

Methodology Report

Water System Development Charges

Prepared For



May 7, 2018



Introduction

Oregon legislation establishes guidelines for the calculation of system development charges (SDCs). Within these guidelines, local governments have latitude in selecting technical approaches and establishing policies related to the development and administration of SDCs. A discussion of key aspects of this legislation follows.

SDC Legislation in Oregon

In the 1989 Oregon state legislative session, a bill was passed that created a uniform framework for the imposition of SDCs statewide. This legislation (Oregon Revised Statute [ORS] 223.297-223.314), which became effective on July 1, 1991, (with subsequent amendments), authorizes local governments to assess SDCs for the following types of capital improvements:

- Drainage and flood control
- Water supply, treatment, and distribution
- Wastewater collection, transmission, treatment, and disposal
- Transportation
- Parks and recreation

The legislation provides guidelines on the calculation and modification of SDCs, accounting requirements to track SDC revenues, and the adoption of administrative review procedures.

SDC Structure

SDCs can be developed around two concepts: (1) a reimbursement fee, and (2) an improvement fee, or a combination of the two. The **reimbursement fee** is based on the costs of capital improvements *already constructed or under construction*. The legislation requires the reimbursement fee to be established or modified by an ordinance or resolution setting forth the methodology used to calculate the charge. This methodology must consider the cost of existing facilities, prior contributions by existing users, gifts or grants from federal or state government or private persons, the value of unused capacity available for future system users, rate-making principles employed to finance the capital improvements, and other relevant factors. The objective of the methodology must be that future system users contribute no more than an equitable share of the capital costs of *existing* facilities. Reimbursement fee revenues are restricted only to capital expenditures for the specific system with which they are assessed, including debt service.

The methodology for establishing or modifying an **improvement fee** must be specified in an ordinance or resolution that demonstrates consideration of the projected costs of capital improvements identified in an adopted plan and list, that are needed to increase capacity in the system to meet the demands of new development. Revenues generated through improvement fees are dedicated to capacity-increasing capital improvements or the repayment of debt on such improvements. An increase in capacity is established if an

improvement increases the level of service provided by existing facilities or provides new facilities.

In many systems, growth needs will be met through a combination of existing available capacity and future capacity-enhancing improvements. Therefore, the law provides for a **combined fee** (reimbursement plus improvement component). However, when such a fee is developed, the methodology must demonstrate that the charge is not based on providing the same system capacity.

Credits

The legislation requires that a credit be provided against the improvement fee for the construction of “qualified public improvements.” Qualified public improvements are improvements that are required as a condition of development approval, identified in the system’s capital improvement program, and either (1) not located on or contiguous to the property being developed, or (2) located in whole or in part, on or contiguous to, property that is the subject of development approval and required to be built larger or with greater capacity than is necessary for the particular development project to which the improvement fee is related.

Update and Review

The methodology for establishing or modifying improvement or reimbursement fees shall be available for public inspection. The local government must maintain a list of persons who have made a written request for notification prior to the adoption or amendment of such fees. The legislation includes provisions regarding notification of hearings and filing for reviews. The notification requirements for changes to the fees that represent a modification to the methodology are 90-day written notice prior to first public hearing, with the SDC methodology available for review 60 days prior to public hearing.

Other Provisions

Other provisions of the legislation require:

- Preparation of a capital improvement program (CIP) or comparable plan (prior to the establishment of a SDC), that includes a list of the improvements that the jurisdiction intends to fund with improvement fee revenues and the estimated timing, cost, and eligible portion of each improvement.
- Deposit of SDC revenues into dedicated accounts and annual accounting of revenues and expenditures, including a list of the amount spent on each project funded, in whole or in part, by SDC revenues.
- Creation of an administrative appeals procedure, in accordance with the legislation, whereby a citizen or other interested party may challenge an expenditure of SDC revenues.

The provisions of the legislation are invalidated if they are construed to impair the local government’s bond obligations or the ability of the local government to issue new bonds or other financing.

Water SDC Methodology

This section presents the updated water system development charge (SDC) methodology, and calculations based on the City’s recently updated Water System Master Plan (Master Plan). The general methodology begins with an analysis of system planning and design criteria to determine growth’s capacity needs, and how they will be met through existing system available capacity and capacity expansion. Then, the existing and future facilities needed to serve growth over the planning period are valued to determine the “cost basis” for the SDCs. The cost basis is then spread over the total growth capacity to determine the system wide unit costs of capacity. The final step is to determine the SDC schedule, which identifies how different developments will be charged, based on their estimated capacity requirements.

Determine Capacity Needs

Table 1 shows the relevant planning assumptions for the water system through 2037 and buildout. Capacity requirements are generally evaluated based on the following system design criteria:

- Maximum Day Demand (MDD) -- The highest daily recorded rate of water production in a year. Used for allocating source, pumping and delivery facilities.
- Storage Requirements – Stored water capacity used for operational (or equalization) and emergency and fire protection needs. Used for allocating storage facility costs.

Table 1
City of Woodburn
Water System Development Charge Analysis
Capacity Requirements

	MDD (mgd)	Storage (mg)
Current	4.6	3.8
Future - 20 Year (2037)	6.1	4.7
Future – Buildout	7.2	na
<i>Growth - 20 Year (2037)</i>	<i>1.5</i>	<i>0.9</i>
<i>Growth - Buildout</i>	<i>2.6</i>	<i>na</i>
Growth % - 20 year (2037)	25%	19%
Growth % - Buildout	36%	na

Source: Water System Master Plan

As shown in Table 1, system MDD is currently about 4.6 million gallons per day (mgd). Future MDD is projected to be about 6.1 mgd over the 20-year period. Storage requirements are 3.8 million gallons (mg) currently, and are projected to increase to 4.7 mg over the planning period. As pipelines are generally sized for buildout conditions, the

projected MDD at buildout (7.2 mgd) is also provided in Table 1. As a percent of total future MDD, growth represents 25 percent at 2037, and 36 percent at buildout.

Develop Cost Basis

The capacity needed to serve new development will be met through a combination of existing available system capacity and additional capacity from planned system improvements. As discussed in Section 1, the reimbursement fee is intended to recover the costs associated with the growth-related capacity in the existing system; the improvement fee is based on the costs of capacity-increasing future improvements needed to meet the demands of growth. The value of capacity needed to serve growth in aggregate within the planning period is referred to as the “cost basis”.

Reimbursement Fee

Table 2 shows the reimbursement fee cost basis calculations based on the acquisition cost of existing facilities, as provided by the City.

Table 2
City of Woodburn
Reimbursement Fee Cost Basis

	Total	Growth Share	
	Value	%	\$
Wells	\$1,659,204	0%	-
Treatment	\$2,345,962	18%	\$423,969
Pumping	\$0	0%	\$0
Storage	\$427,080	19%	\$82,131
Distribution - Water Mains	\$12,973,461	36%	\$4,684,861
General	\$760,926	36%	\$274,779
Total	\$18,166,633		\$5,465,740

The growth share reflects the following considerations with respect to capacity available to growth:

- Production capacity at existing wells is projected to decline over the planning period, such that future operational capacity of existing facilities may approximate existing requirements. Future well capacity is needed to meet growth requirements, so existing well value is excluded from the reimbursement fee.
- Similarly, current system-wide pumping capacity is not sufficient to meet total existing needs, so the costs of these facilities is also excluded.
- The system-wide treatment facilities have a total capacity of about 8.3 mgd which is sufficient to serve existing customers and projected growth beyond the 20-year planning period. The reimbursement fee cost basis includes 18 percent of treatment facility costs, which represents the 20-year growth need of 1.5 mgd (MDD) divided by the 8.3 mgd capacity.

- Storage facilities are projected to meet the needs of existing and future development through 2037; the growth share (19 percent) is based on the growth storage requirement of 0.9 mg divided by total future 2037 requirement of 4.7 mg.
- Pipelines are generally sized for buildout conditions, so the reimbursement cost basis for distribution (36 percent) is equal to the projected growth in MDD through buildout (2.6 mgd) divided by the total future MDD (7.2 mgd).
- General facility costs are allocated to growth in proportion to buildout MDD (36 percent)

As show in Table 2, of the total asset value of \$18.2 million, approximately \$5.5 million is associated with meeting the capacity requirements of future development, and therefore included in the reimbursement fee cost basis.

Improvement Fee

Table 3 shows the improvement fee cost basis calculations. As discussed previously, the well capacity requirements for growth are assumed to be met entirely by new wells. Rehabilitation of existing wells is assumed to preserve capacity for existing development. Well 7 provides emergency supply and redundancy in the system for existing and future growth, so is allocated in proportion to MDD over the 20-year planning period.

Pumping costs are almost entirely related to future growth needs, with the exception of a small portion of the Parr Rd. improvements which will remedy the existing pumping deficiency. Storage improvement costs are excluded from the improvement fee cost basis as the improvements relate to replacement and rehabilitation of existing capacity, as opposed to providing for additional capacity.

Transmission and distribution system improvements include about \$1.5 million of new pipelines needed entirely for serving growth areas, as well as upsizing of pipelines to provide fire flow needs for both existing and future development. Both fire flow-related improvements and replacement of transmission main capacity is allocated to future growth in proportion to buildout MDD.

As shown in Table 3, the improvement fee cost basis is about \$8.5 million, or 51 percent of the total CIP.

Table 3

City of Woodburn
 Water System Development Charge
 Capital Improvement Plan (SDC Project List)

PROJECT	Time Period	Master Plan Cost	SDC Portion	
			%	\$
Water Supply				
Well rehabilitation	Annual	\$600,000	0%	\$0
New wells	2019, 20-year	\$2,600,000	100%	\$2,600,000
Hydrogeological Study	2019	\$100,000	100%	\$100,000
Well 7 Improvements	20-year	\$1,000,000	25%	\$245,902
Subtotal		\$4,300,000		\$2,945,902
Pumping				
Parr Rd 3rd Booster Pump & SCADA	2023	\$175,000	99%	\$172,499
National Way 3rd Booster Pump	20-year	\$150,000	100%	\$150,000
Subtotal		\$325,000		\$322,499
Storage				
Coating Elevated	2019	\$400,000	0%	\$0
Altitude Valve Replacement - Elevated	2025	\$80,000	0%	\$0
Subtotal		\$480,000		\$0
Transmission & Distribution				
Transmission Replacement	2027	\$3,484,000	36.1%	\$1,258,111
SWIR system extension*	2021	\$1,200,000	100.0%	\$1,200,000
OR-99 E network connections	20-year	\$367,000	100.0%	\$367,000
Fire flow improvements	Annual	\$6,673,000	36.1%	\$2,409,694
Subtotal		\$11,724,000		\$5,234,806
Total		\$16,829,000	51%	\$8,503,206
*Excludes estimated developer funded cost portion				

Develop Unit Costs

The unit costs of capacity are determined by dividing the respective cost bases by the growth capacity requirements presented in Table 1. Transmission and distribution facilities are spread over growth capacity needs through buildout, while other facilities reflect the 20-year growth increment. The system-wide unit costs are multiplied by the capacity requirements per equivalent dwelling unit (EDU) to yield the fees per EDU. Table 4 shows these calculations.

Table 4

City of Woodburn

Water System Development Charge

Unit Cost Calculations

	System Component			Total
	Water Supply	Storage	Transmission & Distribution & General	
Cost Basis				
Reimbursement	\$423,969	\$82,131	\$4,959,640	\$5,465,740
Improvement	\$3,268,400		\$5,234,806	\$8,503,206
Growth units (gpd)	1,500,000	900,000	2,600,000	
Unit cost (\$/gpd)				
Reimbursement	\$0.28	\$0.09	\$1.91	
Improvement	\$2.18	\$0.00	\$2.01	
Capacity per EDU	567	466	567	
Reimbursement Fee	\$160	\$43	\$1,082	\$1,284
Improvement Fee	\$1,235	\$0	\$1,142	\$2,377

EDU capacity requirements are estimated based on current system MDD and the total number of meter equivalents in the system. Water utilities have different standards with respect to installation of meters, but generally residential dwelling units are served by either a 5/8-in or 3/4-inch meter. Therefore, the base service unit for the water system is based on the hydraulic capacity of a 3/4-inch meter (30 gpm). The meter equivalents for larger meter sizes represent the equivalent hydraulic capacity relative to 30 gpm capacity. **Table 5** shows the meter equivalency factors for each meter size.

Based on the existing MDD and meter equivalents, the estimated capacity requirement per EDU is 567 gallons per day (0.000567 mgd), and 466 gallons (0.000466 mg) for storage. Multiplying the capacity requirement per EDU by the unit costs of capacity yields reimbursement and improvement costs per EDU of \$1,284 and \$2,377, respectively, for a total of \$3,661.

SDC Schedule

Table 5 shows the base SDC per EDU, and the SDC for each meter size larger than 3/4-inch. The total SDC per EDU, including compliance costs of \$95 per EDU, is \$3,756.

Table 5
City of Woodburn
Water System Development Charge
SDC Schedule

Meter Size	SDCr	SDCi	Compliance	SDC	Meter Equivalent¹
Base (up to ¾-inch)	\$1,284	\$2,377	\$95	\$3,756	1.00
1-inch	\$2,141	\$3,962	\$158	\$6,260	1.67
1 1/2-inch	\$4,281	\$7,923	\$316	\$12,521	3.33
2-inch	\$6,850	\$12,677	\$506	\$20,033	5.33
3-inch	\$14,984	\$27,732	\$1,108	\$43,823	11.67
4-inch	\$26,971	\$49,917	\$1,994	\$78,882	21.00
6-inch	\$55,654	\$103,003	\$4,114	\$162,771	43.33
8-inch	\$68,498	\$126,773	\$5,063	\$200,334	53.33
10-inch	\$98,466	\$182,236	\$7,278	\$287,980	76.67

¹AWWA Standards (Turbine Meters)

Compliance Costs

Local governments are entitled to include in the SDCs, a charge to recover costs associated with complying with the SDC statutes. Compliance costs include costs related to developing the SDC methodology and project list (i.e., a portion of master planning costs), and annual accounting and budgeting. The estimated compliance cost per equivalent meter is \$95 (about 2.5 percent of the total SDC).

Table 6
City of Woodburn
Compliance Charge

Component	Years	Total	Growth	Annualized
SDC Study	5	\$10,000	100%	\$2,000
Master Planning	10	\$110,000	51%	\$5,558
Auditing/Accounting/Legal/Development	1	\$5,000	100%	\$5,000
Total Annual Costs		\$130,000		\$12,558
Estimated Annual EDUs				132
Compliance Charge/EDU				\$95

Inflationary Adjustments

In accordance with Oregon statutes, it is recommended that the SDCs be adjusted annually based on a standard inflationary index. Specifically, the City currently uses the Engineering News Record Northwest Construction Cost Index as the basis for adjusting the SDCs annually.