

FINAL REPORT



Medford Water Commission
Water System
Development Charge Study
June 2022





June 6, 2022

Mr. Brad Taylor
General Manager
Medford Water Commission
200 S. Ivy Street, Room 177
Medford, Oregon 97501

Subject: Final Report for the Water System Development Charge Study

Dear Mr. Taylor:

HDR Engineering, Inc. (HDR) is pleased to present the final report on the update of the Medford Water Commission's (Commission) water system development charges (SDCs). The last adopted fees are as of October 1, 2020 based on an adjustment by the Engineering News Record Construction Cost Index (ENR-CCI). HDR completed a water SDC study in June of 2021 which reviewed the SDCs and the adopted October 1, 2020 fees were kept in place. Since then, the Commission has an updated capital improvement plan and financing of future projects through the WIFIA program. This SDC study will update the future projects and reflect the updated to the debt financing.

A key objective for the Commission's SDC study is to provide cost-based charges for new development or for existing customers expanding their capacity needs. The Commission's asset data, planning documents, engineering data, capital and financing plan were the primary sources for the information contained in this analysis. The update of these SDCs continues the Commission's policy of balancing the costs and impacts of new development against existing ratepayers

We appreciate the assistance provided by you and other Commission staff in the development of this study. More importantly, we appreciate the opportunity to continue our working relationship with the Commission on this project.

Sincerely yours,
HDR Engineering, Inc.

A handwritten signature in black ink, appearing to read 'Shawn Koorn', followed by a stylized flourish.

Shawn Koorn
Project Manager and Associate Vice President



Table of Contents

Executive Summary

Introduction	1
Overview	2
Conclusions & Recommendations.....	5
Summary	5

1 Overview of System Development Charges

1.1 Introduction	6
1.2 Defining System Development Charges.....	6
1.3 Economic Theory and System Development Charges	6
1.4 Overview of the System Development Charge Methodology	7
1.5 Disclaimer	8
1.6 Summary.....	9

2 Legal Considerations in Establishing System Development Charges

2.1 Introduction	10
2.2 Legal Requirements Under Oregon State Law	10
2.3 Summary.....	12

3 Development of the Water System Development Charges

3.1 Introduction	13
3.2 Overview of the Commission's Water System	13
3.3 Present Water System Development Charges	14
3.4 System-Wide SDC Calculations	15
3.4.1 System Planning Criteria – Defining an Equivalent Residential Unit	15
3.4.2 Determination of the Total Equivalent Residential Units (ERUs)	16
3.4.3 System-Wide Water SDC Calculations.....	17
3.5 East Side High Level system Development Charges	21
3.6 South West High Level system Development Charges	23
3.7 Summary of the System-Wide, ESHL, SWHL System Development Charges.....	24
3.8 Key Assumptions of the Water System Development Charges	25
3.9 Consultant's Recommendations.....	25
3.10 Summary.....	25

Technical Appendices



Executive Summary

Introduction

HDR Engineering, Inc. (HDR) was retained by the Medford Water Commission (Commission) to update the water system development charges (SDCs). HDR performed a similar update in 2021 based on updated capital improvement and financing plan. The 2021 study resulted in the Commission maintaining the adopted 2020 capacity charges in place. The capital and financial plan have been updated over the last two years and included several capital projects bundled into a larger one called the Rogue Valley Water Supply Resiliency Project, now estimated to be \$197.5 million dollar project in total. It includes the expansion of the Duff Water Treatment Plant to 65 mgd, conveyance improvements to deliver the 65 mgd into the system, the Water Quality Improvement Project (pH adjustment at the water treatment plant and Big Butte Springs), a new reduced pressure reservoir, and rebuilding storage at Capitol Hill. These projects will improve the risk and resiliency of the system.

In October 2020, the Commission secured the financing for these projects through the federal credit Water Infrastructure and Finance and Innovation Act (WIFIA) program administered by the Environmental Protection Agency (EPA). The estimated total projects is approximately \$197 million which includes projects that are not SDC eligible. The maximum portion costs that WIFIA can fund is 49% or \$96.7 million ($\$96.7\text{M}/\$197.5\text{M} = 49\%$). The remaining project balance is funded from revenue bonds and cash reserves. The portion of the total project estimated to be funded by cash reserves is included in the SDC. The total estimated cash reserve is \$73.0 million or approximately 37% of the \$197.5 million. It should be noted that not all the eligible WIFIA projects are SDC eligible. Therefore only the eligible SDC projects are included in this study.

A key objective for the Commission's SDC study is to provide cost-based fees for new development or for existing customers expanding their capacity needs. System development charges provide the means of balancing the cost/funding requirements for new utility infrastructure between existing customers and new customers. The Commission's asset data, planning documents, and engineering data along with the new updated capital plan and financing assumptions were the primary sources for the information contained in this analysis. General industry recommendations are to

adjust these charges annually for changes in construction costs and to review and update the charges every three to five years, or whenever comprehensive planning documents for the systems have been updated. Given these changes in both the capital improvement plan and financing of these projects, it is prudent for the Commission to review and update their SDCs to continue the Commission's policy of balancing the costs and impacts of new development against existing ratepayers.

System development charges provide the means of balancing the cost/funding requirements for new utility infrastructure between existing customers and new customers.

Overview

In developing this study, the SDCs have been calculated in a manner which conforms to generally accepted rate making practices, Oregon legal requirements, and are based on the Commission's water system planning and design criteria. The calculations also take into account the financing mechanisms of capital improvements. Based on the sum of the component costs, the net allowable SDC is determined. Net refers to the gross SDC, net of any credits for future debt service principal to be paid within a customer's rates. Allowable refers to the concept that the calculated SDC is the Commission's cost-based (i.e., maximum) charge. The Commission, as a matter of policy, may charge any amount up to the cost-based SDC, a lower amount may be adopted based on Board policy.

Present Water System Development Charges - The Commission currently has three different SDCs, a System-Wide for treatment and transmission, East Side High Level (ESHL), and South West High Level (SWHL). The Commission's System-Wide SDC is dedicated to treatment plant expansion and ozone improvement and transmission facilities that is charged to newly developed property added to the system, including Other Cities and District customers (e.g., wholesale customers) based on meter size. The ESHL, and the SWHL SDCs are for reservoirs, pump stations and transmission mains, which are specific to Zones 1 through 5, and are based on a dollar per gross acre basis. The Commission's present SDCs were adjusted by the Engineering News Record, Construction Cost Index (ENR-CCI) as of October 1, 2020 and are as follows in Table ES-1:

Table ES – 1		
Present Commission Water System Development Charges^[1]		
Meter Size	Weighting Factor	SDC Fee
1. System-Wide SDC -		
5/8" x 3/4"	1.0	\$1,698.41
1"	2.2	3,736.50
1- 1/2"	6.0	10,190.46
2" – R2	8.0	13,587.28
3" – T2	26.0	44,158.66
4" or larger ^[2]		
2. East Side High Level SDC – Zones 1 – 5 (\$/gross acre or part thereof)		\$8,254.77
3. South West High Level SDC– Zones 1 – 5 (\$/gross acre or part thereof)		\$9,226.45

[1] – Effective October 1, 2020.

[2] – Meters four inches (4") and larger may be sized for combined fire and consumption demands. Applicants whose projects will require these large meters are required to pay the SDC based on the actual meter size installed. The applicant may, one year after completion of the project, ask for a review of their consumption patterns. If the maximum consumption demand is less than that which is available for the meter size installed, a reduction in the fee to the approximate meter size will be allowed. If the consumption patterns change for those customers who have qualified for a reduction in SDC fees, the Commission, City or Water District may require the payment of additional SDC fees.

The Commission's present System-Wide water SDC is based on meter size, which is an industry generally accepted practice. This approach equates the capacity impact of the size of the meter on the water system. This approach is relatively straight-forward from an administrative perspective, and the more common approach used within the water utility industry. The System Wide SDCs for the larger meter sizes are determined by multiplying the SDC for a 5/8" X 3/4" meter (1-ERU) by the meter capacity weighting factors. The weighting factors are derived based on the American Water Works Association (AWWA) safe operating capacities for the type and size of meter which reflect the capacity of the meters when compared to a 5/8" X 3/4" meter. The ESHL and SWHL is based on dollars per gross acre.

Calculation of the Water System Development Charges – The process used within this study to determine the Commission's water SDC was based on a four-step process. In summary form, these analytical steps were as follows:

1. Determination of system planning criteria
2. Determination of the total equivalent residential units (ERUs)
3. Calculation of the SDC for system component costs
4. Determination of any SDC credits

Based on the above four-step approach a cost-based water SDC was calculated on an equivalent residential unit (ERU) basis. In very simplistic terms, the Commission's water SDC was calculated by taking the total investment costs (existing and future) and dividing by the related ERUs (capacity-existing and future) to determine the cost per ERU.

In developing the total investment costs of the water system, the analysis reviews the asset records of the Commission and considers both past investments, along with potential future investments needed in the system to provide capacity for customer growth. The valuation process also segregated the assets between treatment and transmission plant. This valuation process excludes any contributed assets and also provides a debt service credit for any outstanding principle debt payments. Table ES-2 is a summary of the water SDCs, further detail is provided in Section 3 of this report.

Table ES – 2			
Present and Calculated Water System Development Charge			
Customer Class	Existing SDC Fee^[3]	Calculated SDC Fee	\$ Change
System-Wide SDC ^[1]	\$1,698.41	\$2,053.51	\$355.10
East Side High Level SDC ^[2]	\$8,254.77	\$9,539.42	\$1,284.65
South West High Level SDC ^[2]	\$9,226.45	\$10,651.74	\$1,425.29

[1] – One ERU equals a 5/8" X 3/4" meter.

[2] – One ERU equals a gross acre.

[3] – Effective October 1, 2020.

The SDCs do not need to be mathematically exact, only a practical basis for the charge is required. The utilization of the planning criteria, the actual costs of construction, and the planned costs of construction and relating financing plan provide the practical basis necessary to establish the reasonable relationship requirement. The increase in fee is due to the updated capital plan and estimated funding or improvement portion of the fee. The fee only includes “pay as you go” funding, as debt funding of future improvements is not included in the calculation of the fee. The details of the improvement projects, growth portion, and estimated funding are shown in Section 3 of this report.

Implementation of the System Wide Water System Development Charges – The Commission implements the system wide water system development charges based on water demand per equivalent residential unit (ERU). For the Commission, an ERU is defined as a 5/8-inch by 3/4-inch meter equivalent and is the meter size typically used for residential connections. The Commission’s present weighting factor is based on the 5/8-inch iPERL flow rate of 25 gpm. The Commission is updating the meter ratio to reflect the current Commission’s standard single family meter (1 ERU) 5/8-inch by 3/4inch iPERL meter, which has 35 gpm flow rate. The meter flow rates in gpm and the corresponding weighting ratio by meter size is shown in Table ES-3.

Table 3 ES – 3 Present and Proposed Meter Ratio				
Meter Size	5/8-inch iPERL Meter flow rate (gpm)	Present Weighting Factor	5/8 x 3/4-inch iPERL Meter flow rate (gpm)	New Weighting Factor ^[2]
5/8" x 3/4"	25	1.00	35	1.00
1"	55	2.20	55	1.60
1-1/2"	150	6.00	150	4.30
2"	200	8.00	200	5.70
3"	650	26.00	650	18.60
4" MWC determined				

The Commission’s System-Wide SDC present and calculated, based on the new meter ratio, is shown in Table ES-4.

Table ES – 4
Present and Calculated System Wide Water System Development Charge

Meter Size	Present Weighting Factor	Present SDC Fee ^[1]	New Weighting Factor ^[2]	Calculated SDC Fee
5/8" x 3/4"	1.00	\$1,698.41	1.00	\$2,053.51
1"	2.20	3,736.50	1.60	3,285.62
1-1/2"	6.00	10,190.46	4.30	8,830.09
2"	8.00	13,587.28	5.70	11,705.00
3"	26.00	44,158.66	18.60	38,195.28
4" or larger ^[3]				

[1] –Effective October 1, 2020

[2] –Meter ratio has been updated to 35 gpm flow rate for a 5/8"x3/4" iPERL meter (1 ERU)

[3] –Meters four inches (4") and larger may be sized for combined fire and consumption demands. Applicants whose projects will require these large meters are required to pay the SDC based on the actual meter size installed. The applicant may, one year after completion of the project, ask for a review of their consumption patterns. If the maximum consumption demand is less than that which is available for the meter size installed, a reduction in the fee to the approximate meter size will be allowed. If the consumption patterns change for those customers who have qualified for a reduction in SDC fees, the Commission, City or Water District may require the payment of additional SDC fees.

Conclusions and Recommendations

Based on our review and analysis of the Commission's water system assets, updated capital and financing approach for the development of the SDCs, HDR makes the following recommendations:

- ✓ The Commission should update the present water SDCs to the proposed fees in this report.
- ✓ The Commission should update the water SDCs as major projects in the capital plan are completed to "true-up" the estimated "pay as you go" funding to the final booked asset.
- ✓ The Commission should update the actual calculations for the SDCs at such time when a new capital improvement plan, public facilities plan, comprehensive system plan, or a comparable plan is approved or updated by the Commission.

Summary

The water SDCs developed and presented in this report are based on Commission-specific data and information of the Commission's water system, the value of the existing assets, current capital improvement plan, funding of the capital improvement projects of the system and generally accepted methodologies and principles. This report has provided a detailed review of the Commission's water SDCs.



Overview of System Development Charges

1.1 Introduction

An important starting point in reviewing and establishing cost-based SDCs is to have a basic understanding of the purpose of these charges, along with the criteria and general methodology that is most often used to establish them. Presented in this section of the report is an overview of SDCs and the criteria and general methodology that is used to develop cost-based SDCs.

1.2 Defining System Development Charges

The first step in establishing cost-based SDCs is to gain a better understanding of the definition of a SDC. At some utilities, SDCs may be referred to as impact fees, connection fees, capacity fees, plant investment fees, etc. Regardless of the name used for these fees, their overall policy objective is identical; balancing the costs or impacts of growth and development against the impacts to existing ratepayers.

Within industry technical literature, and for the purposes of this report, an SDC is defined as follows:

“System development charges (system development charges) are one-time charges paid by new development to finance construction of public facilities needed to serve them.”¹

Simply stated, SDCs are a contribution of capital to either reimburse existing customers for the available capacity in the existing system, or help finance planned future growth-related capacity improvements. Regardless of the label used to identify them, their objective is the same. That is, these fees are intended to provide funds to the utility to finance all or a part of the capital improvements needed to serve and accommodate new customer growth. Absent those charges, many utilities would likely be unwilling to build growth-related facilities (i.e., burden existing rate payers with the entire cost of growth-related capacity expansion).

Through the implementation of cost-based and equitable system development charges, existing customers will not be unduly burdened with the cost of new development

1.3 Economic Theory and System Development Charges

SDCs are generally imposed as a condition of service. The objective of a SDC is not to generate money for a utility, but to ensure that all customers seeking to connect to the utility's system bear an equitable share of the cost of excess capacity that existing customers have invested in the existing system and any future growth-related expansions. Through the implementation of

¹ Arthur C. Nelson, System Development Charges for Water, Wastewater, and Stormwater Facilities, Lewis Publishers, New York, 1995, p. 1,

cost-based and equitable SDCs, existing customers will not be unduly burdened with the cost of new development.

By establishing cost-based SDCs, the Commission will be taking an important step in assuring adequate infrastructure to meet growth-related needs, and more importantly, providing this required infrastructure to new customers in a cost-based, fair and equitable manner.

1.4 Overview of the System Development Charge Methodology

Within the generally accepted SDC methodologies, there are a number of different steps undertaken. These steps are as follows:

1. Determination of system planning criteria
2. Determination of equivalent residential unit (ERU)
3. Calculation of system component costs
4. Determination of any credits

The first step in establishing SDCs is the determination of the system planning criteria. For a water utility this implies calculating the amount of water required by a single-family residential customer. For water systems, water demand per ERU is most often used since this represents the basis for system design. In the case of the Commission, for the System-Wide SDC, one (1) ERU is defined as a 5/8" x 3/4" connection. The American Water Works Association (AWWA) has a standardized method for determining meter equivalencies for larger meter sizes based on the 5/8" X 3/4"-inch meter equivalency.

Once the system planning criteria is determined, the total number of equivalent residential units on the system or total ERUs can be determined. Depending on the method used to define an ERU, it will need to be calculated based on utility specific data. For example, if a 5/8" X 3/4"-inch meter is defined as one (1) ERU, then the number of meters, by size, are used to establish the total number of ERUs. The capacity of larger sized meters are placed in the context of a 5/8" X 3/4"-inch meter, or the definition of an ERU. For example, a 2"-inch meter has the flow capacity of 160 gallons per minute (gpm). By comparison, a 5/8" X 3/4"-inch meter has the flow capacity of 20 gpm. Therefore, from a flow capacity perspective, a 2" meter is the equivalent of 8.00 – 5/8" X 3/4"-inch meters

Once the number of ERUs has been determined, a component-by-component (e.g., treatment, transmission, etc.) analysis is undertaken to determine the component SDC in cost (\$) per ERU. Individual system components are analyzed separately for the water system given that the planning criteria differ for the development of the various system components. The calculation of the component SDC includes both historical assets (reimbursement fee) and planned future assets (improvement fee). The reimbursement to existing customers is accomplished by the fact that without SDCs, rates would otherwise be higher than they are with SDCs. Once the total cost of the capital infrastructure is

The reimbursement to existing customers is accomplished by the fact that without SDCs, rates would otherwise be higher than they are with SDCs.

determined, it is then divided by the appropriate number of ERUs the infrastructure will serve to develop the cost per ERU for the specific system component.

Each system component has two elements, a reimbursement and an improvement. The reimbursement element consists of the existing system components with available capacity while the improvement element consists of future system upgrades to meet future growth/expansion needs. After each system component is analyzed and a cost per ERU is determined, the cost per ERU for each of the system components is added together to determine the reimbursement and improvement SDC. The combined reimbursement and improvement SDC provides the “gross SDC” calculated before any credits for debt service.

Water systems are typically built with reserve capacity to accommodate future growth. This reserved capacity is funded by existing rate payers. The reimbursement portion of the SDC is intended to pay back, or reimburse, existing rate payers for future customers capacity requirements. The improvement portion of the SDC is intended to provide funding for future capital projects that provide additional capacity for new customers. The Oregon Revised Statute that dictates how the reimbursement and improvement portions of the SDC must be used is provided below.

The Oregon Revised Statute (ORS) 223.307 states: *“Authorized expenditure of system development charges. (1) Reimbursement fees may be spent on capital improvements associated with the system for which the fees are assessed including expenditures relating to repayment of indebtedness. (2) Improvement fees maybe spent only on capacity increasing capital improvements, including expenditures related to repayment of debt for such improvements. An increase in system capacity may be established if a capital improvement increases the level of performance or service provided by existing facilities or improves new facilities. The portion of the improvements funded by improvement fees must be related to the need for increased capacity to provide service for future users.”*

The last step in the calculation of the SDC is the determination of any credits. This is generally a calculation to assure that customers are not paying twice – once through SDCs and then again within the rates via a debt service payment.

At the conclusion of these SDC calculations, a cost-based SDC per ERU is derived. From this cost-based fee per ERU, a schedule of SDCs may be developed for each utility reflective of the characteristics of the utility’s customers. For example, the schedule of water SDCs are typically based on meter size (i.e., capacity).

1.5 Disclaimer

HDR, in its calculation of the SDCs presented in this report, has used generally accepted SDC principles and methodologies. This should not be construed as a legal opinion with respect to Oregon law as it pertains to these fees. HDR recommends that the Commission have its legal counsel review the SDCs as set forth and recommended in this report to ensure compliance with Oregon law.

1.6 Summary

This section of the report has provided an overview of SDCs; the basis for establishing the fees, considerations in establishing a nexus or linkage between the SDCs and the burden development places on the system and the steps typically taken in the development of the technical analyses. In the development of the Commission's water SDC study, the issues identified in this section of the report have been addressed and will be discussed in more detail in later sections of the report. The next section of the report provides a brief overview of the legal considerations in establishing SDCs, particularly as they relate to Oregon law.



Legal Considerations In Establishing System Development Charges

2.1 Introduction

An important consideration in establishing SDCs is the legal requirements at the state or local level. The legal requirements often establish the methodology around which the SDCs must be calculated or how the funds must be used. Given that, it is important for the Commission to understand these legal requirements. This section of the report provides an overview of the legal requirements for establishing SDCs under Oregon State law. This summary represents HDR's understanding of the relevant Oregon State law as it relates to establishing SDCs. It in no way constitutes a legal interpretation of the state's law by HDR.

2.2 Legal Requirements Under Oregon State Law

In establishing SDCs, an important requirement is that they be developed and implemented in conformance with applicable laws and legal requirements. In particular, many states have established specific laws regarding the establishment, calculation, and implementation of SDCs. The main objective of most state laws is to assure that these fees are established in such a manner that they are fair, equitable, and cost-based. In other cases, state legislation may have been needed to provide the legislative powers to the utility to establish the charges.

The purpose of Oregon law for the determination of SDCs is to provide a uniform framework for the imposition of SDCs by local governments for specified purposes, and to establish that such fees be used only for capital improvements. Specifically, the requirement for the calculation of SDCs in Oregon is found in ORS 223.297 to 223.314. Capital improvements as defined under Oregon law are as follows:

The Oregon State Legislature passed ORS 223.97 to 223.314, which sets forth requirements for calculations of system development charges for water systems.

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

An SDC means a reimbursement fee, an improvement fee, or a combination thereof. As defined under Oregon law, "improvement fee" means a fee for the costs associated with capital improvements to be constructed. "Reimbursement fee" means a fee for costs association with capital improvements already constructed or under construction.

As defined under Oregon law, the methodology setting forth the calculations for reimbursement fees and improvement fees must make the following considerations:

“233.304 Determination of amount of system development charges; methodology; credit allowed against charge; limitation of action contesting methodology for imposing charge; notification request.

- (1)(a) Reimbursement fees must be established or modified by ordinance or resolution setting forth a methodology that is, when applicable, based on:
 - (A) Ratemaking principles employed to finance publicly owned capital improvements;*
 - (B) Prior contributions by existing users;*
 - (C) Gifts or grants from federal or state government or private persons;*
 - (D) The value of unused capacity available to future system users or the cost of the existing facilities; and*
 - (E) Other relevant factors identified by the local government imposing the fee.**
- (b) The methodology for establishing or modifying a reimbursement fee must:
 - (A) Promote the objective of future system users contributing no more than an equitable share to the cost of existing facilities.*
 - (B) Be available for public inspection.**
- (2) Improvement fees must:
 - (a) Be established or modified by ordinance or resolution setting forth a methodology that is available for public inspection and demonstrates consideration of:
 - (A) The projected cost of the capital improvements identified in the plan and list adopted pursuant to ORS 223.309 that are needed to increase the capacity of the systems to which the fee is related; and*
 - (B) The need for increased capacity in the system to which the fee is related that will be required to serve the demands placed on the system by future users.**
 - (b) Be calculated to obtain the cost of capital improvements for the projected need for available system capacity for future users.**
- (3) A local government may establish and impose a system development charge that is a combination of a reimbursement fee and an improvement fee, if the methodology demonstrates that the charge is not based on providing the same system capacity.”*

The Oregon law further defines the ability to adjust the fee based on a documented index.

- (8) A change in the amount of a reimbursement fee or an improvement fee is not a modification of the system development charge methodology if the change in amount is based on:
 - (a) A change in the cost of materials, labor or real property applied to projects or project capacity as set forth on the list adopted pursuant to ORS 223.309; or*
 - (b) The periodic application of one or more specific cost indexes or other periodic data sources. A specific cost index or periodic data source must be:
 - (A) A relevant measurement of the average change in prices or costs over an identified time period for materials, labor, real property or a combination of the three;*
 - (B) Published by a recognized organization or agency that produces the index or data source for reasons that are independent of the system development charge methodology; and*
 - (C) Incorporated as part of the established methodology or identified and adopted in a separate ordinance, resolution or order.”***

In addition to the definitive requirements of the establishment of a SDC as an improvement fee and/or reimbursement fee, other requirements under Oregon law are as follows:

- The SDC must be based on an approved capital improvement plan, public facilities plan, master plan, or comparable plan which lists the capital improvements that may be funded with the improvement fee revenues and the estimated costs and timing for each improvement.
- Proper administrative review procedures must be followed in the enactment of an SDC resolution or ordinance.
- SDC funds must be spent only on facilities for which they were collected.
- A proper accounting system must be established which provides for an annual accounting of SDCs showing the total amount of revenue collected and the projects that were funded.
- The SDC may be annually adjusted based on an annual, recognized, published index if incorporated as part of methodology and in a separate ordinance.

2.3 Summary

This section of the report reviewed the legal basis for establishing SDCs in the State of Oregon. This summary represents HDR's understanding of the relevant Oregon State law as it relates to establishing SDCs. It in no way constitutes a legal interpretation of the state's law by HDR. The next section of the report provides a detailed discussion of the specific calculation of the water SDCs for the Commission.



Development of the Water System Development Charges

3.1 Introduction

This section of the report presents the key assumptions and details used in calculating the Commission's water SDC. The water SDC calculation is based on the value of the system in place with capacity available for growth (i.e., the reimbursement fee component), and future capacity projects (i.e., the improvement fee component). The reimbursement component and the improvement component are added together, less the debt credit, resulting in the total net SDC. The calculation of the Commission's water SDC is based on Commission-specific fixed asset records, updated capital improvement plan (CIP), and financing plan for the CIP. HDR performed a similar update in 2021 based on updated capital improvement and financing plan. The 2021 study resulted in the Commission keeping the adopted 2020 capacity charges in place.

The capital and financial plan have been updated over the last two years and included several capital projects bundled into a larger one called the Rogue Valley Water Supply Resiliency Project, now estimated to be \$197.5 million dollar project in total. The \$197.5 million includes both eligible and non-eligible SDC projects. The eligible SDC projects includes the expansion of the Duff Water Treatment Plant to 65 mgd, conveyance improvements to deliver the 65 mgd into the system, the Water Quality Improvement Project (pH adjustment at the water treatment plant and Big Butte Springs), a new reduced pressure reservoir, and rebuilding storage at Capitol Hill. These projects will improve the risk and resiliency of the system.

In October 2020, the Commission secured the financing for these projects through the federal credit Water Infrastructure and Finance and Innovation Act (WIFIA) program administered by the Environmental Protection Agency (EPA). The maximum portion costs that WIFIA can fund is 49% or \$96.7 million ($\$96.7\text{M}/\$197.5\text{M} = 49\%$). The remaining project balance is funded from revenue bonds and cash reserves. The portion of the total project estimated to be funded by cash reserves is included in the SDC. The total estimated cash reserve is \$73.0 million or approximately 37% of the \$197.5 million. It should be noted that not all the eligible WIFIA projects are SDC eligible. Therefore only the eligible SDC projects are included in this study. To the extent that the cost and timing of future capital improvements change, then the water SDCs presented in this section of the report should be updated to reflect the changes. .

This section of the report presents the key assumptions and details used in the calculation of the Commission's water SDCs.

3.2 Overview of the Commission's Water System

The Medford Water Commission owns, operates and maintains a water system that serves approximately 131,000 Rogue Valley residents. The Commission is an autonomous agency of the City of Medford, Oregon. The utility is governed by, and water rates and fees are established by, the Board of Water Commissioners. The Commission directly serves more than 30,000 customers in the City of Medford and the unincorporated community of White City. The cities of Central

Point, Eagle Point, Jacksonville, Ashland, Phoenix and Talent are also served on a wholesale basis. In addition, two domestic water districts purchase water from the Commission.

3.3 Present Water System Development Charges

The Commission's water present SDCs were adjusted by the Engineering News Record, Construction Cost Index (ENR-CCI) as of October 1, 2020. The Commission currently has three different SDCs in effect. The Commission's System-Wide SDC is dedicated to treatment plant expansion, treatment plant ozone improvement, and transmission that is charged to newly developed property added to the system to all customer served, including other cities and districts. The System-Wide SDC is based on meter size. The East Side and the Southwest High Level SDC are dedicated to reservoirs, pump stations, and transmission mains, specific to Zones 1 through 5, and are based on a dollar per gross acre. The Commission's present water SDCs are shown below in Table 3-1.

Table 3-1 Present Commission Water System Development Charges^[1]		
Meter Size	Weighting Factor	SDC Fee
4. System-Wide SDC -		
5/8" x 3/4"	1.0	\$1,698.41
1"	2.2	3,736.50
1- 1/2"	6.0	10,190.46
2" – R2	8.0	13,587.28
3" – T2	26.0	44,158.66
4" or larger ^[2]		
5. East Side High Level SDC – Zones 1 – 5 (\$/gross acre or part thereof)		\$8,254.77
6. South West High Level SDC– Zones 1 – 5 (\$/gross acre or part thereof)		\$9,226.45

[1] – Effective October 1, 2020.

[2] – Meters four inches (4") and larger may be sized for combined fire and consumption demands. Applicants whose projects will require these large meters are required to pay the SDC based on the actual meter size installed. The applicant may, one year after completion of the project, ask for a review of their consumption patterns. If the maximum consumption demand is less than which is available for the meter size installed, a reduction in the fee to the approximate meter size will be allowed. If the consumption patterns change for those customers who have qualified for a reduction in SDC fees, the Commission, City or Water District may require the payment of additional SDC fees.

As shown in Table 3-1, the Commission follows general industry practice where the water SDC is based on the size of meter connecting to the water system. This approach equates the capacity impact of the size of the meter on the water system. This approach is relatively straight-forward from an administrative perspective, and the more common approach used within the water utility industry to base water SDCs on meter size.

3.4 System-Wide SDC Calculations

As discussed in Section 1, the process of calculating SDCs is based on a four-step process. In summary form, these steps are as follows:

1. Determination of system planning criteria
2. Determination of the total equivalent residential units (ERUs)
3. Calculation of the SDC for system component costs
4. Determination of any SDC credits

Each of these steps is discussed in more detail below for each system.

3.4.1 System Planning Criteria – Defining an Equivalent Residential Unit

In the development of SDCs, an equivalent residential unit (ERU) is a commonly used planning criterion. Essentially, an equivalent residential unit is the common denominator for assessing customers and placing their demands into a common unit of measurement (i.e., a customer with a 2" meter is the equivalent of 8.0 residential customers with a 5/8" X 3/4"-inch meter. Within this water SDC study, the total costs are divided by the total ERUs to determine the cost per ERU. From that cost per ERU, a customer, for example, demanding eight (8) ERUs of capacity would be assessed a total SDC equal to 8 ERU's x the per unit \$/ERU. As one can see, the definition of an ERU carries through both in the calculation of the SDC, but also in the administration and assessment of that fee.

In reviewing the Commission's Excel™ worksheet for the System-Wide SDC, it is footnoted that an ERU is assumed to be 931 gallons per day. This assumption has been consistent since the 2018 study and was not updated. Once the system planning criteria is determined, the number of dwelling unit equivalents or ERUs can be determined based on the expansion capacity.

For the East Side High Level (ESHL) area an ERU is defined as one ERU equals one gross acre. There were 3,824 total acres in the ESHL area of which 621 water developed acres exist. The 3,204 remaining acres in the ESHL area with an overall development rate of 85% of the available land or 2,722 acres $(3,824 - 621) \times 0.85 = 2,722$ acres). This assumption has been consistent since the 2018 study and was not updated.

For the Southwest area an ERU is defined as one ERU equals one gross acre. Previously this assumption was 443 acres based on 447 total acres an overall development rate of 99% of the available land or 443 acres $(447 \times 0.99 = 443)$ acres). This assumption has been updated for 2021 to 469 acres. Total 474 acres within the Southwest High Level area (366 acres current + 108 acres to be added rezoned from Gravity zone), above 1,485 elevation, inside COM UGB with an overall development rate of 99% of the available land or 469 acres $(474 \times 0.99 = 469)$ acres). Provided below is the summary of the system planning criteria.

Table 3-2
Summary of the System Planning Criteria^[1]

Planning Criteria Description	Planning Criteria
System-Wide	
Sales per Day per ERU	771 gallons per ERU
Max Day Demand	<u>1.21</u>
Maximum Day per ERU	931 gallons/ERU
East Side High Level System	ERUs = 2,722 Acres
Southwest High Level System	ERUs = 469 Acres

[1] – System-Wide and ESHL Planning criteria based on 2018 SDC study. SWHL acres updated in 2021.

3.4.2 Determination of the Total Equivalent Residential Units (ERUs)

As a part of this study, a projection of the number of new, additional ERUs per year must be determined, along with the total number of Equivalent Residential Units (ERUs) at buildout. The Water Treatment Plant has future capacity expansions planned out to 2024 and the Rogue Transmission Booster Station has planned improvements scheduled out to 2023. Therefore, given a definition of an ERU, the total number of ERUs can be determined for a specific expansion project. For example, the Water Treatment Plant Expansion added 50 MGD of capacity (15 MGD to an expanded 65 MGD). Taking 50 MGD and dividing 931 gallons per day for an ERU produces 53,733 ERUs. This is the approach used by the Commission in the development of their ERUs and the total number of ERUs provided by expansion project. Provided below is the summary of the ERUs at the different expansion capacities.

Table 3-3
Water System Equivalent Residential Units (ERUs)

Planning Criteria Description	Maximum Day per ERU Gallons/ERU	ERUs
System-Wide		
MGD Capacity		
40 MGD	931	42,986
45 MGD	931	48,360
50 MGD	931	53,733
65 MGD	931	69,853
East Side High Level System		ERUs = 2,722 Acres
Southwest High Level System		ERUs = 469 Acres

Given the development of the total water ERUs, the focus can shift to the calculation of the SDC for each system. This aspect of the analysis is discussed below.

3.4.3 System-Wide Water SDC Calculation

The System-Wide existing system assets, along with planned future CIP were reviewed to determine the reimbursement and improvement capacity components per ERU. This approach follows current Oregon law as well as reflecting American Water Works Association (AWWA) defined generally accepted SDC methodologies. Furthermore, this methodology appears appropriate, when there is still capacity available in the existing system assets and capacity expansion needed in the future.

REIMBURSEMENT FEE – To calculate the value of the existing assets for the reimbursement fee component, the Commission’s methodology considered the original cost of each asset. The objective of the reimbursement methodology is that the future users contribute an equitable share of the cost of the utility’s existing facilities. The use of an original cost methodology complies with the legal requirements for the establishment of the reimbursement component of the fee. It should be noted that this is the same methodology the Commission used in the previous water SDC analysis.

The Commission provided an asset listing for the various existing components and their installation dates. The original cost of each asset was escalated to current, December 2021 dollars, based on the annual average of the Construction Cost Index (CCI) for the 20-City average area published in the City Engineering News & Record (ENR).

To determine the SDC for treatment plant, the reimbursement portion of the existing system was reviewed based on the Commission’s existing asset listing. The cost of the existing plant in December 2021 dollars is \$69.755 million. The total for each system component was divided by the number of ERUs for the system component capacity expansion resulting in a total maximum allowable Reimbursement SDC of \$1,380.70 per ERU. Provided below is the summary of the reimbursement fee for the System-Wide fee.

Table 3-4 Calculated System-Wide Water System Development Charge Reimbursement Fee (\$ 000)				
Plant Component	Capacity (MGD)	Capacity ERUs	Original Constructed Cost at 2021 \$	Total SDC or Maximum Allowable
WTP Expansion	50 MGD	53,733	\$29,208	\$543.58
WTP Ozone Impr.	40 MGD	42,986	7,578	176.30
Rogue River Trans. Impr.	45 MGD	48,360	22,853	472.55
Solids Handling	50 MGD	53,733	4,741	88.24
Rogue Trans. Control Station	50 MGD	53,733	<u>5,375</u>	<u>100.03</u>
System-Wide SDC per ERU			\$69,755	\$1,380.70

IMPROVEMENT FEE – An important requirement for a capacity fee study is the connection between the anticipated future growth on the system and the needed facilities required to accommodate that growth. The Commission provided the detail for projects that were SDC eligible and the percentage eligible to meet demand for the water system.

Since the 2018 SDC study, the Commission bundled several capital projects into a larger one called the Rogue Valley Water Supply Resiliency Project. It includes the expansion of the Duff Water Treatment Plant to 65 mgd, conveyance improvements to deliver the 65 mgd into the system, the Water Quality Improvement Project (pH adjustment at the water treatment plant and Big Butte Springs), a new reduced pressure reservoir, and rebuilding storage at Capitol Hill.

In October 2020, the Commission secured the financing for these projects through the federal credit Water Infrastructure and Finance and Innovation Act (WIFIA) program administered by the Environmental Protection Agency (EPA). The maximum portion costs that WIFIA can fund is 49% or \$96.7 million of the total eligible and non-eligible SDC projects (\$96.7M/\$197.5M = 49%). The remaining project balance is funded from revenue bonds and cash reserves. The portion of the total project estimated to be funded by cash reserves is included in the SDC. The total estimated cash reserve is \$73.0 million or approximately 37% of the \$197.5 million. Provided below is a summary of improvement fee projects and percentage eligible included in the SDC.

Table 3-5
Summary of Improvement Fee Projects SDC Eligible (\$ 000)

System Component	Cost in 2021\$	% SDC Eligible	\$ Cash Reserve Funded	% Eligible in 2021 \$
WTP Expansion				
Filter Addition	\$26,393	100%	37.0%	\$9,765
High Service Pumps	14,983	41%	37.0%	2,272
Reduced Pressure Zone Storage	16,960	53%	37.0%	3,294
Ozone Generators	5,195	45%	37.0%	915
Duff Reservoir	<u>14,544</u>	45%	37.0%	<u>2,421</u>
Total WTP Expansion	\$78,077			\$18,670
Rogue Trans. Control Stations				
Crater Lake Ave 16' Transmission	\$3,769	100%		\$3,769
Reduced Pressure N-S Conveyance	23,000	100%	37.0%	8,510
Conrad Control Station Feeder	4,076	100%	37.0%	1,508
Zone 1 Transmission Connection	1,380	100%		1,380
Martin RP Zone Trans. Connection	10,338	100%		10,388
Reduced Press. Reservoir Trans.	<u>7,628</u>	100%	37.0%	<u>2,822</u>
Total Rogue Transmission Control	\$50,191			\$28,327
Total	\$128,268			\$46,997

The total SDC eligible future projects for water totaled \$46.9 million, based on annual average 2021 construction costs. To determine the SDC charge for the improvement portion of the SDC the future projects were listed. The total for each system component was divided by the number

of ERUs for the system component capacity expansion resulting in a total maximum allowable Improvement SDC of \$672.51 per ERU.

Table 3-6
Calculated System-Wide Water System Development Charge
Improvement Fee (\$ 000)

System Component	Capacity (MGD)	Capacity ERUs	Original Constructed Cost at 2021 \$	Total SDC or Maximum Allowable
WTP Expansion	65 MGD	69,853	\$18,670	\$267.28
Rogue Trans. Control Station	65 MGD	69,853	<u>28,327</u>	<u>405.53</u>
System-Wide SDC per ERU			\$46,997	\$672.81

DEBT SERVICE COMPONENT – The final step in calculating the water SDC was to determine if a credit for payment on debt service is applicable for the utility’s outstanding and future planned loans and bonds. Credits for debt service payments paid through customer rate revenue are determined to prevent charging the customer twice for debt, once through rates and once through SDCs. By determining a debt credit, customers pay for debt financed infrastructure through their monthly utility rates and those costs are removed from the SDC calculation. This inclusion of a debt service credit avoids double charging the customer for the asset value in the existing or reimbursement component of the SDC, and also in the debt service component of the rates.

As described in the previous section the Rogue Valley Water Supply Resiliency Project, was accounted for in the SDC by the amount that was cash reserve financed. The projects were adjusted to only include 37.0% of the project.

SYSTEM-WIDE NET ALLOWABLE WATER SYSTEM DEVELOPMENT CHARGE – The methodology used to establish the water SDC is a combined approach. The combined approach adds the reimbursement fee component and the improvement fee component together, and accounts for any existing debt credit resulting in a net allowable SDC. Based on the sum of the component costs calculated above, the net allowable water SDC can be determined. Net refers to the gross SDC, net of any debt service credits. Allowable refers to the concept that the calculated SDC shown in Table 3-7 is the Commission’s cost-based SDC. The net allowable charge per ERU is \$2,053.51 for the System-Wide SDC. This compares to the Commission’s present SDC of \$1,698.41 of an increase of \$355.10. A detail of the net allowable System-Wide SDC for the Commission is in the Technical Appendix.

Table 3-7 Calculated Net Allowable System-Wide Water System Development Charge			
System Component	Reimbursement SDC	Improvement SDC	Total SDC or Maximum Allowable
System-Wide SDC ^[1]	\$1,380.70	\$672.81	\$2,053.51

[1] – One ERU equals a 5/8" X 3/4" meter

IMPLEMENTATION – The Commission implements the water system development charges based on water demand per equivalent residential unit (ERU). For the Commission, an ERU is defined as a 5/8-inch by 3/4-inch meter equivalent and is the meter size typically used for residential connections. The Commission's present weighting factor is based on the 5/8-inch iPERL flow rate of 25 gpm. The Commission is updating the meter ratio to reflect the current Commission's standard single family meter (1 ERU) 5/8-inch by 3/4-inch iPERL meter, which has 35 gpm flow rate. The meter flow rates in gpm and the corresponding weighting ratio by meter size is shown in Table 3-8.

Table 3-8 Present and Proposed Meter Ratio				
Meter Size	5/8-inch iPERL Meter flow rate (gpm)	Present Weighting Factor	5/8 x 3/4-inch iPERL Meter flow rate (gpm)	New Weighting Factor ^[2]
5/8" x 3/4"	25	1.00	35	1.00
1"	55	2.20	55	1.60
1-1/2"	150	6.00	150	4.30
2"	200	8.00	200	5.70
3"	650	26.00	650	18.60
4" MWC determined				

The Commission's System-Wide SDC present and calculated based on the new meter ratio is shown in Table 3-9.

Table 3-9
Present and Calculated System Wide Water System Development Charge

Meter Size	Present Weighting Factor	Present SDC Fee ^[1]	New Weighting Factor ^[2]	Calculated SDC Fee
5/8" x 3/4"	1.00	\$1,698.41	1.00	\$2,053.51
1"	2.20	3,736.50	1.60	3,285.62
1-1/2"	6.00	10,190.46	4.30	8,830.09
2"	8.00	13,587.28	5.70	11,705.00
3"	26.00	44,158.66	18.60	38,195.28
4" or larger ^[3]				

[1] –Effective October 1, 2020

[2] –Meter ratio has been updated to 35 gpm flow rate for a 5/8"x3/4" iPERL meter (1 ERU)

[3] –Meters four inches (4") and larger may be sized for combined fire and consumption demands. Applicants whose projects will require these large meters are required to pay the SDC based on the actual meter size installed. The applicant may, one year after completion of the project, ask for a review of their consumption patterns. If the maximum consumption demand is less than that which is available for the meter size installed, a reduction in the fee to the approximate meter size will be allowed. If the consumption patterns change for those customers who have qualified for a reduction in SDC fees, the Commission, City or Water District may require the payment of additional SDC fees.

3.5 East Side High Level System Development Charges

The East Side High Level (ESHL) water SDCs is the same methodology as previously discussed except for the basis of the equivalent residential units. The number of ERUs is based on the number of acres in each zone for the ESHL SDCs. The ERU figure has been estimated by the Commission and is consistent with their planning.

A brief discussion of the SDC calculated for each component is provided below.

REIMBURSEMENT FEE – The Commission provided an asset listing for the various existing components and their installation dates. The original cost of each asset was escalated to current, December 2021 dollars, based on the annual average of the Construction Cost Index (CCI) for the 20-City average area published in the City Engineering News & Record (ENR). The cost of the existing plant is \$10.619 million. This total was divided by the total number of ERUs or acres in this case of 2,722 acres. The total maximum allowable Reimbursement SDC of \$3,901.50 per ERU.

Table 3-10
Calculated Net Allowable East Side High Level
Reimbursement Fee System Development Charge

System Component	Capacity (Acres)	Original Constructed Cost	Total SDC or Maximum Allowable
East Side High Level ^[1]	2,722 Acres	\$10,619,882	\$3,901.50

[1] – Per acre.

IMPROVEMENT FEE – The estimated costs for future projects are based on yearly updated 10-year capital improvement plan. The total SDC eligible future projects for water totaled \$15.346 million based on the 2021 annual average construction cost index. The total was divided by the number of ERUs for the system component capacity expansion of 2,722 acres resulting in a total maximum allowable Improvement SDC of \$5,637.92 per ERU.

Table 3-11
Calculated Net Allowable East Side High Level
Improvement Fee System Development Charge

System Component	Capacity (Acres)	Estimated Future Cost	Total SDC or Maximum Allowable
East Side High Level ^[1]	2,722 Acres	\$15,346,422	\$5,637.92

[1] – Per acre.

DEBT SERVICE COMPONENT – DEBT SERVICE COMPONENT - The Commission does not have any outstanding debt and therefore there is no debt service credit.

EAST SIDE HIGH LEVEL NET ALLOWABLE WATER SYSTEM DEVELOPMENT CHARGE – Based on the sum of the component costs calculated above, the net allowable water SDC can be determined. Net refers to the gross SDC, net of any debt service credits. Allowable refers to the concept that the calculated SDC shown in Table 3-12 is the Commission’s cost-based SDC. The net allowable charge per ERU is \$9,539.42 for the ESHL SDC. This compares to the Commission’s present SDC of \$8,254.77 of an increase of \$1,284.65. A detail of the net allowable ESHL SDC for the Commission is in the Technical Appendix.

Table 3-12
Calculated Net Allowable East Side High Level System Development Charge

System Component	Reimbursement SDC	Improvement SDC	Total SDC or Maximum Allowable
East Side High Level ^[1]	\$3,901.50	\$5,637.92	\$9,539.42

[1] – Per acre.

3.6 South West High Level System Development Charges

The South West High Level (SWHL) water SDCs is the same methodology as previously discussed except the SWHL SDCs use an area or acreage basis to assess the SDCs.

REIMBURSEMENT FEE – The Commission provided an asset listing for the various existing components and their installation dates. The original cost of each asset was escalated to current, December 2021 dollars, based on the annual average of the Construction Cost Index (CCI) for the 20-City average area published in the City Engineering News & Record (ENR). To determine the SDC for the reimbursement portion of the existing system was reviewed based on the Commission’s existing asset listing. The cost of the existing plant is \$4.414 million. This total was divided by the total number of ERUs or acres in this case of 469 acres. The total maximum allowable Reimbursement SDC of \$9,372.42 per ERU.

Table 3-13
Calculated Net Allowable South West High Level Reimbursement Fee System Development Charge

System Component	Capacity (Acres)	Original Constructed Cost 2021\$	Total SDC or Maximum Allowable
South West High Level– Pressure Zone 1 ^[1]	469 Acres	\$4,414,762	\$9,372.42

[1] – Per acre.

IMPROVEMENT FEE – The estimated costs for future projects are based on yearly updated 10-year capital improvement plan. The total SDC eligible future projects for water totaled \$600,000 based on the 2021 annual average construction cost index. The total was divided by the number of ERUs for the system component capacity expansion of 469 acres resulting in a total maximum allowable Improvement SDC of \$1,279.32 per ERU.

Table 3-14
Calculated Net Allowable South West High Level
Improvement Fee System Development Charge

System Component	Capacity (Acres)	Estimated Future Cost	Total SDC or Maximum Allowable
South West High Level ^[1]	469 Acres	\$600,000	\$1,279.32

[1] – Per acre.

DEBT SERVICE COMPONENT – The Commission does not have any outstanding debt and therefore there is no debt service credit.

SOUTH WEST HIGH LEVEL NET ALLOWABLE WATER SYSTEM DEVELOPMENT CHARGE – Based on the sum of the component costs calculated above, the net allowable water SDC can be determined. Net refers to the gross SDC, net of any debt service credits. Allowable refers to the concept that the calculated SDC shown in Table 3-15 is the Commission’s cost-based SDC. The net allowable charge per ERU is \$10,651.74 for the SWHL SDC. This compares to the Commission’s present SDC of \$9,226.45 or an increase of \$1,425.29. A detail of the net allowable SWHL SDC for the Commission is in the Technical Appendix.

Table 3-15
Calculated Net Allowable South West High Level System Development Charge

System Component	Reimbursement SDC	Improvement SDC	Total SDC or Maximum Allowable
South West High Level ^[1]	\$9,372.42	\$1,279.32	\$10,651.74

3.7 Summary of the System-Wide, East Side High Level and South West High Level System Development Charges

The SDCs do not need to be mathematically exact, only a practical basis for the charge is required. The utilization of the planning criteria, the actual costs of construction, and the planned costs of construction and relating financing plan provide the practical basis necessary to establish the reasonable relationship requirement. Table 3-16 is a summary of the water SDCs.

Table 3–16
Present and Calculated Water System Development Charge

Customer Class	Existing SDC Fee^[3]	Calculated SDC Fee	\$ Change
System-Wide SDC ^[1]	\$1,698.41	\$2,053.51	\$355.10
East Side High Level SDC ^[2]	\$8,254.77	\$9,539.42	\$1,284.65
South West High Level SDC ^[2]	\$9,226.45	\$10,651.74	\$1,425.29

[1] – One ERU equals a 5/8" X 3/4" meter.

[2] – One ERU equals a gross acre.

[3] – Effective October 1, 2020.

3.8 Key Assumptions of the Water System Development Charge

In developing the SDCs for the Commission's water system, a number of key assumptions were utilized. These are as follows:

- The Commission's asset records, as of December 2021, were used to determine the existing water plant assets.
- The ENR construction cost index was based on the 2021 annual average index to bring the original cost of assets to replacement cost.
- The Commission provided the capital improvement plan (CIP) for future improvements, and adjusted projects based on current information.
- The Commission determined the portion of future improvements that were growth-related (i.e., SDC eligible).
- The methodology used is the combined methodology. The reimbursement fee and expansion fee component are added together for a net allowable SDC.

3.9 Consultant's Recommendations

Based on our review and analysis of the Commission's water system assets, updated capital and financing approach for the development of the SDCs, HDR makes the following recommendations:

- ✓ The Commission should update the present water SDCs to the proposed fees in this report.
- ✓ The Commission should update the water SDCs as major projects in the capital plan are completed to "true-up" the estimated "pay as you go" funding to the final booked asset.
- ✓ The Commission should update the actual calculations for the SDCs at such time when a new capital improvement plan, public facilities plan, comprehensive system plan, or a comparable plan is approved or updated by the Commission.

3.10 Summary

The water SDCs developed and presented in this report are based on Commission-specific data and information of the Commission's water system, the value of the existing assets, current

capital improvement plan, funding of the capital improvement projects of the system and generally accepted methodologies and principles. This report has provided a detailed review of the Commission's water SDCs.



Technical Appendix

SDCs For: TREATMENT PLANT AND TRANSMISSION EXPANSION - 30/45/65 MGD

					(4,5)		(7)	(8)	(11)	(3)	(10)	(2)	(1)	
	CIP/Asset #	Capacity-Increasing Project Description (Constructed Reimbursement or Future Improvement)	ital Improvement Pl	Installation Year	Years in Service or Year of Estimate	Annual Average CCI for Installation Year	Original or Estimated Asset Cost (\$)	Portion Eligible (%)	WIFIA Project	Original or Estimated SDC Cost (\$)	Present Estimated Cost (2021\$)	ERUs	Present Worth (PW) Cost per ERU (\$)	
CONSTRUCTED		I. WATER TREATMENT PLANT EXPANSION (Increase of 15 MGD TO 65 MGD = 50 MGD)												
	CADU26060	DUFF-HIGH SVC PUMP		1981	41	3535	54,957	100%		54,957	\$ 188,636	53,733	3.51	
	CADU26860	ROGUE RIVER INTAKE		1982	40	3825	184,269	100%		184,269	\$ 584,509	53,733	10.88	
	CADU27160	DUFF PLANT FILTERS		1983	39	4066	572,179	100%		572,179	\$ 1,707,297	53,733	31.77	
	CADU26300	DUFF PLANT ADDITION		1983	39	4066	300,852	100%		300,852	\$ 897,698	53,733	16.71	
	CADU26320	DUFF PLANT ADDITION		1983	39	4066	36,468	100%		36,468	\$ 108,816	53,733	2.03	
	CADU04780	COAGULATION BASINS @ DUFF		1989	33	4615	454,169	100%		454,169	\$ 1,194,146	53,733	22.22	
	CADU38820	DUFF HIGH SVC PUMP #5		1997	25	5826	184,171	100%		184,171	\$ 383,558	53,733	7.14	
	CADU38800	ROGUE INTAKE PUMP #1		1997	25	5826	237,389	100%		237,389	\$ 494,391	53,733	9.20	
	CADU42890	DUFF PHASE II PURIFICATION EQUIPMENT - ORIGINAL COST INCLUDES UP			2000	22	6221	2,079,186	3%		51,990	\$ 101,398	53,733	1.89
	CADU43930	DUFF PLANT PHASE III FILTER EXPANSION		2000	22	6221	1,120,269	100%		1,120,269	\$ 2,184,895	53,733	40.66	
	CADU43940	DUFF PLANT PHASE III FILTER EXPANSION		2000	22	6221	1,034,094	100%		1,034,094	\$ 2,016,826	53,733	37.53	
	CADU46370	DUFF EFFLUENT PIPING & METERING		2003	19	6695	121,564	100%		121,564	\$ 220,325	53,733	4.10	
	CADU46760	DUFF ELECTRICAL UPGRADE 50%		2004	18	7115	829,214	50%		414,607	\$ 707,028	53,733	13.16	
	CADU48331	DUFF WASH WATER LAGOON (50% SDC FUNDED)			2009	13	8575	4,279,371	50%		2,139,685	\$ 3,027,637	53,733	56.35
	CADU48821	DUFF INTAKE FISH SCREENS (50% SDC FUNDED)			2010	12	8802	1,903,049	50%		951,524	\$ 1,311,593	53,733	24.41
	CADU49080	DUFF HIGH SERVICE PUMP		2010	12	8802	246,067	100%		246,067	\$ 339,182	53,733	6.31	
	CADU50588	Duff 65 MGD (Nominal) Raw Water Pump #1 Design/Construct			2016	6	10338	817,243	25%		204,311	\$ 239,786	53,733	4.46
	CADU50605	Duff 65 MGD Flocc-Sed/Rapid Mixer Design - 50% expansion p	14-00009	2017	5	10737	921,852	50%		460,926	\$ 520,889	53,733	9.69	
	CADU50605	Duff 65 MGD Flocc-Sed/Rapid Mixer Construct - 50% expansio	14-00009	2017	5	10737	10,939,309	50%		5,469,655	\$ 6,181,216	53,733	115.04	
	CADU50605	Duff 65 MGD Flocc-Sed/Rapid Mixer Design - 50% expansion p	14-00009	2018	4	11062	531,063	50%		265,531	\$ 291,252	53,733	5.42	
	CADU50605	Duff 65 MGD Flocc-Sed/Rapid Mixer Construct - 50% expansio	14-00009	2018	4	11062	6,301,945	50%		3,150,973	\$ 3,456,190	53,733	64.32	
	CADU50605	Duff 65 MGD Flocc-Sed/Rapid Mixer Design - 50% expansion p	14-00009	2019	3	11281	183,553	50%		91,776	\$ 98,708	53,733	1.84	
	CADU50605	Duff 65 MGD Flocc-Sed/Rapid Mixer Construct - 50% expansio	14-00009	2019	3	11281	2,178,158	50%		1,089,079	\$ 1,171,330	53,733	21.80	
	CAME48810	Rogue Intake Land		2011	11	9074	654,968	100%		654,968	\$ 875,785	53,733	16.30	
	CAME50543	Wetlands Mitigation Land - Duff		2015	7	10035	275,365	100%		275,365	\$ 332,931	53,733	6.20	
	CADU49081	Wetlands Mitigation Land - PCT		2014	8	9807	449,994	100%		449,994	\$ 556,763	53,733	10.36	
	CAME49180	Vernal Pool Fence		2012	10	9308	11,768	100%		11,768	\$ 15,340	53,733	0.29	
	CADU50935	Duff Engineered Lagoons 5-8		2021	1	12133	4,741,208	100%		4,741,208	\$ 4,741,208	53,733	88.24	
														631.82
Future		Filter Addition	D10	2022	2021	12133	26,393,465	100%	37%	9,765,582	\$ 9,765,582	69,853	139.80	
		High Service Pumps & Surge Protection	D13	2023	2021	12133	14,983,000	41%	37%	2,272,921	\$ 2,272,921	69,853	32.54	
		Reduced Pressure Zone Storage	R-4	2023	2021	12133	16,960,000	53%	37%	3,294,480	\$ 3,294,480	69,853	47.16	
		Ozone Generators	D12	2022	2020	11466	5,195,907	45%	37%	865,119	\$ 915,469	69,853	13.11	
		Duff Reservoir		2024	2021	12133	14,544,853	45%	37%	2,421,718	\$ 2,421,718	69,853	34.67	
													\$267.28	
CONST		II. DUFF WATER TREATMENT PLANT OZONE IMPROVEMENT (Increase of 25 MGD TO 65 MGD = 40 MGD)												
	CADU46430	OZONE BUILDING		2003	19	6695	6,744,110	27%		1,839,793	\$ 3,334,460	42,986	77.57	
	CADU46420	OZONE BUILDING		2003	19	6695	6,744,110	35%		2,341,555	\$ 4,243,859	42,986	98.73	
													\$176.30	
CONSTRUCTED		III. ROGUE RIVER TRANSMISSION PROJECTS (Increase of 20 MGD TO 65 MGD = 45 MGD)												
	CADU34060	CRATER LAKE 36 IN TRANS MAIN		1981	41	3535	1,670,351	100%		1,670,351	\$ 5,733,353	48,360	118.56	
	CADU31360	5-86 36" WESTSIDE TRANS MAIN		1987	35	4406	1,564,693	100%		1,564,693	\$ 4,308,475	48,360	89.09	
	CADU36060	ROSSANLEY 36" MAIN W/SIDE		1994	28	5408	1,118,669	100%		1,118,669	\$ 2,510,029	48,360	51.90	
	CADU30780	CUNNINGHAM/COLUMB OVER/Z	MWC Cost Only	1994	28	5408	77,815	100%		77,815	\$ 174,598	48,360	3.61	
	CADU31480	ROGUE TRANS/OVERZ/WESTFIELD	MWC Cost Only	1995	27	5471	92,240	100%		92,240	\$ 204,560	48,360	4.23	
	CADU29360	30" WESTSIDE WATER LINE		1995	27	5471	260,201	100%		260,201	\$ 577,045	48,360	11.93	
	CADU39360	36" WESTSIDE TRANSMISSION PHAS		1997	25	5826	1,180,711	100%		1,180,711	\$ 2,458,971	48,360	50.85	
	CADU44480	STEWART MAIN REPLACEMENT 30"		2000	22	6221	293,715	30%		87,169	\$ 170,009	48,360	3.52	
	CADU45500	ELK CREEK ESTATES OVERSIZING SDC	MWC Cost Only	2002	20	6538	99,317	100%		99,317	\$ 184,314	48,360	3.81	
	CADU46450	LOZIER LANE EXTENSION OVERSIZING	MWC Cost Only	2003	19	6695	40,103	100%		40,103	\$ 72,683	48,360	1.50	
	CADU48690	LOZIER LANE FROM CUNNINGHAM AVE TO 843'		2003	19	6695	106,257	96%		101,983	\$ 184,836	48,360	3.82	
	PWDU10090	AVENUE G- TABLE ROCK-KIRTLAND-PACIFIC-11		2011	11	9074	4,648,996	100%		4,648,996	\$ 6,216,366	48,360	128.54	
	PWDU10091	AVENUE G- AT 11TH STREET		2011	11	9074	23,924	100%		23,924	\$ 31,989	48,360	0.66	
	PWDU10092	TABLE ROCK RD- AT DUFF TREATMENT PLANT		2011	11	9074	18,797	100%		18,797	\$ 25,135	48,360	0.52	
														\$472.55

SDCs For: TREATMENT PLANT AND TRANSMISSION EXPANSION - 30/45/65 MGD

					(4,5)		(7)	(8)	(11)	(3)	(10)	(2)	(1)
	CIP/Asset #	Capacity-Increasing Project Description (Constructed Reimbursement or Future Improvement)	ital Improvement Pl	Installation Year	Years in Service or Year of Estimate	Annual Average CCI for Installation Year	Original or Estimated Asset Cost (\$)	Portion Eligible (%)	WIFIA Project	Original or Estimated SDC Cost (\$)	Present Estimated Cost (2021\$)	ERUs	Present Worth (PW) Cost per ERU (\$)
CONSTRUCTED		IV. ROGUE TRANSMISSION CONTROL STATIONS (Increase of 15 MGD TO 65 MGD = 50 MGD)											
	CADU26160	CONRAD PUMP STATION		1989	33	4615	\$20,917.11	100%		20,917	\$ 54,997	53,733	1.02
	CADU24460	WESTSIDE PUMP STA LAND		1993	29	5210	\$9,613.50	100%		9,614	\$ 22,387	53,733	0.42
	CADU24200	ROSSANLEY PUMP STATION		1995	27	5471	\$226,738.26	100%		226,738	\$ 502,834	53,733	9.36
	CADU36400	ROSSANLEY PUMP EQUIP		1995	27	5471	\$185,513.12	100%		185,513	\$ 411,410	53,733	7.66
	CADU26560	ROSSANLEY STA TELEMETRY		1995	27	5471	\$46,728.38	100%		46,728	\$ 103,629	53,733	1.93
	CADU43610	#2 PUMP-ROSSANLEY PUMP STATION		2000	22	6221	\$57,432.38	100%		57,432	\$ 112,012	53,733	2.08
	CADU50586	Pumps & PRV's Control Stations (82%) SDC		2014	8	9807	\$1,456,447.42	82%		1,194,287	\$ 1,477,654	53,733	27.50
	CADU50585	Martin Control Station (41%) SDC		2014	8	9807	\$1,706,440.69	41%		699,641	\$ 865,644	53,733	16.11
	PMDU50605	Vilas Rd - Table Rock Rd to Crater Lake		2016	6	10338	\$1,554,459.76	100%		1,554,460	\$ 1,824,369	53,733	33.95
													\$100.03
FUTURE		Crater Lake Ave - South of Martin Control Station 16" Transmis	PL-7	2024	2021	12133	3,769,000	100%		3,769,000	\$ 3,769,000	69,853	53.96
		Reduced Pressure North-South Conveyance	PL-1	2023	2021	12133	23,000,000	100%	37%	8,510,000	\$ 8,510,000	69,853	121.83
		Conrad Control Station Feeder	PL-9	2027	2021	12133	4,076,000	100%	37%	1,508,120	\$ 1,508,120	69,853	21.59
		Zone 1 Transmission Connection	PL-4	2025	2021	12133	1,380,000	100%		1,380,000	\$ 1,380,000	69,853	19.76
		Martin CS RP Zone Transmission Connection		2027	2021	12133	10,338,163	100%		10,338,163	\$ 10,338,163	69,853	148.00
		Reduced Pressure Reservoir Transmission Connection		2028	2021	12133	7,628,000	100%	37%	2,822,360	\$ 2,822,360	69,853	40.40
													\$405.53
							\$128,268,388					Constructed	\$1,380.70
												Future	672.81
												GRAND TOTAL	\$2,053.51
(1) 2021 Average Rate: ENR Construction Cost Index (CCI)				12133		Reimbursed (43)							
(2) Equivalent Residential Units, ERUs = MGD Increase/Maximum Day Demand per ERU													
Maximum Day Demand per ERU = 931 gal/day (Calculation made per formula pg 13-14 of 2009 SDC Study)													
(3) Since replacement of increased capacity SDC project facilities is not allowed to be again funded with SDCs, depreciation is not used as a factor in these costs.											Calculated		\$2,053.51
											Existing		\$1,698.41
(4) Current Year				2022									
(5) Year of Estimates				2021							ENR-CCI 2020 Sept		11,499
(6) Year 2017 max day= 58.97 mgd, BBS produces 26.4 mgd, Plant production = 32.57 mgd											ENR CCI 2021 April		11,849
Ultimate Future Plant production equaling 65 mgd minus Plant production of 25 mgd equals 40 mgd of additional capacity											Index Change		1.03
(7) The estimated costs for FUTURE projects are based on yearly updated 10-Yr Plan, Water Distribution System, and WTP Facility Plan figures													
(8) The original costs for CONSTRUCTED projects are total percentage, or (if noted) proportional, reimbursement (buy-in) values ALL of which provide additional capacity											Existing updated to April		\$1,750.11
(9) MWC reimbursement DOES NOT include interest over time on the actual expended costs, and SDC calculations DO NOT include State allowed costs for SDC studies, program administration, and/or program accounting											Calculated Updated to April		\$2,116.01
(10) Future projects only pay as you go included in the SDC. (\$73,085,051/197,527,164 = 37.0%). Biosolids handling is 100% pay as you go.											Dollar Difference		\$365.91
(11)	Sources Category		Estimated Dollar	Funding	%								
	1. WIFIA Loan (cannot exceed 49% of eligible costs)		\$96,788,310	\$96,788,310	49.0%								
	2. Revenue Bonds		27,653,803	27,653,803	14.0%								
	3. SRF Loan		\$0	\$0									
	4. Borrower Cash		73,085,051	73,085,051	37.0%								
	5. Previously Incurred Eligible Costs*			0									
	6. Other (please specify) Click or tap here to enter												
	TOTAL SOURCES		\$197,527,164	\$197,527,164									
NOTE: Existing filter rebuilds, disinfection upgrades, electrical upgrades, intake upgrades, lagoon upgrades, and earthquake hardening are not part of SDCs and do not provide additional capacities.													

SDCs For: EAST SIDE HIGH LEVEL SYSTEM

						(4,5)		(6)	(7)	(3)	(10)	(2)	(1)
	CIP/Asset #		Capacity-Increasing Project Description (Constructed Reimbursement or Future Improvement)	CIP Plan #	Installation Year	Years in Service or Year of Estimate	Annual Average CCI for Installation Year	Original or Estimated Asset Cost (\$)	Portion Eligible (%)	Original or Estimated SDC Cost (\$)	Present Estimated Cost (2021 \$)	Acres	Present Worth (PW) Cost per ACRE (\$)
CONSTRUCTED			PRESSURE ZONE 1 - 4										
	CAES07720		Lone Pine Foothill 2 Res Site	Lone Pine #2 Reservoir Land	1979	43	3003	21,427	100%	21,427	86,588	2,722	31.81
	CAES07700		Lone Pine Booster #1 Site	Lone Pine Pump Station Land	1988	34	4519	6,815	100%	6,815	18,295	2,722	6.72
	PMME13720		Easement-Hillcrest Rd To Tamarack Dr		1991	31	4835	19,103	28%	5,322	13,355	2,722	4.91
	PMME14380		Easement - Murryhill Terr To 500'S	Oversizing Mwc Costs Only	1995	27	5471	15,000	100%	15,000	33,265	2,722	12.22
	PMES21900		Hillcrst-400'E-Fairview - 544'W Of Foothill	Mwc Costs Only	1995	27	5471	10,233	100%	10,233	22,694	2,722	8.34
	PMME23160		Innsbruck Ridge - Murryhill Terr To 590' N	Oversizing Mwc Costs Only	1995	27	5471	2,059	100%	2,059	4,566	2,722	1.68
	PMME30320		Murryhill Terr - Innsbruck Ridge To 100' S	Oversizing Mwc Costs Only	1995	27	5471	302	100%	302	670	2,722	0.25
	CAME20360		Oregon Hills Iv	Oversizing Oregon Hills Iv	1995	27	5471	8,400	100%	8,400	18,629	2,722	6.84
	PMME41760		Tamarack, Innsbruck North	Oversizing Mwc Costs Only	1995	27	5471	5,700	100%	5,700	12,641	2,722	4.64
	PMME41800		Tamarack, Innsbruck North	Oversizing Mwc Costs Only	1995	27	5471	3,904	100%	3,904	8,658	2,722	3.18
	CAES37820		Eastside Res Site Z-#3	Lone Pine #3 Reservoir Land	1996	26	5620	56,853	100%	56,853	122,744	2,722	45.09
	CAES39350		Hillcrest Pump Sta #3 Pump Upg	Hillcrest Pump Station Upgrade	1996	26	5620	26,919	100%	26,919	58,117	2,722	21.35
	CAES39340		Standford Pump Stat Pump Upgra	Standford Pump Station Upgrade	1996	26	5620	26,599	100%	26,599	57,426	2,722	21.10
	CAES40900		Angelcrest Upgrade No 3 Pump	Angelcrest Pump Station Upgrade	1997	25	5826	16,203	100%	16,203	33,745	2,722	12.40
	CAES39300		Eastside Reservoir Z/#4 Cherry	Cherry Lane Reservoir	1997	25	5826	746,059	100%	746,059	1,553,757	2,722	570.81
	PMES07990		Fordyce/Cherry Lane Oversizing	Cherry Lane - 445 East Of Orchard View	2002	20	6538	17,744	29%	5,086	9,439	2,722	3.47
	PMES38970		Fordyce/Cherry Lane Oversizing	Southview Terrace - Mary Bee Lane To 187' E	2002	20	6538	4,579	29%	1,312	2,436	2,722	0.89
	PMES37822		Fordyce/Cherry Lane Oversizing	Mary Bee Lane - Southview Terrace To 590' N	2002	20	6538	14,310	29%	4,102	7,612	2,722	2.80
	PMES13990		Fordyce/Cherry Lane Oversizing	Easement - Mariposa Terrace To Mary Bee Ln	2002	20	6538	20,606	29%	5,906	10,961	2,722	4.03
	PMME05272	85-06	Bordeaux Ave Whitney Terrace To 255' Nor	Vista Pointe Phases 2-6 Oversizing	2006	16	7751	9,120	31%	2,836	4,440	2,722	1.63
	PMME10936	85-06	Deer Ridge Vista Pt Dr To 200' North	Vista Pointe Phases 2-6 Oversizing	2006	16	7751	8,599	31%	2,673	4,185	2,722	1.54
	PMME43335	85-06	Vista Pt Dr-Deer Ridge To 60' East	Vista Pointe Phases 2-6 Oversizing	2006	16	7751	2,329	31%	724	1,133	2,722	0.42
	PMME44071	85-06	Whitney Terrace Bordeaux Ave To 65' East	Vista Pointe Phases 2-6 Oversizing	2006	16	7751	2,188	31%	680	1,065	2,722	0.39
	PMES28549	94-06	Mcphearson Ln 155' N Of Park Ridge Dr To	Vista Pointe 16" Main, Mwc Costs Only	2006	16	7751	38,420	100%	38,420	60,141	2,722	22.09
	CAES47330		Lone Pine Pump Station	Lone Pine Pump Station	2006	16	7751	868,331	100%	868,331	1,359,241	2,722	499.35
	CAES47400		Lone Pine Reservoir #2	Lone Pine #2 Reservoir	2006	16	7751	1,708,523	100%	1,708,523	2,674,434	2,722	982.53
	CAES47410		Lone Pine Reservoir #3	Lone Pine #3 Reservoir	2006	16	7751	1,711,357	100%	1,711,357	2,678,870	2,722	984.16
	PMME15825		Easement - Vista Pt Dr 300'N Of Fawnhill		2006	16	7751	23,233	100%	23,233	36,367	2,722	13.36
	PMME43336		Vista Pointe Dr 100'E Of Deer Ridge	Vista Pointe, Deer Ridge East	2006	16	7751	167,607	10%	16,888	26,436	2,722	9.71
	PMES50803	72-07	Lone Pine Lakeview Village 16" Oversize	Oversizing Mwc Costs Only	2007	15	7967	7,473	100%	7,473	11,381	2,722	4.18
	PMES50804	72-07	Lone Pine Lakeview Village 16" Oversize	Oversizing Mwc Costs Only	2007	15	7967	2,232	100%	2,232	3,398	2,722	1.25
	PMME50002		Falcon Rdg Ter & Mcpherson Ln Acrs Lone	Oversizing East Terrace	2007	15	7967	413,805	35%	145,383	221,404	2,722	81.34
	PMME50001		N End Of Bordeaux Ave Acrs Pp&L Prop	Oversizing East Terrace	2007	15	7967	237,506	19%	44,974	68,492	2,722	25.16
	PMME50221		500'S Of Monterey Dr & 3398'W Of Cherry	Norman Oversize	2008	14	8311	42,996	18%	7,780	11,358	2,722	4.17
	PMME50296		Annapolis Dr - 485' W Admiral	Fordyce Water Users 16" Oversize	2009	13	8575	82,593	27%	22,142	31,331	2,722	11.51
	PMME50297		Annapolis Dr - Normil Terrace, Then 122'	Fordyce Water Users 16" Oversize	2009	13	8575	33,255	27%	8,915	12,615	2,722	4.63
	PMME50280		East Terrace Estates Subdivision - Admiral		2009	13	8575	26,331	31%	8,274	11,708	2,722	4.30
	PMME50283		East Terrace Estates Subdivision - Admiral		2009	13	8575	28,821	46%	13,345	18,884	2,722	6.94
	PMME50281		East Terrace Estates Subdivision - Annapolis		2009	13	8575	11,240	31%	3,532	4,998	2,722	1.84
	PMME50284		East Terrace Estates Subdivision - Annapolis		2009	13	8575	42,884	46%	19,857	28,098	2,722	10.32
	PMME50279		East Terrace Estates Subdivision -Cadett		2009	13	8575	12,733	31%	4,001	5,662	2,722	2.08
	PMME50282		East Terrace Estates Subdivision -Cadett		2009	13	8575	13,369	46%	6,190	8,759	2,722	3.22
	CAES48130		Land - Cherry Lane Chrissy Park	Cherry Lane #2 & #3 Reservoir Property	2009	13	8575	300,000	100%	300,000	424,498	2,722	155.95
	PMES50499		Summerfield 11B		2013	9	9547	26,052	32%	8,410	10,688	2,722	3.93
	PMES50500		Summerfield 11B		2013	9	9547	3,245	32%	1,047	1,331	2,722	0.49
	PMES50480		Summerfield Phase 11A		2013	9	9547	31,440	26%	8,043	10,222	2,722	3.76
	PMES50481		Summerfield Phase 11A		2013	9	9547	2,520	26%	645	819	2,722	0.30
	PMES50491		Summerfield Phase 12B & 6		2013	9	9547	1,734	32%	559	711	2,722	0.26
	PMES50490		Summerfield Phases 12B & 6		2013	9	9547	14,484	32%	4,670	5,935	2,722	2.18
CAES50587		Angelcrest Pump Station Upgrade (33%)		2014	8	9807	106,567	33%	35,167	43,511	2,722	15.98	
CASE50549		Innsbruck Ridge Phase 1 & 2		2016	6	10338	62,001	33%	20,593	24,168	2,722	8.88	
CAES50550		Murray Hill Terrace - In Easement		2016	6	10338	20,277	33%	6,766	7,941	2,722	2.92	
CAES50551		Murray Hill Terrace - In Easement		2016	6	10338	487	33%	163	191	2,722	0.07	
PMES50658		Stanford Ave - Creek View Dr To 78'S		2016	6	10338	6,999	22%	1,570	1,842	2,722	0.68	
PMES50657		Stanford Ave - Morgans Way To	Creek View Dr	2016	6	10338	50,248	22%	11,271	13,228	2,722	4.86	
PMES50656		Stanford Ave - Sherwood Park To	Morgans Way	2016	6	10338	45,043	22%	10,103	11,858	2,722	4.36	
PMME50764		Stonegate Estates Phase 2B Oversizing		2017	5	10737	43,286	28%	12,072	13,643	2,722	5.01	
PMME50765		Stonegate Estates Phase 2B Oversizing		2017	5	10737	16,883	28%	4,709	5,321	2,722	1.95	
PMES50810		Lone Oak Dr & Michael Park Dr		2018	4	11062	53,058	17%	8,834	9,690	2,722	3.56	

SDCs For: EAST SIDE HIGH LEVEL SYSTEM

						(4,5)		(6)	(7)	(3)	(10)	(2)	(1)
CIP/Asset #	Capacity-Increasing Project Description (Constructed Reimbursement or Future Improvement)			CIP Plan #	Installation Year	Years in Service or Year of Estimate	Annual Average CCI for Installation Year	Original or Estimated Asset Cost (\$)	Portion Eligible (%)	Original or Estimated SDC Cost (\$)	Present Estimated Cost (2021 \$)	Acres	Present Worth (PW) Cost per ACRE (\$)
	PMES50811	Lone Oak Dr & Michael Park Dr			2018	4	11062	53,058	2%	1,141	1,252	2,722	0.46
	PMES50846	Summerfield Phase 17 & 22A			2018	4	11062	30,014	7%	2,053	2,252	2,722	0.83
	PMES50846	Summerfield Phase 17 & 22A			2018	4	11062	30,014	13%	3,906	4,284	2,722	1.57
	PMES51000	Stonegate Phase 2C			2020	2	11466	93,304	20%	18,714	19,804	2,722	7.28
	PMES51001	Stonegate Phase 2C			2020	2	11466	93,304	1%	1,390	1,471	2,722	0.54
	CAES50906	Lone Pine PS Upgrade - Pump Installation			2020	2	11466	94,071	100%	94,071	99,549	2,722	36.57
	CAES50897	Stanford Pump Station			2020	2	11466	273,280	22%	60,122	63,623	2,722	23.37
	PMES51048	Horse Arena Ph 2 - Juanipero Way SE from	existing 12" main to Wrangler St		2021	1	12133	54,762	34%	18,528	18,528	2,722	6.81
	PMES51049	Horse Arena Ph 2 - Wrangleer St From	Juanipero Way to Arena Dr		2021	1	12133	11,976	34%	4,049	4,049	2,722	1.49
	PMES51050	Horse Arena Ph 2 - Arena Dr from	Wrangler St to Packhorse St then S to		2021	1	12133	56,909	34%	19,254	19,254	2,722	7.07
	PMES51086	Southview Terrace - NE from existing 8"	main at Southview & Mary Bee to 12" main		2021	1	12133	60,045	100%	60,045	60,045	2,722	22.06
	PMES51082	Summerfield Ph19 & 22D - Shamrock DR E	from existing main at Shamrock		2021	1	12133	169,885	8%	14,403	14,403	2,722	5.29
	PMES51112	Normil Terrace - Normil Terrace 300' E of N Foothill	to existing main at Normil Terrace		2021	1	12133	365,778	100%	365,778	365,778	2,722	134.38

SDCs For: EAST SIDE HIGH LEVEL SYSTEM													
CIP/Asset #	Capacity-Increasing Project Description (Constructed Reimbursement or Future Improvement)	CIP Plan #	Installation Year	Years in Service or Year of Estimate	Annual Average CCI for Installation Year	Original or Estimated Asset Cost (\$)	Portion Eligible (%)	Original or Estimated SDC Cost (\$)	Present Estimated Cost (2021 \$)	Acres	Present Worth (PW) Cost per ACRE (\$)		
													3,901.50
FUTURE	Foot Hill Rd - Lone Pine Extension to Zone 1	PL-3a	2023	2021	12133	2,000,000	100%	2,000,000	2,000,055	2,722	734.77		
	Calle Vista - Zone 1 Connection	PL-4	2025	2021	12133	1,380,000	100%	1,380,000	1,380,038	2,722	506.99		
	Zone 3 Pumping - Cherry Lane Pump Station #3	PS-2	2027	2021	12133	2,130,000	100%	2,130,000	2,130,059	2,722	782.53		
	Hillcrest Pump Station Upgrade	PS-6	2024	2021	12133	110,000	100%	110,000	110,003	2,722	40.41		
	Lone Pine Extension to Reservoir 16" Main	PL-3b	2029	2021	12133	470,000	100%	470,000	470,013	2,722	172.67		
	Stardust PS Upgrade	PS-4	2028	2021	12133	40,000	100%	40,000	40,001	2,722	14.70		
	Lone Pine Reservoir #1	R-2	2026	2021	12133	3,360,000	100%	3,360,000	3,360,092	2,722	1,234.42		
	Cherry Lane #2 - 2.0MG Reservoir/Main Design/Construct	R-8	2028	2021	12133	3,810,000	100%	3,810,000	3,810,105	2,722	1,399.74		
	Barnett PS #1	PS-1	2024	2021	12133	2,046,000	100%	2,046,000	2,046,056	2,722	751.67		
													5,637.92
												Constructed	\$ 3,901.50
												Future	\$ 5,637.92
												GRAND TOTAL	\$ 9,539.42
(1) 2021 Average Rate: ENR Construction Cost Index (CCI)		12133			Reimbursed (57)								
(2) Equivalent Residential Units, ERUs = Gross acres													
There were 3824 total acres in the East Side Level area (above 1500' elevation, inside the City Limits, and within the 1990 UGB) of which 621 water developed acres existed in the 1991 SDC study													
Overall development is calculated at a rate of 85% of the available land therefore (3824-621)(0.85) = 2722 acres													
The 2012 Regional Problem Solving (RPS) process increased the acreage to 5906 (compared to 3824) and needed facilities may have to be added in the future as well as recalculation of this spreadsheet													
(3) Since replacement of increased capacity SDC project facilities is not allowed to be again funded with SDCs, depreciation is not used as a factor in these costs.					Blue = variable factors year to year					Existing	\$ 8,254.77		
(4) Current Year			2022										
(5) Year of Estimates			2021										
(6) The estimated costs for FUTURE projects are based on yearly updated 10-Yr Plan and Water Distribution System figures													
(7) The original costs for CONSTRUCTED projects are total percentage, or (if noted) proportional, reimbursement (buy-in) values ALL of which provide additional capacity													
(8) MWC reimbursement DOES NOT include interest over time on the actual expended costs, and SDC calculations DO NOT include State allowed costs for SDC studies, program administration, and/or program accounting													
(9) Eagle Trace V (\$6000), Cambridge Sub (\$1712), Anapolis Dr - 485 W Admiral, then 303' (60451.26), Anapolis Dr - Normil Terrace, Then 122' (24340.11), Easement Hillcrest to Tamarack (13780) were taken off 03/05/18 costs were donated													
(10) The present worth calculation is based on the difference between the constructed year CCI and the current year CCI													

SDCs For: SOUTHWEST HIGH LEVEL SYSTEM											
				(4,5)	(6)		(3)	(8)	(2)	(1)	
CIP/Asset #	Capacity-Increasing Project Description (Constructed Reimbursement or Future Improvement)	Installation Year	Years in Service or Year of Estimate	Average CCI for Installation Year	Original Asset Cost (\$)	Portion Eligible (%)	Original or Estimated SDC Cost (\$)	Present Estimated Cost (2021 \$)	ACRE	Present Worth (PW) Cost per ACRE (\$)	
CONSTRUCTED	PRESSURE ZONE 1C										
	CASW29760 SOUTHWEST RESERVOIR SITE	1988	34	4519	26,531	100%	26,531	71,228	469	151.87	
	ARCHER PUMP STATION MODIFICATIONS	1999	23	6060	230,000	100%	230,000	460,544	469	981.97	
	CASW46720 SOUTH WEST RESERVOIR	2003	19	6695	467,524	100%	467,524	847,346	469	1,806.71	
	CASW46910 SOUTH WEST RESERVOIR	2003	19	6695	1,402,573	100%	1,402,573	2,542,039	469	5,420.13	
	PMSW08929 COLUMBUS AVE ARCHER DRIVE TO SOUTH STAGE	2003	19	6695	30,713	100%	30,713	55,664	469	118.69	
	PMSW08930 COLUMBUS AVE ARCHER DRIVE TO SOUTH STAGE	2003	19	6695	92,138	100%	92,138	166,992	469	356.06	
	PMSW08931 COLUMBUS AVE SOUTH STAGE RD TO 2027 SOUTH	2003	19	6695	34,740	100%	34,740	62,964	469	134.25	
	PMSW08932 COLUMBUS AVE SOUTH STAGE RD TO 2027 SOUTH	2003	19	6695	104,221	100%	104,221	188,891	469	402.75	
	PMSW50664 Sunset Drive - Tivoli Dr to Thomas Rd	2016	6	10338	9,275	100%	9,275	10,885	469	23.21	
	PMSW50665 Sunset Drive - Thomas Rd to 34' East	2016	6	10338	1,080	100%	1,080	1,267	469	2.70	
	PMSW51094 Ione's View Subdivision - Sunset Dr W	from existing main at Tivoli Dr	2021	1	12133	157,146	4%	6,943	6,943	469	14.80
	Subtotals							\$ 2,405,738			\$9,372.42
FUTURE	PRESSURE ZONE 1C										
	South Stage Rd water oversizing and SW Pressure Zone rezoning	2023	2021	12133	600,000	100%	600,000	600,000	469	1,279.32	
	Subtotals						\$ 600,000			\$1,279.32	
									Constructed	\$9,372.42	
									Future	\$1,279.32	
GRAND TOTAL										\$10,651.74	
(1) 2021 Dec Rate: ENR Construction Cost Index (CCI)		12,133		Reimbursed (7)							
(2) Equivalent Residential Units, ERUs = Gross acres											
There were 447 total acres in the Southwest High Level area (above 1480' elevation, inside the City Limits, and within the 1990 UGB)											
Overall development is calculated at a rate of 99% of the available land therefore (447)(0.99) = 443 acres											
The 2012 Regional Problem Solving (RPS) process increased the acreage to 566 (compared to 447) and needed facilities may have to be added in the future as well as recalculation of this spreadsheet											
2022 Update: Total 474 acres within the Southwest High Level area (366 acres current + 108 acres to be added rezoned from Gravity zone), above 1485 elevation, inside COM UGB											
Overall development is calculated at a rate of 99% of the available land therefore (474)(0.99) = 469 acres											
(3) Since replacement of increased capacity SDC project facilities is not allowed to be again funded with SDCs, depreciation is not used as a factor in these costs.									Existing	\$9,226.45	
(4) Current Year		2022		Blue = variable factors year to year							
(5) Year of Estimates		2021									
(6) The original costs for CONSTRUCTED projects are total percentage, or (if noted) proportional, reimbursement (buy-in) values ALL of which provide additional capacity											
(7) MWC reimbursement DOES NOT include interest over time on the actual expended costs, and SDC calculations DO NOT include State allowed costs for SDC studies, program administration, and/or program accounting											
(8) The present worth calculation is based on the difference between the constructed year CCI and the current year CCI											