

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 **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**. For the purposes of calculating a connection charge, the board of commissioners shall determine the pro rata share of the **cost of existing facilities** and **facilities planned for construction within the next ten years and contained in an adopted comprehensive plan** and **other costs borne by the district** which are directly attributable to the improvements required by property owners seeking to connect to the system. **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.**

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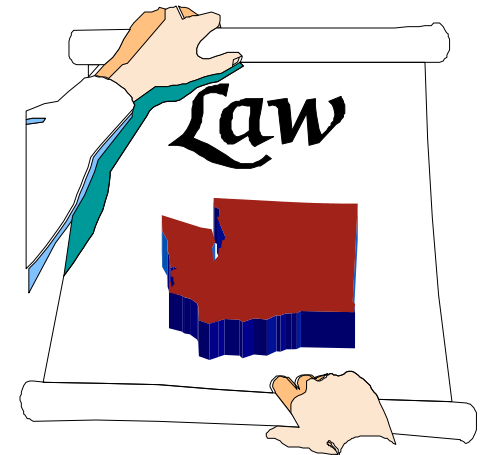
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The connection charge **may include interest charges** applied from the date of construction of the system until the connection, or **for a period of ten years**, whichever is shorter, at a rate commensurate with the rate of interest applicable to 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...

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...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.



Connection Charge

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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

- 1) 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 only - **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?

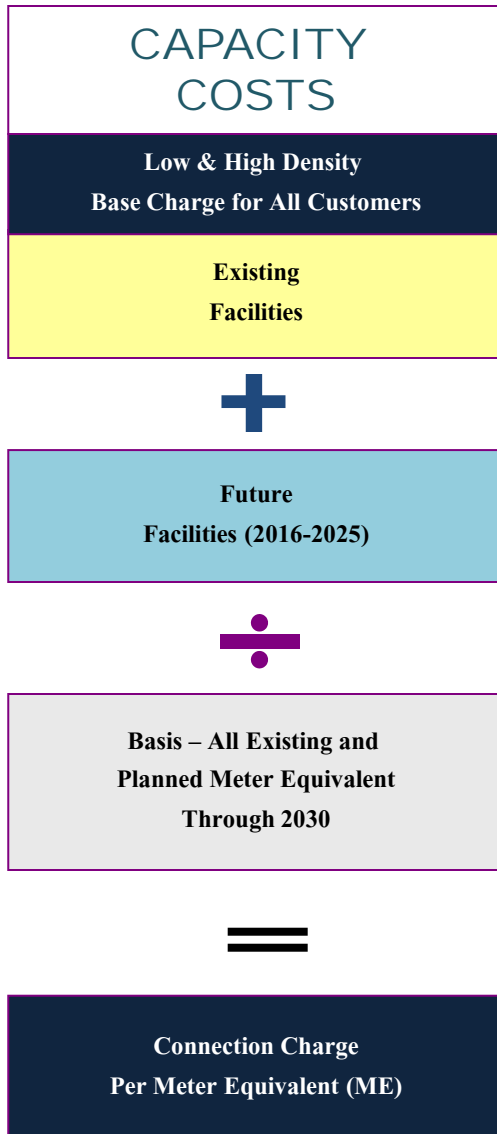
When a utility is significantly “built out” like North City WD, new capital projects are generally not needed to expand capacity to accommodate growth, rather they are to needed to replace or upgrade existing infrastructure to maintain a consistent level of service (e.g. upgrades to an aging pump station) 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.

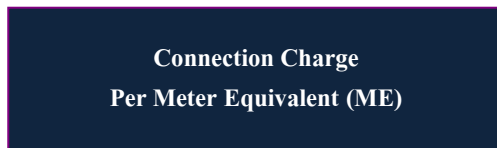
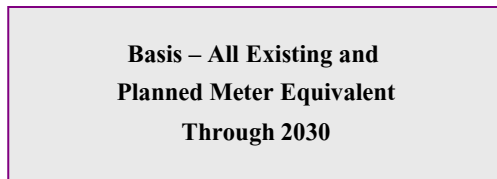
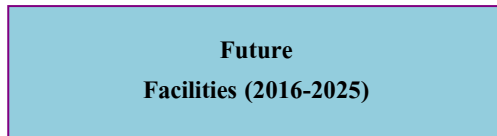
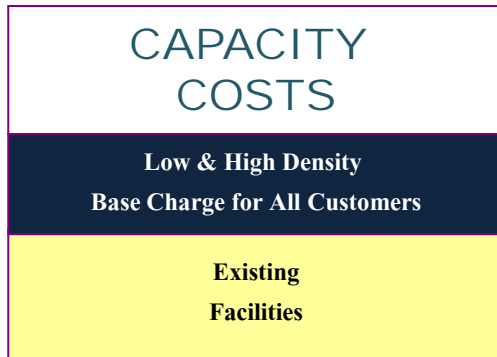
Connection Charge Elements



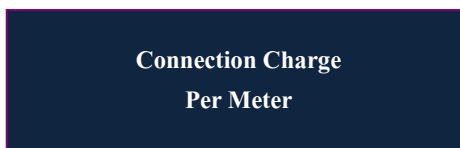
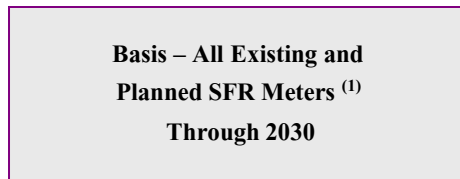
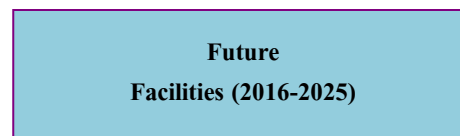
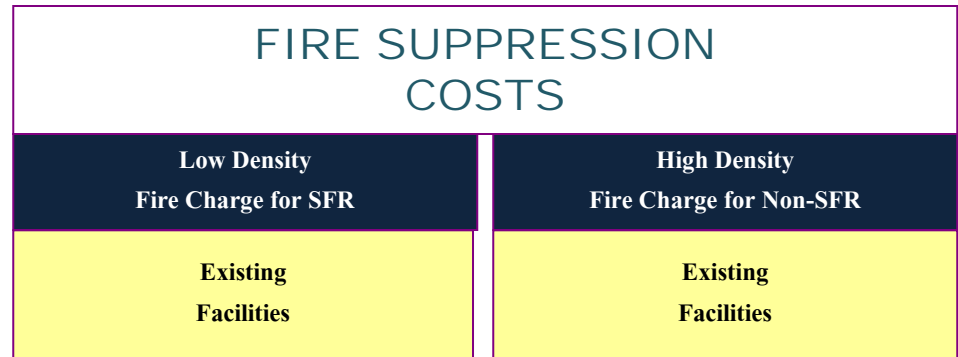
The District's elements start with Capacity Costs. Prior to 2007, the District did not segregate costs between capacity and fire.

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.

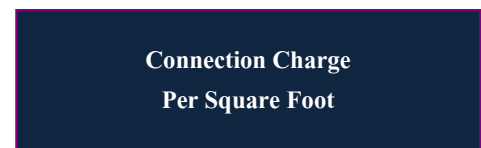
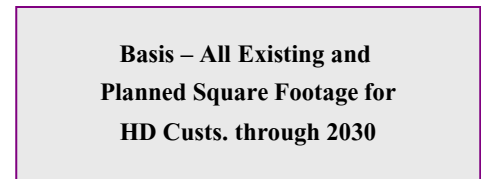
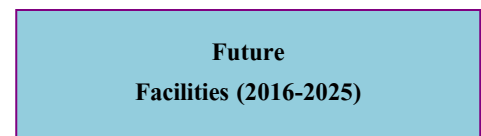
Connection Charge Elements



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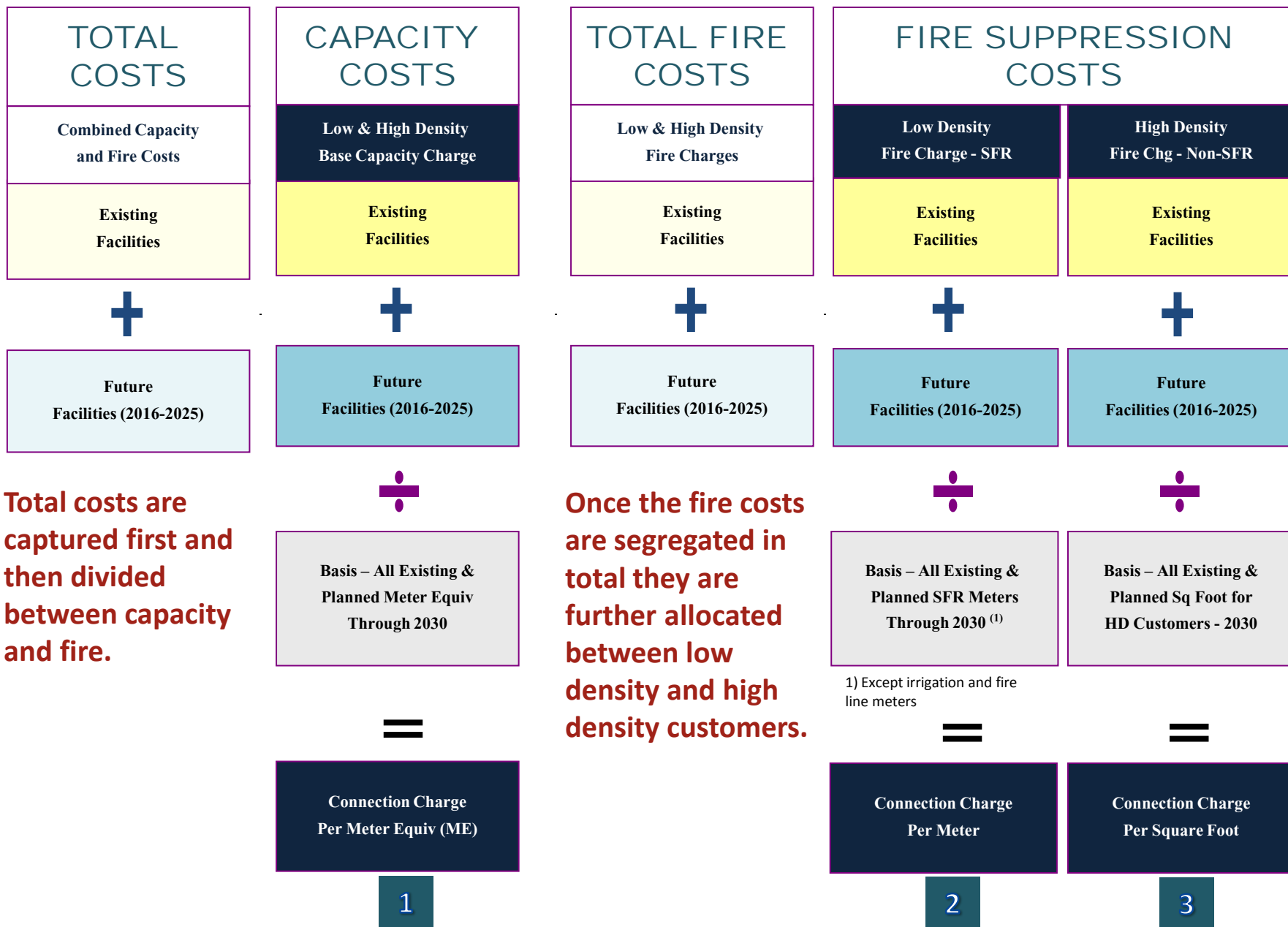
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1) Except irrigation and fire line meters

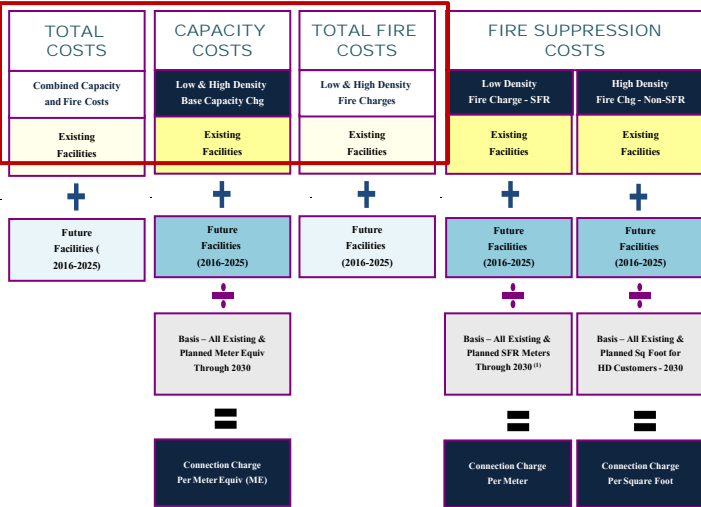
Closer Look at the Costs



Total costs are captured first and then divided between capacity and fire.

Once the fire costs are segregated in total they are further allocated between low density and high density customers.

Closer Look at the Costs



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

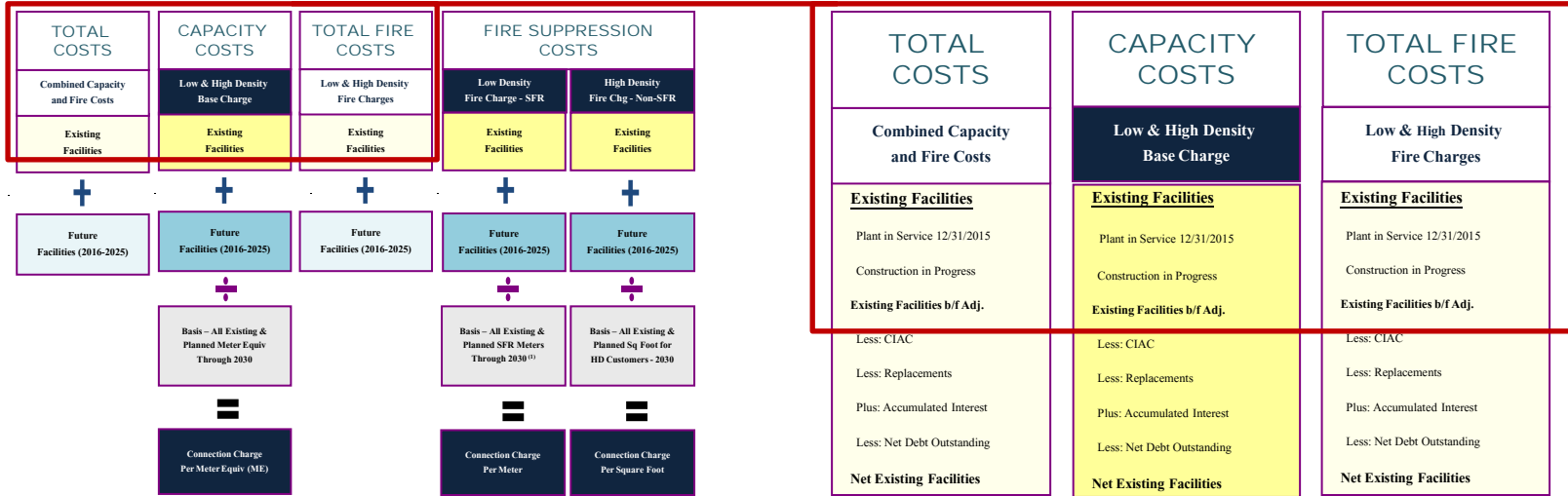


CONNECTION CHARGES - 2016 UPDATE Calculation of Connection Fees

CALCULATION AND ALLOCATION COMPONENTS	TOTAL ALLOCABLE COSTS	CAPACITY All Customer Capacity Chg	FIRE SUPPRESSION		
			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 (CIAC)	(1,465,830)	(905,430)	(560,399)		
less: Expected Replacements in 10-Year CIP	(48,880)	(30,192)	(18,687)		
plus: Accum. Interest on Existing Plant (Excluding Int. on Future Repl.)	13,273,159	7,699,934	5,573,296		
Total Allocable Plant b/f Net Outstanding Debt	58,396,798	34,849,876	23,546,922		
Allocation to Capacity and Fire Plant (per Allocable Plant 2015)		60%	40%		
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	\$ 52,953,219	\$ 31,601,272	\$ 21,351,947	\$ 7,528,649	\$ 13,823,298
				35.3%	64.7%
II. ALLOCABLE COSTS - FUTURE FACILITIES:					
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 Allocable Plant b/f Net Outstanding Debt	16,448,903	9,944,731	6,504,172		
Allocation to Capacity and Fire Plant (per Allocable CIP 2016-2025)		60%	40%		
less: Debt Outstanding net of Applicable Cash Balances					
Debt Outstanding for CIP - 12/31/25	6,000,594				
Cash Balances Alloc to CIP Debt	(4,609,745)				
Maximum Zero or Net Debt	1,190,848				
TOTAL ALLOCABLE COSTS - FUTURE FACILITIES	15,258,055	9,224,764	6,033,291	1,926,062	4,107,229
				31.9%	65.1%
III. TOTAL ALLOCABLE COSTS (I. + 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 (SFR) Meter Equivalents (MEs)		7,760			
Total High Density (Non-SFR) Meter Equivalents (MEs)		2,328			
Total Existing Meter Equivalents (MEs)		10,088			
Growth in MEs During Planning Period - Low Density		77			
Growth in MEs During Planning Period - High Density		303			
Total Growth		379			
Total Projected Capacity in Meter Equivalents (ME)		10,468			
V. BASE CAPACITY CHARGE PER ME FOR ALL CUSTOMERS		\$3,900 per ME			
Existing		\$3,019			
Future		\$881			
VI. METER ALLOCATION FOR FIRE COSTS - LOW DENSITY (SFR): *					
Low Density (SFR) Meters 12/31/2015				7,562	
Growth in Meters During Planning Period - Low Density				75	
Total Projected Low Density (SFR) Meters				7,637	
VII. FIRE CHARGE PER METER FOR LOW DENSITY CUSTOMERS (III. / VI.)					
				\$1,238 / Meter	
			Existing	\$906	
			Future	\$282	
VIII. SQUARE FOOT ALLOCATION FOR FIRE COSTS - HIGH DENSITY:					
Total High Density (Non-SFR) Square Footage 12/31/2015					4,763,646
Growth in Sq Ft During Planning Period - High Density					983,759
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
			Existing	\$2.41	
			Future	\$0.71	

* Meters exclude irrigation and fire meters

Closer Look at the Costs

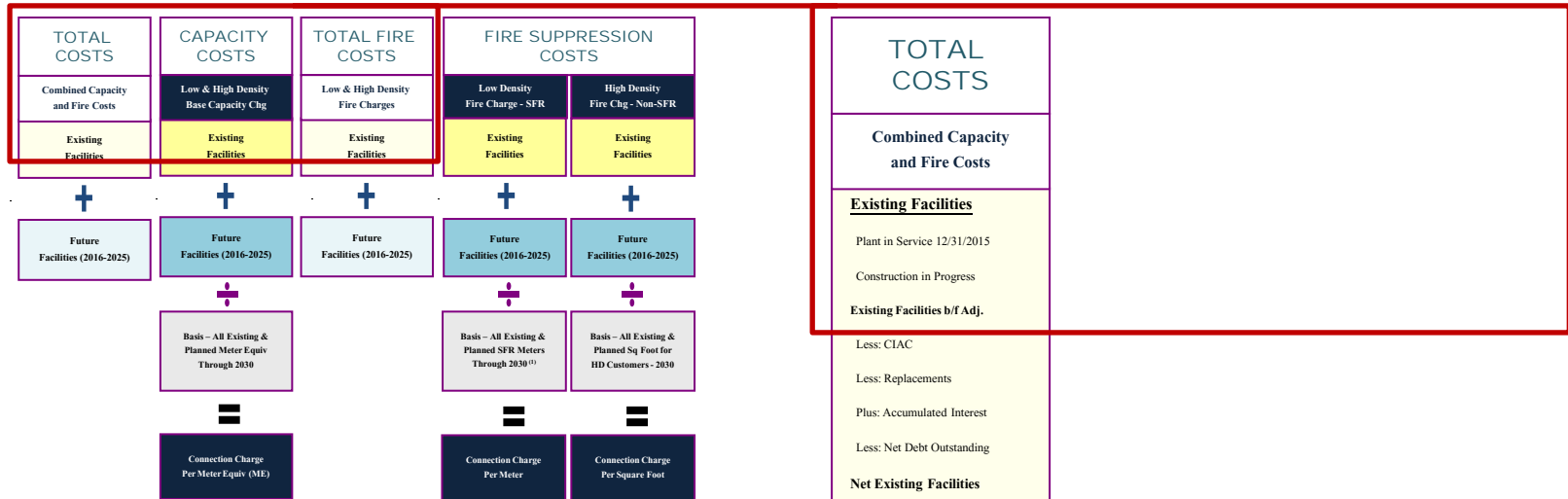


TOTAL COSTS	CAPACITY COSTS	TOTAL FIRE COSTS
Combined Capacity and Fire Costs	Low & High Density Base Charge	Low & High Density Fire Charges
Existing Facilities	Existing Facilities	Existing Facilities
Future Facilities (2016-2025)	Future Facilities (2016-2025)	Future Facilities (2016-2025)
Future Facilities (2016-2025)	Future Facilities (2016-2025)	Future Facilities (2016-2025)
Basis - All Existing & Planned Meter Equip Through 2030	Basis - All Existing & Planned SFR Meters Through 2030 ⁽¹⁾	Basis - All Existing & Planned Sq Foot for HD Customers - 2030
Connection Charge Per Meter Equip (ME)	Connection Charge Per Meter	Connection Charge Per Square Foot
Net Existing Facilities	Net Existing Facilities	Net Existing Facilities

CALCULATION & ALLOCATION COMPONENTS	TOTAL ALLOCABLE COSTS	CAPACITY	FIRE SUPPRESSION
		All Customer Capacity Chg	Total 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

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Closer Look at the Costs



CALCULATION & ALLOCATION COMPONENTS	TOTAL ALLOCABLE COSTS
I. ALLOCABLE COSTS - EXISTING FACILITIES: ①	
Utility Plant-in-Service at 12/31/2015	\$ 42,123,323
plus: Construction-in-Progress	<u>4,514,984</u>
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 3-inches 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.

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 Customers

Diameter (Inch)	Total Feet of Pipe in 2015
< 4	3,598
4 - Capacity	1,565
4 - Fire	44,417
6 - Capacity	500
6 - Fire	260,261
8 - Capacity	150
8 - Fire	98,314
10	10,995
12	77,261
16	1,823
20	508
	499,392

The total feet of pipe in the system is just under 500,000 lineal feet of pipe or close to 100 miles of pipe.

With only minor exceptions, nearly all the pipe in the system has been replaced (and often ahead of the end of its useful life) in order to meet the fire flow requirements defined in the International Fire Code. **In other words, if the required fire flows could have been met with the 2 and 3-inch pipes installed in 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 of the customers of the District. And, it remains that way to this day.**

The most significant amount of replacement occurred in 1966 when nearly all of the pipe was replaced with 4-inch or 6-inch pipe, which was needed at the time to 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 actually installed.

Subsequent to 1966, much of the 6-inch and 4-inch pipe was replaced with 8-inch, 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 Customers

Diameter (Inch)	Total Feet of Pipe in 2015	Current Direct Costs - per ft
< 4	3,598	\$ 25
4 - Capacity	1,565	\$ 42
4 - Fire	44,417	\$ 42
6 - Capacity	500	\$ 30
6 - Fire	260,261	\$ 30
8 - Capacity	150	\$ 42
8 - Fire	98,314	\$ 42
10	10,995	\$ 55
12	77,261	\$ 70
16	1,823	\$ 101
20	508	\$ 132
	499,392	

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 capacity related functions only (personal use for drinking, laundry, irrigation, fire sprinklers, etc).

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 pipes and a portion of the costs should be allocated to the capacity function.

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 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.

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?

Since the water is provided for both fire suppression and the capacity for personal use it is therefore recommended that the District assume there is an embedded cost for capacity even though it can not be computed directly.

Policy Decision 4 – Should an estimate of indirect cost be included in the current pipe costs?

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.

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

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 Customers

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	
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
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
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
10	10,995	\$ 55	\$ 25	\$ 30	604,725	274,875	329,850
12	77,261	\$ 70	\$ 25	\$ 45	5,408,270	1,931,525	3,476,745
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

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-inches. Some pipes were as small as 1 and 2-inches.

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

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.

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 Customers

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).

Closer Look at the Costs

The Allocation of Pipe Costs between Capacity and Fire

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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).

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 Customers

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 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.

Closer Look at the Costs

Allocation of Storage between Capacity and Fire

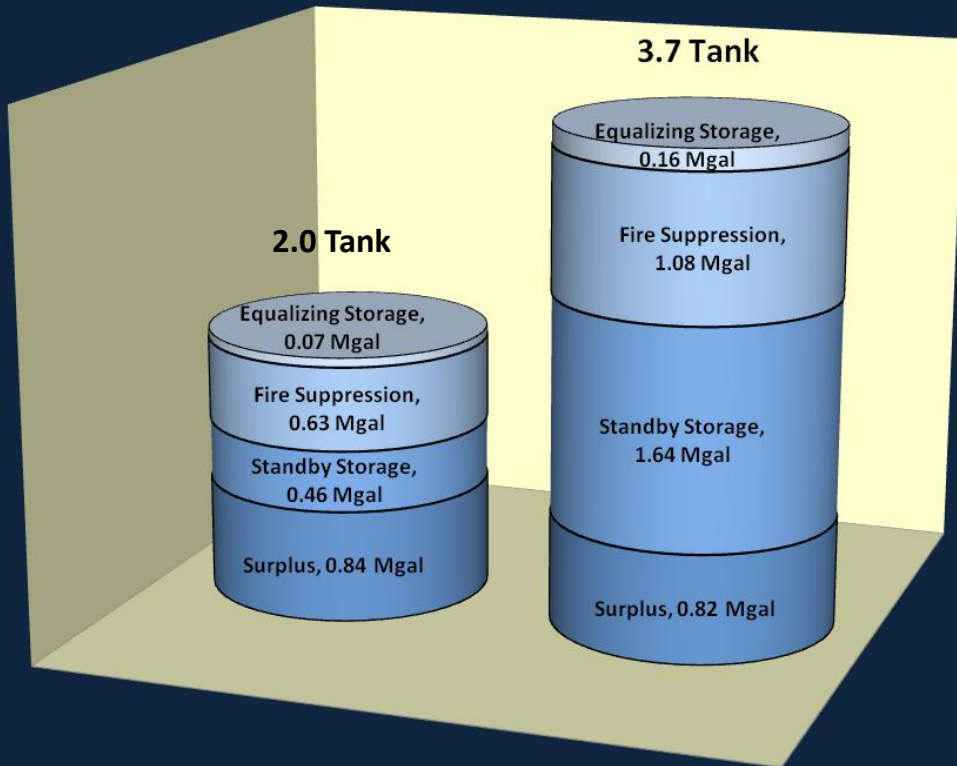
STORAGE ALLOCATION TO CAPACITY AND FIRE PROTECTION

STORAGE ELEMENTS	2.0 Reservoir (MGals)	3.7 Reservoir (MGals)	TOTAL GAL OF STORAGE	
Operational Storage (n/a due to SPU contracted amount)	0	0	0.00	<p>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.</p> <p>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 water further reduces the need for operational water. <i>(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 500 gpm as water can now be drawn from the Cedar river as well – either source can used for the entire amount).</i></p>
Equalizing Storage (to meet peak demands for water)	0.07	0.16	0.23	
Fire Suppression	0.63	1.08	1.71	<p>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.</p> <p>Fire suppression storage is required to meet fire flow requirements above what can be met with the continuous demand of 3,300 gpm less operational needs.</p>
Standby Storage (for Emergencies)	0.46	1.64	2.10	
Surplus (Excess) (to provide for growth)	0.84	0.82	1.66	<p>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. In the District’s case, it would only be used for emergencies/disasters or for a very large fire on a very hot day.</p> <p>Surplus storage is extra capacity to provide for growth.</p> <p>The tanks no longer have Dead storage due to the redesign of the North City Pump Station (NCPS).</p>
Dead Storage (n/a with pump redesign)	0	0	0.00	
Storage bf Redistribution of Surplus	2.0	3.7	5.7	

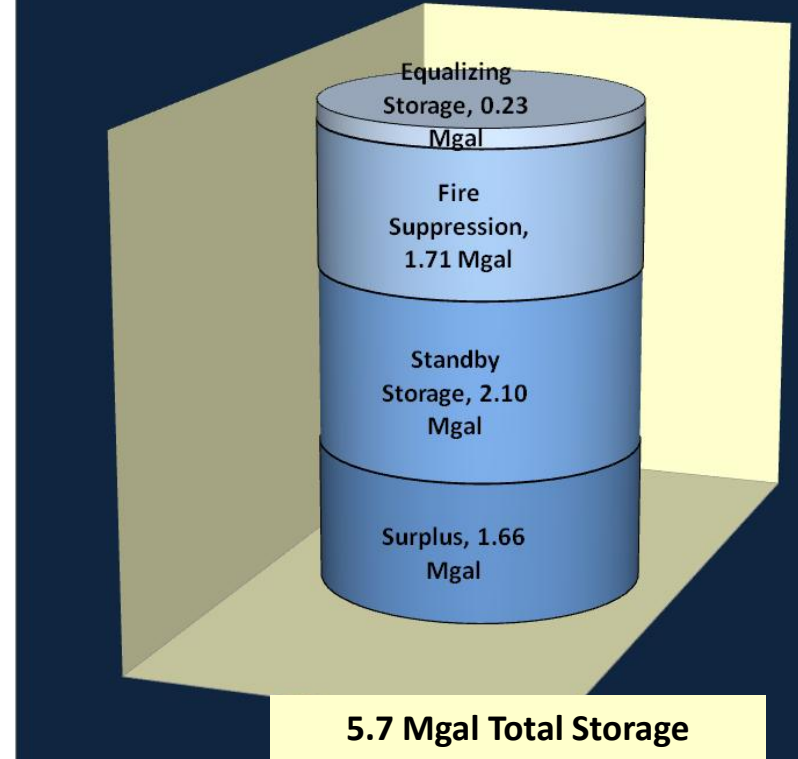
BOTTOM LINE – The District has quite a “line of defense” against an emergency and plenty of room for growth!

Storage by Function

Allocation of Storage by Tank



Allocation of Storage in Total



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

Closer Look at the Costs

Allocation of Storage between Capacity and Fire

STORAGE ALLOCATION TO CAPACITY AND FIRE PROTECTION

STORAGE ELEMENTS	2.0 Reservoir (MGals)	3.7 Reservoir (MGals)	TOTAL GAL OF STORAGE	CAPACITY FUNCTIONS			FIRE FUNCTION	AS ALL OTHER	GRAND TOTAL	ALLOCATION BASIS
				BASE	PEAK	TOTAL				
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%	

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.

Closer Look at the Costs

Allocation of Storage between Capacity and Fire

STORAGE ALLOCATION TO CAPACITY AND FIRE PROTECTION

STORAGE ELEMENTS	2.0 Reservoir (MGals)	3.7 Reservoir (MGals)	TOTAL GAL OF STORAGE	CAPACITY FUNCTIONS			FIRE FUNCTION	AS ALL OTHER	GRAND TOTAL	ALLOCATION BASIS
				BASE	PEAK	TOTAL				
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 STORAGE BY FUNCTIONS				1.1	0.2	1.3	2.8	1.7	5.7	

Closer Look at the Costs

Allocation of Storage between Capacity and Fire

STORAGE ALLOCATION TO CAPACITY AND FIRE PROTECTION

STORAGE ELEMENTS	2.0 Reservoir (MGals)	3.7 Reservoir (MGals)	TOTAL GAL OF STORAGE	CAPACITY FUNCTIONS			FIRE FUNCTION	AS ALL OTHER	GRAND TOTAL	ALLOCATION BASIS
				BASE	PEAK	TOTAL				
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 STORAGE BY FUNCTIONS				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%	

Closer Look at the Costs

Allocation of Storage between Capacity and Fire

STORAGE ALLOCATION TO CAPACITY AND FIRE PROTECTION										
STORAGE ELEMENTS	2.0 Reservoir (MGals)	3.7 Reservoir (MGals)	TOTAL GAL OF STORAGE	CAPACITY FUNCTIONS			FIRE FUNCTION	AS ALL OTHER	GRAND TOTAL	ALLOCATION BASIS
				BASE	PEAK	TOTAL				
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 STORAGE BY FUNCTIONS				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 FUNCTIONS				26%	6%	32%	68%		100%	

Allocation of Total Plant between Capacity and Fire

PLANT-IN-SERVICE	2015 PLANT	2015 Const-in-Progress	TOTAL PLANT 20215	GENERAL (As All Other)	CAPACITY (NON-FIRE) FUNCTIONS			TOTAL NON-FIRE FUNCTIONS	FIRE FUNCTION	GRAND TOTAL	ALLOCATION BASIS
					METERS & SERVICES	BASE	PEAK				
DIRECT UTILITY PLANT											
Storage (Tanks/Reservoirs)	6,034,906		6,034,906					32%	68%	100%	<i>As Storage Plant</i>

STORAGE ALLOCATION TO CAPACITY AND FIRE PROTECTION

STORAGE ELEMENTS	2.0 Reservoir (MGals)	3.7 Reservoir (MGals)	TOTAL GAL OF STORAGE	CAPACITY FUNCTIONS			FIRE FUNCTION	AS ALL OTHER	GRAND TOTAL	ALLOCATION BASIS
				BASE	PEAK	TOTAL				
Operational Storage (n/a due to SPU contracted amount)	0	0	0.00	100%		100%			100%	<i>All to Base</i>
Equalizing Storage (to meet peak demands for water)	0.07	0.16	0.23		100%	100%			100%	<i>All to Peak</i>
Fire Suppression	0.63	1.08	1.71			0%	100%		100%	<i>All to Fire</i>
Standby Storage (for Emergencies)	0.46	1.64	2.10	50%		50%	50%		100%	<i>50/50 Base/Fire</i>
Surplus (Excess) (to provide for growth)	0.84	0.82	1.66			0%		100%	100%	<i>As All Other</i>
Dead Storage (n/a with pump redesign)	0	0	0.00			0%			0%	<i>N/A</i>
Storage bf Redistribution of Surplus	2.0	3.7	5.7	18%	4%	22%	48%	29%	100%	
TOTAL MGALS OF STORAGE BY FUNCTIONS				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 FUNCTIONS				26%	6%	32%	68%		100%	

Capacity Costs =
\$6,034,906 x 32% =
\$1,191,170

Fire Costs =
\$6,034,906 x 68% =
\$4,103,736

Allocation of Total Plant between Capacity and Fire

PLANT-IN-SERVICE	2015 PLANT	2015 Const-in-Progress	TOTAL PLANT 20215	GENERAL (As All Other)	CAPACITY (NON-FIRE) FUNCTIONS			TOTAL NON-FIRE FUNCTIONS	FIRE FUNCTION	GRAND TOTAL	ALLOCATION BASIS
					METERS & SERVICES	BASE	PEAK				
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 UPSIZING FOR FIRE PROTECTION - Calculation of Percentage used to Allocate Total T&D Costs between Capacity and Fire - and between Low & High Density Customers									
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%

Allocation of Total Plant between Capacity and Fire

PLANT-IN-SERVICE	2015 PLANT	2015 Const-in-Progress	TOTAL PLANT 20215	GENERAL (As All Other)	CAPACITY (NON-FIRE) FUNCTIONS			TOTAL NON-FIRE FUNCTIONS	FIRE FUNCTION	GRAND TOTAL	ALLOCATION BASIS
					METERS & SERVICES	BASE	PEAK				
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 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%

Capacity Costs =

\$15,644,463 +
\$5,757,479 =
\$21,401,942 x
62% =
\$13,269,204

Fire Costs =

\$15,644,463 +
\$5,757,479 =
\$21,401,942 x
38% =
\$8,132,738

Allocation of Total Plant between Capacity and Fire

PLANT-IN-SERVICE	2015 PLANT	2015 Const-in-Progress	TOTAL PLANT 20215	GENERAL (As All Other)	CAPACITY (NON-FIRE) FUNCTIONS			TOTAL NON-FIRE FUNCTIONS	FIRE FUNCTION	GRAND TOTAL	ALLOCATION BASIS	
					METERS & SERVICES	BASE	PEAK					
DIRECT UTILITY PLANT												
Storage (Tanks/Reservoirs)	6,034,906		6,034,906									<i>As Storage Plant</i>
Transmission & Distribution	15,578,193	66,270	15,644,463									<i>Fire as Pipes, Remainder Peak/Avg</i>
Pumping	2,446,674	3,310,806	5,757,479									<i>Same as T&D</i>
Hydrants	1,007,228		1,007,228					0%	100%	100%		<i>All to Fire</i>

Allocation of Total Plant between Capacity and Fire

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

Allocation of Total Plant between Capacity and Fire

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

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.

Allocation of Total Plant between Capacity and Fire

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

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

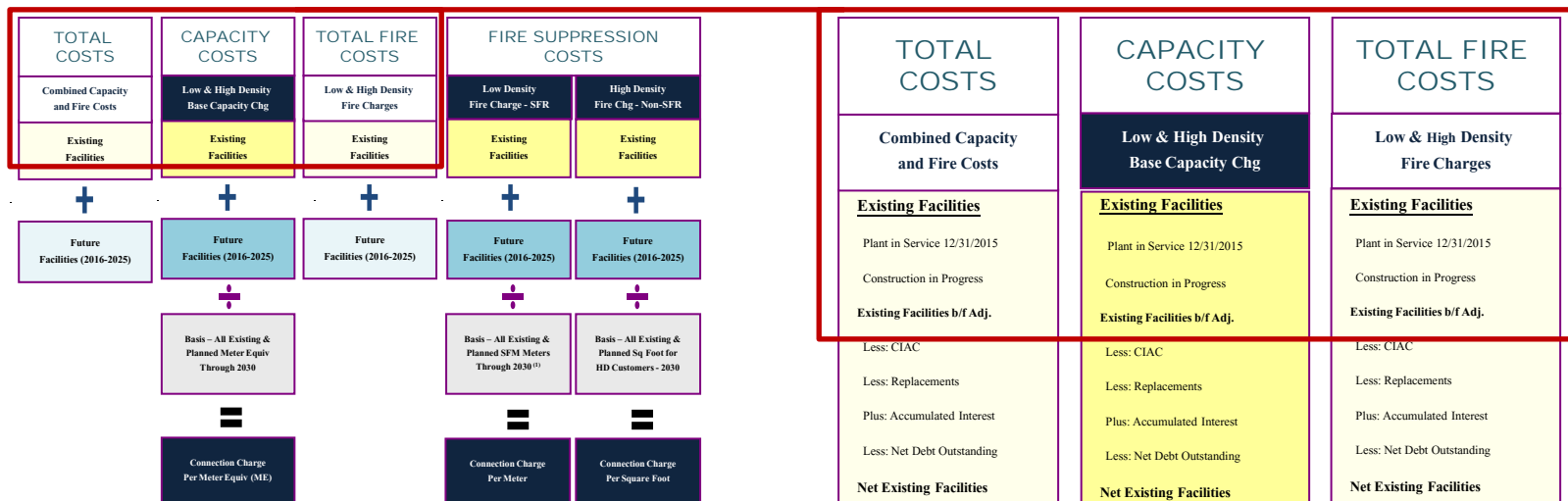
Allocation of Total Plant between Capacity and Fire

PLANT-IN-SERVICE	2015 PLANT	2015 Const-in-Progress	TOTAL PLANT 20215	GENERAL (As All Other)	CAPACITY (NON-FIRE) FUNCTIONS			TOTAL NON-FIRE FUNCTIONS	FIRE FUNCTION	GRAND TOTAL	ALLOCATION BASIS	
					METERS & SERVICES	BASE	PEAK					
DIRECT UTILITY PLANT												
Storage (Tanks/Reservoirs)	6,034,906		6,034,906			26%	6%	32%	68%	100%	<i>As Storage Plant</i>	
Transmission & Distribution	15,578,193	66,270	15,644,463			31%	31%	62%	38%	100%	<i>Fire as Pipes, Remainder Peak/Avg</i>	
Pumping	2,446,674	3,310,806	5,757,479			31%	31%	62%	38%	100%	<i>Same as T&D</i>	
Hydrants	1,007,228		1,007,228					0%	100%	100%	<i>All to Fire</i>	
Meters & Services	5,020,507		5,020,507		100%			100%		100%	<i>All to Meters & Services</i>	
Supply/Treatment	-		-			50%	50%	100%		100%	<i>Peak/Avg Day Ratio(1084/542 gals)</i>	
TOTAL DIRECT UTILITY 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	100%	General Plant is allocated according to all direct plant resulting in the same overall allocation between capacity and fire.						<i>As All Other</i>	
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		

Allocation of Total Plant between Capacity and Fire

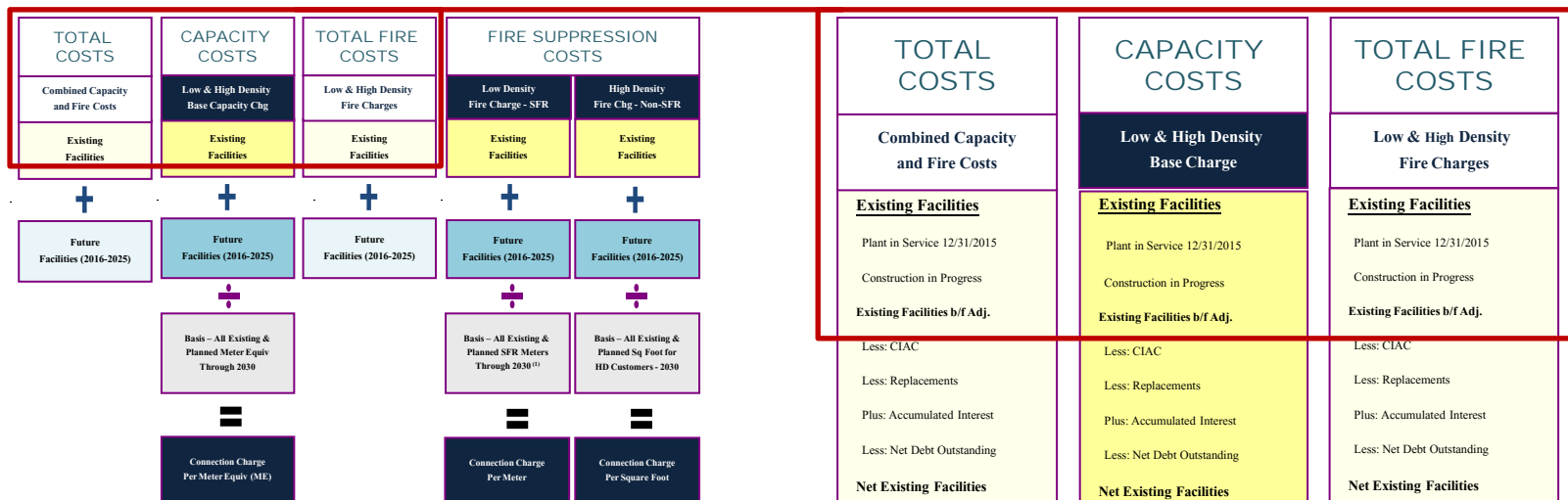
PLANT-IN-SERVICE	2015 PLANT	2015 Const-in-Progress	TOTAL PLANT 20215	GENERAL (As All Other)	CAPACITY (NON-FIRE) FUNCTIONS			TOTAL NON-FIRE FUNCTIONS	FIRE FUNCTION	GRAND TOTAL	ALLOCATION BASIS	
					METERS & SERVICES	BASE	PEAK					
DIRECT UTILITY PLANT												
Storage (Tanks/Reservoirs)	6,034,906		6,034,906			26%	6%	32%	68%	100%	<i>As Storage Plant</i>	
Transmission & Distribution	15,578,193	66,270	15,644,463			31%	31%	62%	38%	100%	<i>Fire as Pipes, Remainder Peak/Avg</i>	
Pumping	2,446,674	3,310,806	5,757,479			31%	31%	62%	38%	100%	<i>Same as T&D</i>	
Hydrants	1,007,228		1,007,228					0%	100%	100%	<i>All to Fire</i>	
Meters & Services	5,020,507		5,020,507		100%			100%		100%	<i>All to Meters & Services</i>	
Supply/Treatment	-		-			50%	50%	100%		100%	<i>Peak/Avg Day Ratio(1084/542 gals)</i>	
TOTAL DIRECT UTILITY 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	100%	General Plant is allocated according to all direct plant resulting in the same overall allocation between capacity and fire.						<i>As All Other</i>	
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 ALLOCATION OF PLANT IN SERVICE - 2015						15%	24%	21%	60%	40%		

Allocation of Total Plant between Capacity and Fire



CALCULATION & ALLOCATION COMPONENTS	TOTAL ALLOCABLE COSTS	CAPACITY	FIRE SUPPRESSION
		All Customer Capacity Chg	Total 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	<u>4,514,984</u>	<u>2,771,239</u>	<u>1,743,745</u>
Total Allocable Plant b/f Adjustments	46,638,307	28,085,565	18,552,743

Allocation of Total Plant between Capacity and Fire



TOTAL COSTS	CAPACITY COSTS	TOTAL FIRE COSTS
Combined Capacity and Fire Costs	Low & High Density Base Charge	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

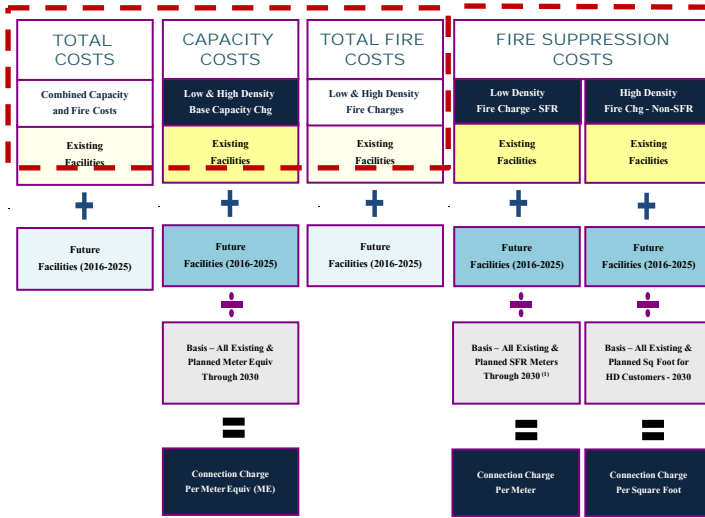
CALCULATION & ALLOCATION COMPONENTS	TOTAL ALLOCABLE COSTS	CAPACITY	FIRE SUPPRESSION
		All Customer Capacity Chg	Total Fire Alloc
I. ALLOCABLE COSTS - EXISTING FACILITIES: 1			
Utility Plant-in-Service at 12/31/2015	\$ 42,123,323	\$ 25,314,326	\$ 16,808,997
plus: Construction-in-Progress	4,514,984	2,771,239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

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 ALLOCATION OF PLANT IN SERVICE - 2015				15%	24%	21%	60%	40%	



Break

Allocation of Total Plant between Capacity and Fire

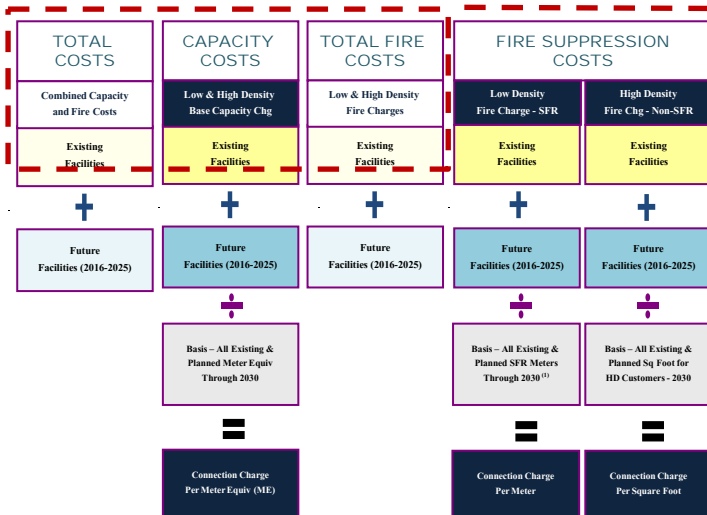


TOTAL COSTS	CAPACITY COSTS	TOTAL FIRE COSTS
Combined Capacity and Fire Costs	Low & High Density Base Capacity Chg	Low & High Density Fire Charges
Existing Facilities	Existing Facilities	Existing Facilities
Plant in Service 12/31/2015	Plant in Service 12/31/2015	Plant in Service 12/31/2015
Construction 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 at the net amount of allocable plant for the connection charge.

Allocation of Total Plant between Capacity and Fire



CALCULATION & ALLOCATION COMPONENTS	TOTAL ALLOCABLE COSTS	CAPACITY	FIRE SUPPRESSION
		All Customer Capacity Chg	Total 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
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	7,699,934	5,573,266
Total Allocable Plant b/f Net Outstanding Debt	58,396,798	34,849,876	23,546,922
<i>Allocation to Capacity and Fire Plant</i>		60%	40%
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	\$ 52,953,219	\$ 31,601,272	\$ 21,351,947

We let off with \$28.1 Million allocated to Capacity (60%) and \$18.5 Million allocated to Fire (40%).

Contribution in Aid of Construction or CIAC are amounts donated from developers or from grants. RCW57 specifically states these should be omitted so as not to collect costs for something we did not pay for.

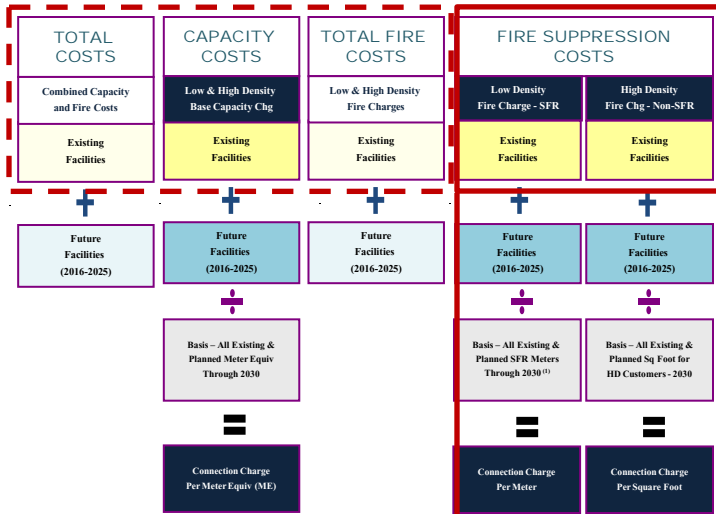
Mains slated for replacement are removed from existing facilities.

Up to ten years of interest is allowed as stipulated in RCW 57. This is considered a carrying cost and was granted in lieu of using market or replacement value.

RCW is silent on subtracting debt funding but to not do so means the new customer would be double paying.

Closer Look at the Costs

Allocation of Fire between Low and High Density Customers



TOTAL FIRE COSTS	FIRE SUPPRESSION COSTS BY DENSITY	
Low & High Density Fire Charges	Low Density Fire Charge - SFR	High Density Fire Chg - Non-SFR
Existing Facilities \$21,351,947	Existing Facilities	Existing Facilities

The next step is to allocate total fire costs to low and high density customer costs.

CALCULATION AND ALLOCATION COMPONENTS	TOTAL ALLOCABLE COSTS	CAPACITY All Customer Capacity Chg	FIRE SUPPRESSION		
			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 (CIAC)	(1,465,830)	(905,430)	(560,399)		
less: Expected Replacements in 10-Year CIP	(48,880)	(30,192)	(18,687)		
plus: Accum. Interest on Existing Plant (Excluding Int. on Future Repl.)	13,273,199	7,699,934	5,573,266		
Total Allocable Plant b/f Net Outstanding Debt	58,396,798	34,849,876	23,546,922		
Allocation to Capacity and Fire Plant (per Allocable Plant 2015)		60%	40%		
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	\$ 52,953,219	\$ 31,601,272	\$ 21,351,947	\$ 7,528,649 35.3%	\$ 13,823,298 64.7%
II. ALLOCABLE COSTS - FUTURE FACILITIES:					
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 Allocable Plant b/f Net Outstanding Debt	16,448,903	9,944,731	6,504,172		
Allocation to Capacity and Fire Plant (per Allocable CIP 2016-2025)		60%	40%		
less: Debt Outstanding net of Applicable Cash Balances					
Debt Outstanding for CIP - 12/31/25	6,000,504				
Cash Balances Alloc to CIP Debt	(4,809,745)				
Maximum Zero or Net Debt	1,190,848				
TOTAL ALLOCABLE COSTS - FUTURE FACILITIES	15,258,055	9,224,764	6,033,291	1,926,062 31.9%	4,107,229 68.1%
III. TOTAL ALLOCABLE COSTS (I. + II.)	\$68,211,274	\$40,826,036	\$27,385,238	\$9,454,711 34.5%	\$17,930,527 65.5%
IV. METER EQUIV (ME) ALLOCATION FOR BASE CAPACITY COSTS:					
Total Low Density (SFR) Meter Equivalents (MEs)		7,760			
Total High Density (Non-SFR) Meter Equivalents (MEs)		2,328			
Total Existing Meter Equivalents (MEs)		10,088			
Growth in MEs During Planning Period - Low Density		77			
Growth in MEs During Planning Period - High Density		303			
Total Growth		379			
Total Projected Capacity in Meter Equivalents (ME)		10,468			
V. BASE CAPACITY CHARGE PER ME FOR ALL CUSTOMERS		\$3,900 per ME			
Existing	\$3,019				
Future	\$881				
VI. METER ALLOCATION FOR FIRE COSTS - LOW DENSITY (SFR): *					
Low Density (SFR) Meters 12/31/2015			7,562		
Growth in Meters During Planning Period - Low Density			75		
Total Projected Low Density (SFR) Meters			7,637		
VII. FIRE CHARGE PER METER FOR LOW DENSITY CUSTOMERS (III. / VI.)					
Existing				\$1,238 / Meter	
Future				\$986	
				\$252	
VIII. SQUARE FOOT ALLOCATION FOR FIRE COSTS - HIGH DENSITY:					
Total High Density (Non-SFR) Square Footage 12/31/2015					4,763,646
Growth in Sq Ft During Planning Period - High Density					983,759
Total Projected Square Footage for High Density Customers					5,747,405
IX. FIRE CHARGE PER SQ FT FOR HIGH DENSITY CUSTOMERS (III. / VIII.)					
Existing					\$2.41
Future					\$0.71

* Meters exclude irrigation and fire meters

Allocation of Fire between Low and High Density Customers

TOTAL FIRE COSTS	FIRE SUPPRESSION COSTS BY DENSITY	
Low & High Density Fire Charges	Low Density Fire Charge - SFR	High Density Fire Chg - Non-SFR
Existing Facilities \$21,351,947 ←	Existing Facilities	Existing Facilities

Low Density = Single Family (no Irr. & fire lines)
High Density = Non-Single Family

This \$21.3 Million is the net Allocable Fire Costs for Fire - See the previous slides

The first step is to allocate 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.)

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

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

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%

Allocation of Fire between Low and High Density Customers

TOTAL FIRE COSTS	FIRE SUPPRESSION COSTS BY DENSITY	
Low & High Density Fire Charges	Low Density Fire Charge - SFR	High Density Fire Chg - Non-SFR
Existing Facilities \$21,351,947	Existing Facilities	Existing Facilities

Low Density = Single Family (no Irr. & fire lines)
High Density = Non-Single Family

This \$21.3Million is the net Allocable Fire Costs for Fire - See the previous slides

The first step is to allocate 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.)

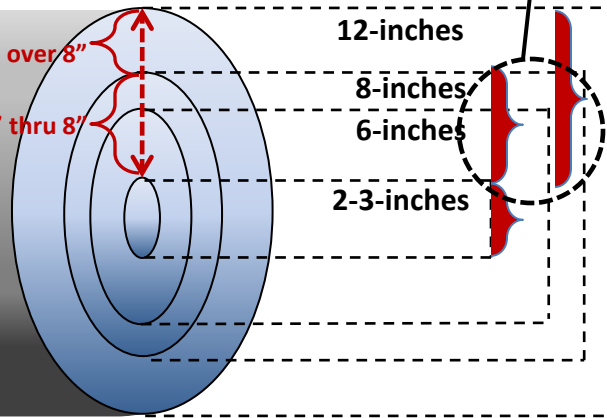
Allocation of Fire Costs to All Customers and High Density	Current Value of Pipe Upsizing	Allocation %	Costs Alloc to Fire Plant
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High Density Increment - > 8"	\$ 3,999,499	52%	\$ 11,051,448
TOTAL	\$ 7,727,231	100%	\$ 21,351,947

The upsizing of pipe between 2-3-inches and 12-inches is to meet fire flow requirements.

52%, of value, \$11,051,448, invested in upsizing over 8"

48%, of value, \$10,300,499, invested in upsizing above 3" thru 8"

12-inch Pipe Illustration



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.

Allocation of Fire between Low and High Density Customers

TOTAL FIRE COSTS	FIRE SUPPRESSION COSTS BY DENSITY	
Low & High Density Fire Charges	Low Density Fire Charge - SFR	High Density Fire Chg - Non-SFR
Existing Facilities \$21,351,947 ←	Existing Facilities	Existing Facilities

Low Density = Single Family (no Irr. & fire lines)
 High Density = Non-Single Family

This \$21.3 Million is the net Allocable Fire Costs for Fire - See the previous slides

The first step is to allocate the total fire costs between "All Customers" and the additional or incremental amount needed for High Density customers.

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Allocation of Fire Costs to All Customers and High Density	Current Value of Pipe Upsizing	Allocation %	Costs Alloc to Fire Plant
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TOTAL	\$ 7,727,231	100%	\$ 21,351,947

Allocation of Fire between Low and High Density Customers

TOTAL FIRE COSTS	FIRE SUPPRESSION COSTS BY DENSITY	
Low & High Density Fire Charges	Low Density Fire Charge - SFR	High Density Fire Chg - Non-SFR
Existing Facilities \$21,351,947 ←	Existing Facilities	Existing Facilities

Low Density = Single Family (no Irr. & fire lines)
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This \$21.3 Million is the net Allocable Fire Costs for Fire - See the previous slides

The first step is to allocate the total fire costs between "All Customers" and the additional or incremental amount needed for High Density customers.

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

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

Allocation to Customer Classes (LD SFR & HD Non-SFR) by Sq Foot	Low Density - Single Family	High Density - Non-SFR	Total
Allocation Basis - Sq Footage	12,938,582	4,763,646	17,702,228
Percentage	73%	27%	100%
All Customer Amount	\$ 7,528,649	\$ 2,771,851	\$ 10,300,499

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.

Allocation of Fire between Low and High Density Customers

TOTAL FIRE COSTS	FIRE SUPPRESSION COSTS BY DENSITY	
Low & High Density Fire Charges	Low Density Fire Charge - SFR	High Density Fire Chg - Non-SFR
Existing Facilities \$21,351,947 ←	Existing Facilities	Existing Facilities

Low Density = Single Family (no Irr. & fire lines)
High Density = Non-Single Family

This \$21.3 Million is the net Allocable Fire Costs for Fire - See the previous slides

The first step is to allocate 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.

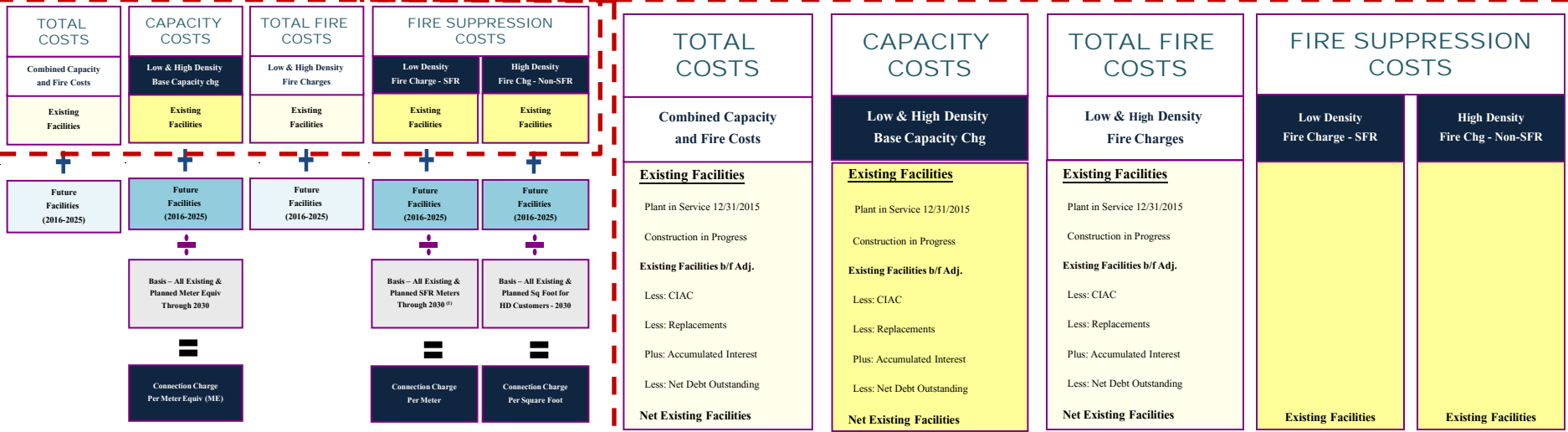
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High Density Increment - > 8"	\$ 3,999,499	52%	\$ 11,051,448
TOTAL	\$ 7,727,231	100%	\$ 21,351,947

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.

Allocation to Customer Classes (LD SFR & HD Non-SFR) by Sq Foot	Low Density - Single Family	High Density - Non-SFR	Total
Allocation Basis - Sq Footage	12,938,582	4,763,646	17,702,228
Percentage	73%	27%	100%
All Customer Amount	\$ 7,528,649	\$ 2,771,851	\$ 10,300,499
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	35%	65%	100%

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.

Allocation of Fire between Low and High Density Customers

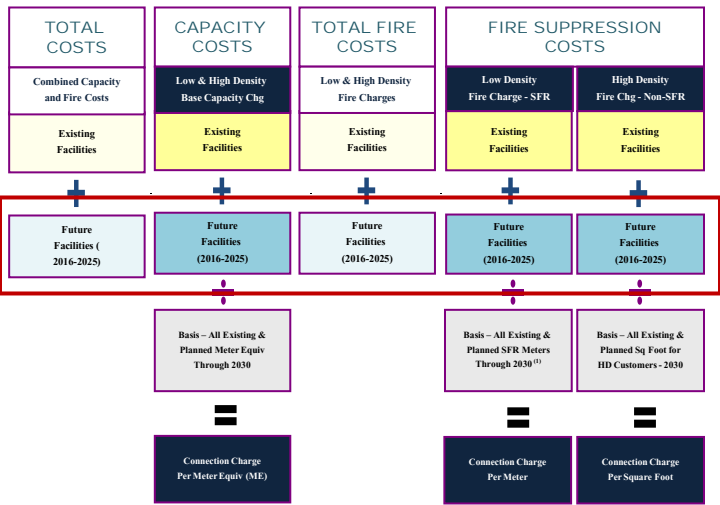


CALCULATION & ALLOCATION COMPONENTS	TOTAL ALLOCABLE COSTS	CAPACITY	FIRE SUPPRESSION		
		All Customer Capacity Chg	Total Fire Alloc	Low Density (SFR) Fire Chg	High Density Fire Chg
I. ALLOCABLE COSTS - EXISTING FACILITIES:					
Utility Plant-in-Service at 12/31/2015	\$ 42,123,323	\$ 25,314,326	\$ 16,808,997		
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	7,699,934	5,573,266		
Total Allocable Plant b/f Net Outstanding Debt	58,396,798	34,849,876	23,546,922		
<i>Allocation to Capacity and Fire Plant</i>		60%	40%		
less: Debt Outstanding net of Cash Balances					
<i>Debt Outstanding - 12/31/15</i>	9,709,907				
<i>Cash Balances - 2015</i>	<u>(4,266,328)</u>				
<i>Maximum Zero or Net Debt</i>	5,443,578				
	<u>(5,443,578)</u>	<u>(3,248,603)</u>	<u>(2,194,975)</u>		
TOTAL ALLOCABLE COSTS - EXISTING FACILITIES	\$ 52,953,219	\$ 31,601,272	\$ 21,351,947	\$ 7,528,649	\$ 13,823,298
				35.3%	64.7%

This shows the final results in context to the total calculation of the connection charges - see previous slides.

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

Closer Look at the Costs – Future Facilities



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.

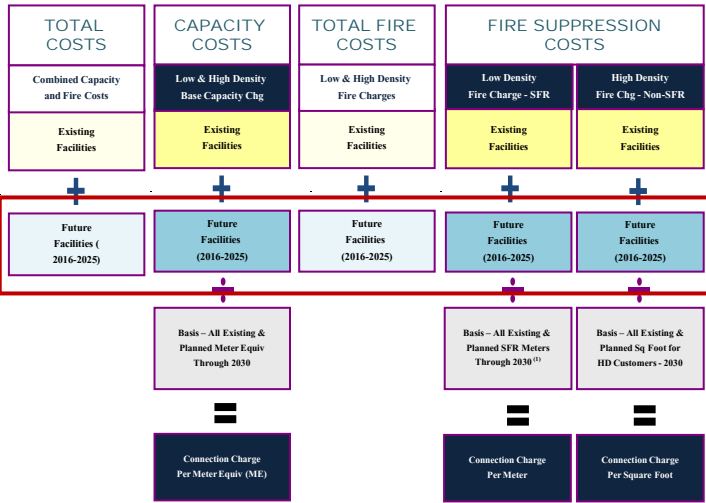
Policy Decision 6 – Should future facilities be stated in current or future dollars?

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.

CALCULATION AND ALLOCATION COMPONENTS	TOTAL ALLOCABLE COSTS	CAPACITY		FIRE SUPPRESSION	
		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 (CIAC)	(1,465,830)	(905,430)	(560,399)		
less: Expected Replacements in 10-Year CIP	(48,880)	(30,192)	(18,687)		
plus: Accum. Interest on Existing Plant (Excluding Int. on Future Repl.)	13,273,199	7,699,934	5,573,266		
Total Allocable Plant b/f Net Outstanding Debt	58,396,798	34,849,876	23,546,922		
Allocation to Capacity and Fire Plant (per Allocable Plant 2015)		60%	40%		
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	\$ 52,953,219	\$ 31,601,272	\$ 21,351,947	\$ 7,528,649	\$ 13,823,298
			35.3%	64.7%	
II. ALLOCABLE COSTS - FUTURE FACILITIES:					
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 Allocable Plant b/f Net Outstanding Debt	16,448,903	9,944,731	6,504,172		
Allocation to Capacity and Fire Plant (per Allocable CIP 2016-2025)		60%	40%		
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				
TOTAL ALLOCABLE COSTS - FUTURE FACILITIES	15,258,055	9,224,764	6,033,291	1,926,062	4,107,229
			31.9%	68.1%	
III. TOTAL ALLOCABLE COSTS (I. + 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 (SFR) Meter Equivalents (MEs)		7,760			
Total High Density (Non-SFR) Meter Equivalents (MEs)		2,328			
Total Existing Meter Equivalents (MEs)		10,088			
Growth in MEs During Planning Period - Low Density		77			
Growth in MEs During Planning Period - High Density		303			
Total Growth		379			
Total Projected Capacity in Meter Equivalents (ME)		10,468			
V. BASE CAPACITY CHARGE PER ME FOR ALL CUSTOMERS		\$3,900 per ME			
Existing		\$3,019			
Future		\$881			
VI. METER ALLOCATION FOR FIRE COSTS - LOW DENSITY (SFR): *					
Low Density (SFR) Meters 12/31/2015				7,562	
Growth in Meters During Planning Period - Low Density				75	
Total Projected Low Density (SFR) Meters				7,637	
VII. FIRE CHARGE PER METER FOR LOW DENSITY CUSTOMERS (III. / VI.)					
				\$1,238 / Meter	
Existing				\$986	
Future				\$252	
VIII. SQUARE FOOT ALLOCATION FOR FIRE COSTS - HIGH DENSITY:					
Total High Density (Non-SFR) Square Footage 12/31/2015					4,763,646
Growth in Sq Ft During Planning Period - High Density					983,759
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
Existing					\$2.41
Future					\$0.71

* Meters exclude irrigation and fire meters

Closer Look at the Costs – Future Facilities



CALCULATION & ALLOCATION COMPONENTS	TOTAL ALLOCABLE COSTS	CAPACITY	FIRE SUPPRESSION		
		All Customer Capacity Chg	Total Fire Alloc	Low Density (SFR) Fire Chg	High Density Fire Chg
II. ALLOCABLE COSTS - FUTURE FACILITIES:					
Future Capital Requirements (10 Year CIP 2016-2025)	\$ 16,448,903	\$ 9,944,731	\$ 6,504,172		
less: Expected Contributions in Aid of Construction	-	-	-		
Total Allocable Plant b/f Net Outstanding Debt	16,448,903	9,944,731	6,504,172		
<i>Allocation to Capacity and Fire Plant</i>		60%	40%		
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	15,258,055	9,224,764	6,033,291		

Future capital projects come directly from the Comp Plan – only exception is the 178th Street project.

There are no planned developer projects in the 2016-2025 CIP

The amount of net outstanding debt is allocated between existing facilities and future facilities. It is allocated between Capacity and Fire according to Plant before adj. - 61% and 39%.

Closer Look at the Costs – Future Facilities

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

Diameter (Inch)	Total Feet of Pipe 12/31/15	Add (Replaced) 2016-2025	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 Upsizing Value	Upsizing Value - Low Density	Upsizing Value - High Density Increment
< 4	3,598		3,598	\$ 32	\$ 32		\$ 114,279	\$ 114,279		\$ -	\$ -
4 - Capacity	1,565		1,565	\$ 53	\$ 32	\$ 22	83,508	49,707	33,801		
4 - Fire	44,417		44,417	\$ 53	\$ 32	\$ 22	2,370,088	1,410,767	959,322	959,322	
6 - Capacity	500		500	\$ 38	\$ 32	\$ 6	15,881	15,881			
6 - Fire	260,261	(2,120)	258,141	\$ 38	\$ 32	\$ 6	9,838,849	8,199,041	1,639,808	1,639,808	
8 - Capacity	150		150	\$ 53	\$ 32	\$ 22	4,764	4,764			
8 - Fire	98,314	5,240	103,554	\$ 53	\$ 32	\$ 22	5,525,635	3,289,069	2,236,567	2,236,567	
10	10,995		10,995	\$ 70	\$ 32	\$ 38	768,288	349,222	419,066		419,066
12	77,261	8,020	85,281	\$ 89	\$ 32	\$ 57	7,584,315	2,708,684	4,875,631		4,875,631
16	1,823	1,650	3,473	\$ 128	\$ 32	\$ 97	445,648	110,309	335,339		335,339
20	508		508	\$ 168	\$ 32	\$ 136	85,193	16,135	69,058		69,058
							499,392	12,790	512,182		
TOTAL ALLOCATION BETWEEN CAPACITY AND FIRE - AND LOW AND HIGH DENSITY							100%	61%	39%	46%	54%

Net new pipe 2016-2025 will be replaced or added totaling 12,790 LF with the majority being 12" pipe.

Pipe values have been inflated from 2015 values.

As the remaining pipe is upsized to meet fire flow requirements, the allocation shifts slightly more to the fire suppression function – from 38% to 39%. The allocation to high density customers is also higher - going from 52% to 54%.

Allocation from 12/31/2015				
100%	62%	38%	48%	52%

STORAGE ALLOCATION TO CAPACITY AND FIRE PROTECTION

STORAGE ELEMENTS	2.0 Reservoir (MGals)	3.7 Reservoir (MGals)	TOTAL GAL OF STORAGE	CAPACITY FUNCTIONS			FIRE FUNCTION	AS ALL OTHER	GRAND TOTAL	ALLOCATION BASIS
				BASE	PEAK	TOTAL				
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 STORAGE BY FUNCTIONS				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 FUNCTIONS				26%	6%	32%	68%		100%	

There is no expected difference in the allocation of storage between capacity and fire suppression cost.

26%	6%	32%	68%	100%
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Closer Look at the Costs – Future Facilities

PLANT-IN-SERVICE	2015 PLANT	2015 Const-in-Progress	10 Year CIP 2016 -2025	TOTAL PLANT 2025	GENERAL (As All Other)	CAPACITY (NON-FIRE) FUNCTIONS			TOTAL NON-FIRE FUNCTIONS	FIRE FUNCTION	GRAND TOTAL	ALLOCATION BASIS
						METERS & SERVICES	BASE	PEAK				
DIRECT UTILITY PLANT												
Storage (Reservoirs)	6,034,906		118,843	6,153,749								As Storage Plant
Transmission & Distribution	15,578,193	66,270	11,122,709	26,767,172								Fire as Pipes, Remainder Peak/Avg
Pumping	2,446,674	3,310,806	4,846,888	10,604,368								Same as T&D
Hydrants	1,007,228		-	1,007,228								All to Fire
Meters & Services	5,020,507		-	5,020,507		100%						All to Meters & Services
Supply/Treatment	-		-	-			50%	50%	100%			Peak/Avg Day Ratio(1084/542 gals)
TOTAL DIRECT UTILITY 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 Functions of Service						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 Other) to Direct Plant Functions:					(13,534,186)	1,371,228	3,534,429	3,193,288	8,098,945	5,435,241	13,534,186	
<i>Allocation to Capacity and Fire are based on new total Plant.</i>												
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 ALLOCATION OF PLANT IN 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 ALLOCATION OF PLANT IN 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 SUPPRESSION COSTS BY DENSITY	
Low & High Density Fire Charges	Low Density Fire Charge - SFR	High Density Fire Chg - Non-SFR
Existing Facilities \$6,033,291 ←	Existing Facilities	Existing Facilities

Low Density = Single Family (no Irr. & fire lines)
High Density = Non-Single Family

This \$6 Million is the net Allocable Fire Costs for Fire - See the previous slides

The first step is to allocate the total fire costs between "All Customers" and the additional amount needed for High Density customers. This was previously done when all the pipes were evaluated for capacity and fire in total.

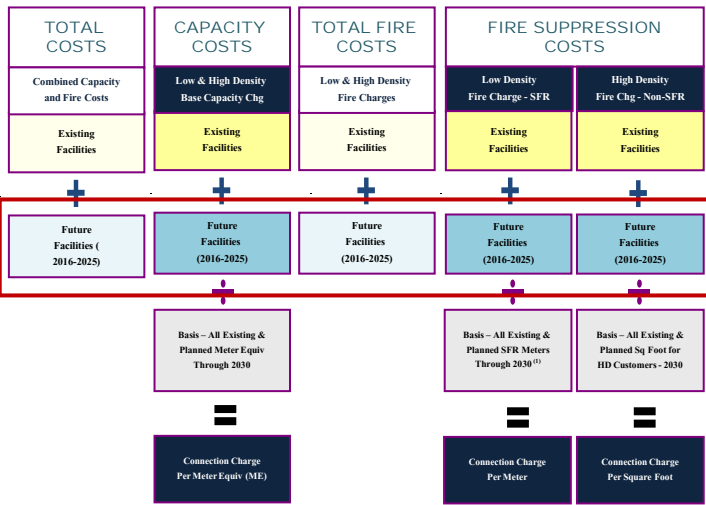
Allocation of Fire Costs to All Customers and High Density	Current Value of Pipe Upsizing	Allocation %	Costs Alloc to Fire Plant
All Customers - 4" thru 8"	\$ 4,835,696	46%	\$ 2,769,411
High Density Increment - > 8"	\$ 5,699,094	54%	\$ 3,263,880
TOTAL	\$ 10,534,791	100%	\$ 6,033,291

The next step is to allocate the costs for All customers (\$2,769,411) between LD and HD customers. Sq footage obtained from the Kind County assessors office was used as the allocation basis. 46% is allocated to LD and 54% is allocated to HD.

Allocation to Customer Classes (LD SFR & HD Non-SFR) by Sq Foot	Low Density - Single Family	High Density - Non-SFR	Total
Allocation Basis - Sq Footage	13,126,082	5,747,405	18,873,487
Percentage	70%	30%	100%
All Customer Amount	\$ 1,926,062	\$ 843,348	\$ 2,769,411
High Density Increment	\$ -	\$ 3,263,880	\$ 3,263,880
Total Fire Flow Plant Allocation	\$ 1,926,062	\$ 4,107,229	\$ 6,033,291
Final Allocation between Classes	32%	68%	100%

The final step is to add the HD increment to the HS share of costs for All customers for a final allocation between LD & HD customers of 32% and 68% respectively.

Closer Look at the Costs – Future Facilities



CALCULATION & ALLOCATION COMPONENTS	TOTAL ALLOCABLE COSTS	CAPACITY	FIRE SUPPRESSION		
		All Customer Capacity Chg	Total Fire Alloc	Low Density (SFR) Fire Chg	High Density Fire Chg
II. ALLOCABLE COSTS - FUTURE FACILITIES:					
Future Capital Requirements (10 Year CIP 2016-2025)	\$ 16,448,903	\$ 9,944,731	\$ 6,504,172		
less: Expected Contributions in Aid of Construction	-	-	-		
Total Allocable Plant b/f Net Outstanding Debt	16,448,903	9,944,731	6,504,172		
<i>Allocation to Capacity and Fire Plant</i>		60%	40%		
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)	(719,967)	(470,881)		
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 and High Density		60%	40%	35%	65%

Future capital projects come directly from the Comp Plan – only exception is the 178th Street project.

There are no developer projects in the 2016-2025 CIP

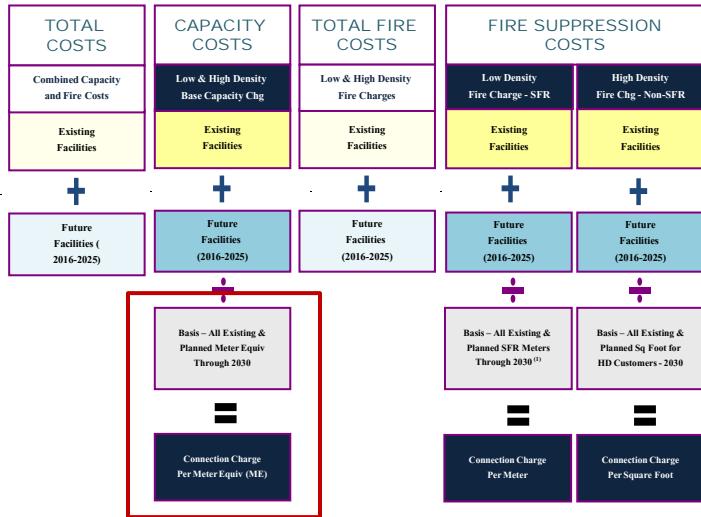
The amount of net outstanding debt is allocated between existing facilities and future facilities. It is allocated between Capacity and Fire according to Plant before adj

Closer Look at the Costs – All Facilities

CALCULATION & ALLOCATION COMPONENTS	TOTAL ALLOCABLE COSTS	CAPACITY	FIRE SUPPRESSION		
		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	<u>4,514,984</u>	<u>2,771,239</u>	<u>1,743,745</u>		
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	<u>13,273,199</u>	<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%		
less: Debt Outstanding net of Cash Balances					
Debt Outstanding - 12/31/15	9,709,907				
Cash Balances - 2015	<u>(4,266,328)</u>				
Maximum Zero or Net Debt	<u>(5,443,578)</u>	<u>(3,248,603)</u>	<u>(2,194,975)</u>		
TOTAL ALLOCABLE COSTS - EXISTING FACILITIES	\$ 52,953,219	\$ 31,601,272	\$ 21,351,947	\$ 7,528,649 35%	\$ 13,823,298 65%
II. ALLOCABLE COSTS - FUTURE FACILITIES:					
Future Capital Requirements (10 Year CIP 2016-2025)	\$ 16,448,903	\$ 9,944,731	\$ 6,504,172		
less: Expected Contributions in Aid of Construction	-	-	-		
Total Allocable Plant b/f Net Outstanding Debt	16,448,903	9,944,731	6,504,172		
Allocation to Capacity and Fire Plant		60%	40%		
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Cash Balances Allocated to CIP Debt	<u>(4,809,745)</u>				
Maximum Zero or Net Debt	<u>(1,190,848)</u>	<u>(719,967)</u>	<u>(470,881)</u>		
TOTAL ALLOCABLE COSTS - FUTURE FACILITIES	15,258,055	9,224,764	6,033,291	1,926,062	4,107,229
III. TOTAL ALLOCABLE COSTS	\$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 High Density		60%		14%	26%

5

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.

CALCULATION AND ALLOCATION COMPONENTS	TOTAL ALLOCABLE COSTS	CAPACITY		FIRE SUPPRESSION	
		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 (CIAC)	(1,465,830)	(905,430)	(560,399)		
less: Expected Replacements in 10-Year CIP	(48,880)	(30,192)	(18,687)		
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				31.9%	68.1%
III. TOTAL ALLOCABLE COSTS (I. + 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 (SFR) Meter Equivalents (MEs)		7,760			
Total High Density (Non-SFR) Meter Equivalents (MEs)		2,328			
Total Existing Meter Equivalents (MEs)		10,088			
Growth in MEs During Planning Period - Low Density		77			
Growth in MEs During Planning Period - High Density		303			
Total Growth		379			
Total Projected Capacity in Meter Equivalents (ME)		10,468			
V. BASE CAPACITY CHARGE PER ME FOR ALL CUSTOMERS		\$3,900 per ME			
	Existing	\$3,019			
	Future	\$881			
VI. METER ALLOCATION FOR FIRE COSTS - LOW DENSITY (SFR): *					
Low Density (SFR) Meters 12/31/2015				7,562	
Growth in Meters During Planning Period - Low Density				75	
Total Projected Low Density (SFR) Meters				7,637	
VII. FIRE CHARGE PER METER FOR LOW DENSITY CUSTOMERS (III. / VI.)					
				\$1,238 / Meter	
	Existing	\$986			
	Future	\$252			
VIII. SQUARE FOOT ALLOCATION FOR FIRE COSTS - HIGH DENSITY:					
Total High Density (Non-SFR) Square Footage 12/31/2015					4,763,646
Growth in Sq Ft During Planning Period - High Density					983,759
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
	Existing	\$2.41			
	Future	\$0.71			

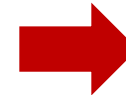
* Meters exclude irrigation and fire meters

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" x 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 personal 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:

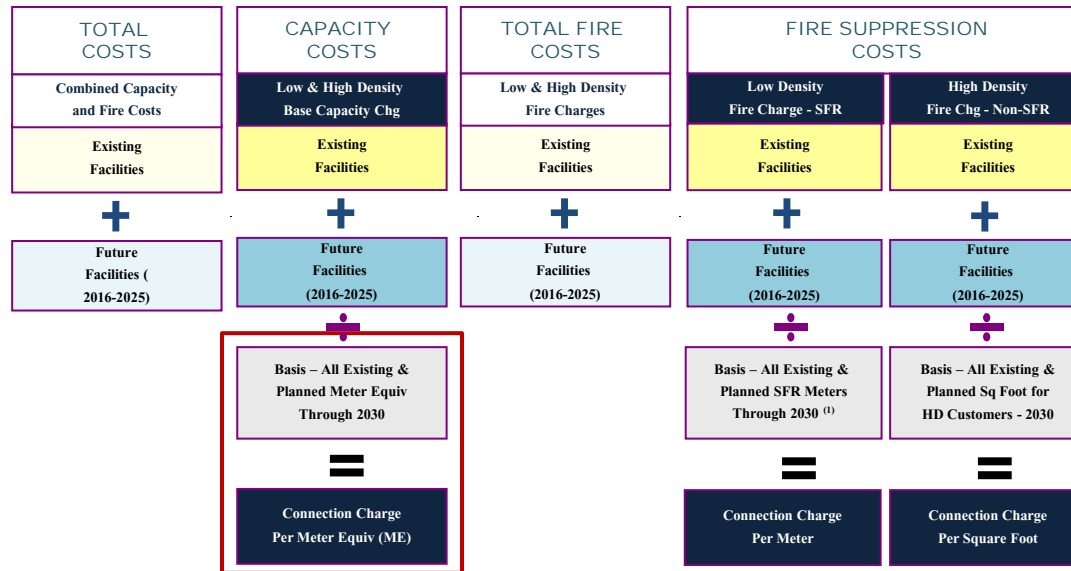


What this means is that the larger the meter, the higher the capacity portion of the connection charge will be. For example, if a new property required a 5/8" x 3/4" meter and the base charge for capacity was \$1,000, a 2" meter would have a base charge of \$8,000 ($\$1,000 \times 8$).

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



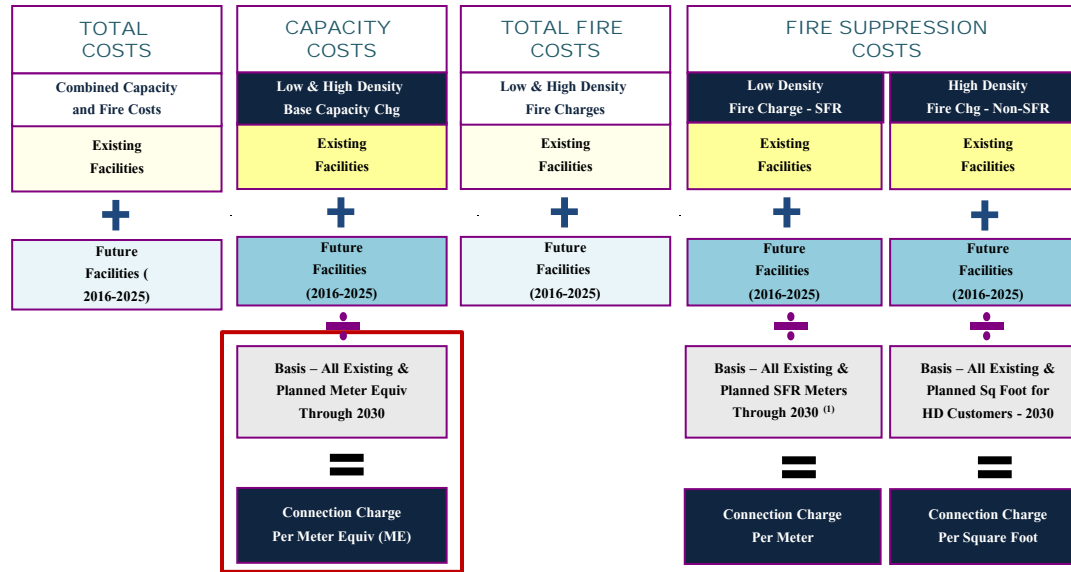
CALCULATION & ALLOCATION COMPONENTS	TOTAL ALLOCABLE COSTS	CAPACITY
III. TOTAL ALLOCABLE COSTS	\$68,211,274	All Customer Capacity Chg \$40,826,036
IV. METER EQUIV (ME) ALLOCATION FOR BASE COSTS: 6		
Total Low Density (SFR) Meter Equivalents (MEs)		7,760
Total High Density (Non-SFR) Meter Equivalents (MEs)		<u>2,328</u>
Total Existing Meter Equivalents (MEs)		10,088
Growth in MEs During Planning Period - Low Density		77
Growth in MEs During Planning Period - High Density		<u>303</u>
Total Growth		379
Total Projected Capacity in Meter Equivalents (ME)		10,468
V. BASE CAPACITY COST PER ME FOR ALL CUSTOMERS		\$3,900 per ME
	Existing	\$3,019
	Future	\$881

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 customers, the ratio is 23% / 77% respectively in the number of MEs. This is a clear indicator of how the larger customers put relatively higher demand on the District's systems.

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 the High Density customers is expected to be much greater, especially with Multi-Family where several large new apartment buildings are expected to be built over the next 15 years.

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

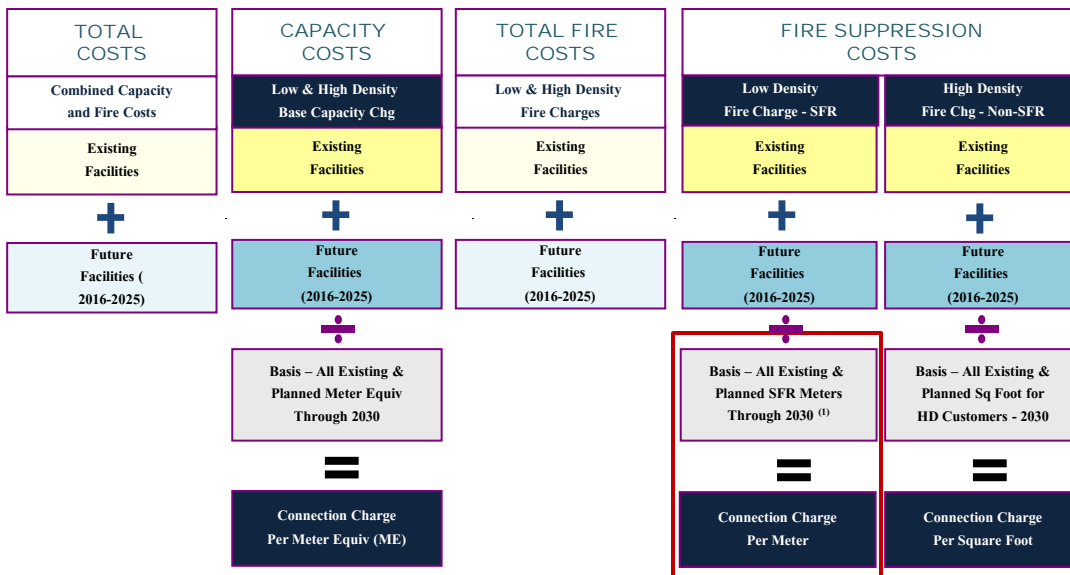


CALCULATION & ALLOCATION COMPONENTS	TOTAL ALLOCABLE COSTS	CAPACITY
		All Customer Capacity Chg
III. TOTAL ALLOCABLE COSTS	\$68,211,274	\$40,826,036
IV. METER EQUIV (ME) ALLOCATION FOR BASE COSTS: 6		
Total Low Density (SFR) Meter Equivalents (MEs)		7,760
Total High Density (Non-SFR) Meter Equivalents (MEs)		<u>2,328</u>
Total Existing Meter Equivalents (MEs)		10,088
Growth in MEs During Planning Period - Low Density		77
Growth in MEs During Planning Period - High Density		<u>303</u>
Total Growth		<u>379</u>
Total Projected Capacity in Meter Equivalents (ME)		10,468
V. BASE CAPACITY COST PER ME FOR ALL CUSTOMERS		\$3,900 per ME
	Existing	\$3,019
	Future	\$881

To arrive at the capacity charge portion of the connection charge the Total Allocable Costs, \$40,826,036, are divided by the total projected MEs at the end of the growth period -10,468.

The final charge for capacity is \$3,900 per ME.

Basis of the SFR Fire Charge - 2



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	FIRE SUPPRESSION	
		All Customer Capacity Chg	Total Fire Alloc	Low Density (SFR) Fire Chg
III. TOTAL ALLOCABLE COSTS	\$68,211,274	\$40,826,036	\$27,385,238	\$9,454,711
VI. METER ALLOCATION FOR FIRE COSTS - LOW DENSITY: *				
Low Density (SFR) Meters 12/31/2015				7,562
Growth in Meters During Planning Period - Low Density				75
Total Projected Capacity in Meters				7,637
VII. FIRE COST PER METER FOR LOW DENSITY CUSTOMERS				\$1,238 per Meter
			Existing	\$986
			Future	\$252

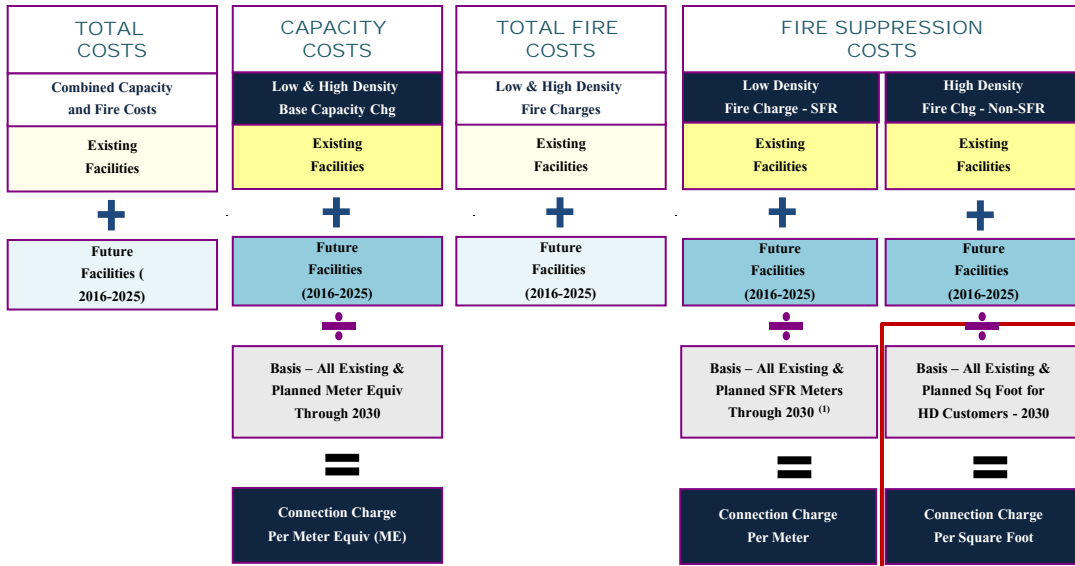
7

The final SFR Fire Charge is derived by dividing \$9,454,711 by 7,637 for \$1,238 per SFR Meter.

Note the size of the SFR meter does not matter.

The number of SFR meters, except irrigation and fire line meters, projected by the end of 2030 is 7,637 for a growth rate of 1%.

Basis of the High Density Fire Charge - 3



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.

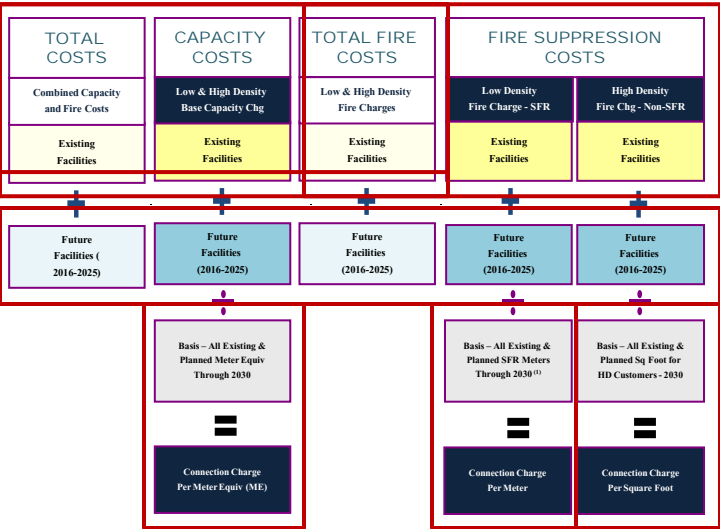
In the prior update of the connection charge, ERU was used instead of square footage, with 840 SQ FT equaling one ERU. There is no need to use an average any longer as we have access to all the square footage of all the buildings located within the District through the King County Assessor's Office.

CALCULATION & ALLOCATION COMPONENTS	TOTAL ALLOCABLE COSTS	CAPACITY		FIRE SUPPRESSION	
		All Customer Capacity Chg	Total Fire Alloc	Low Density (SFR) Fire Chg	High Density Fire Chg
III. TOTAL ALLOCABLE COSTS	\$68,211,274	\$40,826,036	\$27,385,238	\$9,454,711	\$17,930,527
VIII SQ FOOT ALLOCATION FOR FIRE COSTS - HIGH DENSITY: 8					
Total High Density (Non-SFR) Square Footage 12/31/2015					4,763,646
Growth in Sq Ft During Planning Period - High Density					983,759
Total Projected Capacity in Square Footage					5,747,405
IX. FIRE COST PER SQ FT FOR HIGH DENSITY CUSTOMERS					\$3.12 / SQ FT
					Existing \$2.41
					Future \$0.71

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 the next 15 years.

The final High Density Fire Charge is derived by dividing \$17,930,527 by 5,747,405 for \$3.12 per SQ FT.

Summary of Connection Charge Calculations



CONNECTION CHARGES - 2016 UPDATE Calculation of Connection Fees

CALCULATION AND ALLOCATION COMPONENTS	TOTAL ALLOCABLE COSTS	CAPACITY All Customer Capacity Chg	FIRE SUPPRESSION		
			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 (CIAC)	(1,465,830)	(805,430)	(560,389)		
less: Expected Replacements in 10-Year CIP	(48,880)	(30,192)	(18,887)		
plus: Accum. Interest on Existing Plant (Excluding Int. on Future Repl.)	13,273,199	7,689,934	5,573,266		
Total Allocable Plant b/f Net Outstanding Debt	58,396,798	34,849,876	23,546,922		
Allocation to Capacity and Fire Plant (per Allocable Plant 2015)		60%	40%		
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	(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. ALLOCABLE COSTS - FUTURE FACILITIES:					
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 Allocable Plant b/f Net Outstanding Debt	16,448,903	9,944,731	6,504,172		
Allocation to Capacity and Fire Plant (per Allocable CIP 2016-2025)		60%	40%		
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	(719,957)	(470,881)		
TOTAL ALLOCABLE COSTS - FUTURE FACILITIES	15,258,055	9,224,784	6,033,291	1,928,062	4,107,229
			31.9%	68.1%	
III. TOTAL ALLOCABLE COSTS (I + 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 (SFR) Meter Equivalents (MEs)		7,760			
Total High Density (Non-SFR) Meter Equivalents (MEs)		2,328			
Total Existing Meter Equivalents (MEs)		10,088			
Growth in MEs During Planning Period - Low Density		77			
Growth in MEs During Planning Period - High Density		303			
Total Growth		379			
Total Projected Capacity in Meter Equivalents (ME)		10,468			
V. BASE CAPACITY CHARGE PER ME FOR ALL CUSTOMERS					
		\$3,900 per ME			
	Existing	\$3,019			
	Future	\$881			
VI. METER ALLOCATION FOR FIRE COSTS - LOW DENSITY (SFR): *					
Low Density (SFR) Meters 12/31/2015				7,562	
Growth in Meters During Planning Period - Low Density				75	
Total Projected Low Density (SFR) Meters				7,637	
VII. FIRE CHARGE PER METER FOR LOW DENSITY CUSTOMERS (III. / VI.)					
				\$1,238 / Meter	
	Existing	\$986			
	Future	\$252			
VIII. SQUARE FOOT ALLOCATION FOR FIRE COSTS - HIGH DENSITY:					
Total High Density (Non-SFR) Square Footage 12/31/2015				4,763,646	
Growth in Sq Ft During Planning Period - High Density				983,759	
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	
	Existing	\$2.41			
	Future	\$0.71			

* Meters exclude irrigation and fire meters

- 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.
- 3) 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.

Connection Charge Elements

CAPACITY COSTS
Low & High Density Base Charge for All Customers
Existing Facilities \$31,601,272



Future Facilities (2016-2025) \$9,224,764
--



Basis – All Existing and Planned Meter Equivalent Through 2030 10,468
--



Connection Charge Per Meter Equivalent (ME) \$3,900
--

1

FIRE SUPPRESSION COSTS	
Low Density Fire Charge for SFR	High Density Fire Charge for Non-SFR
Existing Facilities \$7,528,649	Existing Facilities \$13,823,296



Future Facilities (2016-2025) \$1,926,062
--



Basis – All Existing and Planned SFR Meters ⁽¹⁾ Through 2030 7,637
--



Connection Charge Per Meter \$1,238
--

2



Future Facilities (2016-2025) \$4,107,229
--



Basis – All Existing and Planned Square Footage for HD Custs. through 2030 5,747,405



Connection Charge Per Square Foot \$3.12

3

1) Except irrigation and fire line meters



CONNECTION CHARGES - 2016 UPDATE

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

HIGH DENSITY NON-SFR CUSTOMERS	
High Density Capacity Charge ⁽²⁾	<u>Per ME ⁽³⁾</u>
Existing Costs	\$ 3,019
Future Costs	\$ 881
Total High Density Capacity Charge ⁽⁶⁾	\$ 3,900
High Density Fire Charge	<u>Per SQ FT ⁽⁵⁾</u>
Existing Costs	\$ 2.40
Future Costs	\$ 0.71
Total High Density Fire Charge	\$ 3.12

- 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	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!



CONNECTION CHARGES - 2016 UPDATE

Sample Customers

COMPARISON TO PRIOR GFC		
	per ERU	per ERU
	\$ 295	\$ 565
	\$ 3,301	\$ 3,795
	\$ 3,596	\$ 4,360

TYPE OF CUSTOMER	INPUT AREA			LD & HD CAPACITY CHARGE			LD FIRE CHARGE			HD FIRE CHARGE		Total Connection Charge	COMPARISON TO PRIOR GFC		
	Selected Meter Size	No of Units	Gross Square Footage	No. of MEs	Rate per ME	Total Base Charge	Applicable No. of Meters	LD Fire Rate per Meter	Total LD Fire Charge	HD Fire Rate per Sq Ft	Total HD Fire Charge		Charge at Prior Rate	Difference	ERUs
Single Family - Stand Alone															
Capacity Meter Charge	5/8" Meter			1	\$3,900	\$3,900						\$3,900			
Fire Suppression Charge (from Hydrants)						\$0	1	\$1,238	\$1,238			\$1,238			
Total Single Family - Stand Alone						\$3,900			\$1,238			\$5,138	\$ 3,596	\$ 1,542	
Single Family with Flow-thru Meter															
Capacity Meter Charge	1" Meter			1	\$3,900	\$3,900						\$3,900			
Fire Suppression Charge (from Hydrants)						\$0	1	\$1,238	\$1,238			\$1,238			
Total Single Family with Flow-thru Meter						\$3,900			\$1,238			\$5,138	\$ 3,596	\$ 1,542	
SFR Irrigation Capacity Meter Charge	1" Meter			2.5	\$3,900	\$9,750						\$9,750	\$ 8,990	\$ 760	2.5
Storage Building - 4" Sprinkler Meter															
Capacity Meter Charge	5/8" Meter			1	\$3,900	\$3,900						\$3,900			
Sprinkler Meter Charge	4" Meter			25		\$0						\$0			
Fire Suppression Charge (from Hydrants)		84,000				\$0			\$3.1200	\$262,080		\$262,080			
Total Storage Building						\$3,900				\$262,080		\$265,980	\$ 436,000	\$ (170,020)	100
Parking Garage⁽¹⁾															
Capacity Meter Charge	5/8" Meter			1	\$3,900	\$3,900						\$3,900			
Sprinkler Meter Charge	4" Meter			25		\$0						\$0			
Fire Suppression Charge (from Hydrants)		25,000				\$0			\$3.12	\$78,000		\$78,000			
Total Parking Garage						\$3,900				\$78,000		\$81,900	\$ 130,800	\$ (48,900)	30

(1) Sq footage for parking garages is the single largest floor



CONNECTION CHARGES - 2016 UPDATE

Sample Customers

COMPARISON TO PRIOR GFC		
	per ERU	per ERU
	\$ 295	\$ 565
	\$ 3,301	\$ 3,795
	\$ 3,596	\$ 4,360

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



CONNECTION CHARGES - 2016 UPDATE

Sample Customers

COMPARISON TO PRIOR GFC		
	per ERU	per ERU
\$	295	\$ 565
\$	3,301	\$ 3,795
\$	3,596	\$ 4,360

TYPE OF CUSTOMER	INPUT AREA			LD & HD CAPACITY CHARGE			LD FIRE CHARGE			HD FIRE CHARGE		Total Connection Charge	Charge at Prior		
	Selected Meter Size	No of Units	Gross Square Footage	No. of MEs	Rate per ME	Total Base Charge	Applicable No. of Meters	LD Fire Rate per Meter	Total LD Fire Charge	HD Fire Rate per Sq Ft	Total HD Fire Charge		Rate	Difference	ERUs
School															
Capacity Meter Charge	4" Meter			25	\$3,900	\$97,500						\$97,500			
Sprinkler Meter Charge	4" Meter			25		\$0						\$0			
Fire Suppression Charge (from Hydrants)			68,000			\$0			\$3.12	\$212,160		\$212,160			
Total School						\$97,500				\$212,160		\$309,660	\$ 353,160	\$ (43,500)	81
Maintenance Facility															
Capacity Meter Charge	2" Meter			8	\$3,900	\$31,200						\$31,200			
Sprinkler Meter Charge	4" Meter			25		\$0						\$0			
Fire Suppression Charge (from Hydrants)			40,000			\$0			\$3.12	\$124,800		\$124,800			
Total Maintenance Facility						\$31,200				\$124,800		\$156,000	\$ 209,280	\$ (53,280)	48
Church															
Capacity Meter Charge	1" Meter			2.5	\$3,900	\$9,750						\$9,750			
Sprinkler Meter Charge	4" Meter			25		\$0						\$0			
Fire Suppression Charge (from Hydrants)			14,823			\$0			\$3.12	\$46,248		\$46,248			
Total Church						\$9,750				\$46,248		\$55,998	\$ 78,480	\$ (22,482)	18
Grocery Store															
Capacity Meter Charge	1 1/2" Meter			5	\$3,900	\$19,500						\$19,500			
Sprinkler Meter Charge	4" Meter			25		\$0						\$0			
Fire Suppression Charge (from Hydrants)			8,400			\$0			\$3.12	\$26,208		\$26,208			
Total Church						\$19,500				\$26,208		\$45,708	\$ 43,600	\$ 2,108	10
Average Commercial Building															
Capacity Meter Charge	1 1/2" Meter			5	\$3,900	\$19,500						\$19,500			
Sprinkler Meter Charge	1 1/2" Meter			5		\$0						\$0			
Fire Suppression Charge (from Hydrants)			15,000			\$0			\$3.12	\$46,800		\$46,800			
Total Average Commercial Building						\$19,500				\$46,800		\$66,300	\$ 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?	Average Cost Method – <i>the District is built out and all scheduled construction is primarily for renewal and replacement, which affects new and existing customers alike.</i>
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 – <i>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.</i>
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 – <i>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.</i>
Policy Decision 4 – Should indirect costs be included with the direct pipe values when computing allocation percentages?	No - exclude indirect costs – <i>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.</i>
Policy Decision 5 – Should the District allocate standby storage between capacity and fire suppression?	Yes - 50% to Capacity & 50% to Fire – <i>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.</i>
Policy Decision 6 – Should future facilities be stated in current or future dollars?	Future Dollars – <i>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.</i>
Policy Decision 7 – Should fire sprinkler meters be omitted from the connection charge?	Yes – Fire Sprinkler meters will not be charged - <i>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.</i>



End