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Water, Wastewater, Stormwater, and Transportation System Development Charge Update

Final Report

Prepared for:

Molalla Oregon

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1. This report contains only the current methodology for Water and Stormwater SDC's.
2. For Wastewater and Transportation Methodology see 2019 Methodology Update

City of Molalla
2016 Water, Wastewater, Stormwater, and Transportation
SDC Methodology Update

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Introduction/History of the Project

The City of Molalla conducts periodic updates to its Comprehensive Plan and its various Public Facility Plans to provide orderly and sustainable growth of municipal infrastructure. A key component to funding these public facilities is the system development charge (SDC) program. SDCs are one-time charges for new development—designed to recover the costs of infrastructure capacity needed to serve new development. This section describes the policy context and project scope upon which the body of this report is based. It concludes with a numeric overview of the calculations presented in subsequent sections of this report for water, wastewater, stormwater, and transportation SDCs.

The city's current schedule of SDCs were last reviewed in January of 2014. In March of 2016, the City hired Donovan Enterprises, Inc. to review and update the water, wastewater, stormwater, and transportation SDC methodologies. With this review and update, the City has stated a number of objectives:

- Review the basis for charges to ensure a consistent methodology;
- Address specific policy, administrative, and technical issues which had arisen from application of the existing SDCs;
- Determine the most appropriate and defensible fees, ensuring that development is paying its way;
- Consider possible revisions to the structure or basis of the charges which might improve equity or proportionality to demand;
- Provide clear, orderly documentation of the assumptions, methodology, and results, so that City staff could, by reference, respond to questions or concerns from the public.

This report provides the documentation of that effort, and was done in close coordination with City staff and available facilities planning documents. The SDC updates comply with Molalla Municipal Code chapter 13.14.

Table 1 gives a component breakdown for the current and proposed residential equivalent SDCs for water, wastewater, stormwater, and transportation.

Table 1 - Component Breakdown of the Proposed Residential Equivalent SDCs

Line Item Description	Service Unit	Proposed	Current	Difference
Water:	per 3/4" water meter			
Reimbursement fee		$ 619	$ 2,400	$ (1,781)
Improvement fee		3,124	1,150	1,974
Administration fee @ 2%		75	70	5
Total		$ 3,818	$ 3,620	$ 198
Wastewater:	per 3/4" water meter			
Reimbursement fee		$ 198	$ 3,428	$ (3,230)
Improvement fee		4,502	1,082	3,420
Administration fee @ 2%		94	90	4
Total		$ 4,794	$ 4,600	$ 194
Stormwater:	per Equivalent Service Unit			
Reimbursement fee		$ 41	$ 21	$ 20
Improvement fee		833	724	109
Administration fee @ 2%		17	15	2
Total		$ 891	$ 760	$ 131
Transportation:	per PM peak hour trip			
Reimbursement fee		$ 769	$ 114	$ 655
Improvement fee		3,153	3,192	(39)
Administration fee @ 2%		78	67	11
Total		$ 4,000	$ 3,373	$ 627

Analytical Process for the Methodology Updates

The essential ingredient in the development of an SDC methodology is valid sources of data. For this project, the consultant team has relied on a number of data sources. The primary sources have been the newly formulated and adopted capital improvement plans for water, wastewater, stormwater, and transportation. We have supplemented these data sources with City utility billing records, certified census data, and other documents that we deemed helpful, accurate, and relevant to this study. Table 2 contains a bibliography of the key documents/sources that we relied upon to facilitate our analysis and hence the resulting SDCs.

Table 2 - Data Sources for the Calculation of SDCs

Service	Master Plan Document and/or Corroborating Source Documentation
Water	• City of Molalla water system twenty year capital improvement plan, August, 2016; City of Molalla Public Works Department • City of Molalla Comprehensive Annual Financial Report for the Fiscal Year Ended June 30, 2015 • City of Molalla Water System Fixed Asset Schedule; June 30, 2015; City Records • City of Molalla Water System Construction Work in Progress Balances Work Papers; June 30, 2015; City Records • City of Molalla Utility Billing records for fiscal 2014-15 • Water meters in service per City Staff; effective June, 2016
Wastewater	• City of Molalla wastewater system twenty year capital improvement plan, August, 2016; City of Molalla Public Works Department • City of Molalla Comprehensive Annual Financial Report for the Fiscal Year Ended June 30, 2015 • 2016 Discharge Monitoring Reports; City of Molalla • Molalla wastewater system fixed asset schedule; June 30, 2015; City records • City of Molalla Utility Billing System – wastewater system active accounts and Equivalent Dwelling Units in service report; June, 2015 • Portland State University, College of Urban Affairs, Population Research Center; Certified census for Molalla, Oregon; June, 2015
Stormwater	• City of Molalla stormwater system twenty year capital improvement plan, August, 2016; City of Molalla Public Works Department • City of Molalla Comprehensive Annual Financial Report for the Fiscal Year Ended June 30, 2015 • City of Molalla Comprehensive Plan; land inventory by land use designations; August 6, 2014 • Molalla stormwater system fixed asset schedule; June 30, 2015; City records
Transportation	• City of Molalla transportation system twenty year capital improvement plan, August, 2016; City of Molalla Public Works Department • City of Molalla transportation system fixed asset schedule; June 30, 2015; City records • U.S. Bureau of the Census; American Community Survey: ✓ City of Molalla dwelling units; 2015 estimated ✓ City of Molalla number of employees; 2015 estimated • Trip Generation Manual; Institute of Transportation Engineers; 9th Edition • City of Molalla Residential Land Needs Report; Winterbrook Planning; July, 2009 • City of Molalla Urban Reserves Findings; Winterbrook Planning; February, 2010

The data sources shown in Table 2 were used to formulate the two (2) components of the SDCs. These components are the reimbursement and improvement fees. The City has been constructing the SDCs with these two components for over twenty years, and our analysis does not propose to change that methodology. A brief definition of the two components are:

- *The reimbursement fee* considers the cost of existing facilities, prior contributions by existing users of those facilities, the value of the unused/available capacity, and generally accepted ratemaking principles. The objective is future system users contribute no more than an equitable share to the cost of existing facilities. The reimbursement fee can be spent on capital costs or debt service related to the systems for which the SDC is applied.
- *The improvement fee* portion of the SDC is based on the cost of planned future facilities that expand the system's capacity to accommodate growth or increase its level of performance. In developing an analysis of the improvement portion of the fee, each project in the respective service's capital improvement plan is evaluated to exclude costs related to correcting existing system deficiencies or upgrading for historical lack of capacity. An example is a facility which improves system capacity to better serve current customers. The costs for this type of project must be eliminated from the improvement fee calculation. Only capacity increasing/level of performance costs provide the basis for the SDC calculation. The improvement SDC is calculated as a function of the estimated number of additional equivalent residential units to be served by the City's facilities over the planning period. Such a fee represents the greatest potential for future SDC changes. The improvement fee must also provide a credit for construction of a qualified public improvement.

SDC Legal Authorization and Background

SDCs are authorized by Oregon Revised Statute (ORS) 223.297-314. The statute is specific in its definition of system development charges, their application, and their accounting. In general, an SDC is a one-time fee imposed on new development or expansion of existing development, and assessed at the time of development approval or increased usage of the system. Overall, the statute is intended to promote equity between new and existing customers by recovering a proportionate share of the cost of existing and planned/future capital facilities that serve the developing property. Statute further provides the framework for the development and imposition of SDCs and establishes that SDC receipts may only be used for capital improvements and/or related debt service.

Finally, two cost basis adjustments are potentially applicable to both reimbursement and improvement fees: fund balance and compliance costs. In this study, the project team as paid attention to this detail to align future infrastructure costs to those responsible for paying those costs. The reasons for this attention is as follows:

- *Fund Balances* - To the extent that SDC revenue is currently available in fund balance, that revenue should be deducted from its corresponding cost basis. For example, if the city has wastewater improvement fees that it has collected but not spent, then those unspent improvement fees should be deducted from the wastewater system's improvement fee cost basis to prevent charging twice for the same capacity.
- *Compliance 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 compliance costs in its SDCs.

Reimbursement Fee Methodology

The reimbursement fee represents a buy-in to the cost, or value, of infrastructure capacity within the existing system. Generally, if a system were adequately sized for future growth, the reimbursement fee might be the only charge imposed, since the new customer would be buying existing capacity. However, staged system expansion is needed, and an improvement fee is imposed to allocate those growth related costs. Even in those cases, the new customer also relies on capacity within the existing system, and a reimbursement component is warranted.

In order to determine an equitable reimbursement fee to be used in conjunction with an improvement fee, two points should be highlighted. First, the cost of the system to the City's customers may be far less than the total plant-in-service value. This is due to the fact that elements of the existing system may have been contributed, whether from developers, governmental grants, and other sources. Therefore, the net investment by the customer/owners is less. Second, the value of the existing system to a new customer is less than the value to an existing customer, since the new customer must also pay, through an improvement fee, for expansion of some portions of the system.

The method used for determining the reimbursement fee accounts for both of these points. First, the charge is based on the net investment in the system, rather than the gross cost. Therefore, donated facilities, typically including local facilities, and grant-funded facilities, would be excluded from the cost basis. Also, the charge should be based on investments clearly made by the current users of the system, and not already supported by new customers. Tax supported activities fail this test since funding sources have historically been from general revenues, or from revenues which emanate, at least in part, from the properties now developing. Second, the cost basis is allocated between used and unused capacity, and, capacity available to serve growth. In the absence of a detailed asset by asset analysis, it is appropriate to allocate the cost of existing facilities between used and available capacity proportionally based on the forecasted population growth as converted to equivalent dwelling units over the planning period. This approach reflects the philosophy, consistent with the City's Updated Master Plans, that facilities have been sized to meet the demands of the customer base within the established planning period.

Improvement Fee Methodology

There are three basic approaches used to develop improvement fee SDCs: "standards driven", "improvements-driven", and "combination/hybrid" approaches. The "standards-driven" approach is based on the application of Level of Service (LOS) standards for facilities. Facility needs are determined by applying the LOS standards to projected future demand, as applicable. SDC-eligible amounts are calculated based on the costs of facilities needed to serve growth. This approach works best where level of service standards have been adopted but no specific list of projects is available. The "improvements-driven" approach is based on a specific list of planned capacity increasing capital improvements. The portion of each project that is attributable to growth is determined, and the SDC-eligible costs are calculated by dividing the total costs of growth-required projects by the projected increase in projected future demand, as applicable. This approach works best where a detailed master plan or project list is available and the benefits of projects can be readily apportioned between growth and current users. Finally, the combination/hybrid-approach includes elements of both the "improvements driven" and "standards-driven" approaches. Level of Service standards may be used to create a list of planned capacity-increasing projects, and the growth required portions of projects are then used as the basis for

determining SDC eligible costs. This approach works best where levels of service have been identified and the benefits of individual projects are not easily apportioned between growth and current users.

In the past, the City has utilized the "improvements-driven" approach for the calculation of SDCs. This study continues to use this method, and has relied on the capital improvement plans that are incorporated in the master plans, and plan updates for the water, wastewater, stormwater, and transportation systems.

For this SDC methodology update, the improvement fee represents a proportionate share of the cost to expand the systems to accommodate growth. This charge is based on the newly adopted capital improvement plans established by the City for the four (4) municipal services. The costs that can be applied to the improvement fees are those that can reasonably be allocable to growth. Statute requires that the capital improvements used as a basis for the charge be part of an adopted capital improvement schedule, whether as part of a system plan or independently developed, and that the improvements included for SDC eligibility be capacity or level of service expanding. The improvement fee is intended to protect existing customers from the cost burden and impact of expanding a system that is already adequate for their own needs in the absence of growth.

The key step in determining the improvement fee is identifying capital improvement projects that expand the system and the share of those projects attributable to growth. Some projects may be entirely attributable to growth, such as a wastewater collection line that exclusively serves a newly developing area. Other projects, however, are of mixed purpose, in that they may expand capacity, but they also improve service or correct a deficiency for existing customers. An example might be a water distribution reservoir that both expands water storage capacity and corrects a chronic capacity issue for existing users. In this case, a rational allocation basis must be defined.

The improvement portion of the SDC is based on the proportional approach toward capacity and cost allocation in that only those facilities (or portions of facilities) that either expand the respective system's capacity to accommodate growth or increase its respective level of performance have been included in the cost basis of the fee. As part of this SDC update, City Staff and their engineering consultants were asked to review the planned capital improvement lists in order to assess SDC eligibility. The criteria in Figure 1 were developed to guide the City's evaluation:

Figure 1 - SDC Eligibility Criteria

City of Molalla

Steps Toward Evaluating

Capital Improvement Lists for SDC Eligibility

ORS 223

1. Capital improvements mean the facilities or assets used for :
    a. Water supply, transmission, storage and distribution
    b. Wastewater collection, transmission, treatment, and disposal
    c. Stormwater, conveyance, detention, treatment, and disposal
    d. Transportation – intersection improvements, street reconstruction and widening, roadway enhancement, and bike/ped expansion

    This definition DOES NOT ALLOW costs for operation or routine maintenance of the improvements;
2. The SDC improvement base shall consider the cost of projected capital improvements needed to increase the capacity of the systems to which the fee is related;
3. An increase in system capacity is established if a capital improvement increases the "level of performance or service" provided by existing facilities or provides new facilities.

Under the City' approach, the following rules will be followed

1. Repair costs are not to be included;
2. Replacement costs will not be included unless the replacement includes an upsizing of system capacity and/or the level of performance of the facility is increased;
3. New regulatory compliance facility requirements fall under the level of performance definition and should be proportionately included;
4. Costs will not be included which bring deficient systems up to established design levels.

In developing the improvement fee, the project team in consultation with City staff evaluated each of its CIP projects to exclude costs related to correcting existing system deficiencies or upgrading for historical lack of capacity. Only capacity increasing/level of performance costs were used as the basis for the SDC calculation, as reflected in the capital improvement schedules developed by the City. The improvement fee is calculated as a function of the estimated number of projected additional Equivalent Residential Units for water, wastewater, and stormwater over the planning horizon. We measure demand for transportation facilities in PM peak-hour vehicle trips (PM PHVTs). One PM PHVT represents one person beginning or ending a vehicular trip at a certain property during the afternoon rush hour. Once the future costs to serve growth have been segregated (i.e., the numerator), they can be divided into the total number of new EDUs (and PM PHVT's) that will use the capacity derived from those investments (i.e., the denominator).

Methodology for the Granting of Credits, Discounts, and Exemptions

SDC Credits Policy

ORS 223.304 requires that credit be allowed for the construction of a "qualified public improvement" which is required as a condition of development approval, is identified in the Capital Improvement Plan, and either is not located on or contiguous to property that is the subject of development approval, or is 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. The credit for a qualified public improvement may only be applied against an SDC for the same type of improvement, and may 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. For multi-phase projects, any excess credit may be applied against SDCs that accrue in subsequent phases of the original development project. In addition to these required credits, the City may, if it so chooses, provide a greater credit, establish a system providing for the transferability of credits, provide a credit for a capital improvement not identified in the Capital Improvement Plan, or provide a share of the cost of an improvement by other means.

The City has adopted a policy for granting SDC credits, and has codified this policy in the Molalla Municipal Code (MMC) §13.14.110. The adopted SDC credit policy consists of five (5) items as follows:

MMC §13.14.110

A. A system development charge shall be imposed when a change of use of a parcel or structure occurs, but credit shall be given for the computed system development charge to the extent that prior structures existing and services were established on or after the effective date of the ordinance codified in this chapter. The credit so computed shall not exceed the calculated system development charge. No refund shall be made on account of such credit.

B. A credit shall be given for the cost of a qualified public improvement associated with a development. For qualified public improvements which are located in whole or in part on or contiguous to property that is the subject of development approval, and are required to be built larger or with greater capacity than is necessary for the particular development to which the improvement fee is related, credit shall be granted only for the cost of that portion of such improvement that exceeds the minimum standard facility size or capacity needed to serve the particular development project or property. The applicant shall have the burden of demonstrating that a particular improvement qualifies for credit under this section. The credit provided for by this subsection shall be only for the improvement fee charged for the type of improvement being constructed and shall not exceed the improvement fee even if the cost of the capital improvement exceeds the applicable improvement fee.

C. Credit shall not be transferable from one development to another except in compliance with standards adopted by the City Council.

D. Credit shall not be transferable from one type of capital improvement to another.

E. Credits shall be used not later than 10 years from the date the credit is given. (Ord. 1999-14 §1; Ord. 1991-6 §1)

SDC Discount Policy

The City, at its sole discretion may discount the SDC rates by choosing not to charge a reimbursement fee for excess capacity, or by reducing the portion of growth-required improvements to be funded with SDCs. A discount in the SDC rates may also be applied on a pro-rata basis to any identified deficiencies, which must to be funded from sources other than improvement fee SDCs. The portion of growth-required costs to be funded with SDCs must be identified in the CIP. Because discounts reduce SDC revenues, they increase the amounts that must come from other sources, such as user fees or general fund contributions, in order to acquire the facilities identified in the Updated Master Plan(s).

Partial and Full SDC Exemption

The City may exempt certain types of development, from the requirement to pay SDCs. Exemptions reduce SDC revenues and, therefore, increase the amounts that must come from other sources, such as user fees and property taxes. As in the case of SDC credits, the City has articulated a policy relative to partial and full SDC exemption. This SDC exemption policy is codified in MMC §13.14.100, and is as follows:

A. Structures and uses established and existing on or before the effective date of the ordinance codified in this chapter are exempt from a system development charge, to the extent that such structures and uses are not altered, added to, replaced, or changed in use so as to increase demands on any capital improvement for which systems development charges are imposed.

B. Additions to single-family dwellings that do not constitute the addition of a dwelling unit, as defined by the State Uniform Building Code, are exempt from all portions of the system development charge.

C. An alteration, addition, replacement or change in use that does not increase the parcel's or structure's use of the capital improvement facility is exempt from all portions of the system development charge.

D. A project financed by City revenues is exempt from all portions of the system development charge. (Ord. 1999-14 §1; Ord. 1991-6 §1)

Water SDCs

Water Capital Improvement Plan

The principal source document for the water capital improvement plan (CIP) was the 2016 twenty (20) year Water System Capital Improvement Plan. For this water SDC methodology update, the 2016 water CIP was reviewed for accuracy with City Staff and where appropriate amended. This amendment process consisted of two steps. The first step was to eliminate master plan projects that City Staff deemed unnecessary at the current time due to the very long lead times anticipated for their development. The second step in the CIP amendment process was to eliminate the cost of planned projects (or portions of projects) that have been funded and constructed since the adoption of the last water master plan in 1996. In this case, the planned future costs are deducted from the CIP. The actual costs spent on these projects were capitalized by the City, and now reside in the water system fixed asset inventory (i.e., balance sheet assets). These historical costs will be included in the reimbursement fee calculations.

The amended water system CIP now consists of future projects that remain a 20 year priority for the City, and only consists of projects yet to be completed. The resulting CIP that was used for this SDC methodology update is shown in summary form in Table 3.

Table 3 – Adopted 2016 Water System Capital Improvement Plan

Recommended Water Capital Improvement Plan														
1996 CIP Project Number	Project Source	Project Name	Project Description	Original Year	New Priority Year 2017-2021	New Priority Year 2022-2026	New Priority Year 2027-2036	Master Plan Priority	Length	SDC Funding Eligible (Y/N)	SDC Share %	1996 Master Plan Cost Est.	2016 Est. Project Cost (67.54%)	SDC Eligible Cost
Water Supply & Treatment Projects														
15	WMP	New Well Source	600 gpm well, well house, piping, electrical, controls, emergency power, &	1996	2017-21			High	N/A	Y	100%	$ 241,500	$ 404,609	$ 404,609
16	WMP	New Treatment Capacity Projects	Building expansion, package plant, site piping, emergency power, & control systems	1996	2017-21			High	N/A	Y	100%	$ 979,800	$ 1,641,557	$ 1,641,557
Transmission Projects														
12	WMP	Transmission Main	New 16" transmission main from well field to new grid with valving and metering	1996	2017-21			High	3000	Y	100%	$ 296,700	$ 497,091	$ 497,091
Distribution Projects														
C	WMP	Debra St (Frances north to 14")	Replace existing 6" waterline with 8"	1996	2017-21			High	N/A	Y	43.8%	$ 19,320	$ 32,369	$ 14,178
1	WMP	E/W-1, North E/W grid main	Construct 14" waterline	2000-01	2017-21	2022-26		Annual	5200	Y	100%	$ 430,560	$ 721,360	$ 721,360
2	WMP	E/W-2, Big Meadow E/W grid main	Construct 10" waterline	2000-01	2017-21	2022-26		Annual	5200	Y	100%	$ 330,096	$ 553,043	$ 553,043
3	WMP	E/W-3, Bear Creek E/W grid main	Construct 10" waterline	2005-06				Annual	6050	Y	100%	$ 384,054	$ 643,444	$ 643,444
4	WMP	N/S-2, School N/S grid main - north	Construct 12" waterline	2000-01	2017-21	2022-26		Annual	4400	Y	100%	$ 315,744	$ 528,997	$ 528,997
5	WMP	N/S-2, School N/S grid main – south	Construct 10" waterline	2006			2027-36	High	900	Y	100%	$ 57,132	$ 95,719	$ 95,719
11	WMP	Molalla Ave (Miller to N grid main)	Construct 14" waterline	2000-01	2017-21	2022-26		Medium	1600	Y	68.3%	$ 132,480	$ 221,957	$ 151,504
12	WMP	Big Meadows Tie N grid main to Meadow Dr.	Construct 10" waterline	2000-01	2017-21	2022-26		Medium	1650	Y	100%	$ 104,742	$ 175,485	$ 175,485
	CDBG	Lola Avenue	Replace existing 4" pipe with 8" from 3rd St to 5th St	2016	2016			High	700	Y	0%		$ 136,500	$ -
	WMP	Water service upgrade	System wide replacements	Annual	2017-21	2022-26	2027-36	Annual		Y	0%	$ 414,000	$ 693,616	$ -
Storage Projects														
	WMP	New 2.0 MG concrete reservoir	Construct new reservoir near well field	2001				Medium		Y	100%	$ 1,393,800	$ 2,335,173	$ 2,335,173
	WMP	Pump Station	Construct expandable pump station for well field reservoir	2001				Medium		Y	100%	$ 345,000	$ 578,013	$ 578,013
	WMP	Annual Dist. System Replacements	Replace aging and undersized waterlines in distribution system	1996	2017-21	2022-26	2027-36	Annual		Y	43.8%	$ 2,257,459	$ 6,400,000	$ 2,803,200
											Subtotal	**$ 7,702,387**	**$ 15,658,932**	**$ 11,143,372**

Table 3 – Adopted 2016 Water System Capital Improvement Plan (Continued)

Operation, Maintenance, and Replacement Projects														
1996 CIP Project Number	Project Source	Project Name	Project Description	Original Year	New Priority Year 2017-2120	New Priority Year 2021-2025	New Priority Year 2026-2035	Master Plan Priority	Length	SDC Funding Eligible (Y/N)	SDC Share %	1996 Master Plan Cost Est.	2016 Est. Project Cost (67.54%)	SDC Eligible Cost
N/A	Staff	Update Water Master Plan	Provide update to existing water master plan	2016	2017-21			High	N/A	N	100%		$ 250,000	$ 250,000
N/A	Staff	River intake upgrade	Add ground wells at intake to improve and maintain treatment during high turbidity	2016	2017-21			High	520	N	0%		$ 500,000	$ -
N/A	Staff	Vehicle replacement program	Replace vehicles at end of life	2016	2017-21	2022-26		Med	N/A	N	0%		$ 70,000	$ -
N/A	Staff	Reservoir exterior wall improvements	Repairs to concrete reservoir exterior walls	2016	2017-21	2022-26	2027-36	Med	N/A	N	0%		$ 90,000	$ -
N/A	Staff	Water Treatment Plant security improvements	Install security gate, lighting, and surveillance.	2106	2017-21	2022-26	2027-36	High	N/A	N	0%		$ 150,000	$ -
N/A	Staff	Water Treatment Plant Energy Efficient Lighting	Upgrade plant lighting with internal and external low energy LED lighting	2016	2017-21			Med	N/A	N	0%		$ 60,000	$ -
N/A	Staff	Filter #1 Media Replacement in 2026	Recommended replacement cycle on filter media is 10 years	2016			2027-36	Med	N/A	N	0%		$ 110,000	$ -
N/A	Staff	Filter #3 & #4 Media Replacement in 2030	Recommended replacement cycle on filter media is 10 years / this filter is seasonal	2016	2017-21		2027-36	High	N/A	N	0%		$ 130,000	$ -
N/A	Staff	Back up effluent pump and motor for Filter #1 and backup effluent pump	These items will be needed to meet our equipment redundancy requirements and	2016	2017-21		2027-36	High	N/A	N	0%		$ 15,000	$ -
N/A	Staff	Rebuild existing backwash pumps and motor, surface wash pumps and motors.	for these item it will be necessary to rebuild/replace these pumps and motors on a 15 year cycle.	2016	2017-21		2027-36	Med	N/A	N	0%		$ 10,000	$ -
N/A	Staff	Rebuild Raw Water 100HP Pumps	Instead of redundant pumps and motors for these item it will be necessary to	2016	2017-21		2027-36	Med	N/A	N	0%		$ 10,000	$ -
N/A	Staff	Rebuild Raw Water 75HP Pump	Instead of redundant pumps and motors for these item it will be necessary to	2016	2017-21		2027-36	Med	N/A	N	0%		$ 8,000	$ -
N/A	Staff	Control System & SCADA Upgrades - Design & Installation	Replace obsolete system controls hardware to maintain SCADA operations	2016	2017-21		2027-36	High	N/A	N	0%		$ 100,000	$ -
N/A	Staff	Public Work Shops Building	Construct new shop for storage of equipment and crew office/lunch/shower	2016	2017-21			High	N/A	N	0%		$ 175,000	$ -
N/A	Staff	Clean & Inspect Reservoirs	Clean and inspect with diver every 10 years alternating every 5 years	2016	2017-21	2022-26	2027-36	Recurring	N/A	N	0%		$ 75,000	
N/A	Staff	Replace building roof on Filter #1 Plant Building	Construct new shop for storage of equipment and crew office/lunch/shower	2016			2027-36	Med	N/A	N	0%		$ 60,000	$ -
											Subtotal		**$ 1,813,000**	**$ 250,000**
											Water CIP Totals		**$ 17,471,932**	
											SDC Totals		**65%**	**$ 11,393,372**
											Rate Totals		**35%**	**$ 6,078,560**

Table 3 – Adopted 2016 Water System Capital Improvement Plan (Continued)

Completed Master Plan Projects

1996 CIP Project Number	Project Source	Project Name	Project Description	Original Year	New Priority Year 2015-2019	New Priority Year 2020-2024	New Priority Year 2025-2034	Master Plan Priority	Length	SDC Funding Eligible (Y/N)	SDC Share %	1996 Master Plan Cost Est.	2016 Est. Project Cost (67.54%)	SDC Eligible Cost
	WMP	Molalla River Intake Project	Pump station, wet well, intake structure, piping, site work, controls, telemetry, &	1996				High	N/A		0%	$ 648,600		$ -
L & 17	WMP	Upgrade to Existing Treatment Plant	Inline mixer, 400,000 gal clear well, sodium hypochlorite disinfection, influent	1996				High	N/A		76%	$ 370,668		$ 280,968
A	WMP	Patrol St (E dead end to 14" on Hwy)	Extend 6" waterline from East end of Patrol St to Hwy 211	2001				Medium	N/A		0%	$ 33,810		$ -
B	WMP	Cole St (4th to Main)	Replace existing 2" and 4" waterline with 6"	2001				Medium	N/A		0%	$ 36,294		$ -
D	WMP	Frances Christopher link W of Debra	Replace existing 2" waterline with 6"	2001				Medium	N/A		0%	$ 9,660		$ -
E	WMP	Hood St South of 5th	Replace existing 2" waterline with 6"	2001				Medium	N/A		0%	$ 14,490		$ -
F	WMP	Metzler Ave S of Section St	Replace existing 2" waterline with 6"	2001				Medium	400		0%	$ 38,640		$ -
G	WMP	8th St (Hart to Molalla)	Construct new 8" waterline from Hart to Molalla	2001				Medium	790		0%	$ 38,640		$ -
H	WMP	Toliver Rd (Del Mar to Molalla)	Replace existing 4" and 6" waterline with 12"	1996				High	1350		0%	$ 132,756		$ -
I	WMP	Main St (Hwy 213 to Shaver)	Replace existing 6" waterline with 12"	1996				High	680		0%	$ 455,676		$ -
6	WMP	Del Mar tie to N UGB	Construct 12" waterline	2000-01				Medium	2450		0%	$ 175,812		$ -
7	WMP	N/S-1, Western N/S grid main north	Construct 12" waterline	2000-01				High	4400		0%	$ 315,744		$ -
8	WMP	N/S-1, Western N/S grid main south	Construct 10" waterline	2006				High	950		0%	$ 60,306		$ -
9	WMP	Hwy 213 Main to S grid main	Construct 12" waterline	2006				Low	1500		0%	$ 95,220		$ -
10	WMP	Hwy 213 (Main to Toliver)	Construct 12" waterline	1996				High	2000		0%	$ 143,520		$ -
13	WMP	5th St (Mathias to Eckerd)	Construct 14" waterline	2000-01				Medium	1300		0%	$ 107,640		$ -
13	WMP	Transmission Main	New 16" transmission main from treatment plant to grid with valving and metering	1996				High	10000		0%	$ 924,600		$ -
	WMP	Paint existing reservoir	Repaint reservoir at treatment plant	1996				High	N/A		0%	$ 13,800		$ -
	WMP	New 2.0 MG concrete reservoir	Construct new reservoir near treatment plant	1996				High	N/A		100%	$ 1,131,600		$ 1,131,600
											Total	**$ 4,747,476**		**$ 1,412,568**
											Difference	**$ 3,334,908**		

Water Customers Current and Future Demographics

Existing Water Demand and Population Growth

Current Molalla water demands are based on historical customer billing records, and actual water meters in service as of June 30, 2016. Projected demands are estimated based on an approximate population growth rate of 3.06 percent within the City's existing urban growth boundary. This annual population growth factor is based on the observed population growth in the City from 1998 through 2015.

Estimated Demand per Equivalent ¾" Water Meter

The City serves single-family residential customers and a significant number of multifamily housing developments and commercial customers. Single-family residential water services generally have a consistent daily pattern of water use whereas water demands for multifamily residences, commercial and industrial users may vary significantly from service to service depending on the number of multifamily units per service or the type of commercial enterprise. When projecting future water demands based on population change, the water needs of nonresidential and multi-family residential customers are represented by comparing the water use volume at these services to the average single-family residential water service. A method to estimate this relationship is to calculate "equivalent dwelling units (EDUs)". In the case of Molalla, the standard residential unit of demand is the rated capacity (in gallons per minute) of the ¾" water meter. As of June 30, 2016, the City had 2,838 active water meters in service, 2,483 of which were ¾" meters serving single family residential customers. In other words, roughly 87% of all active water services were assigned to the single family residential customer class. The process for calculating equivalent ¾" meters is shown below in Table 4.

Table 4 – Estimated ¾" Equivalent Meters in Service as of June 30, 2016

Meter Size	Total Meters In Service	AWWA Rated Flow (GPM)*	Flow Factor Equivalence	3/4" Meter Equivalents
0.75"x 0.75" - Displacement Multi-jet	2,483	30	1.00	2,483
1.00 inch - Displacement Multi-jet	86	50	1.67	143
1.50 inch - Displacement Class I Turbine	199	100	3.33	663
2.00 inch - Displacement or Class I & II Turbine	39	160	5.33	208
3.00 inch - Displacement	28	300	10.00	280
4.00 inch - Displacement or Compound	3	500	16.67	50
6.00 inch - Displacement or Compound	-	1,000	33.33	-
8.00 inch - Compound	-	1,600	53.33	-
Total	2,838			3,828

* - AWWA Manual of Practice M3; Safety Practices for Water Utilities; Table 2-2 Total Quantities

Projected Demands

The planning horizon for the master plan is approximately 20 years, through the year 2036. That is the forecast horizon that is used for the water SDC methodology update. In the 1996 master plan, an

estimated number of EDUs per acre for each land use type was established based on (then) current water demands by customer class and total developed land area by land use type. Land use type is analogous to customer class, which is to say the land use or zoning of a particular property reflects the type of water service, such as residential or commercial, provided to that property. The estimated number of potential EDUs per acre was applied to developable land within the existing water service area to estimate water demand.

For this SDC methodology update, the project team did not use the old master plan strategy to forecast future water demand base on land use. With the benefit of actual meters in service, and a population growth forecast that is predicated on existing growth trends for the City a forecast of future equivalent ¾" meters was developed. Based upon these decision rules, the forecast of equivalent meters in use for this water SDC methodology update are shown below in Table 5

Table 5 – Forecast of Equivalent ¾" Meters for the 2016 Water SDC Methodology Update Study

	Forecasted	Meter Equivalents		
Fiscal Year	Growth Rate	Beginning of Year[1]	Additions	End of Year
2016	3.06%			3,828
2017	3.06%	3,828	117	3,945
2018	3.06%	3,945	121	4,066
2019	3.06%	4,066	124	4,190
2020	3.06%	4,190	128	4,318
2021	3.06%	4,318	132	4,450
2022	3.06%	4,450	136	4,586
2023	3.06%	4,586	140	4,727
2024	3.06%	4,727	145	4,871
2025	3.06%	4,871	149	5,020
2026	3.06%	5,020	154	5,174
2027	3.06%	5,174	158	5,332
2028	3.06%	5,332	163	5,496
2029	3.06%	5,496	168	5,664
2030	3.06%	5,664	173	5,837
2031	3.06%	5,837	179	6,016
2032	3.06%	6,016	184	6,200
2033	3.06%	6,200	190	6,389
2034	3.06%	6,389	196	6,585
2035	3.06%	6,585	202	6,787
2036	3.06%	6,787	208	6,994
			3,167	

[1] Source - Molalla utility billing records

Reimbursement Fee Calculations

As discussed earlier in this report, the reimbursement fee represents a buy-in to the cost, or value, of infrastructure capacity within the existing system. In theory, this should be a simple calculation. Simply go to the Utility's balance sheet, find the book value of assets in service, and divide that cost by the

number of forecasted new connections to the water system. That is a simple calculation, and it is wrong. In order to determine an equitable reimbursement we have to account for some key issues of rate equity;

- First, the cost of the system to the City's existing customers may be far less than the total plant-in-service value. This is due to the fact that elements of the existing system may have been contributed, whether from developers, governmental grants, and other sources.
- Second, the value of the existing system to a new customer is less than the value to an existing customer, since the new customer must also pay, through an improvement fee, for expansion of some portions of the system.
- Third, the accounting treatment of asset costs generally has no relationship to the capacity of an asset to serve growth. In the absence of a detailed asset by asset analysis detailed in the balance sheet (or fixed asset schedule), a method has to be used to allocate cost to existing and future users of the asset. Generally, it is industry practice to allocate the cost of existing facilities between used and available capacity proportionally based on the forecasted population growth as converted to equivalent dwelling units (i.e., equivalent ¾" meters) over the planning period.
- Fourth, the Oregon SDC statute has strict limitations on what type of assets can be included in the basis of the reimbursement fee. ORS 223.299 specifically states that a "capital improvement" does not include costs of the operation or routine maintenance of capital improvements. This means the assets on the balance sheet such as certain vehicles and equipment used for heavy repair and maintenance of infrastructure cannot be included in the basis of the reimbursement fee.

For this water SDC methodology update, the following discrete calculation steps were followed to arrive at the recommended water reimbursement fee.

Step 1: Calculate the original cost of water fixed assets in service. From this starting point, eliminate any assets that do not conform to the ORS 223.299 definition of a capital improvement. This results in the **adjusted original cost of water fixed assets**.

Step 2: Subtract from the adjusted original cost of water fixed assets in service the accumulated depreciation of those fixed assets. This arrives at the **modified book value of water fixed assets in service**.

Step 3: Subtract from the modified book value of water assets in service any grant funding or contributed capital. This arrives at the **modified book value of water fixed assets in service net of grants and contributed capital**.

Step 4: Subtract from the modified book value of water fixed assets in service net of grants and contributed capital any principal outstanding on long term debt used to finance those assets. This arrives a **gross water reimbursement fee basis**.

Step 5: Subtract from the gross water reimbursement fee basis the fund balance held in the Water Reimbursement SDC fund (if available). This arrives at the **net water reimbursement fee basis**.

Step 6: Divide the net water reimbursement fee basis by the sum of existing and future EDUs to arrive at the **unit net reimbursement fee**.

The actual data that was used to calculate the total water reimbursement fee is shown below in Table 6.

Table 6 - Calculation of the Water Reimbursement Fee

Utility Plant-in-Service (original cost):[1]		
Land, Easements & Right of Way	$	227,825
Land improvements		16,238
Construction		2,136,046
Infrastructure		5,368,537
Machinery and equipment		1,428,898
Licensed Vehicles		29,000
Construction Work-in-Progress		-
Total Utility Plant-in-Service		9,206,545
Accumulated depreciation[1]		
Land		-
Land improvements		16,238
Buildings		1,177,572
Infrastructure		1,782,301
Machinery and equipment		898,075
Vehicles		29,000
Construction Work-in-Progress		-
Total accumulated depreciation		3,903,186
Book value of water utility plant-in-service @ June 30, 2015		5,303,359
Eliminating entries:		
Principal outstanding on bonds, notes, and loans payable		
2010 Water Refunding Bonds		975,000
Developer Contributions		-
Grants, net of amortization		-
		975,000
Net basis in utility plant-in-service available to serve future customers	$	4,328,359
Estimated existing and future 3/4" Meter Equivalents (MEs)		6,994
Calculated reimbursement fee - $ per 3/4"ME	$	619

[1] Source: Molalla Accounting Summary Report - Capitalized Assets as of June 30, 2015

Improvement Fee Calculations

The calculation of the water improvement fee is more streamlined than the process used to calculate the water reimbursement fee. This study continues to use the improvements-driven method, and has relied on the 2016 water system capital improvement plan. Under this methodology, only three steps are required to arrive at the improvement fee. These steps are:

Step 1: Accumulate the future cost of planned improvements needed to serve growth. This arrives at **the gross improvement fee basis**.

Step 2: Subtract from the gross improvement fee basis the fund balance held in the Water Improvement SDC Fund. This arrives at **the net water improvement fee basis**.

Step 3: Divide the net water improvement fee basis by the forecasted number of growth equivalent ¾" meters over the planning period. This arrives at **the total water improvement fee**.

The actual data that was used to calculate the total water improvement fee is shown below in Table 7.

Table 7 - Calculation of the Water Improvement Fee

Project Description	Estimated Cost of Improvement in 2016 Dollars	Project Costs Cost Attributed to Existing Demands	Costs Attributed to Future Demands	Total Costs
Water Supply & Treatment:				
New Well Source	$404,609	$0	$404,609	$404,609
New Treatment Capacity Projects	1,641,557	-	1,641,557	1,641,557
Transmission:				-
Transmission Main	497,091	-	497,091	497,091
Distribution:		-		-
Debra St (Frances north to 14")	32,369	18,191	14,178	32,369
E/W-1, North E/W grid main	721,360	-	721,360	721,360
E/W-2, Big Meadow E/W grid main	553,043	-	553,043	553,043
E/W-3, Bear Creek E/W grid main	643,444	-	643,444	643,444
N/S-2, School N/S grid main - north	528,997	-	528,997	528,997
N/S-2, School N/S grid main – south	95,719	-	95,719	95,719
Molalla Ave (Miller to N grid main)	221,957	70,453	151,504	221,957
Big Meadows Tie N grid main to Meadow Dr.	175,485	-	175,485	175,485
Lola Avenue	136,500	136,500	-	136,500
Water service upgrade	693,616	693,616	-	693,616
Storage:		-		-
New 2.0 MG concrete reservoir	2,335,173	-	2,335,173	2,335,173
Pump Station	578,013	-	578,013	578,013
Annual Dist. System Replacements	6,400,000	3,596,800	2,803,200	6,400,000
Studies & Plans:		-		-
Update Water Master Plan	250,000	-	250,000	250,000
Totals	$15,908,932	$4,515,560	$11,393,372	$15,908,932

Total Improvement Fee Eligible Costs for Future System Improvements	$11,393,372
less: Water SDC Fund balance as of June 30, 2015	1,501,547
Adjusted Improvement Fee Eligible Costs for Future System Improvements	$9,891,825
Total Growth in 3/4" Meter Equivalents (20 year forecast)	3,167
Calculated Water Improvement Fee SDC per Meter Equivalent	$3,124

Water SDC Model Summary

The 2016 water SDC methodology update was done in accordance with Molalla Municipal Code Chapter 13.14, and with the benefit of adopted plan updates for water services. We recommend the City update the SDC charge and methodology to reflect the current capital improvement program. Our analysis indicates the City can charge a maximum of $3,818 for the standard ¾" residential water meter. A comparison of the proposed and current water SDCs for the average single family residential customer is shown below in Table 8.

Table 8 - Proposed and Current Water SDCs for a 3/4" Meter

Line Item Description		City-Wide
Proposed SDC components:		
Reimbursement fee	$	619
Improvement fee		3,124
Administration fee at 2%		75
Total proposed water SDC	$	3,818
Current SDC components:		
Reimbursement fee	$	2,400
Improvement fee		1,150
Administration fee at 2%		70
Total current water SDC	$	3,620

For water meters larger than ¾", the project team has developed a schedule of SDCs based on the general design criteria for meters that are installed in the Molalla water service area. This criteria is from the standard approach of using American Water Works Association design criteria for displacement and compound water meters.

The resulting schedule of water SDCs for the array of potential meter sizes is shown below in Table 9.

Table 9 - Proposed Schedule of Water SDCs by Potential Water Meter Size

Meter Size	AWWA Rated Flow (GPM)*	Flow Factor Equivalence	Proposed Schedule of Water SDCs			
			Reimbursement	Improvement	Administration	Total
0.75"x 0.75" - Displacement Multi-jet	30	1.00	$ 619	$ 3,124	$ 75	$ 3,818
1.00 inch - Displacement Multi-jet	50	1.67	1,031	5,206	125	6,363
1.50 inch - Displacement Class I Turbine	100	3.33	2,063	10,413	250	12,725
2.00 inch - Displacement or Class I & II Turbine	160	5.33	3,301	16,661	399	20,360
3.00 inch - Displacement	300	10.00	6,189	31,239	749	38,176
4.00 inch - Displacement or Compound	500	16.67	10,314	52,065	1,248	63,627
6.00 inch - Displacement or Compound	1000	33.33	20,628	104,129	2,495	127,253
8.00 inch - Compound	1600	53.33	33,005	166,607	3,992	203,605

* - AWWA Manual of Practice M3; Safety Practices for Water Utilities; Table 2-2 Total Quantities Registered per Month by Meters Operating at Varying Percentages of Maximum Capacity

Wastewater SDCs

Wastewater Capital Improvement Plan

As in the case of the water SDCs, the principal sources of data for the wastewater system CIP are the 2016 capital improvement plans for wastewater treatment, pumping stations, and collection systems. City Staff have periodically updated these plans for current development conditions. With the assistance of City Staff, the project team has summarized the 2016 wastewater system CIPs for this SDC methodology update. The 2016 wastewater system CIP is shown in Table 10.

Table 10 - 2016 Wastewater System CIP

Recommended Wastewater Capital Improvement Plan

2000 CIP Project Number	Project Source	Project Name	Project Description	Original Year	New Priority Year 2017-21	New Priority Year 2022-2026	New Priority Year 2027-2031	Master Plan Priority	Length	SDC Funding Eligible (Y/N)	SDC Share %	2000 Master Plan Cost Est.	2016 Est. Project Cost (49.44%)	SDC Eligible Cost
Collection System Projects														
C1	WWMP	Treatment Plant Trunk Upgrade	Upsize 18" trunk from WWTP to confluence of Toliver/Bear Creek trunks with 30" pipe. Replace 15" trunk from confluence to Hwy 213 with 24" pipe.	2002	2017-21			High	1826	Y	63%	$ 600,000	$ 896,640	$ 564,199
C2	WWMP	Toliver Road Trunk Upgrade	Upsize trunk from Toliver to Molalla/Heintz with 24" pipe. Complete after project C1	2003	2017-21			High	7872	Y	66%	$ 2,200,000	$ 3,287,680	$ 2,168,496
C3	WWMP	Molalla/Hwy 211 Improvements	Install 12" pipe from manhole at Molalla/Hwy 211 to the north along Molalla. Abandon piping from manhole to the west. Complete after project C2	2003	2017-21			High	342	Y	56%	$ 50,000	$ 74,720	$ 41,544
C4	WWMP	Bear Creek Trunk Upgrade	Upsize trunk from WWTP to Hwy 211 with 21" pipe. Complete after project C1	2004	2017-21			High	2944	Y	49%	$ 450,000	$ 672,480	$ 329,515
C5	WWMP	Industrial South Trunk Extension	Install 12" pipe from upper end of Bear Creek trunk. Complete just prior to area development	2005	2017-21			High	6200	Y	100%	$ 860,000	$ 1,285,184	$ 1,285,184
C6	WWMP	Hwy 213 South Trunk Extension	Install 12" pipe from Bear Creek trunk at Hwy 213. Complete just prior to area development	2005	2017-21			High	1800	Y	82%	$ 310,000	$ 463,264	$ 379,389
	CDBG	Lola Avenue	Replace existing 8" pipe from 3rd St to 5th St	2016	2016			High	700	Y	0%		$ 104,000	$ -
Wastewater Treatment Plant Projects														
T10	WWMP	Phase 1 Advance Treatment Upgrades	Double existing capacity	2002	2017-21			High	N/A	Y	100%	$ 2,140,000	$ 3,198,016	$ 3,198,016
T12	WWMP	Phase 1 Effluent Storage Facilities	Construct storage lagoon for half of volume requred in 20YR plan	2004	2017-21			High	N/A	Y	100%	$ 3,030,000	$ 4,528,032	$ 4,528,032
T13	WWMP	Phase 1 Secondary Treatment Upgrades	Construct two aeration basins within Lagoon #1 with aeration equipment and piping	2005	2017-21			High	N/A	Y	100%	$ 1,490,000	$ 2,226,656	$ 2,226,656
T14	WWMP	Phase 1 Solids Management Upgrades	Construct diking in Lagoon #1 for project #18	2005	2017-21			High	N/A	Y	100%	$ 350,000	$ 523,040	$ 523,040
T15	WWMP	Phase 1 Effluent Disinfection Upgrades	Construct a chlorine scrubber and upgrades to the dechlorination facility	2005	2017-21			High	N/A	Y	100%	$ 380,000	$ 567,872	$ 567,872
T16	WWMP	Phase 1 Miscellaneous Upgrades	Renovate existing office and laboratory	2005	2017-21			High	N/A	Y		$ 50,000	$ 74,720	$ -
T17	WWMP	Phase 2 Effluent Storage and Irrigation Facilities	Construct second half of storage lagoon completed in project T12	2010		2022-26		Medium	N/A	Y	100%	$ 2,630,000	$ 3,930,272	$ 3,930,272
T18	WWMP	Phase 2 Treatment Upgrades	Construct facilities for the secondary clarification, return activated sludge (RAS) and waste activated sludge (WAS) pumping, additional aeration in the aeration basins, liner and piping in facultative sludge lagoon cell.	2010		2022-26		Medium	N/A	Y	100%	$ 3,280,000	$ 4,901,632	$ 4,901,632
T19	WWMP	Biosolids Management Plan	Develop a biosolids management plan based on the Phase 2 improvements plan for DEQ approval and complete concurrent with project T18	2010		2022-26		Medium	N/A	Y	100%	$ 20,000	$ 29,888	$ 29,888
Annual Operation Costs														
O1	WWMP	Collection System I/I Reduction Program	Annual work at $40,000 per year with 3% inflation estimated a total I/I reduction of 45% of flows (15% PDAF, Factor of 3)	Yearly	2017-21	2022-26		Annual	N/A	Y	45%	$ 1,074,815	$ 1,606,204	$ 722,792
O2	WWMP	Wastewater Treatment Plant O&M	Estimated annual cost of operation and maintenance at WWTP	Yearly	2017-21	2022-26		Annual	N/A	N	0%	$ 630,000	$ 941,472	$ -
												Subtotal	**$ 19,544,815**	**$ 29,311,772**	**$ 25,396,526**

Table 10- 2016 Wastewater System CIP (Continued)

Operation, Maintenance, and Replacement Projects

2000 CIP Project Number	Project Source	Project Name	Project Description	Original Year	New Priority Year 2017-21	New Priority Year 2022-2026	New Priority Year 2027-2031	Master Plan Priority	Length	SDC Funding Eligible (Y/N)	SDC Share %	2000 Master Plan Cost Est.	2016 Est. Project Cost (49.44%)	SDC Eligible Cost
N/A	Staff	Update Wastewater Master Plan	Provide update to existing wastewater master plan	2016	2017						100%		$ 250,000	$ 250,000
N/A	Staff	Rebuild Headworks Barscreen	Replace all bearings, sprockets, barscreen brush, chain links - Aged out	2016							0%		$ 26,000	$ -
N/A	Staff	Install Aerobic Digester	Install Aerobic Digester to dispose of DAF & Backwash Solids To Improve Lagoon	2016							0%		$ 200,000	
N/A	Staff	Install FKC Screw Press	Install Screw Press To Remove Solids from Aerobic Digester	2016							0%		$ 100,000	$ -
N/A	Staff	Replace Disinfection System	Remove Existing Calcium Hypochlorite Unit and Replace With Sodium Hypochlorite	2106							0%		$ 25,000	$ -
N/A	Staff	Spare Parts Inventory	Begin Spare Parts Inventory - Pumps, Motors, VFD's, Valves, Samplers, etc	2016							0%		$ 100,000	$ -
N/A	Staff	Aeration Basin	Clean and Re-line Aeration Basin	2016							0%		$ 75,000	$ -
N/A	Staff	Aeration Basin Diffusion System	Replace existing aerators with diffusers to reduce electrical costs, better O2 transfer	2016							0%		$ 3,000	$ -
N/A	Staff	Install 2nd Headworks Barscreen	Have Backup Barscreen for Repairs, High Influent Flows in Winter	2016							0%		$ 100,000	$ -
											Subtotal		**$ 879,000**	**$ 250,000**
											Wastewater CIP Totals		**$ 30,190,772**	
											SDC Totals		**85%**	**$ 25,646,526**
											Rate Totals		**15%**	**$ 4,544,246**

Completed or Deleted Projects

2000 CIP Project Number	Project Source	Project Name	Project Description	Original Year	New Priority Year 2017-21	New Priority Year 2022-2026	New Priority Year 2027-2031	Master Plan Priority	Length	SDC Funding Eligible (Y/N)	SDC Share %	2000 Master Plan Cost Est.	2016 Est. Project Cost (49.44%)	SDC Eligible Cost
T1	WWMP	Effluent/Irrigation Pump Station	Construct pump station for effluent to irrigation site in summer and Molalla River	2000				High	N/A			$ 1,410,000		
T2	WWMP	Effluent/Irrigation Force Main	Construct force main from project T1 to Feyrer Park Road	2000				High	N/A			$ 1,900,000		
T3	WWMP	Effluent Reuse Plan	Develop an irrigation reuse plan for DEQ approval	2000				High	N/A			$ 20,000		
T4	WWMP	Effluent Discharge Permit to Molalla River	Prepare water quality analysis for discharge impacts to river for DEQ	2000				High	N/A			$ 80,000		
T5	WWMP	Add Dechlorination Facilities	Install chemical feed for liquid sodium bisulfate and chlorine residual analyzer for	2000				High	N/A			$ 20,000		
T6	WWMP	Add inlet aeration in Lagoon #1	Install three 10HP aspirating aerators, conduits, conductors, and motor starters	2001	2017-21			High	N/A			$ 60,000		
T7	WWMP	Improve Piping out of Lagoon #2	Modify outlet structure to allow for discharge from varying depths in pond	2001	2017-21			High	N/A			$ 60,000		
T8	WWMP	Phase 1 Preliminary Treatment Upgrades	Install fine screening, washing, compaction and flow measurement to	2001	2017-21			High	N/A			$ 630,000		
T9	WWMP	Phase 1 Transfer Pumping Upgrades	Install transfer pump station with vertical turbine solids handling pumps and	2001	2017-21			High	N/A			$ 1,380,000		
T11	WWMP	Effluent/Irrigation Force Main Extension and Outfall	Extend force main from project T2 through Coleman Ranch to outfall at Molalla River.	2003				High				$ 1,270,000		

Wastewater Customers Current and Future Demographics

Existing Wastewater Demand and Population Growth

Current Molalla wastewater demands documented in the 2000 wastewater treatment system master plan are based on Average Annual Dry Weather Flows (AADWF) to the headworks of the wastewater treatment plant. These flows are expressed in million gallons per day (MGD) figures. For the purpose of this wastewater SDC methodology update, the project team had to translate these MGD figures into standard billing units used for charging out SDCs. In this case, those standard billing figures are expressed in EDUs. In the wastewater industry, an EDU is typically defined as the amount of wastewater a single family residential customer contributes to the wastewater system during an average month in the winter, where winter is defined as November through April. Fortunately, the City's utility billing system tracks the winter average water consumption for the single family residential customer class. When a new single family residential customer connects to the wastewater system, that customer is assigned the "system average winter monthly water consumption" for the basis of the sewer usage charge. Once that customer established his/her own winter water usage history, that actual average number overwrites the system average. For the winter period November, 2015 through April, 2016, the average single family residential customer contributes 5.15 hundred cubic feet (CCF) of water to the wastewater system in the average winter month. This hundred cubic feet figure translates to 127 gallons per day.

Forecasted EDUs

With this historical consumption data in hand, the project team was able to calculate the number of EDUs relative to the AADWF data from the wastewater treatment plant monitoring data that gets reported to the Oregon Department of Environmental Quality on a monthly basis. The EDU calculation methodology is shown in Table 11.

Table 11 - Forecast of Current and Future Wastewater EDUs

	2016	2036	Growth	CAGR[1]
Average Dry Weather Flow (ADWF) MGD	0.8641	1.5790	0.7149	3.06%
Observed Molalla EDU (November 2015 - April, 2016)				
Ccf per month - Single Family Residential	5.15	5.15		
Gallons per month - SFR	3,853	3,853		
Gallons per day - SFR	127	127		
Estimated EDUs based on ADWF and observed Molalla SFR winter ave. metered water consumption	6,822	12,466	5,644	3.06%

1 CAGR - Compounded Annual Growth Rate

Reimbursement Fee Calculations

The wastewater reimbursement fee methodology mirrors that used for the water reimbursement fee. The methodological steps in its construction are restated here.

Step 1: Calculate the original cost of wastewater fixed assets in service. From this starting point, eliminate any assets that do not conform to the ORS 223.299 definition of a capital improvement. This results in the **adjusted original cost of wastewater fixed assets**.

Step 2: Subtract from the adjusted original cost of wastewater fixed assets in service the accumulated depreciation of those fixed assets. This arrives at the **modified book value of wastewater fixed assets in service**.

Step 3: Subtract from the modified book value of wastewater assets in service any grant funding or contributed capital. This arrives at the **modified book value of wastewater fixed assets in service net of grants and contributed capital**.

Step 4: Subtract from the modified book value of wastewater fixed assets in service net of grants and contributed capital any principal outstanding on long term debt used to finance those assets. This arrives a **gross wastewater reimbursement fee basis**.

Step 5: Subtract from the gross wastewater reimbursement fee basis the fund balance held in the Wastewater Reimbursement SDC fund (if available). This arrives at the **net wastewater reimbursement fee basis**.

Step 6: Divide the net wastewater reimbursement fee basis by the sum of existing and future EDUs to arrive at the **unit net reimbursement fee**.

The actual data that was used to calculate the total wastewater reimbursement fee is shown below in Table 12.

Table 12 - Calculation of the Wastewater Reimbursement Fee

Utility Plant-in-Service (original cost):[1]		
Land, Easements & Right of Way	$	494,445
Land improvements		130,117
Construction		1,350,300
Infrastructure		9,117,644
Machinery and equipment		414,184
Licensed Vehicles		96,691
Construction Work-in-Progress		-
Total Utility Plant-in-Service		11,603,381
Accumulated depreciation[1]		
Land		-
Land improvements		126,362
Buildings		599,564
Infrastructure		3,493,128
Machinery and equipment		332,048
Vehicles		85,530
Construction Work-in-Progress		-
Total accumulated depreciation		4,636,631
Book value of water utility plant-in-service @ June 30, 2015		6,966,750
Eliminating entries:		
Principal outstanding on bonds, notes, and loans payable		
2010 Sewer Refunding Bonds		2,565,000
2005 Clean Water State Revolving Loan		1,935,111
Developer Contributions		-
Grants, net of amortization		-
		4,500,111
Net basis in utility plant-in-service available to serve future customers	$	2,466,639
Estimated existing and future wastewater treatment EDUs		12,466
Calculated reimbursement fee - $ per treatment EDU	$	198

[1] Source: Molalla Accounting Summary Report - Capitalized Assets as of June 30, 2015

Improvement Fee Calculations

The calculation of the wastewater improvement fee also follows the logic that was used to calculate the water improvement fee. As in the case of water, this study continues to use the improvements-driven method, and has relied on the capital improvement plans, and plan updates for the wastewater treatment, pump stations, and collection systems. Under this methodology, only three steps are required to arrive at the improvement fee. These steps are:

Step 1: Accumulate the future cost of planned improvements needed to serve growth. This arrives at **the gross improvement fee basis**.

Step 2: Subtract from the gross improvement fee basis the fund balance held in the Wastewater Improvement SDC Fund. This arrives at **the net wastewater improvement fee basis**.

Step 3: Divide the net wastewater improvement fee basis by the forecasted number of growth EDUs over the planning period. This arrives at **the total wastewater improvement fee**.

The actual data that was used to calculate the total wastewater improvement fee is shown below in Table 13.

Table 13 - Calculation of the Wastewater Improvement Fee

Project Description	Estimated Cost of Improvement in 2016 Dollars	Project Costs Cost Attributed to Existing Demands	Costs Attributed to Future Demands	Total Costs
Collection System Improvements:				
Treatment Plant Trunk Upgrade	$896,640	$332,441	$564,199	$896,640
Toliver Road Trunk Upgrade	$3,287,680	1,119,184	$2,168,496	3,287,680
Molalla/Hwy 211 Improvements	$74,720	33,176	$41,544	74,720
Bear Creek Trunk Upgrade	$672,480	342,965	$329,515	672,480
Industrial South Trunk Extension	$1,285,184	-	$1,285,184	1,285,184
Hwy 213 South Trunk Extension	$463,264	83,875	$379,389	463,264
Lola Avenue	$104,000	104,000	$0	104,000
Wastewater Treatment Plant Projects:				
Phase 1 Advance Treatment Upgrades	3,198,016	-	3,198,016	3,198,016
Phase 1 Effluent Storage Facilities	4,528,032	-	4,528,032	4,528,032
Phase 1 Secondary Treatment Upgrades	2,226,656	-	2,226,656	2,226,656
Phase 1 Solids Management Upgrades	523,040	-	523,040	523,040
Phase 1 Effluent Disinfection Upgrades	567,872	-	567,872	567,872
Phase 1 Miscellaneous Upgrades	74,720	74,720	-	74,720
Phase 2 Effluent Storage and Irrigation Facilities	3,930,272	-	3,930,272	3,930,272
Phase 2 Treatment Upgrades	4,901,632	-	4,901,632	4,901,632
Biosolids Management Plan	29,888	-	29,888	29,888
Studies, Plans, and I&I Abatement:				
Collection System I/I Reduction Program	1,606,204	883,412	722,792	1,606,204
Wastewater Treatment Plant O&M	941,472	941,472	-	941,472
Update Wastewater Master Plan	250,000	-	250,000	250,000
Totals	$29,561,772	$3,915,246	$25,646,526	$29,561,772

Total Improvement Fee Eligible Costs for Future System Improvements	$25,646,526
less: Wastewater SDC Fund balance as of June 30, 2015	238,034
Adjusted Improvement Fee Eligible Costs for Future System Improvements	$25,408,492
Total Growth in 3/4" Meter Equivalents (20 year forecast)	5,644
Calculated Water Improvement Fee SDC per Meter Equivalent	$4,502

Wastewater SDC Model Summary

The 2016 wastewater SDC methodology update was done in accordance with Molalla Municipal Code Chapter 13.14, and with the benefit of adopted capital improvement plans and plan updates for wastewater services. We recommend the City update the SDC charge and methodology to reflect the current capital improvement program. Our analysis indicates the City can charge a maximum of $4,794 for the standard ¾" residential water meter. A comparison of the proposed and current wastewater SDCs for the average single family residential customer is shown below in Table 14.

Table 14 - Proposed and Current Wastewater SDCs for a 3/4" Meter

Line Item Description		City-Wide
Proposed SDC components:		
Reimbursement fee	$	198
Improvement fee		4,502
Administration fee at 2%		94
Total proposed wastewater SDC	$	4,794
Current SDC components:		
Reimbursement fee	$	3,428
Improvement fee		1,082
Administration fee at 2%		90
Total current wastewater SDC	$	4,600

For water meters larger than ¾", the schedule of wastewater SDC uses the same flow factors that were developed for the water SDCs (i.e., AWWA standards for displacement and compound meters). The complete proposed schedule of wastewater SDCs by potential meter size are shown in Table 15.

Table 15 - Proposed Schedule of Wastewater SDCs by Potential Water Meter Size

Meter Size	AWWA Rated Flow (GPM)*	Flow Factor Equivalence	Proposed Schedule of Wastewater SDCs			
			Reimbursement	Improvement	Administration	Total
0.75"x 0.75" - Displacement Multi-jet	30	1.00	$ 198	$ 4,502	$ 94	$ 4,794
1.00 inch - Displacement Multi-jet	50	1.67	330	7,503	157	7,990
1.50 inch - Displacement Class I Turbine	100	3.33	660	15,006	313	15,979
2.00 inch - Displacement or Class I & II Turbine	160	5.33	1,055	24,010	501	25,567
3.00 inch - Displacement	300	10.00	1,979	45,019	940	47,937
4.00 inch - Displacement or Compound	500	16.67	3,298	75,031	1,567	79,895
6.00 inch - Displacement or Compound	1000	33.33	6,596	150,062	3,133	159,791
8.00 inch - Compound	1600	53.33	10,553	240,099	5,013	255,665

* - AWWA Manual of Practice M3; Safety Practices for Water Utilities; Table 2-2 Total Quantities Registered per Month by Meters Operating at Varying Percentages of Maximum Capacity

Stormwater SDCs

Stormwater Capital Improvement Plan

As in the case of the water and wastewater SDCs, the principal sources of data for the stormwater system CIP are the 2016 capital improvement plans for stormwater collection, detention, treatment, and disposal systems. City Staff have periodically updated these plans for current development conditions. With the assistance of City Staff, the project team has summarized the 2016 stormwater system CIPs for this SDC methodology update. The 2016 stormwater system CIP is shown in Table 16.

Table 16 - 2016 Stormwater System CIP

Recommended Stormwater Capital Improvement Plan

2003 CIP Project Number	Project Source	Project Name	Project Description	Original Year	New Priority Year 2017-21	New Priority Year 2022-2026	New Priority Year 2027-2031	Master Plan Priority	Length	SDC Funding Eligible (Y/N)	SDC Share %	2003 Master Plan Cost Est.	2016 Est. Project Cost (40.10%)	SDC Eligible Cost
Collection System Projects														
	SWMP	2nd St/Railway Alignment Storm System (Option 1)	Install new storm system along 2nd St to relieve flows in Grange Ave, Center Ave, Molalla Ave, and Kennel Ave.	2004	2017-21			High	5500	Y	100%	$ 1,230,075	$ 1,723,335	$ 1,723,335
	SWMP	Detention Pond at Mathias Ave/Creamery Creek	Install detention pond to store flows upstream of Mathias Ave.	2005	2017-21			High	N/A	Y	100%	$ 96,480	$ 135,168	$ 135,168
	SWMP	May St Drainage Improvements	Install drainage improvements from E 6th St to Swiegle Ave	2006	2017-21			High	500	Y	100%	$ 29,235	$ 40,958	$ 40,958
	SWMP	Heintz Street Collector Replacement Project	Intercept Creamery Creek at Indian Oak Ct and divert creek along Heintz Street to Kennel Ave. Install 24" pipe on Fenten From Heintz To Shirley	2008	2017-21			Medium	2440	Y	16%	$ 1,199,385	$ 1,680,338	$ 275,465
	SWMP	Shirley Street Drainage Improvements	Install drainage improvements from Molalla Ave to Cole Ave. Project to follow Heintz Street project	2009		2022-26		Medium	2300	Y	100%	$ 90,783	$ 127,187	$ 127,187
	SWMP	Miller Street Drainage Improvements	Install drainage imrprovements from Molalla Ave	2010		2022-26		Medium	730	Y	100%	$ 45,480	$ 63,717	$ 63,717
	SWMP	Sunrise Acres Drainage Improvements Ph. 1	Install drainage improvements on Stowers Ln from 4th to E Main	2011		2022-26		Medium	890	Y	100%	$ 62,277	$ 87,250	$ 87,250
	SWMP	Hart Ave Drainage Improvements	Install drainage improvements on Hart Ave from Section to W Main	2010		2022-26		Medium	1750	Y	100%	$ 149,371	$ 209,269	$ 209,269
	SWMP	Heintz Street Outfall	Replace existing pipe with 48" on Kennel from Heintz to Toliver and Toliver to Creamery Creek	2009		2022-26		Medium	1050	Y	75%	$ 570,240	$ 798,906	$ 599,180
	SWMP	Dixon Avenue Drainage Improvements	Install 24" pipe on Dixon Ave from Main to Hoyt	TBD				TBD	710	Y	100%	$ 89,410	$ 125,263	$ 125,263
	SWMP	Video Inspect Creamery Creek Pipe	Video inspection and condition assessment of approximately 4000 LF of circular and arch pipe	2003	2017-21			High	4000	N	0%	$ 10,000	$ 14,010	$ -
	SWMP	Riparian Corridor Protection	Install shade trees and water quality vegetation along surface water facilities	TBD				TBD	N/A	Y	50%	$ 250,000	$ 350,250	$ 175,125
	UR	Molalla Avenue	Replace existing pipe with 30" on Molalla Ave from E. 3rd St to Heintz	2016	2016			High	2100	Y	0%		$ 234,000	$ -
	CDBG	Lola Avenue	Install new storm system and replace existing pipe with 12" from 3rd St to 5th St	2016	2016			High	700	Y	50%		$ 105,300	$ 52,650
	SWMP	Pipe Replacement and Upsizing	Replace and upsize storm pipes throughout system	Yearly	2017-21	2022-26	2027-31	High	25642	Y	61%	$ 4,849,379	$ 6,793,980	$ 4,171,504

Table 16- 2016 Stormwater System CIP (Continued)

Recommended Stormwater Capital Improvement Plan

2003 CIP Project Number	Project Source	Project Name	Project Description	Original Year	New Priority Year 2017-21	New Priority Year 2022-2026	New Priority Year 2027-2031	Master Plan Priority	Length	SDC Funding Eligible (Y/N)	SDC Share %	2003 Master Plan Cost Est.	2016 Est. Project Cost (40.10%)	SDC Eligible Cost
Culvert Replacement Projects														
	SWMP	Bear Creek at Molalla Ave Culvert Replacement	Replace culvert crossing with fish passage culvert to pass 100-Yr Event (432 CFS)	2010		2022-26		Medium	60	Y	53%	$ 150,000	$ 210,150	$ 111,399
	SWMP	Bear Creek at Hwy 213 Culvert Replacement	Replace culvert crossing with fish passage culvert to pass 100-Yr Event (552 CFS)	2012		2022-26		Medium	70	Y	35%	$ 250,000	$ 350,250	$ 123,095
	SWMP	Bear Creek at Mathias Ave Culvert Replacement	Replace culvert crossing with fish passage culvert to pass 100-Yr Event (324 CFS)	2016			2027-31	Low	60	Y	68%	$ 150,000	$ 210,150	$ 142,694
	SWMP	Bear Creek at Ona Way Culvert Replacement	Replace culvert crossing with fish passage culvert to pass 100-Yr Event (504 CFS)	2018			2027-31	Low	60	Y	37%	$ 150,000	$ 210,150	$ 77,972
Plans & Policy														
	SWMP	Update Stormwater Master Plan	Update modeling and create new capital improvement plan	2013		2022-26		Medium	N/A	Y	100%	$ 75,000	$ 105,075	$ 105,075
	SWMP	Drainage Design Standards	Develop standards and periodic review and update yearly	2003	2017-21			Annual	N/A	Y	100%	$ 25,000	$ 35,025	$ 35,025
	SWMP	NPDES Policy & Program Update	Implement Phase 2 NPDES permit requirements with yearly review and updates	TBD				Low	N/A	Y	100%	$ 75,000	$ 105,075	$ 105,075
											Subtotal	**$ 9,547,115**	**$ 13,714,808**	**$ 8,486,408**
														61.9%

Operation, Maintenance, and Replacement Projects

2003 CIP Project Number	Project Source	Project Name	Project Description	Original Year	New Priority Year 2017-21	New Priority Year 2022-2026	New Priority Year 2027-2031	Master Plan Priority	Length	SDC Funding Eligible (Y/N)	SDC Share %	2003 Master Plan Cost Est.	2016 Est. Project Cost (40.10%)	SDC Eligible Cost
N/A	Staff	Update Stormwater Master Plan	Provide update to existing stormwater master plan	2016							100%		$ 250,000	$ 250,000
											Subtotal		**$ 250,000**	**$ 250,000**
											Stormwater CIP Totals		**$ 13,964,808**	
											SDC Totals		**63%**	**$ 8,736,408**
											Rate Totals		**37%**	**$ 5,228,400**

Completed or Deleted Projects

2003 CIP Project Number	Project Source	Project Name	Project Description	Original Year	New Priority Year 2017-21	New Priority Year 2022-2026	New Priority Year 2027-2031	Master Plan Priority	Length	SDC Funding Eligible (Y/N)	SDC Share %	2003 Master Plan Cost Est.	2016 Est. Project Cost (40.10%)	SDC Eligible Cost
	SWMP	Kennel Ave Drainage Improvements		2007				High				$ 43,324		
	SWMP	Industrial Way Stormwater Improvements		TBD				TBD				$ 51,074		
	SWMP	Sunrise Acres Drainage Improvements Ph. 2	Install drainage improvements on Stowers Ln from 4th to 5th	2012				Medium				$ 16,804		
	SWMP	Sunrise Acres Drainage Improvements Ph. 3	Install drainage improvements on Stowers Ln from 5th to 7th	2013				Medium				$ 41,740		

Stormwater Customers Current and Future Demographics

Existing Stormwater Demand and Population Growth

Molalla's stormwater utility service charge and SDC are based on estimated impervious surface area. The average amount of impervious area on a single family residential developed lot within the City is set at 2,640 square feet (per the 2003 stormwater master plan). This equates to one "equivalent service unit" or ESU. Both rates and SDCs are calculated as a function of ESUs meaning that each property's fee is calculated as follows:

$$Estimated\ Impervious\ Surface\ \div 2{,}640\ square\ feet\ = Number\ of\ ESUs$$

The number of ESUs is then multiplied by the unit rate to determine the service charge or SDC amount. The number of ESUs currently connected to the City's system is 2,690 as established through the City's Stormwater Utility billing records. In order to determine the future capacity requirements of the City's stormwater system, each basin plan and facility plan forecasts the amount of additional impervious surface through the planning period. This forecast is based on future land use conditions and the corresponding runoff coefficients assigned to these various land uses. The future growth in ESUs within each of the City's existing basins and planning areas is based on these specific land use and impervious surface projections.

Forecasted EDUs

With current stormwater demand estimated at 2,690 ESUs, the project team was able to calculate the number of ESUs at buildout using the City's Comprehensive Plan land use inventories. These inventories are predicted on the currently approved urban growth boundary (UGB) of the City. As discussed above, the forecast is based on the future land use conditions and the corresponding runoff coefficients assigned to the Comprehensive Plan land use designations. The key assumptions concerning runoff coefficients for this analysis are:

- *Residential lands* – Based on the 2009 Residential Lands Needs Survey performed by Winterbrook Planning (May, 2009), the planning standard used to calculate future residential land needs for the City is seven (7) dwelling units per acre. For the calculation of build out impervious surface contributions from residential lands, the project team has also used this planning standard.
- *Commercial lands* – In consultation with the City's engineering staff, the project team has applied a uniform runoff coefficient of .90 (i.e., 90%) to all commercial lands within the UGB. This average value was used based on analysis of general commercial land uses over a range of soils. The data sources for this analysis included the National Resource Conservation Service's Hydrologic manual, Oregon Department of Transportation Department's design standards for stormwater facilities, and the CalTrans Storm Water Quality Handbook SWPPP/WPCP Preparation Manual.
- *Industrial lands* – Also in consultation with City engineering staff, a uniform runoff value of .85 (i.e., 85%) was applied to all industrial lands in the UGB. The same data sources used to arrive at the commercial runoff coefficient was used for the derivation of the industrial value.

The buildout ESU forecast methodology is shown in Table 17.

Table 17 - Forecast of Current and Future Stormwater ESUs

Comprehensive Plan Land Use Designations	Comp. Plan Acreage Gross	Comp. Plan Acreage Net	Dwelling Units per Net Acre	Impervious Surface Coverage	Impervious Surface Acres	Impervious Surface Square Feet	ESUs
Residential:							
R-1 Single Family Residential							
R-2 Two Family Residential							
R-3 Multi-Family Residential							
RRFF5 Rural Residential Farm Forest 5 Acre							
Subtotal residential	722	577	7.00	2640 sq. ft.	245	10,671,091	4,042
Commercial:							
C-1 General Commercial							
C-2 Central Commercial							
Subtotal commercial	203	203		90%	183	7,958,412	3,015
Industrial:							
M-1 Light Industrial							
M-2 Heavy Industrial							
RI Rural Industrial							
Subtotal industrial	419	419		85%	356	15,513,894	5,876
Public Lands:							
PSP Public and Semi Public							
Farm Forest:							
EFU Exclusive Farm Use							
Totals	1,344	1,199			784	34,143,397	12,933

Analysis of Equivalent Service Units (ESUs):

Estimated ESUs as of July 1, 2015 (per City records)	2,690
Estimated ESUs from growth	10,243
Estimated ESUs at buildout (assuming 1 ESU = 2,640 sq. ft. of impervious surface)	12,933

Reimbursement Fee Calculations

The stormwater reimbursement fee methodology mirrors that used for the water and wastewater reimbursement fee. The methodological steps in its construction are restated here.

Step 1: Calculate the original cost of stormwater fixed assets in service. From this starting point, eliminate any assets that do not conform to the ORS 223.299 definition of a capital improvement. This results in the **adjusted original cost of stormwater fixed assets**.

Step 2: Subtract from the adjusted original cost of stormwater fixed assets in service the accumulated depreciation of those fixed assets. This arrives at the **modified book value of stormwater fixed assets in service**.

Step 3: Subtract from the modified book value of stormwater assets in service any grant funding or contributed capital. This arrives at the **modified book value of stormwater fixed assets in service net of grants and contributed capital**.

Step 4: Subtract from the modified book value of stormwater fixed assets in service net of grants and contributed capital any principal outstanding on long term debt used to finance those assets. This arrives a **gross stormwater reimbursement fee basis**.

Step 5: Subtract from the gross stormwater reimbursement fee basis the fund balance held in the stormwater Reimbursement SDC fund (if available). This arrives at the **net stormwater reimbursement fee basis**.

Step 6: Divide the net stormwater reimbursement fee basis by the sum of existing and future ESUs to arrive at the **unit net reimbursement fee**.

The actual data that was used to calculate the total stormwater reimbursement fee is shown below in Table 18.

Table 18 - Calculation of the Stormwater Reimbursement Fee

Utility Plant-in-Service (original cost):[1]		
Land, Easements & Right of Way	$	5,241
Land improvements		12,847
Construction		164,859
Infrastructure		533,366
Machinery and equipment		38,468
Licensed Vehicles		-
Construction Work-in-Progress		-
Total Utility Plant-in-Service		754,781
Accumulated depreciation[1]		
Land		-
Land improvements		6,664
Buildings		66,784
Infrastructure		133,554
Machinery and equipment		18,227
Vehicles		-
Construction Work-in-Progress		-
Total accumulated depreciation		225,230
Book value of water utility plant-in-service @ June 30, 2015		529,551
Eliminating entries:		
Principal outstanding on bonds, notes, and loans payable		-
Developer Contributions		-
Grants, net of amortization		-
		-
Net basis in utility plant-in-service available to serve future customers	$	529,551
Estimated existing and future stormwater ESUs		12,933
Calculated reimbursement fee - $ per ESU		$41
Calculate reimbursement fee - $/square foot of impervious surface		$0.0155

[1] Source: Molalla Accounting Summary Report - Capitalized Assets as of June 30, 2015

Improvement Fee Calculations

The calculation of the stormwater improvement fee also follows the logic that was used to calculate the water improvement fee. As in the case of water, this study continues to use the improvements-driven method, and has relied on the capital improvement plans, and plan updates for the stormwater systems. Under this methodology, only three steps are required to arrive at the improvement fee. These steps are:

Step 1: Accumulate the future cost of planned improvements needed to serve growth. This arrives at **the gross improvement fee basis**.

Step 2: Subtract from the gross improvement fee basis the fund balance held in the Stormwater Improvement SDC Fund. This arrives at **the net stormwater improvement fee basis**.

Step 3: Divide the net stormwater improvement fee basis by the forecasted number of growth EDUs over the planning period. This arrives at **the total stormwater improvement fee**.

The actual data that was used to calculate the total stormwater improvement fee is shown below in Table 19.

Table 19 - Calculation of the Stormwater Improvement Fee

Project Description	Estimated Cost of Improvement in 2016 Dollars	Project Costs Cost Attributed to Existing Demands	Costs Attributed to Future Demands	Total Costs
Collection System Projects:				
2nd St/Railway Alignment Storm System (Option 1)	$1,723,335	$0	$1,723,335	$1,723,335
Detention Pond at Mathias Ave/Creamery Creek	135,168	-	135,168	135,168
May St Drainage Improvements	40,958	-	40,958	40,958
Heintz Street Collector Replacement Project	1,680,338	1,404,873	275,465	1,680,338
Shirley Street Drainage Improvements	127,187	-	127,187	127,187
Miller Street Drainage Improvements	63,717	-	63,717	63,717
Sunrise Acres Drainage Improvements Ph. 1	87,250	-	87,250	87,250
Hart Ave Drainage Improvements	209,269	-	209,269	209,269
Heintz Street Outfall	798,906	199,727	599,180	798,906
Dixon Avenue Drainage Improvements	125,263	-	125,263	125,263
Video Inspect Creamery Creek Pipe	14,010	14,010	-	14,010
Riparian Corridor Protection	350,250	175,125	175,125	350,250
Molalla Avenue	234,000	234,000	-	234,000
Lola Avenue	105,300	52,650	52,650	105,300
Pipe Replacement and Upsizing	6,793,980	2,622,476	4,171,504	6,793,980
Culvert Upsizing and Replacement Projects:				
Bear Creek at Molalla Ave Culvert Replacement	210,150	98,751	111,399	210,150
Bear Creek at Hwy 213 Culvert Replacement	350,250	227,155	123,095	350,250
Bear Creek at Mathias Ave Culvert Replacement	210,150	67,456	142,694	210,150
Bear Creek at Ona Way Culvert Replacement	210,150	132,178	77,972	210,150
Plans, Studies, & Policies:				
Update Stormwater Master Plan	105,075	-	105,075	105,075
Drainage Design Standards	35,025	-	35,025	35,025
NPDES Policy & Program Update	105,075	-	105,075	105,075
Update Stormwater Master Plan	250,000	-	250,000	250,000
Totals	$13,964,808	$5,228,400	$8,736,408	$13,964,808

Total Improvement Fee Eligible Costs for Future System Improvements	$8,736,408
less: Stormwater SDC Fund balance as of June 30, 2015	203,934
Adjusted Improvement Fee Eligible Costs for Future System Improvements	$8,532,474
Total growth ESUs	10,243
Calculated stormwater Improvement Fee SDC per ESU	$833
Calculated stormwater Improvement Fee SDC per square foot of Impervious surface	$0.3155

[1] Allocations from City staff

Stormwater SDC Model Summary

The 2016 stormwater SDC methodology update was done in accordance with Molalla Municipal Code Chapter 13.14, and with the benefit of adopted capital improvement plans and plan updates for stormwater services. We recommend the City update the SDC charge and methodology to reflect the current capital improvement program. Our analysis indicates the City can charge a maximum of $891 per ESU. A comparison of the proposed and current stormwater SDCs for the average single family residential customer is shown below in Table 20.

Table 20 - Proposed and Current Stormwater SDCs for a 3/4" Meter

Line Item Description	Per ESU	Per Sq. Foot
Proposed SDC components:		
Reimbursement fee	$ 41	$ 0.0155
Improvement fee	833	0.3155
Administration fee at 2%	17	0.0066
Total proposed stormwater SDC	$ 891	$ 0.3377
Current SDC components:		
Reimbursement fee	$ 21	$ 0.0080
Improvement fee	724	0.2740
Administration fee at 2%	15	0.0056
Total current stormwater SDC	$ 760	$ 0.2876

Transportation SDCs

Transportation Capital Improvement Plan

The principal sources of data for the transportation system CIP are the 2016 capital improvement plans for transportation. The primary categories of transportation system improvements are:

- Intersection improvement projects
- Street reconstruction projects
- Roadway widening projects

City Staff have periodically updated these plans for current development conditions. With the assistance of City Staff, the project team has summarized the 2016 transportation system CIPs for this SDC methodology update. The 2016 transportation system CIP is shown in Table 21.

Table 21 - 2016 Transportation System CIP

Recommended Transportation Capital Improvement Plan

2001 CIP Project Number	Project Source	Project Name	Project Description	Original Year	New Priority Year 2017-21	New Priority Year 2022-2026	New Priority Year 2027-2031	Master Plan Priority	Length	SDC Funding Eligible (Y/N)	SDC Share %	2001 Master Plan Cost Est.	2016 Est. Project Cost (50.19%)	SDC Eligible Cost
Intersection Improvement Projects														
	TSP	Highway 211/Highway 213	Construct signal, left-turn lanes on all approaches, and NB and WB right-turn lanes.	2017-21	2017-21			High	N/A	Y	100%	$ 450,000	$ 675,855	$ 675,855
	TSP	Toliver Road/Highway 213	Construct signal and left-turn lanes on Hwy 213.	2017-21	2017-21			High	N/A	Y	100%	$ 330,000	$ 495,627	$ 495,627
	TSP	Meadow Drive/Highway 213	Construct signal.	2017-21	2017-21			High	N/A	Y	100%	$ 150,000	$ 225,285	$ 225,285
	TSP	Mathias Road/Freyrer Park Road	Realign intersection so that Freyrer Park Road intersects Mathias Road as a "T" intersection to the north of 6th Street.	2017-21	2017-21			High	N/A	Y	100%	$ 100,000	$ 150,190	$ 150,190
	TSP	Main Street/Grange Street	Construct a raised median with pedestrian refuge in the center of Main Street to serve the existing crosswalk and to block left turns into and out of Grange and Berkley Streets. Additionally, removal of on-street parking on Main Street between Swiegle and Lola Avenues.	2017-21	2017-21			High	N/A	Y	100%	$ 20,000	$ 30,038	$ 30,038
	TSP	Molalla Avenue/Main Street	Construct signal, left-turn lanes on all approaches as needed.	2022-26		2022-26		Medium	N/A	Y	100%	$ 160,000	$ 240,304	$ 240,304
	TSP	Molalla Avenue/Toliver Road	Construct signal.	2022-26		2022-26		Medium	N/A	Y	100%	$ 150,000	$ 225,285	$ 225,285
	TSP	Leroy Avenue/Main Street	Construct signal.	2027-31			2027-31	Low	N/A	Y	100%	$ 200,000	$ 300,380	$ 300,380
	TSP	Molalla Avenue/Shirley Street	Construct signal.	2027-31			2027-31	Low	N/A	Y	100%	$ 150,000	$ 225,285	$ 225,285
	TSP	Mathias Road/Main Street	Construct a conventional "T" intersection aligned to direct traffic onto the Mathias Street portion of the downtown bypass, or a roundabout that would slow traffic entering the City and could serve as a gateway feature.	2027-31			2027-31	Low	N/A	Y	100%	$ 400,000	$ 600,760	$ 600,760
	TSP	Molalla Forest Road/Main Street	Construct a conventional "T" intersection aligned to direct traffic onto the downtown bypass, or a roundabout that would slow traffic entering the City and could serve as a gateway feature. Move intersection to the west of Bear Creek to avoid a larger culvert.	2027-31			2027-31	Low	N/A	Y	100%	$ 150,000	$ 225,285	$ 225,285
	TSP	Vick Road/Highway 213	Construct SB left-turn lane	2027-31			2027-31	Low	N/A	Y	100%	$ 90,000	$ 135,171	$ 135,171
	TSP	Vaughn Road/Highway 211	Construct NB left-turn lane and sight-distance improvements.	2017-21	2017-21			High	N/A	N	100%	$ 100,000	$ 150,190	$ 150,190
	TSP	Sawtell Road/Molalla Avenue/Wilhoit	Realign intersection so that Sawtell Road and Molalla Avenue intersects Wilhoit Road as a "T" intersection.	2027-31			2027-31	Low	N/A	Y	100%	$ 100,000	$ 150,190	$ 150,190
	TSP	Sawtell Road/Eves Road	Realign intersection so that Sawtell Road intersects Eves Road as a "T" intersection.	2027-31			2027-31	Low	N/A	Y	100%	$ 100,000	$ 150,190	$ 150,190
Street Reconstruction Projects														
	TSP	May Avenue	Construct street reconstruction between 5th and 6th Streets.	2017-21	2017-21			High	360	Y	44%	$ 75,000	$ 112,643	$ 50,063
	TSP	Section Avenue	Construct street reconstruction between Molalla and Hart Avenues.	2017-21	2017-21			High	700	Y	56%	$ 100,000	$ 150,190	$ 83,439
	TSP	Heintz Street	Construct street reconstruction between Cole Avenue and Grange Street.	2017-21	2017-21			High	1400	Y	0%	$ 210,000	$ 315,399	$ -
	TSP	South Cole	Construct street reconstruction of the dead-end portion south of Main Street.	2017-21	2017-21			High	1150	Y	44%	$ 140,000	$ 210,266	$ 93,452
	TSP	Shirley	Construct street reconstruction between Molalla and Cole Avenues.	2017-21	2017-21			High	2350	Y	0%	$ 370,000	$ 555,703	$ -
	CDBG	Lola Avenue	Reconstruct roadway to full width with curb and gutter and sidewalks	2016	2016			High	700	Y	50%		$ 347,100	$ 173,550

Table 21- 2016 Transportation System CIP (Continued)

Recommended Transportation Capital Improvement Plan

2001 CIP Project Number	Project Source	Project Name	Project Description	Original Year	New Priority Year 2017-21	New Priority Year 2022-2026	New Priority Year 2027-2031	Master Plan Priority	Length	SDC Funding Eligible (Y/N)	SDC Share %	2001 Master Plan Cost Est.	2016 Est. Project Cost (50.19%)	SDC Eligible Cost
Roadway Widening Projects														
	TSP	Ped and Bicycle Improvements	Review the signing provided at mid-block pedestrian crosswalks throughout the City for compliance with the Manual on Uniform Traffic Control Devices. Construct sidewalks on major streets, off street pedestrian and bicycle pathways, striping bicycle lanes, and curb extensions at intersections. Specific projects should be determined as part of the City's annual capital improvement program planning process. Estimated at $25K per year.	2017-21	2017-21			High	N/A	Y	100%	$ 125,000	$ 187,738	$ 187,738
	TSP	Ped and Bicycle Improvements	Construct sidewalks on major streets, off street pedestrian and bicycle pathways, striping bicycle lanes, and curb extensions at intersections. Specific projects should be determined as part of the City's annual capital improvement program planning process. Estimated at $25K per year.	2022-26		2022-26		Medium	N/A	Y	100%	$ 125,000	$ 187,738	$ 187,738
	TSP	Toliver Road	Improve roadway to major collector street standards, including a three-lane cross section, bicycle lanes, and sidewalks from Molalla Avenue to the WWTP. The hump in the road where it intersects Molalla Forest Road should also be removed as part of this project	2022-26		2022-26		Medium	9300	Y	61%	$ 2,000,000	$ 3,003,800	$ 1,821,977
	TSP	Ped and Bicycle Improvements	Construct sidewalks on major streets, off street pedestrian and bicycle pathways, striping bicycle lanes, and curb extensions at intersections. Specific projects should be determined as part of the City's annual capital improvement program planning process. Estimated at $25K per year.	2027-31			2027-31	Low	N/A	Y	100%	$ 250,000	$ 375,475	$ 375,475
	TSP	Downtown Bypass (Highway 211)	Widen roadway between its future intersection with Main Street and Highway 213 to provide a three-lane cross-section, bicycle lanes, and sidewalks.	2027-31			2027-31	Low	2100	Y	67%	$ 185,000	$ 277,852	$ 186,753
	TSP	Downtown Bypass (Molalla Forest Road)	Widen roadway between Main Street and Mathias Road to provide one travel lane in each direction, landscaped median, bicycle lanes, and sidewalks. Access to be limited to public street connections and property with no other public street access, in order to preserve its function as a bypass into the future.	2027-31			2027-31	Low	10700	Y	67%	$ 4,300,000	$ 6,458,170	$ 4,340,737
	TSP	Downtown Bypass (Mathias Road)	Widen roadway to three lanes, with bicycle lanes and sidewalks, between Main Street and Molalla Forest Road.	2027-31			2027-31	Low	4600	Y	67%	$ 1,300,000	$ 1,952,470	$ 1,312,316
	TSP	Highway 213	Construct bicycle lanes and remove ditches along Highway 213 within the Molalla urban growth boundary.	2017-21	2017-21			High	6000	Y	61%	$ 500,000	$ 750,950	$ 455,494
	TSP	Molalla Avenue	Widen roadway to a three-lane cross-section between Robbins Street and the north UGB with bike lanes and sidewalks.to provide an important bicycle and pedestrian link to downtown	2027-31			2027-31	Low	2800	Y	61%	$ 1,693,548	$ 2,543,540	$ 1,542,803
											Subtotal	**$ 14,023,548**	**$ 21,409,067**	**$ 14,791,569**
														69.1%

Table 21- 2016 Transportation System CIP (Continued)

Operation, Maintenance, and Replacement Projects

2001 CIP Project Number	Project Source	Project Name	Project Description	Original Year	New Priority Year 2017-21	New Priority Year 2022-2026	New Priority Year 2027-2031	Master Plan Priority	Length	SDC Funding Eligible (Y/N)	SDC Share %	2001 Master Plan Cost Est.	2016 Est. Project Cost (50.19%)	SDC Eligible Cost
N/A	Staff	Update Transportation System Master Plan	Provide update to existing transportation system master plan	2016	2017-21			High	N/A		100%		$ 250,000	$ 250,000
											Subtotal		**$ 250,000**	**$ 250,000**
											Transportation CIP Totals		**$ 21,659,067**	
											SDC Totals		**69%**	**$ 15,041,569**
											Rate Totals		**31%**	**$ 6,617,498**

Completed or Deleted Projects

2001 CIP Project Number	Project Source	Project Name	Project Description	Original Year	New Priority Year 2017-21	New Priority Year 2022-2026	New Priority Year 2027-2031	Master Plan Priority	Length	SDC Funding Eligible (Y/N)	SDC Share %	2001 Master Plan Cost Est.	2016 Est. Project Cost (50.19%)	SDC Eligible Cost
	TSP	5th Street	Construct extension of 5th Street between Eckerd Avenue and Cole Avenue to provide a continuous east-west					High	1000			$ 470,000		

Transportation System Current and Future Demand

Existing Transportation Demand

Demand for transportation facilities is measured in PM peak-hour vehicle trips (PM PHVTs). One PM PHVT represents one person beginning or ending a vehicular trip at a certain property during the afternoon rush hour. Based on data from both the U. S. Census Bureau and the Molalla Transportation System Plan Update (2001), we estimate that the transportation system is currently serving 5,774 PM PHVTs. The statistical process that was used to arrive at the current demand value is shown in Table 22.

Table 22 - Existing Transportation System Demand

	Dwewlling Units	Employees	ITE Code[3]	PM peak hour vehicle trips per unit	Total PM peak hour vehicle trips
Number of dwelling units:[1]					
Detached single family	2,190		210	1.00	2,190
Attached single family	77		230	0.52	40
Duplex	105		210	1.00	105
Three or Fourplex	102		210	1.00	102
Multifamily:					-
5 to 9 units	106		220	0.62	66
10 to 19 units	68		220	0.62	42
20 to 49 units	98		220	0.62	61
50 or more units	65		220	0.62	40
Mobil home	265		240	0.59	156
Boat, RV, van, ect.	-			n/a	
Number of employees:[2]					
Manufacturing		204	140	0.73	149
Wholesale trade		81	110	0.97	79
Retail trade		335	826	2.71	908
Transportation and warehousing		18	130	0.85	15
Information technology		48	160	0.09	4
Finance and insurance		61	750	1.48	90
Real estate, rental, and leasing		23	750	1.48	34
Professional, scientific, and technical services		27	760	1.07	29
Health care and social assistance		231	720	3.57	825
Arts, entertainment, and recreation		20	495	2.74	55
Accommodation and food service		179	932	3.92	701
Other services (except public administration)		56	710	1.49	83
Totals	3,076	1,283			5,774

[1] Source: U.S. Bureau of the Census; American Community Survey; Table B25024 2010-2014 ACS 5-year estimate

[2] Source: U.S. Bureau of the Census; American Community Survey; Table EC1200A1 All Sectors: Geographic Area Series: Economy-Wide Statistics: 2012

[3] Trip Generation Manual; Institute of Transportation Engineers; 9th Edition

Forecasted EDUs

We are estimating the City's transportation system will serve 10,443 PM PHVTs in 2030. These estimates imply growth of 4,669 PM PHVTs over the planning period, as shown in Table 23. The 2030 end date is less than the implied 2036 discussed in the previous sections of this report because the source studies we used for the PM PHVT forecast truncate at 2030. The principal sources for the forecast are:

- City of Molalla Residential Land Needs Report; Winterbrook Planning; July, 2009
- City of Molalla Urban Reserve Findings 2010; Winterbrook Planning; February 26, 2010; Table 1, 2, and 3

The growth forecast in PM PHVTs is shown in Table 23.

Table 23 - Forecast of Future Transportation PM PHVTs

	Gross Acres	Net Acres	Future Development Land Uses[3]	Total Demand Units		PM peak hour vehicle trips per unit	PM peak hour vehicle trips Total
Residential Lands Needs 2010-2030:[1]							
Housing Needs (@ 7 du per acre)	188	150	Mid-rise apartment (223)	351	Dwelling Units	0.39	137
			Residential condominium/townhouse (230)	351	Dwelling Units	0.52	182
			Single-family detached housing (210)	351	Dwelling Units	1.00	351
Schools	38	30	Elementary school (520) - 30 students per acre	456	Students	0.28	128
			Middle school (522) - 30 students per acre	456	Students	0.30	137
Parks	69	55	City park (411)	55	Acres	1.89	104
Religious/churches	9	7	Church (560)	156,816	Square Feet	0.55	86
Other	2	2	Blended rate (neighborhood commercial)	17,424	Square Feet	3.70	64.47
Employment Lands Needs 2010-2030:[2]							
Commercial	174	148	Blended rate (commercial office lands 700-799)	1,611,720	Square Feet	1.77	2,853
Industrial	156	133	General light industrial (110) - 50%	66.5	Acres	7.26	483
			General heavy industrial (120) - 50%	66.5	Acres	2.16	144
							4,669

[1] Source: City of Molalla Residential Land Needs Report; Winterbrook Planning; July, 2009; City of Molalla Urban Reserve Findings 2010; Winterbrook Planning; February 26, 2010; Table 2

[2] Source: City of Molalla Urban Reserve Findings 2010; Winterbrook Planning; February 26, 2010; Table 3

[3] Source: City of Molalla Residential Lands Needs Report; Winterbrook Planning; July, 2009; Table 1 and Table 8; City of Molalla Urban Reserve Findings 2010; Winterbrook Planning; February, 26, 2010; Table 3

Reimbursement Fee Calculations

The transportation reimbursement fee methodology mirrors that used for the water and wastewater reimbursement fee. The methodological steps in its construction are restated here.

Step 1: Calculate the original cost of transportation fixed assets in service. From this starting point, eliminate any assets that do not conform to the ORS 223.299 definition of a capital improvement. This results in the **adjusted original cost of transportation fixed assets**.

Step 2: Subtract from the adjusted original cost of transportation fixed assets in service the accumulated depreciation of those fixed assets. This arrives at the **modified book value of transportation fixed assets in service**.

Step 3: Subtract from the modified book value of transportation assets in service any grant funding or contributed capital. This arrives at the **modified book value of transportation fixed assets in service net of grants and contributed capital**.

Step 4: Subtract from the modified book value of transportation fixed assets in service net of grants and contributed capital any principal outstanding on long term debt used to finance those assets. This arrives a **gross transportation reimbursement fee basis**.

Step 5: Subtract from the gross transportation reimbursement fee basis the fund balance held in the Transportation Reimbursement SDC fund (if available). This arrives at the **net transportation reimbursement fee basis**.

Step 6: Divide the net transportation reimbursement fee basis by the sum of existing and future PM PHVTs to arrive at the **unit net reimbursement fee**.

The actual data that was used to calculate the total transportation reimbursement fee is shown below in Table 24.

Table 24 - Calculation of the Transportation Reimbursement Fee

Utility Plant-in-Service (original cost):[1]		
Land, Easements & Right of Way	$	68,228
Land improvements		-
Construction		-
Infrastructure		20,744,076
Machinery and equipment		226,447
Licensed Vehicles		442,236
Construction Work-in-Progress		-
Total Utility Plant-in-Service		21,480,987
Accumulated depreciation[1]		
Land, Easements & Right of Way		-
Land improvements		-
Construction		-
Infrastructure		12,851,843
Machinery and equipment		163,658
Vehicles		439,088
Construction Work-in-Progress		-
Total accumulated depreciation		13,454,589
Book value of water utility plant-in-service @ June 30, 2015		8,026,398
Eliminating entries:		
Principal outstanding on bonds, notes, and loans payable		-
Developer Contributions		-
Grants, net of amortization		-
		-
Net basis in utility plant-in-service available to serve future customers	$	8,026,398
Estimated existing and future pm peak hour vehicle trips		10,443
Transportation reimbursement fee per PM peak hour vehicle trip		$769

[1] Source: Molalla Accounting Summary Report - Capitalized Assets as of June 30, 2015

Improvement Fee Calculations

The calculation of the transportation improvement fee also follows the logic that was used to calculate the water improvement fee. As in the case of water, this study continues to use the improvements-driven method, and has relied on the capital improvement plans, and plan updates for the transportation infrastructure. Under this methodology, only three steps are required to arrive at the improvement fee. These steps are:

Step 1: Accumulate the future cost of planned improvements needed to serve growth. This arrives at **the gross improvement fee basis**.

Step 2: Subtract from the gross improvement fee basis the fund balance held in the Transportation Improvement SDC Fund. This arrives at **the net transportation improvement fee basis**.

Step 3: Divide the net transportation improvement fee basis by the forecasted number of growth PM PHVTs over the planning period. This arrives at **the total transportation improvement fee**.

The actual data that was used to calculate the total transportation improvement fee is shown below in Table 25.

Table 25 - Calculation of the Transportation Improvement Fee

Project Description	Estimated of of Improvements in 2016 Dollars	Project Cost Attributed to Existing Demands	Project Cost Attributable to Future Demands	Total Costs
Intersection Improvments:				
Highway 211/Highway 213	$ 675,855	$ -	$ 675,855	$ 675,855
Toliver Road/Highway 213	495,627	-	495,627	495,627
Meadow Drive/Highway 213	225,285	-	225,285	225,285
Mathias Road/Freyrer Park Road	150,190	-	150,190	150,190
Main Street/Grange Street	30,038	-	30,038	30,038
Molalla Avenue/Main Street	240,304	-	240,304	240,304
Molalla Avenue/Toliver Road	225,285	-	225,285	225,285
Leroy Avenue/Main Street	300,380	-	300,380	300,380
Molalla Avenue/Shirley Street	225,285	-	225,285	225,285
Mathias Road/Main Street	600,760	-	600,760	600,760
Molalla Forest Road/Main Street	225,285	-	225,285	225,285
Vick Road/Highway 213	135,171	-	135,171	135,171
Vaughn Road/Highway 211	150,190	-	150,190	150,190
Sawtell Road/Molalla Avenue/Wilhoit	150,190	-	150,190	150,190
Sawtell Road/Eves Road	150,190	-	150,190	150,190
Street Reconstruction Projects:				
May Avenue	112,643	62,579	50,063	112,643
Section Avenue	150,190	66,751	83,439	150,190
Heintz Street	315,399	315,399	-	315,399
South Cole	210,266	116,814	93,452	210,266
Shirley	555,703	555,703	-	555,703
Lola Avenue	347,100	173,550	173,550	347,100
Roadway Widening Projects:				
Ped and Bicycle Improvements	187,738	-	187,738	187,738
Ped and Bicycle Improvements	187,738	-	187,738	187,738
Toliver Road	3,003,800	1,181,823	1,821,977	3,003,800
Ped and Bicycle Improvements	375,475	-	375,475	375,475
Downtown Bypass (Highway 211)	277,852	91,099	186,753	277,852
Downtown Bypass (Molalla Forest Road)	6,458,170	2,117,433	4,340,737	6,458,170
Downtown Bypass (Mathias Road)	1,952,470	640,154	1,312,316	1,952,470
Highway 213	750,950	295,456	455,494	750,950
Molalla Avenue	2,543,540	1,000,737	1,542,803	2,543,540
Plans, Studies, & Policies:				
Update Transportation System Master Plan	250,000	-	250,000	250,000
Total	$ 21,659,067	$ 6,617,498	$ 15,041,569	$ 21,659,067

Total Improvement Fee Eligible Costs for Future System Improvements	$ 15,041,569
less: Transportation SDC Fund balance as of June 30, 2015	323,483
Adjusted Improvement Fee Eligible Costs for Future System Improvements	$ 14,718,086
Future PM peak hour vehicle trips created by growth	4,669
Transportation improvement fee per PM peak hour vehicle trip	$ 3,153

Transportation SDC Model Summary

The 2016 transportation SDC methodology update was done in accordance with Molalla Municipal Code Chapter 13.14, and with the benefit of adopted capital improvement plans and plan updates for transportation services. We recommend the City update the SDC charge and methodology to reflect the current capital improvement program. Our analysis indicates the City can charge a maximum of $4,000 per PM PHVT. Adding the reimbursement fee of $769 to the improvement fee of $3,153 results in a total SDC of $3,922 per PM PHVT before the cost of administration. Adding 2% for administration, brings the total SDC to $4,000 per PM PHVT.

To charge the appropriate SDC, the City must estimate how many PM PHVTs will be generated by the development in question. That number can then be multiplied by $4,000 to determine the amount of SDC owed by new development projects.

The number of PM PHVTs that a property will generate is a function of the increase in scope and scale of activities that will occur on that property. By "scope of activities," we mean land use. For example, a new single-family residence will generate trip-ends differently from a new retail store of the same size. By "scale of activities," we mean some measure of quantity. For residential land uses, the number of dwelling units is an appropriate measure of scale. For many commercial and industrial land uses, building floor area is the best measure. For example, a 20,000-square-foot store is likely to generate twice the number of trip-ends as a 10,000-square-foot store of the same type. Table 26 presents proposed transportation SDCs per unit of scale for several land uses in the 9th edition of Trip Generation Manual, published by the Institute of Transportation Engineers (ITE):

Table 26 - Proposed Transportation SDCs by ITE Code

ITE Code	Land Use	Total Trip Ends	Percent of Diverted/Linked Trips	Percent of Pass-by Trips	Diverted/Linked and pass-by Trip Adjustment	Primary Trip Ends	Total Unit SDC	Basis for Calculating a Customer's SDC
110	General light industrial	0.97	0.00%	0.00%	-	0.97	3,880	1,000 square feet of gross floor area
130	Industrial park	0.85	0.00%	0.00%	-	0.85	3,400	1,000 square feet of gross floor area
140	Manufacturing	0.73	0.00%	0.00%	-	0.73	2,920	1,000 square feet of gross floor area
151	Mini-warehouse	0.26	0.00%	0.00%	-	0.26	1,040	1,000 square feet of gross floor area
160	Data center	0.09	0.00%	0.00%	-	0.09	360	1,000 square feet of gross floor area
210	Single family detached housing	1.00	0.00%	0.00%	-	1.00	4,000	Dwelling unit
220	Apartment	0.62	0.00%	0.00%	-	0.62	2,480	Dwelling unit
230	Residential condominium/townhouse	0.52	0.00%	0.00%	-	0.52	2,080	Dwelling unit
240	Mobile home park	0.59	0.00%	0.00%	-	0.59	2,360	Occupied dwelling unit
254	Assisted living	0.22	0.00%	0.00%	-	0.22	880	Bed
310	Hotel	0.60	0.00%	0.00%	-	0.60	2,400	Room
320	Motel	0.47	0.00%	0.00%	-	0.47	1,880	Room
417	Regional park	0.20	0.00%	0.00%	-	0.20	800	Acre
430	Golf course	0.30	0.00%	0.00%	-	0.30	1,200	Acre
444	Movie theater with matinee - Friday pm peak hour	45.91	0.00%	0.00%	-	45.91	183,642	Movie screen
492	Health/fitness club	3.53	0.00%	0.00%	-	3.53	14,120	1,000 square feet of gross floor area
495	Recreational community center	2.74	0.00%	0.00%	-	2.74	10,960	1,000 square feet of gross floor area
520	Elementary school	1.21	0.00%	0.00%	-	1.21	4,840	1,000 square feet of gross floor area
522	Middle school/junior high school	1.19	0.00%	0.00%	-	1.19	4,760	1,000 square feet of gross floor area
530	High school	0.97	0.00%	0.00%	-	0.97	3,880	1,000 square feet of gross floor area
540	Junior/community college	2.54	0.00%	0.00%	-	2.54	10,160	1,000 square feet of gross floor area
560	Church	0.55	0.00%	0.00%	-	0.55	2,200	1,000 square feet of gross floor area
565	Day care center	12.34	0.00%	0.00%	-	12.34	49,360	1,000 square feet of gross floor area
590	Library	7.30	0.00%	0.00%	-	7.30	29,200	1,000 square feet of gross floor area
610	Hospital	0.93	0.00%	0.00%	-	0.93	3,720	1,000 square feet of gross floor area
620	Nursing home	0.74	0.00%	0.00%	-	0.74	2,960	1,000 square feet of gross floor area
710	General office building	1.49	0.00%	0.00%	-	1.49	5,960	1,000 square feet of gross floor area
720	Medical-dental office building	3.57	0.00%	0.00%	-	3.57	14,280	1,000 square feet of gross floor area
750	Office park - pm peak hour	1.48	0.00%	0.00%	-	1.48	5,920	1,000 square feet of gross floor area
760	Research and development center - pm peak hour	1.07	0.00%	0.00%	-	1.07	4,280	1,000 square feet of gross floor area
770	Business park - pm peak hour	1.26	0.00%	0.00%	-	1.26	5,040	1,000 square feet of gross floor area
812	Building materials and lumber store	4.49	0.00%	0.00%	-	4.49	17,960	1,000 square feet of gross floor area
813	Free standing discount superstore	4.35	0.00%	28.00%	1.22	3.13	12,528	1,000 square feet of gross floor area
815	Free standing discount store	4.98	35.25%	17.00%	2.60	2.38	9,512	1,000 square feet of gross floor area
816	Hardware/paint store	4.84	29.50%	26.00%	2.69	2.15	8,615	1,000 square feet of gross floor area
817	Nursery (garden center)	6.94	0.00%	0.00%	-	6.94	27,760	1,000 square feet of gross floor area
820	Shopping center	3.71	15.86%	34.00%	1.85	1.86	7,441	1,000 square feet of gross leasable area
826	Specialty retail center	2.71	0.00%	0.00%	-	2.71	10,840	1,000 square feet of gross leasable area
841	Automobile sales	2.62	0.00%	0.00%	-	2.62	10,480	1,000 square feet of gross floor area
843	Automobile parts sales	5.98	13.00%	43.00%	3.35	2.63	10,525	1,000 square feet of gross floor area
848	Tire store	4.15	3.33%	28.00%	1.30	2.85	11,399	1,000 square feet of gross floor area
850	Supermarket	9.48	25.25%	36.00%	5.81	3.67	14,694	1,000 square feet of gross floor area
851	Convenience market (open 24 hours)	52.41	6.47%	61.00%	35.36	17.05	68,189	1,000 square feet of gross floor area
853	Convenience market with gasoline pumps	50.92	17.80%	66.00%	42.67	8.25	32,996	1,000 square feet of gross floor area
854	Discount supermarket	8.34	23.20%	23.00%	3.85	4.49	17,948	1,000 square feet of gross floor area
857	Discount club	4.18	0.00%	0.00%	-	4.18	16,720	1,000 square feet of gross floor area
862	Home improvement superstore	2.33	8.00%	48.00%	1.30	1.03	4,101	1,000 square feet of gross floor area
880	Pharmacy/drugstore without drive-through	8.40	4.67%	53.00%	4.84	3.56	14,224	1,000 square feet of gross floor area
881	Pharmacy/drugstore with drive-through	9.91	13.00%	49.00%	6.14	3.77	15,063	1,000 square feet of gross floor area
890	Furniture store	0.45	10.33%	53.00%	0.29	0.17	660	1,000 square feet of gross floor area
911	Walk-in bank	12.13	0.00%	0.00%	-	12.13	48,520	1,000 square feet of gross floor area
912	Drive-in bank	24.30	25.67%	47.00%	17.66	6.64	26,568	1,000 square feet of gross floor area
925	Drinking place	11.34	0.00%	0.00%	-	11.34	45,360	1,000 square feet of gross floor area
931	Quality restaurant	7.49	13.50%	44.00%	4.31	3.18	12,733	1,000 square feet of gross floor area
932	High-turnover (sit down) restaurant	9.85	17.25%	43.00%	5.93	3.92	15,662	1,000 square feet of gross floor area
933	Fast-food restaurant without drive-through	26.15	17.25%	43.00%	15.76	10.39	41,579	1,000 square feet of gross floor area
934	Fast-food restaurant with drive-through	32.65	9.06%	50.00%	19.28	13.37	53,474	1,000 square feet of gross floor area
936	Coffee/donut shop without drive-through	40.75	17.25%	43.00%	24.55	16.20	64,793	1,000 square feet of gross floor area
937	Coffee/donut shop with drive-through	42.80	9.06%	50.00%	25.28	17.52	70,097	1,000 square feet of gross floor area
938	Coffee/donut kiosk	75.00	9.06%	50.00%	44.29	30.71	122,834	1,000 square feet of gross floor area
944	Gasoline/service station	13.87	23.00%	42.00%	9.02	4.85	19,418	Vehicle fueling position
945	Gasoline/service station with convenience market	13.51	31.22%	56.00%	11.78	1.73	6,905	Vehicle fueling position
946	Gasoline/service station with car wash	13.86	27.11%	49.00%	10.55	3.31	13,244	Vehicle fueling position

Source: ITE, Trip Generation Manual, 9th edition

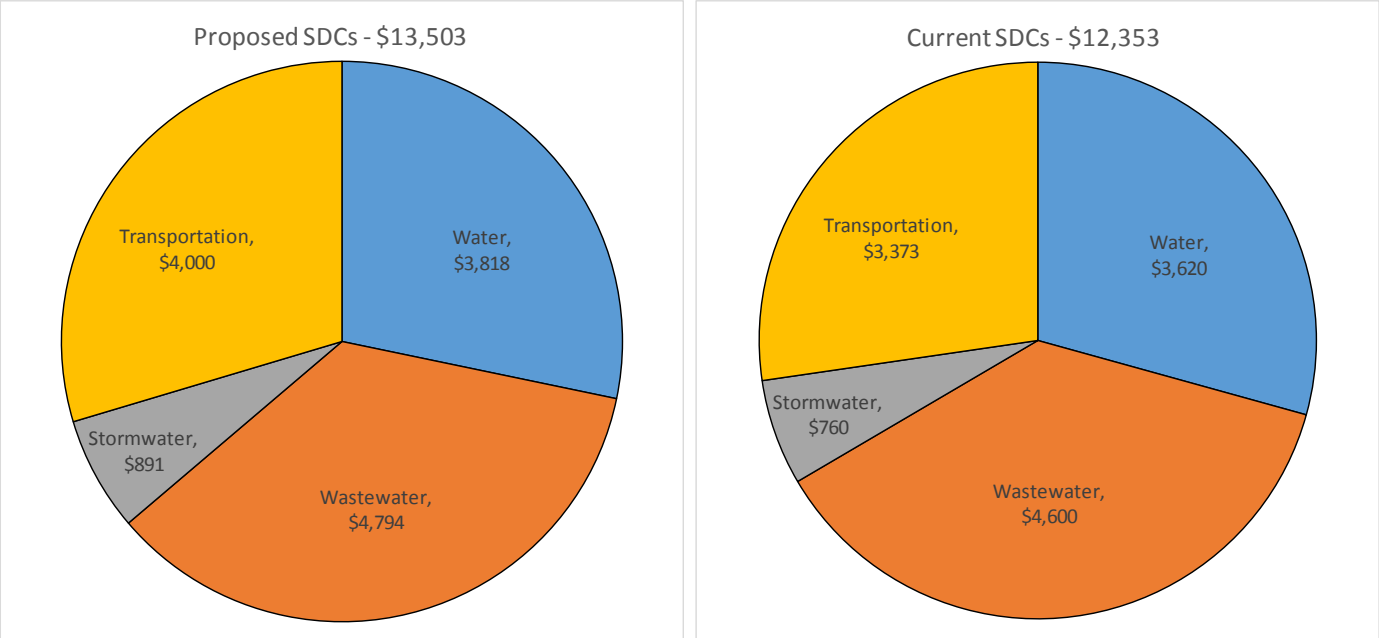
PM peak vehicle trips expressed in trip ends on a weekday, peak hour of adjacent street traffic, one hour, between 4:00 pm and 6:00 pm unless otherwise noted

Conclusions and Recommendations

The 2016 SDC methodology update was done in accordance with MMC Chapter 13.14, and with the benefit of adopted plans and plan updates for municipal services. Our analysis indicates the City can charge a maximum of $3,818 for water, $4,794 for wastewater, $891 for stormwater, and $4,000 for transportation. These figures are on a per equivalent single family residential unit basis. The sum of these maximum fees amounts to $13,503 per unit; $1,150 more than the sum of the current SDCs of $12,353.

A graphic side by side comparison of the proposed and current schedule of SDCs is shown blow in figure 2.

Figure 2 - Proposed and Current Schedule of SDCs



Finally, we recommend the City adopt a policy of reviewing its suite of SDCs every five years. Between the review dates, the city should apply a cost adjustment index to the SDC rates annually to reflect changes in costs for land and construction. This policy should be codified in the Molalla Municipal Code (MMC §13.14). We suggest the City consider the following language for that section of the MMC:

1. Notwithstanding any other provision, the dollar amounts of the SDC set forth in the SDC methodology report shall on January 1st of each year be adjusted to account for changes in the costs of acquiring and constructing facilities. The adjustment factor shall be based on:

    a. The change in construction costs according to the Engineering News Record (ENR) Northwest (Seattle, Washington) Construction Cost Index (CCI).

    b. The system development charges adjustment factor shall be used to adjust the system development charges, unless they are otherwise adjusted by the city based on a change in the costs of materials, labor, or real property; or adoption of an updated methodology.