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Water & Wastewater System Development Charge Update

Final
Report

Prepared for:



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City of Sisters
2018 Water & Wastewater SDC Methodology Update

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Introduction/History of the Project

The City of Sisters 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 and wastewater SDCs.

The city’s current schedule of water and wastewater SDCs were last reviewed in July, 2007. In December, 2017, the City hired Donovan Enterprises, Inc. to review and update the 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 Sisters Municipal Code Chapter 13.25 (i.e. The SDC enabling ordinance).

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

Table 1 - Component Breakdown of the Proposed Residential Equivalent Water and Wastewater SDCs

Line Item Description	Service Unit	Proposed	Current	Difference
<i>Water:</i>				
	per 3/4" water meter			
Reimbursement fee		\$1,559	\$44	\$1,515
Improvement fee		1,620	3,236	(1,616)
Administration fee @ 5%		159	55	104
Total		\$3,338	\$3,336	\$2
<i>Wastewater:</i>				
	per 3/4" water meter			
Reimbursement fee		\$2,378	\$1,223	\$1,155
Improvement fee		1,777	2,938	(1,161)
Administration fee @ 5%		208	105	103
Total		\$4,363	\$4,266	\$97

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 and wastewater. 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	<ul style="list-style-type: none"> • City of Sisters water system twenty year capital improvement plan, April, 2017; City of Sisters Public Works Department • City of Sisters Comprehensive Annual Financial Report for the Fiscal Year Ended June 30, 2017 • City of Sisters Water System Fixed Asset Schedule; June 30, 2017; City Records • City of Sisters Water System Construction Work in Progress Balances Work Papers; June 30, 2017; City Records • City of Sisters Utility Billing records for fiscal 2017-18 • Water meters in service per City Staff; effective December 31, 2017 • City of Sisters Municipal Code Chapter 13.25 (System Development Charges)
Wastewater	<ul style="list-style-type: none"> • City of Sisters wastewater system twenty year capital improvement plan, February, 2016; City of Sisters Public Works Department • City of Sisters Comprehensive Annual Financial Report for the Fiscal Year Ended June 30, 2017 • 2016 and 2017 Discharge Monitoring Reports; City of Sisters • Sisters wastewater system fixed asset schedule; June 30, 2017; City records • City of Sisters Utility Billing System – wastewater system active accounts and water meters in service report; December 31, 2017 • Portland State University, College of Urban Affairs, Population Research Center; Certified census for Sisters, Oregon; June 30, 2017 • City of Sisters Municipal Code Chapter 13.25 (System Development Charges)

The data sources shown in Table 2 were used to formulate the two (2) components of the water and wastewater 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 water and wastewater SDCs. The City has used the LOS standards approach for parks. 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 and wastewater 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 water and wastewater 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 Sisters
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

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 $\frac{3}{4}$ " water meter equivalent units for water and wastewater over the planning horizon. Once the future costs to serve growth have been segregated (i.e., the numerator), they can be divided into the total number of new $\frac{3}{4}$ " water meter equivalents 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 Sisters Municipal Code Chapter 13.25.120 (SMC 13.25.120). The adopted SDC credit policy consists of five (5) items as follows:

SMC 13.25.120

1. A permittee is eligible for credit against the system development charge constructing a qualified public improvement. This credit shall be only for the improvement fee charged for the type of improvement being constructed. Credit under this section may be granted only for the cost of that portion of the improvement that exceeds the facility size or capacity needed to serve the development project.
2. Applying the adopted methodology, the city may grant a credit against the improvement charge for capital facilities provided as part of the development that reduces the development's demand upon existing capital improvements or the need for further capital improvements or that would otherwise have to be constructed at city expense under the then-existing council policies.
3. When the construction of a qualified public improvement gives rise to a credit amount greater than the improvement fee that would otherwise be levied against the project receiving development approval, the excess credit may be applied against improvement fees that accrue in subsequent phases of the original development project.
4. All credit requests must be in writing and filed with the city before the issuance of a building permit. Improvement acceptance shall be in accordance with the usual and customary practices, procedures and standards of the city of Sisters. The amount of any credit shall be determined by the city and based upon the subject improvement construction contract documents, or other appropriate information, provided by the applicant for the credit. Upon a finding by the city that the contract amounts exceed prevailing market rate for a similar project, the credit shall be based upon market rates. The city shall provide the applicant with a credit on a form provided by the city. The credit shall state the actual dollar amount that may be applied against any system development charge imposed against the subject property. The applicant has the burden of demonstrating qualification for a credit.
5. Credits shall be apportioned against the property which was subject to the requirements to construct an improvement eligible for credit. Unless otherwise requested, apportionment against lots or parcels constituting the property shall be proportionate to the anticipated public facility service requirements generated by the respective lots or parcels. Upon written application to the city, however, credits shall be reapportioned from any lot or parcel to any other lot or parcel

within the confines of the property originally eligible for the credit. Reapportionment shall be noted on the original credit form retained by the city.

6. Any credits are assignable; however, they shall apply only to that property subject to the original condition for land use approval upon which the credit is based or any partitioned or subdivided parcel or lots of such property to which the credit has been apportioned. Credits shall only apply against system development charges, are limited to the amount of the fee attributable to the development of the specific lot or parcel for which the credit is sought and shall not be a basis for any refund.
7. Any credit request must be submitted before the issuance of a building permit. The applicant is responsible for presentation of any credit and no credit shall be considered after issuance of a building permit.
8. Credits shall be used by the applicant within 10 years of their issuance by the city.

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 SMC 13.25.110, and is as follows:

1. Structures and uses established and existing on or before the effective date of the resolution.
2. Additions to single-family dwellings that do not constitute the addition of a dwelling unit, as defined by the city's building code, are exempt from all portions of the system development charge.
3. An alteration, addition, replacement or change in use that does not increase the parcel's or structure's use of a capital improvement is exempt from all portions of the system development charge.

Water SDCs

Water Capital Improvement Plan

The principal source document for the water capital improvement plan (CIP) was the 2017 twenty (20) year Water System Capital Improvement Plan. For this water SDC methodology update, the 2017 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 2006. 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

Project Description	Estimated Cost of Improvement in 2017 Dollars	Funding Source			Funding Source Percent				
		Rates	SDCs	Developer Contribution	Rates	SDCs	Developer Contribution	Total	
<i>Water Supply & Treatment:</i>									
Variable frequency drives for wells 1, 2, and 3	\$61,620	\$61,620	\$0	\$0	100%	0%	0%	100%	
Backup generator on well #3	148,500	74,250	74,250	-	50%	50%	0%	100%	
New well building and chlorination for well #1	297,000	297,000	-	-	100%	0%	0%	100%	
Water rights acquisition for new well #4	-	-	-	-	0%	100%	0%	100%	
New well #4 with backup generator	861,300	-	861,300	-	0%	100%	0%	100%	
<i>Transmission and Pumping:</i>									
Water system spare parts including 75 hp pump motor	70,000	70,000	-	-	100%	0%	0%	100%	
Construct new transmission main from reservoir	914,760	-	914,760	-	0%	100%	0%	100%	
<i>Distribution:</i>									
6" water line behind Barclay Square	52,500	24,150	28,350	-	46%	54%	0%	100%	
8" water line in alley, Fir to Larch	60,000	27,600	32,400	-	46%	54%	0%	100%	
8" water line, Oak street, Main to Adams	34,000	15,640	18,360	-	46%	54%	0%	100%	
8" water line, Fir street, Main to Adams	37,000	17,020	19,980	-	46%	54%	0%	100%	
Hood ave south Alley/Pine to Ash (reconnections)	36,000	36,000	-	-	100%	0%	0%	100%	
Washington ave south Alley/Cedar to Locust (reconnections)	28,800	28,800	-	-	100%	0%	0%	100%	
Jefferson ave south Alley/Cedar to Locust	33,700	15,502	18,198	-	46%	54%	0%	100%	
8" water line, Edge-O-the-Pines	368,000	169,280	198,720	-	46%	54%	0%	100%	
Main ave north Alley/Pine to Elm (reconnections)	72,000	72,000	-	-	100%	0%	0%	100%	
Creekside drive extension to Hwy 126	37,200	-	18,600	18,600	0%	50%	50%	100%	
Locust street extension, Black Butte to Barclay	36,000	-	18,000	18,000	0%	50%	50%	100%	
Forest service extension, Pine to Ponderosa Lodge	168,000	-	84,000	84,000	0%	50%	50%	100%	
Trinity way extension, LDS to catholic church	42,240	-	21,120	21,120	0%	50%	50%	100%	
Brooks camp extension, Hwy 242 to Pines	60,480	-	30,240	30,240	0%	50%	50%	100%	
12" distribution improvement - development upsizing	250,000	-	250,000	-	0%	100%	0%	100%	
<i>Storage:</i>									
New 1.6 MG steel tank reservoir	2,086,000	-	2,086,000	-	0%	100%	0%	100%	
<i>Facilities and Structures:</i>									
<i>Studies & Plans:</i>									
New Water Master Plan	100,000	-	100,000	-	0%	100%	0%	100%	
Totals	\$5,855,100	\$908,862	\$4,774,278	\$171,960					

Water Customers Current and Future Demographics

Existing Water Demand and Population Growth

Current Sisters water demands are based on historical customer billing records, and actual water meters in service as of December 31, 2017. Projected demands are estimated based on an approximate population growth rate of 3.30 percent per year within the City's existing urban growth boundary. This annual population growth factor is based on population forecasts for the City prepared by the Population Research Center at Portland State University from 2017 through 2037.

Estimated Demand per Equivalent ¾" Water Meter

The City serves single-family residential customers and a smaller 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 Sisters, the standard residential unit of demand is the rated capacity (in gallons per minute) of the ¾" water meter. As of December 31, 2017, the City had 1,510 active water meters in service, 1,208 of which were ¾" meters serving single family residential customers. In other words, roughly 80% 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 December 31, 2017

Meter Size	Total Meters In Service	AWWA Rated Flow (GPM)*	Flow Factor Equivalence	¾" Meter Equivalents
0.75"x 0.75" - Displacement Multi-jet	1,208	30	1.00	1,208
1.00 inch - Displacement Multi-jet	229	50	1.67	382
1.50 inch - Displacement Class I Turbine	30	100	3.33	100
2.00 inch - Displacement or Class I & II Turbine	37	160	5.33	197
3.00 inch - Displacement	4	300	10.00	40
4.00 inch - Displacement or Compound	2	500	16.67	33
6.00 inch - Displacement or Compound	-	1,000	33.33	-
8.00 inch - Compound	-	1,600	53.33	-
Total	1,510			1,960

* - 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 2037. That is the forecast horizon that is used for the water SDC methodology update. In the 2006 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 based 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 2018 Water SDC Methodology Update Study

Fiscal Year	Forecasted Growth Rate	Meter Equivalents		
		Beginning of Year ¹	Additions	End of Year
2017				1,960
2018	3.30%	1,960	65	2,025
2019	3.30%	2,025	67	2,092
2020	3.30%	2,092	69	2,161
2021	3.30%	2,161	71	2,233
2022	3.30%	2,233	74	2,306
2023	3.30%	2,306	76	2,383
2024	3.30%	2,383	79	2,461
2025	3.30%	2,461	81	2,543
2026	3.30%	2,543	84	2,627
2027	3.30%	2,627	87	2,713
2028	3.30%	2,713	90	2,803
2029	3.30%	2,803	93	2,896
2030	3.30%	2,896	96	2,991
2031	3.30%	2,991	99	3,090
2032	3.30%	3,090	102	3,192
2033	3.30%	3,192	105	3,298
2034	3.30%	3,298	109	3,407
2035	3.30%	3,407	113	3,519
2036	3.30%	3,519	116	3,636
2037	3.30%	3,636	120	3,756
			<u>1,795</u>	

1 Source - Sisters 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	\$ 10,022
Land improvements	625,272
Construction	-
Infrastructure	7,741,325
Machinery and equipment	281,523
Licensed Vehicles	-
Construction Work-in-Progress	45,136
Total Utility Plant-in-Service	<u>8,703,278</u>
Accumulated depreciation ¹	
Land, Easements & Right of Way	-
Land improvements	110,626
Construction	-
Infrastructure	2,464,374
Machinery and equipment	266,091
Licensed Vehicles	-
Construction Work-in-Progress	-
Total accumulated depreciation	<u>2,841,092</u>
Book value of water utility plant-in-service @ June 30, 2017	5,862,186
Eliminating entries:	
Principal outstanding on bonds, notes, and loans payable	
2016 Oregon Business IFA loan - water portion	7,001
Developer Contributions	-
Grants, net of amortization	-
	<u>7,001</u>
Net basis in utility plant-in-service available to serve future customers	\$ 5,855,185
Estimated existing and future 3/4" Meter Equivalents (MEs)	3,756
Calculated reimbursement fee - \$ per 3/4"ME	<u>\$ 1,559</u>

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 2017 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 $\frac{3}{4}$ " 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 2017 Dollars	Funding Source		
		Rates	SDCs	Developer Contributions
Water Supply & Treatment	\$1,368,420	\$432,870	\$935,550	\$0
Transmission and Pumping	984,760	70,000	914,760	-
Distribution	1,315,920	405,992	737,968	171,960
Storage	2,086,000	-	2,086,000	-
Facilities and Structures	-	-	-	-
Studies & Plans	100,000	-	100,000	-
Totals	\$5,855,100	\$908,862	\$4,774,278	\$171,960

Total Improvement Fee Eligible Costs for Future System Improvements	\$4,774,278
less: Water SDC Fund balance as of June 30, 2017	<u>1,865,118</u>
Adjusted Improvement Fee Eligible Costs for Future System Improvement	\$2,909,160
Total Growth in 3/4" Meter Equivalents (20 year forecast)	1,795
Calculated Water Improvement Fee SDC per Meter Equivalent	<u>\$1,620</u>

Water SDC Model Summary

The 2018 water SDC methodology update was done in accordance with Sisters Municipal Code Chapter 13.25, 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 \$3,338 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 ¾" Meter

Water SDC Components	Proposed	Current	Difference
Reimbursement fee	\$ 1,559	\$ 44	\$ 1,515
Improvement fee	1,620	3,236	(1,616)
Administration fee at 5%	159	55	104
Total water SDC	\$ 3,338	\$ 3,336	\$ 2

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 Sisters 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	\$ 1,559	\$ 1,620	\$ 159	\$ 3,338
1.00 inch - Displacement Multi-jet	50	1.67	2,598	2,700	265	5,564
1.50 inch - Displacement Class I Turbine	100	3.33	5,197	5,401	530	11,127
2.00 inch - Displacement or Class I & II Turbine	160	5.33	8,315	8,641	848	17,804
3.00 inch - Displacement	300	10.00	15,590	16,203	1,590	33,382
4.00 inch - Displacement or Compound	500	16.67	25,983	27,005	2,649	55,637
6.00 inch - Displacement or Compound	1000	33.33	51,966	54,009	5,299	111,274
8.00 inch - Compound	1600	53.33	83,145	86,415	8,478	178,038

* - 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 wastewater system CIPs for this SDC methodology update. The 2017 wastewater system CIP is shown in Table 10.

Table 10 - 2017 Wastewater System CIP

Project Description	Estimated Cost of Improvement in 2017 Dollars	Funding Source			Funding Source Percent			
		Rates	SDCs	Developer Contributions	Rates	SDCs	Developer Contribution	Total
Collection System Improvements:								
Locust street interceptor	\$509,000	\$0	\$509,000	\$0	0%	100%	0%	100%
Pump Station Improvements:								
Pump station #1 new variable speed pumps	117,000	-	117,000	-	0%	100%	0%	100%
Westside pump station and force main	1,863,481	-	1,863,481	-	0%	100%	0%	100%
Wastewater Treatment Plant Projects:								
Effluent expansion phase I (forest)	580,000	-	580,000	-	0%	100%	0%	100%
Treatment plant SCADA/software upgrades	80,000	31,200	48,800	-	39%	61%	0%	100%
Aeration improvements	224,000	89,600	134,400	-	40%	60%	0%	100%
Biosolids removal	264,000	132,000	132,000	-	50%	50%	0%	100%
Effluent expansion phase II (crop irrigation)	787,000	-	787,000	-	0%	100%	0%	100%
Facilities and Structures:								
Studies, Plans, and I&I Abatement:								
Biosolids management plan	27,000	27,000	-	-	100%	0%	0%	100%
New wastewater master plan	100,000	-	100,000	-	0%	100%	0%	100%
Totals	\$4,551,481	\$279,800	\$4,271,681	\$0				

Wastewater Customers Current and Future Demographics

Existing Wastewater Demand and Population Growth

There are two recognized approaches for measuring wastewater demand. The first is based on actual connections to the sewer system and the second is based on observed Average Annual Dry Weather Flows (AADWF) to the headworks of the wastewater treatment plant. The AADWF method is used when actual connections data is not available.

As we showed in the water analysis, the City has accurate billing records for known sewer customer counts and connections by meter size. Using the same methodology for calculating water MEs, we know that as of December 31, 2017, the City had 1,481 active water meters in service that also had active sewer service, 1,204 of which were ¾" meters serving single family residential customers. Using the same methodology for calculating water MEs, the resulting sewer MEs can be calculated. The process for calculating equivalent ¾" sewer meter equivalents is shown below in Table 11.

Table 11 - Forecast of Current and Future Wastewater EDUs based on Actual Connections

Meter Size	Total Meters In Service	AWWA Rated Flow (GPM)*	Flow Factor Equivalence	¾" Meter Equivalents
0.75"x 0.75" - Displacement Multi-jet	1,204	30	1.00	1,204
1.00 inch - Displacement Multi-jet	212	50	1.67	353
1.50 inch - Displacement Class I Turbine	24	100	3.33	80
2.00 inch - Displacement or Class I & II Turbine	35	160	5.33	187
3.00 inch - Displacement	4	300	10.00	40
4.00 inch - Displacement or Compound	2	500	16.67	33
6.00 inch - Displacement or Compound	-	1,000	33.33	-
8.00 inch - Compound	-	1,600	53.33	-
Total	1,481			1,897

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

Table 11 - Forecast of Current and Future Wastewater MEs based on Actual Connections (continued)

Fiscal Year	Forecasted Growth Rate	Meter Equivalents		
		Beginning of Year ¹	Additions	End of Year
2017				1,897
2018	3.30%	1,897	63	1,960
2019	3.30%	1,960	65	2,025
2020	3.30%	2,025	67	2,092
2021	3.30%	2,092	69	2,161
2022	3.30%	2,161	71	2,232
2023	3.30%	2,232	74	2,306
2024	3.30%	2,306	76	2,382
2025	3.30%	2,382	79	2,461
2026	3.30%	2,461	81	2,542
2027	3.30%	2,542	84	2,626
2028	3.30%	2,626	87	2,713
2029	3.30%	2,713	90	2,803
2030	3.30%	2,803	93	2,895
2031	3.30%	2,895	96	2,991
2032	3.30%	2,991	99	3,090
2033	3.30%	3,090	102	3,192
2034	3.30%	3,192	105	3,297
2035	3.30%	3,297	109	3,406
2036	3.30%	3,406	113	3,519
2037	3.30%	3,519	<u>116</u>	3,635
			1,738	

1 Source - Sisters utility billing records

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	\$ 4,279,683
Land improvements	13,227
Construction	-
Infrastructure	13,577,714
Machinery and equipment	275,983
Licensed Vehicles	-
Construction Work-in-Progress	<u>129,351</u>
Total Utility Plant-in-Service	\$ 18,275,957
Accumulated depreciation ¹	
Land, Easements & Right of Way	-
Land improvements	3,968
Construction	-
Infrastructure	3,833,465
Machinery and equipment	268,665
Licensed Vehicles	-
Construction Work-in-Progress	<u>-</u>
Total accumulated depreciation	4,106,097
Book value of water utility plant-in-service @ June 30, 2017	14,169,859
Eliminating entries:	
Principal outstanding on bonds, notes, and loans payable:	-
2016 full faith and credit refunding sewer bonds	5,514,000
2016 Oregon Business IFA loan - sewer portion	9,891
Developer Contributions	-
Grants, net of amortization	<u>-</u>
	5,523,891
Net basis in utility plant-in-service available to serve future customers	\$ 8,645,968
Estimated existing and future wastewater treatment EDUs	3,635
Calculated reimbursement fee - \$ per treatment EDU	<u>\$ 2,378</u>

¹ Source: Sisters Accounting Summary Report - Capitalized Assets as of June 30, 2017

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 2017 Dollars	Funding Source		
		Rates	SDCs	Developer Contributions
Collection System Improvements:				
Locust street interceptor	\$509,000	\$0	\$509,000	\$0
Pump Station Improvements:				
Pump station #1 new variable speed pumps	117,000	-	117,000	-
Westside pump station and force main	1,863,481	-	1,863,481	-
Wastewater Treatment Plant Projects:				
Effluent expansion phase I (forest)	580,000	-	580,000	-
Treatment plant SCADA/software upgrades	80,000	31,200	48,800	-
Aeration improvements	224,000	89,600	134,400	-
Biosolids removal	264,000	132,000	132,000	-
Effluent expansion phase II (crop irrigation)	787,000	-	787,000	-
Facilities and Structures:				
Studies, Plans, and I&I Abatement:				
Biosolids management plan	27,000	27,000	-	-
New wastewater master plan	100,000	-	100,000	-
Totals	\$4,551,481	\$279,800	\$4,271,681	\$0
Total Improvement Fee Eligible Costs for Future System Improvements.....			\$4,271,681	
less: Wastewater SDC Fund balance as of June 30, 2017			1,183,928	
Adjusted Improvement Fee Eligible Costs for Future System Improvements			\$3,087,753	
Total Growth in 3/4" Meter Equivalents (20 year forecast).....			1,738	
Calculated Water Improvement Fee SDC per Meter Equivalent.....			<u>\$1,777</u>	

Wastewater SDC Model Summary

The 2018 wastewater SDC methodology update was done in accordance with Sisters Municipal Code Chapter 13.25, 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 \$4,363 for the standard 3/4" 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

Wastewater SDC Components	Proposed	Current	Difference
Reimbursement fee	\$ 2,378	\$ 1,223	\$ 1,155
Improvement fee	1,777	\$ 2,938	(1,161)
Administration fee at 2%	208	105	103
Total wastewater SDC	\$ 4,363	\$ 4,266	\$ 97

For water meters larger than 3/4", 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	\$ 2,378	\$ 1,777	\$ 208	\$ 4,363
1.00 inch - Displacement Multi-jet	50	1.67	3,964	2,961	346	7,272
1.50 inch - Displacement Class I Turbine	100	3.33	7,928	5,923	693	14,544
2.00 inch - Displacement or Class I & II Turbine	160	5.33	12,685	9,477	1,108	23,270
3.00 inch - Displacement	300	10.00	23,785	17,769	2,078	43,631
4.00 inch - Displacement or Compound	500	16.67	39,641	29,614	3,463	72,718
6.00 inch - Displacement or Compound	1000	33.33	79,282	59,228	6,926	145,436
8.00 inch - Compound	1600	53.33	126,852	94,765	11,081	232,698

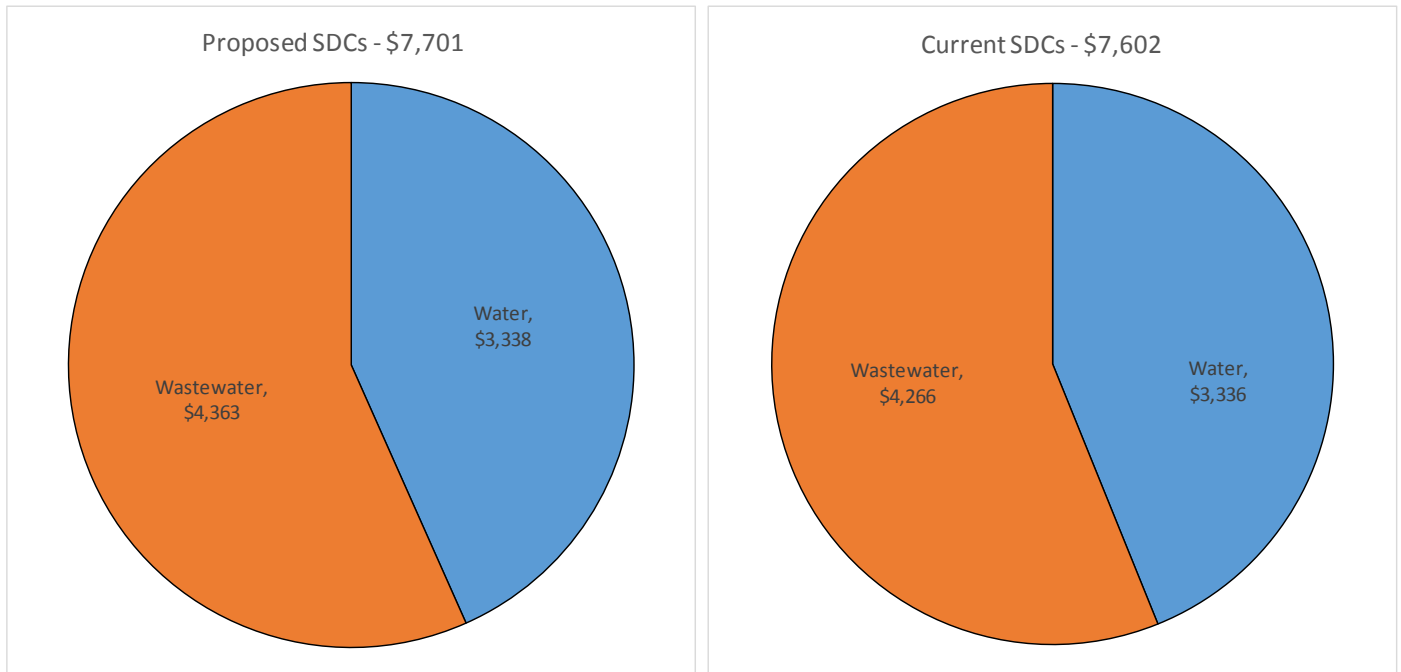
* - AWWA Manual of Practice M3; Safety Practices for Water Utilities; Table 2-2 Total Quantities Registered per Month by Meters Operating at Varying Percentages of Maximum Capacity

Conclusions and Recommendations

Our analysis indicates the City can charge a maximum of \$3,338 for water, \$4,463 for wastewater. These figures are on a per equivalent single family residential unit basis. The sum of these maximum fees amounts to \$7,701 per unit; \$99 more than the sum of the current SDCs of \$7,602.

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

Figure 2 - Proposed and Current Schedule of SDCs

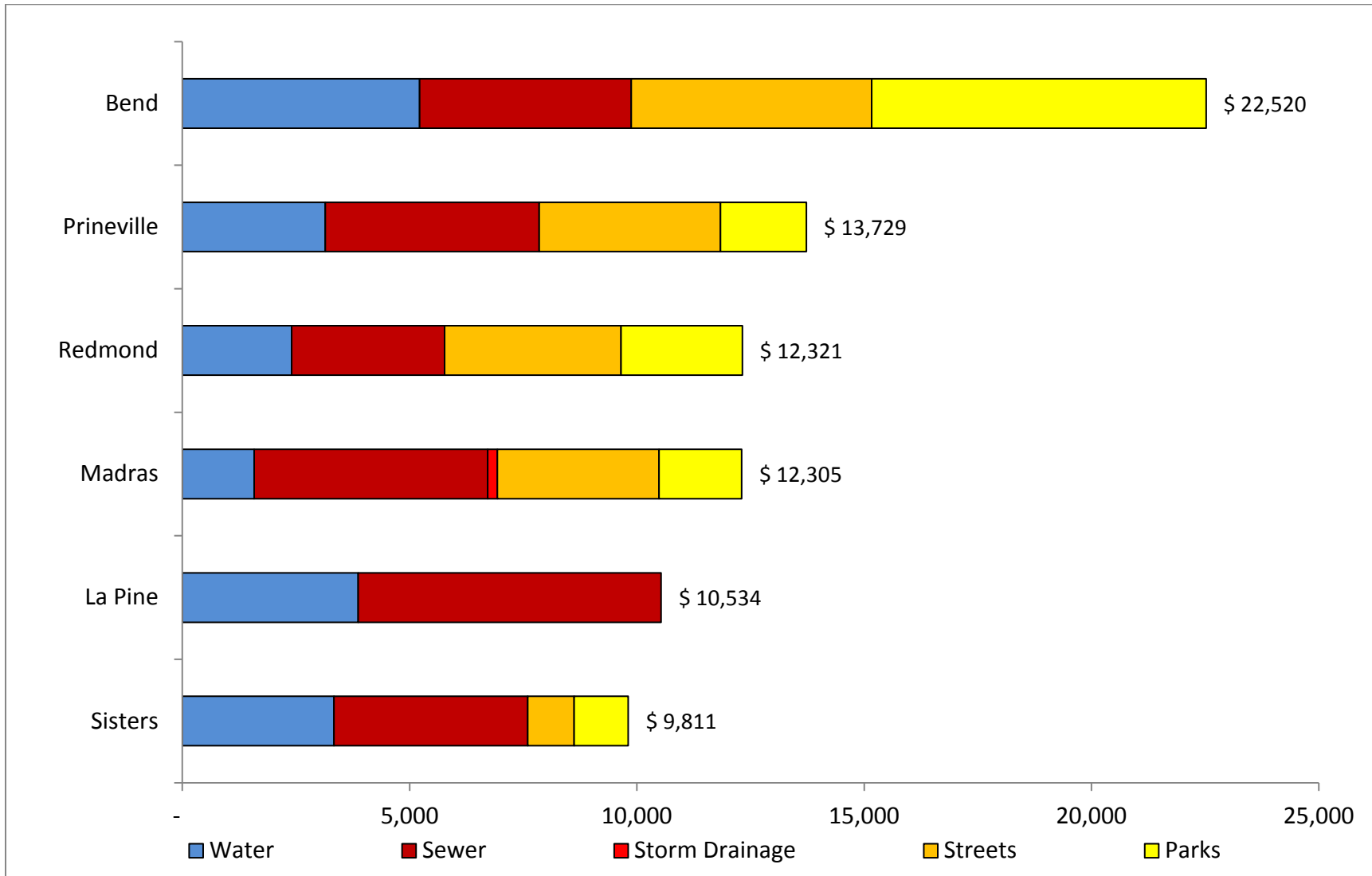


Finally, we recommend the City adopt a policy of reviewing its suite of SDCs every five years. Between the review dates, the city should apply a cost adjustment index to the SDC rates annually to reflect changes in costs for land and construction. This policy should be codified in the Sisters Municipal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

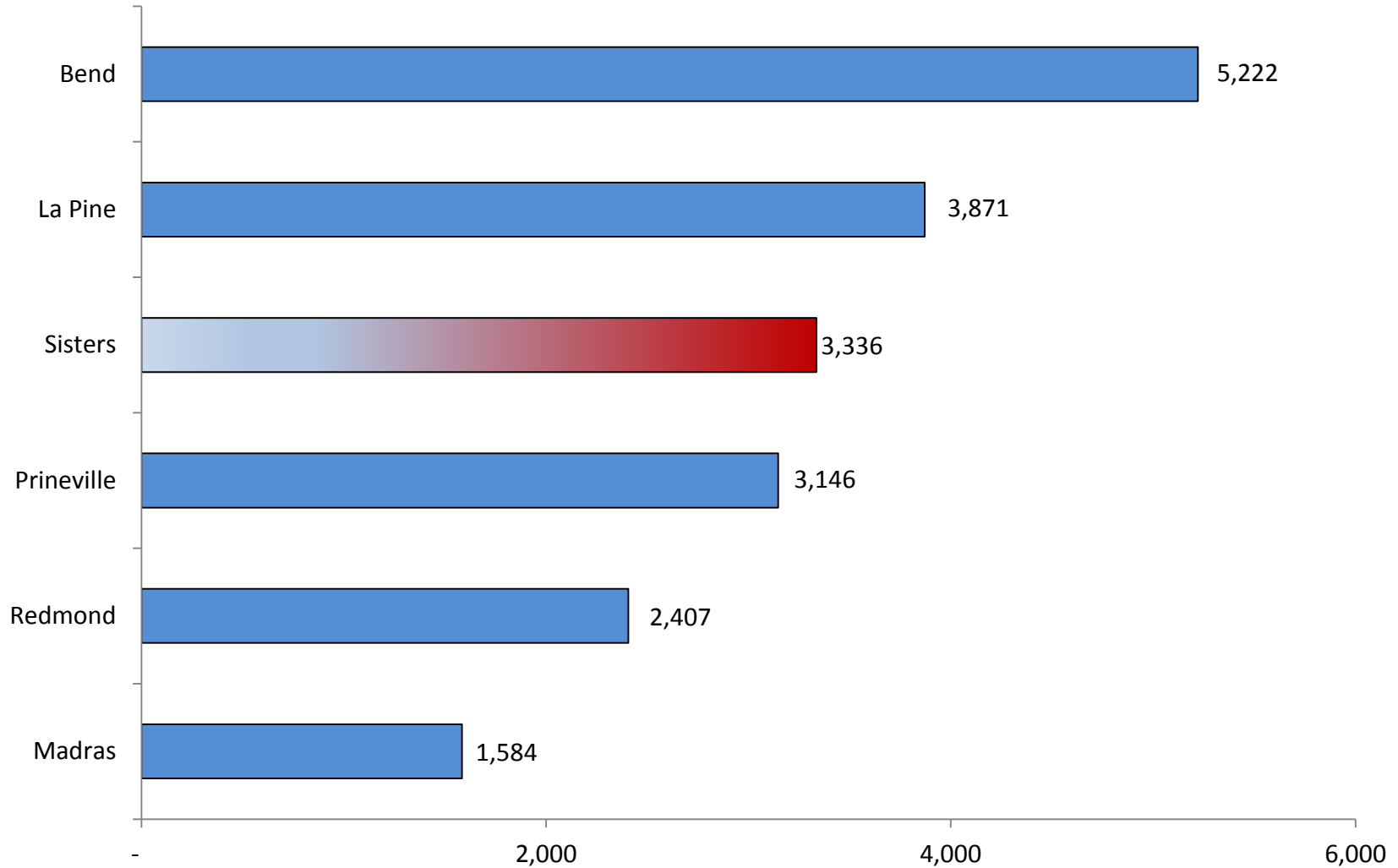
1. Notwithstanding any other provision, the dollar amounts of the SDC set forth in the SDC methodology report shall on January 1st of each year be adjusted to account for changes in the costs of acquiring and constructing facilities. The adjustment factor shall be based on:
 - a. The change in construction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

Neighboring Communities' SDCs

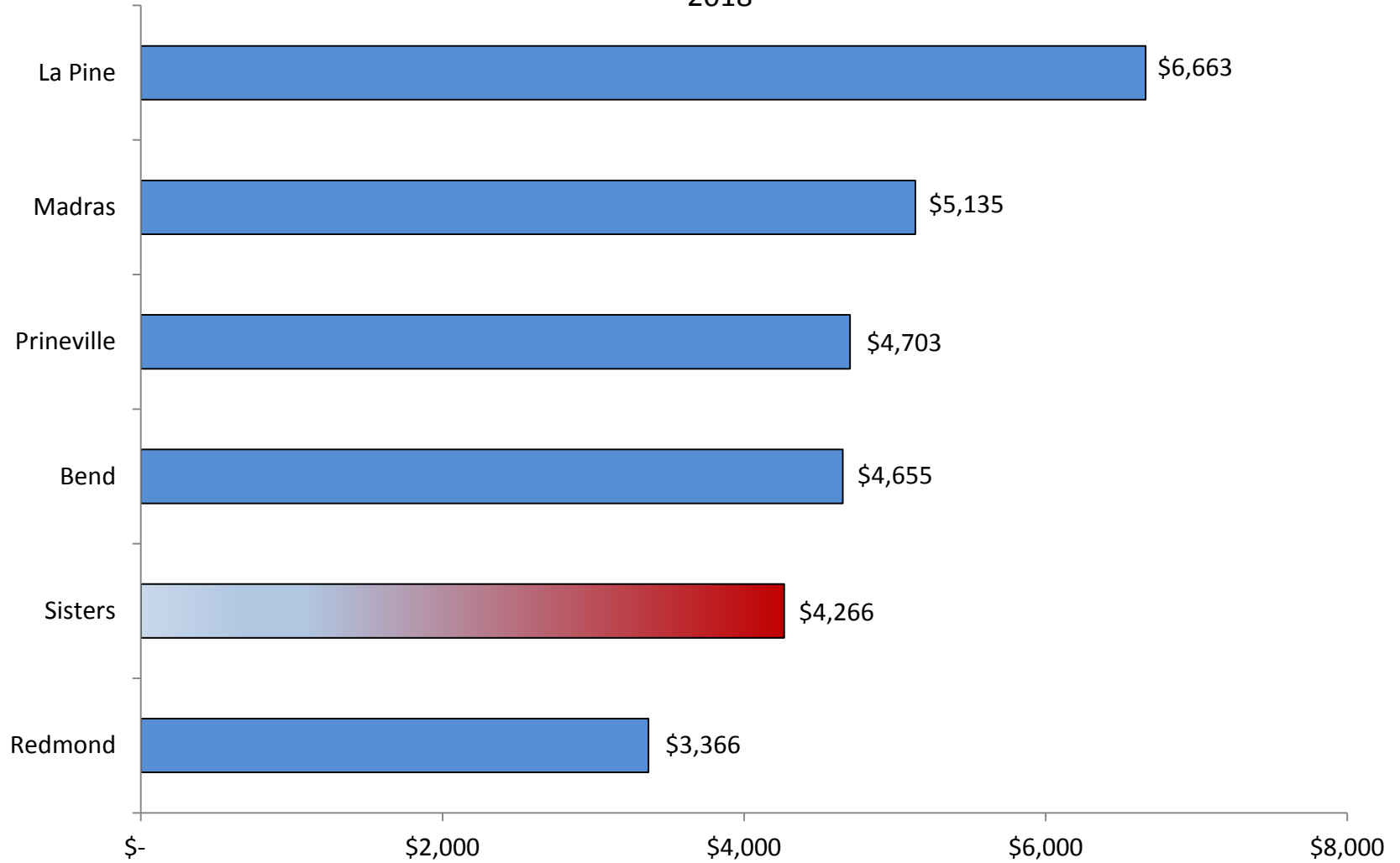
Figure 3 - Comparison of Neighboring Communities' SDCs (Single Family Residential) as of January, 2018



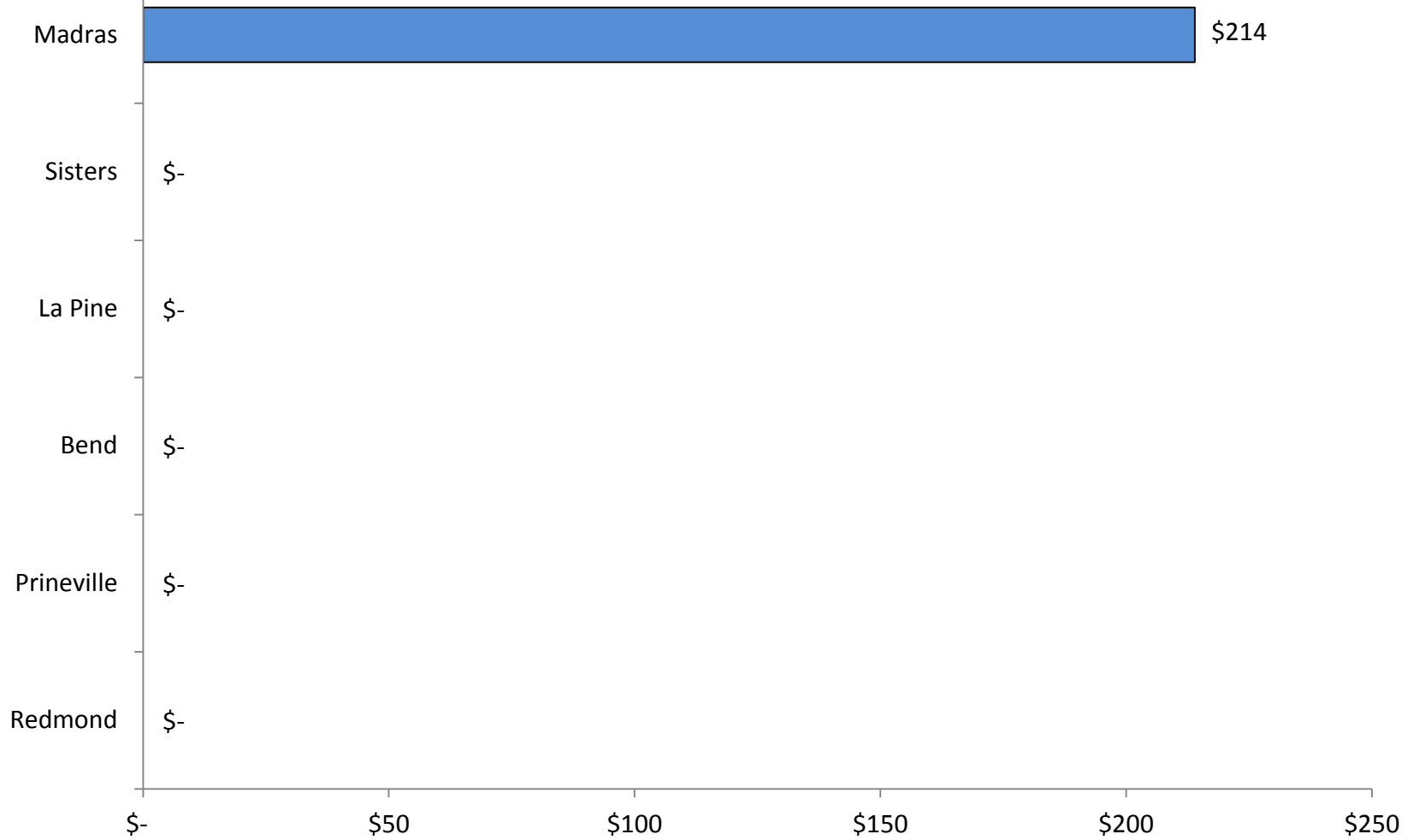
Neighboring Communities' System Development Charges - Water SFR January, 2018



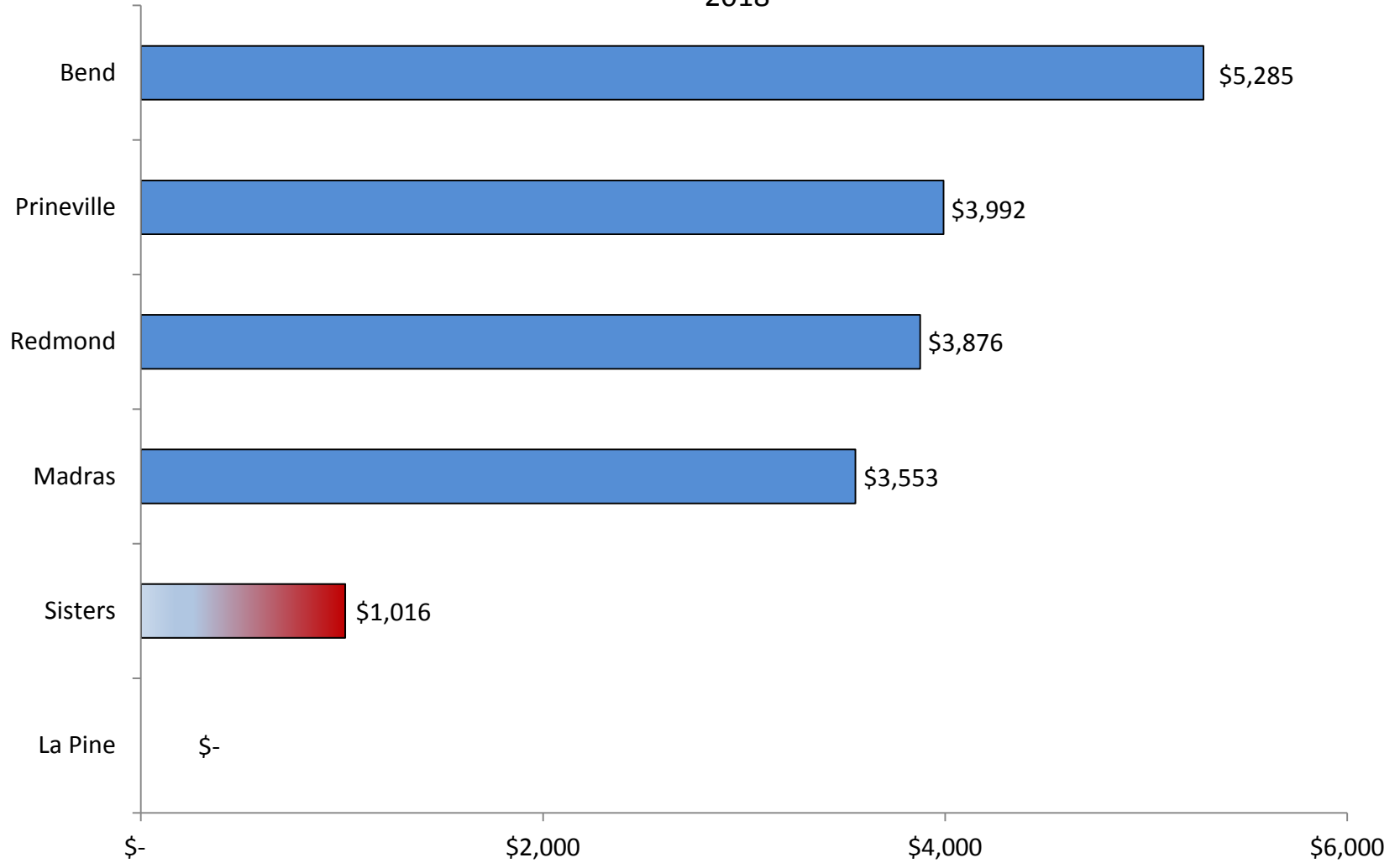
Neighboring Communities' System Development Charges - Wastewater SFR January, 2018



Neighboring Communities' System Development Charges - Stormwater SFR January, 2018



Neighboring Communities' System Development Charges - Transportation SFR January, 2018



Neighboring Communities' System Development Charges - Parks SFR January, 2018

