job site
- Quick connect adapter: **$254**

3.17 HYDRANT RELOCATION

Remove existing hydrant and move to new location, new tap on main required: **$14,186**, plus City or County permitting, plan review or inspection fees.

Plus, as required:

- Street Restoration charges under section 3.1.
- Pre and post-inspection: $**327** per job site
- Quick connect adapter: **$254**

3.18 INSTALL NEW HYDRANT ON EXISTING WATER MAIN

Install new hydrant on existing water main: **$5,982**, plus City or County permitting, plan review or inspection fees.

Plus, as required:

- Street Restoration charges under section 3.1.
- Quick connect adapter: **$254**

3.19 INSTALL VERTICAL EXTENSION ON EXISTING HYDRANT

Install vertical extension on existing hydrant: **$2,098**, plus City or County permitting, plan review or inspection fees.

Plus, as required: Street Restoration charges under section 3.1.

3.20 CROSS-CONNECTION CONTROL PROGRAM

Charge for mailing reminder letters to customers who do not provide acceptable proof of satisfactory performance test of their backflow preventers within 30 days of receiving original notification, or to customers who have not installed backflow preventers as required: **$98** for each backflow preventer.

Hanging shut-off notices: **$141**

Shut-off and turn-on: Applicable standard charge for Special Field Trip as specified in section 3.8.

3.21 Access Along or Crossing Transmission Right-Of-Way

Gate opening:

- Minimum: **$167**
- Charge may be in excess of the minimum depending upon the circumstances of opening.

Third-party work on SPU property: Time and materials costs for City employees and equipment stationed to protect City property the pipeline during third-party work on SPU Property shall be charged as per section 5.10.

3.22 Additional Services

Relocation of meter and box
Limited to a lateral move of 30 inches, deposit amount to be determined upon order: Billed at site-specific cost.

Service damage
For repair of damaged curb stop or meter setter, tailrun, etc.: Billed at site-specific cost.

Water main cut and cap
For cut, cap and block of existing water main: Billed at site-specific cost.

Design and/or Install Pressure Reducer

- SPU design, time-and-materials, deposit: **$8,200**
- Installation by SPU, time-and-materials - deposit:
  - 4 inches PR (2 inches Bypass) **$31,000**
  - 6 inches PR (2 inches Bypass) **$33,000**
  - 8 inches PR (4 inches Bypass) **$41,000**
- The deposit amounts listed above are the expected project costs, and do not include the cost of street repair. Street repair costs will be borne by the developer.

Work Outside Normal Business Hours
All work performed outside of SPU normal business hours due to customer request, or due to customer water supply concerns, will be charged at an overtime rate.

SDOT Right-Of-Way
When any work is to be performed in a SDOT right-of-way which necessitates a Letter of Justification: **$600** deposit required for application to SDOT by SPU.

Installation Plans
Water meter and fire hydrant installation plans may be prepared by SPU at the developer's expense. The cost to prepare the plans depends primarily on the availability of as-built information and the number and complexity of the existing utilities. An advance deposit of **$360** is required from the customer before design work begins.

4. DEVELOPER PROJECTS

Note: Charges paid more than 12 months in advance of work performed will be recharged at current year's rate.

4.1 WATER MAIN CONNECTION

For cut-in tee connection to charged water mains, SPU furnishes sleeve(s) to connect new tee into existing main. For wet tap connection, SPU furnishes tapping sleeve and tapping valve. Contractor furnishes all other materials, tees, valves, valve boxes and lids, fittings, sleeves, excavation, backfill, compaction and restoration. SPU performs shutdown and draining of existing mains, connection of new main, and restoration of service: **$3,829** per connection.

4.2 WATER QUALITY INSPECTION, SAMPLE COLLECTION AND BACTERIOLOGICAL TESTING

- **$838** for first 500 feet of water main
- **$591** for each additional 500 feet thereafter

4.3 DESIGN REVIEW, PLAN APPROVAL, ADMINISTRATION AND ACCEPTANCE OF MAIN

- **$1,577** per water main project

4.4 CONSTRUCTION INSPECTION

Rate includes travel to and from job site:

- 0 to 350 lineal feet..... **$6,308**
- 351 to 700 lineal feet..... **$7,780**
- 701 to 1,050 lineal feet..... **$11,354**
- Over 1,050 lineal feet requires Special Estimate: time and materials

Time and materials will be charged for re-inspection caused by contractor.

4.5 COMPACTION TESTS

Required when contractor uses native or imported backfill instead of control density fill

- Field in-place density test per ASTM D 2922..... **$139**
- Maximum dry density per ASTM D 698 ..... **$182**

4.6 NEW SERVICE INSTALLATION (DEVELOPER)

Standard charges will be reduced for new service installation in conjunction with developer installed water mains. None of the discounts for nondeveloper service installations listed in section 3 apply to the developer fees listed below.

The following conditions must be met:

- Property is within the direct service area of Seattle's water utility
  AND EITHER:
- Developer is installing a water main to serve the property
  OR

- During peak work load conditions, the Department authorizes the developer to open trench, shore, backfill, and complete all street/sidewalk paving restoration.

Note: If above conditions are not satisfactorily met, developer will pay SPU on a time and materials basis for completion of work.

Charges for new service installations meeting the conditions above are:

Domestic Services

Size (in.)	Installation Fee	
	Residential	*Arterial*
¾	**$1,932**	**$2,276**
1	**$2,018**	**$2,362**
1 ½	**$4,389**	**$4,926**
2	**$4,745**	**$5,498**
3	Cost*	Cost*
4	Cost*	Cost*
6	Cost*	Cost*

* All services 3 inches and larger will be based on a site-specific cost.

Fire Services

Size (in.)	Installation Fee	
	Residential	*Arterial*
2	**$6,667**	**$9,549**
4	Cost*	Cost*
6	Cost*	Cost*
8	Cost*	Cost*

* All services 3 inches and larger will be based on a site-specific cost.

Arterial streets include every street, or portion thereof, designated as such in Exhibit 11.18.010 of the Seattle Municipal Code.

If new service is being installed with developer water main, see section 5.

Any service request deemed by SPU to be nonstandard will be based on a site-specific cost.

Combination Fire/Domestic Services

- Combination fire/domestic services are available in 4-inch, 6-inch and 8-inch sizes. These services require approval from the SPU Director or designee.
- All combination fire/domestic services will be based on a site-specific cost.

Legislation for an easement granted to the City of Seattle for infrastructure to be owned by SPU but installed by a developer, see section 5.6.

5. PROPERTY SERVICES

SPU must charge for any administrative costs it incurs as a result of processing applications or requests for the use of SPU's property, or the purchase of SPU's property or property rights (such as an easement). These costs can be charged in the form of a "Standard Charge" or "Time and Material" as established by section 5 herein.

In addition to administrative costs SPU must receive "Fair Market Value" for any property sold, easements granted, other permanent or temporary property rights granted, or the use of SPU Property. Fair Market Value can include the value of any real and substantive benefit to SPU (Mutual and Offsetting Benefits).

Unless otherwise provided by Ordinance, no permit shall be issued that would extend for more than a year. Otherwise, all permits must be revocable.

Due to the variables inherent to real property transactions, administrative costs, legislative costs, and Use Fees established by section 5 may not always accurately apply. In such cases, charges may be adjusted to reflect the actual situation.

Leasehold Excise Tax is required on all permits and leases as required by RCW 82.29A, and RCW 82.29A.130.

All charges established by City of Seattle ordinance or regulations take precedence over all charges established by section 5 herein.

5.1 TIME AND MATERIAL CHARGES

If SPU determines that a Standard Charge established by section 5 is expected to be inadequate to cover SPU's administration costs arising from any application or request, an estimate of the expected Time and Material cost will be determined by SPU. The applicant or requester shall pay the estimated amount, which shall be deposited in a SPU Guaranteed Deposit Account, and billed periodically. If actual Time and Material costs are less than the deposit, the balance shall be refunded; if the actual costs exceed the deposit, the balance owing will be charged to the applicant.

If mutually agreed between SPU and the applicant or requester, the estimated amount may be paid up-front as payment in full, and no accounting of Time and Materials will be kept.

At SPU's discretion, a deposit will not be required for governmental or public entities such as state, county or municipal governments, or public utilities, provided that such entity has entered into an agreement with SPU to pay accrued charges on a periodic basis.

5.2 STANDARD CHARGES FOR USE PERMIT APPLICATION

The following fees are nonrefundable:

- **$1,745** is the Standard Charge for a permit application, when administration costs are expected to require up to 16 hours of SPU time. Generally, this charge applies for simple Utility Crossings, Linear Use, and Surface Use of SPU

Property. If more than 16 hours are expected to be required, Time and Material costs may be charged.

- **$340** is the Standard Charge for the first-time preparation of a Special Short-Term Surface Use Permit. **$110** will be the Standard Charge for each renewal of the permit. In addition, the Permittee is required to pay the appropriate gate opening fees, the Special Short-term Surface Use Fee of **$50** a day for the use of SPU's property, and provide proof of insurance as required by SPU. A single permit may be issued for recurring use up to 30 days per year.
- **$570** is the Standard Charge for Permittee name change with no change in use. Permit Terms and Conditions, and Use Fee, may be updated.

5.3 USE FEES

In addition to the Standard Charge for Use Permit Application Fee under section 5.4, herein, Use Fees for the use of SPU property for permits and leases to be granted shall be established at "Fair Market Value" unless a specific rate is provided below:

Utility Crossings

There is no use fee for utility crossings of SPU fee-owned right of way.

General Surface Use

- There are Use Fees for Surface Use of SPU fee-owned property. Typically this use is for parking in SPU right of way used by adjacent property owners, but, can include other uses such as construction staging, job shacks, etc.
- The Annual Use Fee for all for-profit Permittees shall be no less than **$1,000**, even if the estimated "Fair Market Value" for the use of the SPU fee-owned property is less.

Special Short-term Surface Use

$50 per day. Typically this use is for short term parking for community sponsored and non-profit events that are compatible with utility use, but is not limited to parking.

Linear Use of Property

There are Use Fee's for Linear Use of SPU fee-owned property, typically utility use of the surface, underground, or overhead. Linear Use Fees are currently under review. Until such time as the fees are officially changed, unless established otherwise by an existing permit, the following fees apply:

- **$500** Annual Use Fee for each communication related conduit, cable, or wire, plus 25 cents for each conduit, cable, or wire for each linear foot over 1,000 feet. This fee applies to cable, conduit, or wire of no more than 4 inches in diameter. This fee will be increased proportionately for larger sizes or more impactful installations.
- **$500** Annual Use Fee for each distribution or service related utility facilities, such as water, sewer, drainage, and gas, plus 25 cents for each conduit or cable, for each linear foot over 1,000 feet. This fee applies to facilities of no more than 4 inches in diameter. The fee for transmission facilities and facilities of more than 4 inches in diameter shall be determined on a case by case basis.
- When issuing new permits, there is a **$250** Annual Use Fee for each hand hole, vault or other above or below ground structure measuring less than 2 feet in width, height and depth. The Annual Use Fee for each hand hole, vault or other

below- or above-ground structure measuring over 2 feet in height, width or depth shall be determined on a case-by-case basis. An Annual Use Fee may be instituted for each hand hole, vault or other below- or above-ground structure that is discovered to exist within SPU property and was not included in approved plans submitted at the time of application of the permit.

Utility Use in SPU Tunnels

Use fees are currently under review, and could be changed at any time. Until such time as the fees are officially changed, unless established otherwise by an existing permit, the following annual fees apply.

- **$767** for each communications related conduit or inner duct under 2 inches diameter.
- **$1,534** for each communications related conduit between 2 to 3 inches diameter.
- **$2,300** for each communications related conduit (which can contain inner duct) 3-plus inches diameter up to 48 square inches in cross sectional area of the cable or conduit.
- The Annual Use Fee for non-communications related facilities, such shall usually be at the same rates as the communication facilities. However, the fee may be determined on a case by case basis.
- Any facilities of more than 48-square inches in cross sectional area may be determined on a case by case basis.

5.4 PREPARATION OF LEGISLATION

The following fee is nonrefundable.

$3,807 is the Standard Charge for the administrative cost for any legislation required due to the requests or actions of any person or entity, other than SPU. This charge is based on the requirement that the applicant and or requester provide all necessary information, such as acceptable proof of ownership, signatory authority, and an adequate survey and legal description. If, due to the applicant or requester's actions, SPU staff time significantly exceeds the cost of the Standard Charge, the applicant and or requester may be charged for additional SPU Time and Material costs.

Legislation is required when SPU buys or sells property, grants or acquires easements or any other property rights, grants permits, rental agreements or leases for more than one (1) year in duration.

Legislation is required for Partial or Full Transfers of Jurisdiction between City Departments.

5.5 REAL PROPERTY REVIEW OF STREET VACATION APPLICATIONS

No charge if SPU infrastructure is not located within the proposed vacation area.

Time and Materials shall be charged to the applicant or requester for SPU costs when either there is SPU infrastructure in the street vacation area, or the street vacation will impact other SPU infrastructure.

All reservations of rights for SPU infrastructure shall be subject to all other applicable costs and fees including, but not limited to legislation costs.

5.6 Surplus, Sale or Exchange of SPU Fee-Owned Property

Time and Materials and legislative costs shall be charged, as per section 5.1, for SPU costs in conjunction with the sale or exchange of SPU property, when initiated by an outside entity. These costs may include, but are not limited to: SPU staff time, title, appraisal, survey, document preparation, closing and recording. If actual costs are less than the deposit, the balance shall be refunded; if the actual costs exceed the deposit, the balance will be charged to the applicant.

Time and Materials and legislative costs generally are not charged when SPU initiates a sale of surplus property.

In addition to these charges, SPU must receive Fair Market Value for its property.

5.7 Encroachments

Encroachments are unauthorized use of SPU fee-owned property or easement rights. Types of encroachments and the impact to SPU property rights vary greatly. Therefore, the Time and Material and Use Fees to resolve encroachments shall be determined on a case-by-case basis.

5.8 Minor Projects and Access to SPU Properties

Gate opening fees according to section 3.21.

$125 per hour with a one hour minimum charge for entry to SPU facilities when a security specialist is required for access and/or to stay with non-SPU personnel while on SPU property.

$80 to **$125** per hour will be charged (hourly rates will vary) for entry to SPU facilities when SPU personnel are required for access and/or to stay with non SPU personnel while on SPU property. The rate will include overtime when applicable. When overtime is applicable, a minimum of 4 hours overtime will be charged. Travel time will also be charged.

$125 may be charged if a Site Security Plan provided by SPU Security is required.

6. LABORATORY ANALYSIS

All laboratory analyses will be conducted at the discretion of the Water Quality Laboratory Manager and on the basis of time availability. Prices reflect the cost for routine analyses with standard reporting and turnaround times. The price for analyses not included in this list will be based on the cost for labor, equipment, material and overhead, as determined by the Water Quality Laboratory Manager. If available and mutually agreeable, analyses may be available on a call-out basis at double the charges listed.

6.1 BACTERIOLOGICAL ANALYSIS — PER ANALYSIS

Total Coliform (MF)	**$25**
Total Coliform (MPN)	**$21**
Total Coliform/E. Coli (MMO/MUG; P/A)	**$17**
Coliform verification; including Fecal Coliform/E. Coli (EC/MUG)*	**$26**
Fecal Coliform (MF)	**$25**
Fecal Strep (MF)	**$21**
Enteric culture identification (API)	**$99**
Heterotropic plate count	**$26**
Pseudomnonas (MF)	**$25**
Biolog	**$145**
Sample prep for non-drinking water (filter/dilutions)	**$13**

* This test is performed on drinking water samples that test positive for Total Coliform by the membrane filtration method. It is used to verify the presence of Total Coliform and simultaneously test for Fecal Coliform and E. Coli.

6.2 CHEMICAL ANALYSIS — PER ANALYSIS

Metals/Inorganics

Metals by Flame AA and Flame Emission Screen	**$19** per element
Batch of 8 to 19	**$39** per element
Batch of 20 or more	**$22** per element
Metals by Graphite Furnace AA	
Batch of 1 to 19~	**$43** per element
Batch of 20 or more	**$29** per element
Digestion for non-drinking water samples	**$25** per sample
ICPMS 21 element screen♦	**$237** per sample
ICPMS (less than 20 samples, 3 to 7 elements/sample	**$23** per element
ICPMS (20 or more samples for 3 to 7 elements or 10 or more samples for 8 or more elements)	**$16** per element
Metals Filtration	**$23** per sample

~ If two or more metals can be analyzed simultaneously, then 10 samples of two metals qualify for volume discount.

♦ ICPMS screen includes: Al, Ag, As, Ba, Be, Cd, Co, Cr, Cu, Fe, Hg, K, Mn, Na, Ni, Pb, Sb, Se, Sn, Tl, Zn

Titrations

Total Alkalinity ..... **$21** per sample
Batch of 10 or more ..... **$16** per sample
Calcium or Hardness, edta ..... **$24** per sample
Batch of 10 or more ..... **$18** per sample

Organics

Total Trihalomethanes (TTHMs) **$96**
Total Organic Carbon (TOC) **$29**
Haloacetic Acids (HAAs) **$140**
Dissolved Organic Carbon (DOC) **$39**
DBP Formation/Simulate, Distribution System (prep only) **$83**

Nutrients

Total Nitrogen **$25**
Total Phosphorus **$25**
Nitrate-Nitrite **$25**
Soluble Reactive Phosphorus **$24**

Other Procedures

Color **$9**
Copper (comparitor, colorimetric) **$11**
Fluoride (potentiemetric) **$15**
Iron (colorimetric comparitor) **$11**
pH, potentimetric **$15**
Specific conductance **$11**
Turbidity **$9**
Chlorine Residual, colorimetric **$11**
Chlorine Demand
Single contact time at the requested temperature, pH, and Cl2 dosage **$103**
For each additional contact time, temperature, pH or Cl2 dosage on the same water source. **$35**
Seepage (minimum or sum of parameters tested) **$58**
UVA (254-545) **$14**
SOC-VOC Screen **$166**
VOC Screen **$134**
Nitrate-Nitrite Screen and UVA **$28**
Solids, Total Suspended **$30**
Solids, Total Dissolved **$30**

SEATTLE PUBLIC UTILITIES
2012-2014 WATER RATES

Effective January 1, 2012

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)
	Direct Service												Wholesale
RATE SCHEDULES	Inside City				Outside City				City of Shoreline / City of Lake Forest Park				Full and
	Residential	MMRD*	Gen Svc	Fire Service	Residential	MMRD*	Gen Svc	Fire Service	Residential	MMRD*	Gen Svc	Fire Service	Partial
Commodity Charge ($/100 Cubic Feet)													
Offpeak Usage (Sept 16-May 15)	$4.04	$4.04	$4.04		$4.61	$4.61	$4.61		$4.90	$4.90	$4.90		$1.52
Peak Usage (May 16-Sept 15)													
Up to 5 ccf**	$4.34	$4.34	$5.15		$4.95	$4.95	$5.87		$5.26	$5.26	$6.25		$2.26
Next 13 ccf**	$5.15	$5.15	$5.15		$5.87	$5.87	$5.87		$6.25	$6.25	$6.25		$2.26
Over 18 ccf**	$11.80	$11.80	$5.15		$13.45	$13.45	$5.87		$14.31	$14.31	$6.25		$2.26
Usage over base allowance				$20.00				$22.80				$24.30	
Utility Credit ($/month)	$16.97		$10.14		$16.97		$10.14		$16.97		$10.14		
Demand Charge ($/1000 gallons of deficient storage)													$22.00
Base Service Charge ($/month/meter)													New Srvc Fee (One Time)
3/4 inch and less	$13.25		$13.25		$15.10		$15.10		$16.05		$16.05		$783
1 inch	$13.65		$13.65		$15.55		$15.55		$16.55		$16.55		$1,566
1-1/2 inch	$21.05	$21.05	$21.05		$24.00	$24.00	$24.00		$25.55	$25.55	$25.55		$3,915
2 inch	$23.35	$23.35	$23.35	$15.40	$26.60	$26.60	$26.60	$18.00	$28.30	$28.30	$28.30	$19.00	$6,264
3 inch	$86.35	$86.35	$86.35	$20.00	$98.45	$98.45	$98.45	$23.00	$104.70	$104.70	$104.70	$24.00	$17,226
4 inch	$123.75	$123.75	$123.75	$37.00	$141.10	$141.10	$141.10	$42.00	$150.10	$150.10	$150.10	$45.00	$24,273
6 inch		$152.30	$152.30	$63.00		$173.60	$173.60	$72.00		$184.70	$184.70	$76.00	$51,678
8 inch		$199.00	$199.00	$100.00		$227.00	$227.00	$114.00		$241.00	$241.00	$121.00	$87,696
10 inch		$297.00	$297.00	$144.00		$339.00	$339.00	$164.00		$360.00	$360.00	$175.00	$132,327
12 inch		$402.00	$402.00	$210.00		$458.00	$458.00	$239.00		$488.00	$488.00	$255.00	$186,354
16 inch		$477.00	$477.00			$544.00	$544.00			$579.00	$579.00		$186,354
20 inch		$614.00	$614.00			$700.00	$700.00			$745.00	$745.00		$186,354
24 inch		$771.00	$771.00			$879.00	$879.00			$935.00	$935.00		$186,354

Effective January 1, 2013

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)
	Direct Service												Wholesale
RATE SCHEDULES	Inside City				Outside City				City of Shoreline / City of Lake Forest Park				Full and Partial
	Residential	MMRD*	Gen Svc	Fire Service	Residential	MMRD*	Gen Svc	Fire Service	Residential	MMRD*	Gen Svc	Fire Service	
Commodity Charge ($/100 Cubic Feet)													
Offpeak Usage (Sept 16-May 15)	$4.50	$4.50	$4.50		$5.13	$5.13	$5.13		$5.46	$5.46	$5.46		$1.53
Peak Usage (May 16-Sept 15)													
Up to 5 ccf**	$4.73	$4.73	$5.72		$5.39	$5.39	$6.52		$5.74	$5.74	$6.94		$2.26
Next 13 ccf**	$5.72	$5.72	$5.72		$6.52	$6.52	$6.52		$6.94	$6.94	$6.94		$2.26
Over 18 ccf**	$11.80	$11.80	$5.72		$13.45	$13.45	$6.52		$14.31	$14.31	$6.94		$2.26
Usage over base allowance				$20.00				$22.80				$24.30	
Utility Credit ($/month)	$18.19		$11.22		$18.19		$11.22		$18.19		$11.22		
Demand Charge ($/1000 gallons of deficient storage)													$22.00
Base Service Charge ($/month/meter)													New Srvc Fee (One Time)
3/4 inch and less	$13.50		$13.50		$15.40		$15.40		$16.35		$16.35		$783
1 inch	$13.90		$13.90		$15.85		$15.85		$16.85		$16.85		$1,566
1-1/2 inch	$21.45	$21.45	$21.45		$24.45	$24.45	$24.45		$26.00	$26.00	$26.00		$3,915
2 inch	$23.75	$23.75	$23.75	$15.40	$27.10	$27.10	$27.10	$18.00	$28.80	$28.80	$28.80	$19.00	$6,264
3 inch	$88.00	$88.00	$88.00	$20.00	$100.30	$100.30	$100.30	$23.00	$106.70	$106.70	$106.70	$24.00	$17,226
4 inch	$126.10	$126.10	$126.10	$37.00	$143.75	$143.75	$143.75	$42.00	$152.95	$152.95	$152.95	$45.00	$24,273
6 inch		$155.15	$155.15	$63.00		$176.85	$176.85	$72.00		$188.15	$188.15	$76.00	$51,678
8 inch		$199.00	$199.00	$100.00		$227.00	$227.00	$114.00		$241.00	$241.00	$121.00	$87,696
10 inch		$297.00	$297.00	$144.00		$339.00	$339.00	$164.00		$360.00	$360.00	$175.00	$132,327
12 inch		$402.00	$402.00	$210.00		$458.00	$458.00	$239.00		$488.00	$488.00	$255.00	$186,354
16 inch		$477.00	$477.00			$544.00	$544.00			$579.00	$579.00		$186,354
20 inch		$614.00	$614.00			$700.00	$700.00			$745.00	$745.00		$186,354
24 inch		$771.00	$771.00			$879.00	$879.00			$935.00	$935.00		$186,354

Effective January 1, 2014

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)
	Direct Service												Wholesale
RATE SCHEDULES	Inside City				Outside City				City of Shoreline / City of Lake Forest Park				Full and
	Residential	MMRD*	Gen Svc	Fire Service	Residential	MMRD*	Gen Svc	Fire Service	Residential	MMRD*	Gen Svc	Fire Service	Partial
Commodity Charge ($/100 Cubic Feet)													
Offpeak Usage (Sept 16-May 15)	$4.99	$4.99	$4.99		$5.69	$5.69	$5.69		$6.05	$6.05	$6.05		$1.53
Peak Usage (May 16-Sept 15)													
Up to 5 ccf**	$5.13	$5.13	$6.34		$5.85	$5.85	$7.23		$6.22	$6.22	$7.69		$2.27
Next 13 ccf**	$6.34	$6.34	$6.34		$7.23	$7.23	$7.23		$7.69	$7.69	$7.69		$2.27
Over 18 ccf**	$11.80	$11.80	$6.34		$13.45	$13.45	$7.23		$14.31	$14.31	$7.69		$2.27
Usage over base allowance				$20.00				$22.80				$24.30	
Utility Credit ($/month)	$19.46		$12.38		$19.46		$12.38		$19.46		$12.38		
Demand Charge ($/1000 gallons of deficient storage)													$22.00
Base Service Charge ($/month/meter)													New Srvc Fee (One Time)
3/4 inch and less	$13.75		$13.75		$15.70		$15.70		$16.70		$16.70		$783
1 inch	$14.20		$14.20		$16.20		$16.20		$17.20		$17.20		$1,566
1-1/2 inch	$21.85	$21.85	$21.85		$24.90	$24.90	$24.90		$26.50	$26.50	$26.50		$3,915
2 inch	$24.20	$24.20	$24.20	$15.40	$27.60	$27.60	$27.60	$18.00	$29.35	$29.35	$29.35	$19.00	$6,264
3 inch	$89.65	$89.65	$89.65	$20.00	$102.20	$102.20	$102.20	$23.00	$108.70	$108.70	$108.70	$24.00	$17,226
4 inch	$128.45	$128.45	$128.45	$37.00	$146.45	$146.45	$146.45	$42.00	$155.80	$155.80	$155.80	$45.00	$24,273
6 inch		$158.05	$158.05	$63.00		$180.20	$180.20	$72.00		$191.70	$191.70	$76.00	$51,678
8 inch		$199.00	$199.00	$100.00		$227.00	$227.00	$114.00		$241.00	$241.00	$121.00	$87,696
10 inch		$297.00	$297.00	$144.00		$339.00	$339.00	$164.00		$360.00	$360.00	$175.00	$132,327
12 inch		$402.00	$402.00	$210.00		$458.00	$458.00	$239.00		$488.00	$488.00	$255.00	$186,354
16 inch		$477.00	$477.00			$544.00	$544.00			$579.00	$579.00		$186,354
20 inch		$614.00	$614.00			$700.00	$700.00			$745.00	$745.00		$186,354
24 inch		$771.00	$771.00			$879.00	$879.00			$935.00	$935.00		$186,354

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