

Town of Hillsborough

Water Rate Cost-of-Service Study

City Council Meeting
December 12, 2016

HF&H
Consultants, LLC



Rate Study Process to Date

- February 2016 – Rate consultant commenced cost-of-service study
- Public Meetings to Discuss Results
 - September 1, 2016 – Financial Advisory Committee meeting
 - Draft report presented
 - September 12, 2016 – City Council study session
 - Draft report presented
 - November 2, 2016 – City Council study session
 - Revised draft report presented
 - December 12, 2016 – City Council meeting
 - Revised draft report presented
 - Draft notice to ratepayers presented to Council for approval
 - Recommend Council authorizes mailing notices to rate payers



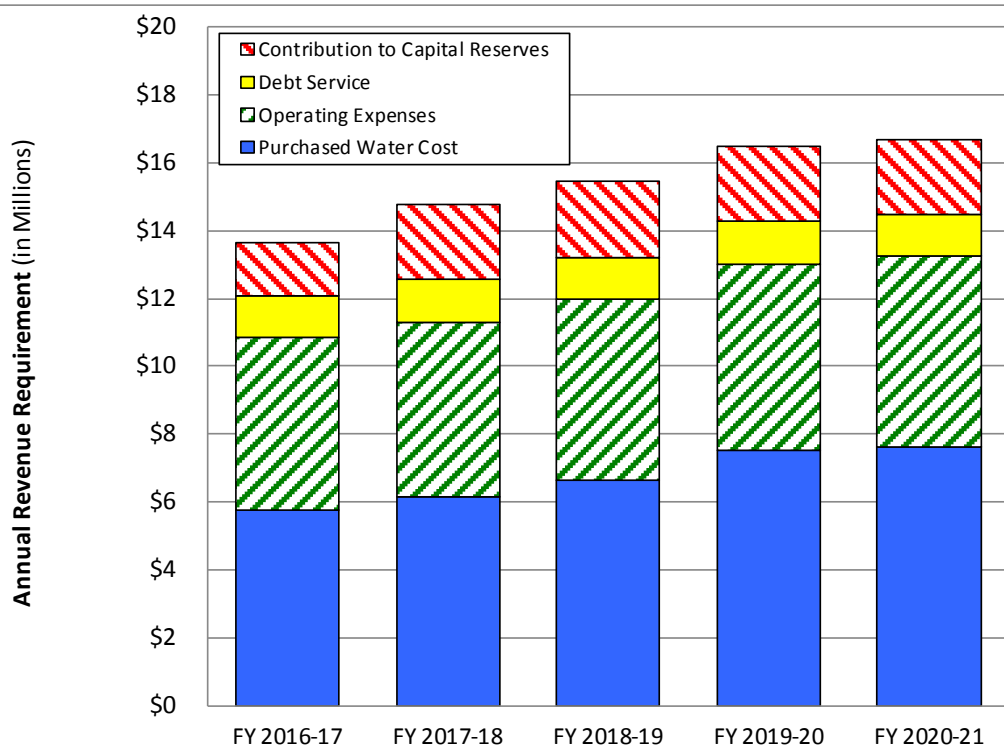
Recommended Rate and Revenue Increases

Fiscal Year	Rate Adjustments	Effective Date of Rate Adjustments	Revenue After Rate Adjustments	Fiscal Year Increase in Revenue
Current Revenue at 2016 Rates			\$13,369,138	
FY2016-17	% varies	5/1/2017	\$13,454,498	0.6%
FY2017-18	8.0%	1/1/2018	\$14,436,550	7.3%
FY2018-19	8.0%	1/1/2019	\$15,591,474	8.0%
FY2019-20	5.0%	1/1/2020	\$16,595,924	6.4%
FY2020-21	5.0%	1/1/2021	\$17,425,720	5.0%

- Annual revenue increasing between 0.6% and 8.0% over the 5-year planning period
- Revenue increases differ slightly from rate increases in some years because of mid-fiscal year implementation
- After May 1, 2017 restructuring, rate increases are applied across-the-board



Revenue Requirement Increases



Revenue Requirement					
Contribution to Capital Reserves	\$1,556,280	\$2,211,870	\$2,211,870	\$2,211,870	\$2,211,870
Debt Service	\$1,210,103	\$1,276,115	\$1,258,968	\$1,241,434	\$1,223,513
Purchased Water Cost	\$5,784,589	\$6,134,536	\$6,640,015	\$7,547,286	\$7,599,130
Net Operating Expenses	\$5,074,247	\$5,168,653	\$5,319,381	\$5,474,723	\$5,634,827
Total Annual Revenue Requirement	\$13,625,218	\$14,791,174	\$15,430,234	\$16,475,313	\$16,669,340
% Change		8.6%	4.3%	6.8%	1.2%

- Costs increasing an average of 5.2% per year
- SFPUC wholesale water
 - 34% increase over next five years (from \$4.10 to \$5.50 per unit)
- Capital improvements
 - Annual funding increasing from \$1.5M to \$2.2M
- Major O&M expenses
 - Inflation – 2.5% annually
 - Salaries/benefits – 3.0% to 5.0% annually
- Annual debt service averages \$1.2M/year



Proposed Monthly Service Charge Rates

- Recovers the cost of the customer service function
- Residential customers will now pay in proportion to the capacity of service based on meter size
- Independent of customer category; residential and non-residential now pay the same
- 94% of residential customers have a 1" meter

Meter Size	Approved		Proposed				
	(\$/Meter per Month)		(\$/Meter per Month; All Customer Categories)				
	Residential	Non-Residential	5/1/2017	1/1/2018	1/1/2019	1/1/2020	1/1/2021
3/4"	\$70.00		\$63.60	\$68.68	\$74.18	\$77.89	\$81.78
1"	\$70.00	\$70.00	\$77.45	\$83.65	\$90.34	\$94.86	\$99.60
1 1/2"	\$70.00	\$120.00	\$108.62	\$117.31	\$126.70	\$133.03	\$139.69
2"	\$70.00	\$180.00	\$150.19	\$162.20	\$175.18	\$183.94	\$193.14
3"		\$320.00	\$261.03	\$281.91	\$304.46	\$319.68	\$335.67
6"		\$1,020.00	\$732.08	\$790.65	\$853.90	\$896.60	\$941.43
8"		\$1,620.00	\$1,147.72	\$1,239.54	\$1,338.70	\$1,405.64	\$1,475.92



Proposed Volume Charge Rates

- Reduce number of residential tiers from 5 tiers to 4 tiers
- Proposed residential breakpoints are smaller than existing tiers
- Rate restructure effective May 1, 2017
 - Proposed residential rates are lower in Tiers 1, 2, and 3 and higher in Tier 4
 - Uniform % increases each year thereafter
- Uniform non-residential rate decreases based on cost-of-service

Customer Category	Approved		Proposed					
	Tier Size	Rate	Tier Size	5/1/2017	1/1/2018	1/1/2019	1/1/2020	1/1/2021
Residential	(HCF/month)	(\$/HCF)	(HCF/month)	(\$/HCF)	(\$/HCF)	(\$/HCF)	(\$/HCF)	(\$/HCF)
Tier 1	1 to 10	\$7.14	1 to 10	\$5.54	\$5.98	\$6.46	\$6.78	\$7.12
Tier 2	11 to 25	\$8.44	11 to 22	\$7.03	\$7.59	\$8.20	\$8.61	\$9.04
Tier 3	26 to 50	\$9.68	23 to 35	\$9.65	\$10.43	\$11.26	\$11.82	\$12.41
Tier 4	51 to 100	\$11.58	Over 35	\$14.74	\$15.92	\$17.20	\$18.06	\$18.96
Tier 5	Over 100	\$14.18						
Non-Residential		\$9.06		\$7.43	\$8.02	\$8.66	\$9.10	\$9.55



Residential Monthly Bill Impact (eff. 5/1/2017)

Water Use		Monthly Bills (1" Service)		\$ Diff. per Month	Cumulative % of Bills
		Current	Proposed 5/1/2017		
HCF/mo	Gal/Day				
0	0	\$70.00	\$77.45	\$7.45	2.3%
1	12	\$77.14	\$82.99	\$5.85	4.0%
2	25	\$84.28	\$88.53	\$4.25	5.8%
3	37	\$91.42	\$94.07	\$2.65	8.7%
4	50	\$98.56	\$99.61	\$1.05	12.5%
5	62	\$105.70	\$105.15	(\$0.55)	16.8%
10	125	\$141.40	\$132.85	(\$8.55)	36.3%
11	137	\$149.84	\$139.88	(\$9.96)	39.7%
15	187	\$183.60	\$167.98	(\$15.62)	50.7%
20	249	\$225.80	\$203.12	(\$22.68)	61.5%
22	274	\$242.68	\$217.17	(\$25.51)	65.0%
23	287	\$251.12	\$226.83	(\$24.29)	66.6%
25	312	\$268.00	\$246.13	(\$21.87)	69.7%
30	374	\$316.40	\$294.41	(\$21.99)	76.1%
35	436	\$364.80	\$342.68	(\$22.12)	81.2%
36	449	\$374.48	\$357.42	(\$17.06)	82.0%
40	499	\$413.20	\$416.39	\$3.19	85.1%
45	561	\$461.60	\$490.11	\$28.51	88.2%
50	623	\$510.00	\$563.83	\$53.83	90.5%

Water Use		Monthly Bills (1" Service)		\$ Diff. per Month	Cumulative % of Bills
		Current	Proposed 5/1/2017		
HCF/mo	Gal/Day				
55	686	\$567.90	\$637.54	\$69.64	92.4%
60	748	\$625.80	\$711.26	\$85.46	93.9%
65	810	\$683.70	\$784.98	\$101.28	95.0%
70	873	\$741.60	\$858.69	\$117.09	95.9%
75	935	\$799.50	\$932.41	\$132.91	96.6%
80	997	\$857.40	\$1,006.13	\$148.73	97.1%
85	1060	\$915.30	\$1,079.84	\$164.54	97.6%
90	1122	\$973.20	\$1,153.56	\$180.36	98.0%
95	1184	\$1,031.10	\$1,227.28	\$196.18	98.2%
100	1247	\$1,089.00	\$1,300.99	\$211.99	98.5%
105	1309	\$1,159.90	\$1,374.71	\$214.81	98.7%
110	1371	\$1,230.80	\$1,448.43	\$217.63	98.9%
120	1496	\$1,372.60	\$1,595.86	\$223.26	99.1%
125	1558	\$1,443.50	\$1,669.58	\$226.08	99.2%



Proposition 218 Procedures

- Council authorizes mailing of Prop 218 notice to increase rates, which initiates the 45-day protest period
- Written protests must be received prior to the close of the public comment portion of the public hearing
 - Must be in writing and identify the property by parcel number, address, or account number
 - Must include the name and signature of the property owner, or water account holder, submitting the protest
 - 1 protest per parcel (either the owner or account holder, not both)
 - Protests submitted via e-mail or other electronic means are not counted
- If a majority protest is not received (majority = 50% + 1), Council may approve the rates shown in the notice (or something less)



Next Steps

- December 12, 2016 – Council authorizes mailing rate increase notices to property owners/occupants initiating the 45-day protest period
- January 31, 2017 – Public workshop
- February 13, 2017 (**tentative**) – Public hearing
 - Written protests due
 - Council adopts not-to-exceed rates absent majority protest
 - First reading of the ordinance
- March 13, 2017 (**tentative**) – Second reading of the ordinance
- May 1, 2017 – New rates in effect



The End



Cost-of-Service Analysis

Budget costs classified according to functions performed by facilities

Costs of functions allocated to base and extra capacity services

Costs of services allocated to rates that charge in proportion to service needs

Budgeted Costs	
(in thousands)	
O&M	
SFPUC water	\$5,785
Salaries & Benefits	\$1,276
Materials	\$2,157
Other	\$1,641
Capital	
PAYGo	\$1,556
Debt	\$1,210
Total	\$13,625

Functional Costs	
(in thousands)	
Functions	
Water supply	\$6,296
Transmission	\$748
Pumping	\$972
Storage	\$1,594
Distribution	\$1,816
Customer service	\$2,199
Total	\$13,625

Service Costs	
(in thousands)	
Demand Services	
Base Day	\$6,416
Average Day	\$1,093
Maximum Day	\$1,147
Maximum Hour	\$1,297
	<u>\$9,953</u>
Customer Service	
Accounts	\$1,735
Capacity	\$1,937
	<u>\$3,672</u>
Total	\$13,625

Rate Components	
(in thousands)	
Volume Charges	
Residential	
By tier	\$9,642
Non-residential	
Uniform (no tiers)	\$311
	<u>\$9,953</u>
Service Charges	
By meter	\$3,672
Total	\$13,625

Step #1

Step #2

Step #3

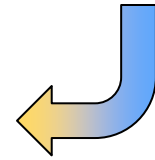
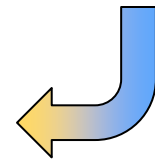
COS analysis distributes the revenue requirement to each component of the rate structure based on the functions needed to provide the service



Revenue Requirement Is Allocated to Functions

Revenue Requirements	Functions							Total
	Water Supply		Transmission	Pumping	Storage	Distribution	Customer Service	
	Variable	Fixed						
O&M Expenses								
Purchased Water	\$5,109,629	\$0	\$0	\$0	\$0	\$0	\$0	\$5,109,629
SFPUC Service Charge	\$0	\$204,385	\$0	\$0	\$0	\$0	\$0	\$204,385
BAWSCA Surcharge	\$0	\$470,574	\$0	\$0	\$0	\$0	\$0	\$470,574
Salaries & Benefits	\$204,181	\$0	\$178,658	\$127,613	\$229,704	\$535,975	\$0	\$1,276,131
Materials & Service	\$306,350	\$0	\$414,473	\$536,288	\$323,288	\$576,658	\$0	\$2,157,056
Internal Service Fund Transfer	\$0	\$0	\$0	\$0	\$0	\$0	\$125,000	\$125,000
Overhead Allocation	\$0	\$0	\$0	\$0	\$0	\$0	\$1,646,059	\$1,646,059
Subtotal - O&M Expenses	\$5,620,160	\$674,959	\$593,131	\$663,901	\$552,991	\$1,112,633	\$1,771,059	\$10,988,835
Capital Expenses								
Transfer to Capital Reserves	\$0	\$0	\$154,793	\$308,059	\$389,825	\$703,604	\$0	\$1,556,280
Debt Service	\$0	\$0	\$0	\$0	\$651,249	\$0	\$558,855	\$1,210,103
Subtotal - Capital Expenses	\$0	\$0	\$154,793	\$308,059	\$1,041,073	\$703,604	\$558,855	\$2,766,383
Non-Operating Revenue	\$0	\$0	\$0	\$0	\$0	\$0	(\$130,000)	(\$130,000)
Total Revenue Requirement	\$5,620,160	\$674,959	\$747,924	\$971,960	\$1,594,065	\$1,816,237	\$2,199,914	\$13,625,218

Step # 1:
From
Budget



To
Functional
Allocations



Levels of Service Drive The Cost of Facilities

- Base Day demand
 - Mostly inside winter demand
 - Lowest outdoor use, least peaking
- Average Day demand
 - Base demand plus average outdoor use
- Maximum Day demand
 - Average Day plus summer outdoor use
- Maximum Hour demand
 - Max Day plus peak outdoor use
 - Also enough capacity for fire flow



Allocations Based on Demand

Customers pay incremental costs associated with incremental demand.

Allocation percentages are based on additional increments of service.

All levels of service share in the cost of higher levels of service.

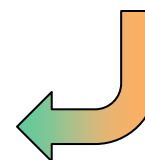
	Demand Service Levels				
	Base Day	Average Day	Maximum Day	Maximum Hour	
Demand (HCF)					
Residential	1,341	3,095	4,894	9,788	
Non-Residential	34	115	241	482	
Total Demand	1,375	3,210	5,135	10,270	
Allocation Percentages					Total HCF
Base Day	1,375				1,375
<i>Allocation</i>	100%				100%
Average Day	1,375	1,835			3,210
<i>Allocation</i>	43%	57%			100%
Maximum Day	1,375	1,835	1,926		5,135
<i>Allocation</i>	27%	36%	38%		100%
Maximum Hour	1,375	1,835	1,926	5,135	10,270
<i>Allocation</i>	13%	18%	19%	50%	100%



Functions Are Allocated to Demand Services

Revenue Requirement	Allocation Factor	Demand Services				Customer Service	Total
		Base Day	Average Day	Maximum Day	Maximum Hour		
O&M Expenses							
Water Supply - Variable	Base Day	\$5,620,160	\$0	\$0	\$0	\$0	\$5,620,160
Water Supply - Fixed	Customer Capacity	\$0	\$0	\$0	\$0	\$674,959	\$674,959
Transmission	Max Day	\$158,797	\$211,910	\$222,424	\$0	\$0	\$593,131
Pumping	Max Day	\$177,744	\$237,194	\$248,963	\$0	\$0	\$663,901
Storage	Max Hour	\$74,025	\$98,785	\$103,686	\$276,496	\$0	\$552,991
Distribution	Max Hour	\$148,941	\$198,757	\$208,619	\$556,317	\$0	\$1,112,633
Customer Service	Customer Accounts	\$0	\$0	\$0	\$0	\$1,771,059	\$1,771,059
Subtotal - O&M Expenses		\$6,179,666	\$746,646	\$783,692	\$832,812	\$2,446,018	\$10,988,835
Capital Expenses							
Water Supply	Base Day	\$0	\$0	\$0	\$0	\$0	\$0
Transmission	Max Day	\$41,442	\$55,303	\$58,047	\$0	\$0	\$154,793
Pumping	Max Day	\$82,475	\$110,061	\$115,522	\$0	\$0	\$308,059
Storage	Max Hour	\$139,361	\$185,974	\$195,201	\$520,537	\$0	\$1,041,073
Distribution	Customer Capacity	\$0	\$0	\$0	\$0	\$703,604	\$703,604
Customer Service	Customer Capacity	\$0	\$0	\$0	\$0	\$558,855	\$558,855
Subtotal - Capital Expenses		\$263,279	\$351,339	\$368,771	\$520,537	\$1,262,458	\$2,766,383
Subtotal - O&M and Capital		\$6,442,945	\$1,097,985	\$1,152,462	\$1,353,349	\$3,708,477	\$13,755,218
	<i>Exp. Composite</i>	<i>46.8%</i>	<i>8.0%</i>	<i>8.4%</i>	<i>9.8%</i>	<i>27.0%</i>	<i>100.0%</i>
Non-Operating Revenue							
Connection Fee Revenue	Customer Accounts	\$0	\$0	\$0	\$0	(\$20,000)	(\$20,000)
Water Use Penalties	Max. Hour Only	\$0	\$0	\$0	(\$50,000)	\$0	(\$50,000)
Other Non-Operating Revenue	Exp. Composite	(\$28,104)	(\$4,789)	(\$5,027)	(\$5,903)	(\$16,176)	(\$60,000)
Subtotal - Non-Operating Revenue		(\$28,104)	(\$4,789)	(\$5,027)	(\$55,903)	(\$36,176)	(\$130,000)
Total Revenue Requirement		\$6,414,841	\$1,093,196	\$1,147,435	\$1,297,446	\$3,672,300	\$13,625,218
		<i>47.1%</i>	<i>8.0%</i>	<i>8.4%</i>	<i>9.5%</i>	<i>27.0%</i>	<i>100.0%</i>

Step #2:
From
Functional
Allocations



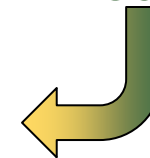
To Demand Service Allocations

To Service Charge Rate Design

Demand Services Are Allocated to Customer Categories

	Demand Services				
	Base Day	Average Day	Maximum Day	Maximum Hour	Total
Revenue Requirement Allocations					
O&M Expenses	\$6,179,666	\$746,646	\$783,692	\$832,812	\$8,542,817
Capital Expenses	\$263,279	\$351,339	\$368,771	\$520,537	\$1,503,925
Non-Operating Revenue	(\$28,104)	(\$4,789)	(\$5,027)	(\$55,903)	(\$93,824)
	\$6,414,841	\$1,093,196	\$1,147,435	\$1,297,446	\$9,952,918
Units of Service (HCF)					
Residential	1,341	3,095	4,894	9,788	
Non-Residential	34	115	241	482	
	1,375	3,210	5,135	10,270	
Proportional Allocation Percentages					
Residential	97.55%	96.43%	95.31%	95.31%	
Non-Residential	2.45%	3.57%	4.69%	4.69%	
	100.00%	100.00%	100.00%	100.00%	
Volume Charge Revenue Requirement by Customer Category					
Residential	\$6,257,761	\$1,054,135	\$1,093,566	\$1,236,533	\$9,641,994
Non-Residential	\$157,081	\$39,061	\$53,870	\$60,912	\$310,924
	\$6,414,841	\$1,093,196	\$1,147,435	\$1,297,446	\$9,952,918

Step #3:
From Demand
Service
Allocations



To Volume Charge Rate
Design By Customer
Category



III. RATE DESIGN



Proposed Rate Structure Design

- Customers pay the sum of two monthly charges
 - Volume Charge
 - Varies from month to month based on water use
 - Covers all variable costs plus some fixed costs
 - Rate per hundred cubic feet (HCF) times metered water use
 - Tiered for Residential customers
 - Uniform (no tiers) for Non-residential customers
 - Subject to revenue stabilization adjustments during shortages
 - Service Charge
 - Fixed amount per bill
 - Covers a portion of fixed costs
 - Charge per account regardless of customer category
 - Rate per meter size



Residential Rates - Determining Breakpoints

- Each level of service has an average flow that can be used as the division (“breakpoint”) between tiers
- The averages for Base Day, Average Day, and Maximum Day yield the three breakpoints that lead to four tiers

Residential Customer Category	Base Day	Average Day	Maximum Day	Maximum Hour
HCF per day	1,341	3,095	4,894	9,788
HCF per month	40,235	92,845	146,824	
Breakpoint locations				
Monthly bills	4,182	4,182	4,182	
Average flow per bill (HCF/mo)	10	22	35	>35
Average gallons per day	249	549	873	>873



Residential Volume Charge Rates

Four-Tier Structure

Residential COS per Unit	Base Day	Average Day	Maximum Day	Maximum Hour
Total Residential COS	\$6,257,761	\$1,054,135	\$1,093,566	\$1,236,533
Demand Per Tier				
Tier 1 - 0 to 10 HCF	420,831			
Tier 2 - 11 to 22 HCF	292,541	292,541		
Tier 3 - 23 to 35 HCF	173,272	173,272	173,272	
Tier 4 - over 35 HCF	242,974	242,974	242,974	242,974
Total HCF per Tier	1,129,618	708,787	416,246	242,974
Cost-of-Service per Unit (HCF)	\$5.54	\$1.49	\$2.63	\$5.09

COS from Slide #15

Incremental Cost per Tier

Unit Cost Calculation	Tier 1	Tier 2	Tier 3	Tier 4
Maximum Hour Component				\$5.09
Maximum Day Component			\$2.63	\$2.63
Average Day Component		\$1.49	\$1.49	\$1.49
Base Day Component	\$5.54	\$5.54	\$5.54	\$5.54
Unit Cost per HCF (by Tier)	\$5.54	\$7.03	\$9.65	\$14.74

Rates per tier



Non-Residential Uniform Volume Charge Rate

Uniform Structure

- Best structure for a customer category with a mix of peak demand characteristics
 - Includes all non-residential customers
 - Schools, municipal facilities, golf courses/club houses, rest stops
 - Difficult to find breakpoints that are appropriate for all customers

Non-Residential Cost-of-Service	\$310,924
Projected demand (HCF)	<u>41,858</u>
Uniform Volume Charge per HCF	\$7.43

COS from Slide #15



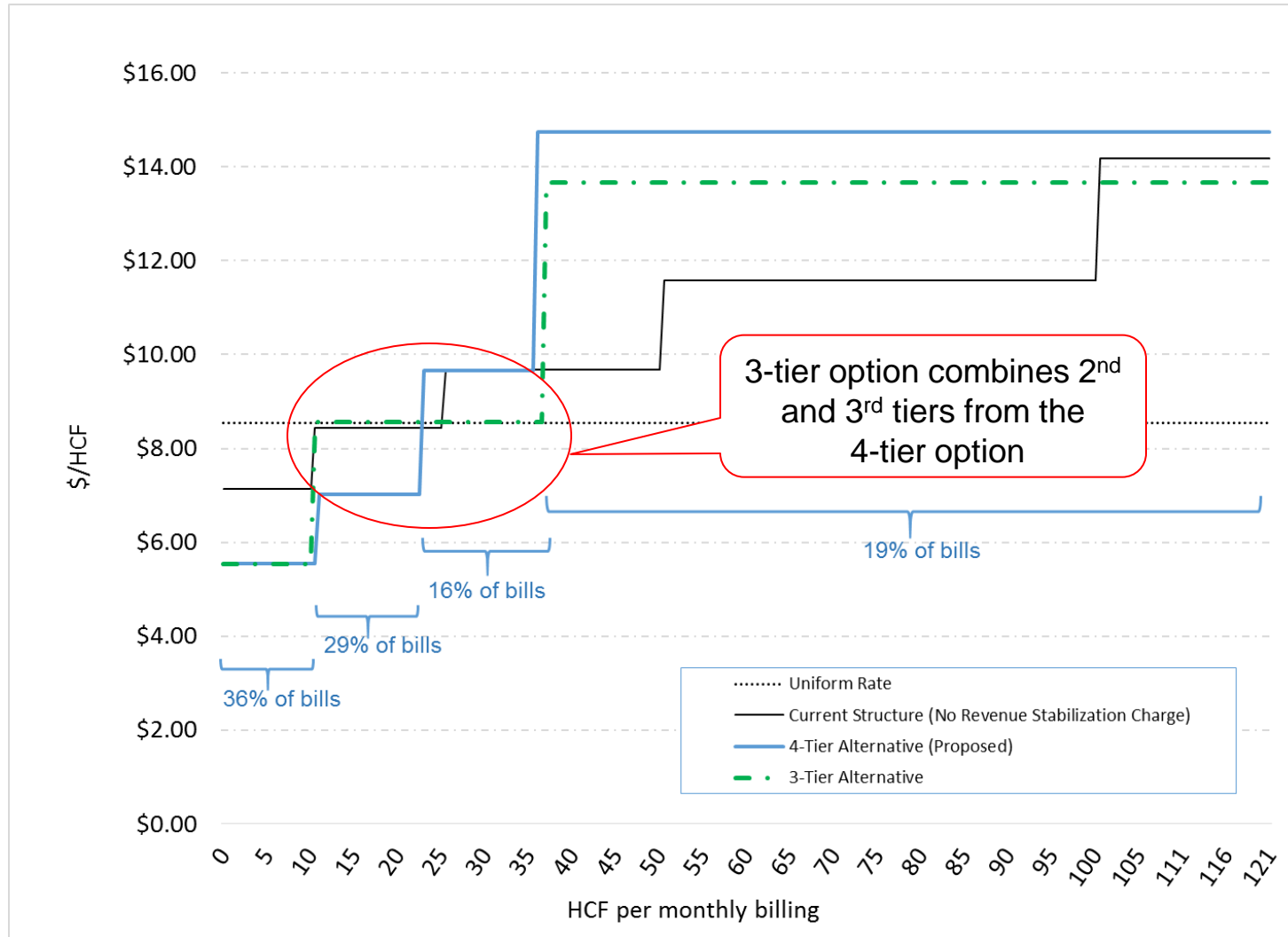
Alternative Three-Tier Volume Charge Rates

- Three-tier alternative combines Tier 2 and Tier 3 from proposed four-tier alternative

Customer Category	Approved		Four-Tier Alternative		Three-Tier Alternative	
	Tier Size	Rate	Tier Size	Rate	Tier Size	Rate
Residential	(HCF)	(\$/HCF)		(\$/HCF)		(\$/HCF)
Tier 1	1 to 10	\$7.14	1 to 10	\$5.54	1 to 10	\$5.54
Tier 2	11 to 25	\$8.44	11 to 22	\$7.03	11 to 35	\$8.57
Tier 3	26 to 50	\$9.68	23 to 35	\$9.65	Over 35	\$13.66
Tier 4	51 to 100	\$11.58	Over 35	\$14.74		
Tier 5	Over 100	\$14.18				
Non-Residential		\$9.06		\$7.43		\$7.43



Alternative Three-Tier Volume Charge Rates



Revenue Stabilization

- Proposed Revenue Stabilization Factors

- Apply to Volume Charge rates only
- Can only apply when emergency cutbacks are declared
- Factors increase rates to offset revenue shortfall
- Factors based on required percentage cutback

Sample factor for 36% conservation

Sample Revenue Stabilization Factor Calculation

a = Assumed Conservation Percentage = 36%

b = Proportion of total water revenue that comes from the Volume Charge Rates = 73%

c = Proportion of water enterprise expenses that are variable = 40%

$$\left[\frac{1}{1 - a} \right] \times \left[\frac{b - (c * a)}{b} \right]$$

$$\left[\frac{1}{1 - 0.20} \right] \times \left[\frac{0.73 - (0.40 * 0.36)}{0.73} \right] = 1.25$$

All Volume Charge rates are multiplied times 1.25 during a 36% conservation cutback



Service Charges Rates

1

Meter Size	Accounts	Capacity Multiplier	Equivalent Meters
	(a)	(b)	(a * b)
3/4"	144	1.00	144
1"	3,707	1.57	5,825
1-1/2"	203	2.86	580
2"	213	4.57	974
3"	0	9.14	0
4"	0	14.29	0
6"	0	28.57	0
8"	1	45.71	46
	4,268		7,569

* Capacity multiplier assumes 3/4" meter = 1 EMU = 35 gals/min

2

	Customer Account Component	Customer Capacity Component	Total
Customer Service Expenses			
O&M Expenses	\$1,771,059	\$674,959	\$2,446,018
Capital Expenses	\$0	\$1,262,458	\$1,262,458
Non-Operating Revenue	(\$16,176)	(\$20,000)	(\$36,176)
Total Customer Service Expenses	\$1,754,883	\$1,917,418	\$3,672,300
Est. July-Dec 2016 Revenue	(\$747,169)	(\$816,371)	(\$1,563,540)
Net Expense (6 months)	\$1,007,714	\$1,101,047	\$2,108,760
Net Expense (1 month)	\$167,952	\$183,508	\$351,460
Units of Service	4,268	7,569	
	Accounts	EMUs	
Unit Cost (per month)	\$39.35	\$24.25	
	per Account	per EMU	

COS from Slide #14

Meter Size	Account Component	Capacity Component		Total Service Charge (\$/mo.)
	(\$/mo.)	\$/EMU	Capacity Multiplier	
	(a)	(b)	(c)	(d = b * c)
3/4"	\$39.35	\$24.25	1.00	\$24.25
1"	\$39.35	\$24.25	1.57	\$38.10
1 1/2"	\$39.35	\$24.25	2.86	\$69.27
2"	\$39.35	\$24.25	4.57	\$110.84
3"	\$39.35	\$24.25	9.14	\$221.67
4"	\$39.35	\$24.25	14.29	\$346.37
6"	\$39.35	\$24.25	28.57	\$692.73
8"	\$39.35	\$24.25	45.71	\$1,108.37

3



IV. Customer Bill Impacts

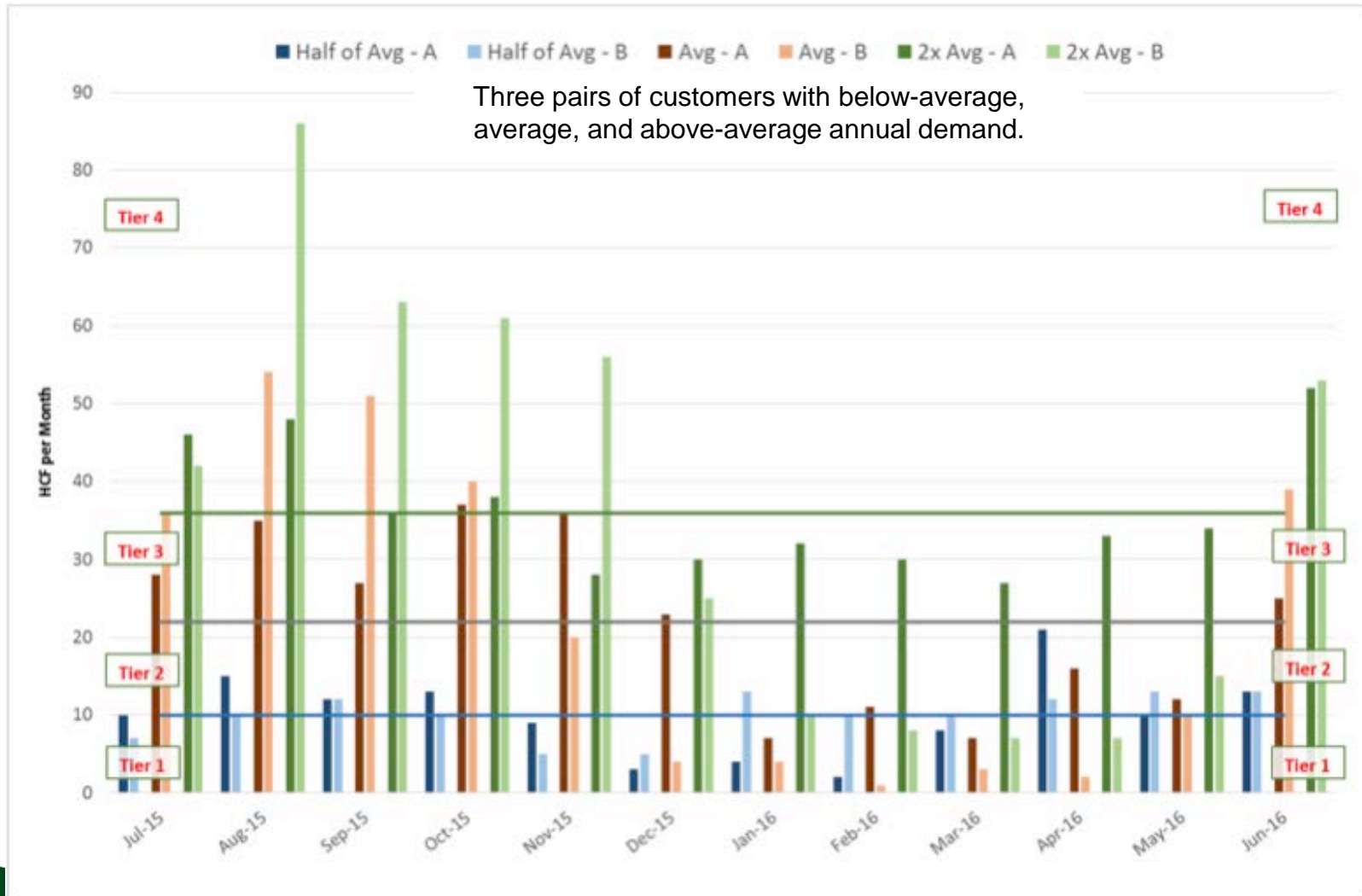


Residential Bills – Four and Five Tiers

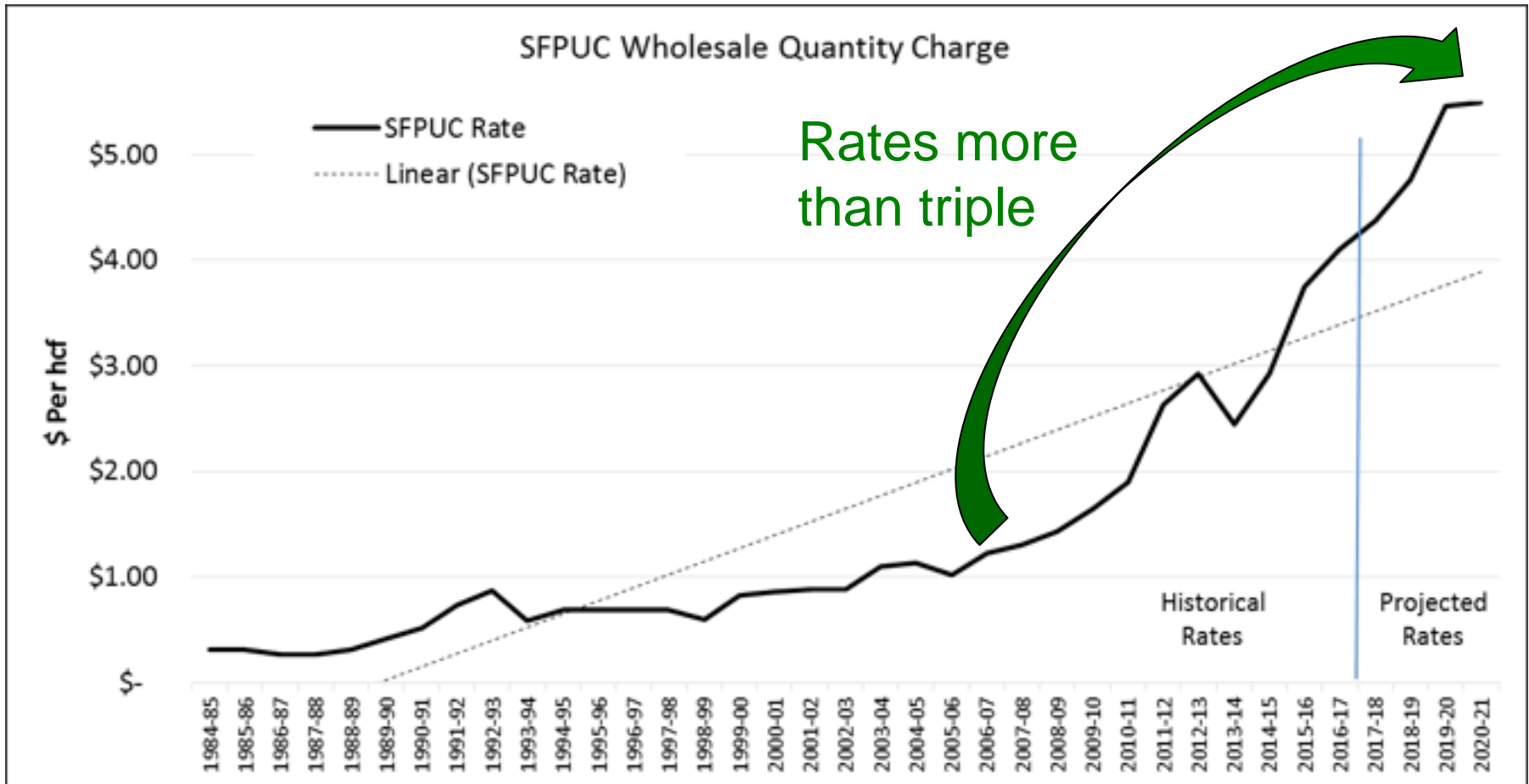
	Low	Average	High	Very High
Demand Assumptions				
hcf/month	10	22	44	120
gallons per day	249	549	1,097	2,992
% of bills up to flow assumption	36%	65%	88%	99%
Bill @ Currently-Approved Rates (without RSC)				
Service Charge (1" meter)	\$ 70.00	\$ 70.00	\$ 70.00	\$ 70.00
Volume Charges	<u>\$/HCF</u>			
Tier 1 0 to 10 HCF	\$7.14	\$ 71.40	\$ 71.40	\$ 71.40
Tier 2 11 to 25 HCF	\$8.44	\$ -	\$ 101.28	\$ 126.60
Tier 3 26 to 50 HCF	\$9.68	\$ -	\$ -	\$ 183.92
Tier 4 51 to 100 HCF	\$11.58	\$ -	\$ -	\$ 579.00
Tier 5 101+ HCF	\$14.18	\$ -	\$ -	\$ 283.60
Bill @ Current Rates	\$ 141.40	\$ 242.68	\$ 451.92	\$ 1,372.60
Bill @ Proposed Rates: 4-Tier Alternative				
Service Charge (1" meter)	\$ 77.45	\$ 77.45	\$ 77.45	\$ 77.45
Volume Charges	<u>\$/HCF</u>			
Tier 1 0 to 10 HCF	\$5.54	\$ 55.40	\$ 55.40	\$ 55.40
Tier 2 11 to 22 HCF	\$7.03	\$ -	\$ 84.32	\$ 84.32
Tier 3 23 to 35 HCF	\$9.65	\$ -	\$ -	\$ 125.50
Tier 4 36+ HCF	\$14.74	\$ -	\$ -	\$ 132.69
Bill @ Proposed Rates	\$ 132.85	\$ 217.17	\$ 475.37	\$ 1,595.86
<i>\$/HCF</i>	<i>\$ 13.28</i>	<i>\$ 9.87</i>	<i>\$ 10.80</i>	<i>\$ 13.30</i>
4-Tier Alternative vs Current	\$ (8.55)	\$ (25.51)	\$ 23.45	\$ 223.26
% Difference	-6.0%	-10.5%	5.2%	16.3%



Residential Water Use For One Year



SFPUC Wholesale Water Rates



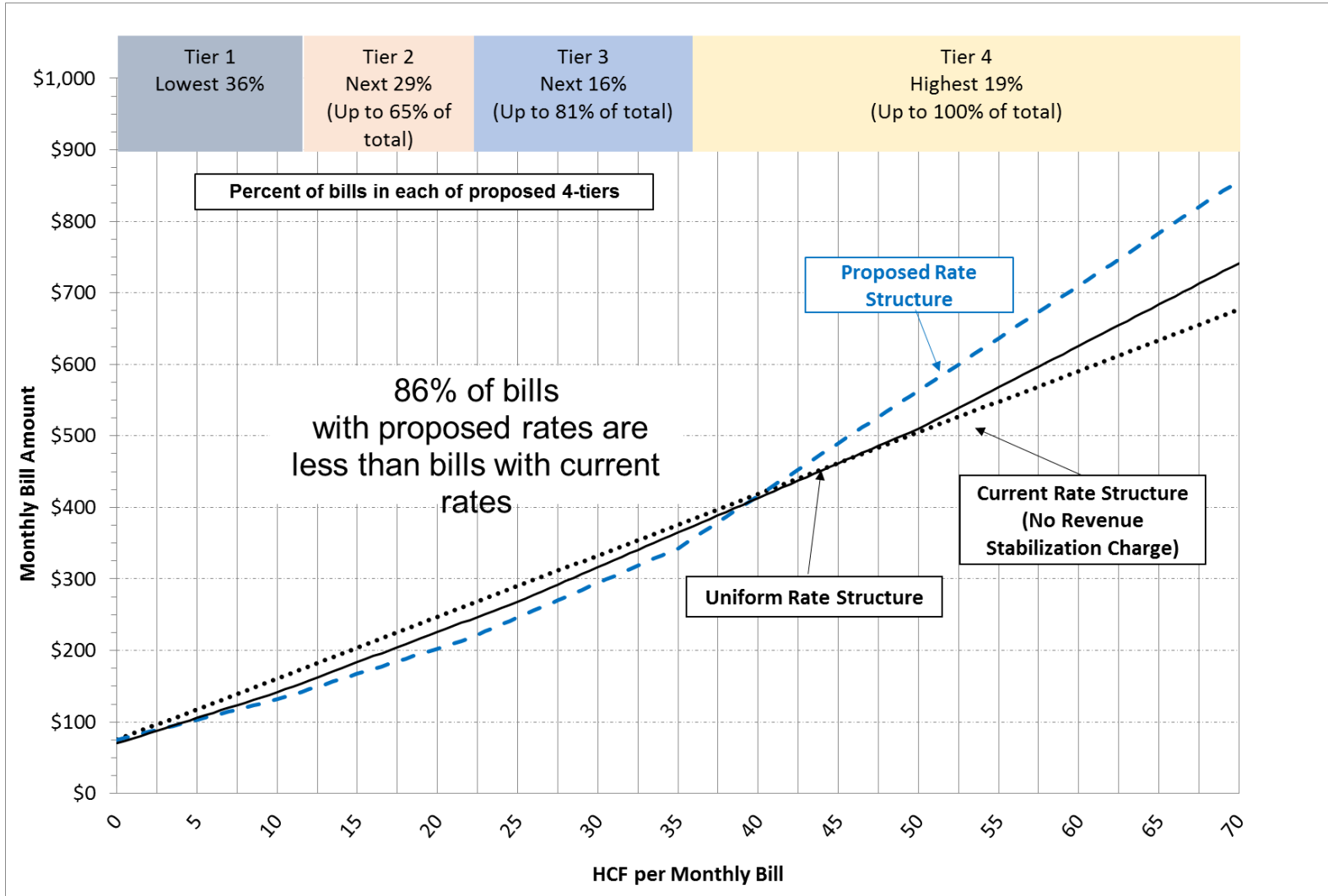
Capital Improvement Program

Capital Improvement Projects	Budgeted					5-year Total
	FY2016-17	FY2017-18	FY2018-19	FY2019-20	FY2020-21	
Cherry Creek Pump Station Replacement	\$99,800		\$1,044,675	\$1,044,675		\$2,189,150
Water Tank Improvements	\$501,350	\$275,000	\$500,000	\$125,000	\$625,000	\$2,026,350
Demolish Forrestview Tanks #1 and #2				\$26,190	\$417,660	\$443,850
Demolish Major Hayes Tank and Piping			\$300,000			\$300,000
Water Main Replacement Program	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$5,000,000
High Water Line Connection		\$200,000	\$300,000	\$300,000	\$300,000	\$1,100,000
Total Project Costs	\$1,601,150	\$1,475,000	\$3,144,675	\$2,495,865	\$2,342,660	\$11,059,350

- \$2.2 million annual average expenditure
 - 55% transmission and distribution pipelines
 - 45% storage reservoirs
- Contributed to reserves from rate revenue
- Does not include new metering system
 - Funded by General Fund, not from rates



FY 2016-17 Residential Customer Bill Impacts



Bill Impacts on Sample Residential Customers

	July	August	September	October	November	December	January	February	March	April	May	June
Half of Average (~120 HCF/yr)												
Customer A												
Water Use (HCF)	10	15	12	13	9	3	4	2	8	21	10	13
Total Bill (Svc Chrg + Vol Chrg)	\$132.85	\$167.98	\$146.90	\$153.93	\$127.31	\$94.07	\$99.61	\$88.53	\$121.77	\$210.15	\$132.85	\$153.93
Customer B												
Water Use (HCF)	7	10	12	10	5	5	13	10	10	12	13	13
Total Bill (Svc Chrg + Vol Chrg)	\$116.23	\$132.85	\$146.90	\$132.85	\$105.15	\$105.15	\$153.93	\$132.85	\$132.85	\$146.90	\$153.93	\$153.93
Average Use (~260 HCF/Yr)												
Customer A												
Water Use (HCF)	28	35	27	37	36	23	7	11	7	16	12	25
Total Bill (Svc Chrg + Vol Chrg)	\$275.10	\$342.68	\$265.44	\$372.16	\$357.42	\$226.83	\$116.23	\$139.88	\$116.23	\$175.01	\$146.90	\$246.13
Customer B												
Water Use (HCF)	36	54	51	40	20	4	4	1	3	2	10	39
Total Bill (Svc Chrg + Vol Chrg)	\$357.42	\$622.80	\$578.57	\$416.39	\$203.12	\$99.61	\$99.61	\$82.99	\$94.07	\$88.53	\$132.85	\$401.65
2x Average (~530 HCF/yr)												
Customer A												
Water Use (HCF)	46	48	36	38	28	30	32	30	27	33	34	52
Total Bill (Svc Chrg + Vol Chrg)	\$504.85	\$534.34	\$357.42	\$386.91	\$275.10	\$294.41	\$313.71	\$294.41	\$265.44	\$323.37	\$333.02	\$593.31
Customer B												
Water Use (HCF)	42	86	63	61	56	25	10	8	7	7	15	53
Total Bill (Svc Chrg + Vol Chrg)	\$445.88	\$888.18	\$755.49	\$726.00	\$652.29	\$246.13	\$132.85	\$121.77	\$116.23	\$116.23	\$167.98	\$608.06

Green denotes proposed bill less than current bill

Red denotes proposed bill greater than current bill

Comparing bills under the current and proposed rates

- Bills during the winter are primarily lower under proposed rates (with the exception of very low water use of <5 HCF/mo)
- Bills during the summer are higher under proposed rates for above-average use (> 22 HCF/mo; >264 HCF/yr)

