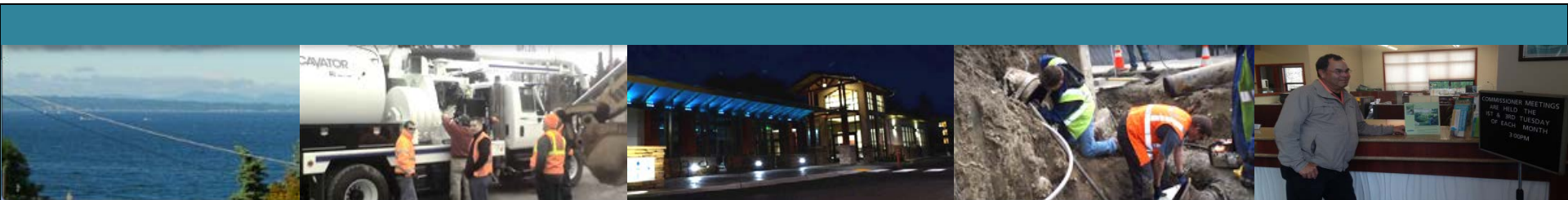


2020-2022  
Budget Presentation  
*Presentation to the Board of Commissioners*  
**December 3, 2019**



# Agenda

1. Cost of Service Rate Review
2. 2020-2022 Revenue Requirements
3. 2020 Rates
4. Long Term Rate Forecast
5. 2020 Bill Samples and Comparisons



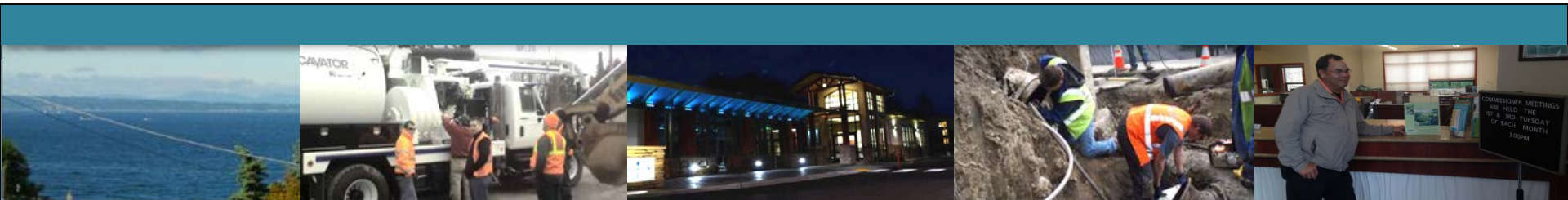
- **Connection Fees** – these are fees charged to new customers when they join the system, and are for the recovery of costs invested in infrastructure (plant). When the District constructs waterlines and other infrastructure they build them larger than is needed for the existing customers, knowing that growth will occur. A portion of the cost of this excess capacity is charged to new customers as a connection fee. It is entirely computed on the cost invested in capital.
- **Service Rates** – these are charges to existing customers to recover the on-going costs to operate and govern the District. Since a utility is an infrastructure driven entity, many of those costs are directly related to operating and maintaining the infrastructure, which means many of the practices used to compute the rates are similar to those for computing a connection fee. However, since many of the costs related to on-going operations have very little to do maintaining infrastructure, such as water supply and customer billing, many of the practices in setting the rates are different from those used to compute the connection fees.



# Cost of Service (COS) Rate Review

Establishing rates is a blend of **Art** and **Science**

- **Science** = application of practices and procedures as established by the AWWA and augmented by industry standards.
- **Art** = choosing what practices to apply plus the assumptions and decisions made to meet the goals and objectives of the District.



# The Science of a COS Review

A COS review involves the following seven steps:

1. Gather data and calculate base year revenues (*No. of customers and ERUs and usage for a typical year*).
2. Determine the base year costs.
3. Determine the factors (*percentages*) for the allocation of infrastructure costs and operating costs to functions of service.

**Capacity (*meters and services, base and peak demand*)**

**Fire**

**Customers**

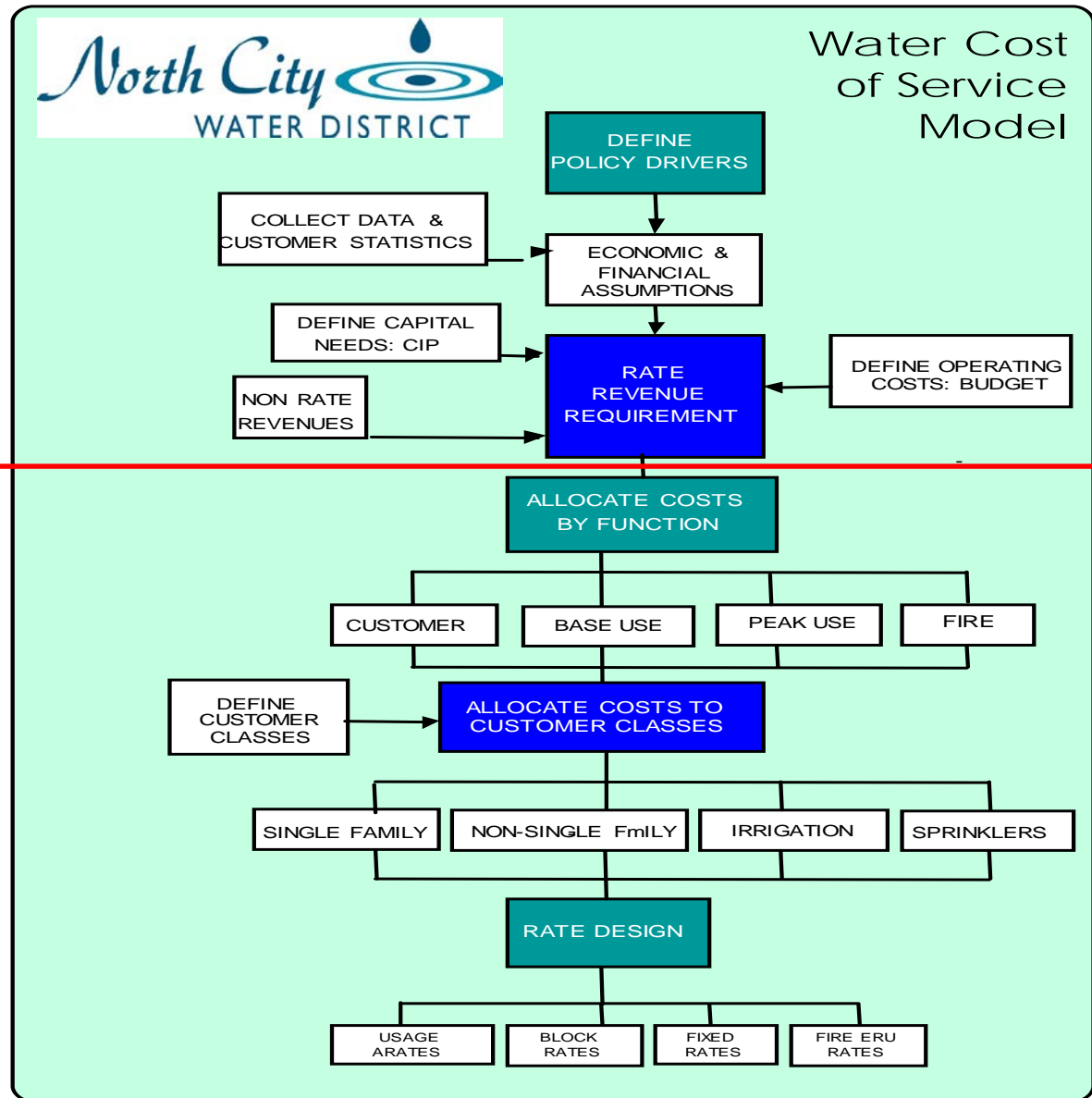
4. Allocate base year service costs to functions of service from step 3.
5. Allocate functions of service costs from step 4 to customer classes.
6. Develop unit costs from steps 1 and 5.
7. Combine unit costs into the final rates from step 6.



# Graphical Illustration

Every time the District does a budget and adjusts the rates, an analysis is performed through the revenue Requirement (to the redline). An across the board increase is applied to the current year rates if additional revenue is required.

Every 5-7 years an in-depth analysis is performed to determine if the rates are recovering costs from customers in an equitable manner. It is called a Cost of Service Study/Review. The last analysis was performed in 2012.



# COS Review - Step 1

Gather data for the base year revenue calculations:

**1. Evaluate customer classes**

- Which customers to include in a customer class are based on unit costs to serve them. The District considers two major cost areas:

- Fire protection**
- Peak usage patterns**

*Unit cost criteria show there is no need to segregate Multi-Family as a separate class for establishing rates. However, the information is still tracked for informational and management purposes.*

Current Customer Classes	Fire Protection	Peak Usage Pattern	New Customer Classes	Fire Protection	Peak Usage Pattern
Single Family	Lower	Higher	Single Family	Lower	Higher
Multi-Family	Higher	Flat	Non-Single Family		
Non-Residential:			Multi-Family	Higher	Flat
Municipal	Higher	Flat	Municipal	Higher	Flat
Commercial	Higher	Flat	Commercial	Higher	Flat
Fircrest	Higher	Flat	Fircrest	Higher	Flat
Irrigation	None	Very High	Irrigation	None	Very High
Fire Sprinklers	None	None	Fire Sprinklers	None	None

Once the customer classes are determined, all data is grouped together under those classes going forward. There will be different rates for each class of customer. In other words – four different rates - no longer five.

# COS Review - Step 1 *cont.*

Gather data for the base year revenue calculations:

**2. Determine the number of customers and ERUs by customers class**

- **Make adjustments as follows:**

1. **Adjust ERUs for outliers**
2. **Remove all Sound Transit customers**
3. **Add new Fire Station and remove the old one**
4. **Adjust other miscellaneous items**

**3. Determine the base year usage by customer class**

- **Make adjustments as follows:**

1. **Remove all Sound Transit usage**
2. **Add usage for the new Fire Station and remove the old usage**
3. **Adjust other miscellaneous items**

**4. Calculate the revenues by class for the adjusted base year usage, customers and ERUs with the current year rates – 2019** (from steps 2 and 3). This will allow for a *“revenue neutral”* review of how the cost of service shifts impact rates and customers before adding an across the board rate increase for 2020.





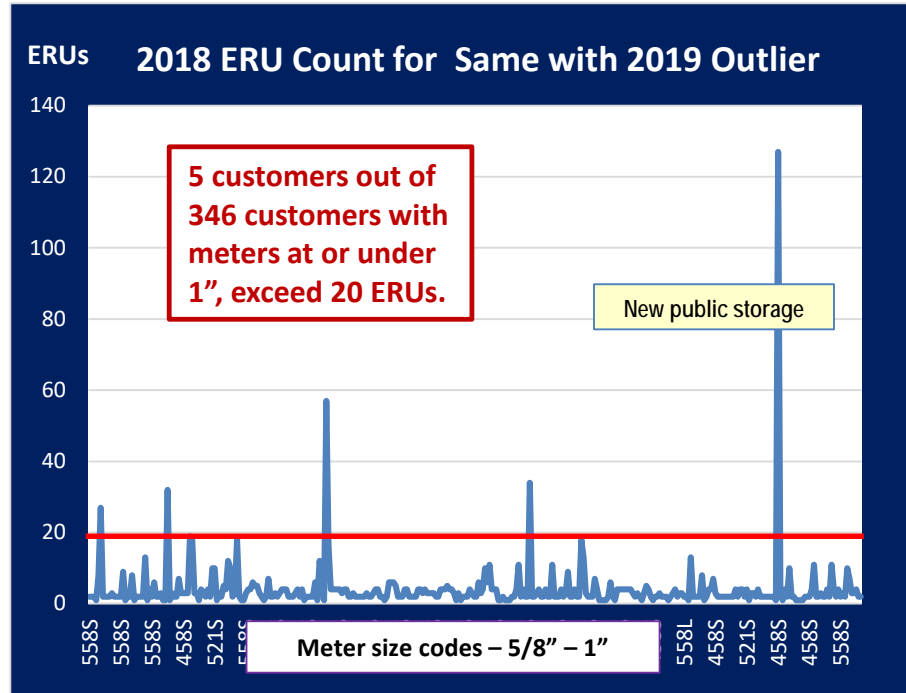
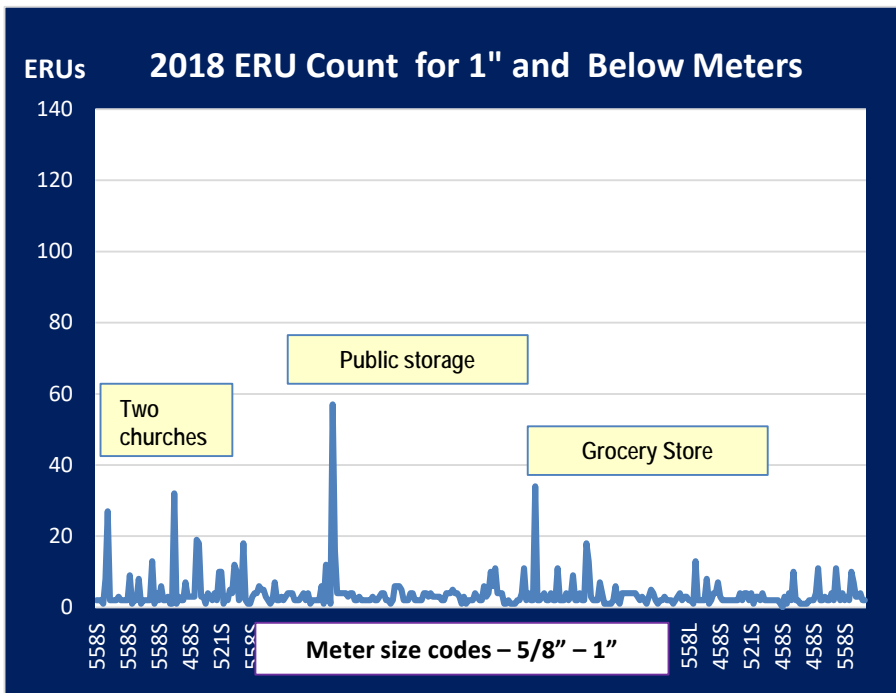
# COS Review - Step 1 *cont.*

Gather data for the base year revenue calculations:

2. Determine the number of customers and ERUs by customers class:

1. **Adjust ERUs for outliers**

*Art!* It is an long-time policy of the District to avoid onerously impacting classes of customers, groups of customers or even an individual customer. In 2019 a new customer was added, which is requiring the District to address this issue in the 2020 service rates.



To normalize the outliers, all 1" and smaller meters will not be assigned an ERU count above 20 ERUs. 1 ½" meters will not exceed 30 ERUs. 2" meters will not exceed 40 ERUs. For meters over 2", the ERU count will not be reduced. This does not apply to connection fees since the basis of that charge is on the direct cost of the infrastructure to extinguish fires.

# COS Review - Step 1 *cont.*

Gather data for the base year revenue calculations:

2. Determine the number of customers and ERUs by customers class
3. Determine the base year usage
  - Make adjustments as follows:
    1. Remove all Sound Transit customers and usage
    2. Replace prior Fire Station stats with new stats
    3. Adjustments for other miscellaneous items

*The above adjustments were made and resulted in a shortfall of about \$52k in 2018 dollars. See Below:*

Customer Classes	Sound Transit	Other Misc	New Fire Depart	Normalize Outliers	Total Adjustments
Single Family	<b>\$ (38,289)</b>			\$ -	\$ (38,289)
Multi Family				(388)	(388.2)
Commercial			(3,589)	(11,355)	(14,944.1)
Municipal			3,637	(1,213)	2,424.2
Fircrest		(631)		-	(630.8)
Irrigation				-	-
Fire Sprinklers				-	-
<b>TOTAL</b>	<b>\$ (38,289)</b>	<b>\$ (631)</b>	<b>\$ 49</b>	<b>\$ (12,957)</b>	<b>\$ (51,828)</b>

When the Sound Transit project is complete, they will be added to the District's system as a rate payer but the revenue received from them will never equal the lost revenues from the customers they are replacing.

# COS Review - Step 1 *cont.*

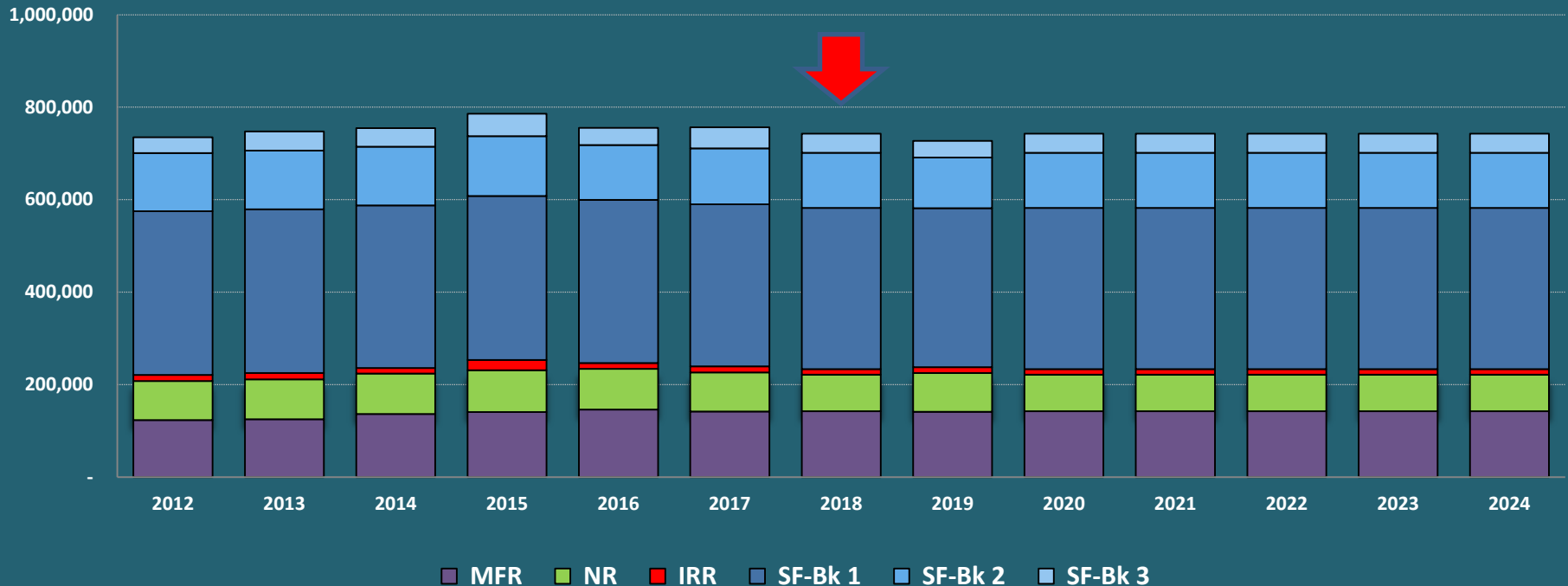
Gather data for the base year revenue calculations:

4. Calculate the revenues by class for the adjusted base year usage, customers and ERUs with the current year (2019) rates. *This will allow for a “revenue neutral” review of how the cost of service shifts impact rates and customers before adding an across the board rate increase for 2020.*

**The usage for 2018 was selected as the base year. This is because the usage for the District is still trending down and 2019 will come in even lower. However, 2019 was a much cooler year than normal. Consequently, 2018 was used instead. Plus, there is a full year of verifiable data. See following slide for table of usage**

## 2012-2024 Actual and Projected Usage

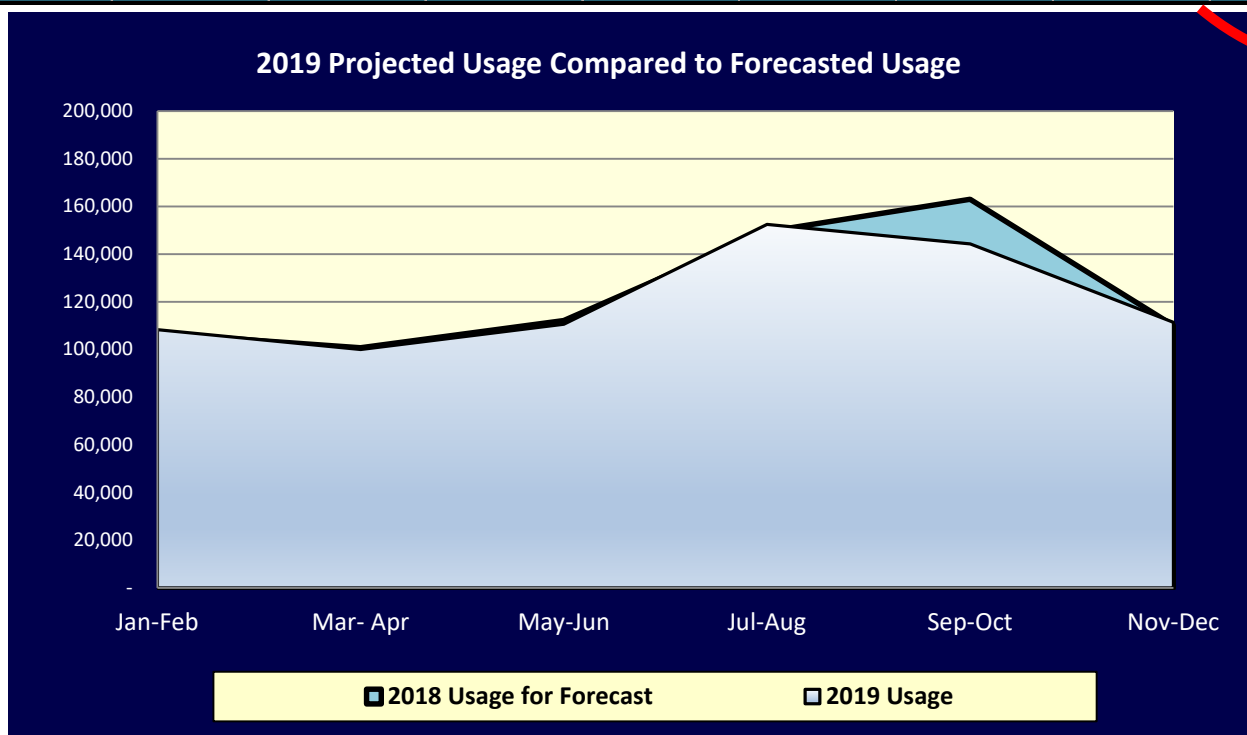
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# COS Review - Step 1 *cont.*

Gather data for the base year revenue calculations:

CLASS / BLOCKS	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
IRR	13,000	13,664	11,990	21,972	12,534	13,256	11,630	12,344	11,630	11,630	11,630
NR	84,361	86,765	87,732	90,741	88,183	84,111	79,422	83,887	79,422	79,422	79,422
MFR	123,648	125,007	136,546	140,688	146,060	142,194	142,572	141,513	142,572	142,572	142,572
SF-Bk 3	34,190	41,167	39,981	48,436	36,656	45,453	41,288	35,758	41,288	41,288	41,288
SF-Bk 2	125,639	127,160	126,935	129,433	119,142	120,951	119,125	109,424	119,125	119,125	119,125
SF-Bk 1	354,277	353,647	351,482	354,780	352,564	350,686	348,454	344,028	348,454	348,454	348,454
<b>TOTAL</b>	<b>735,115</b>	<b>747,410</b>	<b>754,666</b>	<b>786,050</b>	<b>755,139</b>	<b>756,651</b>	<b>742,491</b>	<b>726,954</b>	<b>742,491</b>	<b>742,491</b>	<b>742,491</b>



**Usage for 2018 is in the darker color. The 2019 projected usage is overlaid on top of it. The flat peak in 2019 shows graphically what we already know – it was a cooler summer in 2019. Therefore 2018 usage was used instead.**

# COS Review - Step 1 *cont.*

Gather data for the base year revenue calculations:

- Calculate the revenues by class for the adjusted base year usage, customers and ERUs with the current year rates – 2019.

CUSTOMER CLASSES	Revenues from Base Charges				Total Usage Charge	Franchise Fee	GRAND TOTAL
	Meter Charge	Fire ERU Charge	CIC Charge	Total Fixed Charge			
Single Family	\$2,415,026	\$ 156,759	\$ 202,518	\$2,774,303	\$1,924,324	\$ 281,918	\$4,980,544
Multi Family	\$ 299,818	\$ 62,986	\$ 81,372	\$ 444,176	\$ 542,421	\$ 59,196	\$1,045,793
Commercial	\$ 124,599	\$ 28,836	\$ 37,253	\$ 190,688	\$ 201,925	\$ 23,557	\$ 416,170
Municipal	\$ 37,850	\$ 16,359	\$ 21,134	\$ 75,343	\$ 26,383	\$ 6,104	\$ 107,829
Fircrest	\$ 25,707	\$ 9,529	\$ 12,310	\$ 47,546	\$ 106,727	\$ 9,256	\$ 163,529
Irrigation	\$ 53,313			\$ 53,313	\$ 75,014	\$ 7,700	\$ 136,026
Fire Sprinkler Service	\$ 92,708			\$ 92,708		\$ 5,562	\$ 98,271
<b>TOTAL</b>	<b>\$3,049,022</b>	<b>\$ 274,468</b>	<b>\$ 354,587</b>	<b>\$3,678,077</b>	<b>\$2,876,792</b>	<b>\$ 393,292</b>	<b>\$6,948,161</b>

**This is not the amount of revenue the District is projected to receive in 2019, it is the amount of revenue we would receive in 2020 if the usage was the same as 2018 and the customers are the same as they are right now.** There is no projected across the board rate increase in this amount!

## A COS review involves the following seven steps:

1. Gather data and calculate base year revenues (*No of customers and ERUs and usage for a typical year – segregated by customer class*).
2. Determine the base year costs.
3. Determine the factors (*percentages*) for the allocation of infrastructure costs and operating costs to functions of service.
  - Capacity (meters and services, base and peak demand)*
  - Fire*
  - Customers*
4. Allocate base year service costs to functions of service from step 3.
5. Allocate functions of service costs from step 4 to customer classes.
6. Develop unit costs from steps 1 and 5.
7. Combine unit costs into the final rates from step 6.



# COS Review - Step 2

Objects <i>(Types of Cost)</i> ↓ v	Functions ->	Admin	Cust Service & Billing	General O&M	Source of Supply & Pumping	Storage	Meters & Services	Dist System	Hydrants
BUSINESS ADMINISTRATION	<p><b>Every year the first slide of the budget presentation is this slide. It is shown as a reminder that we not only budget by objects or types of service (as shown on the left column) but we also budget by functions of service as shown across the top.</b></p>								
PLANNING AND DEVELOPMENT									
PUBLIC AND REGIONAL OUTREACH									
OFFICE AND RECORDS MANAGEMENT									
CUSTOMER SERVICE AND BILLING	<p><b>The next slide shows this table filled in with the 2019 budget that is used for the base year costs.</b></p>								
PURCHASED WATER AND POWER	<p><b>There is one exception because the base year revenues are less than those projected for the 2019 budget so the Capital transfer has been reduced to bring costs equal to the available revenues.</b></p>								
OPERATIONS AND MAINTENANCE	<p><b>The revenues and costs must be equal so the cost of service analysis will produce “revenue neutral” results, meaning there is no embedded rate increase in the resulting rates.</b></p>								
TAXES AND FRANCHISE FEES									
EMPLOYEE COSTS									
CAPITAL COSTS									

# COS Review - Step 2 *cont.*

## 2019 Budget and Revenue Requirement

	Functions ->				Source of				
	Total	Admin	Cust Service & Billing	General O&M	Supply & Pumping	Storage	Meters & Services	Dist System	Hydrants
BUSINESS ADMINISTRATION	\$ 223,200	\$ 223,200	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
PLANNING AND DEVELOPMENT	13,000	13,000	-	-	-	-	-	-	-
PUBLIC AND REGIONAL OUTREACH	55,000	55,000	-	-	-	-	-	-	-
OFFICE AND RECORDS MANAGEMENT	265,150	174,650	-	90,500	-	-	-	-	-
CUSTOMER SERVICE AND BILLING	87,500	-	74,500	13,000	-	-	-	-	-
PURCHASED WATER AND POWER	1,548,000	-	-	-	1,548,000	-	-	-	-
OPERATIONS AND MAINTENANCE	211,000	-	-	105,500	19,000	-	42,000	40,000	4,500
TAXES AND FRANCHISE FEES	780,579	770,579	-	10,000	-	-	-	-	-
EMPLOYEE COSTS	1,766,807	686,230	240,876	583,106	37,703	18,881	58,685	109,817	31,510
<b>Total Operating Costs</b>	<b>\$ 4,950,237</b>	<b>\$ 1,922,659</b>	<b>\$ 315,376</b>	<b>\$ 802,106</b>	<b>\$ 1,604,703</b>	<b>\$ 18,881</b>	<b>\$ 100,685</b>	<b>\$ 149,817</b>	<b>\$ 36,010</b>
DEBT SERVICE	1,134,900	1,134,900							
CAPITALTRANSFERS	1,253,010	1,253,010							
VEHICLE REPLACEMENT CONTRIBUTION	79,000	79,000							
PRSERVATION ACCOUNT CONTRIBUTION	50,000	50,000							
<b>Total Capital Costs</b>	<b>\$ 2,516,910</b>	<b>\$ 2,516,910</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>TOTAL BUDGET</b>	<b>\$ 7,467,147</b>	<b>\$ 4,439,569</b>	<b>\$ 315,376</b>	<b>\$ 802,106</b>	<b>\$ 1,604,703</b>	<b>\$ 18,881</b>	<b>\$ 100,685</b>	<b>\$ 149,817</b>	<b>\$ 36,010</b>
Less Other Revenue	(518,986)								
<b>TOTAL REVENUE REQUIREMENT</b>	<b>\$ 6,948,161</b>								

### FUNCTIONS OF WATER SERVICE

Note the amount of the costs are equal to the available revenues as computed earlier.





# COS Review - Step 2 *cont.*

## 2019 Budget and Revenue Requirement

### FUNCTIONS OF WATER SERVICE



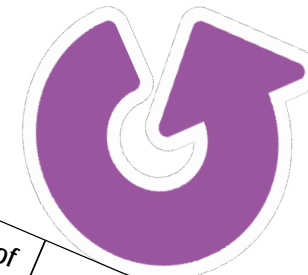
	Functions ->								
	Total	Admin	Cust Service & Billing	General O&M	Source of Supply & Pumping	Storage	Meters & Services	Dist System	Hydrants
<b>TOTAL BUDGET</b>	\$ 7,467,147	\$ 4,439,569	\$ 315,376	\$ 802,106	\$ 1,604,703	\$ 18,881	\$ 100,685	\$ 149,817	\$ 36,010
Less Other Revenue	(518,986)								
<b>TOTAL REVENUE REQUIREMENT</b>	<u>\$ 6,948,161</u>								

**For the cost of service analysis, the total functions of water service costs are considered rather than types of costs – in other words, the bottom line of the previous slide. Excerpted above.**

# COS Review - Step 2 *cont.*

## 2019 Budget and Revenue Requirement

### FUNCTIONS OF WATER SERVICE



<b>TOTAL BUDGET</b> Less Other Revenue <b>TOTAL REVENUE REQUIREMENT</b>	Functions ->										
	Total	Admin	Cust Service & Billing	General O&M	Source of Supply & Pumping	Storage	Meters & Services	Dist System	Hydrants		
\$ 7,467,147	\$ 4,439,569	\$ 315,376	\$ 802,106	\$ 1,604,703	\$ 18,881	\$ 100,685	\$ 149,817	\$ 36,010			
(518,986)											
<u>\$ 6,948,161</u>											

Think of it as rotating the bottom totals of the budget to become the left hand column and the water service functions then become the column headings. This forms the template for the allocation of the budgeted costs that eventually determine the new COS rates.

# COS Review - Step 2 *cont.*

## Cost Allocations to Functions of Water Service

### FUNCTIONS OF WATER SERVICE



		Customers	Meters & Services	Base (Average) Demand	Peak (Summer) Demand	Fire Protection
<b>Operating Costs:</b>		<p><b>This slide shows the formation of the new cost template for the cost of service analysis.</b></p> <p><b>The next part of the process is to allocate the costs to the functions of service using percentages established as part of the connection fees, the Comprehensive plan, industry standards and allocation derived from preceding allocations.</b></p> <p><b>It too is a combination of Science and Art.</b></p>				
Admin	\$ 1,922,660					
Cust Service & Billing	\$ 315,376					
General O&M	\$ 802,106					
Source of Supply & Pumping	\$ 1,604,703					
Storage	\$ 18,881					
Meters & Services	\$ 100,685					
Dist System	\$ 149,817					
Hydrants	\$ 36,010					
<b>Total Operating Costs</b>	<b>\$ 4,950,238</b>					
<b>Capital Costs</b>						
Debt Service	\$ 1,134,900					
Capital Transfer	\$ 1,253,010					
Vehicle Replacement Contribution	\$ 79,000					
Preservation Account Contribution	\$ 50,000					
<b>Total Capital Costs</b>	<b>\$ 2,516,910</b>					
<b>Total Costs</b>	<b>\$ 7,467,147</b>					
Other Revenue	(518,986)					
<b>Revenue Requirement</b>	<b>\$ 6,948,161</b>					

## A COS review involves the following seven steps:

1. Gather data and calculate base year revenues (*No of customers and ERUs and usage for a typical year – segregated by customer class*).
2. Determine the base year costs.
3. **Determine the factors (percentages) for the allocation of infrastructure costs and operating costs to functions of service.**
  - Capacity (meters and services, base and peak demand)**
  - Fire**
  - Customers**
4. **Allocate base year service costs to functions of service from step 3.**
5. **Allocate functions of service costs from step 4 to customer classes.**
6. **Develop unit costs from steps 1 and 5.**
7. **Combine unit costs into the final rates from step 6.**



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# COS Review - Step 3

## 3. Determine the allocation of infrastructure costs to functions of service. **Capacity** (*meters and services, base and peak demand*) **Fire and Customers.**

**Art**

- To be consistent with the District's policy to recognize that the District is upsizing mains and allocating storage to provide fire protection services, the allocations used for the rates mirrors what the District used to allocate costs for the Connection Fees.

- The results of that study are shown to the right. All costs were allocated between **capacity** and **fire** functions for connections fees. A third function for **customers** is added for the service rates.

PLANT-IN-SERVICE - COST SUMMARY	NON-FIRE FUNCTIONS (Capacity)	FIRE FUNCTION	GRAND TOTAL
DIRECT UTILITY PLANT			
Transmission & Distribution	\$ 14,363,877	\$ 4,742,105	\$ 19,105,981
Pumping	5,236,559	1,855,758	7,092,317
Storage (Reservoirs)	4,694,104	2,011,759	6,705,863
Hydrants	-	1,152,797	1,152,797
Meters & Services	5,217,090	-	5,217,090
Supply/Treatment	-	-	-
TOTAL DIRECT UTILITY PLANT	\$ 29,511,630	\$ 9,762,418	\$ 39,274,049
GENERAL UTILITY PLANT	\$ 15,594,144	\$ -	\$ 15,594,144
TOTAL UTILITY PLANT	\$ 45,105,775	\$ 9,762,418	\$ 54,868,193
ALLOCATION OF PLANT	82%	18%	100%

**One exception was made, which was to not allocate general plant to the fire function as a way to phase the impacts in a single year. Art**

**Allocation results for the full connection fees                      75%                      25%                      100%.**

# COS Review - Step 3 *con't*

The following table shows the allocation of service revenues to functions of service. A customer function is added since it is for service rates. The **Art** part involves which allocation factors to use for the non-infrastructure costs.

**Functional costs related to the operations and administration of the District are shown in the first column. They are entered and tracked for every item entered in the District's accounting system as they are embedded in the account numbers – e.g. 1-34-565100 - 1 is the fund, 34 is the function number for mains (distribution system) and 565100 is the object code for O&M supplies. They are budgeted for even when a COS review is not completed.**

**The last two functions are for the administrative aspects of the District. The costs related to the office, grounds and records management are not allocated to Fire or Peak demand. The last costs are allocated to all aspects of the District. They are a composite factor from all others.**

ALLOCATION OF OPERATING & CAPITAL COSTS TO WATER SERVICE RATE FUNCTIONS OF SERVICE - Percentages	Customer	Capacity Functions				Fire
	CUSTOMER	METERS & SERVICES	BASE	PEAK	TOTAL CAPACITY	FIRE
Distribution System			38%	38%	75%	25%
Pumping				37%	74%	26%
Storage				30%	70%	30%
Hydrants						100%
Meters & Services		100%			100%	
Capital Transfer and Debt Service		15%	35%	33%	82%	18%
Source of Supply						
Customer Service and Billing	100%					
Records, Office and Grounds	50%	15%	35%		50%	
Governance / Management / General Admin / Public Outreach	13%	10%	35%	32%	77%	10%

**The functional costs above the red line are related to the operation and maintenance of infrastructure and the related debt and capital from rates needed to build and replace it. The allocation factors mirror the connection fee allocations (with one exception as noted on the prior slide).**

**Average to peak day**

**All to customers**

## A COS review involves the following seven steps:

1. Gather data and calculate base year revenues (*No of customers and ERUs and usage for a typical year – segregated by customer class*).
2. Determine the base year costs.
3. Determine the factors (*percentages*) for the allocation of infrastructure costs and operating costs to functions of service.



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*Capacity (meters and services, base and peak demand)*

Fire

Customers

4. **Allocate base year service costs to functions of service from step 3.**
5. **Allocate functions of service costs from step 4 to customer classes.**
6. **Develop unit costs from steps 1 and 5.**
7. **Combine unit costs into the final rates from step 6.**

# COS Review - Step 4

ALLOCATION OF COSTS TO RATE FUNCTIONS	Amounts	TOTAL COSTS	CUSTOMER	METERS & SERVICES	BASE	PEAK	FIRE
Pumping and Telemetry	90,703	-	-	33,485	33,485	23,733	
Storage	18,881	-	-	7,594	5,623	5,664	
Meters & Services	100,685	-	100,685	-	-	-	
Distribution System	149,817	-	-	56,316	56,316	37,184	
Hydrants	36,010	-	-	-	-	36,010	
<b>Subtotal O&amp;M Costs</b>	<b>396,095</b>	<b>-</b>	<b>100,685</b>	<b>97,395</b>	<b>95,424</b>	<b>102,592</b>	
<i>Percentage by Function for O&amp;M</i>	<i>100%</i>	<i>0%</i>	<i>25%</i>	<i>25%</i>	<i>24%</i>	<i>26%</i>	
General O&M	802,106	-	203,890	197,228	193,236	207,752	
Admin by Customers (Office)	206,650	103,325	30,430	72,895	-	-	
Customer Service and Billing/Meter Reading	315,376	315,376	-	-	-	-	
Source of Supply	1,514,000	-	-	757,000	757,000	-	
<b>Subtotal O&amp;M Costs</b>	<b>3,234,228</b>	<b>418,701</b>	<b>335,006</b>	<b>1,124,517</b>	<b>1,045,660</b>	<b>310,344</b>	
<i>Cumulative Percentage by Function</i>	<i>100%</i>	<i>13%</i>	<i>10%</i>	<i>35%</i>	<i>32%</i>	<i>10%</i>	
General Administration	945,430	122,395	97,929	328,719	305,667	90,720	
<b>TOTAL OPERATING COSTS</b>	<b>4,179,657</b>	<b>541,096</b>	<b>432,935</b>	<b>1,453,236</b>	<b>1,351,328</b>	<b>401,063</b>	
<b>TOTAL CAPITAL COSTS:</b>							
Debt Service (Net Capitalization)	534,340	-	77,654	186,017	175,597	95,072	
Debt Service For General Plant	600,559	-	106,167	254,319	240,073	-	
Transfer to Vehicle Replacement Acct	79,000	-	13,966	33,454	31,580	-	
Transfer to Capital Accounts	1,253,010	-	182,096	436,203	411,769	222,942	
<b>TOTAL CAPITAL COSTS</b>	<b>2,466,910</b>	<b>-</b>	<b>379,884</b>	<b>909,993</b>	<b>859,019</b>	<b>318,014</b>	
Transfer to Preservation Account	50,000	6,473	5,179	17,385	16,166	4,798	
<b>TOTAL COSTS</b>	<b>6,696,568</b>	<b>547,569</b>	<b>817,997</b>	<b>2,380,614</b>	<b>2,226,512</b>	<b>723,875</b>	
<i>Combined Percentage by Function</i>	<i>100%</i>	<i>8%</i>	<i>12%</i>	<i>36%</i>	<i>33%</i>	<i>11%</i>	
<b>OTHER REVENUES AND ADJUSTMENTS:</b>							
Excise Taxes	355,048	29,032	43,370	126,219	118,048	38,379	
Less: Other Revenues (Incl'd Interest)	(518,986)	(42,437)	(63,395)	(184,498)	(172,555)	(56,101)	
Plus: Franchise Fees on FF (no pass thru)	22,239	1,818	2,717	7,906	7,394	2,404	
<b>REVENUE REQUIREMENT b/f FRANCHISE FEES</b>	<b>\$ 6,554,869</b>	<b>\$ 535,982</b>	<b>\$ 800,689</b>	<b>\$ 2,330,240</b>	<b>\$ 2,179,399</b>	<b>\$ 708,558</b>	
Pass-Thru Franchise Fees	393,292	32,159	48,041	139,814	130,764	42,513	
<b>REVENUE REQUIREMENT</b>	<b>\$ 6,948,161</b>	<b>\$ 568,141</b>	<b>\$ 848,730</b>	<b>\$ 2,470,055</b>	<b>\$ 2,310,163</b>	<b>\$ 751,072</b>	
Percentage Allocation to Functions of Service	100%	8.2%	12.2%	35.5%	33.2%	10.8%	

Move to Next Slide for the BOTTOM LINE!



# COS Review - Step 4 *Cont.*

ALLOCATION OF COSTS TO RATE FUNCTIONS - Amounts	TOTAL COSTS	CUSTOMER	METERS & SERVICES	BASE	PEAK	FIRE
REVENUE REQUIREMENT b/f FRANCHISE FEES	\$ 6,554,869	\$ 535,982	\$ 800,689	\$ 2,330,240	\$ 2,179,399	\$ 708,558
Pass-Thru Franchise Fees	393,292	32,159	48,041	139,814	130,764	42,513
REVENUE REQUIREMENT	\$ 6,948,161	\$ 568,141	\$ 848,730	\$ 2,470,055	\$ 2,310,163	\$ 751,072
Percentage Allocation to Functions of Service	100%	8.2%	12.2%	35.5%	33.2%	10.8%

Results from the 2012  
Rate Study

2012 rates	8.7%	10.7%	33.9%	41.3%	5.4%
Shifts	-0.5%	1.5%	1.7%	-8.1%	5.4%

The major shift occurs between peak demand and fire. This is completely due to matching the allocation of direct operating costs for infrastructure operation and maintenance with the allocation assumptions used to develop the connection fees.

The cost of service analysis is done without considering the franchise fees as they are just added to the bills and treated like a pass-thru. The amount to watch for is \$6,554,869.

## A COS review involves the following seven steps:

1. Gather data and calculate base year revenues (*No of customers and ERUs and usage for a typical year – segregated by customer class*).
2. Determine the base year costs.
3. Determine the factors (*percentages*) for the allocation of infrastructure costs and operating costs to functions of service.
  - Capacity (*meters and services, base and peak demand*)
  - Fire
  - Customers
4. Allocate base year service costs to functions of service from step 3.
- 5. Allocate functions of service costs from step 4 to customer classes.**
- 6. Develop unit costs from steps 1 and 5.**
- 7. Combine unit costs into the final rates from step 6.**



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# COS Review - Step 5

## 5. Allocate functions of service costs from step 4 to customer classes.

ALLOCATION OF COSTS TO RATE FUNCTIONS - Amounts	TOTAL COSTS	CUSTOMER	METERS & SERVICES	BASE	PEAK	FIRE
REVENUE REQUIREMENT b/f FRANCHISE FEES	\$ 6,554,869	\$ 535,982	\$ 800,689	\$ 2,330,240	\$ 2,179,399	\$ 708,558

The circled amounts of budgeted costs by functions of service will be used going forward for the rest of the analysis.

To allocate functional costs to customer classes is straight forward – costs related to customers are allocated to classes by the number of customers, meters & service by a meter service factor called and MSE, base demand (*winter usage - annualized*) by total usage, peak demand (*summer usage increment*) by summer usage, and fire protection by ERUs. There is an exception as discussed on the next slide. **The final allocation is shown in the table below:**

<i>Allocation Factors</i>	<i>Customers</i>	<i>MSE</i>	<i>Total Usage</i>	<i>Summer Usage</i>	<i>ERUs</i>		
Customer Classes	Customer	Meters & Services	Base Demand	Peak Demand	Fire Protection	Total Revenue Req.	% Share
Single Family	\$ 497,688	\$ 650,891	\$1,610,154	\$1,554,937	\$ 404,684	\$4,718,353	72%
Non-Single Family	36,185	92,263	683,289	558,700	303,875	1,674,311	26%
Irrigation	2,109	7,019	36,798	65,762	-	111,689	2%
Fire Sprinkler Service	-	50,515	-	-	-	50,515	1%
<b>TOTAL</b>	<b>\$ 535,982</b>	<b>\$ 800,689</b>	<b>\$2,330,240</b>	<b>\$2,179,399</b>	<b>\$ 708,558</b>	<b>\$6,554,869</b>	<b>100%</b>

# COS Review - Step 5 *Cont.*

## 5. Allocate functions of service costs from step 4 to customer classes.

<i>Allocation Factors</i>	<i>MSE</i>	<i>Total Usage</i>	<i>Summer Usage</i>	<i>ERUs</i>	Table from previous slide.	
<b>Customer Classes</b>	<b>Meters &amp; Services</b>	<b>Base Demand</b>	<b>Peak Demand</b>	<b>Fire Protection</b>	<b>Total Revenue Req.</b>	<b>% Share</b>
Single Family	\$ 650,891	\$1,610,154	\$1,554,937	\$404,684	\$4,718,353	72%
Non-Single Family	92,263	683,289	558,700	303,875	1,674,311	26%
Irrigation	7,019	36,798	65,762	-	111,689	2%
Fire Sprinkler Service	50,515	-	-	-	50,515	1%
<b>TOTAL</b>	<b>\$ 800,689</b>	<b>\$2,330,240</b>	<b>\$2,179,399</b>	<b>\$708,558</b>	<b>\$6,554,869</b>	<b>100%</b>

There is one exception in the allocation of costs to customer classes.

METERS & SERVICES COST		Allocation Basis (Units)				Allocated
Customer Classes	Adj. Factor	No of MSEs	Adj. No of MSEs	% Share	Cost	
Single Family Residential	1.0	7,669	7,669	81%	\$ 650,891	
Multi-family Residential	1.0	-	-	0%	\$ -	
Non-residential	1.0	1,087	1,087	12%	\$ 92,263	
Irrigation	1.0	83	83	1%	\$ 7,019	
Fire Sprinkler Service	0.5	1,190	595	6%	\$ 50,515	
<b>TOTAL</b>		<b>10,029</b>	<b>9,433</b>	<b>100%</b>	<b>\$ 800,689</b>	

**More ART** – To be consistent with the District’s policy of phasing out charges for sprinkler meters (both with Single Family and with the connection fees) the costs were reduced by 50% as a start to phasing them out completely. To eliminate them now would overly burden the other classes of customers.

## A COS review involves the following seven steps:

1. Gather data and calculate base year revenues (*No of customers and ERUs and usage for a typical year – segregated by customer class*).
2. Determine the base year costs.
3. Determine the factors (*percentages*) for the allocation of infrastructure costs and operating costs to functions of service.

**Capacity** (*meters and services, base and peak demand*)

**Fire**

**Customers**

4. Allocate base year service costs to functions of service from step 3.
5. Allocate functions of service costs from step 4 to customer classes.
- 6. Develop unit costs from steps 1 and 5.**
- 7. Combine unit costs into the final rates from step 6.**



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# COS Review - Step 6

## 6. Develop unit costs:

### Summary of Unit Costs by Customer Class

MONTHLY UNIT COSTS BY FUNCTIONS AND CUSTOMER CLASSES	Allocated by:	Single Family	Non-Single Family	Irrigation	Fire Sprinklers	Total Revenues Collected	Percent of Total
Customer Costs	<i>By Acct</i>	\$ 5.49	\$ 5.49	\$ 5.49	\$ -	\$ 535,982	
Meters & Services Cost	<i>By MSE</i>	\$ 7.07	\$ 7.07	\$ 7.07	\$ 3.54	\$ 800,689	
Peak Demand Costs	<i>By MCE</i>	\$ 12.18	\$ 12.18	\$ 8.87	\$ -	\$ 1,506,600	
<b>Total Fixed Costs</b>		<b>\$ 24.74</b>	<b>\$ 24.75</b>	<b>\$ 21.43</b>	<b>\$ 3.54</b>	<b>\$ 2,843,271</b>	<b>43%</b>
Peak Demand Costs	<i>By Total Usage</i>	\$ 0.76	\$ 1.10	\$ 4.24	\$ -	\$ 672,800	
Base Demand Costs	<i>By Total Usage</i>	\$ 3.16	\$ 3.16	\$ 3.16	\$ -	\$ 2,330,240	
<b>Total Usage Costs</b>		<b>\$ 3.92</b>	<b>\$ 4.26</b>	<b>\$ 7.40</b>	<b>\$ -</b>	<b>\$ 3,003,040</b>	<b>46%</b>
<b>Fire Protection Costs</b>	<i>By ERU</i>	<b>\$ 4.47</b>	<b>\$ 4.47</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 708,558</b>	<b>11%</b>
<b>Total Revenue Requirement bf FF</b>						<b>\$ 6,554,869</b>	

Unit costs are primarily derived by simply dividing the amount by class by the factor used for allocation. For example, customer unit costs are developed by dividing all the customer costs by the number of customers. You would expect to see a uniform unit cost by customer class and you do. See \$5.49.

This is the step where more ART can be applied to achieve the results that are most appropriate to the goals and objectives of the District. For example, there are no customer unit costs for Fire Sprinklers and the unit cost for meters and services is at half the rate. These were changes made to the allocations to start phasing out these rates altogether. The costs not allocated to them are redistributed to the remaining customer classes.

Allocation of peak demand costs between meter capacity (MCE) and usage is especially significant. The unit costs for Peak Demand shows significant variation between customer classes – most notably with irrigation. More in usage gives the customer more control of their bill, more fixed gives the District more stability.

## A COS review involves the following seven steps:

1. Gather data and calculate base year revenues (*No of customers and ERUs and usage for a typical year – segregated by customer class*).
2. Determine the base year costs.
3. Determine the factors (*percentages*) for the allocation of infrastructure costs and operating costs to functions of service.

*Capacity (meters and services, base and peak demand)*

*Fire*

*Customers*

4. Allocate base year service costs to functions of service from step 3.
5. Allocate functions of service costs from step 4 to customer classes.
6. Develop unit costs from steps 1 and 5.

### **7. Combine unit costs into the final rates from step 6.**

Before bringing it together for the final results and the new rates. The assumptions and decision made so far will be reviewed. Following that, the final revenues by class and the shifts in recovery between customer classes will be summarized.



# Summarizing the Art

**Multi-Family is combined with Non-Residential for new a new Non-Single Family class**

The current Multi-Family class is combined with the Non-Residential class (*Commercial, Municipal and Fircrest*) to create a new class called Non-Single Family since they do not meet the criteria for a separate class.

**The current CIC rate is combined with the ERU rate**

The current rates used for the recovery of fire protection, CIC and ERU, are combined into a single ERU charge since two charges are redundant.

**Customers with very high ERUs and smaller meters are normalized**

There are a handful of customers with much higher ERUs than other customers with the same or smaller meters (*referred to as outliers*). To avoid impacting these very few customers too severely, all customers with 1" or smaller meters are limited to 20 ERU. 1 ½" meters to 30 ERUs. Customers with a 2" meters are limited to 40 ERUs.

**2018 usage is used for the COS analysis and going forward**

2018 usage is used for the cost of service analysis and for the forecast. Usage has been trending down, with 2019 going even lower. However, since the summer was so much cooler than usual in 2019, it is not used as a benchmark.



# Summarizing the Art

**Allocations to O&M for infrastructure matches the connection fees**

Service costs for operations and maintenance of infrastructure, plus the related debt service and capital transfers, are allocated to functions of service consistent with the connection fees. One exception is made for general plant, which is not allocated to the fire function for the rate analysis.

**Fire sprinkler cost allocations are reduced by 50% - 1<sup>st</sup> step to phase out**

Consistent with The District's policy to not charge for upsizing SF meters needed for fire sprinklers or charging connections fees for separate fire sprinkler meters, cost allocations to the fire sprinklers class is reduced by 50% as the first step to phase them out. To eliminate them all at once overburden other customers.

**More irrigation costs are recovered through the usage rate**

Meters are inconsistently sized for the irrigation customers. Many customers have far larger meters than they need. Therefore, the usage rate is increased by a greater percentage than the fixed rate to create more equity in the cost recovery.

**A lower block rate was reestablished for the Single Family class**

To give the very low end users more ability to reduce their bimonthly bill, a new lower cost first block was added back to the District's rate structure – 1 – 4 ccf.

# COS Revenue Shifts

Customer Classes	2019 BASE YEAR REVENUE (\$) WITH CURRENT RATES					6%	GRAND TOTAL (w FF)
	Meter Charges	CIC/ERU Charges	Total Fixed Charges	Volume Charges	TOTAL SERVICE REVENUE	Franchise Fees (FF)	
Total Single Family	\$ 2,415,026	\$ 359,277	\$ 2,774,303	\$ 1,924,324	\$ 4,698,626	\$ 281,918	\$ 4,980,544
Total Non-Single Family	\$ 487,974	\$ 269,779	\$ 757,753	\$ 877,455	\$ 1,635,208	\$ 98,112	\$ 1,733,320
Total Irrigation	\$ 53,313	\$ -	\$ 53,313	\$ 75,014	\$ 128,327	\$ 7,700	\$ 136,026
Total Fire Sprinkler Service	\$ 92,708	\$ -	\$ 92,708	\$ -	\$ 92,708	\$ 5,562	\$ 98,271
<b>TOTAL</b>	<b>\$ 3,049,022</b>	<b>\$ 629,055</b>	<b>\$ 3,678,077</b>	<b>\$ 2,876,792</b>	<b>\$ 6,554,869</b>	<b>\$ 393,292</b>	<b>\$ 6,948,161</b>

The current 2019 rates would recover service costs by the new customer classes as shown in the 1st table.

The new cost of service rates will recover the service costs as shown in the 2<sup>nd</sup> table.

Customer Classes	2019 BASE YEAR REVENUE (\$) WITH COS RATES					6%	GRAND TOTAL (w FF)	Change	Percent Difference	Class to Total Revenue
	Meter Charges	ERU Charges	Total Fixed Charges	Volume Charges	TOTAL SERVICE REVENUE	Franchise Fees (FF)				
Total Single Family	\$ 2,316,648	\$ 404,684	\$ 2,721,331	\$ 1,997,022	\$ 4,718,353	\$ 283,101	\$ 5,001,455	\$ 20,911	0.4%	72.0%
Total Non-Single Family	\$ 450,538	\$ 303,875	\$ 754,413	\$ 919,898	\$ 1,674,311	\$ 100,459	\$ 1,774,770	\$ 41,449	2.4%	25.5%
Total Irrigation	\$ 25,569	\$ -	\$ 25,569	\$ 86,120	\$ 111,689	\$ 6,701	\$ 118,390	\$ (17,636)	-13.0%	1.7%
Total Fire Sprinkler Service	\$ 50,515	\$ -	\$ 50,515	\$ -	\$ 50,515	\$ 3,031	\$ 53,546	\$ (44,724)	-45.5%	0.8%
<b>TOTAL</b>	<b>\$ 2,843,271</b>	<b>\$ 708,558</b>	<b>\$ 3,551,829</b>	<b>\$ 3,003,040</b>	<b>\$ 6,554,869</b>	<b>\$ 393,292</b>	<b>\$ 6,948,161</b>	<b>\$ (0)</b>	<b>0%</b>	<b>100%</b>
Change from Current Rates	\$ (205,751)	\$ 79,503	\$ (126,248)	\$ 126,248	\$ (0)	\$ (0)	\$ (0)			
Percent Change	-6.7%	12.6%	-3.4%	4.4%	0.0%	0.0%	0.0%			

Shifts in costs approximate \$60k moved from irrigation and sprinklers to SF and Non-SF. The large MFR customers are most affected due to both high ERUs and usage. However, the decrease in sprinklers mitigates the impacts to them.

The difference in the components shows the shift from fixed to volume charges, which was done to mitigate impacts to lower users and to create more equity among irrigation customers.

The ratio of fixed and volume revenues is lower than current rates but higher than established in 2012 – 52% - 48%.

Ratio of Fixed & Volume Revenue - COS

54% 46%

Ratio of Fixed & Volume Revenue - Current

56% 44%

# Revenue Requirement Increases

Projected Costs (Needs/Uses):	2020	2021	2022
Purchased Water and Power	\$ 1,630,372	\$ 1,741,600	\$ 1,858,300
Salaries and Benefits (net capitalization)	1,732,798	1,801,889	1,858,409
Administration and O&M	973,200	994,463	1,041,428
Taxes and Franchise Fees	798,315	830,067	863,228
Debt Service (net capitalization)	1,033,824	1,130,924	1,127,773
Capital Transfer	1,500,000	1,500,000	1,600,000
Vehicle Replacement Contribution	81,000	83,000	85,000
Transfer to Perservation Account	50,000	50,000	50,000
Additions to (Use of ) Reserves	849	(26,052)	(60,222)
<b>Total Projected Costs (Needs/Uses)</b>	<b>7,800,358</b>	<b>8,105,890</b>	<b>8,423,916</b>
Less Other Revenue ( <i>Interest, Late Fees, Antenna Rents, Hookup Fees</i> )	(574,271)	(590,759)	(608,180)
<b>Rate Revenues Required (Revenue Req)</b>	<b>\$ 7,226,087</b>	<b>\$ 7,515,131</b>	<b>\$ 7,815,736</b>
Less Revenues at Existing Rates	(6,948,161)	(7,226,087)	(7,515,131)
<b>Revenue Short Fall</b>	<b>\$ 277,926</b>	<b>\$ 289,044</b>	<b>\$ 300,605</b>
<b>% Rate Revenue Increase Needed</b>	<b>4.00%</b>	<b>4.00%</b>	<b>4.00%</b>

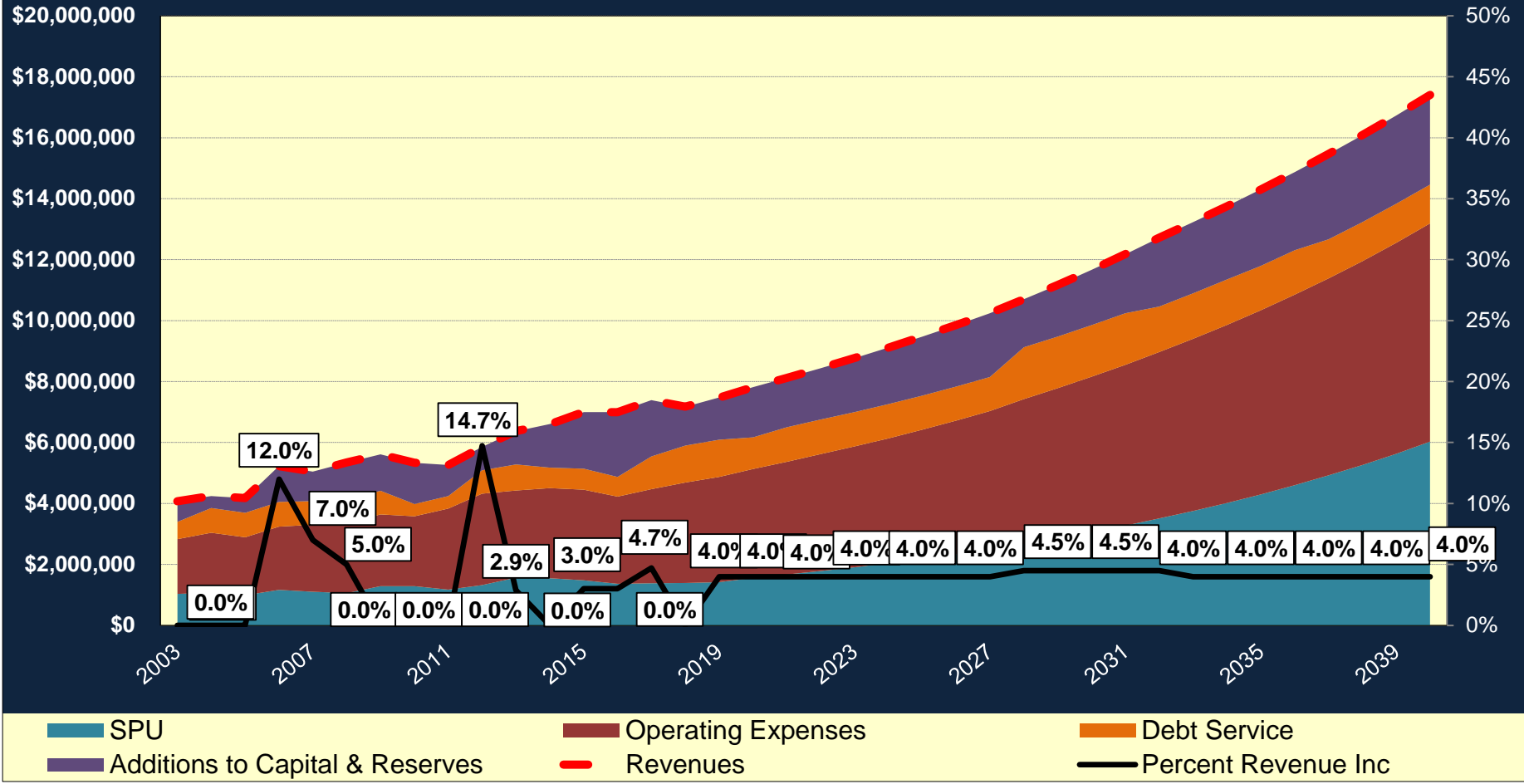
**NOTE: The costs shown include the few changes requested at the last budget presentation.**

The revenues at existing rates are the COS rate revenues plus franchise fees computed from the rate study.

Rate increases above "inflationary levels" are due to the forecasted 6-7% rate increases from SPU.

# Financial Forecast of Costs, Revenue and Rate Increases

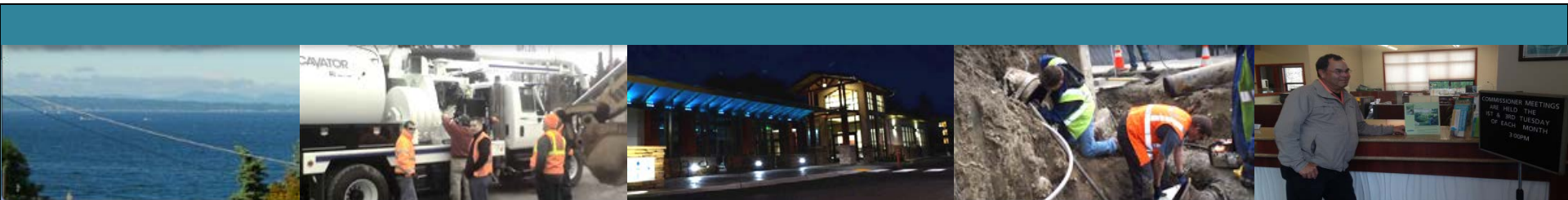
## NCWD- Forecast of Revenue and Costs 2003-2040



Rate increases are forecasted to stay at slightly above inflationary levels going forward. The "wild cards" are rate increases from SPU and unplanned for costs for operations and capital. The slight bump up around 2028-2032 is for higher debt service for a \$10 million bond issue to fund a new reservoir in 2028.

The final part of the presentation will show the final 2020 rates that include both the cost of service (COS) impacts and the across the board increase of **4%** that is needed to fully cover all the service costs for 2020 (*exclusive of franchise fees*).

These will be followed by sample bills showing the impacts on internal customers and a **comparison** of how the single family bills compare to **surrounding communities**.



# COS Review - Step 7

## 7. Combine unit costs into the final rates from step 6.

**Cost of Service Rates plus an across the board Increase of: 4%**

*These rates are exclusive of the franchise fees, which are added at the time of billing,*

Bi-Monthly Rates	Single Family Residential	Non-Single Family	Irrigation	Fire Sprinkler Service
------------------	---------------------------	-------------------	------------	------------------------

BI-MONTHLY BASE CHARGES	5/8 x 3/4"	\$ 51.47	\$ 51.47	\$ 44.58	\$ 7.36
	1"	\$ 95.35	\$ 95.35	\$ 78.13	\$ 10.30
	1 1/2"	\$ 164.57	\$ 164.57	\$ 130.13	\$ 13.24
	2"	\$ 256.75	\$ 256.75	\$ 201.65	\$ 21.33
	3"	\$ 578.57	\$ 578.57	\$ 468.37	\$ 80.92
	4"	\$ 850.70	\$ 850.70	\$ 678.51	\$ 102.99
	6"	\$ 1,586.99	\$ 1,586.99	\$ 1,242.62	\$ 154.48
	8"	\$ 2,464.65	\$ 2,464.65	\$ 1,913.66	\$ 213.33
Per ERU Charge	\$ 9.29	\$ 9.29			

VOLUME CHARGES	Bi-Monthly Volume Thresholds			
	Block 1	0 - 4 ccf	All Usage	All Usage
	Block 2	5 - 10 ccf	See next slide for comparison to the 2019 rates.	
	Block 3	11 - 24 ccf		
	Block 4	Over 24 ccf		
	Volume Rates per ccf			
	Block 1	\$ 2.54	\$ 4.43	\$ 7.70
	Block 2	\$ 3.99		
Block 3	\$ 5.45			
Block 4	\$ 6.90			

# COS Review - Step 7 *cont.*

Cost of Service Rates plus an across the board increase of: **4%** 2019 Rates

The current Multi-Family class is combined with the Non-Residential class for a new Non-Single Family class.

Rates are exclusive of the franchise fees, which are added at the time of billing

Bi-Monthly Rates	Single Family Residential	Non-Single Family	Irrigation	Fire Sprinkler Service	Single Family Residential	Multi-family Residential	Non-Residential	Irrigation	Fire Sprinkler Service
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The 5/8" meter rate is kept at the 2019 rate by shifting some of the recovery of costs to usage.

<b>BI-MONTHLY BASE CHARGES</b>	5/8 x 3/4"	\$ 51.47	\$ 51.47	\$ 44.58	\$ 7.36	\$ 51.47	\$ 51.47	\$ 51.47	\$ 72.04	
	1"	\$ 95.35	\$ 95.35	\$ 78.13	\$ 10.30	\$ 98.55	\$ 98.55	\$ 98.55	\$ 150.04	\$ 27.98
	1 1/2"	\$ 164.57	\$ 164.57	\$ 130.13	\$ 13.24	\$ 173.85	\$ 173.85	\$ 173.85	\$ 276.76	\$ 32.74
	2"	\$ 256.75	\$ 256.75	\$ 201.65	\$ 21.33	\$ 271.54	\$ 271.54	\$ 271.54	\$ 436.22	\$ 45.76
	3"	\$ 578.57	\$ 578.57	\$ 468.37	\$ 80.92		\$ 593.34	\$ 593.34	\$ 922.70	\$ 141.76
	4"	\$ 850.70	\$ 850.70	\$ 678.51	\$ 102.99		\$ 882.92	\$ 882.92	\$ 1,397.54	\$ 177.32
	6"	\$ 1,586.99	\$ 1,586.99	\$ 1,242.62	\$ 154.48		\$ 1,671.47	\$ 1,671.47	\$ 2,700.72	\$ 260.28
	8"	\$ 2,464.65	\$ 2,464.65	\$ 1,913.66	\$ 213.33		\$ -	\$ 2,612.98	\$ 4,259.78	\$ 355.08
	Per ERU Charge	\$ 9.29	\$ 9.29			\$ 7.93	\$ 7.93	\$ 7.93		

The higher ERU charge shows the shift in allocation of costs to fire protection. It would be even higher except the 2019 rates are a combination of ERU and CIC. The CIC charge was eliminated.

<b>VOLUME CHARGES</b>	Bi-Monthly Volume Threshold										
	Block 1	0 - 4 ccf	All Usage	All Usage		All Usage	All Usage	All Usage			
	Block 2	5 - 10 ccf	The first block for the 2019 single family rates was split into two pieces to recognize that the conservation usage pattern of the very low users should result in a disproportionately lower bill.			0 - 10 ccf					
	Block 3	11 - 24 ccf				11 - 24 ccf					
	Block 4	Over 24 ccf				Over 24 ccf					
	Vol										
Block 1	\$ 2.54	\$ 4.43	\$ 7.70		\$ -	\$ 3.82	\$ 4.53	\$ 6.45			
Block 2	\$ 3.99				\$ 3.12						
Block 3	\$ 5.45				\$ 4.79						
Block 4	\$ 6.90				\$ 6.45						

Multi-family was combined with non-residential generating a combined usage rate in 2020.

The irrigation usage rate is significantly higher to create more equity among irrigation customers.

## A COS review involves the following seven steps:

1. Gather data and calculate base year revenues (*No of customers and ERUs and usage for a typical year – segregated by customer class*).
2. Determine the base year costs.
3. Determine the factors (*percentages*) for the allocation of infrastructure costs and operating costs to functions of service.

*Capacity (meters and services, base and peak demand)*

**Fire**

**Customers**

4. Allocate base year service costs to functions of service from step 3.
5. Allocate functions of service costs from step 4 to customer classes.
6. Develop unit costs from steps 1 and 5.
7. Combine unit costs into the final rates from step 6.



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# Sample Bimonthly Bills

BILL COMPARISONS BY CUSTOMER TYPE				Meter Charge	CIC Charge	ERU Charge	Usage Charge	Franchise Fees	Annual Charges	Annual Change	Percent Change
<b>Single Family Customers</b>											
<b>Low Usage</b>	Bi-Monthly Usage Size	Winter	Summer								
2019 Charge	5/8"	4	4	\$ 309	\$ 26.82	\$ 20.76	\$ 74.88	\$ 26	\$ 457		
2020 Charge				\$ 309	\$ -	\$ 55.74	\$ 60.96	\$ 26	\$ 451	\$ (6)	-1.3%
<b>Typical Usage</b>	Bi-Monthly Usage Size	Winter	Summer								
2019 Charge	5/8"	10	16	\$ 309	\$ 26.82	\$ 20.76	\$ 244.68	\$ 36	\$ 637		
2020 Charge				\$ 309	\$ -	\$ 55.74	\$ 270.00	\$ 38	\$ 673	\$ 35	5.6%
<b>High Summer Usage</b>	Bi-Monthly Usage Size	Winter	Summer								
2019 Charge	5/8"	10	30	\$ 309	\$ 26.82	\$ 20.76	\$ 398.72	\$ 45	\$ 800		
2020 Charge				\$ 309	\$ -	\$ 55.74	\$ 440.00	\$ 48	\$ 853	\$ 52	6.5%

15% (1,100) of the District's customers have consistent usage at or below 4 ccf per bimonthly billing cycle. 4 ccf is just under 3,000 gallons. That is about 50 gallons a day, which is not very much when you consider a normal bathtub of water is 50 gallons. The new first block allows these customers to receive a lower rate for their conservation usage pattern. So, even though there was a cost of service increase in rates and a 4% increase across the board, their bills will go down in 2020.

Customers with higher usage will see total bills somewhat higher than the across the board increase of 4%.

# Sample Bimonthly Bills

BILL COMPARISONS BY CUSTOMER TYPE				Meter Charge	CIC Charge	ERU Charge	Usage Charge	Franchise Fees	Annual Charges	Annual Change	Percent Change
<b>Multi-Family Customers</b>											
<b>Small Meter Only</b>	Size	ERUs	Annual Usage								
2019 Charge	5/8"	2	66	\$ 309	\$ 20.76	\$ 26.82	\$ 252.12	\$ 37	\$ 645		
2020 Charge				\$ 309	\$ -	\$ 55.74	\$ 292.38	\$ 39	\$ 696	\$ 51	8.0%
<b>Medium Meter/Usage</b>											
2019 Charge	1"	24	1591	\$ 591	\$ 166	\$ 215	\$ 50	\$ 61	\$ 1,083		
2020 Charge				\$ 572	\$ -	\$ 446	\$ 49	\$ 64	\$ 1,131	\$ 48	4.4%
<b>Large w Sprinkler</b>											
2019 Meter Chg	3"	85	6245	\$ 3,560	\$ 1,765	\$ 2,280	\$ 23,856	\$ 1,888	\$ 33,348		
2019 Meter Chg	3"	80	6352	\$ 3,560	\$ 1,661	\$ 2,146	\$ 24,265	\$ 1,898	\$ 33,529		
2019 Sprinkler Chg	4"			\$ 1,064				\$ 64	\$ 1,128		
2019 Sprinkler Chg	4"			\$ 1,064				\$ 64	\$ 1,128		
TOTAL 2019				\$ 9,248	\$ 3,425	\$ 4,425	\$ 48,121	\$ 3,913	\$ 69,132		
2020 Meter Chg				\$ 3,472		\$ 4,738	\$ 27,665	\$ 2,153	\$ 38,028	\$ 4,680	14%
2020 Meter Chg				\$ 3,472		\$ 4,459	\$ 28,139	\$ 2,164	\$ 38,235	\$ 4,706	14%
2020 Sprinkler Chg				\$ 618				\$ 37	\$ 655	\$ (473)	-42%
2020 Sprinkler Chg				\$ 618				\$ 37	\$ 655	\$ (473)	-42%
TOTAL 2020				\$ 8,180	\$ -	\$ 9,197	\$ 55,805	\$ 4,391	\$ 77,572	\$ 8,440	12%

Multi-Family customers are the most impacted by the COS shifts. This is because that is where the most growth has occurred. They would have been even higher if they were left as a separate class. The customers with high ERUs and high usage are the most impacted. Note the mitigation from the lower sprinkler meter rate.

# Sample Bimonthly Bills

BILL COMPARISONS BY CUSTOMER TYPE				Meter Charge	CIC Charge	ERU Charge	Usage Charge	Franchise Fees	Annual Charges	Annual Change	Percent Change
<b>Commercial Customers</b>											
<b>Small - Meter Only</b>											
	Size	ERUs	Annual Usage								
2019 Charge	5/8"	2	119	\$ 309	\$ 42	\$ 54	\$ 539	\$ 57	\$ 1,000		
2020 Charge				\$ 309	\$ -	\$ 111	\$ 527	\$ 57	\$ 1,004	\$ 5	0.5%
<b>Medium Meter &amp; Usage</b>											
	Size	ERUs	Annual Usage								
2019 Charge	2"	27	518	\$ 1,629	\$ 561	\$ 724	\$ 2,347	\$ 316	\$ 5,576		
2020 Charge				\$ 1,541	\$ -	\$ 1,505	\$ 2,295	\$ 320	\$ 5,661	\$ 85	1.5%
<b>High ERU w Sprinkler</b>											
	Size	ERUs	Annual Usage								
2019 Meter Chg	5/8"	127	84	\$ 309	\$ 2,637	\$ 3,406	\$ 381	\$ 404	\$ 7,136		
2019 Sprinkler Chg	6"			\$ 1,562				\$ 94	\$ 1,655		
TOTAL 2019				\$ 1,871	\$ 2,637	\$ 3,406	\$ 381	\$ 498	\$ 8,791		
2020 Meter Chg		20		\$ 309		\$ 1,115	\$ 372	\$ 108	\$ 1,903	\$ (5,232)	-73%
2020 Sprinkler Chg				\$ 927				\$ 56	\$ 982	\$ (673)	-41%
TOTAL 2020				\$ 1,236	\$ -	\$ 1,115	\$ 372	\$ 163	\$ 2,886	\$ (5,905)	<b>-67%</b>
<b>High Usage w Sprinkler</b>											
	Size	ERUs	Annual Usage								
2019 Meter Chg	2"	39	11177	\$ 1,629	\$ 810	\$ 1,046	\$ 50,632	\$ 3,247	\$ 57,364		
2019 Sprinkler Chg	6"			\$ 1,562				\$ 94	\$ 1,655		
TOTAL 2019				\$ 3,191	\$ 810	\$ 1,046	\$ 50,632	\$ 3,341	\$ 59,019		
2020 Meter Chg				\$ 1,541		\$ 2,174	\$ 49,514	\$ 3,194	\$ 56,422	\$ (941)	-2%
2020 Sprinkler Chg				\$ 927				\$ 56	\$ 982	\$ (673)	-41%
TOTAL 2020				\$ 2,468	\$ -	\$ 2,174	\$ 49,514	\$ 3,249	\$ 57,405	\$ (1,614)	-3%

The COS impacts are favorable to most commercial customers because the lower meter and usage rates offset the higher ERU charges. The impact of limiting the ERU count for customers with 2" and smaller meters, has the most impact the new customer added in 2019.

# Sample Bimonthly Bills

BILL COMPARISONS BY CUSTOMER TYPE				Meter Charge	CIC Charge	ERU Charge	Usage Charge	Franchise Fees	Annual Charges	Annual Change	Percent Change
<b>Municipal Customers</b>											
<b>Small Meter Only</b>	Size	ERUs	Annual Usage								
2019 Charge	5/8"	1	66	\$ 309	\$ 21	\$ 27	\$ 299	\$ 39	\$ 695		
2020 Charge				\$ 309	\$ -	\$ 56	\$ 292	\$ 39	\$ 696	\$ 2	0.2%
<b>Medium Meter</b>	Size	ERUs	Annual Usage								
2019 Charge	2"	4	1460	\$ 1,629	\$ 83	\$ 107	\$ 6,614	\$ 506	\$ 8,939		
2020 Charge				\$ 1,541	\$ -	\$ 223	\$ 6,468	\$ 494	\$ 8,725	\$ (214)	-2.4%

Most municipal customers are favorably affected by the COS shifts for the same reason as commercial customers – both lower meter and usage rates are offsetting higher ERU rates. Since they have most of the District's irrigation meters, plus many separate fire meters, most municipal customers will see a reduction in their total combined bills in 2020.

The largest of the District's municipal customers is comprised of many different meters and varied amounts of usage. Consequently, the combined total for all their bills is shown in the table below. They will see a significant reduction.

TOTAL ANNUAL BILL COMPARISON FOR A LARGE MUNICIPAL ORGANIZATION	Potable Meters	Potable Usage	POTABLE TOTAL	Irrigation Meters	Irrigation Usage	IRR TOTAL	SPRINKLER TOTAL	CIC TOTAL	ERU TOTAL	Franchise Fees	ANNUAL TOTAL
2019 TOTAL REVENUE	\$ 31,460	\$ 17,418	\$ 48,878	\$ 22,573	\$ 14,686	\$ 37,259	\$ 17,056	\$ 16,131	\$ 20,839	\$ 8,336	\$ 148,499
2020 TOTAL REVENUE	\$ 30,352	\$ 17,033	\$ 47,385	\$ 10,980	\$ 17,530	\$ 28,510	\$ 9,992	\$ -	\$ 43,310	\$ 7,711	\$ 136,908
CHANGE	\$ (1,108)	\$ (385)	\$ (1,493)	\$ (11,593)	\$ 2,844	\$ (8,750)	\$ (7,064)	\$ (16,131)	\$ 22,471	\$ (625)	\$ (11,591)
PERCENT CHANGE	-4%	-2%	-3%	-51%	19%	-23%	-41%	-100%	108%	-7%	-7.8%

# Sample Bimonthly Bills

BILL COMPARISONS BY CUSTOMER TYPE					Meter Charge	CIC Charge	ERU Charge	Usage Charge	Franchise Fees	Annual Charges	Annual Change	Percent Change
<b>Religious Organizations:</b>												
<b>Meter Only</b>												
Organization 1	Code	Size	ERUs	Usage								
2019 Charge	458S	5/8"	3	107	\$ 309	\$ 62	\$ 80	\$ 485	\$ 56	\$ 992		
2020 Charge					\$ 309	\$ -	\$ 167	\$ 474	\$ 57	\$ 1,007	\$ 15	1.5%
Organization 7	Code	Size	ERUs	Usage								
2019 Charge	401S	1"	8	11	\$ 591	\$ 166	\$ 215	\$ 50	\$ 61	\$ 1,083		
2020 Charge					\$ 572	\$ -	\$ 446	\$ 49	\$ 64	\$ 1,131	\$ 48	4.4%
<b>With Sprinklers &amp; or IRR</b>												
Organization 14	Code	Size	ERUs	Usage								
2019 Meter Chg	402S	2"	65	592	\$ 1,629	\$ 1,349	\$ 1,743	\$ 2,682	\$ 444	\$ 7,848		
2019 IRR Chg	258			30	\$ 432			\$ 194	\$ 38	\$ 663		
TOTAL 2019					\$ 2,061	\$ 1,349	\$ 1,743	\$ 2,875	\$ 482	\$ 8,511		
2020 Meter Chg			40		\$ 1,541		\$ 2,230	\$ 2,623	\$ 384	\$ 6,776	\$ (1,072)	-14%
2020 IRR Chg					\$ 267			\$ 231	\$ 30	\$ 528	\$ (135)	-20%
TOTAL 2020					\$ 1,808	\$ -	\$ 2,230	\$ 2,854	\$ 413	\$ 7,305	\$ (1,206)	-14%
Organization 18	Code	Size	ERUs	Usage								
2019 Meter Chg	401S	1"	1	104	\$ 591	\$ 21	\$ 27	\$ 471	\$ 67	\$ 1,177		
2019 Sprinkler Chg	F40S	4"			\$ 1,064				\$ 38	\$ 1,128		
2019 IRR Chg	258			114	\$ 432			\$ 735	\$ 70	\$ 1,238		
TOTAL 2019					\$ 2,087	\$ 21	\$ 27	\$ 1,206	\$ 174	\$ 3,542		
2020 Meter Chg					\$ 572		\$ 56	\$ 461	\$ 65	\$ 1,154	\$ (23)	-1.9%
2020 Sprinkler Chg					\$ -				\$ 37	\$ 655	\$ (473)	-42%
2020 IRR Chg					\$ 267			\$ 878	\$ 69	\$ 1,214	\$ (24)	-2%
TOTAL 2020					\$ 840	\$ -	\$ 56	\$ 1,339	\$ 171	\$ 3,023	\$ (519)	-15%

Religious organization are mostly down because of lower meter rates and fire sprinkler rates. The total for all is shown below.

**2019 TOTAL REVENUE**

\$ 24,465 \$ 7,743 \$ 10,004 \$ 26,937 \$ 4,141 \$ 73,619

**2020 TOTAL REVENUE**

\$ 20,935 \$ - \$ 17,725 \$ 26,202 \$ 4,056 \$ 69,806

**CHANGE**

\$ (3,530) \$ (7,743) \$ 7,721 \$ (735) \$ (84) **\$ (3,813) -5.2%**



# Bi-Monthly Bill Comparisons

2020 - Budget

DISTRICT/CITY	Winter Usage - 11 CCF			Summer Usage - 20 CCF			Annualized
	Base Rate	Usage	Total	Base Rate	Usage	Total	Total
2019							
WD 119	\$ 90.00	\$ 32.98	\$ 122.98	\$ 90.00	\$ 105.51	\$ 195.51	\$ 147.16
Seattle Public Utilities-Shoreline & LFP	\$ 41.60	\$ 70.29	\$ 111.89	\$ 41.60	\$ 166.85	\$ 208.45	\$ 144.08
City of Duvall	\$ 54.90	\$ 55.53	\$ 110.43	\$ 54.90	\$ 134.64	\$ 189.54	\$ 136.80
Seattle Public Utilities-Inside Seattle	\$ 34.30	\$ 57.97	\$ 92.27	\$ 34.30	\$ 137.62	\$ 171.92	\$ 118.82
City of Bellevue	\$ 53.11	\$ 45.78	\$ 98.90	\$ 53.11	\$ 98.34	\$ 151.46	\$ 116.42
North City Water District	\$ 62.96	\$ 38.18	\$ 101.14	\$ 62.96	\$ 83.90	\$ 146.86	\$ 116.38
Skyway Water & Sewer District	\$ 40.02	\$ 52.41	\$ 92.43	\$ 40.02	\$ 114.76	\$ 154.78	\$ 113.21
Woodinville Water District	\$ 43.80	\$ 45.64	\$ 89.44	\$ 43.80	\$ 113.91	\$ 157.71	\$ 112.20
Lake Forest Park Water District	\$ 61.30	\$ 39.90	\$ 101.20	\$ 61.30	\$ 72.55	\$ 133.85	\$ 112.08
City of Mercer Island	\$ 36.48	\$ 50.60	\$ 87.07	\$ 36.48	\$ 116.46	\$ 152.94	\$ 109.03
City of Kirkland	\$ 47.55	\$ 39.92	\$ 87.47	\$ 47.55	\$ 91.25	\$ 138.80	\$ 104.58
Coal Creek	\$ 43.91	\$ 40.90	\$ 84.81	\$ 43.91	\$ 83.20	\$ 127.11	\$ 98.91
Sammamish Plateau	\$ 61.74	\$ 22.22	\$ 83.96	\$ 61.74	\$ 43.92	\$ 105.66	\$ 91.19
Highline Water District	\$ 32.12	\$ 43.49	\$ 75.61	\$ 32.12	\$ 90.05	\$ 122.17	\$ 91.13
WD 90	\$ 55.85	\$ 19.80	\$ 75.65	\$ 55.85	\$ 63.75	\$ 119.60	\$ 90.30
Northshore Utility District	\$ 32.01	\$ 41.29	\$ 73.30	\$ 32.01	\$ 83.74	\$ 115.75	\$ 87.45
City of Renton	\$ 37.59	\$ 33.16	\$ 70.75	\$ 37.59	\$ 77.70	\$ 115.29	\$ 85.60
City of Bothell	\$ 31.81	\$ 35.82	\$ 67.63	\$ 31.81	\$ 77.14	\$ 108.95	\$ 81.41
Olympic View Water & Sewer District	\$ 40.38	\$ 24.20	\$ 64.58	\$ 40.38	\$ 49.00	\$ 89.38	\$ 72.85
2020	Bills increase by more than 4% due to the new lower block rate shifting costs to higher blocks. Plus, a 0.4% COS impact.						
Seattle Public Utilities-Shoreline & LFP	\$ 44.80	\$ 72.05	\$ 116.85	\$ 44.80	\$ 200.38	\$ 245.18	\$ 159.63
City of Kirkland (assumes a 4% inc)	\$ 49.45	\$ 53.38	\$ 102.83	\$ 49.45	\$ 121.66	\$ 171.12	\$ 125.60
North City Water District	\$ 64.41	\$ 41.92	\$ 106.33	\$ 64.41	\$ 93.94	\$ 158.35	\$ 123.67
Seattle Public Utilities-Inside Seattle	\$ 36.90	\$ 59.40	\$ 96.30	\$ 36.90	\$ 140.53	\$ 177.43	\$ 123.34
Woodinville Water District	\$ 45.10	\$ 57.43	\$ 102.53	\$ 45.10	\$ 117.14	\$ 162.24	\$ 122.43
City of Bellevue (assumes a 4% inc)	\$ 55.23	\$ 47.67	\$ 102.91	\$ 55.23	\$ 102.36	\$ 157.59	\$ 121.14

**End**

