City of Gladstone

WATER AND SEWER SYSTEM DEVELOPMENT CHARGE UPDATE

DRAFT REPORT
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Section I. INTRODUCTION

This section describes the policy context and project scope upon which the body of this report is based.

I.A. SYSTEM DEVELOPMENT CHARGES

Oregon Revised Statutes (ORS) 223.297 to 223.314 authorize local governments to establish system development charges (SDCs), one-time fees on new development paid at the time of development. SDCs are intended to recover a fair share of the cost of existing and planned facilities that provide capacity to serve future growth.

ORS 223.299 defines two types of SDCs:

- A reimbursement fee designed to recover "costs associated with capital improvements already constructed, or under construction when the fee is established, for which the local government determines that capacity exists"
- An improvement fee designed to recover "costs associated with capital improvements to be constructed"

ORS 223.304(1) states, in part, that a reimbursement fee must be based on "the value of unused capacity available to future system users or the cost of existing facilities" and must account for prior contributions by existing users and any gifted or grant-funded facilities. The calculation must "promote the objective of future system users contributing no more than an equitable share to the cost of existing facilities." A reimbursement fee may be spent on any capital improvement related to the system for which it is being charged (whether cash-financed or debt-financed) and on the costs of compliance with Oregon's SDC law.

ORS 223.304(2) states, in part, that an improvement fee must be calculated to include only the cost of projected capital improvements needed to increase system capacity for future users. In other words, the cost of planned projects that correct existing deficiencies or do not otherwise increase capacity for future users may not be included in the improvement fee calculation. An improvement fee may be spent only on capital improvements (or portions thereof) that increase the capacity of the system for which it is being charged (whether cash-financed or debt-financed) and on the costs of compliance with Oregon's SDC law.

ORS 223.307(5) also authorizes the expenditure of SDCs for "the costs of complying with the provisions of ORS 223.297 to 223.314, including the costs of developing system development charge methodologies and providing an annual accounting of system development charge expenditures." To avoid spending monies for compliance that might otherwise have been spent on projects, this report includes an estimate of compliance costs in the SDC calculation.

I.B. UPDATING THE SDCS

The City of Gladstone (City) contracted with FCS Group to perform an SDC methodology update and recommend fees water and sewer. We conducted the study using the following general approach:

- **Policy Framework for Charges**. In this step, we worked with City staff to identify and agree on the approach to be used and the components to be included in the analysis.
- **Technical Analysis**. In this step, we worked with City staff to isolate the recoverable portion of facility costs and calculate SDC rates.
- **Methodology Report Preparation**. In this step, we documented the calculation of the SDC rates included in this report.

I.C. CALCULATION OVERVIEW

In general, SDCs are calculated by adding a reimbursement fee component and an improvement fee component—both with potential adjustments. Each component is calculated by dividing the eligible cost by growth in units of demand. The unit of demand becomes the basis of the charge. **Table 1** shows this calculation in equation format.

Table 1. SDC Equation

Eligible costs of available capacity in existing facilities / Units of growth in demand	+	Eligible costs of capacity-increasing capital improvements / Units of growth in demand	+	Pro-rata share of costs of complying with Oregon SDC law	=	SDC per unit of growth in demand

I.C.1. Reimbursement Fee

The reimbursement fee is the cost of available capacity per unit of growth that such available capacity will serve. In order for a reimbursement fee to be calculated, unused capacity must be available to serve future growth. For facility types that do not have available capacity, no reimbursement fee may be calculated.

I.C.2. Improvement Fee

The improvement fee is the cost of planned capacity-increasing capital projects per unit of growth that those projects will serve. The unit of growth becomes the basis of the fee. In reality, the capacity added by many projects serves a dual purpose of both meeting existing demand and serving future growth. To compute a compliant improvement fee, growth-related costs must be isolated, and costs related to current demand must be excluded.

We have used the capacity approach to allocate costs to the improvement fee basis.[1] Under this approach, the cost of a given project is allocated to growth by the portion of total project capacity

[1] Two alternatives to the capacity approach are the incremental approach and the causation approach. The incremental requires the computation of hypothetical project costs to serve existing users. Only the incremental cost of the actual project is included in the improvement fee cost basis. The causation approach, which allocates 100 percent of all growth-related projects to growth, is vulnerable to legal challenge.

that represents capacity for future users. That portion, referred to as the improvement fee eligibility percentage, is multiplied by the total project cost for inclusion in the improvement fee cost basis.

I.C.3. Adjustments

Two cost basis adjustments are applicable to the SDC calculation: fund balance and compliance costs.

I.C.3.a Fund Balance

All accumulated SDC revenue currently available in fund balance is also deducted from its corresponding cost basis. This practice prevents a jurisdiction from double-charging for projects that were in the previous methodology's improvement fee cost basis but have not yet been constructed.

I.C.3.b Compliance Costs

ORS 223.307(5) authorizes the expenditure of SDCs for "the costs of complying with the provisions of ORS 223.297 to 223.314, including the costs of developing system development charge methodologies and providing an annual accounting of system development charge expenditures." To avoid spending monies for compliance that might otherwise have been spent on growth-related projects, this report includes an estimate of compliance costs in the SDC calculation.

After discussions with City staff, this SDC methodology assumes one $10,000 SDC update every 10 years and annual SDC administration costs of $2,000. Administrative cost recovery is calculated as a percent of estimated annual revenue under the proposed SDC.

Section II. SEWER

This section provides detailed calculations of our recommended SDC for sanitary sewer facilities.

II.A. GROWTH

Before identifying costs included in the SDC we must arrive at the customer base which serves as the denominator for the equation. The customer base is calculated based on the average dry weather flow for the City converted to equivalent dwelling units (EDUs). One EDU is the average consumption per household per day, or 232 gallons per day. **Table 2** shows the growth in EDUs and dry weather flow throughout the analysis period.

Table 2. SDC Growth Calculation

	Existing	Build-out	Growth	Growth as a % of Future Customers
Avg. Dry Weather Flow (mgd)	1.01	1.14	0.13	11.40%
EDUs	4,353	4,914	560	11.40%
Avg. Household Consumption per Day	232.0	232.0		

Source: Gladstone Sewer Master Plan, Murray Smith Associates.

II.B. ELIGIBLE COSTS

Below we outline the eligible costs for the SDC including reimbursement, improvement, and compliance costs, with adjustments.

II.B.1. Reimbursement Fee Cost Basis

As stated in **Section I**, the reimbursement fee is to be based on the value or cost of "unused capacity available to future system users" in the existing system. The City recently completed a project from the Sanitary Sewer Master Plan, a portion of which provides capacity for future users. The cost of available capacity can be included in the reimbursement fee calculation as shown in **Table 3**.

Table 3. Reimbursement Fee Cost Basis

Project Name	Description	City Project Cost	% Providing Additional Capacity	Available Capacity
CIP-01	Oatfield Rd Diversion	$100,000	5%	$5,000
	Total	$100,000		$5,000

Source: Sanitary Sewer Master Plan.

II.B.2. Improvement Fee Cost Basis

The improvement fee portion of the SDC is based on a specific list of planned capacity-increasing capital improvements. The portion of each project that can be included in the improvement fee cost basis is determined by the extent to which the project creates capacity for future users. Projects and the improvement fee eligibility are drawn from the Sanitary Sewer Master Plan and analysis by

Murray Smith & Associates. As shown in **Table 4**, improvement fee eligibility for certain projects is increased above the growth-related portion in the Master Plan where system-wide benefits are greater than localized benefits.

Table 4. Improvement Fee Cost Basis

Project Name	Description	City Project Cost	% Improvement Fee Eligible	$ Capacity Expanding
CIP-02	Rehabilitation and Replacement Program	$440,000	0.0%	$0
CIP-03	Stormwater Disconnections	2,640,000	11.4%	301,053
CIP-04	Infiltration and Inflow Reduction Program	3,160,000	11.4%	360,351
CIP-05	Gladstone Pump Station	0	3.0%	0
CIP-06	Oak Lodge Pump Station	0	0.0%	0
CIP-07	Rehabilitation and Replacement Program	440,000	0.0%	0
CIP-08	Infiltration and Inflow Reduction Program	5,800,000	11.4%	661,404
CIP-09	Diversion at Exeter Street & Portland Avenue - Abandon Gravity Pipe	0	11.4%	0
CIP-10	Diversion at Exeter Street & Portland Avenue - Gravity Pipe Upgrade	670,000	11.4%	76,404
CIP-11	Diversion at Exeter Street & Portland Avenue - Diversion	30,000	11.4%	3,421
CIP-12	Diversion at Dartmouth Street & Portland Avenue	50,000	11.4%	5,702
CIP-13	Upsize along Portland Ave	160,000	11.4%	18,246
CIP-14	Barton Ave Upgrade	170,000	11.4%	19,386
CIP-15	Clarendon St Upgrade	510,000	26.0%	132,600
CIP-16	Harvard Ave Upgrade	100,000	11.4%	11,404
CIP-17	Watts St Upgrade	520,000	11.4%	59,298
CIP-18	Master Plan Update	250,000	11.4%	28,509
CIP-19	Rehabilitation and Replacement Program	880,000	0.0%	0
CIP-20	Infiltration and Inflow Reduction Program	11,600,000	11.4%	1,322,807
CIP-21	Hereford St Upgrade	70,000	11.4%	7,982
CIP-22	Gloucester St Upgrade	450,000	11.4%	51,316
	Total	$27,940,000		$3,059,881

Source: Sanitary Sewer Master Plan.

II.B.3. Compliance Costs

As noted in Section **I.C.3.b**, ORS 223.307(5) authorizes the expenditure of SDCs on "the costs of complying with the provisions of ORS 223.297 to 223.314, including the costs of developing system development charge methodologies and providing an annual accounting of system development charge expenditures." **Table 5** shows the compliance costs are calculated as a percent of expected SDC revenue.

Table 5. Compliance Cost Calculation

	Estimate
Avg. Annual EDU Growth	*13*
Avg. Annual SDC Revenue	*$68,121*
Sewer SDC Updates ($10k per study, one study every ten years)	$1,000
SDC Fee Administration ($2k per year)	2,000
Annual administration costs	$3,000
Administration Costs as a % of Revenue	4%

Source: City of Gladstone

The improvement fee costs basis must also be adjusted to account for any unspent SDC monies the City has available to avoid double-charging customers for improvements. The current SDC fund balance is subtracted from the improvement fee cost basis in **Figure 1**.

II.C. SUMMARY OF COSTS

Dividing the cost bases by the projected growth in EDUs produces the proposed sewer SDC. **Figure 1** summarizes the components of the SDC. The proposed SDC is $5,380 per EDU, including an $8.92 reimbursement fee, a $5,144.20 improvement fee, and a $226.94 compliance fee.

Figure 1. SDC Fee Calculation

Sewer SDC				
Reimbursement Fee				
Cost of Net Unused Capacity		$	5,000	
Less: Reimbursement Fee SDC Fund Balance		$	-	
Reimbursement Fee Cost Basis		$	5,000	
Growth to End of Planning Period			560	EDU
Reimbursement Fee		$	8.92	per EDU
Improvement Fee				
Capacity Expanding CIP		$	3,059,881	
Less: Improvement Fee SDC Fund Balance		$	(177,355)	
Improvement Fee Cost Basis		$	2,882,526	
Growth to End of Planning Period			560	EDU
Improvement Fee		$	5,144.20	per EDU
Total System Development Charge				
Reimbursement Fee		$	8.92	per EDU
Improvement Fee		$	5,144.20	per EDU
Compliance Fee	4%	$	226.94	per EDU
Total SDC per EDU		**$**	**5,380**	per EDU

II.D. FEE BASIS

The sewer SDC is imposed on an individual property based on the number of EDUs added. For administrative ease, every single family dwelling unit is charged one EDU. For other properties, EDUs are calculated by dividing the estimated average daily flow by 232 gallons.

Section III. WATER

This section provides detailed calculations of our recommended SDC for water facilities.

III.A. GROWTH

In 2014, the City of Gladstone had 3,852 meter equivalents (ME) with one ME being the equivalent of a 3/4" x 3/4" water meter (see **Table 6**).

Table 6. Calculation of Meter Equivalents

Meter Size	# of Accounts	Flow Factor[1]	Meter Equivalents
3/4 Inch Meter	3,163	1.00	**3,163.00**
One Inch Meter	96	1.67	**160.32**
1 1/2 Inch Meter	36	3.33	**119.88**
Two Inch Meter	31	5.33	**165.23**
Three Inch Meter	1	10.67	**10.67**
Four Inch Meter	8	16.67	**133.36**
Six Inch Meter	3	33.33	**99.99**
Total	**3,338**		**3,852.45**

Source: City of Gladstone.
[1]Meter Flow Factors based on maximum continuous flow by meter size as per American Water Works Association standards.

In order to derive growth, usage per ME is calculated. According to 2014 water demand levels, each ME uses 340 gallons per day. For this analysis, we assumed constant water demand per ME between 2014 and 2035 because the system is essentially built out and the City is not likely to change dramatically in terms of consumption or population. Given constant water demand per ME, we projected the number of MEs to be 4,058 in 2035 – consistent with the water demand growth projected in the Gladstone Water System Master Plan (Brown and Caldwell, 2014). Growth in MEs from 2014 to 2017 is calculated based on the compound annual growth rate from 2014 to 2035. **Table 7** shows the growth in MEs between 2017 and 2035.

Table 7. SDC Growth Calculation

	2014	2017	2035	2017-2035 Growth	Compound Ann'l Growth Rate
Meter Equivalents	3,852	3,881	4,058	177	0.25%
Water Demand (gallons per day)	1,310,000	1,319,778	1,380,000	60,222	0.25%
Water Consumption per ME	340	340	340		

Source: Gladstone Water Master Plan.
*Water consumption per account assumed constant to calculate 2035 meter equivalents.

III.B. ELIGIBLE COSTS

Below we outline the eligible costs for the SDC including reimbursement, improvement, and compliance costs, with adjustments.

III.B.1. Reimbursement Fee Cost Basis

As stated in **Section I**, the reimbursement fee is to be based on the value or cost of existing system "unused capacity available to future system users." The water system plan identifies both fire flow and emergency storage deficiencies which indicate little, if any, unused capacity in those system functions. The plan further describes the distribution system as aged and undersized in many locations along with identifying pump station needs. We conclude that there is no basis for a reimbursement fee at this time.

III.B.2. Improvement Fee Cost Basis

The improvement fee portion of the SDC is based on a specific list of planned capacity-increasing capital improvements. The portion of each capital improvement project that can be attributed to growth is determined by the amount that the project increases capacity for future users, calculated as the percentage of growth from future demand (see **Table 8**) that will be served. For storage, the storage capacity deficiency is expected to increase commensurate with growth from 2014 to 2017. It is assumed that any non-storage project increasing system capacity can be allocated 4.36% to future users and any projects increasing storage capacity can be allocated 20.41% to future users.

Table 8. Improvement Fee Growth Share

Water Capacity	
2014 Demand, gallons per day	*1,310,000*
Current Demand, gallons per day	1,319,778
Future Demand, gallons per day	1,380,000
Demand Growth	60,222
Growth as % of Future Demand	**4.36%**
Storage Capacity	
2014 Existing Storage Deficiency, gallons	*1,580,000*
2017 Estimated Existing Storage Deficiency, gallons	1,591,794
New Storage Capacity Increasing Project, million gallons	2,000,000
Storage Capacity Serving Growth	408,206
% Storage Capacity Serving Growth	**20.41%**

Source: Gladstone Water Master Plan.

With the SDC-eligible percentages above, we can calculate the improvement fee portion of each capital improvement in the Water Master Plan. Project costs in the Water Master Plan are escalated to current year costs using the *Engineering News Record* Construction Cost Index. SDC-eligible costs are calculated by multiplying the total costs of projects the percentages calculated above (see **Table 8**). As noted in **Table 9**, the total SDC-eligible costs for the improvement fee portion of the SDC is $1,417,306.

Table 9. Improvement Fee Cost Basis

Project	2014 Total Cost	2017 Total Cost	Percent Eligible	SDC-Eligible Costs
Ranney Intake System Decommissioning - Study	$50,000	$54,444	0.00%	$0
Berkeley Street Pipe Replacement	$960,000	$1,045,328	4.36%	$45,617
Cason Rd. PRV and Pipe Replacement	$1,260,000	$1,371,993	4.36%	$59,872
Clackamas Blvd. Pipe Replacement	$840,000	$914,662	4.36%	$39,915
Park Way Pipe Replacement	$510,000	$555,330	4.36%	$24,234
Sherwood Neighborhood Pipe Replacement	$2,170,000	$2,362,877	4.36%	$103,113
Risley Ave. Pipe Replacement	$460,000	$500,886	4.36%	$21,858
Jersey St. Pipe Replacement	$330,000	$359,331	4.36%	$15,681
SE 82nd Drive Pipe Replacement	$470,000	$511,775	4.36%	$22,333
Meldrum Bar Park Road PRV and Pipe Replacement	$680,000	$740,441	4.36%	$32,312
Rinearson Rd. Pipe Replacement	$590,000	$642,441	4.36%	$28,035
Hull Ave. PRV	$110,000	$119,777	4.36%	$5,227
Hereford PRV	$110,000	$119,777	4.36%	$5,227
Landon PRV	$110,000	$119,777	4.36%	$5,227
Webster Pump Station Upgrades (Generator Set)	$150,000	$163,332	4.36%	$7,128
Webster Pump Station SCADA System	$20,000	$21,778	4.36%	$950
Clarendon PRV Condition Assessment	$10,000	$10,889	4.36%	$475
New 2 MG Storage Tank	$4,500,000	$4,899,975	20.41%	$1,000,100
AC Pipe Replacement	$24,600,000	$26,786,528	0.00%	$0
Water System Improvements	$434,540	$473,163	0.00%	$0
Total	**$38,364,540**	**$41,774,505**		**$1,417,306**

Source: Gladstone Water Master Plan and Engineering News Record.

III.B.3. Compliance Costs

As noted in Section **I.C.3.b**, ORS 223.307(5) authorizes the expenditure of SDCs on "the costs of complying with the provisions of ORS 223.297 to 223.314, including the costs of developing system development charge methodologies and providing an annual accounting of system development charge expenditures." **Table 10** shows the compliance costs are calculated as a percent of expected SDC revenue.

Table 10. Compliance Cost Calculation

	Estimate
Avg. Annual MCE Growth	*10*
Avg. Annual SDC Revenue	*$70,675*
Sewer SDC Updates ($10k per study, one study every ten years)	$1,000
SDC Fee Administration ($2k per year)	2,000
Annual administration costs	$3,000
Administration Costs as a % of Revenue	4%

Source: City of Gladstone

The improvement fee costs basis must also be adjusted to account for any unspent SDC monies the City has available to avoid double-charging customers for improvements. The current SDC fund balance is subtracted from the improvement fee cost basis in **Figure 2**.

III.C. SUMMARY OF COSTS

Figure 2 summarizes the components of the Gladstone water SDC. The total SDC is $7,488 per ME. This includes a $7,183.21 improvement fee and a $304.91 compliance fee.

Figure 2. SDC Fee Calculation

Water SDC			
Improvement Fee			
Capacity Expanding CIP		$ 1,417,306	
Less: Improvement Fee SDC Fund Balance		$ (145,158)	
Improvement Fee Cost Basis		$ 1,272,148	
Growth to End of Planning Period		177	MCE
Improvement Fee		$ 7,183.21	per MCE
Total System Development Charge			
Improvement Fee		$ 7,183.21	per MCE
Compliance Fee	4%	$ 304.91	per MCE
Total SDC per MCE		**$ 7,488**	per MCE

III.D. FEE BASIS

In order to impose water SDCs on an individual property, the number of MEs is determined by the size of the property's water meter. The ME calculation used is based on AWWA flow factors as shown in **Table 11**.

Table 11. SDC by Meter Size

Meter Size	Flow Factor	SDC
3/4"	1.00	$7,488
1"	1.67	$12,505
1 1/2"	3.33	$24,935
2"	5.33	$39,912
3"	10.67	$79,898
4"	16.67	$124,827
6"	33.33	$249,579

Source: Previous tables.

Section IV. Credits & Indexing

This section provide recommendations for SDC credits and indexing the water and sewer SDCs.

IV.A. CREDITS, EXEMPTIONS, AND WAIVERS

The City will continue to establish local policies for issuing credits, exemptions, and other administrative procedures.

IV.A.1. Credits

A credit is a reduction in the amount of the SDC for a specific development. ORS 223.304 requires that SDC credits be issued for the construction of a qualified public improvement which is: required as a condition of development approval; identified in the City's adopted SDC project list; and either "not located on or contiguous to property that is the subject of development approval," or located "on or contiguous to such property and is required to be built larger or with greater capacity than is necessary for the particular development project…."

Additionally, a credit must be granted "only for the cost of that portion of an improvement which exceeds the minimum standard facility size or capacity needed to serve" the particular project up to the amount of the improvement fee. For multi-phase projects, any "excess credit may be applied against SDCs that accrue in subsequent phases of the original development project."

IV.A.2. Exemptions & Waivers

The City may exempt or waive specific classifications of development from the requirement to pay SDCs. However, to do so it must have a cost or demand-based justification. The City may not arbitrarily exempt customers or customer types from SDCs.

IV.B. INDEXING

Oregon law (ORS 223.304) also allows for the periodic indexing of system development charges for inflation, as long as the index used is:

> "(A) A relevant measurement of the average change in prices or costs over an identified time period for materials, labor, real property or a combination of the three;
> (B) Published by a recognized organization or agency that produces the index or data source for reasons that are independent of the system development charge methodology; and
> (C) Incorporated as part of the established methodology or identified and adopted in a separate ordinance, resolution or order."

We recommend that the City index its charges to the Engineering News Record Construction Cost Index for the City of Seattle and adjust its charges annually. There is no comparable Oregon-specific index.