RESOLUTION NO. 2407

A RESOLUTION ADJUSTING THE SYSTEM DEVELOPMENT CHARGES FOR SANITARY SEWER AND RESCINDING RESOLUTION NO. 2002.

THE TROUTDALE CITY COUNCIL FINDS AS FOLLOWS:

1. Section 12.02.020 of the Troutdale Municipal Code establishes system development charges to impose an equitable share of the public costs of capital improvements upon those developments that create the need for, or increase the demands on, capital improvements.

2. Resolution No. 2002, dated June 9, 2009 which is currently in effect, established the current capital improvement plan project listing and rate for the sanitary sewer system development charge.

3. Section 12.02.030 of the Troutdale Municipal Code requires staff to annually review the rate and bring proposed changes to the Council for consideration.

4. Members of the construction industry have requested a phase-in of any cost increase so as to not disadvantage currently planned projects.

5. Council previously approved the Capital Improvement Plan Project Listing for the sanitary sewer system, March 22, 2016

NOW THEREFORE BE IT RESOLVED BY THE COUNCIL OF THE CITY OF TROUTDALE

Section 1. Purpose.

The purpose of the sanitary sewer system development charge is to require developments that create the need for sanitary sewer facilities or increase the demand on existing sanitary sewer facilities to pay an equitable share of the cost of those improvements.

Section 2. Definitions.

Unless the context suggests otherwise, for this Resolution these terms and phrases mean as follows:

Capital Improvement. The construction of, or addition to, facilities or assets used to collect, convey, treat, or store sanitary sewage.

Development. Any man-made change to improved or unimproved real property, including but not limited to construction, installation, or alteration of a building or other structure; condominium conversion; land division; establishment or termination of a right of access; storage on real property; tree cutting; drilling; and site alteration such as that due to land surface mining, dredging, grading, paving, excavating, or clearing.

Director. The Public Works Director of the City of Troutdale or his/her designee.

Equivalent Residential Unit. The unit of waste water which incurs the same costs for treatment as the average volume of domestic wastes discharged from a single-family residence in the waste water treatment service area.

Improvement Fee. A fee for costs associated with eligible costs of planned capacity increasing facilities.

Reimbursement Fee. A fee for costs associated with eligible value of the unused capacity of existing facilities.

Section 3. Methodology.

A. A detailed methodology was completed by FCS Group dated June 2017 and is the basis for the system development charges in this resolution, provided herewith as Attachment 1.

B. The methodology used to establish the improvement fee is based on the estimated cost of projected capital improvements needed to increase the capacity of the sanitary sewer system, including costs of financing, divided by the projected growth in system capacity as measured in Equivalent Residential Units (ERU). This allows determination of a unit cost of system capacity.

C. The methodology used to establish the reimbursement fee is based on the estimated value of existing unused capacity divided by the projected growth in system capacity as measured in Equivalent Residential Units (ERU). This allows determination of a unit cost of system capacity reimbursement.

D. The number of Equivalent Residential Units (ERU) for certain common user classes is provided below:

E.

USER CLASS	***ERU***	***UNIT***
RESIDENTIAL:		
Single and duplex units	*1.00*	*Each dwelling unit*
Tri-plex and larger units, and apartments in conjunction with commercial use	*.70*	*Each dwelling unit*
Manufactured or Mobile Home Units	*.88*	*Each dwelling unit*

Trailer/RV Parks	*1.00*	*For Each Permanent or Separate Caretaker or Other Living Facility*
	.30	*Per Space*
COMMERCIAL:		
Cocktail Lounges, Bars, Taverns	*.06*	*Per Seat*
Laundromat	*1.52*	*Per Washer*
Motel/Hotel	*1.00*	*Per Management Quarters*
	.36	*Per Each Additional Unit*
Office	*.06*	*Per Thousand Square Feet*
Retail (Dry Goods)	*.08*	*Per Thousand Square Feet*
Retail (with wet areas such as grocery, market, etc.)	*.18*	*Per Thousand Square Feet*
Restaurants	*.12*	*Per Seat*
blank		*blank*
COMMUNITY SERVICE:		
Churches	*.02*	*Per Seat*
Schools	*.04*	*Per Occupant*
Other	*N/A*	*ERUs assigned based on estimated water consumption*

Where an appropriate number of ERU's for a particular development cannot be determined from the above list, the Director shall make a determination as to the number of ERU's to be charged. No development may have a fractional number of ERU's less than one.

C. Based upon previous partial pre-payment of sanitary sewer SDC's, 148 ERU's can be utilized by a payment of only $675 each.

Section 4. Cost.

The costs as determined by the methodology study completed by FCS Group are as follows per ERU:

Reimbursement Fee	$6,866
Improvement Fee	$2,335
Administrative Fee	$ 219
Total SDC	$9,420

Section 5. Phase-in of Cost Increase.

Resolution No. 2002, rescinded below, set the rate for sanitary sewer system development charges as $4,495 per ERU. The new rate, as established by Section 4 above, is an

increase of $4,925 per ERU. The rate per ERU will remain at $4,495 on the effective date of this Resolution; however, the increase will be phased in as follows:

Rate effective July 1, 2018: $6,137 per ERU
Rate effective January 1, 2019: $7,779 per ERU
Rate effective July 1, 2019: $9,420 per ERU

Section 6. Effective Date.

This Resolution is effective upon adoption.

Section 7. Automatic Annual Adjustment of System Development Charge.

The system development charge hereby imposed shall be adjusted automatically on January 1 of each year beginning in 2020 for inflationary cost impacts. Inflationary cost impacts shall be measured and calculated annually based upon the Construction Cost Index for Seattle, WA, published by Engineering News Record for the preceding calendar year or any successor index to this measurement.

Increases shall first apply to improvement fees, and after the full increase in improvement fees has been satisfied, all increases shall apply to reimbursement fees.

Section 8. Distribution of Funds.

Improvement Fees. Improvement fees shall be spent only on capacity increasing extra-capacity facilities including expenditures relating to repayment of debt for the improvements, and on the administration and enforcement of this Chapter. An increase in system capacity occurs if a capital project increases the level of performance or service provided by existing facilities or provides new facilities. The portions of the capital projects funded by improvement fees must be related to demands created by development.

Reimbursement Fees. Reimbursement fees shall be applied only to capital improvements associated with the systems for which the fees are assessed, including expenditures relating to repayment of indebtedness.

SDC Improvement Fees and SDC Reimbursement Fees shall each be segregated by accounting practices from other City revenues, and by facility improvement type.

All reimbursement fees shall be collected by the City and shall be used to refund the appropriate source that financed that share of the previously constructed improvement.

Section 8. Applicability of Troutdale Municipal Code.

The provisions of Chapter 12.02 of the Troutdale Municipal Code govern exemptions, credits, collection, appeals, and other matters pertaining to the charge established in this Resolution.

Section 10. Administration.

The Director shall be responsible for the administration of this Resolution.

Section 11. Previous Resolution Rescinded.

Resolution No. 2002 is rescinded on the effective date of this Resolution.

YEAS: 4
NAYS: 3 Councilor White, Councilor Allen, Councilor Hudson
ABSTAINED: 0

Casey Ryan, Mayor

Date 1-25-2018

Sarah Skroch, City Recorder
Adopted: January 23, 2018

Attachment "1" to
Resolution #2407

City of Troutdale

SYSTEM DEVELOPMENT CHARGE UPDATE

FINAL REPORT
June 2017

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June 16, 2017

Travis Hultin, Chief Engineer
City of Troutdale
342 SW Fourth Street
Troutdale, OR 97060

Subject: System Development Charge Update

Dear Mr. Hultin:

FCS GROUP is pleased to submit this report summarizing the results of the system development charge (SDC) study for the City of Troutdale's transportation, stormwater, water, and wastewater services. Our findings indicate that Troutdale can adopt:

- **A water SDC of $7,256 per hydraulic equivalent (HE)**
- **A sewer SDC of $9,420 per equivalent residential unit (ERU)**
- **A stormwater SDC of $1,351 per equivalent residential unit (ERU)**
- **A transportation SDC of $995 per PM Peak Hour Trip-Ends**

It has been a pleasure to work with you and other City of Troutdale staff on this effort. Please let me know if you have any questions or need additional information on this report. I can be reached at (425) 867-1802 ext. 225.

Yours very truly,

John Ghilarducci
Principal

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Section I. INTRODUCTION

The City of Troutdale is a growing city with increasing demands for services. In 2017, the City of Troutdale ("City") contracted with FCS GROUP to calculate updated system development charges (SDCs) for its water, wastewater, stormwater, and transportation utilities.

These fees recover and equitable share of system costs from growth, recognizing the investments in infrastructure that the City has made (as well as the future investments that it will have to make) to provide capacity to serve growth. Consistent with these objectives, this study included the following key elements:

- **Develop Policy Framework.** We worked with City staff to identify, analyze, and agree on key policy issues.
- **Technical Analysis.** In this step, we worked with City of Troutdale staff to resolve technical issues, isolate the recoverable portion of existing and planned facility costs, and calculate fee alternatives. The most important technical consideration involves the inclusion of capacity upgrades and their unique relationship to growth. The complete technical analysis is included as Appendix A.
- **Documentation and Presentation.** In this step, we wrote the report describing the resulting charge and participated in City of Troutdale meetings.

Section II. SDC METHODOLOGY

II.A. LEGAL AUTHORITY AND CONCEPTUAL BASIS

An SDC is a one-time fee imposed on new development (and redevelopment resulting in a net increase in capacity requirements) to recover a fair share of the cost of existing and planned facilities. Oregon Revised Statute (ORS) 223.297 - 223.314 defines SDCs and specifies how they shall be calculated, applied, and accounted for. By statute, an SDC is the sum of two components:

- **Reimbursement Fee: Recovers costs associated with facilities *already constructed or under construction.***

> According to ORS 223.304, the reimbursement fee methodology must be based on "the value of unused capacity available to future system users or the cost of the existing facilities", and must further consider prior contributions by existing users and gifted and grant-funded facilities. The calculation must also "promote the objective of future system users contributing no more than an equitable share to the cost of existing facilities."
>
> Reimbursement fee proceeds may be spent on any capital improvements related to the systems for which the SDC is applied – i.e., water SDCs must be spent on water improvements.

- **Improvement Fee: Recovers costs associated with capital improvements *to be constructed in the future.***

> The improvement fee methodology must include only the cost of projected capital improvements or portions of improvements needed to increase system capacity for future users. In other words, the cost(s) of planned projects or portions of projects that correct existing deficiencies, or do not otherwise increase capacity for future users, may not be included in the improvement fee calculation.
>
> Improvement fee proceeds may be spent only on capital improvements, or portions thereof, which increase the capacity of the systems for which they were applied.

II.B. REIMBURSEMENT FEE METHODOLOGY

The reimbursement fee calculation divides the dollar value of unused system capacity by the capacity it will serve. The unit of capacity used becomes the basis of the fee – e.g., meter equivalents, water fixture units, or equivalent dwelling units. Important factors in this calculation include:

1. **Determining the appropriate reimbursement fee cost basis**. ORS 223.304 requires that the reimbursement fee calculation consider, among other things, "the value of unused capacity available to future system users or the cost of the existing facilities." We use an *original cost* approach to calculating the cost basis, considering the original cost of existing facilities at the time they were constructed. This approach fully compensates existing customers for their investments in facilities that can serve growth.

2. **Deductions from the reimbursement fee cost basis**. The reimbursement fee calculation excludes gifted or grant-funded portions of assets since they do not represent a direct investment by the ratepayer. We also deduct outstanding debt principal from the reimbursement fee cost basis to recognize that new customers will pay for their share of assets funded by outstanding debt through the debt service included in their monthly rates.

II.C. IMPROVEMENT FEE METHODOLOGY

The improvement fee calculation divides the total cost of capacity-increasing capital projects by the capacity they will serve. The key issue to consider in this calculation is to separate costs related to projects that increase system capacity from those that do not. Some projects are partially attributable to existing needs/deficiencies, but also increase capacity to serve growth – it is important to allocate these costs between growth and existing customers. For this purpose, we use the most directly applicable measure of capacity (pumping capacity, treatment capacity, etc.).

II.D. ADMINISTRATIVE COSTS

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." To avoid spending monies for compliance that might otherwise have been spent on growth-related projects, this report includes an estimate of administrative costs in its SDCs.

II.E. CALCULATION SUMMARY

An SDC is calculated by adding the reimbursement fee component to the improvement fee component. Each separate component is calculated by dividing the eligible cost by the appropriate measure of growth in capacity. The unit of capacity used becomes the basis of the charge. A sample calculation is shown below.

Equation II-1: Simplified SDC Equation

Reimbursement Fee		Improvement Fee		Administrative Cost		SDC
Eligible costs of available capacity in existing facilities / Growth in equivalent units	+	Eligible costs of capacity-increasing capital improvements / Growth in equivalent units	+	Administrative costs of complying with Oregon SDC Law	=	SDC ($/unit)

II.F. SDC IMPROVEMENT FEE CREDITS

The law requires that credits be provided against the improvement fee for the construction of qualified public improvements. Oregon Revised Statute 223.304 states that, at a minimum, credits shall be provided against the improvement fee for:

> "the construction of a qualified public improvement. A 'qualified public improvement' means a capital improvement that is required as a condition of development approval, identified in the plan and list adopted pursuant to ORS 223.309 and either:
>
> (a) Not located on or contiguous to property that is the subject of development approval; or
> (b) 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."

The law further states that credits "may be granted only for the cost of that portion of such improvement that exceeds the local government's minimum standard facility size or capacity needed to serve the particular development project or property."

The challenge is to design a credit approach that meets statutory requirements and the City's objectives for cash flow, prioritization of capital projects, and orderly but sustained development. We believe it is important for the City of Troutdale to retain as much control as possible over the prioritization and implementation of its capital plans, which address total system needs (existing customers and growth). Without control over how and when those needs are addressed, the re-prioritization of projects over time can leave important capacity needs unmet.

To avoid this outcome, the City should only offer credits upon the completion of a "qualified public improvement" contemplated in the City's capital improvement program. Credits should not be

transferable to other developers, and should be limited to the portion of the agreed-upon or planned cost of capacity in excess of that needed to serve the particular development.

II.G. INDEXING CHARGE FOR INFLATION

Oregon law (ORS 223.304) allows for the periodic indexing of SDC 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 (ENR) Construction Cost Index (CCI) for the City of Seattle, and adjust the charges annually based on changes in that index. There is no comparable index for the Portland area.

Section III. WATER SDC UPDATE

This section provides detailed calculations supporting the recommended water SDC.

III.A. SYSTEM CAPACITY & CUSTOMER BASE

The water SDC calculation expresses the customer base in terms of hydraulic equivalents (HEs), recognizing the potential demand that each meter imposes on the City's water system. 2015 customer data provided by the City, with adjustments for recent growth, indicates that the City currently serves 6,089 HEs. Table ES-1 of the City's 2012 Water Master Plan provides a forecast of growth in water demand to system buildout, projecting that maximum-day water demand will increase from 3.75 million gallons per day (mgd) in 2011 to 4.60 mgd by 2032 (cumulative growth of 15.7%). Considering that the City's water demands have been relatively flat in recent years despite a growing customer base, this analysis assumes that the 2011 maximum-day demand is reasonably representative of current conditions. Applying the projected demand growth to the number of existing HEs results in a projected buildout HE count of 7,043, suggesting that the water system can serve 954 additional HEs above its current customer base.

III.B. REIMBURSEMENT FEE COST BASIS

The water system reimbursement fee calculation divides the eligible cost of unused capacity in the existing system by the capacity for additional HEs to compute the reimbursement fee per HE. The reimbursement fee cost basis includes the following elements:

- **Original Cost of Existing Assets:** The water utility's fixed asset schedule indicates that as of June 30, 2016, the utility had a total of $20,586,951 in assets. The SDC calculation includes only $19,920,972 of this total, excluding $665,979 attributable to meters to recognize that new customers will have to purchase their own water meter.

- **Deduction – Contributed Capital:** The reimbursement fee cost basis excludes contributed assets since they do not represent infrastructure investments made by current ratepayers. Contributed capital is estimated indirectly using information from the City's fixed asset records and Comprehensive Annual Financial Reports (CAFRs) from the past 13 years. This information suggests that the City added a total of $4,951,906 in fixed assets from July 2003 – June 2016, $1,380,344 (27.9%) of which was funded by contributed capital (excluding historical SDC payments). Assuming that the infrastructure assets that the City added to the system prior to July 2003 follow a similar overall funding pattern, this analysis estimates that 27.9% of the water system's infrastructure assets were donated to the water utility (and that the remaining 72.1% has been funded by the utility). This estimate does not apply to equipment, vehicles, and miscellaneous (other) assets, which this analysis assumes have been fully funded by the utility.

- **Adjustment – Unused Capacity:** The final adjustment to the reimbursement fee cost basis involves allocating the eligible cost between existing customers (used capacity) and growth (unused capacity). **Table III-1** summarizes the calculation used to estimate the share of existing system capacity that is available to serve growth.

Table III-1: Analysis of Water System Capacity Available for Growth

Existing Maximum-Day Demand (per Table ES-1 of 2012 WSP)	3.75 mgd
Projected Buildout Maximum-Day Demand (per Table ES-1 of 2012 WSP)	4.60 mgd
Projected Growth in Maximum-Day Demand (Existing to Buildout)	0.85 mgd
Firm Capacity of City Wells (per Page 4 of 2012 WSP)	5.14 mgd
Projected Growth in Maximum-Day Demand as % of Firm Capacity	**16.5%**

Table III-1 indicates that the City has 5.14 mgd (3,572 gpm) of well capacity, and that 0.85 mgd of that capacity (16.5%) will be needed to meet additional demands from growth. This represents the share of the net cost of the existing system that the City can include in the reimbursement fee.

Table III-2 summarizes the calculation of the reimbursement fee cost basis:

Table III-2: Water Reimbursement Fee Cost Basis

Asset Category	Original Cost	% Utility-Funded	% Allocable to Growth	Amount Included In Cost Basis
Land & Land Improvements	$ 399,763	72.1%	16.5%	$ 47,561
Buildings	1,534,841	72.1%	16.5%	182,604
Piping	10,135,224	72.1%	16.5%	1,205,816
Valves	2,255,203	72.1%	16.5%	268,308
Hydrants	599,471	72.1%	16.5%	71,321
Pumps	245,304	72.1%	16.5%	29,185
Wells	2,559,446	72.1%	16.5%	304,505
Equipment	202,531	100.0%	0.0%	-
Vehicles	151,430	100.0%	0.0%	-
Reservoirs	1,445,105	72.1%	16.5%	171,928
Other	392,653	100.0%	16.5%	64,770
Total	**$19,920,972**			**$2,345,997**

III.C. IMPROVEMENT FEE COST BASIS

The calculation of the improvement fee divides the eligible cost of capacity-increasing capital projects by the estimated growth in HEs. The improvement fee cost basis includes:

- **Current (Uninflated) Cost of Capital Projects:** The water utility capital improvement program (CIP) includes $7,162,000 in capital project costs.

- **Deduction – Outside Sources:** The cost basis excludes expected funding from resources external to the water utility, recognizing that this funding does not represent infrastructure investments made by current ratepayers. The City plans to fund two capital projects through a combination of developer contributions and City funds external to the utilities (e.g. Urban Renewal Area).

- **Deduction – Projects Funding Existing Needs:** Consistent with ORS requirements, the improvement fee cost basis excludes projects that do not expand capacity to serve growth.

- **Deduction – SDC Fund Balance:** The improvement fee cost basis includes a deduction for the amount of cash that the City has in its SDC Fund to offset the cost of growth-related projects.

Table III-3 summarizes the improvement fee cost basis:

Table III-3: Water Improvement Fee Cost Basis

Capital Project	Current Cost (Uninflated)	% Utility-Funded	% Allocable to Growth	Amount In Cost Basis
Reservoir Seismic Study	$ 86,000	100.0%	0.0%	$ -
Reservoir No. 2 Seismic Improvements	339,000	100.0%	0.0%	-
Expand Waterline from Spectro to Galli	80,000	100.0%	73.4%	58,752
Rogers Circle to Spectro Water Main Loop	97,000	100.0%	49.6%	48,064
Urban Renewal Area to Harlow Place Loop	155,000	0.0%	100.0%	-
7th Street – Kings Byway Water Main Upsizing	425,000	100.0%	0.0%	-
Upgrade Booster Pump Station No. 2	50,000	100.0%	0.0%	-
SW Cherry Park Road to SW Spence Rd Loop	65,000	0.0%	100.0%	-
Reservoir No. 5 w/Line to Zone 1	2,257,000	100.0%	89.0%	2,008,730
Rogers Circle to Graham Circle Water Main Loop	65,000	100.0%	0.0%	-
Well No. 9	2,269,000	100.0%	100.0%	2,269,000
Reservoir Nos. 1/3/4 Seismic Improvements	402,000	100.0%	0.0%	-
Update the Water Master Plan	100,000	100.0%	13.6%	13,547
Well Rehab/Water Quality Improvements	80,000	100.0%	0.0%	-
Zone 5 Fire Flow Improvements	2,000	100.0%	0.0%	-
Reservoir 4 Interior Coating Replacement	275,000	100.0%	0.0%	-
Relocate 12" Waterline Stark	15,000	100.0%	0.0%	-
Well 8 Video and Rehab	100,000	100.0%	0.0%	-
Water Main Replacement	50,000	100.0%	0.0%	-
I-84/Graham Road Water Main Relocation	200,000	100.0%	0.0%	-
Annual System Reinvestment	50,000	100.0%	0.0%	-
Less: Existing Water SDC Fund Balance				(40,475)
Total	**$7,162,000**			**$4,357,618**

III.D. ADMINISTRATIVE COSTS

ORS 223.307(5) allows the SDC cost basis to include annual administrative costs and the (amortized) cost of developing SDCs. The pool of costs eligible for recovery includes an estimated $5,000 in annual administrative costs and $2,004 as the cost of the SDC analysis (amortized over five years). The water utility financial forecast assumes annual growth of 0.5%, which corresponds to

approximately 30 new HEs per year. Spreading the annual administrative cost of $7,004 over the 30 HEs of annual growth results in an administrative charge of $230 per HE, which equates to an effective markup of 3.27% on the other SDC components.

III.E. SUMMARY OF SDC CALCULATION

Table III-4 provides a summary of the updated SDC calculation.

Table III-4: Summary of Updated Water SDC

Water SDC Calculation	Reimbursement Fee	Improvement Fee	Administrative Fee	Total
Total Costs	$2,345,997	$4,357,618		
Growth in HEs	954	954		
Charge per HE	**$2,459**	**$4,567**	**$230**	**$7,256**
			Existing SDC per HE	**$1,345**
			Difference	**+$5,911**

Section IV. SEWER SDC UPDATE

This section provides detailed calculations supporting the recommended sewer SDC.

IV.A. SYSTEM CAPACITY & CUSTOMER BASE

The sewer SDC calculation expresses the customer base in terms of equivalent residential units (ERUs), recognizing the potential demand that each customer imposes on the City's sewer system. **Table IV-1** summarizes the assumptions used to estimate existing and future ERUs:

Table IV-1: Summary of Existing & Projected Sewer Customer Base

	Residential	Commercial	Industrial	Total
Current Population (2012)[1]				16,244
Future Population[1]				17,820
Projected Growth In Population				+9.7%
Number of Accounts (2012)[2]	4,476	120	35	4,631
Future Number of Accounts[1]	4,910	150	150	5,210
Projected Growth In Accounts	+9.7%	+25.0%	+328.6%	+12.5%
Average Number of ERUs per Account[3]	1.09	11.76	2.40	
Number of ERUs (2012)	4,874	1,411	84	6,369
Adjustment for 2012-2016 Growth	36	11	1	48
Number of ERUs (2016)	4,911	1,421	85	6,417
Future Number of ERUs	5,347	1,763	360	7,471
Incremental Growth				**1,054**
Growth Share of Total				***14.1%***

[1]Population and commercial/industrial customer counts provided by Brown & Caldwell on 4/2/13
[2]Per Page 1-1 of the 2013 Sewer Master Plan
[3]Per 2012 customer data provided by the City; "residential" includes single-family and multi-family residences

Table IV-1 indicates that the City currently serves 6,417 ERUs, and can accommodate 1,054 ERUs of growth before reaching buildout.

IV.B. REIMBURSEMENT FEE COST BASIS

The sewer system reimbursement fee calculation divides the eligible cost of unused capacity in the existing system by the capacity for additional ERUs to compute the reimbursement fee per ERU. The reimbursement fee cost basis includes the following elements:

- **Original Cost of Existing Assets:** The sewer utility's fixed asset schedule indicates that as of June 30, 2016, the utility had a total of $30,402,940 in assets.

- **Deduction – Contributed Capital:** The reimbursement fee cost basis excludes contributed assets since they do not represent infrastructure investments made by current ratepayers. Contributed capital is estimated indirectly using information from the City's fixed asset records and Comprehensive Annual Financial Reports (CAFRs) from the past 13 years. This information suggests that the City added a total of $4,907,127 in fixed assets from July 2003 – June 2016, $2,747,210 (56.0%) of which was funded by contributed capital (excluding historical SDC payments). Assuming that the infrastructure assets that the City added to the system prior to July 2003 follow a similar overall funding pattern, this analysis estimates that 56.0% of the sewer system's infrastructure assets were donated to the sewer utility (and that the remaining 44.0% has been funded by the utility). This estimate does not apply to equipment, vehicles, and miscellaneous (other) assets, which this analysis assumes have been fully funded by the utility.

- **Deduction – Property Tax Funding:** The City issued general obligation (GO) bonds to fund its Water Pollution Control Facility (WPCF), and has paid the related debt service through a blend of utility resources and property taxes. The SDC calculation deducts the property tax share of the WPCF cost to recognize that taxpayers have already contributed to that cost through their property tax payments. Based on a combination of tax funding reported in the City's CAFRs and allocations of debt service, this analysis estimates that $13,018,302 of property tax revenues are attributable to the WPCF; $8,721,384 of this amount is attributable to principal repayment and deducted from the reimbursement fee cost basis.

- **Adjustment – Unused Capacity:** The final adjustment to the reimbursement fee cost basis involves allocating the eligible cost between existing customers (used capacity) and growth (unused capacity). **Table IV-2** summarizes the calculations used to estimate the share of existing system capacity that is available to serve growth.

Table IV-2: Analysis of Sewer System Capacity Available for Growth

Water Pollution Control Facility (WPCF)	
Dry Weather Average Daily Flow *(per Appendix B of Sewer Master Plan)*	
2012	1.23 mgd
Buildout	2.57 mgd
2012 Flow as % of Buildout Flow (Used Capacity)	47.9%
% of WPCF Capacity Remaining	**52.1%**

Pipes	
Capacity-Length (Capacity of Mains × Length of Mains)	
Existing Flow Scenario	48,239,542 gpm-ft
Future Flow Scenario	69,658,174 gpm-ft
Existing Flow Scenario as % of Future Flow Scenario	69.3%
% of Pipe Capacity Remaining	**30.7%**

Lift Stations	
Estimated Current Peak Flow *(per Table 4-1 of Sewer Master Plan)*	2,441 gpm
Current Pumping Rated Capacity *(per Table 4-1 of Sewer Master Plan)*[1]	5,089 gpm
Existing Flow Scenario as % of Future Flow Scenario	48.0%
% of Pipe Capacity Remaining	**52.0%**

[1]Excluding Lift Station No. 6 due to a lack of existing flow data.

This analysis uses the growth share of ERUs (**Table IV-1**) to estimate the "unused capacity" share of assets not in one of these categories. **Table IV-3** calculates the reimbursement fee cost basis:

Table IV-3: Sewer Reimbursement Fee Cost Basis

Asset Category	Original Cost	% Utility-Funded	% Allocable to Growth	Amt. Included In Cost Basis
WPCF:				
Land & Land Improvements	$ 1,608,960	56.1%	52.1%	$ 470,846
Buildings	732,467	56.1%	52.1%	214,349
Infrastructure	17,536,684	56.1%	52.1%	5,131,931
Other Assets:				
Land & Land Improvements	109,488	44.0%	14.1%	6,800
Buildings	81,616	44.0%	52.0%	18,693
Manholes	1,547,245	44.0%	30.7%	209,406
Piping	3,683,739	44.0%	30.7%	498,561
Pumps	62,158	44.0%	52.0%	14,236
Lift Stations	1,940,749	44.0%	52.0%	444,493
SCADA System	183,566	44.0%	14.1%	11,400
Equipment	49,395	100.0%	0.0%	-
Vehicles	653,187	100.0%	0.0%	-
Other	2,213,686	100.0%	14.1%	312,342
Subtotal – Existing Assets	$30,402,940	57.3%	42.7%	$7,333,056
Less: Outstanding Debt Principal	(677,600)	100.0%	14.1%	(95,607)
Total	**$29,725,340**			**$7,237,449**

IV.C. IMPROVEMENT FEE COST BASIS

The calculation of the improvement fee divides the eligible cost of capacity-increasing capital projects by the estimated growth in ERUs. The improvement fee cost basis includes:

- **Current (Uninflated) Cost of Capital Projects:** The sewer utility capital improvement program (CIP) includes $10,895,164 in project costs.
- **Deduction – Outside Sources:** The cost basis excludes expected funding from resources external to the sewer utility, recognizing that this funding does not represent infrastructure investments made by current ratepayers. The City plans to fund two projects through developer contributions.
- **Deduction – Projects Funding Existing Needs:** Consistent with ORS requirements, the improvement fee cost basis excludes projects that do not expand capacity to serve growth.
- **Deduction – SDC Fund Balance:** The improvement fee cost basis includes a deduction for the amount of cash that the City has in its SDC Fund to offset the cost of growth-related projects.

Table IV-4 summarizes the improvement fee cost basis:

Table IV-4: Sewer Improvement Fee Cost Basis

Capital Project	Current Cost (Uninflated)	% Utility-Funded	% Allocable to Growth	Amount In Cost Basis
Wastewater Operations Annex Improvements	$ 35,000	100.0%	0.0%	$ -
Onsite Water Recycling System at WPCF	150,000	100.0%	0.0%	-
Upgrade Pump Station #2 (Husky PS)	408,000	100.0%	0.0%	-
Pump Station Emergency Backup Power	200,000	100.0%	0.0%	-
Airport to Graham Road Sewer Main Upsizing	714,000	0.0%	100.0%	-
South Buxton Road Sewer Main Upsizing	554,000	100.0%	36.0%	199,440
Upgrade/Replace PS-1 & New Force Main	2,973,000	100.0%	43.0%	1,278,390
Upsize Pump Station #7 (Sundial PS)	160,000	0.0%	50.0%	-
Lower Beaver Creek/Troutdale Rd Main Upsizing	3,776,000	100.0%	30.6%	1,153,778
WPCF Upgrades	750,000	100.0%	0.0%	-
Update Sanitary Sewer Master Plan	100,000	100.0%	14.1%	14,110
SDC Project	30,000	100.0%	0.0%	-
Secondary Clarifier Drive Rebuild	70,000	100.0%	0.0%	-
Blower Efficiency Project	200,000	100.0%	0.0%	-
Site Preparation GSA	100,000	100.0%	0.0%	-
Stark Street Culvert Replacement Sewer	50,000	100.0%	0.0%	-
Capital Projects per FY2015-16 Budget	575,164	100.0%	0.0%	-
Annual System Reinvestment	50,000	100.0%	0.0%	-
Less: Existing Sewer SDC Fund Balance				(184,428)
Total	**$10,895,164**			**$2,461,289**

IV.D. ADMINISTRATIVE COSTS

ORS 223.307(5) allows the SDC cost basis to include annual administrative costs and the (amortized) cost of developing SDCs. The pool of costs eligible for recovery includes an estimated $5,000 in annual administrative costs and $2,004 as the cost of the SDC analysis (amortized over five years). The sewer utility financial forecast assumes annual growth of 0.5%, which corresponds to approximately 32 new ERUs per year. Spreading the annual administrative cost of $7,004 over the 32 ERUs of annual growth results in an administrative charge of $219 per ERU, which equates to an effective markup of 2.38% on the other SDC components.

IV.E. SUMMARY OF COSTS

Table IV-5 provides a summary of the updated SDC calculation.

Table IV-5: Summary of Updated Sewer SDC

Sewer SDC Calculation	Reimbursement Fee	Improvement Fee	Administrative Fee	Total
Total Costs	$7,237,449	$2,461,289		
Growth in ERUs	1,054	1,054		
Charge per ERU	**$6,866**	**$2,335**	**$219**	**$9,420**
			Existing SDC per ERU	**$4,495**
			Difference	**+$4,925**

Section V. STORMWATER SDC UPDATE

This section provides detailed calculations supporting the recommended stormwater SDC.

V.A. SYSTEM CAPACITY & CUSTOMER BASE

The stormwater SDC calculation expresses the customer base in terms of equivalent residential units (ERUs), recognizing the potential demand that each customer imposes on the City's stormwater system. For the purpose of stormwater SDCs and monthly rates, the City defines an ERU as 2,700 square feet of impervious area. **Table V-1** summarizes the assumptions used to estimate ERUs:

Table V-1: Summary of Existing & Projected Stormwater Customer Base

	Single-Family	Non-Single-Family	Total
Current Impervious Area[1]	11,799,000 SF	18,881,616 SF	30,680,616 SF
Square Feet (SF) per ERU	2,700 SF	2,700 SF	
Current Number of ERUs	4,370	6,993	11,363
Projected 20-Year ERU Growth[2]	458	734	1,192
Total Number of ERUs (20-Year Forecast)	4,828	7,727	12,555
Incremental Growth			**1,192**
Growth Share of Total			***9.5%***

[1]The City assigns single-family residences 2,700 SF and measures actual impervious area for other customers.
[2]Assuming 0.5% annual growth.

Table V-1 indicates that the City currently serves 11,363 ERUs, and can accommodate 1,192 ERUs of growth before reaching buildout.

V.B. REIMBURSEMENT FEE COST BASIS

The stormwater system reimbursement fee calculation divides the eligible cost of unused capacity in the existing system by the capacity for additional ERUs to compute the reimbursement fee per ERU. The reimbursement fee cost basis includes the following elements:

- **Original Cost of Existing Assets:** The stormwater utility's fixed asset schedule indicates that as of June 30, 2016, the utility had a total of $10,694,166 in assets.

- **Deduction – Contributed Capital:** The reimbursement fee cost basis excludes contributed assets since they do not represent infrastructure investments made by current ratepayers. Contributed capital is estimated indirectly using information from the City's fixed asset records and Comprehensive Annual Financial Reports (CAFRs) from the past 13 years. This information suggests that the City added a total of $3,561,927 in fixed assets from July 2003 – June 2016, $2,914,978 (81.8%) of which was funded by contributed capital (excluding historical SDC

payments). Assuming that the infrastructure assets that the City added to the system prior to July 2003 follow a similar overall funding pattern, this analysis estimates that 81.8% of the stormwater system's infrastructure assets were donated (and that the remaining 18.2% has been funded by the utility). This estimate does not apply to equipment, vehicles, and miscellaneous (other) assets, which this analysis assumes have been fully funded by the utility.

- **Adjustment – Unused Capacity:** The final adjustment to the reimbursement fee cost basis involves allocating the eligible cost between existing customers (used capacity) and growth (unused capacity). This analysis uses the growth share of ERUs (per **Table V-1**) to estimate the share of system existing assets attributable to unused capacity.

Table V-2 summarizes the calculation of the reimbursement fee cost basis:

Table V-2: Stormwater Reimbursement Fee Cost Basis

Asset Category	Original Cost	% Utility-Funded	% Allocable to Growth	Amount Included In Cost Basis
Land	$ 3,071	18.2%	9.5%	$ 53
General	2,971,714	18.2%	9.5%	51,242
Flow Spreader	28,093	18.2%	9.5%	484
Manholes	1,159,082	18.2%	9.5%	19,986
Catch Basins	1,715,117	18.2%	9.5%	29,574
Piping	4,172,519	18.2%	9.5%	71,948
Treatment	102,126	18.2%	9.5%	1,761
Storm Filter Vault	121,950	18.2%	9.5%	2,103
Dry Wells	265,578	18.2%	9.5%	4,579
Outfall	154,916	18.2%	9.5%	2,671
Total	$10,694,166			$184,403

V.C. IMPROVEMENT FEE COST BASIS

The calculation of the improvement fee divides the eligible cost of capacity-increasing capital projects by the estimated growth in ERUs. The improvement fee cost basis includes:

- **Current (Uninflated) Cost of Capital Projects:** The stormwater utility capital improvement program (CIP) includes $6,099,000 in capital project costs.

- **Deduction – Outside Sources:** The cost basis excludes expected funding from resources external to the stormwater utility, recognizing that this funding does not represent infrastructure investments made by current ratepayers. The City plans to partially fund three capital projects through contributions from the Sandy Drainage Improvement Company (SDIC) and the Port of Portland.

- **Deduction – Projects Funding Existing Needs:** Consistent with ORS requirements, the improvement fee cost basis excludes projects that do not expand capacity to serve growth.

- **Deduction – SDC Fund Balance:** The improvement fee cost basis includes a deduction for the amount of cash that the City has in its SDC Fund to offset the cost of growth-related projects.

Table V-3 summarizes the improvement fee cost basis:

Table V-3: Stormwater Improvement Fee Cost Basis

Capital Project	Current Cost (Uninflated)	% Utility-Funded	% Allocable to Growth	Amount In Cost Basis
Salmon Creek Weir Improvements	$ 950,000	43.0%	100.0%	$ 410,000
Graham Road Storm Drainage	275,000	100.0%	100.0%	275,000
Beaver Creek Storm Drainage	100,000	100.0%	100.0%	100,000
Rehabilitate and Upgrade North Evans Outfall	145,000	100.0%	0.0%	-
Update N. Troutdale Storm Drainage Master Plan	100,000	50.0%	9.5%	4,747
SW 14th Street Drainage Improvement	15,000	100.0%	0.0%	-
Columbia River Highway Bypass	466,000	100.0%	56.0%	260,960
North Arata Creek Drain Line Improvement	760,000	100.0%	100.0%	760,000
South Arata Creek Drain Line Improvement	678,000	100.0%	100.0%	678,000
Sandee Palisades Detention Pond Retrofit	170,000	100.0%	0.0%	-
Marine Drive Culvert Bypass	635,000	100.0%	50.0%	317,500
NW Dunbar Avenue Storm Line	361,000	100.0%	0.0%	-
SE 3rd Street & SE Dora Avenue Main Upsizing	149,000	100.0%	0.0%	-
SE 21st Street Main Upsizing	122,000	100.0%	0.0%	-
Strawberry Meadows Detention Pond Retrofit	98,000	100.0%	0.0%	-
Hensley Road Storm Drainage – N/S Leg	50,000	100.0%	0.0%	-
Stuart Ridge Detention Pond Retrofit	73,000	100.0%	0.0%	-
SDIC Pump Station Upgrade, Phase II	602,000	100.0%	65.3%	393,360
Unified Storm Drainage Master Plan	150,000	75.0%	9.5%	10,680
Budgeted Stormwater Design Projects	25,000	100.0%	0.0%	-
Water Quality Facility Rehabilitation	25,000	100.0%	0.0%	-
North Evans Outfall Rehabilitation	100,000	100.0%	0.0%	-
Annual System Reinvestment	50,000	100.0%	0.0%	-
Less: Existing Stormwater SDC Fund Balance				(1,923,705)
Total	**$6,099,000**			**$1,286,542**

V.D. ADMINISTRATIVE COSTS

ORS 223.307(5) allows the SDC cost basis to include annual administrative costs and the (amortized) cost of developing SDCs. The pool of costs eligible for recovery includes an estimated $5,000 in annual administrative costs and $2,004 as the cost of the SDC analysis (amortized over five years). The stormwater utility financial forecast assumes annual growth of 0.5%, which corresponds to approximately 60 new ERUs per year. Spreading the annual administrative cost of $7,004 over the 60 ERUs of annual growth results in an administrative charge of $117 per ERU, which equates to an effective markup of 9.47% on the other SDC components.

V.E. SUMMARY OF COSTS

Table V-4 provides a summary of the updated SDC calculation, both in terms of ERUs and impervious square feet.

Table V-4: Summary of Updated Stormwater SDC

Stormwater SDC Calculation	Reimbursement Fee	Improvement Fee	Administrative Fee	Total
Total Costs	$184,403	$1,286,542		
Growth in ERUs	1,192	1,192		
Charge per ERU	**$155**	**$1,079**	**$117**	**$1,351**
Charge per Impervious SF	***$0.0573***	***$0.3998***	***$0.0433***	***$0.5004***
			Existing SDC per ERU	**$920**
			Difference	**+$431**
			Existing SDC per Impervious SF	**$0.3408**
			Difference	**+$0.1596**

The charge per impervious square foot shown in **Table V-4** is computed by dividing the charge per ERU by 2,700 square feet, the defined impervious area per ERU.

Section VI. TRANSPORTATION SDC UPDATE

This section provides detailed calculations supporting the recommended transportation SDC.

VI.A. SYSTEM CAPACITY & CUSTOMER BASE

The transportation SDC calculation expresses the customer base in terms of P.M. peak hour trip-ends, recognizing the potential demand that each customer imposes on the City's transportation system. The City uses the Institute of Transportation Engineers (ITE) Trip Generation Manual to assign peak hour trip-ends to various types of development. **Table VI-1** summarizes the assumptions used to estimate peak hour trip-ends:

Table VI-1: Summary of Existing & Projected P.M. Peak Hour Trip-Ends

	PM Peak 2-Hour Period	PM Peak Hour Period
Number of Vehicle Trips (2000)[1]	24,500	12,250
Projected Number of Vehicle Trips (2025)[1]	37,600	18,800
Average Annual Growth Rate (2000 – 2025)	1.7%	1.7%
Estimated Number of Trips (2017)[2]	32,784	16,392
Incremental Growth (2017 – 2025)	**4,816**	**2,408**
Growth Share of Total	***12.8%***	***12.8%***

[1]Per Table 4-3 of the Troutdale 2005 Transportation System Plan (TSP). The 2005 TSP is used instead of the 2014 TSP because the 2014 TSP did not update these peak numbers.
[2]Derived by applying the average annual growth rate to the trip count in 2000.

As shown in **Table VI-1**, the growth projections are based on the City's 2005 Transportation System Plan. Because the 2005 TSP projects trips during a two-hour peak period, **Table VI-1** also shows the estimated number of trips during the peak one-hour period (by dividing by two). This data suggests that the City's transportation system currently supports 16,392 vehicle trips during the peak traffic hour, with an additional 2,408 trips expected by the time the City reaches buildout.

VI.B. REIMBURSEMENT FEE COST BASIS

The transportation system reimbursement fee calculation divides the eligible cost of unused capacity in the existing system by the capacity for additional PM peak hour trip-ends to compute the reimbursement fee per PM peak hour trip-end. The reimbursement fee cost basis is initially based on historical Transportation SDC Fund expenditures provided by the City as a representation of the investment in existing infrastructure with capacity to serve growth. These expenditures are then allocated between existing customers (used capacity) and growth (unused capacity).

Table VI-2 summarizes the calculation of the reimbursement fee cost basis:

Table VI-2: Transportation Reimbursement Fee Cost Basis

Fiscal Year	Transportation SDC Fund Expenditures	% of Capacity Remaining[1]	Amount Included In Cost Basis
2006-07	$ -	50.0%	$ -
2007-08	63,823	55.0%	35,103
2008-09	122,934	60.0%	73,760
2009-10	643,000	65.0%	417,950
2010-11	-	70.0%	-
2011-12	-	75.0%	-
2012-13	757,000	80.0%	605,600
2013-14	22,103	85.0%	18,788
2014-15	190,402	90.0%	171,362
2015-16	409,564	95.0%	389,086
Total	$2,208,826		$1,711,648

[1]Based on a 20-year amortization of annual Transportation SDC Fund expenditures

VI.C. IMPROVEMENT FEE COST BASIS

The calculation of the improvement fee divides the eligible cost of capacity-increasing capital projects by the estimated growth in P.M. peak-hour vehicle trips. The improvement fee cost basis consists of the following components:

- **Current (Uninflated) Cost of Capital Projects:** The transportation capital improvement program (CIP) includes $25,105,000 in capital project costs.
- **Deduction – Outside Sources:** The cost basis excludes expected funding from external resources. The City plans to partially fund six capital projects through a combination of contributions from the Oregon Department of Transportation, Multnomah County and other regional sources, and developer contributions.
- **Deduction – Projects Funding Existing Needs:** Consistent with ORS requirements, the improvement fee cost basis excludes projects that do not expand capacity to serve growth.
- **Deduction – SDC Fund Balance:** The improvement fee cost basis includes a deduction for the amount of cash that the City has in its SDC Fund to offset the cost of growth-related projects.

Table VI-3 summarizes the improvement fee cost basis:

Table VI-3: Transportation Improvement Fee Cost Basis

Capital Project	Current Cost (Uninflated)	% Utility-Funded	% Allocable to Growth	Amount In Cost Basis
Improve NW Graham Road	$ 3,400,000	16.2%	0.0%	$ -
Downtown Parking Lot	50,000	100.0%	0.0%	-
Downtown Parking Study	51,000	100.0%	25.0%	12,750

Capital Project	Current Cost (Uninflated)	% Utility-Funded	% Allocable to Growth	Amount In Cost Basis
Columbia Gorge Bike Hub	85,000	0.0%	0.0%	-
ADA Transition Plan for PW Facilities	15,000	100.0%	0.0%	-
Primary Access to Urban Renewal Area	3,197,000	100.0%	0.0%	-
Bicycle Parking in the CBD	31,000	100.0%	0.0%	-
Shared Roadway Pavement Markings	62,000	100.0%	0.0%	-
Pedestrian Crossings / Traffic Calming in the CBD	150,000	40.0%	0.0%	-
Improve Stark Street from 257th to Troutdale Road	3,690,000	10.0%	50.0%	184,500
Construct Pedestrian Accessways	120,000	100.0%	0.0%	-
Improve SW Hensley Road - N/S Leg	300,000	100.0%	50.0%	150,000
Signal at Buxton/Historic Columbia River Highway	250,000	20.0%	36.8%	18,391
Reconstruct and Improve NW Dunbar Avenue	468,000	100.0%	50.0%	234,000
Pedestrian Bridge from CBD to URA	3,074,000	100.0%	0.0%	-
Backage Road (Marine Drive Extension)	9,737,000	12.0%	36.8%	429,609
Update the Transportation System Plan	100,000	100.0%	12.8%	12,809
Sidewalk Infill	75,000	100.0%	0.0%	-
ADA Infill/Upgrades on Public Street	250,000	100.0%	0.0%	-
Less: Existing Transportation SDC Fund Balance				(562,393)
Total	**$25,105,000**			**$479,666**

VI.D. ADMINISTRATIVE COSTS

ORS 223.307(5) allows the SDC cost basis to include annual administrative costs and the (amortized) cost of developing SDCs. The pool of costs eligible for recovery includes an estimated $5,000 in annual administrative costs and $2,004 as the cost of the SDC analysis (amortized over five years). Based on the growth rate assumed for the water, wastewater, and stormwater utilities, this analysis assumes an annual growth rate of 0.5% for SDC revenue projections. This corresponds to approximately 82 new P.M. peak-hour vehicle trips per year. Spreading the annual administrative cost of $7,004 over the 82 additional trips results in an administrative charge of $85 per trip, which equates to an effective markup of 9.39% on the other SDC components.

VI.E. SUMMARY OF COSTS

Table VI-4 provides a summary of the updated SDC calculation.

Table VI-4: Summary of Updated Transportation SDC

Transportation SDC Calculation	Reimbursement Fee	Improvement Fee	Administrative Fee	Total
Total Costs	$1,711,648	$479,666		
Growth in P.M. Peak-Hour Trip-Ends	2,408	2,408		
Charge per Trip	**$711**	**$199**	**$85**	**$995**
			Existing SDC per Peak-Hour Trip-End	**$723**
			Difference	**+$272**

Section VII. CONCLUSION

VII.A. RECOMMENDED SDCS

Table VII-1 summarizes the recommended SDCs per equivalent unit.

Table VII-1: SDC Charge Summary

Type	Reimbursement Fee	Improvement Fee	Administrative Fee	Total	Unit
Water	$2,459	$4,567	$230	$7,256	HE
Sewer	$6,866	$2,335	$219	$9,420	ERU
Stormwater	$155	$1,079	$117	$1,351	ERU (2,700 SF)
Transportation	$711	$199	$85	$995	PM Peak Hour Trip-End

VII.B. ANNUAL ADJUSTMENT

We recommend the adoption of SDCs with a provision for annual adjustment based on the Construction Cost Index for Seattle, which is published at monthly intervals by the *Engineering News Record*. There is no equivalent index for Portland.

APPENDIX A: WATER SDC BY METER SIZE

The below table shows the calculated SDC by meter size. Flow factors provided by the AWWA determine the meter size multiplier for the SDC rate.

Meter Size	Multiplier	Charge
3/4" x 3/4"	1	$7,256
1"	1.7	$12,338
1-1/2"	3.3	$23,947
2"	5.3	$38,459
3"	10.0	$72,560
4"	16.7	$121,178
6"	33.3	$241,627
8"	53.3	$386,747

APPENDIX B: INSTITUTE OF TRANSPORTATION ENGINEERS COMMON TRIP GENERATION RATES AND RESULTING CHARGES

Code	Description	Unit of Measure	Adjusted Trips per Unit[1]	Charge per Unit
110	General Light Industrial	1,000 SF	1.08	$1,075
130	Industrial Park	1,000 SF	0.84	$836
140	Manufacturing	1,000 SF	0.75	$746
151	Mini-Warehouse	1,000 SF	0.29	$289
160	Data Center	1,000 SF	0.14	$139
210	Single-Family Detached Housing	Dwelling Units	1.02	$1,015
220	Apartment	Dwelling Units	0.67	$667
230	Residential Condominium/Townhouse	Dwelling Units	0.52	$517
240	Mobile Home Park	Dwelling Units	0.60	$597
254	Assisted Living	Beds	0.35	$348
310	Hotel	Rooms	0.61	$607
320	Motel	Rooms	0.56	$557
417	Regional Park	Acres	0.26	$259
430	Golf Course	Acres	0.39	$388
492	Health/Fitness Club	1,000 SF	4.06	$4,040
495	Recreational Community Center	1,000 SF	3.35	$3,333
520	Elementary School	1,000 SF	1.83	$1,826
522	Middle School/Junior High School	1,000 SF	1.49	$1,479
530	High School	1,000 SF	1.25	$1,245
540	Junior/Community College	1,000 SF	2.64	$2,627
560	Church	1,000 SF	0.94	$935
565	Daycare Center	1,000 SF	4.54	$4,515
590	Library	1,000 SF	7.20	$7,164
610	Hospital	1,000 SF	1.16	$1,154
620	Nursing Home	1,000 SF	1.01	$1,005
710	General Office Building	1,000 SF	1.49	$1,483
720	Medical-Dental Office Building	1,000 SF	4.27	$4,249
731	State Motor Vehicles Department	1,000 SF	19.93	$19,830
732	United States Post Office	1,000 SF	14.67	$14,597
750	Office Park	1,000 SF	1.48	$1,473
760	Research and Development Center	1,000 SF	1.07	$1,065
770	Business Park	1,000 SF	1.26	$1,254
812	Building Materials and Lumber Store	1,000 SF	5.56	$5,532
813	Free-Standing Discount Superstore	1,000 SF	3.17	$3,152
814	Variety Store	1,000 SF	3.34	$3,321
815	Free-Standing Discount Store	1,000 SF	2.66	$2,646
816	Hardware/Paint Store	1,000 SF	2.11	$2,099
817	Nursery (Garden Center)	1,000 SF	9.04	$8,995
820	Shopping Center	1,000 SF	1.86	$1,851
826	Specialty Retail Center	1,000 SF	5.02	$4,995
841	Automobile Sales	1,000 SF	2.80	$2,786
843	Automobile Parts Sales	1,000 SF	2.83	$2,819
848	Tire Store	1,000 SF	2.24	$2,227
850	Supermarket	1,000 SF	3.24	$3,227
851	Convenience Market (Open 24 Hours)	1,000 SF	17.38	$17,289
857	Discount Club	1,000 SF	4.63	$4,607

Code	Description	Unit of Measure	Adjusted Trips per Unit[1]	Charge per Unit
862	Home Improvement Superstore	1,000 SF	1.39	$1,388
880	Pharmacy/Drugstore without Drive-Through Window	1,000 SF	4.69	$4,663
881	Pharmacy/Drugstore with Drive-Through Window	1,000 SF	3.69	$3,675
890	Furniture Store	1,000 SF	0.19	$193
911	Walk-In Bank	1,000 SF	12.13	$12,069
912	Drive-In Bank	1,000 SF	7.30	$7,259
925	Drinking Place	1,000 SF	15.49	$15,413
931	Quality Restaurant	1,000 SF	3.83	$3,814
932	High-Turnover (Sit-Down) Restaurant	1,000 SF	7.35	$7,313
933	Fast-Food Restaurant without Drive-Through Window	1,000 SF	20.83	$20,725
934	Fast-Food Restaurant with Drive-Through Window	1,000 SF	19.37	$19,270
936	Coffee/Donut Shop without Drive-Through Window	1,000 SF	10.26	$10,208
937	Coffee/Donut Shop with Drive-Through Window	1,000 SF	14.81	$14,731
938	Coffee/Donut Kiosk	1,000 SF	16.32	$16,238
944	Gasoline/Service Station	Fueling Positions	5.48	$5,450
945	Gasoline/Service Station with Convenience Market	Fueling Positions	1.73	$1,725
946	Gasoline/Service Station with Car Wash	Fueling Positions	3.47	$3,451

Source: ITE Trip Generation Manual, 9th Edition, compiled by FCS GROUP.

[1]"Adjusted PM peak hour trips" reflects a deduction for pass-by and diverted/linked trips between land-use types.