

## 2016 Connection Charge Update

### Presentation to the Board of Commissioners

### April 8, 2016



### Legal Framework for Connection Charges For Special Purpose Districts

#### RCW 57.08.005 Powers.

(10) To fix rates and charges for water, sewer, and drain service supplied and to charge property owners seeking to connect to the district's systems, as a condition to granting the right to so connect, in addition to the <u>cost of the connection</u>, such reasonable connection charge as the board of commissioners shall determine to be proper in order that those <u>property owners shall bear their equitable share of the cost of the system</u>. For the purposes of calculating a connection charge, the board of commissioners shall determine the pro rata share of the <u>cost of existing facilities</u> and <u>facilities planned for construction within the next ten years and contained in an adopted comprehensive plan and other costs borne by the district</u> which are directly attributable to the improvements required by property owners seeking to connect to the system. <u>The cost of existing facilities shall not include those portions of the system which have been donated or which have been paid for by grants</u>.

The connection charge <u>may include interest charges</u> applied from the date of construction of the system until the connection, or <u>for a</u> <u>period of ten years</u>, whichever is shorter, at a rate commensurate with the rate of interest applicable to the district at the time of construction or major rehabilitation of the system, or at the time of installation of the lines to which the property owner is seeking to connect...

...Revenues from connection charges excluding permit fees are to be considered payments in aid of construction as defined by department of revenue rule. Rates or charges for on-site inspection and maintenance services may not be imposed under this chapter on the development, construction, or reconstruction of property.



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# Connection Charge

## **General Facilities Charge (GFC)**

The two names have been coined from two different perspectives:

- It is the new customer's or developer's cost to connect
- It is based on the District's cost of general facilities

## Underlying Assumptions for Connection Charge

- Existing system has excess capacity to serve growth and existing customers should be repaid for this excess capacity from growth
- 2) Accommodating growth requires new infrastructure to be built and growth should pay for that new infrastructure

## **Computational Methods**

### Buy-in Plus Growth Method

- Treats new customers as distinct from existing customers
- Assumes all planned capacity increasing costs should be paid by new

**customers** <u>only</u> - **growth pays for growth** (Note the current District policy is for growth to pay for growth exclusively, unless there is an explicit benefit to existing customers, when a developer proposes an area of new construction through a Developer Extension. This policy is unaffected by the method used to compute the connection charges.)

### Average Cost Method

- Recognizes that all general facilities include components that serve both existing and future customers
- Views the system as a whole serving all existing and planned customers growth still pays for growth just not exclusively

#### Policy Decision 1 – Should the District use a Buy-in Plus Growth or Average Cost method?

When a utility is significantly "built out" like North City WD, new capital projects are generally <u>not</u> needed to expand capacity to accommodate growth, rather they are to needed to replace or upgrade existing infrastructure to maintain a consistent level of service (e.g. upgrades to an aging pump station) or to meet a changing regulatory requirements (e.g. upsizing of 6-inch mains to 8-inch and 12-inch mains to meet fire flow requirements). For this reason an Average Cost Method is the recommended method for the current update to the District's Connection Charge.

## An Equitable Charge

#### Some History:

- In response to the directive in RCW 57.08.005 to "charge property owners seeking to connect to the district's systems, as a condition to granting the right to so connect, in addition to the cost of the connection, such reasonable connection charge as the board of commissioners shall determine to be proper in order that those property owners shall bear their equitable share of the cost of the system", a new and more equitable approach was first developed by the District in 2007.
- The old method, where connection charges were based on meter size, was no longer fair to all our customers because it presumed that the correlation between a large meter and a large building was adequate enough for recovering all our facility costs in a pro rata or fair manner from new customers. (It only did suffice for decades because the investment in fire suppression infrastructure was relatively small and therefore was not significant enough to require a more precise measure to achieve complete fairness.)
- However, the regulatory environment for providing fire suppression had caused the investment in fire suppression infrastructure to grown steadily more expensive over several decades.
- By 2007 the tipping point had been reached and it was time to consider a more equitable basis for the connection charge because buildings with a large foot print and a low need for water consumption (e.g. large box stores, parking facilities, storage buildings, schools, churches, etc.) were not paying their pro-rata or fair share and the amount was no longer insignificant!
- Since the higher cost of fire suppression was driving the need for change, the first place to look for a new basis was at what was driving the need to continually update the District's system to meet these changing requirements. It was clear the single largest variable considered when determining the fire flow requirements (and therefore the size of our mains) is the square footage of the building being served not the size of the meter for water consumption.
- Therefore in 2007 the District determined that square footages (as expressed in an equivalent residential units or ERUs of 840 sq ft =1 ERU), would be a more fair basis for the connection charge.
- Now, with the 2016 update of the connection charge, the District will make another change to develop an even more equitable charge by having two different bases for the charge meter size for capacity (personal water use) costs and square footage for fire suppression costs. This will also align the connection charge methodology with the method used to determine the cost of service rates for the District.

### **Connection Charge Elements**



Connection Charge Per Meter Equivalent (ME) The District's elements start with Capacity Costs. Prior to 2007, the District did not segregate costs between capacity and fire.

Since the District is in the forefront of developing connection charges based on segregating costs between capacity and fire, it is likely most other utilities would do this exact same calculation but for total costs only.

### **Connection Charge Elements**





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To begin the discussion we will look at total existing facilities and construction-inprogress and how they are allocated between the Capacity and Fire **Suppression functions.** 



#### **CONNECTION CHARGES - 2016 UPDATE**

Calculation of Connection Fees

CAPACITY FIRE SUPPRESSION

	CALCULATION AND ALLOCATION COMPONENTS	ALLOCABLE COSTS	All Customer Capacity Cho	Total Fire Alloc	Low Density (SFR) Fire Cha	High Density Fire Cha
ι.	ALLOCABLE COSTS - EXISTING FACILITIES: Utility Plant-in-Service at 12/31/2015 plus: Construction-in-Progress Total Allocable Plant bif Adjustments Less: Construction: in Aid of Construction (CIAC)	\$ 42, 123, 323 4, 514, 984 46, 638, 307 (1, 455, 830	\$ 25,314,326 2,771,239 28,085,565 (905,430)	\$ 16,808,997 <u>1,743,745</u> <b>18,552,743</b> (560,399)		
	less: Expended Replacements in 10-Year CIP plus: Accum. Interest on Existing Plant (Excluding Int. on Future Replc.) Total Allocable Plant bif Net Outstanding Debt Allocation to Capacity and Fire Plant (per Allocable Plant 2015) less: Debt Outstanding net of Cash Balances Debt Outstanding - 12/31/15 9,709,907 Cash Balances - 2015 (4.266,328) Maximum Zero or Net Debt 5,443,578 TOTAL ALLOCABLE COSTS - EXISTING FACILITIES	(1-40,63,6) (48,880) <u>13,273,199</u> 58,396,798 ( <u>5,443,578)</u> \$ 52,953,219	(303,430) (30,192) <u>7,699,934</u> <b>34,849,876</b> 60% ( <u>3,248,603</u> ) \$ <b>31,601,272</b>	(18,687) (18,687) 5,573,266 23,546,922 40% (2,194,975) \$ 21,351,947	\$ 7,528,649 35.3%	\$ <b>13,823,298</b> 64.7%
	ALLOCABLE COSTS - FUTURE FACILITIES: Future Capital Requirements (10 Year CIP 2016-2025) less: Expected Contributions in Aid of Construction (CIAC)	\$ 16,448,903	\$ 9,944,731 	\$ 6,504,172		
	Total Allocable Plant bif Net Outstanding Debt         Allocation to Capacity and Fire Plant (per Allocable CIP 2016 2025)         less: Debt Outstanding net of Applicable Cash Balances         Debt Outstanding for CIP - 1281/25       6,000,594         Cash Balances Allocto CIP Debt       (4,809,745)         Maximum Zero or Net Debt       1,190,848         TOTAL ALLOCABLE COSTS - FUTURE FACILITIES	16,448,903 (1.190.848) (15,258,055	9,944,731 60% 	6,504,172 40% (470.881) 6,033,291	1,926,062	4,107,229
III.	TOTAL ALLOCABLE COSTS (1. + II.)	\$68,211,274	\$40,826,036	\$27,385,238	31.9% <b>\$9,454,711</b> 34.5%	68.1% <b>\$17,930,527</b> 65.5%
IV.	METER EQUIV (ME) ALLOCATION FOR BASE CAPACITY COSTS: Total Low Density (SFR) Meter Equivalents (MEs) Total High Density (Non-SFR) Weter Equivalents (MEs) Total Existing Meter Equivalents (MEs) Growth in MEs During Planning Period - Low Density Growth in MEs During Planning Period - High Density Total Growth Total Projected Capacity in Meter Equivalents (ME) BASE CAPACITY CHARGE PER ME FOR ALL CUSTOMERS		7.760 2.328 10,088 77 303 379 10,468			
VI.	METER ALLOCATION FOR FIRE COSTS - LOW DENSITY (SFR): * Low Density (SFR) Meters 12/31/2015 Growth in Meters During Planning Period - Low Density Total Projected Low Denisty (SFR) Meters	Exisitng Future	\$3,019 \$881		7,562 <u>75</u> 7,637	
VII.	FIRE CHARGE PER METER FOR LOW DENSITY CUSTOMERS (III. / VI.)			Exisitng Future	\$1,238 / Meter \$986 \$252	
VIII.	SQUARE FOOT ALLOCATION FOR FIRE COSTS - HIGH DENSITY: Total High Density (Non-SFR) Square Footage 12/31/2015 Growth in Sq Ft During Planning Period - High Density Total Projected Square Footage for High Density Customers					4,763,646 <u>983,759</u> <b>5,747,405</b>
IX.	FIRE CHARGE PER SQ FT FOR HIGH DENSITY CUSTOMERS (iii. / Viii.)				Exisitng Future	\$3.12 / SQ FT \$2.41 \$0.71
• Met	ers exclude irrigation and fire meters					

TOTAL



		CAPACITY	FIRE SUPPRESSION	
CALCULATION & ALLOCATION COMPONENTS	COSTS	All Customer	Total	
	00010	Capacity Chg	Fire Alloc	
I. ALLOCABLE COSTS - EXISTING FACILITIES:				
Utility Plant-in-Service at 12/31/2015	\$ 42,123,323	\$ 25,314,326	\$ 16,808,997	
plus: Construction-in-Progress	4,514,984	2,771,239	1,743,745	
Total Allocable Plant b/f Adjustments	46,638,307	28,085,565	18,552,743	



TOTAL COSTS
Combined Capacity and Fire Costs
Existing Facilities
Plant in Service 12/31/2015
Construction in Progress
Existing Facilities b/f Adj.
Less: CIAC
Less: Replacements
Plus: Accumulated Interest
Less: Net Debt Outstanding
Net Existing Facilities

CALCULATION & ALLOCATION COMPONENTS	TOTAL ALLOCABLE COSTS
I. ALLOCABLE COSTS - EXISTING FACILITIES:	
Utility Plant-in-Service at 12/31/2015	\$ 42,123,323
plus: Construction-in-Progress	4,514,984
Total Allocable Plant b/f Adjustments	46,638,307

The Existing Facility costs are the un-depreciated historical cost of assets and come right off the draft 2015 financial statements – for both the Plant in Service and the Construction-in-Progress.

The next step is to allocate costs between capacity and fire plant, which involves certain policy level decisions. The next slides will cover this.

### **Closer Look at the Costs** The Allocation of Costs between Capacity and Fire 1) Fire Suppression Costs:

- Costs to upsize mains above 3-inches to provide water through fire hydrants to meet fire flow requirements as specified in the International Fire Code (there are a few exceptions where pipe larger than 3-inches is needed for fire sprinkler systems or for extra capacity needs – these are classified under capacity)
- A portion of the costs related to the reservoirs (water tanks) used or available for fire suppression
- All fire hydrant costs

### 2) Capacity Costs:

All costs related to providing customers the ability / capacity to receive water for personal or business use (drinking, bathing, laundry, irrigation, pools, fire sprinklers, etc.). In other words, everything that is not expressly designated for fire protection.

#### Policy Decision 2 – Should the District assume all pipes above 3inches have been upsized for fire flow?

When the District's system was first built in the 1930's all of the pipe installed was 2-3-inches since that was the size required to provide the water needed for personal use. Only when the fire flow requirements put forth in the International Fire Code in the 1960's, did the District need to replace its pipe with larger sized pipe. Therefore it is recommended the District consider all pipe above 3-inches to have been upsized for fire.

#### The Allocation of Pipe Costs between Capacity and Fire

PIPE UPSIZING FOR FIRE PROTECTION - Calculation of Percentage used to Allocate Total T&D Costs between Capacity and Fire - and between Low & High Density Cusomters

Diameter (Inch)	Pipe in 2015	The total feet of pipe in the system is just under 500,000 lineal feet of pipe or
< 4	3,598	close to 100 miles of pipe.
4 - Capacity	1,565	With only minor exceptions, nearly all the pipe in the system has been replaced
4 - Fire	44,417	requirements defined in the International Fire Code. In other words, if the
6 - Capacity	500	required fire flows could have been met with the 2 and 3-inch pipes installed in
6 - Fire	260,261	the 1930's and 1940's, the pipes would not have been replaced with larger pipes
		as that size pipe was entirely adequate to meet the personal consumption needs
8 - Capacity	150	of the customers of the District. And, it remains that way to this day.
8 - Fire	98,314	The most significant amount of replacement occurred in 1966 when nearly all of
10	10,995	the pipe was replaced with 4-inch or 6-inch pipe, which was needed at the time to
12	77,261	meet the fire flow requirements of 500 gpm. The pipe needed to be replaced due to line failures but it was the need for fire flows that drove the larger sized pipe
16	1,823	actually installed.
20	508	Subsequent to 1966, much of the 6-inch and 4-inch nine was replaced with 8-inch
	499,392	12-inch and 16-inch pipe to meet the fire flow requirements in residential areas to

meet 1,000 gpm, and the commercial areas requiring flows of 3,000 and 3,500

gpm, respectively.

### **Closer Look at the Costs** The Allocation of Pipe Costs between Capacity and Fire

PIPE UPSIZING FOR FIRE PROTECTION - Calculation of Percentage used to Allocate Total T&D Costs between Capacity and Fire - and between Low & High Density Cusomters

		1	
Diameter (Inch)	Total Feet of Pipe in 2015	Current Direct Costs - per ft	Because virtually all District pipe has been upsized (and sometimes repeatedly) to meet fire flow requirements, this means there is no longer any way to directly tabulate the costs invested for
< 4	3,598	\$ 25	capacity related functions only (personal use for drinking, laundry, irrigation, fire sprinklers, etc).
4 - Capacity	1,565	\$ 42	Since this is the case for most utilities, some would argue that all pipe costs should therefore be recovered as a fire related function. However, the majority opinion is that even if the pipes were upsized to meet fire flow requirements, there is still an embedded capacity related function in the
4 - Fire	44,417	\$ 42	pipes and a portion of the costs should be allocated to the capacity function.
6 - Capacity	500	\$ 30	A common method used for an allocation between capacity and fire is to develop an allocation percentage based on the current value of the pipe-only costs. This means nothing is added for
6 - Fire	260,261	\$ 30	the design, engineering, trenching, District labor, etc., as these costs can vary significantly by project. Direct pipe costs as of 12/31/2015 were used as the basis of the current charge.
8 - Capacity	150	\$ 42	
8 - Fire	98,314	\$ 42	Policy Decision 3 – Should the District assume that there is an embedded cost for capacity within the pipes that have been
10	10,995	\$ 55	upsized to meet fire flow requirements?
12	77,261	\$ 70	Since the water is provided for both fire suppression and the capacity for personal
16	1,823	\$ 101	cost for capacity even though it can not be computed directly.
20	508	\$ 132	
	499,392		Policy Decision 4 – Should an estimate of indirect cost be included in the current pipe costs?

Pipe costs were obtained from HD Fowler. Note that the 6" pipe is less than the 4" pipe due to demand.

Given the variability and lack of verifiability of indirect costs, adding an estimated amount to the direct pipe costs would not give a better allocation between capacity and fire so it is recommended that the District use direct pipe costs only.

### **Closer Look at the Costs** The Allocation of Pipe Costs between Capacity and Fire

PIPE UPSIZING FOR FIRE PROTECTION - Calculation of Percentage used to Allocate Total T&D Costs between Capacity and Fire - and between Low & High Density Cusomters

Diameter (Inch)	Total Feet of Pipe in 2015	Current Direct Costs - per ft	Cost of Pipe < 4"	Cost Increment 4" and >	Total Pipe Value in 2015	Base Pipe Inflat Value in 2015	Total Upsizing Value	
< 4	3,598	\$ 25	\$ 25		\$ 89,950	\$ 89,950		F t
4 - Capacity	1,565	\$ 42	\$ 25	\$ 17	65,730	39,125	26,605	K
4 - Fire	44,417	\$ 42	\$ 25	\$ 17	1,865,514	1,110,425	755,089	ŧ
6 - Capacity	500	\$ 30	\$ 25	\$5	12,500	12,500		٦ r
6 - Fire	260,261	\$ 30	\$ 25	\$5	7,807,830	6,506,525	1,301,305	t t
8 - Capacity	150	\$ 42	\$ 25	\$ 17	3,750	3,750		i
8 - Fire	98,314	\$ 42	\$ 25	\$ 17	4,129,188	2,457,850	1,671,338	e
10	10,995	\$ 55	\$ 25	\$ 30	604,725	274,875	329,850	4
12	77,261	\$ 70	\$ 25	\$ 45	5,408,270	1,931,525	3,476,745	K
16	1,823	\$ 101	\$ 25	\$ 76	184,123	45,575	138,548	
20	508	\$ 132	\$ 25	\$ 107	67,056	12,700	54,356	
	499,392	•			\$ 20,238,636	\$ 12,484,800	\$ 7,753,836	0

Please note: these are not the historical cost of pipes contained in the District's schedule of Fixed Assets – these are current values used to develop a fair, yet simple, way to allocate the historical cost of pipes between capacity and fire. The next step in the allocation process is to compute the total cost of pipes for the size of pipe that would be needed to provide water for capacity uses only, with the balance going to fire.

This is somewhat of a policy level decision but the most arguable size is the size of pipe initially install in the 1930's before fire suppression became an ever increasing requirement of the District. At that time all of the pipe was under 4-unches. Some pipes were as small as 1 and 2-inches.

In 2015 the value of pipe under 4-inches is \$25 in current dollars (4<sup>th</sup> column). The increment above this amount is allocated to the portion of the pipe upsized for fire flow.

#### The Allocation of Pipe Costs between Capacity and Fire

PIPE UPSIZING FOR FIRE PROTECTION - Calculation of Percentage used to Allocate Total T&D Costs between Capacity and Fire - and between Low & High Density Cusomters

Diameter (Inch)	Total Feet of Pipe in 2015	Current Direct Costs - per ft	Cost of Pipe < 4"	Cost Increment 4" and >	Total Pipe Value in 2015	Base Pipe Inflat Value in 2015	Total Upsizing Value	Upsizing Value - Low Density	Upsizing Value High Density Increment
< 4	3,598	\$ 25	\$ 25		\$ 89,950	\$ 89,950		\$-	\$-
4 - Capacity	1,565	\$ 42	\$ 25	\$ 17	65,730	39,125	26,605		
4 - Fire	44,417	\$ 42	\$ 25	\$ 17	1,865,514	1,110,425	755,089	755,089	
6 - Capacity	500	\$ 30	\$ 25	\$5	12,500	12,500		-	
6 - Fire	260,261	\$ 30	\$ 25	\$5	7,807,830	6,506,525	1,301,305	1,301,305	
8 - Capacity	150	\$ 42	\$ 25	\$ 17	3,750	3,750		-	
8 - Fire	98,314	\$ 42	\$ 25	\$ 17	4,129,188	2,457,850	1,671,338	1,671,338	
10	10,995	\$ 55	\$ 25	\$ 30	604,725	274,875	329,850		329,850
12	77,261	\$ 70	\$ 25	\$ 45	5,408,270	1,931,525	3,476,745		3,476,745
16	1,823	\$ 101	\$ 25	\$ 76	184,123	45,575	138,548		138,548
20	508	\$ 132	\$ 25	\$ 107	67,056	12,700	54,356		54,356
	499,392				\$ 20,238,636	\$ 12,484,800	\$ 7,753,836	\$ 3,727,732	\$ 3,999,499

The total value assigned to the upsizing of pipes to meet fire flow requirements is further segregated by low density (8" and under for 1,000 gpm) and for the high density increment (over 8" for 3,000-3,500 gpm).

#### The Allocation of Pipe Costs between Capacity and Fire

PIPE UPSIZING FOR FIRE PROTECTION - Calculation of Percentage used to Allocate Total T&D Costs between Capacity and Fire - and between Low & High Density Cusomters

Diameter (Inch)	Total Feet of Pipe in 2015	Current Direct Costs - per ft	Cost of Pipe < 4"	Cost Increment 4" and >	Total Pipe Value in 2015	Base Pipe Inflat Value in 2015	Total Upsizing Value	Upsizing Value - Low Density	Upsizing Value High Density Increment
< 4	3,598	\$ 25	\$ 25		\$ 89,950	\$ 89,950		\$-	\$-
4 - Capacity	1,565	\$ 42	\$ 25	\$ 17	65,730	39,125	26,605		
4 - Fire	44,417	\$ 42	\$ 25	\$ 17	1,865,514	1,110,425	755,089	755,089	
6 - Capacity	500	\$ 30	\$ 25	\$5	12,500	12,500		-	
6 - Fire	260,261	\$ 30	\$ 25	\$5	7,807,830	6,506,525	1,301,305	1,301,305	
8 - Capacity	150	\$ 42	\$ 25	\$ 17	3,750	3,750		-	
8 - Fire	98,314	\$ 42	\$ 25	\$ 17	4,129,188	2,457,850	1,671,338	1,671,338	
10	10,995	\$ 55	\$ 25	\$ 30	604,725	274,875	329,850		329,850
12	77,261	\$ 70	\$ 25	\$ 45	5,408,270	1,931,525	3,476,745		3,476,745
16	1,823	\$ 101	\$ 25	\$ 76	184,123	45,575	138,548		138,548
20	508	\$ 132	\$ 25	\$ 107	67,056	12,700	54,356		54,356
	499,392				\$ 20,238,636	\$ 12,484,800	\$ 7,753,836	\$ 3,727,732	\$ 3,999,499
TOTAL ALLOCATION BETWEEN CAPACITY AND FIRE - AND LOW AND HIGH DENSITY					100%	62%	38%	48%	52%

The final results show that a fair estimate of how much the District has invested in upsizing of mains to provide fire suppression is 38% of total costs, with the balance of 62% spent to provide the water capacity needed to deliver water for personal use (drinking, laundry, irr, etc).

#### The Allocation of Pipe Costs between Capacity and Fire

PIPE UPSIZING FOR FIRE PROTECTION - Calculation of Percentage used to Allocate Total T&D Costs between Capacity and Fire - and between Low & High Density Cusomters

Diameter (Inch)	Total Feet of Pipe in 2015	Current Direct Costs - per ft	Cost of Pipe < 4"	Cost Increment 4" and >	Total Pipe Value in 2015	Base Pipe Inflat Value in 2015	Total Upsizing Value	Upsizing Value - Low Density	Upsizing Value High Density Increment
< 4	3,598	\$ 25	\$ 25		\$ 89,950	\$ 89,950		\$-	\$-
4 - Capacity	1,565	\$ 42	\$ 25	\$ 17	65,730	39,125	26,605		
4 - Fire	44,417	\$ 42	\$ 25	\$ 17	1,865,514	1,110,425	755,089	755,089	
6 - Capacity	500	\$ 30	\$ 25	\$5	12,500	12,500		-	
6 - Fire	260,261	\$ 30	\$ 25	\$5	7,807,830	6,506,525	1,301,305	1,301,305	
8 - Capacity	150	\$ 42	\$ 25	\$ 17	3,750	3,750		-	
8 - Fire	98,314	\$ 42	\$ 25	\$ 17	4,129,188	2,457,850	1,671,338	1,671,338	
10	10,995	\$ 55	\$ 25	\$ 30	604,725	274,875	329,850		329,850
12	77,261	\$ 70	\$ 25	\$ 45	5,408,270	1,931,525	3,476,745		3,476,745
16	1,823	\$ 101	\$ 25	\$ 76	184,123	45,575	138,548		138,548
20	508	\$ 132	\$ 25	\$ 107	67,056	12,700	54,356		54,356
	499,392				\$ 20,238,636	\$ 12,484,800	\$ 7,753,836	\$ 3,727,732	\$ 3,999,499
TOTAL ALLOCAT	ION BETWEEN C	APACITY AND FIF	RE - AND LOW AN	D HIGH DENSITY	100%	62%	38%	48%	52%

The 38% of upsizing costs is further segregated between low density (8" & <) and the high density increment (> 8") to provide a percentage for the allocation of total historical to low and high density customers. Again, these are current values – not historical costs.

#### STORAGE ALLOCATION TO CAPACITY AND FIRE PROTECTION

STORAGE ELEMENTS	2.0 Reservoir (MGals)	3.7 Reservoir (MGals)	TOTAL GAL OF STORAGE	Storage is a requirement of the Department of Health – DOH provides recommendations for the gallons of storage by functional category. The Comp Plan follows the recommendations with modifications.
Operational Storage (n/a due to SPU contracted amount)	0	0	0.00 🛏	Operational storage is not required because the contracted amount with SPU, of 3,300 gpm on a continuous basis, provides water well above the operational demands of the District. The dual source of
Equalizing Storage (to meet peak demands for water)	0.07	0.16	0.23	water further reduces the need for operational water. (The water comes from two sources – the Tolt and the Cedar Rivers – initially it was 2,800 gpm from the Tolt River but a new contract with SPU increased it by
Fire Suppression	0.63	1.08	1.71	500 gpm as water can now be drawn from the Cedar river as well – either source can used for the entire amount).
Standby Storage (for Emergencies)	0.46	1.64	2.10	Equalizing storage is to meet peak demand if needed. It is not used for this purpose due to the amount of water provided through the SPU contract but shown here to provide an allocation basis.
Surplus (Excess) (to provide for growth)	0.84	0.82	1.66	Fire suppression storage is required to meet fire flow requirements
Dead Storage (n/a with pump redesign)	0	0	0.00	above what can be met with the continuous demand of 3,300 gpm less operational needs.
Storage bf Redistribution of Surplus	2.0	3.7	5.7	Standby storage has been set to equal 2 days average demand but could be even lower due to the dual source of supply, the freeing up of dead storage, and the expectations of usage by the District customers
BOTTOM LINE – The Dis	trict ha	s quite	a	In the District's case, it would only be used for emergencies/disasters or for a very large fire on a very hot day.
"line of defense" agains	t an en	hergen	CV	

and plenty of room for growth!

Surplus storage is extra capacity to provide for growth.

The tanks no longer have Dead storage due to the redesign of the North City Pump Station (NCPS).

## **Storage by Function**



Because the District's water system is fully integrated the storage from each tank is combined when determining the amount available by functional category.

STORAGE ALLOCATION TO CAPACITY AND FIRE PROTECTION										
	2.0	3.7	TOTAL GAL	CAF	PACITY FUNCTION	DNS	FIRE	AS ALL	GRAND	
STORAGE ELEMENTS	Reservoir (MGals)	Reservoir (MGals)	OF STORAGE	BASE	PEAK	TOTAL	FUNCTION	OTHER	TOTAL	ALLOCATION BASIS
Operational Storage (n/a due to SPU contracted amount)	0	0	0.00	100% 🗲 — —		100%			100%	All to Base
Equalizing Storage (to meet peak demands for water)	0.07	0.16	0.23	<b>←</b>	100%	100%			100%	All to Peak
Fire Suppression	0.63	1.08	1.71	<b>4</b>		0%	100%		100%	All to Fire
Standby Storage (for Emergencies)	0.46	1.64	2.10	50%		50%	50%		100%	50/50 Base/Fire
Surplus (Excess) (to provide for growth)	0.84	0.82	1.66	<b>~</b>		0%		100%	100%	As All Other
Dead Storage (n/a with pump redesign)	0	0	0.00	<b>~</b>		0%			0%	<u>//</u> ///>
Storage bf Redistribution of Surplus	2.0	3.7	5.7	18%	4%	22%	48%	29%	100%	

### Policy Decision 5 – Should the District allocate standby storage to base capacity only, or should a portion be allocated to fire suppression?

The Department of Health bases its recommendation for the amount of standby storage on 2-days of average usage, although it is highly likely it will not be used for base or operational usage but rather for emergencies, which could involve both usage and fire. There is no historical data available to support a percentage allocation, therefore, it is recommended that the District allocate, standby storage 50% to capacity and 50% to fire.

STORAGE ALLOCATION TO CAPACITY AND FIRE PROTECTION												
	2.0	3.7	TOTAL GAL	CAP	ACITY FUNCTION	DNS	FIRE	AS ALL	GRAND			
STORAGE ELEMENTS	(MGals)	(MGals)	OF STORAGE	BASE	PEAK	TOTAL	FUNCTION	OTHER	TOTAL	ALLOCATION BASIS		
Operational Storage (n/a due to SPU contracted amount)	0	0	0.00	100%		100%			100%	All to Base		
Equalizing Storage (to meet peak demands for water)	0.07	0.16	0.23		100%	100%			100%	All to Peak		
Fire Suppression	0.63	1.08	1.71			0%	100%		100%	All to Fire		
Standby Storage (for Emergencies)	0.46	1.64	2.10	50%		50%	50%		100%	50/50 Base/Fire		
Surplus (Excess) (to provide for growth)	0.84	0.82	1.66			0%		100%	100%	As All Other		
Dead Storage (n/a with pump redesign)	0	0	0.00			0%			0%	N/A		
Storage bf Redistribution of Surplus	2.0	3.7	5.7	18%	4%	22%	48%	29%	100%			
TOTAL MGALS OF STOR		1.1	0.2	1.3	2.8	1.7	5.7					

STORAGE ALLOCATION TO CAPACITY AND FIRE PROTECTION													
	2.0	3.7 December	TOTAL GAL	CAP	ACITY FUNCTIO	DNS	FIRE	AS ALL	GRAND				
STORAGE ELEMENTS	(MGals)	(MGals)	OF STORAGE	BASE	PEAK	TOTAL	FUNCTION	OTHER	TOTAL	ALLUCATION BASIS			
Operational Storage (n/a due to SPU contracted amount)	0	0	0.00	100%		100%			100%	All to Base			
Equalizing Storage (to meet peak demands for water)	0.07	0.16	0.23		100%	100%			100%	All to Peak			
Fire Suppression	0.63	1.08	1.71			0%	100%		100%	All to Fire			
Standby Storage (for Emergencies)	0.46	1.64	2.10	50%		50%	50%		100%	50/50 Base/Fire			
Surplus (Excess) (to provide for growth)	0.84	0.82	1.66			0%		100%	100%	As All Other			
Dead Storage (n/a with pump redesign)	0	0	0.00			0%			0%	N/A			
Storage bf Redistribution of Surplus	2.0	3.7	5.7	18%	4%	22%	48%	29%	100%				
TOTAL MGALS OF STOR		1.1	0.2	1.3	2.8	1.7	5.7						
Percental Allocation of "As All Other"	unctions	26%	6%	32%	68%		100%						

STORAGE ALLOCATION TO CAPACITY AND FIRE PROTECTION													
	2.0	3.7	TOTAL GAL	CAP	PACITY FUNCTION	DNS	FIRE	AS ALL	GRAND				
STORAGE ELEWENTS	(MGals)	(MGals)	OF STORAGE	BASE	PEAK	TOTAL	FUNCTION	OTHER	TOTAL	ALLUCATION DASIS			
Operational Storage (n/a due to SPU contracted amount)	0	0	0.00	100%		100%			100%	All to Base			
Equalizing Storage (to meet peak demands for water)	0.07	0.16	0.23		100%	100%			100%	All to Peak			
Fire Suppression	0.63	1.08	1.71			0%	100%		100%	All to Fire			
Standby Storage (for Emergencies)	0.46	1.64	2.10	50%		50%	50%		100%	50/50 Base/Fire			
Surplus (Excess) (to provide for growth)	0.84	0.82	1.66			0%		100%	100%	As All Other			
Dead Storage (n/a with pump redesign)	0	0	0.00			0%			0%	N/A			
Storage bf Redistribution of Surplus	2.0	3.7	5.7	18%	4%	22%	48%	29%	100%				
TOTAL MGALS OF STOR/		1.1	0.2	1.3	2.8	1.7	5.7						
Percental Allocation of "As All Other" to Capacity and Fire Functions				26%	6%	32%	68%		100%				
TOTAL STORAGE ALLOCATIONS TO FU		26%	6%	32%	68%		100%						

				2015 Const-ir	- TOTAL P	LANT GENE	RAL (As	CAPACIT	y (Non-Fire)	FUNCTIONS		TOTA	l non-	FIRE		
PL	ANT-IN-SERVICE	2015 P	LANT	Progress	2021	5 All	Other)	METERS & SERVICES	BASE	PEAK	ĸ	FI FUNC	re Tions	FUNCTION	GRAND TOTAL	ALLOCATION BASIS
DIR	ECT UTILITY PLANT															
Sto	rage (Tanks/Reservoirs)	6,03	4,906		6,034,	906		I	26%	6%	,	32	2%	68%	100%	As Storage Plant
				STORAGE	ALLOCAT	ION TO CA	PACITY	AND FIRE PR	OTECTION							
	STORAGE ELEMENTS		2.0 Reservo (MGals	3.7 ir Reservoir ) (MGals)	TOTAL GAL OF STORAGE	CA BASE	PACITY FUN	TIONS	Fire Function	as all Other	GRAM TOT <i>I</i>	ND Al	ALLOCA	TION BASIS	<b>Capacity</b> \$6,034,9	<b>Costs =</b> 06 x 32% =
	Operational Storage (n/a due to S contracted amount)	SPU	0	0	0.00	100%		100%			1009	%	All to	o Base	\$1,191,1	.70
	Equalizing Storage (to meet peak demands for water)	(	0.07	0.16	0.23		100%	100%			1009	%	All to	o Peak	\$6,034,9 <b>\$4,103,7</b>	06 x 68% = 3 <b>6</b>
	Fire Suppression		0.63	1.08	1.71			0%	100%		1009	%	All t	o Fire		
	Standby Storage (for Emergencie	es)	0.46	1.64	2.10	50%		50%	50%		1009	%	50/50 E	Base/Fire		
	Surplus (Excess) (to provide for	growth)	0.84	0.82	1.66			0%		100%	1009	%	As Al	ll Other		
	Dead Storage (n/a with pump red	design)	0	0	0.00			0%			0%	þ	I	V/A		
	Storage bf Redistribution of Sur	plus	2.0	3.7	5.7	18%	4%	22%	48%	29%	1009	%				
	TOTAL MGALS O	F STORA	AGE BY F	UNCTIONS		1.1	0.2	1.3	2.8	1.7	5.7	1				
	Percental Allocation of "As All Other" to Capacity and Fire Functions		unctions	26%	6%	32%	68%		1009	%						
	TOTAL STORAGE ALLOCATION	IS TO FL	INCTION	S		26%	6%	32%	68%		100	%				

		2015 Const-in-	TOTAL PLANT	GENERAL (As	CAPACIT	Y (NON-FIRE) FU	INCTIONS	TOTAL NON-	FIRF		
PLANT-IN-SERVICE	2015 PLANT	Progress	20215	All Other)	METERS & SERVICES	BASE	PEAK	FIRE FUNCTIONS	FUNCTION	GRAND TOTAL	ALLOCATION BASIS
DIRECT UTILITY PLANT											
Storage (Tanks/Reservoirs)	6,034,906		6,034,906			26%	6%	32%	68%	100%	As Storage Plant
Transmission & Distribution	15,578,193	66,270	15,644,463			31%	31%	62%	38%	100%	Fire as Pipes, Remainder Peak/Avg

PIPE UPSIZIN	G FOR FIRE P	ROTECTION - a	Calculation of Perce	ntage used to Alloca	ate Total T&D Costs	s between Capacity a	and Fire - and betwe	en Low & High Den	sity Cusomters
Diameter (Inch)	Total Feet of Pipe in 2015	Current Direct Costs - per ft	Cost of Pipe < 4"	Cost Increment 4" and >	Total Pipe Value in 2015	Base Pipe Inflat Value in 2015	Total Upsizing Value	Upsizing Value - Low Density	Upsizing Value - High Density Increment
< 4	3,598	\$ 25	\$ 25		\$ 89,950	\$ 89,950		\$-	\$-
4 - Capacity	1,565	\$ 42	\$ 25	\$ 17	65,730	39,125	26,605		
4 - Fire	44,417	\$ 42	\$ 25	\$ 17	1,865,514	1,110,425	755,089	755,089	
6 - Capacity	500	\$ 30	\$ 25	\$5	12,500	12,500		-	
6 - Fire	260,261	\$ 30	\$ 25	\$5	7,807,830	6,506,525	1,301,305	1,301,305	
8 - Capacity	150	\$ 42	\$ 25	\$ 17	3,750	3,750		-	
8 - Fire	98,314	\$ 42	\$ 25	\$ 17	4,129,188	2,457,850	1,671,338	1,671,338	
10	10,995	\$ 55	\$ 25	\$ 30	604,725	274,875	329,850		329,850
12	77,261	\$ 70	\$ 25	\$ 45	5,408,270	1,931,525	3,476,745		3,476,745
16	1,823	\$ 101	\$ 25	\$ 76	184,123	45,575	138,548		138,548
20	508	\$ 132	\$ 25	\$ 107	67,056	12,700	54,356		54,356
	499,392				\$ 20,238,636	\$ 12,484,800	\$ 7,753,836	\$ 3,727,732	\$ 3,999,499
TOTAL ALLOCAT	ION BETWEEN C	APACITY AND FIF	RE - AND LOW AN	D HIGH DENSITY	100%	62%	38%	48%	52%

PLANT-IN-SERVICE 2015		2015 Const-in-		GENERAL (	CAP	ACITY (NON-FIRE)	FUNCTIONS	TOTAL NON-	FIRF		
PLANT-IN-SERVICE	2015 PLANT	Progress	20215	All Other)	METERS SERVICI	S & BASE	РЕАК	FIRE FUNCTIONS	FUNCTION	grand to	ALLOCATION BASIS
DIRECT UTILITY PLANT											
Storage (Tanks/Reservoirs)	6,034,906		6,034,906			26%	6%	32%	68%	100%	As Storage Plant
Transmission & Distribution	15,578,193	66,270	15,644,463			31%	31%	62%	38%	100%	Fire as Pipes, Remainder Peak/Avg
Pumping	2,446,674	3,310,806	5,757,479			31%	31%	62%	38%	100%	Same as T&D
PIPE UPSIZING FOR FI	RE PROTECTI	ON - Calculation	of Percentage us	sed to Allocate	Total T&D Cost	s between Capacity a	and Fire - and betwo	en Low & High Der	nsity Cusomters	- F	
Diameter (Inch) Total Fee Pipe in 2	t of Current I 015 Costs - j	Direct Cost o Der ft <	f Pipe Cost I 4" 4" ;	ncrement and > V	Total Pipe alue in 2015	Base Pipe Inflat Value in 2015	Total Upsizing Value	Upsizing Value Low Density	Upsizing Valu High Densit Increment	у Je -	<b>Capacity Costs =</b> \$15,644,463 +
< 4 3,5	98 \$ 2!	5 \$ 3	25	\$	89,950	\$ 89,950		\$-	\$	-	\$5,757,479 =
4 - Capacity 1,5	65 \$ 42	2 \$ 3	25 \$	17	65,730	39,125	26,605				\$21,401,942 x
4 - Fire 44,4	17 \$ 42	2 \$ 3	25 \$	17	1,865,514	1,110,425	755,089	755,089			62% =
6 - Capacity	00 \$ 30	<b>) \$</b> :	25 \$	5	12,500	12,500		-			\$13,269,204
6 - Fire 260,2	61 \$ 30	<b>) \$</b> :	25 \$	5	7,807,830	6,506,525	1,301,305	1,301,305			Fire Costs =
8 - Capacity	50 \$ 42	2 \$ 3	25 \$	17	3,750	3,750		-			\$15,644,463 +
8 - Fire 98,3	14 \$ 42	2 \$ 3	25 \$	17	4,129,188	2,457,850	1,671,338	1,671,338			\$5,757,479 =
10 10,9	95 \$ 5!	5 \$ 3	25 \$	30	604,725	274,875	329,850		329,8	50	\$21,401,942 x
12 77,2	61 \$ 70	<b>)</b> \$ :	25 \$	45	5,408,270	1,931,525	3,476,745		3,476,7	45	38% = \$8 132 738
16 1,8	23 \$ 10	1 \$ 3	25 \$	76	184,123	45,575	138,548		138,5	48	<i><b>40,132,730</b></i>
20 5	08 \$ 13	2 \$ 3	25 \$	107	67,056	12,700	54,356		54,3	56	
499,3	92			\$	20,238,636	\$ 12,484,800	\$ 7,753,836	\$ 3,727,732	\$ 3,999,4	99	
TOTAL ALLOCATION BETWI	TOTAL ALLOCATION BETWEEN CAPACITY AND FIRE - AND LOW AND HIGH DENS					62%	38%	48%	52%		

DI ANT.IN.SEDVICE		2015 Const-in-	TOTAL PLANT	GENERAL (As	CAPACIT	Y (NON-FIRE) FU	INCTIONS	TOTAL NON-	FIRF		
PLANT-IN-SERVICE	2015 PLANT	Progress	20215	All Other)	METERS & SERVICES	BASE	PEAK	FIRE FUNCTIONS	FUNCTION	GRAND TOTAL	ALLOCATION BASIS
DIRECT UTILITY PLANT											
Storage (Tanks/Reservoirs)	6,034,906		6,034,906			26%	6%	32%	68%	100%	As Storage Plant
Transmission & Distribution	15,578,193	66,270	15,644,463			31%	31%	62%	38%	100%	Fire as Pipes, Remainder Peak/Avg
Pumping	2,446,674	3,310,806	5,757,479			31%	31%	62%	38%	100%	Same as T&D
Hydrants	1,007,228		1,007,228					0%	100%	100%	All to Fire

DI ANT IN SEDVICE		2015 Const-in-	TOTAL PLANT	GENERAL (As	CAPACIT	Y (NON-FIRE) FL	JNCTIONS	TOTAL NON-	FIRF		
PLANT-IN-SERVICE	2015 PLANT	Progress	20215	All Other)	METERS & SERVICES	BASE	PEAK	FIRE FUNCTIONS	FUNCTION	GRAND TOTAL	ALLOCATION BASIS
DIRECT UTILITY PLANT											
Storage (Tanks/Reservoirs)	6,034,906		6,034,906			26%	6%	32%	68%	100%	As Storage Plant
Transmission & Distribution	15,578,193	66,270	15,644,463			31%	31%	62%	38%	100%	Fire as Pipes, Remainder Peak/Avg
Pumping	2,446,674	3,310,806	5,757,479			31%	31%	62%	38%	100%	Same as T&D
Hydrants	1,007,228		1,007,228					0%	100%	100%	All to Fire
Meters & Services	5,020,507		5,020,507		100%			100%		100%	All to Meters & Services

		2015 Const-in-	TOTAL PLANT	GENERAL (As	CAPACIT	ry (Non-Fire) fl	INCTIONS	TOTAL NON-	FIRF		
PLANT-IN-SERVICE	2015 PLANT	Progress	20215	All Other)	METERS & SERVICES	BASE	PEAK	FIRE FUNCTIONS	FUNCTION	GRAND TOTAL	ALLOCATION BASIS
DIRECT UTILITY PLANT											
Storage (Tanks/Reservoirs)	6,034,906		6,034,906			26%	6%	32%	68%	100%	As Storage Plant
Transmission & Distribution	15,578,193	66,270	15,644,463			31%	31%	62%	38%	100%	Fire as Pipes, Remainder Peak/Avg
Pumping	2,446,674	3,310,806	5,757,479			31%	31%	62%	38%	100%	Same as T&D
Hydrants	1,007,228		1,007,228					0%	100%	100%	All to Fire
Meters & Services	5,020,507		5,020,507		100%			100%		100%	All to Meters & Services
Supply/Treatment	-		-			50%	50%	100%		100%	Peak/Avg Day Ratio(1084/542 gals)

With the exception of storage plant, all other allocation between base and peak capacity is based on the ratio of the peak day demand to the average day demand or (1084/542=2). One divided by two = 50% so the percentage allocated to base capacity is 50% and the amount allocated for peak capacity is also 50%.

The peak to average day demand was taken from the latest Comp Plan. If the exceptionally hot summers persist and customers continue to use higher and higher amounts of water in the summer this ratio will need to be revisited when the next cost-of-service rate analysis is performed. This ratio is not relevant for the connection charge so will remain at this level for now.

		2015 Const-in-	τοται ρι ανιτ	GENERAL (As	CAPACIT	y (Non-Fire) fl	INCTIONS	TOTAL NON-	FIRF		
PLANT-IN-SERVICE	2015 PLANT	Progress	20215	All Other)	METERS & SERVICES	BASE	PEAK	FIRE FUNCTIONS	FUNCTION	GRAND TOTAL	ALLOCATION BASIS
DIRECT UTILITY PLANT											
Storage (Tanks/Reservoirs)	6,034,906		6,034,906			26%	6%	32%	68%	100%	As Storage Plant
Transmission & Distribution	15,578,193	66,270	15,644,463			31%	31%	62%	38%	100%	Fire as Pipes, Remainder Peak/Avg
Pumping	2,446,674	3,310,806	5,757,479			31%	31%	62%	38%	100%	Same as T&D
Hydrants	1,007,228		1,007,228					0%	100%	100%	All to Fire
Meters & Services	5,020,507		5,020,507		100%			100%		100%	All to Meters & Services
Supply/Treatment	-		-			50%	50%	100%		100%	Peak/Avg Day Ratio(1084/542 gals)
TOTAL DIRECT UNILITY PLAN	30,087,507	3,377,076	33,464,584	-	5,020,507	8,178,377	6,953,471	20,152,355	13,312,229	33,464,584	
Percental Allocati	on to Functio	ons of Service			15%	24%	21%	60%	40%	100%	

The weighted average of direct utility plant (infrastructure) is 60% for capacity and 40% to fire.

PLANT-IN-SERVICE 2		2015 Const-in-	τοται ριαντ	GENERAL (As	CAPACIT	y (Non-Fire) fu	INCTIONS	TOTAL NON-	FIRF		
PLANT-IN-SERVICE	2015 PLANT	Progress	20215	All Other)	METERS & SERVICES	BASE	PEAK	FIRE FUNCTIONS	FUNCTION	GRAND TOTAL	ALLOCATION BASIS
DIRECT UTILITY PLANT											
Storage (Tanks/Reservoirs)	6,034,906		6,034,906			26%	6%	32%	68%	100%	As Storage Plant
Transmission & Distribution	15,578,193	66,270	15,644,463			31%	31%	62%	38%	100%	Fire as Pipes, Remainder Peak/Avg
Pumping	2,446,674	3,310,806	5,757,479			31%	31%	62%	38%	100%	Same as T&D
Hydrants	1,007,228		1,007,228					0%	100%	100%	All to Fire
Meters & Services	5,020,507		5,020,507		100%			100%		100%	All to Meters & Services
Supply/Treatment	-		-			50%	50%	100%		100%	Peak/Avg Day Ratio(1084/542 gals)
TOTAL DIRECT UNILITY PLAN	30,087,507	3,377,076	33,464,584	-	5,020,507	8,178,377	6,953,471	20,152,355	13,312,229	33,464,584	
Percental Allocation to Functions of Service			_	15%	24%	21%	60%	40%	100%		
GENERAL UTILITY PLANT	12,035,816	1,137,908	13,173,724	24100%General Plant is allocated according to all direct plant resulting in the same overall allocation between capacity and fire.						As All Other	
Allocation of General (As	inctions	(13,173,724)	1,976,381	3,219,514	2,737,315	7,933,210	5,240,514	13,173,724			

		2015 Const-in-	τοται ριαντ	GENERAL (As	CAPACIT	y (Non-Fire) fu	INCTIONS	TOTAL NON-	FIRF		
PLANT-IN-SERVICE	2015 PLANT	Progress	20215	All Other)	METERS & SERVICES	BASE	PEAK	FIRE FUNCTIONS	FUNCTION	GRAND TOTAL	ALLOCATION BASIS
DIRECT UTILITY PLANT											
Storage (Tanks/Reservoirs)	6,034,906		6,034,906			26%	6%	32%	68%	100%	As Storage Plant
Transmission & Distribution	15,578,193	66,270	15,644,463			31%	31%	62%	38%	100%	Fire as Pipes, Remainder Peak/Avg
Pumping	2,446,674	3,310,806	5,757,479			31%	31%	62%	38%	100%	Same as T&D
Hydrants	1,007,228		1,007,228					0%	100%	100%	All to Fire
Meters & Services	5,020,507		5,020,507		100%			100%		100%	All to Meters & Services
Supply/Treatment	-		-			50%	50%	100%		100%	Peak/Avg Day Ratio(1084/542 gals)
TOTAL DIRECT UNILITY PLAN	30,087,507	3,377,076	33,464,584	-	5,020,507	8,178,377	6,953,471	20,152,355	13,312,229	33,464,584	
Percental Allocati	on to Functio	ons of Service		_	15%	24%	21%	60%	40%	100%	
GENERAL UTILITY PLANT	12,035,816	1,137,908	13,173,724	100%	General P in the san	lant is allo ne overall	cated acco allocation	ording to a between o	ll direct pl capacity ar	ant resultiı nd fire.	As All Other
Allocation of General (As all Other) to Direct Plant Functions (13,173,724)					1,976,381	3,219,514	2,737,315	7,933,210	5,240,514	13,173,724	
TOTAL UTILITY PLANT	42,123,323	4,514,984	46,638,307		6,996,889	11,397,891	9,690,785	28,085,565	18,552,743	46,638,307	
TOTAL ALLOC	ation of Pi	LANT IN SER	RVICE - 2015		15%	24%	21%	60%	40%		



TOTAL COSTS	CAPACITY COSTS		TOTAL FIRE COSTS			
Combined Capacity and Fire Costs	Low & High Density Base Capacity Chg	& High Density Low & High Density e Capacity Chg Fire Charges				
Existing Facilities	Existing Facilities		Existing Facilities	1		
Plant in Service 12/31/2015	Plant in Service 12/31/2015	Plant in Service 12/31/2015 Plant in Service 12/31/2015				
Construction in Progress	Construction in Progress		Construction in Progress			
Existing Facilities b/f Adj.	Existing Facilities b/f Adj.		Existing Facilities b/f Adj.			
Less: CIAC	Less: CIAC		Less: CIAC			
Less: Replacements	Less: Replacements		Less: Replacements			
Plus: Accumulated Interest	Plus: Accumulated Interest		Plus: Accumulated Interest			
Less: Net Debt Outstanding	Less: Net Debt Outstanding		Less: Net Debt Outstanding			
Net Existing Facilities	Net Existing Facilities		Net Existing Facilities			

		CAPACITY	FIRE SUPPRESSION
CALCULATION & ALLOCATION COMPONENTS	COSTS	All Customer	Total
		Capacity Chg	Fire Alloc
I. ALLOCABLE COSTS - EXISTING FACILITIES: Utility Plant-in-Service at 12/31/2015	\$ 42.123.323	\$ 25.314.326	\$ 16.808.997
plus: Construction-in-Progress	4,514,984	2,771,239	1,743,745
Total Allocable Plant b/f Adjustments	46,638,307	28,085,565	18,552,743



TOTAL	CAPACITY COSTS		TOTAL FIRE			
00313	00313					
Combined Capacity and Fire Costs	Low & High Density Base Charge	Low & High Density Base Charge Fire Charges				
Existing Facilities	Existing Facilities		Existing Facilities			
Plant in Service 12/31/2015	Plant in Service 12/31/2015	Plant in Service 12/31/2015				
Construction in Progress	Construction in Progress		Construction in Progress			
Existing Facilities b/f Adj.	Existing Facilities b/f Adj.		Existing Facilities b/f Adj.			
Less: CIAC	Less: CIAC		Less: CIAC	Γ		
Less: Replacements	Less: Replacements		Less: Replacements			
Plus: Accumulated Interest	Plus: Accumulated Interest		Plus: Accumulated Interest			
Less: Net Debt Outstanding	Less: Net Debt Outstanding		Less: Net Debt Outstanding			
Net Existing Facilities	Net Existing Facilities		Net Existing Facilities			

							Т	OTAL	CAPACITY		FIRE SUPPRESSI	ON
CALCUL	ATION & A	ALLOCAT	TON CON	<b>IPONENT</b>	S		ALL	COSTS	All Cus	stomer	Total	
									Capaci	ty Chg	Fire Alloc	
I. ALLOC	ABLE COS	STS - EXIS	TING FAC	ILITIES:	1	I						
Utility	Plant-in-S	Service at	12/31/201	5			\$4	2,123,323	\$ 25,3	14,326	\$ 16,808,9	97
plus:	Construct	ion-in-Pro	gress					4,514,984	2,7	71,239	1,743,7	<u>45</u>
Total A	llocable P	lant b/f Ad	ljustments	6			46,638,307		28,0	85,565	18,552,7	43
									/	/		
UTILITY PLANT	42,123,323	4,514,984	46,638,307		6,996,889	11,3	97,891	9,690,785	28,085,565	18,552,74	3 46,638,307	
TOTAL ALLOC	TOTAL ALL OCATION OF PLANT IN SERVICE - 2015					2	4%	21%	60%	40%		



### **Break**



TOTAL COSTS	CAPACITY COSTS	TOTAL FIRE COSTS
Combined Capacity and Fire Costs	Low & High Density Base Capacity Chg	Low & High Density Fire Charges
Existing Facilities	Existing Facilities	Existing Facilities
Plant in Service 12/31/2015	Plant in Service 12/31/2015	Plant in Service 12/31/2015
Construction in Progress	Construction in Progress	Construction in Progress
Existing Facilities b/f Adj.	Existing Facilities b/f Adj.	Existing Facilities b/f Adj.
Less: CIAC	Less: CIAC	Less: CIAC
Less: Replacements	Less: Replacements	Less: Replacements
Plus: Accumulated Interest	Plus: Accumulated Interest	Plus: Accumulated Interest
Less: Net Debt Outstanding	Less: Net Debt Outstanding	Less: Net Debt Outstanding
Net Existing Facilities	Net Existing Facilities	Net Existing Facilities

We left off last time at the allocation of existing facilities or plant between capacity and fire.

The next steps are to determine the adjustments to Existing Facilities to arrive a the net amount of allocable plant for the connection charge.



TOTAL COSTS	CAPACITY COSTS	то	TAL FIRE COSTS			
Combined Capacity and Fire Costs	Low & High Density Base Capacity Chg	Low & High Density Fire Charges				
Existing Facilities	Existing Facilities	Existi	ng Facilities			
Plant in Service 12/31/2015	Plant in Service 12/31/2015	Service 12/31/2015				
Construction in Progress	Construction in Progress	Constru	action in Progress			
Existing Facilities b/f Adj.	Existing Facilities b/f Adj.	Existing	Facilities b/f Adj.			
Less: CIAC	Less: CIAC	Less: C	IAC			
Less: Replacements	Less: Replacements	Less: R	eplacements			
Plus: Accumulated Interest	Plus: Accumulated Interest	Plus: Accumulated Interest Plus: Accumulated Interest				
Less: Net Debt Outstanding	Less: Net Debt Outstanding	Less: Net Debt Outstanding				
Net Existing Facilities	Net Existing Facilities	Net Exi	isting Facilities			

CALCULATION & ALLOCATION COMPONENTS	TOTAL ALLOCABLE COSTS	CAPACITY All Customer Capacity Chg	FIRE SUPPRESSION Total Fire Alloc	We let off with \$28.1 Million allocated to Capacity (60%) and \$18.5 Million allocated to Fire (40%).
I. ALLOCABLE COSTS - EXISTING FACILITIES:				Contribution in Aid of Construction or
Utility Plant-in-Service at 12/31/2015	\$ 42,123,323	\$ 25,314,326	\$ 16,808,997	CIAC are amounts donated from
plus: Construction-in-Progress	4,514,984	2,771,239	<u> </u>	specifically states these should be
Total Allocable Plant b/f Adjustments	46,638,307	28,085,565	18,552,743	omitted so as not to collect costs for
less: Contributions in Aid of Construction	(1,465,830)	(905,430)	(560,399)	something we did not pay for.
less: Expected Replacements in 10-Year CIP	(48,880)	(30,192)	(18,687)	Mains slated for replacement are
plus: Accumulated. Interest on Existing Plant	13,273,199	<u>7,699,934</u>	<u>5,573,266</u>	removed from existing facilities.
Total Allocable Plant b/f Net Outstanding Debt	58,396,798	34,849,876	23,546,922	Up to ten years of interest is allowed as
Allocation to Capacity and Fire Plant		60%	40%	stipulated in RCW 57. This is considered
less: Debt Outstanding net of Cash Balances				a carrying cost and was granted in lieu
Debt Outstanding - 12/31/15 9,709,907				of using market or replacement value.
Cash Balances - 2015 <u>(4,266,328)</u>				RCW is silent on subtracting debt
Maximum Zero or Net Debt 5,443,578	<u>(5,443,578)</u>	<u>(3,248,603)</u>	<u>(2,194,975)</u>	funding but to <u>not</u> do so means the new
TOTAL ALLOCABLE COSTS - EXISTING FACILITIES	\$ 52,953,219	\$ 31,601,272	\$ 21,351,947	customer would be double paying.

#### **Closer Look at the Costs** Allocation of Fire between Low and High Density Customers

						TOTAL	CAPACITY	FI	RE SUPPRESSIO	DN
TOTAL	CAPACITY	TOTAL FIRE	FIRE SUP	PRESSION	CALCULATION AND ALLOCATION COMPONENTS	ALLOCABLE	All Customer	Total	Low Density	High Density
COSTS	COSTS	COSTS	0	515		0313	Capacity Chg	Fire Alloc	(SFR) Fire Chg	Fire Chg
Combined Capacity	Low & High Density	Low & High Density	Low Density	High Density	I. ALLOCABLE COSTS - EXISTING FACILITIES:					
and Fire Costs	Base Capacity City	Fire Charges	Fire Charge - SFK	Pire Cing- Hon-SFR	Utility Plant-in-Service at 12/31/2015	\$ 42,123,323	\$ 25,314,326	\$ 16,808,997		
Existing	Existing	Existing	Existing	Existing	plus: Construction-in-Progress	4,514,984	2,771,239	1,743,745		
Facilities	Facilities	Facilities	Facilities	Facilities	Total Allocable Plant b/f Adjustments	46,638,307	28,085,565	18,552,743		
	╤╼╼┲╼╼	·── <sub>╈</sub> ──┣			less: Contributions in Aid of Construction (CIAC)	(1,465,830)	(905,430)	(560,399)		
					plus: Accum. Interest on Existing Plant (Excluding Int. on Future Replc.)	13.273.199	7,699,934	5,573,266		
Future	Future Facilities	Future Facilities	Future Facilities	Future Facilities	Total Allocable Plant b/f Net Outstanding Debt	58,396,798	34,849,876	23,546,922		
(2016-2025)	(2016-2025)	(2016-2025)	(2016-2025)	(2016-2025)	Allocation to Capacity and Fire Plant (per Allocable Plant 2015)		60%	40%		
				-	less: Debt Outstanding net of Cash Balances					
	•		•	•	Debi Outstanding - 12/31/15 9,709,907 Cash Balances - 2015 (4.266.328)					
	Basis – All Existing &		Basis - All Existing &	Basis - All Existing &	Maximum Zero or Net Debt 5.443.578	(5,443,578)	(3.248.603)	(2.194.975)		
	Planned Meter Equiv Through 2030		Planned SFR Meters Through 2030 <sup>(1)</sup>	Planned Sq Foot for HD Customers - 2030	TOTAL ALLOCABLE COSTS - EXISTING FACILITIES	\$ 52,953,219	\$ 31,601,272	\$ 21,351,947	\$ 7,528,649	\$ 13,823,298
								7	35.3%	64.7%
	=		=	=						
			_	_	Future Capital Requirements (10 Year CIP 2016-2025)	\$ 16,448,903	\$ 9,944,731	\$ 6,504,172		
	Connection Charge		Connection Charge	Connection Charge	Total Allocable Plant b/f Net Outstanding Debt	16.448.903	9.944.731	6.504.172		
	Per Meter Equiv (ME)		Per Meter	Per Square Foot	Allocation to Capacity and Fire Plant (per Allocable CIP 2016-2025)	10/110/100	60%	40%		
		- I			less: Debt Outstanding net of Applicable Cash Balances					
					Debt Outstanding for CIP - 12/31/25 6,000,594					
					Cash Balances Alloc to CIP Debt (17309,745)	(1 100 040)	(710.047)	(470.001)		
						15 258 055	9 224 764	6 033 291	1 926 062	4 107 229
					TOTAL ALLOGABLE COSTS TOTALE ACIENTES	13,230,033	7,224,704	0,000,271	31.9%	68.1%
					III. TOTAL ALLOCABLE COSTS (1. + II.)	\$68,211,274	\$40,826,036	\$27,385,238	\$9,454,711	\$17,930,527
TOTAL									34.5%	65.5%
IUIAL		FIRE SUP	PRESS		IV METER FOUND (ME) ALL OCATION FOR PACE CARACITY COSTS.					
COS	TS II	COSTS B	Y DENS	SITY	Total Low Depsity (SED) Mater Equivalents (MEs)		7 760			
					Total High Density (Non-SFR) Meter Equivalents (MEs)		2.328			
					Total Existing Meter Equivalents (MEs)		10,088			
Low & High	Density	Low Density	Hier	n Density	Growth in MEs During Planning Period - Low Density		77			
Eine Cha	Density	Fire Charge SFD	Fire Ch	a Non SED	Growth in MEs During Planning Period - High Density		303			
r ire Cita	rges	File Charge - SFR	Intech	g - Nul-SPK	Total Growth		3/9			
					Total Projected Capacity in Meter Equivalents (ME)		10,408			
					V. BASE CAPACITY CHARGE PER ME FOR ALL CUSTOMERS		\$3,900 per ME			
Existin	1g	Existing	E	xisting		Exisitng	\$3,019			
Faciliti	ies	Facilities	Fa	acilities	VI_METER ALLOCATION FOR FIRE COSTS - LOW DENSITY (SER): *	Future	\$881			
\$21.351	.947				Low Density (SFR) Meters 12/31/2015				7,562	
+/					Growth in Meters During Planning Period - Low Density				75	
					Total Projected Low Denisty (SFR) Meters				7,637	
•	•								¢1 220 / Matan	
					VII. FIRE GRARGE PER METER FOR LOW DENSITY COSTOMERS (III. 7 VI.)			Exisilna	\$1,2367 Weter \$986	
The next of	sten is to a	llocate tota	al fire co	ists to				Future	\$252	
THE HEAT				51510	VIII. SQUARE FOOT ALLOCATION FOR FIRE COSTS - HIGH DENSITY:					17/0/11
low and h	high densit	v customer	costs.		Iotal High Density (Non-SFR) Square Footage 12/31/2015					4,763,646
	0	,			Total Projected Square Footage for High Density Customers					5,747,405
					IX. FIRE CHARGE PER SQ FT FOR HIGH DENSITY CUSTOMERS (III. / VIII.)					\$3.12 / SQ FT
									Exisitng Future	\$2.41 \$0.71
					* Meters exclude irrigation and fire meters					

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TOTAL FIRE COSTS	FIRE SUP COSTS BY	PRESSION Y DENSITY		
Low & High Density Fire Charges	Low Density Fire Charge - SFR	High Density Fire Chg - Non-SFR	Low Density = Single Family (no Irr. & fire lines) High Density = Non-Single Family	The first step is to allocate
Existing Facilities \$21,351,947	Existing Facilities	Existing Facilities	This \$21.3 Million is the net Allocable Fire Costs for Fire - <i>See the previous slides</i>	"All Customers" and the additional or incremental

Allocation of Fire Costs to All Customers and High Density	Curre Pipe	nt Value of Upsizing	Allocation %	C	osts Alloc to Fire Plant
All Customers - 4" thru 8"	\$	3,727,732	48%	\$	10,300,499
High Density Increment - > 8"	\$	3,999,499	52%	\$	11,051,448
TOTAL	\$	7,727,231	100%	\$	21,351,947

"All Customers" and the additional or incremental amount needed for High Density customers. This was previously done

when all the pipes were evaluated for capacity and fire in total. (See excerpt from previous slide.)

PIPE UPSIZIN	IG FOR FIRE P	ROTECTION - a	Calculation of Perce	ntage used to Alloc	ate Total T&D Cost	s between Capacity a	and Fire - and betwe	en Low & High Den	sity Cusomters
Diameter (Inch)	Total Feet of Pipe in 2015	Current Direct Costs - per ft	Cost of Pipe < 4"	Cost Increment 4" and >	Total Pipe Value in 2015	Base Pipe Inflat Value in 2015	Total Upsizing Value	Upsizing Value Low Density	Upsizing Value High Density Increment
< 4	3,598	\$ 25	\$ 25		\$ 89,950	\$ 89,950		\$ -	\$-
4 - Capacity	1,565	\$ 42	\$ 25	\$ 17	65,730	39,125	26,605		
4 - Fire	44,417	\$ 42	\$ 25	\$ 17	1,865,514	1,110,425	755,089	755,089	
6 - Capacity	500	\$ 30	\$ 25	\$5	12,500	12,500		-	
6 - Fire	260,261	\$ 30	\$ 25	\$5	7,807,830	6,506,525	1,301,305	1,301,305	
8 - Capacity	150	\$ 42	\$ 25	\$ 17	3,750	3,750		-	
8 - Fire	98,314	\$ 42	\$ 25	\$ 17	4,129,188	2,457,850	1,671,338	1,671,338	
10	10,995	\$ 55	\$ 25	\$ 30	604,725	274,875	329,850		329,850
12	77,261	\$ 70	\$ 25	\$ 45	5,408,270	1,931,525	3,476,745		3, 476, 745
16	1,823	\$ 101	\$ 25	\$ 76	184,123	45,575	138,548		138,548
20	508	\$ 132	\$ 25	\$ 107	67,056	12,700	54,356		54,356
	499,392				\$ 20,238,636	\$ 12,484,800	\$ 7,753,836	\$ 3,727,732	\$ 3,999,499
TOTAL ALLOCAT	ION BETWEEN C	APACITY AND FIF	D HIGH DENSITY	100%	62%	38%	48%	52%	

TOTAL FIRE COSTS	FIRE SUP COSTS BY	PRESSION Y DENSITY					
Low & High Density Fire Charges	Low Density Fire Charge - SFR	High Density Fire Chg - Non-SFR	Low Density = Single Family (no Irr. & fire lines) High Density = Non-Single Family	The first step is to allocate			
Existing Facilities \$21,351,947	ing ties 1,947  Existing Facilities Existing Facilities Existing Facilities Existing Facilities Existing Facilities Existing Facilities		This \$21.3Million is the net Allocable Fire Costs for Fire - <i>See the previous slides</i>	"All Customers" and the additional or incremental			

Allocation of Fire Costs to All Customers and High Density	Current Value of Pipe Upsizing	Allocation %	Costs Alloc to Fire Plant		
All Customers - 4" thru 8"	\$ 3,727,732	48%	\$	10,300,499	
High Density Increment - > 8"	\$ 3,999,499	52%	\$	11,051,448	
TOTAL	\$ 7,727,231	100%	\$	21,351,947	

the total fire costs between "All Customers" and the additional or incremental amount needed for High Density customers.

This was previously done when all the pipes were evaluated for capacity and fire in total. (See excerpt from previous slide.)



High density customers (non-SFR) require the full 12 inches of pipe, which is an additional four-inches to reach 3,000 gpm of flow for a 3 hour duration – 100%.

SFR customers need 6-inch looped or 8-inch pipe to receive 1,000 gpm of flow for a 3 hour duration. HD customers also benefit from this so it is for All Customers – 48%.

2-3-inches of this 12-inch pipe could provide all the water the customers need for personal consumption

The next slide will show how the shared upsizing for All customers is allocated between low and high density customers.

TOTAL FIRE COSTS	FIRE SUP COSTS BY	PRESSION Y DENSITY	,								
Low & High Density Fire Charges	Low Density High Density Fire Charge - SFR Fire Chg - Non-SF		R	Low Density High Density	= Single Family / = Non-Single Fa	(no Iri Imily	r. & fire lines) I	The first step is to allocate			
Existing Facilities \$21,351,947	Existing Existing Facilities Facilities			This \$21.3 N Costs for Fire	1illion is the net         e - See the previous	"All Customers" and the					
					-						
Allocation Customers	of Fire Costs s and High D	s to All ensity	Cu P	rrent Value of ipe Upsizing	Allocation %	Co	osts Alloc to Fire Plant	amount needed for High Density customers. This was previously done			
All Customers -	4" thru 8"		\$	3,727,732	48%	\$	10,300,499	when all the pipes were			
High Density Inc	crement - > 8"		\$	3,999,499	52%	\$	11,051,448	evaluated for capacity and fire in total. (See excerpt from			
TOTAL	·		\$	7,727,231	100%	\$	21,351,947	previous slide.)			

TOTAL FIRE COSTS	FIRE SUPI COSTS BY	PRESSION DENSITY								
Low & High Density Fire Charges	Low Density Fire Charge - SFR	High Density Fire Chg - Non-SFR		Low Density High Density	v = Single Family y = Non-Single Fa	The first step is to allocate				
Existing Facilities \$21,351,947	Existing Facilities	Existing Facilities		This \$21.3 N Costs for Fire	Aillion is the net e - <i>See the previ</i> e	the total fire costs between "All Customers" and the additional or incremental				
Allocation Customers	of Fire Costs s and High De	to All ensity	Cur Pi	rent Value of pe Upsizing	Allocation %	C	osts Alloc to Fire Plant	amount needed for High Density customers. This was previously done		
All Customers -	4" thru 8"		\$	3,727,732	<b>48</b> %	\$	10,300,499	when all the pipes were		
High Density Inc	crement - > 8"		\$	3,999,499	52%	\$	11,051,448	evaluated for capacity and fire in total. (See excerpt from		
TOTAL			\$	7,727,231	100%	previous slide.)				
Allocation to SFR & HD N	Customer Cla Ion-SFR) by S	isses (LD Sq Foot	Lo Si	ow Density - ngle Family	High Density - Non-SFR		Total	The next step is to allocate the costs for All customers (\$10,300,499) between LD		
Allocation Basis	s - Sq Footage		1	12,938,582	4,763,646	17,702,228		and HD customers. Sq		
Percentage			73%		27%	100%		footage obtained from the Kind County assessors office		
All Customer An	nount		\$	7,528,649	\$ 2,771,851	\$	10,300,499	was used as the allocation		
								and 27% is allocated to HD.		

TOTAL FIRE COSTS	FIRE SUP COSTS BY	PRESSION Y DENSITY	 ,				
Low & High Density Fire Charges	Low Density Fire Charge - SFR	High Density Fire Chg - Non-SFF	R	Low Density High Density	y = Single Family ( y = Non-Single Fa	The first step is to allocate the total fire costs between	
Existing Facilities \$21,351,947	Existing Facilities	Existing Facilities		This \$21.3 N Costs for Fire	Aillion is the net A e - <i>See the previo</i>	Allocable Fire <i>us slides</i>	"All Customers" and the additional or incremental
							amount needed for High
Allocation Customer:	of Fire Costs s and High D	s to All ensity	Cu P	rrent Value of Pipe Upsizing	Allocation %	Density customers. This was previously done when all the pipes were evaluated for	

Customers and High Density	Pipe Upsizing	Allocation %	Fire Plant
All Customers - 4" thru 8"	\$ 3,727,732	48%	\$ 10,300,499
High Density Increment - > 8"	\$ 3,999,499	52%	\$ 11,051,448
TOTAL	\$ 7,727,231	100%	\$ 21,351,947

Allocation to Customer Classes (LD SFR & HD Non-SFR) by Sq Foot	Lo Sir	w Density - Igle Family	Н	igh Density - Non-SFR		Total
Allocation Basis - Sq Footage	1.	2,938,582		4,763,646		17,702,228
Percentage		73%		27%		100%
All Customer Amount	\$	7,528,649	\$	2,771,851	\$	19,300,499
High Density Increment	\$	-	\$	11,051,448	-\$	11,051,448
Total Fire Flow Plant Allocation	\$	7,528,649	\$	13,823,298	\$	21,351,947
Final Allocation between Classes	$\langle$	35%		65%		100%

The next step is to allocate the costs for All customers (\$10,300,499) between LD and HD customers. Sq footage obtained from the Kind County assessors office was used as the allocation basis. 73% is allocated to LD and 27% is allocated to HD.

capacity and fire in total.

The final step is to add the HD increment to the HD share of costs for All customers for a final allocation between LD & HD customers of 35% and 65% respectively.



### **Closer Look at the Costs** Allocation of Existing Facilities

							TOTAL	CAPACITY	FII	RE SUPPRESSIO	DN
TOTAL COSTS	CAPACITY COSTS	TOTAL FIRE COSTS	FIRE SUP CO	PRESSION STS	I	CALCULATION AND ALLOCATION COMPONENTS	ALLOCABLE COSTS	All Customer Capacity Chg	Total Fire Alloc	Low Density (SFR) Fire Chq	High Density Fire Chg
COSTS Combined Capacity and Fire Costs Existing Facilities Facilities (2016-2025)	COSTS Low & High Density Base Capacity Chg Existing Paclifities Future Facilities (2016-2025) Basis - All Existing & Planned Meter Equiv Through 2030	COSTS Low & High Density Fire Charges Existing Pacifities Pacifities Pacifities (2016-2025)	CO Low Density Fire Charge - SFR Existing Facilities Patture Facilities (2016-2025)	High Density Fire Chg - Non-SFR Existing Facilities Patture Facilities (2016-2025) Basis - All Existing & Planned Sq Foot for HD Customers - 2030		I. ALLOCABLE COSTS - EXISTING FACILITIES: Utility Plant-in-Service at 12/31/2015 plus: Construction-in-Progress Total Allocable Plant b/f Adjustments less: Contributions in Aid of Construction (CIAC) less: Expected Replacements in 10-Year CIP plus: Accum. Interest on Existing Plant (Excluding Int. on Future Replc.) Total Allocable Plant b/f Net Outstanding Debt Allocable Plant b/f Net Outstanding Net Of Debt Allocable Plant b/f Net Outstan	\$ 42,123,323 <u>4,514,984</u> 46,638,307 (1,465,830) (1,465,830) (1,465,830) (1,465,830) (1,465,830) (1,465,830) (1,465,830) (5,443,578) \$ 52,953,219 \$ 16,448,903 \$ 16,448,903	<u>Capacity Chg</u> \$ 25,314,326 <u>2,771,239</u> <b>28,085,565</b> (905,430) (30,192) <u>7,699,934</u> <b>34,849,876</b> <i>60%</i> ( <u>3,248,603)</u> \$ 31,601,272 \$ 9 944 731	Fire Alloc           \$ 16,808,997           1,743,745           18,552,743           (560,399)           (18,687)           5.573,266           23,546,922           40%           (2,194,975)           \$ 21,351,947           \$ 6504,172	(SFR) Fire Chq \$ 7,528,649 35.3%	Fire Chg 5 13,823,298 64.7%
	Connection Charge Per Meter Equiv (ME)		Connection Charge Per Meter	Connection Charge Per Square Foot		Issis: Expected Contributions in Aid of Construction (CIAC)         Total Allocable Plant b/f Net Outstanding Debt         Allocation to Capacity and Fire Plant (per Allocable CIP 2016-2025)         Iess: Debt Outstanding net of Applicable Cash Balances         Debt Outstanding net of Applicable         Cash Balances Alloc to CIP Debt         (4.809.745)	<u></u> <u></u> <u></u> <u></u>	9,944,731 	6,504,172 6,504,172 40%		
TO SUMM	IARIZE:					Maximum Zero or Net Debt 1,190,848	(1,190,848)	(719,967)	(470,881)		
1) The all	locable cos	ts of Existin	ng Facilitie	s have		TOTAL ALLOCABLE COSTS - FUTURE FACILITIES	15,258,055	9,224,764	6,033,291	1,926,062 31.9%	<b>4,107,229</b> 68.1%
been c	computed -	\$52,953,21	L9			III. TOTAL ALLOCABLE COSTS (1. + II.)	\$68,211,274	\$40,826,036	\$27,385,238	<b>\$9,454,711</b> 34.5%	\$17,930,527 65.5%
<ol> <li>Those Capaci Fire Su</li> <li>Total f segreg \$7,528 SFR) co</li> </ol>	costs have ity costs - \$ ippression ire Suppres ated betwo 3,649 – 35.3 osts - \$13,8	been alloca 31,601,272 costs - \$21, ssion costs l een Low De 3% and Hig 323,298 – 64	ated betwo – 60%, an 351,947 – have been nsity (SFR h Density ( 4.7%	een d Total 40% further ) costs - (Non-		<ul> <li>IV. METER EQUIV (ME) ALLOCATION FOR BASE CAPACITY COSTS: Total Low Density (SFR) Meter Equivalents (MEs) Total High Density (Non-SFR) Meter Equivalents (MEs) Total Existing Meter Equivalents (MEs) Growth in MEs During Planning Period - Low Density Growth in MEs During Planning Period - High Density Total Growth Total Projected Capacity in Meter Equivalents (ME)</li> <li>V. BASE CAPACITY CHARGE PER ME FOR ALL CUSTOMERS</li> <li>VI. METER ALLOCATION FOR FIRE COSTS - LOW DENSITY (SFR): * Low Density (SFR) Meters 12/31/2015 Growth in Meters During Planning Period - Low Density</li> </ul>	Exising Future	7,760 2,328 10,088 77 303 379 10,468 \$3,900 per ME \$3,019 \$881		7,562 75	
						Total Projected Low Denisty (SFR) Meters				7,637	
The next facilities capacity low and h	step is det and alloca and fire, a nigh densi	termine th te those co nd to alloc ty.	e cost of osts betw ate fire b	future een etween		<ul> <li>VII. FIRE CHARGE PER METER FOR LOW DENSITY CUSTOMERS (III. / VI.)</li> <li>VIII. SQUARE FOOT ALLOCATION FOR FIRE COSTS - HIGH DENSITY: Total High Density (Non-SFR) Square Footage 12/31/2015 Growth in Sq Ft During Planning Period - High Density Total Projected Square Footage for High Density Customers</li> <li>I. FIRE CHARCE RED SO FT FOO HIGH DENSITY CUSTOMERS (III. / VIII.)</li> </ul>			Exisitng Future	\$1,238 / Meter \$986 \$252	4,763,646 <u>983,759</u> <b>5,747,405</b>
						IA. THE GRACETER SETTION HIGH DENSITION TOWERS (III. / VIII.)				Exisitng Future	\$3. 12-17 SO F1 \$2.41 \$0.71
					Ľ	* Meters exclude irrigation and fire meters					



### Repeat what was done with Existing Facilities for Future Facilities - *almost*



RCW 57 stipulates that facilities planned for construction within the next ten years and contained in an adopted Comp Plan may be included. The allocation of future facility costs between capacity and fire and the allocation of fire between low and high density customers mirrors how costs were allocated for existing facilities, except that future facilities may be stated in future dollars and interest earnings are not included.

## Policy Decision 6 – Should future facilities be stated in current or future dollars?

Since the District budgets, plans rate increases and projects required debt funding on future value it is there fore recommended that the District state future facility costs in future dollars.

			τοται	CARACITY	FIRE SUPPRESSION				
	CALCULATION AND ALLOCATION COMPONENTS	AL	LOCABLE	All Customer	Total	Low Density	High Density		
			COSTS	Capacity Chg	Fire Alloc	(SFR) Fire Chg	Fire Chg		
I.	ALLOCABLE COSTS - EXISTING FACILITIES: Utility Plant-in-Service at 12/31/2015 plus: Construction-in-Progress Total Allocable Plant b/f Adjustments less: Contributions in Aid of Construction (CIAC) less: Expected Replacements in 10-Year CIP plus: Accum. Interest on Existing Plant (Excluding Int. on Future Replc.) Total Allocable Plant b/f Net Outstanding Debt Allocation to Capacity and Fire Plant (per Allocable Plant 2015) less: Debt Outstanding net of Cash Balances Debt Outstanding - 12/31/15 Set Debt Outstanding - 12/31/15 Maximum Zero or Net Debt TOTAL ALLOCABLE COSTS - EXISTING FACILITIES	\$	42,123,323 4,514,984 46,638,307 (1,465,830) (48,880) 13,273,199 58,396,798 (5,443,578) 52,953,219	\$ 25,314,326 2,771,239 28,085,565 (905,430) (30,192) 7,699,934 34,849,876 60% (3,248,603) \$ 31,601,272	\$ 16,808,997 <u>1,743,745</u> <b>18,552,743</b> (560,399) (18,687) <u>5,573,266</u> <b>23,546,922</b> <i>40%</i> (2,194,975) <b>\$ 21,351,947</b>	\$ 7,528,649 25 29	\$ 13,823,298		
11.	ALLOCABLE COSTS - FUTURE FACILITIES: Future Capital Requirements (10 Year CIP 2016-2025) less: Expected Contributions in Aid of Construction (CIAC) Total Allocable Plant b/f Net Outstanding Debt Allocation to Capacity and Fire Plant (per Allocable CIP 2016-2025) less: Debt Outstanding net of Applicable Cash Balances Debt Outstanding for CIP - 12/31/25 6,000,594 Cash Balances Alloc to CIP Debt (4,809,745)	\$	16,448,903  16,448,903	\$ 9,944,731 	\$ 6,504,172 	32.32	0472		
	Maximum Zero or Net Debt 1,190,848		(1,190,848)	(719,967)	(470,881)				
	TOTAL ALLOCABLE COSTS - FUTURE FACILITIES		15,258,055	9,224,764	6,033,291	1,926,062 31.9%	<b>4,107,229</b> 68.1%		
III.	TOTAL ALLOCABLE COSTS (1. + 11.)	ç	\$68,211,274	\$40,826,036	\$27,385,238	<b>\$9,454,711</b> 34.5%	\$17,930,527 65.5%		
IV.	METER EQUIV (ME) ALLOCATION FOR BASE CAPACITY COSTS: Total Low Density (SFR) Meter Equivalents (MEs) Total High Density (Non-SFR) Meter Equivalents (MEs) Total Existing Meter Equivalents (MEs) Growth in MEs During Planning Period - Low Density Growth in MEs During Planning Period - High Density Total Growth Total Projected Capacity in Meter Equivalents (ME)			7,760 <u>2,328</u> <b>10,088</b> 77 <u>303</u> <b>379</b> <b>10,468</b>					
V.	BASE CAPACITY CHARGE PER ME FOR ALL CUSTOMERS		Exisitng Future	\$3,900 per ME \$3,019 \$881					
VI.	METER ALLOCATION FOR FIRE COSTS - LOW DENSITY (SFR): * Low Density (SFR) Meters 12/31/2015 Growth in Meters During Planning Period - Low Density Total Projected Low Denisty (SFR) Meters					7,562 <u>75</u> <b>7,637</b>			
VII.	FIRE CHARGE PER METER FOR LOW DENSITY CUSTOMERS (III. / VI.)				Exisitng	\$1,238 / Meter \$986 \$252			
VIII.	SQUARE FOOT ALLOCATION FOR FIRE COSTS - HIGH DENSITY: Total High Density (Non-SFR) Square Footage 12/31/2015 Growth in Sq Ft During Planning Period - High Density Total Projected Square Footage for High Density Customers				, aure	\$232	4,763,646 <u>983,759</u> <b>5,747,405</b>		
IX.	FIRE CHARGE PER SQ FT FOR HIGH DENSITY CUSTOMERS (III. / VIII.)					Exisitng Future	\$3.12 / SQ FT \$2.41 \$0.71		
° Me	ers exclude irrigation and fire meters								



		CAPACITY	FIRE SUPPRESSION					
CALCULATION & ALLOCATION COMPONENTS	COSTS	All Customer Capacity Chg	Total Fire Alloc	Low Density (SFR) Fire Chg	High Density Fire Chg			
II. ALLOCABLE COSTS - FUTURE FACILITIES:				Future capital p	rojects come e Comp Plan			
Future Capital Requirements (10 Year CIP 2016-2025)	\$ 16,448,903	\$ 9,944,731	\$ 6,504,172	- only exception	n is the 178 <sup>th</sup>			
less: Expected Contributions in Aid of Construction	-	-	-	Street project.				
Total Allocable Plant b/f Net Outstanding Debt	16,448,903	9,944,731	6,504,172	There are no pla developer proje	anned ects in the			
Allocation to Capacity and Fire Plant		60%	40%	2016-2025 CIP				
less: Debt Outstanding net of Applicable Cash Balances Debt Outstanding for CIP - 12/31/25 6,000,594 Cash Balances Allocated to CIP Debt (4,809,745)				The amount of outstanding del between existir and future facil	net bt is allocated ng facilities ities. It is			
Maximum Zero or Net Debt         1,190,848	(1,190,848)	(719,967)	(470,881)	allocated betwe	een Capacity			
TOTAL ALLOCABLE COSTS - FUTURE FACILITIES	15,258,055	9,224,764	6,033,291	before adj 61	% and 39%.			

PIPE UPSIZING FOR FIRE PROTECTION - Calculation of Percentage used to Allocate Total T&D Costs between Capacity and Fire - and between Low & High Density Cusomters												ters	Net n	ew pip	e 2016	-202	5 will be	2
Diameter (Inch)	Total Feet of Pipe 12/31/15	Add (Rep 2016-2	olaced) 2025	Total Feet of Pipe in 2015	Current Direct Costs - per ft	Cost of Pipe < 4"	Cost Increment 4" and >	Total Pipe Value in 2015	Base Pipe Inflat Value in 2015	Total Upsizin Value	g Upsizing Value - Low Density	Upsizing Value - High Density Increment	replac LF wit	ced or the	added majorit	total y bei	ing 12,7 ing 12"	90 pipe.
< 4	3,598			3,598	\$ 32	\$ 32		\$ 114,279	\$ 114,279		\$	\$-	Pine v	alues	have h	een i	nflated	from
4 - Capacity	1,565			1,565	\$ 53	\$ 32	\$ 22	83,508	49,707	33,80	1		2015	values			mateu	
4 - Fire	44,417			44,417	\$ 53	\$ 32	\$ 22	2,370,088	1,410,767	959,32	2 959,322		2013	varues	•			
6 - Capacity	500	,		500	\$ 38	\$ 32	\$ 6	15,881	15,881		-		As the	e rema	ining p	ipe is	s upsize	d to
6 - Fire	260,261	(2,	,120)	258,141	\$ 38	\$ 32	\$ 6	9,838,849	8,199,041	1,639,80	B 1,639,808		meet	fire flo	ow requ	uirem	ients, th	e
8 - Capacity	150	•		150	\$ 53	\$ 32	\$ 22	4,764	4,764		-		alloca	tion sl	hifts sli	ghtly	more to	o the
8 - Fire	98,314	5,	,240	103,554	\$ 53	\$ 32	\$ 22	5,525,635	3,289,069	2,236,56	7 2,236,567		fire su	uppres	sion fu	nctio	n – fron	1
10	10,995			10,995	\$ 70	\$ 32	\$ 38	768,288	349,222	419,06	6	419,066	38% t	0 39%	. The a	lloca	tion to	nign
12	77,261	8,	,020	85,281	\$ 89	\$ 32	\$ 57	7,584,315	2,708,684	4,875,63	1	4,875,631	densi	ty cust	omers		o nigne	r -
16	1,823	1,	,650	3,473	\$ 128	\$ 32	\$ 97	445,648	110,309	335,33	7	335,339	going from 52% to 54%.					
20	800	12	700	508	\$ 108	\$ 3Z	\$ 130	80, 193 \$ 26, 836, 450	10,130	\$ 10 568 50	5 0 \$ 1,835,604	69,038	Allocat	tion fro	m 12/31	/2015	5	
	τοται α		ON BETV	WEEN CAPACIT	Y AND FIRF - AN	ID LOW AND HI	GH DENSITY	100%	61%	30%	4,000,070	54%	100% 62% 38% 48%			18%	52%	
											10070	0270	507	°	4070	5270		
	•								TOTION					-				
		·	2.0	STORAGE A	ALLOCATIO	N TO CAPA	CITY AND		ECTION								l	
STORAGE ELEN	IENTS	F	2.0 Reservoir (MGals)	STORAGE A 3.7 Reservoir (MGals)	ALLOCATION TOTAL GAL	N TO CAPA CAPAC BASE	CITY AND ITY FUNCTION PEAK	D FIRE PROT	FIRE FUNCTION	AS ALL G OTHER T	RAND ALLO	CATION BASIS						
STORAGE ELEM Operational Stora contracted amour	<b>IENTS</b> ge (n/a due to S nt)	F IPU	2.0 Reservoir (MGals) 0	STORAGE A r Reservoir (MGals) 0	ALLOCATION TOTAL GAL OF STORAGE 0.00	N TO CAPA CAPAC BASE 100%	CITY AND ITY FUNCTION PEAK	D FIRE PROT	FIRE FUNCTION	AS ALL G OTHER T	RAND DTAL ALLO	ICATION BASIS						
STORAGE ELEN Operational Stora contracted amour Equalizing Storag demands for wate	IENTS ge (n/a due to S nt) e (to meet peak r)	PU	2.0 Reservoir (MGals) 0 0.07	storage / r 8.77 (MGals) 0 0.16	ALLOCATION TOTAL GAL of STORAGE 0.00 0.23	N TO CAPA CAPAC BASE 100%	CITY ANE ITY FUNCTION PEAK	D FIRE PROT NS TOTAL 100% 100%	FIRE FUNCTION	AS ALL G OTHER T 1	RAND ALLO DTAL ALLO 00% A 00% A	ICATION BASIS II to Base II to Peak						
STORAGE ELEM Operational Storag contracted amour Equalizing Storag demands for wate Fire Suppression	IENTS ge (n/a due to S nt) e (to meet peak er)	PU	2.0 Reservoir (MGals) 0 0.07 0.63	storage / r 8:servoir (MGals) 0 0.16 1.08	ALLOCATION TOTAL GAL of STORAGE 0.00 0.23 1.71	N TO CAPA CAPAC BASE	CITY ANE ITY FUNCTION PEAK	D FIRE PROT NS TOTAL 100% 100% 0%	ECTION FIRE FUNCTION	AS ALL G OTHER T 1 1 1	RAND DTAL         ALLO           00%         A           00%         A           00%         A	ICATION BASIS II to Base II to Peak II to Fire						
STORAGE ELEN Operational Storag contracted amour Equalizing Storag demands for wate Fire Suppression Standby Storage (	ge (n/a due to S nt) e (to meet peak r) (for Emergencie	PU PU ss)	2.0 Reservoir (MGals) 0 0.07 0.63 0.46	STORAGE / a.7 Reservoir (MGals) 0 0.16 1.08 1.64	ALLOCATIO TOTAL GAL of STORAGE 0.00 0.23 1.71 2.10	BASE 50%	CITY ANE ITY FUNCTION PEAK	FIRE PROT           vs           TOTAL           100%           0%           50%	ECTION FIRE FUNCTION	AS ALL G OTHER T 1 1 1 1 1	RAND         ALLC           OTAL         ALLC           00%         A           00%         A           00%         A           00%         A           00%         A	DCATION BASIS II to Base II to Peak II to Fire 60 Base/Fire						
STORAGE ELEM Operational Storag contracted amour Equalizing Storag demands for wate Fire Suppression Standby Storage ( Surplus (Excess)	IENTS ge (n/a due to S nt) e (to meet peak r) (for Emergencie (to provide for c	PU ss) growth)	2.0 Reservoir (MGals) 0 0.07 0.63 0.46 0.84	STORAGE / a.7 Reservoir (MGals) 0 0.16 1.08 1.64 0.82	ALLOCATIO TOTAL GAL of STORAGE 0.00 0.23 1.71 2.10 1.66	N TO CAPA CAPAC BASE 1 100%	CITY AND ITY FUNCTION PEAK	D FIRE PROT IS TOTAL 100% 100% 0% 50% 0%	ECTION FIRE FUNCTION	AS ALL G OTHER T 1 1 1 1 100% 1	RAND DTAL         ALLO           00%         A           00%         50/2           00%         A	ICATION BASIS II to Base II to Peak II to Fire 50 Base/Fire 5 All Other						
STORAGE ELEN Operational Storag contracted amour Equalizing Storag demands for wate Fire Suppression Standby Storage ( Surplus (Excess) + Dead Storage (n/a	ge (n/a due to S nt) e (to meet peak r) (for Emergencie (to provide for <u>c</u> a with pump red	PU spu ss) growth)	2.0 Reservoin (MGals) 0 0.07 0.63 0.46 0.84 0	STORAGE         J.7           Reservoir (MGals)         0           0.16         1.08           1.64         0.82           0         0	ALLOCATION TOTAL GAL OF STORAGE 0.00 0.23 1.71 2.10 1.66 0.00	BASE 100%	CITY ANE ITY FUNCTION PEAK	FIRE PROT           IS           TOTAL           100%           0%           50%           0%	ECTION FIRE FUNCTION	AS ALL G T OTHER 1 1 1 1 100% 1	RAND DTAL         ALLC           00%         A           00%         A           00%         A           00%         A           00%         50%           00%         A	DCATION BASIS II to Base II to Peak NI to Fire 60 Base/Fire 5 All Other N/A						
STORAGE ELEN Operational Storag contracted amour Equalizing Storag demands for wate Fire Suppression Standby Storage ( Surplus (Excess) ( Dead Storage (n/a Storage bf Redist	IENTS ge (n/a due to S nt) e (to meet peak r) (for Emergencie (to provide for <u>c</u> a with pump red	PU spu ss) growth) lesign)	2.0 Reservoin (MGals) 0.07 0.63 0.46 0.84 0 0 2.0	STORAGE / r 3.7 Reservoir (MGals) 0 0.16 1.08 1.64 0.82 0 3.7	ALLOCATIO TOTAL GAL OF STORAGE 0.00 0.23 1.71 2.10 1.66 0.00 5.7	N TO CAPA CAPAC BASE 1 100% 1 50% 2 18% 1	CITY ANE TY FUNCTION PEAK	FIRE PROT           TOTAL           100%           100%           0%           50%           0%           0%           0%           0%           22%	ECTION FIRE FUNCTION 100% 50%	AS ALL G T OTHER 1 1 1 1 100% 1 29% 1	RAND DTAL         ALLO           00%         A           00%         A           00%         A           00%         50/2           00%         A           00%         A	CATION BASIS II to Base II to Peak II to Fire i0 Base/Fire 5 All Other N/A	There	is no	expecte	ed dif	fference	in
STORAGE ELEM Deparational Storag contracted amour Equalizing Storag demands for wate Fire Suppression Standby Storage ( Surplus (Excess) + Dead Storage (n/a Storage bf Redist	IENTS ge (n/a due to S nt) e (to meet peak r) (for Emergencie (to provide for g a with pump red tribution of Surp	PU PU ss) growth) lesign) STORAG	2.0 Reservoir (MGals) 0.07 0.63 0.46 0.84 0 2.0	STORAGE / a.7 Reservoir (MGals) 0 0.16 1.08 1.64 0.82 0 3.7 UNCTIONS	ALLOCATIO TOTAL GAL OF STORAGE 0.00 0.23 1.71 2.10 1.66 0.00 5.7	N TO CAPA CAPAC BASE 1 100% 5 50% 1 18% 1	CITY AND TY FUNCTION PEAK 100% 100% 4% 4% 0.2	FIRE PROT           NS           TOTAL           100%           100%           0%           0%           0%           0%           22%           1.3	ECTION FIRE FUNCTION 0 100% 50% 0 48% 0 2.8 0	AS ALL OTHER G 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	RAND DTAL         ALLO           00%         A           00%         A           00%         50%           00%         A           00%         5.7	IL to Base II to Base II to Peak II to Fire 60 Base/Fire 5 All Other N/A	There the al	is no locatio	expecte on of st	ed dif	fference	in en
STORAGE ELEM Operational Storag contracted amour Equalizing Storag demands for wate Fire Suppression Standby Storage ( Surplus (Excess) ( Dead Storage (n/a Storage bf Redist TO Percental Alloc	IENTS ge (n/a due to S nt) e (to meet peak r) (for Emergencie (to provide for <u>c</u> a with pump red tribution of Surp TAL MGALS OF cation of "As All	PU s) growth) elesign) plus STORAG Other" to	2.0 Reservoir (MGals) 0.07 0.63 0.46 0.84 0 2.0 2.0 SE BY FU	STORAGE / a.7 Reservoir (MGais) 0 0.16 1.08 1.64 0.82 0 3.7 UNCTIONS ity and Fire Fu	ALLOCATIO TOTAL GAL OF STORAGE 0.00 0.23 1.71 2.10 1.66 0.00 5.7 Junctions	N TO CAPA CAPAC BASE 1 100% 5 50% 6 18% 1 1.1 26% 1	CITY AND TY FUNCTION PEAK 100% 4% 0.2 6%	FIRE PROT           IS           TOTAL           100%           100%           0%           0%           0%           0%           1.3           32%	ECTION FIRE FUNCTION 100% 50% 48% 2.8 68%	AS ALL OTHER G 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	RAND DTAL         ALLO           00%         A           00%         A           00%         50/2           00%         A           00%         5.7           00%         00%	IL to Base II to Base II to Peak II to Fire 50 Base/Fire 5 All Other N/A	There the al capac	is no locatio ity and	expecte on of st d fire su	ed dif orage	fference e betwe ession co	in en ost.

		2015 Const in	10 Voar CID		CENEDAL (As	CAPACIT	y (Non-Fire) fu	NCTIONS	TOTAL NON-	EIDE		
PLANT-IN-SERVICE	2015 PLANT	Progress	2016 -2025	2025	All Other)	METERS & SERVICES	BASE	PEAK	FIRE FUNCTIONS	FUNCTION	GRAND TOTAL	ALLOCATION BASIS
Storage (Reservoirs)	6,034,906		118,843	6,153,749			26%	6%	32%	68%	100%	As Storage Plant
Transmission & Distribution	15,578,193	66,270	11,122,709	26,767,172			30%	30%	61%	39%	100%	Fire as Pipes, Remainder Peak/Avg
Pumping	2,446,674	3,310,806	4,846,888	10,604,368			30%	30%	61%	39%	100%	Same as T&D
Hydrants	1,007,228		-	1,007,228					0%	100%	100%	All to Fire
Meters & Services	5,020,507		-	5,020,507		100%			100%		100%	All to Meters & Services
Supply/Treatment	-		-	-			50%	50%	100%		100%	Peak/Avg Day Ratio(1084/542 gals)
TOTAL DIRECT UNILITY PLAN	30,087,507	3,377,076	16,088,441	49,553,024	-	5,020,507	12,940,687	11,691,658	29,652,853	19,900,172	49,553,024	
Percental	Allocation to F	Functions of S	ervice			10%	26%	24%	60%	40%	100%	
GENERAL UTILITY PLANT	12,035,816	1,137,908	360,462	13,534,186	100%						100%	As All Other
Allocation of General (As all Oth	er) to Direct P	lant Functions	city and Eire	are hased	(13.534.186)	1.371.228	3,534,429	3,193,288	8,098,945	5,435,241	13,534,186	
TOTAL UTILITY PLANT	42,123,323	4,514,984	16,448,903	63,087,210		6,391,735	16,475,116	14,884,947	37,751,798	25,335,412	63,087,210	
TOTAL #	LLOCATION	of plant i	N SERVICE -	2025		10%	26%	24%	60%	40%		
TOTAL UTILITY PLANT	42,123,323	4,514,984	-	46,638,307		6,996,889	11,397,891	9,690,785	28,085,565	18,552,743	46,638,307	
TOTAL A	LLOCATION	of plant i	N SERVICE ·	2015		15%	24%	21%	60%	40%		

The \$16.4 Million in new capital proposed from 2016-2025 did not shift costs enough to change the capacity / fire split of 60% to capacity and 40% to fire.

#### Allocation of Fire to Low and High Density in 2025

TOTAL FIRE COSTS	FIRE SUPP COSTS BY	PRESSIO DENSIT	N Y						
Low & High Density Fire Charges Fire Charge - SFR Fire Chg - Non-SFR			Low Density High Density	y = Single Family ( y = Non-Single Fa	The first step is to allocate the total fire costs between				
Existing Facilities \$6,033,291	Existing Facilities	Existing Facilitie	ş S	This \$6 Milli Costs for Fir	on is the net Allo e - <i>See the previo</i>	"All Customers" and the additional amount needed			
Allocation Customer	of Fire Costs to All and High Density			urrent Value of Pipe Upsizing	Allocation %	Costs Alloc to Fire Plant	This was previously done when all the pipes were evaluated for capacity and		
All Customers -	4" thru 8"		\$	4,835,696	46%	\$ 2,769,411	fire in total.		
High Density Inc	crement - > 8"		\$	5,699,094	54%	\$ 3,263,880	The next step is to allocate		
TOTAL	TOTAL		\$	10,534,791	10,534,791 100% \$		the costs for All customers (\$2,769,411) between LD		
							and HD customers. Sq		
Allocation to SFR & HD N	Allocation to Customer Classes (LI SFR & HD Non-SFR) by Sq Foot			Low Density - Single Family	High Density - Non-SFR	Total	footage obtained from the Kind County assessors offi was used as the allocation		
Allocation Basis	s - Sq Footage			13, 126, 082	5,747,405	18,873,487	basis. 46% is allocated to LD		
Percentage				70%	30%	100%	and 54% is allocated to HD.		
All Customer Ar	nount		\$	1,926,062	\$ 843,348	\$ 2,769,411	HD increment to the HS		
High Density Increment Total Fire Flow Plant Allocation			\$	-	\$ 3,263,880	\$ 3,263,880	share of costs for All customers for a final		
		\$	1,926,062	\$ 4,107,229	\$ 6,033,291	allocation between LD & HD			

68%

100%

respectively.

32%

Final Allocation between Classes



	TOTAL	CAPACITY	F	IRE SUPPRESSION	
CALCULATION & ALLOCATION COMPONENTS	COSTS	All Customer Capacity Chg	Total Fire Alloc	Low Density (SFR) Fire Chg	High Density Fire Chg
II. ALLOCABLE COSTS - FUTURE FACILITIES:				Future capital pr	ojects come
Future Capital Requirements (10 Year CIP 2016-2025)	\$ 16,448,903	\$ 9,944,731	\$ 6,504,172	only exception is Street project.	the 178 <sup>th</sup>
Total Allocable Plant b/f Net Outstanding Debt	16,448,903	9,944,731	<u>-</u> 6,504,172	There are no dev projects in the 20	eloper 016-2025 CIP
Allocation to Capacity and Fire Plant less: Debt Outstanding net of Applicable Cash Balances Debt Outstanding for CIP - 12/31/25 6,000,594 Cash Balances Allocated to CIP Debt (4 809 745)		60%	40%	The amount of n outstanding deb between existing future facilities. between Canacil	et t is allocated g facilities and It is allocated ty and Fire
Maximum Zero or Net Debt 1,190,848	(1,190,848)	(719,967)	(470,881)	according to Plar	nt before adj
TOTAL ALLOCABLE COSTS - FUTURE FACILITIES	15,258,055	9,224,764	6,033,291	1,926,062	4,107,229
Final allocation of Capacity and Fire and Fire to Low a	nd High Dens	ity 60%	40%	35%	65%

### **Closer Look at the Costs – All Facilities**

	TOTAL	TOTAL CAPACITY FIRE SUPPR			SSION	
CALCULATION & ALLOCATION COMPONENTS	COSTS	All Customer Capacity Chg	Total Fire Alloc	Low Density (SFR) Fire Chg	High Density Fire Chg	
I. ALLOCABLE COSTS - EXISTING FACILITIES:						
Utility Plant-in-Service at 12/31/2015	\$ 42,123,323	\$ 25,314,326	\$ 16,808,997			
plus: Construction-in-Progress	4,514,984	2,771,239	1,743,745			
Total Allocable Plant b/f Adjustments	46,638,307	28,085,565	18,552,743			
less: Contributions in Aid of Construction	(1,465,830)	(905,430)	(560,399)			
less: Expected Replacements in 10-Year CIP	(48,880)	(30,192)	(18,687)			
plus: Accumulated. Interest on Existing Plant	13,273,199	<u>7,699,934</u>	<u>5,573,266</u>			
Total Allocable Plant b/f Net Outstanding Debt	58,396,798	34,849,876	23,546,922			
Allocation to Capacity and Fire Plant		60%	40%			
<ul> <li>less: Debt Outstanding net of Cash Balances</li> <li>Debt Outstanding - 12/31/15 9,709,907</li> <li>Cash Balances - 2015 (4,266,328)</li> <li>Maximum Zero or Net Debt 5,443,578</li> <li>TOTAL ALLOCABLE COSTS - EXISTING FACILITIES</li> <li>II. ALLOCABLE COSTS - FUTURE FACILITIES:</li> <li>Future Capital Requirements (10 Year CIP 2016-2025)</li> <li>less: Expected Contributions in Aid of Construction</li> <li>Total Allocable Plant b/f Net Outstanding Debt</li> </ul>	( <u>5,443,578)</u> \$ 52,953,219 \$ 16,448,903  16,448,903	( <u>3.248.603)</u> \$ 31,601,272 \$ 9,944,731  9,944,731	(2.194.975) \$ 21,351,947 \$ 6,504,172  6,504,172	\$7,528,649 35%	\$ 13,823,298 65%	
Allocation to Capacity and Fire Plant less: Debt Outstanding net of Applicable Cash Balances Debt Outstanding for CIP - 12/31/25 6,000,594 Cash Balances Allocated to CIP Debt (4,809,745) Maximum Zero or Net Debt 1,190,848 TOTAL ALLOCABLE COSTS - FUTURE FACILITIES	<u>(1,190,848)</u> 15,258,055	60% (719,967) 9,224,764	<i>40%</i> <u>(470,881)</u> 6,033,291	1,926,062	4,107,229	
III. TOTAL ALLOCABLE COSTS (5)	\$68,211,274	\$40,826,036	\$27,385,238	\$9,454,711	\$17,930,527	
Final allocation of Capacity and Fire and Fire to Low and	High Density	60%	40%	35%	65%	
Final allocation of Capacity and Fire and Fire to Low and	l High Density	60%		14%	26%	

### **Closer Look at the Basis of the Charge**



The next step is to walk through the calculation of the capacity or base charge with the basis of the capacity being Meter Equivalents.

Policy Decision 7 – Should fire sprinkler meters be omitted from the connection charge?

Since the District's current policy is to not charge connection fees for fire sprinkler systems, even though they do create a capacity demand on the system, it is recommended that the District continue with this policy and recover the costs related to providing fire sprinkler water through the meter equivalent charge of the other capacity meters.

	TOTAL	CAPACITY	FI	RE SUPPRESSIO	N
CALCULATION AND ALLOCATION COMPONENTS	ALLOCABLE COSTS	All Customer	Total Fire Alloc	Low Density	High Density
I. ALLOCABLE COSTS - EXISTING FACILITIES: Utility Plant-in-Service at 12/31/2015 plus: Construction-in-Progress	\$ 42,123,323 4,514,984	\$ 25,314,326 2,771,239	\$ 16,808,997 <u>1,743,745</u>		
Iotal Allocable Plant bit Adjustments         less: Contributions in Aid of Construction (CIAC)         less: Expected Replacements in 10-Year CIP         plus: Accum. Interest on Existing Plant (Excluding Int. on Future Replc.)         Total Allocable Plant bif Net Outstanding Debt         Allocation to Capacity and Fire Plant (per Allocable Plant 2015)         less: Debt Outstanding net of Cash Balances         Debt Outstanding - 12/37/15         9,709,907         Cash Balances - 2015	46,638,307 (1,465,830) (48,880) <u>13,273,199</u> 58,396,798	28,085,365 (905,430) (30,192) <u>7,699,934</u> <b>34,849,876</b> <i>60%</i>	(560,399) (18,687) (1		
Maximum Zero or Net Debt 5,443,578 TOTAL ALLOCABLE COSTS - EXISTING FACILITIES II. ALLOCABLE COSTS - FUTURE FACILITIES:	( <u>5,443,578)</u> \$ <b>52,953,219</b>	(3,248,603) \$ 31,601,272	<u>(2,194,975)</u> \$ 21,351,947	\$ 7,528,649 35.3%	\$ <b>13,823,298</b> 64.7%
Future Capital Requirements (10 Year CIP 2016-2025) less: Expected Contributions in Aid of Construction (CIAC) Total Allocable Plant b/f Net Outstanding Debt Allocation to Capacity and Fire Plant (per Allocable CIP 2016-2025)	\$ 16,448,903  16,448,903	\$ 9,944,731 	\$ 6,504,172 		
less: Debt Outstanding net of Applicable Cash Balances         Debt Outstanding for CIP - 12/31/25       6,000,594         Cash Balances Alloc to CIP Debt       (4,809,745)         Maximum Zero or Net Debt       1,190,848	(1,190,848)	(719,967)	(470,881)		
TOTAL ALLOCABLE COSTS - FUTURE FACILITIES	15,258,055 \$68,211,274	9,224,764 \$40,826,036	6,033,291 \$27,385,238	1,926,062 31.9% \$9,454,711	4,107,229 68.1% \$17,930,527
				34.5%	65.5%
IV. METER EQUIV (ME) ALLOCATION FOR BASE CAPACITY COSTS: Total Low Density (SFR) Meter Equivalents (MEs) Total High Density (Non-SFR) Meter Equivalents (MEs) Total Existing Meter Equivalents (MEs) Growth in MEs During Planning Period - Low Density Growth in MEs During Planning Period - High Density Total Growth Total Projected Capacity in Meter Equivalents (ME)		7,760 <u>2,328</u> <b>10,088</b> 77 <u>303</u> <b>379</b> <b>10,468</b>			
V. BASE CAPACITY CHARGE PER ME FOR ALL CUSTOMERS	Exisitng Future	\$3,900 per ME \$3,019 \$881			
VI. METER ALLOCATION FOR FIRE COSTS - LOW DENSITY (SFR): * Low Density (SFR) Meters 12/31/2015 Growth in Meters During Planning Period - Low Density Total Projected Low Denisty (SFR) Meters				7,562 <u>75</u> <b>7,637</b>	
VII. FIRE CHARGE PER METER FOR LOW DENSITY CUSTOMERS (III. / VI.)			Exisitng Future	\$1,238 / Meter \$986 \$252	
VIII. SQUARE FOOT ALLOCATION FOR FIRE COSTS - HIGH DENSITY: Total High Density (Non-SFR) Square Footage 12/31/2015 Growth in Sq Ft During Planning Period - High Density Total Projected Square Footage for High Density Customers					4,763,646 <u>983,759</u> <b>5,747,405</b>
IX. FIRE CHARGE PER SQ FT FOR HIGH DENSITY CUSTOMERS (III. / VIII.)				Exisitng Future	\$3.12 / SQ FT \$2.41 \$0.71
* Meters exclude irrigation and fire meters					

### **Basis of the Capacity Charge**

**Meter Equivalents (MEs)** are the number of capacity or flow units for a meter, with the base meter size of  $5/8'' \times 3/4''$  being 1 unit. The size of the meter is driven by the size of the pipe required to provide the water "flow" demands of the property being served. It follows then that the more demand for water flow, the larger the pipe and therefore the meter will need to be.

Since the District's capacity related costs are most directly related to the water flow required by a property for per sonal use and the interface with the customer is with the meter, it follows that the meter size (as expressed in meter equivalents) would be the most equitable method for recovering the costs for capacity.

AWWA provides these equivalency or flow factors as follows:

What this means is that the larger the meter, the higher the capacity portion of the connection charge will be. For example, if a new property required a  $5/8" \times 3/4"$  meter and the base charge for capacity was \$1,000, a 2" meter would have a base charge of \$8,000 (\$1,000 × 8).

The current basis for the Capacity Charge is ERU (Square Footage) but with further analysis it was determined that splitting the charge into two elements – Capacity and Fire – with two different bases would produce a more equitable charge than having one basis for both elements. NOTE: The District determined Meter Equivalents (MEs) were a better basis for capacity related costs when the service rates were revised in 2012 as well. Square Footage will remain as the basis of the High Density Fire Suppression Charge in this 2016 update.

METER SIZES	Flow Factor
5/8" x 3/4" Meter	1
3/4" Meter	1.5
1" Meter	2.5
1 1/2" Meter	5
2" Meter	8
3" Meter	16
4" Meter	25
6" Meter	50
8" Meter	80

### **Basis of the Capacity Charge - 1**



CALCULATION & ALLOCATION COMPONENTS	TOTAL ALLOCABLE COSTS	CAPACITY All Customer Capacity Chg	The total existing MEs (excluding fire sprinkler meters) are 10,088. The number of high-density customers (571) is 7% of the total customers and SFR customers (7.562) are 93% of the total
III. TOTAL ALLOCABLE COSTS	\$68,211,274	\$40,826,036	customers, the ratio is 23% / 77% respectively in
IV. METER EQUIV (ME) ALLOCATION FOR BASE COSTS: Total Low Density (SFR) Meter Equivalents (MEs)		7,760	the number of MEs. This is a clear indicator of how the larger customers put relatively higher demand on the District's systems.
Total High Density (Non-SFR) Meter Equivalents (MEs) Total Existing Meter Equivalents (MEs) Growth in MEs During Planning Period - Low Density		<u>2,328</u> 10,088 77	The projected growth period is 2016-2030. There are 77 new MEs projected for SFR, which is about five new customers a year. The growth for
Growth in MEs During Planning Period - High Density Total Growth Total Projected Capacity in Meter Equivalents (ME)		<u>303</u> <u>379</u> 10,468	much greater, especially with Multi-Family where several large new apartment buildings are expected to be built over the next 15 years.
V. BASE CAPACITY COST PER ME FOR ALL CUSTOMERS	Exisitng Future	\$3,900 per ME \$3,019 \$881	The total projected number of MEs expected by the end of 2030 is 10,468 - over all growth rate of 3.8%. Previously it was projected to be about 9% higher or 13%.

### **Basis of the Capacity Charge - 1**

	TOTAL COSTS	CAPACITY COSTS	TOTAL FIRE COSTS	FIRE SUP	PRESSION STS	
	Combined Capacity and Fire Costs	Low & High Density Base Capacity Chg	Low & High Density Fire Charges	Low Density Fire Charge - SFR	High Density Fire Chg - Non-SFR	
	Existing Facilities	Existing Facilities	Existing Facilities	Existing Facilities	Existing Facilities	
	+	+	+	+	+	-
	Future Facilities (	Future Facilities	Future Facilities	Future Facilities	Future Facilities	
l	2016-2025)	(2016-2025)	(2016-2025)	(2016-2025)	(2016-2025)	
	]		,	•	•	l
		Basis – All Existing & Planned Meter Equiv		Basis – All Existing & Planned SFR Meters	Basis – All Existing & Planned Sq Foot for	
		Through 2030		Through 2030 <sup>(1)</sup>	HD Customers - 2030	
		=		=	=	
		Connection Charge		Connection Charge	Connection Charge	
		Per Meter Equiv (ME)		Per Meter	Per Square Foot	
			TOTAL	CAPACITY		
CALCULATION & ALLOCA	TION COMPONE	NTS		All Customer		
			00010	Capacity Chg		
III. TOTAL ALLOCABLE COS	TS		\$68,211,274	\$40,826,036	To arrive at	the capacity charge
IV. METER EQUIV (ME) ALLO	CATION FOR BASE	ECOSTS: 6			portion of t	he connection charge the
Total Low Density (SFR)	Meter Equivalents	s (MEs)		7,760	Total Alloca	ble Costs, \$40,826,036, are
Total High Density (Non	-SFR) Meter Equiv	alents (MEs)		<u>2,328</u>	divided by t	he total projected MEs at
Total Existing Meter Equ	uivalents (MEs)			10,088	the end of t	he growth period -10.468.
Growth in MEs During P	lanning Period - Lo	ow Density		77		
Growth in MEs During P	lanning Period - H	igh Density		<u>303</u>		
Total Growth				<u>379</u>		
Total Projected Capacity i	in Meter Equivalen	its (ME)		10,468		
V. BASE CAPACITY COST PE	ER ME FOR ALL CL	JSTOMERS		\$3,900 per ME	The final ch	arge for capacity is \$3,900
			Exisitna	\$3,019	per ME.	
			Future	\$881		

### **Basis of the SFR Fire Charge - 2**

TOTAL COSTS	CAPACITY COSTS	TOTAL FIRE COSTS	FIRE SUPI COS	PRESSION STS
Combined Capacity and Fire Costs	Low & High Density Base Capacity Chg	Low & High Density Fire Charges	Low Density Fire Charge - SFR	High Density Fire Chg - Non-SFR
Existing Facilities	Existing Facilities	Existing Facilities	Existing Facilities	Existing Facilities
+	+	+	+	+
Future	Future	Future	Future	Future
Facilities (	Facilities	Facilities	Facilities	Facilities
2016-2025)	(2016-2025)	(2016-2025)	(2016-2025)	(2016-2025)
	•		•••	•
	Basis – All Existing &		Basis – All Existing &	Basis – All Existing &
	Planned Meter Equiv		Planned SFR Meters	Planned Sq Foot for
	Through 2030		Through 2030 <sup>(1)</sup>	HD Customers - 2030
	=		=	=
	Connection Charge Per Meter Equiv (ME)		Connection Charge Per Meter	Connection Charge Per Square Foot

The basis for the SFR Fire Charge is meter. This is driven by the Uniform Fire Code that stipulates that all SFR requires 1,000 gpm of water flow for fire suppression regardless of property size.

Irrigation and fire line meters are not included as there is no fire protection related to these meters.

CALCULATION & ALLOCATION COMPONENTS	TOTAL ALLOCABLE COSTS	CAPACITY All Customer Capacity Chg	Total Fire Alloc	FIRE SUPPRESSIO Low Density (SFR) Fire Chg	The number of SFR meters, except irrigation and fire line
VI. METER ALLOCATION FOR FIRE COSTS - LOW DENSITY: * Low Density (SFR) Meters 12/31/2015 Growth in Meters During Planning Period - Low Density Total Projected Capacity in Meters	The final S derived by \$9,454,71	FR Fire Char dividing 1 by 7,637 fo	ge is or	7,562 7 <u>5</u> 7,637	meters, projected by the end of 2030 is 7,637 for a growth rate of 1%.
VII. FIRE COST PER METER FOR LOW DENSITY CUSTOMERS	Note the siz	e of the SFR m atter.	<b>eter</b> Exisitng Future	\$1,238 per Meter \$986 \$252	

### **Basis of the High Density Fire Charge - 3**

TOTAL COSTS	TOTAL CAPACITY TO COSTS COSTS		FIRE SUPPRESSION COSTS			
Combined Capacity and Fire Costs	Low & High Density Base Capacity Chg	Low & High Density Fire Charges	Low Density Fire Charge - SFR	High Density Fire Chg - Non-SFR		
Existing Facilities	Existing Facilities	Existing Facilities	Existing Facilities	Existing Facilities		
+	+	+	+	+		
Future Facilities ( 2016-2025)	Future Facilities (2016-2025)	Future Facilities (2016-2025)	Future Facilities (2016-2025)	Future Facilities (2016-2025)		
	• •		•	• •		
	Basis – All Existing & Planned Meter Equiv Through 2030		Basis – All Existing & Planned SFR Meters Through 2030 <sup>(1)</sup>	Basis – All Existing & Planned Sq Foot for HD Customers - 2030		
	=		=	=		
	Connection Charge Per Meter Equiv (ME)		Connection Charge Per Meter	Connection Charge Per Square Foot		

The basis for the High Density Fire Charge is square footage. This is driven by the Uniform Fire Code that requires at least 3,000 gpm of water flow to high density buildings for fire suppression. The primary factor in determining the amount of flow required is based on the square footage of the building. Therefore, it follows that square footage is the most equitable basis for this charge.

In the prior update of the connection charge, ERU was used instead of square footage, with 840 SQ FT equaling one ERU. There is no need to use an average any longer as we have access to all the square footage of all the buildings located with in the District through the King County Assessor's Office.

		CAPACITY	FIRE SUPPRESSION			
CALCULATION & ALLOCATION COMPONENTS	COSTS	All Customer	Total	Low De	nsity	High Density
		Capacity Chg	Fire Alloc	(SFR) Fir	re Chg	Fire Chg
III. TOTAL ALLOCABLE COSTS	\$68,211,274	\$40,826,036	\$27,385,238	\$9,4	54,711	\$17,930,527
VIII SQ FOOT ALLOCATION FOR FIRE COSTS - HIGH DENSITY: Total High Density (Non-SFR) Square Footage 12/31/2015 Growth in Sq Ft During Planning Period - High Density	The square footage projected for high density customers by the end of 2030 is 5,747,405 Sq Feet, for a growth rate of 21%. This is due primarily to several new large apartment buildings that are expected to be built over					4,763,646 <u>983,759</u>
Total Projected Capacity in Square Footage	th	e next 15 years.				5,747,405
IX. FIRE COST PER SQ FT FOR HIGH DENSITY CUSTOMERS	T	ne final High D derived by di	Density Fire ( Viding \$17.93	Charge		\$3.12 / SQ FT
	b	y 5,747,405 fo	r \$3.12 per S	Q FT.	Exisitng Future	\$2.41 \$0.71

### **Summary of Connection Charge Calculations**



- 1) We began by reviewed the Existing Facilities (Plant) and the allocation between Capacity and Fire costs.
- 2) Next we looked at the Total Allocable Costs for Existing Facilities by adding or subtracting the donated capital, interest and outstanding debt.
- The next step was our review of the allocation of fire costs for Existing Facilities between low and high density customers.
- 4) The first three steps concluded the cost elements of the Existing Facilities and then we repeated the process for Future Facilities.
- 5) By adding the allocable costs for Existing and Future Facilities we derived the Total Allocable Costs, which became the numerator of the final connection charges.
- 6 -8) The final three steps derived the basis of each charge – ME for Capacity, Meter for Low Density Fire, and Square Footage for High Density Fire, and then divided the basis of the charge (denominator) into the Total Allocable Costs (numerator) for each element to arrive at the connection charges per unit.

North City
WATERDISTRICT

#### **CONNECTION CHARGES - 2016 UPDATE**

Calculation of Connection Fees

		TOTAL	CAPACITY	F	N		
CALCU	LATION AND ALLOCATION COMPONENTS	ALLOCABLE	All Customer	Total	Low Density	High Density	
		cosis	Capacity Chg	Fire Alloc	(SFR) Fire Chg	Fire Chg	
L ALLOC	ABLE COSTS - EXISTING FACILITIES:				1		
Utility	Plant-in-Service at 12/31/2015	\$ 42,123,323	\$ 25.314.326	\$ 16.808.997			
plus:	Construction-in-Progress	4,514,984	2,771,239	1,743,745			
Total A	locable Plant b/f Adjustments	46.638.307	28.085.565	18.552.743			
less:	Contributions in Aid of Construction (CIAC)	(1,465,830)	(905,430)	(560,399)	0		
less:	Expected Replacements in 10-Year CIP	(48,880)	(30,192)	(18,687)	(		
plus: /	Accum. Interest on Existing Plant (Excluding Int. on Future Replc.)	13,273,199	7,699,934	5,573,266			
Total A	locable Plant b/f Net Outstanding Debt	58,396,798	34,849,876	23,546,922			
Alloca	tion to Capacity and Fire Plant (per Allocable Plant 2015)		60%	40%			
less:	Debt Outstanding net of Cash Balances				$\frown$		
Cas	h Balances - 2015 (4.266.328)				(3)		
Max	imum Zero or Net Debt 5,443,578	(5.443.578)	(3.248.603)	(2.194.975			
TOTAL	ALLOCABLE COSTS - EXISTING FACILITIES	\$ 52,953,219	\$ 31,601,272	\$ 21,351,947	\$ 7,528,649	\$ 13,823,298	
		•,,	• • • • • • • • • • • • • • • • • • • •	• = .,,	35.3%	64.7%	
II. ALLOC	ABLE COSTS - FUTURE FACILITIES:		Ľ				
Future	Capital Requirements (10 Year CIP 2016-2025)	\$ 16,448,903	\$ 9,944,731	\$ 6,504,172			
less:	Expected Contributions in Aid of Construction (CIAC)						
Total A	locable Plant b/f Net Outstanding Debt	16,448,903	9,944,731	6,504,172			
Alloca	tion to Capacity and Fire Plant (per Allocable CIP 2016-2025)		60%	40%			
less:	Debt Outstanding net of Applicable Cash Balances						
Deb	t Outstanding for CIP - 12/31/25 6,000,594						
May	In Balances Alloc to CIP Debt (4,009,745)	(1 190 848)	(719.967)	(470.884)			
TOTAL	ALLOCABLE COSTS - EUTURE FACILITIES	15 258 055	9 224 764	6 033 291	1 926 062	4 107 229	
101112		10,200,000	0,224,104	0,000,201	31.9%	68.1%	
III. TOTAL	ALLOCABLE COSTS (1. + II.)	\$68,211,274	\$40,826,036	\$27,385,238	\$9,454,711	\$17,930,527	
					34.5%	65.5%	
				· · · · ·			
IV. METER	EQUIV (ME) ALLOCATION FOR BASE CAPACITY COSTS:						
Total	Low Density (SER) Meter Equivalents (MEs)		7,760				
Total	Evisting Meter Equivalents (MEs)		10 088				
Growt	h in MEs During Planning Period - Low Density		77				
Growt	h in MEs During Planning Period - High Density		303				
Total	Growth		379				
Total P	rojected Capacity in Meter Equivalents (ME)		10,468				
V. BASE C	APACITY CHARGE PER ME FOR ALL CUSTOMERS		\$3,900 per ME				
		Exisitng	\$3,019				
VI. METER	ALLOCATION FOR FIRE COSTS - LOW DENSITY (SFR): *	roture	3001			1	
Low D	Density (SFR) Meters 12/31/2015				7,562		
Growt	h in Meters During Planning Period - Low Density			(7)	75		
Total P	rojected Low Denisty (SFR) Meters				7,637		
VII. FIRE CH	ARGE PER METER FOR LOW DENSITY CUSTOMERS (III. / VI.)				\$1,238 / Meter	4	
				Existing	\$986		
VIII. SQUAR	E FOOT ALLOCATION FOR FIRE COSTS - HIGH DENSITY:			, 00070	\$2.52		
Total I	High Density (Non-SFR) Square Footage 12/31/2015					4,763,646	
Growt	h in Sq Ft During Planning Period - High Density					983,759	
Total P	rojected Square Footage for High Density Customers				$\bigcirc$	5,747,405	
IX. FIRE C	TARGE PER SQ FT FOR HIGH DENSITY CUSTOMERS (III. / VIII.)				E.c.	\$3.12 / SQ FT	
					Future	\$0.71	
* Meters exclude	e irrigation and fire meters						

### **Connection Charge Elements**





#### **CONNECTION CHARGES - 2016 UPDATE**

LOW DENSITY SFR <sup>(1)</sup> CUSTOMERS								
Low Density Capacity Charge <sup>(2)</sup>		Per ME <sup>(3)</sup>						
Existing Costs	\$	3,019						
Future Costs	\$	881						
Total Low Density Capacity Charge <sup>(6)</sup> \$ 3,900								
Low Density Fire Charge <sup>(4)</sup>		Per Meter						
Existing Costs	\$	986						
Future Costs	\$	252						
Total Low Density Fire Charge	\$	1,238						

HIGH DENSITY NON-SFR CUSTOMERS

High Density Capacity Charge <sup>(2)</sup>	<u>P</u>	er ME <sup>(3)</sup>
Existing Costs	\$	3,019
Future Costs	\$	881
Total High Density Capacity Charge <sup>(6)</sup>	\$	3,900
High Density Fire Charge	Per	SQ FT <sup>(5)</sup>
High Density Fire Charge Existing Costs	<u>Per</u> \$	<b>SQ FT<sup>(5)</sup></b> 2.40
<b>High Density Fire Charge</b> Existing Costs Future Costs	<u>Per</u> \$ \$	• <b>SQ FT</b> <sup>(5)</sup> 2.40 0.71

1) SFR = Single Family Residential

2) Capacity charges do not apply to fire sprinkler meters for both low and high density customers.

3) ME = Meter Equivalent

4) Low density fire charges per meter do not apply to irrigation or fire line meters.

5) Square Footage (SQ FT) is gross square footage with the exception of parking garages where the square footage is computed on the single largest floor only.

6)											
METER EQUIVALANCY CHARGE BY METER SIZE											
Meter Size	ME Factor	C	Charge								
5/8" x 3/4" Meter	1	\$	3,900								
1" Meter	2.5	\$	9,750								
1 1/2" Meter	5	\$	19,500								
2" Meter	8	\$	31,200								
3" Meter	16	\$	62,400								
4" Meter	25	\$	97,500								

#### THE COSTS FOR INSTALLATION AND THE SPU FACILITIES CHARGE ARE IN ADDITION TO THE DISTRICT'S CONNECTION CHARGE!

North City	
WATER	DISTRICT

COMPARISON TO PRIOR GFC

North City o	<b>CONNECTION CHARGES - 2016 UPDATE</b>										<b>CONNECTION CHARGES - 2016 UPDATE</b>					
WATER DISTRICT	Sample Customers													295	\$ 565 \$ 2.705	
	INPU	T AREA	LD	& HD CA	PACITY CHAR	GE	LD FIRI	E CHARGE	1	HD FIF	RECHARGE		<u>\$</u>	3,301 <b>3,596</b>	<u>\$ 3,795</u> <b>\$ 4,360</b>	1
TYPE OF CUSTOMER	Selected Meter Size	No of Units	Gross Square Footage	No. of MEs	Rate per ME	Total Base Charge	Applicabl e No. of Meters	LD Fire Rate per Meter	Total LD Fire Charge	HD Fire Rate per Sq Ft	Total HD Fire Charge	Total Connection Charge	<u>Charg</u> <u>R</u>	<u>e at Prior</u> R <u>ate</u>	Difference	<u>ERUs</u>
Single Family - Stand Alone Capacity Meter Charge Fire Suppression Charge (from Hydrants) Total Single Family - Stand Alone	5/8" Meter			1	\$3,900	\$3,900 <u>\$0</u> <b>\$3,900</b>	1	\$1,238	<u>\$1,238</u> <b>\$1,238</b>			\$3,900 <u>\$1,238</u> <b>\$5,138</b>	\$	3,596	\$ 1,542	
Single Family with Flow-thru Meter Capacity Meter Charge Fire Suppression Charge (from Hydrants) Total Single Family with Flow-thru Meter	1" Meter			1	\$3,900	\$3,900 <u>\$0</u> <b>\$3,900</b>	1	\$1,238	<u>\$1,238</u> <b>\$1,238</b>			\$3,900 <u>\$1,238</u> <b>\$5,138</b>	\$	3,596	\$ 1,542	
SFR Irrigation Capacity Meter Charge	1" Meter			2.5	\$3,900	\$9,750						\$9,750	\$	8,990	\$ 760	2.5
<u>Storage Building - 4" Sprinkler Meter</u> Capacity Meter Charge Sprinkler Meter Charge Fire Suppression Charge (from Hydrants) Total Storage Building	5/8" Meter 4" Meter		84,000	1 25	\$3,900	\$3,900 \$0 <u>\$0</u> <b>\$3,900</b>				\$3.1200	<u>\$262,080</u> <b>\$262,080</b>	\$3,900 \$0 <u>\$262,080</u> <b>\$265,980</b>	\$ 4	136,000	\$ (170,020	) 100
Parking Garage <sup>(1)</sup> Capacity Meter Charge Sprinkler Meter Charge Fire Suppression Charge <i>(from Hydrants)</i> Total Parking Garage	5/8" Meter 4" Meter		25,000	1 25	\$3,900	\$3,900 \$0 <u>\$0</u> <b>\$3,900</b>				\$3.12	<u>\$78,000</u> <b>\$78,000</b>	\$3,900 \$0 <u>\$78,000</u> <b>\$81,900</b>	\$ 1	130,800	\$ (48,900	) 30

(1) Sq footage for parking garages is the single largest flo<mark>or</mark>



#### **CONNECTION CHARGES - 2016 UPDATE**

COMPARISON TO PRIOR GFC

per ERU

565

per ERU

\$

295 \$

Sample Customers

													\$ 3	,301	\$ 3,795	
	INPUT AREA LD & HD CAPACITY CHARGE					LD FIRE	LD FIRE CHARGE HD FIRE CHARGE					\$ 3	,596	\$ 4,360		
TYPE OF CUSTOMER	Selected Meter Size	No of Units	Gross Square Footage	No. of MEs	Rate per ME	Total Base Charge	Applicabl e No. of Meters	LD Fire Rate per Meter	Total LD Fire Charge	HD Fire Rate per Sq Ft	Total HD Fire Charge	Total Connection Charge	<u>Charge at</u> <u>Rate</u>	<u>Prior</u>	<u>Difference</u>	<u>ERUs</u>
Small Multi-Family (Condo) Complex Capacity Meter Charge per Unit Sprinkler Meter Charge Fire Suppression Charge (from Hydrants) Fotal Small Multi-Family (Condo) Complex	5/8" Meter 2" Meter	5 5	10,080	Units 5 8	\$3,900	\$19,500 \$0 <u>\$0</u> <b>\$19,500</b>				\$3.12	<u>\$31,450</u> <b>\$31,450</b>	\$19,500 \$0 <u>\$31,450</u> <b>\$50,950</b>	\$ 52	,320	\$ (1,370)	) 12
Aid-Sized Apartment Building Capacity Meter Charge Sprinkler Meter Charge Fire Suppression Charge (from Hydrants) Fotal Mid-Sized Apartment Building	2" Meter 2" Meter	27	30,000	8 8	\$3,900	\$31,200 \$0 <u>\$0</u> <b>\$31,200</b>				\$3.12	<u>\$93,600</u> <b>\$93,600</b>	\$31,200 \$0 <u>\$93,600</u> <b>\$124,800</b>	\$ 156	,960	\$ (32,160)	) 36
arge Apartment Building Capacity Meter Charge Sprinkler Meter Charge Fire Suppression Charge (from Hydrants) Total Large Apartment Building	3" Meter 4" Meter	60	64,800	16 25	\$3,900	\$62,400 \$0 <u>\$0</u> <b>\$62,400</b>				\$3.12	<u>\$202,176</u> <b>\$202,176</b>	\$62,400 \$0 <u>\$202,176</u> <b>\$264,576</b>	\$ 261	,600	\$ 2,976	60
arger Apartment Building Capacity Meter Charge Sprinkler Meter Charge Fire Suppression Charge (from Hydrants) Total Larger Apartment Building	3" Meter 4" Meter	75	93,312	16 25	\$3,900	\$62,400 \$0 <u>\$0</u> <b>\$62,400</b>				\$3.12	<u>\$291,133</u> <b>\$291,133</b>	\$62,400 \$0 <u>\$291,133</u> <b>\$353,533</b>	\$ 327	,000	\$ 26,533	75

North City	
WATER	DISTRICT

#### **CONNECTION CHARGES - 2016 UPDATE**

#### Sample Customers

COMPARISON TO PRIOR GFC

#### per ERU per ERU 295 \$ \$ 565 3,301 <u>\$</u>3,795 \$

	INPUT AREA LD & HD CAPACITY CHARGE				GE	LD FIRE CHARGE			HD FIF	RECHARGE		\$ 3,596	\$ 4,360		
TYPE OF CUSTOMER	Selected Meter Size	No of Units	Gross Square Footage	No. of MEs	Rate per ME	Total Base Charge	Applicabl e No. of Meters	LD Fire Rate per Meter	Total LD Fire Charge	HD Fire Rate per Sq Ft	Total HD Fire Charge	Total Connection Charge	<u>Charge at Prior</u> <u>Rate</u>	Difference	<u>ERUs</u>
School Capacity Meter Charge Sprinkler Meter Charge Fire Suppression Charge (from Hydrants) Total School	4" Meter 4" Meter		68,000	25 25	\$3,900	\$97,500 \$0 <u>\$0</u> <b>\$97,500</b>				\$3.12	<u>\$212,160</u> <b>\$212,160</b>	\$97,500 \$0 <u>\$212,160</u> <b>\$309,660</b>	\$ 353,160	\$ (43,500)	81
<u>Maintenance Facility</u> Capacity Meter Charge Sprinkler Meter Charge Fire Suppression Charge (from Hydrants) Total Maintenance Facility	2" Meter 4" Meter		40,000	8 25	\$3,900	\$31,200 \$0 <u>\$0</u> <b>\$31,200</b>				\$3.12	<u>\$124,800</u> <b>\$124,800</b>	\$31,200 \$0 <u>\$124,800</u> <b>\$156,000</b>	\$ 209,280	\$ (53,280)	48
Church Capacity Meter Charge Sprinkler Meter Charge Fire Suppression Charge (from Hydrants) Total Church	1" Meter 4" Meter		14,823	2.5 25	\$3,900	\$9,750 \$0 <u>\$0</u> <b>\$9,750</b>				\$3.12	<u>\$46,248</u> <b>\$46,248</b>	\$9,750 \$0 <u>\$46,248</u> <b>\$55,998</b>	\$ 78,480	\$ (22,482)	18
<u>Grocery Store</u> Capacity Meter Charge Sprinkler Meter Charge Fire Suppression Charge (from Hydrants) Total Church	1 1/2" Meter 4" Meter		8,400	5 25	\$3,900	\$19,500 \$0 <u>\$0</u> <b>\$19,500</b>				\$3.12	<u>\$26,208</u> <b>\$26,208</b>	\$19,500 \$0 <u>\$26,208</u> <b>\$45,708</b>	\$ 43,600	\$ 2,108	10
Average Commercial Building Capacity Meter Charge Sprinkler Meter Charge Fire Suppression Charge (from Hydrants) Total Average Commercial Building	1 1/2" Meter 1 1/2" Meter		15,000	5 5	\$3,900	\$19,500 \$0 <u>\$0</u> <b>\$19,500</b>				\$3.12	<u>\$46,800</u> <b>\$46,800</b>	\$19,500 \$0 <u>\$46,800</u> <b>\$66,300</b>	\$ 78,480	\$ (12,180)	18
Non-SFR Irrigation Capacity Meter Charge	3" Meter			16	\$3,900	\$62,400						\$62,400	\$ 57,536	\$ 4,864	16

### Questions

### Decisions

Policy Decision 1 – Should the District use a Buy-in Plus Growth or Average Cost Method to compute the connection charges?	<b>Average Cost Method</b> – the District is built out and all scheduled construction is primarily for renewal and replacement, which affects new and existing customers alike.
Policy Decision 2 – Should the District assume all pipes above 3-inches have been upsized to meet the water flow requirements for fire suppression?	Yes - pipes above 3" will be considered upsized for fire – When the District's system was first built in the 1930's all of the pipe installed was 2-3-inches as that was the size of pipe needed to provide the water needed for personal use - this remains the case today with only minor exceptions.
Policy Decision 3 – Should the District assume that there is an embedded cost for capacity within the pipes that have been upsized to meet fire flow requirements?	Yes – the District will assume there is an embedded cost of capacity in all pipes – Since the water is provided for both fire suppression and capacity for personal use, the District should assume there is an embedded cost for capacity even though it can not be computed directly.
Policy Decision 4 – Should indirect costs be included with the direct pipe values when computing allocation percentages?	<b>No - exclude indirect costs –</b> Since there is variability and lack of verifiability when it comes to indirect costs, the allocation of pipe costs to capacity is likely be more equitable and verifiable if only direct pipe costs are used.
Policy Decision 5 – Should the District allocate standby storage between capacity and fire suppression?	Yes - 50% to Capacity & 50% to Fire – The DOH bases its standby storage recommendation on 2-days of average usage, although the only time it is likely to be used is for emergencies, which could involve both usage and fire.
Policy Decision 6 – Should future facilities be stated in current or future dollars?	<b>Future Dollars</b> – Since the District budgets, plans for rate increases, and projects required debt funding based on future value, the costs of future facilities will also be stated in future dollars in order to maintain consistency.
Policy Decision 7 – Should fire sprinkler meters be omitted from the connection charge?	<b>Yes – Fire Sprinkler meters will not be</b> <b>charged</b> - Even though sprinkler systems create a capacity demand on the system, the District's current policy to not charge connection fees for fire meters will remain in effect.



### End