



City of Milpitas

DRAFT

Water Rate Study Update

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SECTION 1: EXECUTIVE SUMMARY

The City of Milpitas (City) provides water service to residential, commercial, industrial, and institutional customers located within the City's boundaries. The City was incorporated as a general law city on January 26, 1954 and operates under a council/manager form of government. The City encompasses 13.6 square miles in Santa Clara County California, near the southern end of the San Francisco Bay, and has a population of about 70,000.

In 2015 Bartle Wells Associates (BWA) was retained to perform an analysis of the existing water rate structure and to recommend adjustments. Consistent with BWA's study recommendation, the City increased water rates on January 15th, 2016 and April 1st, 2016. The 2015 rate study projected an additional 8% rate increase would be required July 1st, 2017, followed by a 5% increase July 1st, 2018. The additional increases were not implemented.

BWA was retained by the City to conduct a water rate study and financial plan for the next five years (FY 2018/19 to FY 2022/23). BWA's proposed rates are designed to meet operating reserve targets, fund the water enterprise's \$46.3 million five-year capital program and associated debt service, and mitigate impacts to customers.

Key Assumptions in Rate Development:

1. The proposed water rates would come into effect in July 2018. Delaying the rate implementation would likely result in higher recommended rates due to lost revenue.
2. The water enterprise will accrue and maintain at least 30% of operating and maintenance expenses in operating reserves by FY 2019/20.
3. Water usage is projected to increase from current drought depressed levels by 2% per year through 2019/20, with 1% increases thereafter, accounting for customer growth and a small rebound in use as drought conditions relent.
4. The implementation of tiers is assumed to not result in substantial reduction in use, however, tiers will increase revenue volatility. If water use habits change substantially from projections, the City may need to reevaluate water rate increases.
5. A passthrough provision will be implemented which will allow the City to passthrough increases in wholesale rates to customers after providing 30 days notice.
6. Though drought surcharges are not recommended, it is assumed the City will implement emergency cutback rates if significant drought conditions and/or substantial conservation occurs.
7. Recycled capital projects will not be funded by the proposed rates.
8. The City will fund about \$14 million of capital projects with a long-term debt financing.

This update to the City's water rates is based on the following main factors:

1. The City's water enterprise had an estimated \$7.2 million in operating reserves as of July 1st, 2017; however, in the absence of a rate increase in FY 2017/18, BWA projects the water operating fund will lose \$1.38 million and not meet the operating fund target (30% of annual operating expenses) of \$7.3 million this year.
2. The City purchases all of its potable water from 3rd party wholesalers San Francisco Public Utilities Commission (SFPUC) and Santa Clara Valley Water District (SCVWD). Both wholesalers are facing cost increases and are planning to raise wholesale rates.
3. SFPUC rates are projected to be held level at \$4.10/hcf for the next four years despite escalating SFPUC debt service and operating costs through use of a balancing account, which is estimated to be \$66.4 million as of June 30th, 2018. The balancing account was built up from SFPUC wholesale water sales exceeding projections used in rate setting. The balancing account represents the amount SFPUC owes to wholesale customers. SFPUC rates are projected to jump 23.4% to \$5.06/hcf by FY 2023/24. BWA proposed water rates are designed to phase Milpitas water rate increases over time to avoid sharp, short term increases.
4. SCVWD wholesale rates are projected to increase 9% per year for five years. The rate is projected to increase from \$2.93/hcf currently to \$4.52/hcf in FY 2022/23.
5. The City has identified approximately \$46.3 million of high priority capital improvement projects needed over the next 5 years. The rate study utilizes a combination of cash and debt funding for these projects.
6. Proposed residential rate options include a new two-tier structure and continuation of the current uniform rate structure.

This study provides a cost basis for proposed water service rates for the City of Milpitas in compliance with California Constitution article 13 D, section 6 (commonly referred to as Proposition 218). Rate increases for FY 2018/19 to FY 2022/23 are recommended in the analysis. The full schedule of current and proposed rates for the City's water service fees is shown on **Table 1**.

Current & Proposed Water Rates

Table 1
City of Milpitas - Water Rate Study
Current & Proposed Water Rate Schedule

Fixed Meter Charges (Bimonthly, \$/Meter Size)

Meter Size	Current bimonthly rate	Proposed 2018/19	Proposed 2019/20	Proposed 2020/21	Proposed 2021/22	Proposed 2022/23
5/8 inch	\$19.44	\$22.25	\$23.03	\$23.83	\$24.67	\$25.53
3/4 inch	\$29.16	\$33.37	\$34.54	\$35.75	\$37.00	\$38.29
1 inch	\$48.60	\$55.62	\$57.57	\$59.58	\$61.67	\$63.82
1-1/2 inch	\$97.20	\$111.24	\$115.13	\$119.16	\$123.33	\$127.65
2 inch	\$155.52	\$177.98	\$184.21	\$190.66	\$197.33	\$204.24
3 inch	\$291.60	\$333.71	\$345.39	\$357.48	\$370.00	\$382.95
4 inch	\$486.00	\$556.19	\$575.66	\$595.81	\$616.66	\$638.24
6 inch and above	\$972.00	\$1,112.38	\$1,151.32	\$1,191.61	\$1,233.32	\$1,276.48

Fire Meter Charges (Bimonthly, \$/Meter Size)

Detector Check/ RPDa/DCDA	Current bimonthly rate	Proposed 2018/19	Proposed 2019/20	Proposed 2020/21	Proposed 2021/22	Proposed 2022/23
2 inch	\$31.10	\$35.60	\$36.84	\$38.13	\$39.47	\$40.85
3 inch	\$58.32	\$66.74	\$69.08	\$71.50	\$74.00	\$76.59
4 inch	\$97.20	\$111.24	\$115.13	\$119.16	\$123.33	\$127.65
6 inch and above	\$194.40	\$222.48	\$230.26	\$238.32	\$246.66	\$255.30

Volumetric Charges (\$/HCF)

Category	Current base rate per HCF*	Current capital surcharge rate per HCF	Proposed 2018/19 base rate per HCF	Proposed 2018/19 surcharge rate per HCF	Proposed 2019/20 base rate per HCF	Proposed 2019/20 capital surcharge rate per HCF	Proposed 2020/21 base rate per HCF	Proposed 2020/21 capital surcharge rate per HCF	Proposed 2021/22 base rate per HCF	Proposed 2021/22 capital surcharge rate per HCF	Proposed 2022/23 base rate per HCF	Proposed 2022/23 capital surcharge rate per HCF
Residential (Tier Option)												
MFR Residential (Bimonthly Tier Option per Dwelling Unit)												
0-10 HCF	\$5.13	\$1.30	\$4.83	\$1.40	\$5.00	\$1.45	\$5.18	\$1.50	\$5.36	\$1.55	\$5.55	\$1.60
>10	\$5.13	\$1.30	\$7.31	\$1.40	\$7.56	\$1.45	\$7.83	\$1.50	\$8.10	\$1.55	\$8.39	\$1.60
SFR Residential (Bimonthly Tier Option)												
0-14 HCF	\$5.13	\$1.30	\$4.83	\$1.40	\$5.00	\$1.45	\$5.18	\$1.50	\$5.36	\$1.55	\$5.55	\$1.60
>14	\$5.13	\$1.30	\$7.31	\$1.40	\$7.56	\$1.45	\$7.83	\$1.50	\$8.10	\$1.55	\$8.39	\$1.60
Residential (Uniform Option)												
Industrial, Institutional, Construction	\$5.13	\$1.30	\$5.55	\$1.40	\$5.74	\$1.45	\$5.94	\$1.50	\$6.15	\$1.55	\$6.36	\$1.60
Potable Irrigation	\$5.13	\$1.30	\$5.55	\$1.40	\$5.74	\$1.45	\$5.94	\$1.50	\$6.15	\$1.55	\$6.36	\$1.60
Ed Levin Park**	\$3.79	NA	\$4.10	NA	\$4.10	NA	\$4.10	NA	\$4.10	NA	\$4.47	NA
City of Milpitas	\$5.13	\$1.30	\$5.55	\$1.40	\$5.74	\$1.45	\$5.94	\$1.50	\$6.15	\$1.55	\$6.36	\$1.60
Recycled Irrigation	\$2.78	NA	\$3.17	NA	\$3.28	NA	\$3.39	NA	\$3.51	NA	\$3.63	NA
Recycled Industrial, Dual-plumbed, Construction	\$2.78	NA	\$3.17	NA	\$3.28	NA	\$3.39	NA	\$3.51	NA	\$3.63	NA
Recycled City of Milpitas	\$2.78	NA	\$3.17	NA	\$3.28	NA	\$3.39	NA	\$3.51	NA	\$3.63	NA

* 1 HCF = 748 gallons

**County of Santa Clara rate is established by contract to be equivalent to the SFPUC wholesale rate.

Summary of Water Rate Study Recommendations

- 1. Residential Rate Structure Options:** BWA developed two residential rate structure options for the City to consider. Both options were designed to fully recover the cost of service. (1) A uniform residential rate structure; customers are charged the same rate for each unit of water use (current rate structure). (2) A new two-tier structure where higher users pay higher rates for exceeding a set usage level per billing period.
- 2. Low Income Discount Program:** BWA has developed an option for the City to implement a low-income discount program. There are approximately 3,500 customers enrolled in the PG&E Care program in the City of Milpitas and the City's water enterprise generates about \$147,000 per year from non-rate sources—enough to fund a \$3.50/month discount for each PG&E Care enrolled customer.
- 3. Continue using American Water Works Association (AWWA) capacity standards to scale fixed charges:** Aligning fixed meter charges with AWWA guidelines for water meter flow capacity provides a standard cost basis for fixed meter charges. Meter charges are considered “availability” or “readiness-to-serve” charges for providing customers with access to water at all times. These constitute a fixed portion of the customers' bills because they are levied whether or not water is used.
- 4. Utilize a long-term debt financing to fund a portion of capital projects with long-term benefit:** The City is facing a \$46.3 million capital improvement program planned over the next five years. BWA recommends the City implement a \$14 million debt financing to smooth out the impact on rate payers and ensure intergenerational equity, which includes costs for all projects identified as funded from water bonds in the City's capital improvement program.
- 5. Continue to recover capital costs through a capital program surcharge:** Since the City will be making substantial improvements to the potable water system, BWA recommends that the City continue to breakout capital costs on each potable customer's bill. The capital surcharge allows users to see how much of their bill is going to fund water system capital improvements.

SECTION 2: PROPOSITION 218

Constitutional Rate Requirements

The California Constitution includes one key article that directly governs or impacts the City's water rates: Article 13D. The water rates developed in this update are designed to comply with the constitutional mandates of Article 13D as well as various provisions of the California Water Code and Government Code that support and add further guidance for implementing these constitutional requirements. In accordance with the constitutional provisions, the proposed rates are designed to: a) recover the City's cost of providing service; and b) recover revenues in proportion to the cost for serving each customer.

Article 13D, Section 6

Proposition 218 was adopted by California voters in 1996 and added Articles 13C and 13D to the California Constitution. Article 13D, Section 6 governs property-related charges, which the California Supreme Court subsequently ruled includes charges for the ongoing delivery of utility service to property, such as charges for water services. Article 13D, Section 6 establishes a) procedural requirements for imposing or increasing property-related charges, and b) substantive requirements for the amount and use of those charges. Article 13D also requires voter approval for new or increased property-related charges but exempts from this voting requirement rates for water service.

The substantive requirements of Article 13D, Section 6 require the City's water rates to meet the following conditions:

- 1) Revenues derived from the fee or charge shall not exceed the funds required to provide the property related service.
- 2) Revenues derived from the fee or charge shall not be used for any purpose other than that for which the fee or charge was imposed.
- 3) The amount of a fee or charge imposed upon any parcel or person as an incident of property ownership shall not exceed the proportional cost of the service attributable to the parcel.
- 4) No fee or charge may be imposed for a service unless that service is actually used by, or immediately available to, the owner of the property in question.
- 5) No fee or charge may be imposed for general governmental services, such as police or fire services, where the service is available to the public at large in substantially the same manner as it is to property owners.

The water rates derived in this study are based on a cost-of-service methodology that fairly apportions costs to all customers.

Use of Generally Accepted Rate-Making Principles

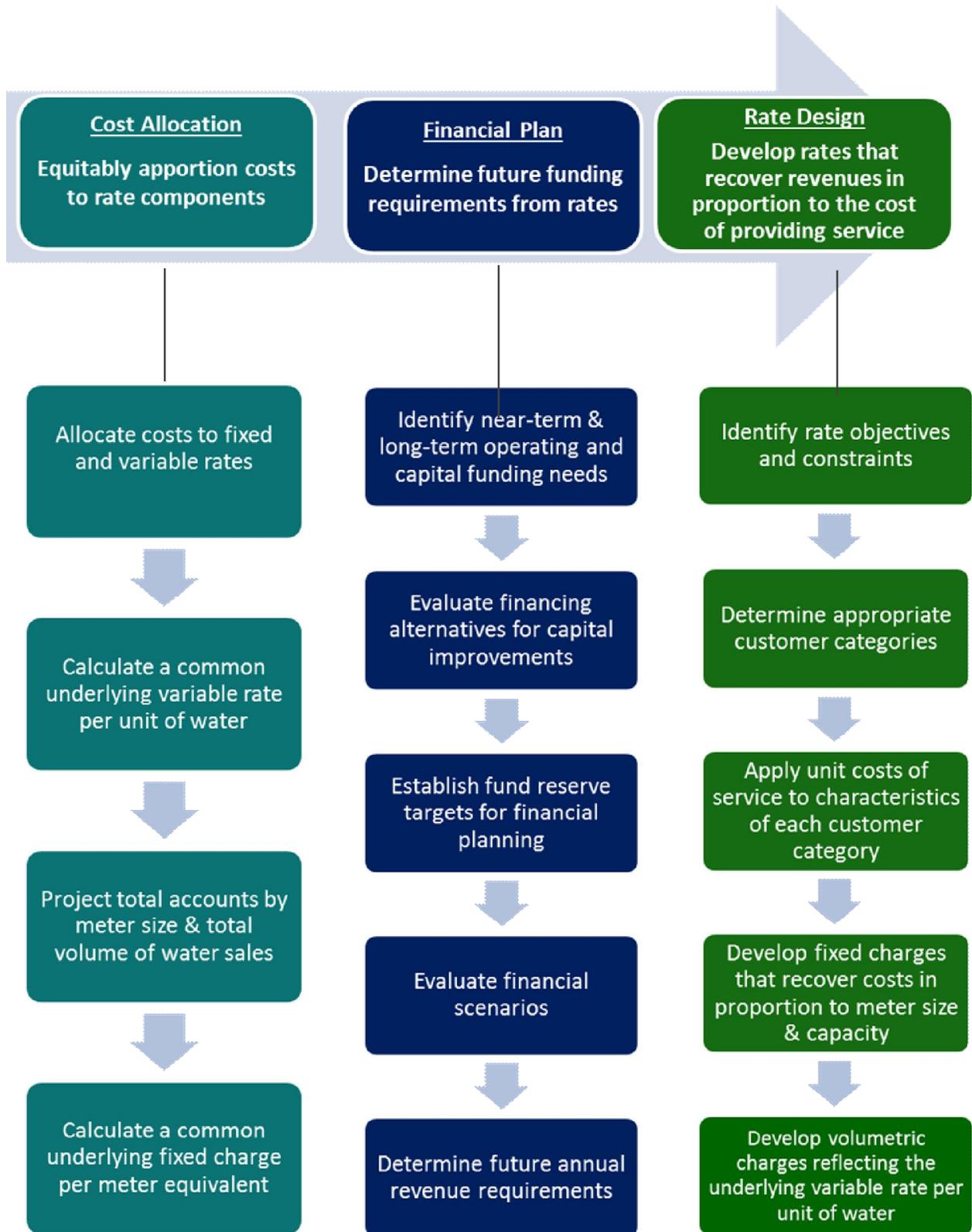
The rates were developed using generally accepted cost-based principles and methodologies for establishing water rates, charges, and fees contained and discussed in the *AWWA's M1 Manual, Principles of Water Rates, Fees, and Charges, Sixth Edition, 2012*. In developing water rates, it is important to know that there is no "one-size-fits-all" approach for establishing cost-based water rates—"the (M1 Manual) is aimed at outlining the basic elements involved in water rates and suggesting alternative rules of procedure for formulating rates, thus permitting the exercise of judgment and preference to meet local conditions and requirements."¹ The cost of service principals and methodology used to calculate the City's water rates is shown on the following page.

Base-Extra Capacity Method

The proposed rates were developed using a base extra capacity method. The City's water supply costs are variable costs that vary with total quantity of water used. O&M expenses and capital costs associated with service to customers under average load conditions are considered base use. Peaking (or extra capacity) costs are associated with meeting peak demand rate of use requirements in excess of base use.

¹ AWWA Manual M1 Manual, Principles of Water Rates, Fees, and Charges, Sixth Edition, 2012, page 5.

Cost of Service Rate-Setting Methodology



SECTION 3: COST ATTRIBUTIONS

Operating Costs

In **Table 2** BWA determined the percentage of water system operating costs attributed to fixed costs (costs that do not vary based on use), and variable costs (costs that vary based on use). Total system operating costs in FY 2018/19 are estimated to be \$25.38 million, with approximately 18% of operating costs (not including capital costs) attributed to fixed costs and 65% attributed to variable costs. 17% of operating costs are estimated to be associated with peak use.

Peaking costs are costs related to the oversizing of facilities to meet peak demands during the highest use months, typical during summer. Wholesalers must build and maintain facilities such as water tanks and oversized water lines to meet demand during these months, and these costs are passed on to the City of Milpitas as a portion of wholesale rates and contract costs. Additional staff overhead and repairs and maintenance are incurred to meet system peak demands.

Non-rate revenues, including subventions and grants, interest income, and miscellaneous revenue were subtracted from the operating expenses to determine the total water rate revenue requirement in FY 2018/19 (about \$25.3 million.) A portion of non-rate revenue is allocated to reduce water rates for Ed Levin Park and Single Family Residential Tier 1 use (under the tier scenario.) Ed Levin Park is contracted to be charged the SFPUC wholesale rate.

Details on assumptions such as growth, water purchases, consumption characteristics of customer each class of customer, and drought related impacts and costs are shown in Appendix C.

Table 2
City of Milpitas - Water Rate Study
Cost Allocation - 2018/19

	2018/19	Fixed Costs		Variable Costs		Peaking Costs	
Operating Expenses							
SFPUC Wholesale Water	\$11,759,893	0%	\$0	80%	\$9,407,915	20%	\$2,351,979
SCVWD Wholesale Water	5,155,120	0%	0	80%	4,124,096	20%	1,031,024
Recycled Water Expenses	1,303,312	0%	0	80%	1,042,650	20%	260,662
Personnel Services	1,198,202	65%	778,831	25%	299,550	10%	119,820
Transfers Out (General Fund Admin Cost Reimb.)	2,697,453	65%	1,753,345	25%	674,363	10%	269,745
Services and Supplies	1,999,476	65%	1,299,659	25%	499,869	10%	199,948
Repairs and Maintenance	488,548	65%	317,556	25%	122,137	10%	48,855
Net Income for O&M Fund	777,767	65%	505,549	25%	194,442	10%	77,777
Total Operating Expenses	25,379,772	18%	4,654,940	64%	16,365,022	17%	4,359,810
Less: Miscellaneous Revenue Offsets	77,460	50%	38,730	50%	38,730	0%	0
Operating Revenue Requirement	25,302,311	18%	4,616,210	65%	16,326,292	17%	4,359,810
Capital Expenses (Recovered Through Capital Surcharge)							
Capital Expenses	4,830,997	0%	0	100%	4,830,997	0%	0
Total Revenue Requirement	30,133,308	15.3%	4,616,210	70.2%	21,157,289	14.5%	4,359,810

Non-rate Revenue Excluded from Offsets

Ed Levin Discount	9,976
SFR Tier 1 Discount	59,904

Volumetric Charges

The City of Milpitas obtains all of its water through wholesale purchases from three sources: San Francisco Public Utilities Commission (SFPUC), Santa Clara Valley District (SCVWD), and recycled water from the South Bay Recycling Program (SBWR). Total annual water purchases amount to 4.7 million hundred cubic feet (hcf), with total expected sales of about 3.94 million hcf (lower due to estimated water losses and minimum purchase agreements).

FY 2018/19 water sales of 3.94 million hcf are estimated based on a 2% overall increase in potable use from current drought depressed levels and flat recycled use. The overall increase in projected use takes into account historical consumption and water purchase data, which indicate a small rebound in use as regional drought conditions relent. Detailed historical and projected water purchase costs and estimated water sales are shown in Appendix C, Tables 1 and 2.

Table 3 shows a summary of projected FY 2018/19 wholesale water purchases by source.

Table 3
City of Milpitas - Water Rate Study
FY 2018/19 Wholesale Water Purchases & Estimated Sales¹

	Water Purchased	Water Sold	%
SFPUC	2,606,052	2,133,742	54%
SCVWD	1,616,025	1,323,143	34%
Recycled Water	<u>479,159</u>	<u>479,159</u>	<u>12%</u>
	4,701,236	3,936,044	100%

1 Water units in hundred cubic foot (hcf)

Table 4 shows an attribution of variable operating costs (\$16,365,022 from **Table 2**) to each unit of water expected to be sold in FY 2018/19.

Non-water purchase variable costs shown in **Table 2** (includes 25% of personnel services, administrative costs, services and supplies, repairs and maintenance, and net income) amount to \$1,751,631 and are attributed to each unit of water expected to be sold in FY 2018/19 (~3.94 million hcf). The calculation amounts to \$0.45 per hcf and is referred to as the “base cost”.

Recycled costs of \$1,303,312 are shown in **Table 2**. These costs are divided by the total units sold to determine a cost of \$2.72/hcf. The base cost of \$0.45/hcf is added to determine a total cost of \$3.17/hcf.

The cost of the potable water variable costs (SCVWD and SFPUC) amounts to \$13,532,010. These costs are divided by projected potable units sold to determine a cost of \$3.91/hcf. Adding the base rate of \$0.45/hcf amounts to a total rate of \$4.36/hcf.

Table 4
 City of Milpitas - Water Rate Study
 Variable Rate Cost Allocation 2018/19

Total Variable Costs:	\$16,365,022
Non Water Purchase Variable Costs (Less Misc. Revenue)	\$1,751,631
All Use	3,936,044
Base Cost (\$/unit)	\$0.45
<hr/>	
Recycled Costs:	\$1,303,312
	Recycled Water Sold
	479,159
	Cost Per HCF Sold
Recycled Cost per hcf	\$2.72
+Base cost	\$3.17
<hr/>	
Potable Costs:	\$13,532,010
	Potable Water Sold
SFPUC	2,133,742
SCVWD	<u>1,323,143</u>
	3,456,885
	Cost Per HCF Sold
Potable Cost per hcf	\$3.91
+Base cost	\$4.36

Using the data and estimates in Table 2 of Appendix C, Table 5 below shows the estimated water use by customer class in FY 2018/19. Residential customers are the largest potable users with an estimated 54% of potable use.

Uniform Residential Rate Option

In **Table 5**, peaking costs attributed to potable users from **Table 2** amounting to \$4,099,147 are allocated to customer classes based on each customer classes' percentage of potable use. The peaking cost per unit amounts to \$1.19 and is added to the rate of \$4.36 developed in **Table 4** to determine a uniform potable rate of \$5.55.

Table 5
City of Milpitas - Water Rate Study
Uniform Rate Calculation

User Breakdown of Water Sales	Est. Potable Sold	% of Potable Use	Peaking Costs	Peaking \$/HCF + Potable \$/HCF	Uniform Rate	Volumetric Revenue
Potable Peaking Costs:	\$4,099,147					
Single Family Residential	1,133,231	33%	\$1,343,776	\$1.19	\$4.36	\$6,284,133
Multifamily Residential	733,293	21%	869,533	\$1.19	\$4.36	\$4,066,346
Commercial	564,062	16%	668,861	\$1.19	\$4.36	\$3,127,909
Industrial	512,010	15%	607,137	\$1.19	\$4.36	\$2,839,262
Institutional	108,037	3%	128,110	\$1.19	\$4.36	\$599,102
Irrigation	284,569	8%	337,440	\$1.19	\$4.36	\$1,578,029
Ed Levin Park	3,509	0%	4,161	\$1.19	\$4.36	\$19,460
CITY Domestic	12,903	0%	15,300	\$1.19	\$4.36	\$71,552
CITY Irrigation	<u>105,271</u>	<u>3%</u>	<u>124,829</u>	\$1.19	\$4.36	<u>\$583,761</u>
	3,456,885	100%	4,099,147			\$19,169,552

Tiered Residential Rate Option

Table 6 shows the calculation of the residential tier option for residential customers. Single family customers are recommended to have their tier breakpoint set at 14 hcf bimonthly, while multifamily residential customers are recommended to have their tier breakpoint set at 10 hcf bimonthly per dwelling unit. Both customer classes would have approximately 72% of their use fall in the first tier.

Under the tier option, peaking costs are allocated to peak units in each tier for multifamily and single family customers. Peak units are calculated as the additional units in each tier in the highest use billing period compared to the lowest use billing period. The peak units are calculated in Appendix C, Table 3A and Table 3B.

Table 6
 City of Milpitas - Water Rate Study
 Est. 2018/19 Residential Tiered Rate Option

Est. Single Family Residential Water Sales (Proposed Bimonthly Tiers)		
	Use in Tier	% Use In Tier
0-14 HCF	831,491	73%
>14	<u>301,740</u>	<u>27%</u>
	1,133,231	100%
Est. Multi Family Residential Water Sales (Proposed Bimonthly Tiers)		
	Use in Tier	% Use In Tier
0-10 HCF	522,377	71%
>10	<u>210,916</u>	<u>29%</u>
	733,293	100%
<hr/>		
SFR Peaking Costs	\$1,343,776	
Cost per Peak Unit	\$8.48	
Peak Units Proposed Tiers		
	Peak Units in Tier	% Peaking Units
0-14 HCF	53,525	34%
>14	<u>104,861</u>	<u>66%</u>
	158,386	14%
Peak Costs Proposed Tiers		
	Peak Costs	\$ per Unit
0-14 HCF	\$454,119	\$0.55
>14	<u>\$889,657</u>	<u>\$2.95</u>
	\$1,343,776	
Quantity Charges (per hcf)*		
		Revenue
0-14 HCF	\$4.91	\$4,079,031
>14	\$7.31	<u>\$2,205,102</u>
		\$6,284,133
Less: Tier 1 Discount	\$0.072	\$59,904
Proposed Quantity Charges (per hcf)*		
0-14 HCF	\$4.83	
>14	\$7.31	
<hr/>		
MFR Peaking Costs	\$869,533	
Cost per Peak Unit	\$13.31	
Peak Units Proposed Tiers		
	Peak Units in Tier	% Peaking Units
0-10 HCF	18,602	28%
>10	<u>46,710</u>	<u>72%</u>
	65,312	9%
Peak Costs Proposed Tiers		
	Peak Costs	\$ per Unit
0-10 HCF	\$247,662	\$0.47
>10	<u>\$621,870</u>	<u>\$2.95</u>
	\$869,533	
Proposed Quantity Charges (per hcf)*		
		Revenue
0-10 HCF	\$4.83	\$2,524,980
>10	\$7.31	<u>\$1,541,366</u>
		\$4,066,346

*Rate does not include capital surcharge

Wholesale Water Rate Passthrough

Proposition 218 allows California agencies providing water service to pass through future increases in wholesale water rates to customers. A “pass through” provision is recommended to be included in the Milpitas proposed water rate schedule and Proposition 218 notice.

Increases in the wholesale unit costs of SCVWD, SFPUC, and/or recycled water above projected costs can be recovered through an additional rate per unit of usage. 30 days of notice is required to be given to customers before the effective date of then passthrough adjustment.

Rate Offsets

BWA proposes a \$0.07 discount on the single family residential tier 1 rate. The discount will help reduce costs for tier 1 users and will help simplify the residential rates by matching them with multifamily. The tier 1 discount would be funded through about \$60,000 of miscellaneous revenue.

Ed Levin Park has contracted with the City to be charged the SFPUC wholesale rate of \$4.10. In exchange for the Ed Levin Park contract rate, the County of Santa Clara has given the City a permanent easement on County Park property where the City's Minnis Water Tank is located, as well as other below-ground City water pipelines. The difference in cost will be funded from non-rate revenues, such as miscellaneous revenues, amounting to approximately \$9,976 in FY 2018/19. Appendix C, Table 9 shows the five-year funding schedule for the rate offsets.

Pros and Cons of Tiered Versus Uniform Rate

Under the tiered rate option, residential customers pay a lower rate for the first units purchased in each billing period and higher rates for additional units. The tiered rates shift more costs away from low to average users to high users.

Revenue Stability

A uniform rate structure is currently in place. The downside of implementing tiered rates is that the water enterprise would rely more on high water bills to meet revenue requirements. A uniform rate structure provides slightly greater revenue stability than a tiered rate structure. As shown in Appendix D, Table 1, the implementation of tiered residential rates is estimated to increase lost revenue by 8% to 9% compared to the uniform rate during times of severe usage cutback.

Conservation Incentive

Both the uniform rate and tiered rate provide a conservation incentive. While the uniform rate is the marginal cost of water for each unit purchased, the tiered rate is designed to send a stronger conservation price signal for higher levels of use.

Proposition 218 Defensibility

Uniform rates provide the simplest and most legally defensible method of cost recovery. In recent years, courts have struck down tiered rates due to violations of California Proposition 218, which requires public agencies providing water service to have a cost justification for tiered rates. Water rates must be proportional and may not exceed the cost attributed to each parcel. In 2015, the City of San Juan Capistrano lost a lawsuit on their tiered rates. The San Juan Capistrano case has helped provide insight on how tiers should be developed, however, case law in this area remains limited and the many varying tiered rate methodologies have yet to be challenged. While BWA has ensured that the tiered rates developed in this report are based on industry standard practices, tiered rates carry an elevated level of legal risk.

Administrative Ease

The implementation of tiers adds additional complexity to the City's rates. The billing software will need to be updated and staff will likely receive more inquiries related to the calculation of the bills.

Equitability

Tier breakpoints are recommended to be set at 10 hcf per dwelling unit bimonthly for multifamily customers and 14 hcf bimonthly for single family residential. These amounts represent efficient use for the average residential users, however, no adjustment is made for families that are larger than average, and therefore, use more water. Additionally, nonresidential customers are not recommended to be tiered because there is no standard method to establish a tier breakpoint these customers as they are not a homogeneous customer class. For example, the commercial customer class may include customers with varying usage profiles such as restaurants, laundromats, and schools.

Meter Charges

Bimonthly meter charges are considered "availability" or "readiness-to-serve" charges for providing customers with access to water at all times. They are designed to recover a portion of the City's fixed costs of providing water service. These charges constitute a fixed portion of the customers' bills because they are levied whether or not water is used. BWA recommends allocating these costs based on each user's proportional capacity in the system as determined by their water meter flow capacity.

According to the California Urban Water Conservation Council (CUWCC) Best Management Practices (BMP) 1.4, the fixed component should be used to recover 30% or less of rate revenues to provide strong cost incentives to encourage conservation

Table 7 shows a comparison of existing and proposed meter charges and the calculation of proposed meter charges. This study used meter flow ratios identified by the AWWA. **Figure A** shows the AWWA recommended meter equivalents.

Figure A
American Water Works Association
Fixed Charge Meter Ratios

Water Meter Size	AWWA*(capacity)	Factor based on 5/8"
5/8 inch	20	1.00
3/4 inch	30	1.50
1 inch	50	2.50
1-1/2 inch	100	5.00
2 inch	160	8.00
3 inch	300	15.00
4 inch	500	25.00
6 inch	1,000	50.00

*Safe maximum operating capacity by meter type, per current AWWA standards, GPM.
AWWA Manual M1, Sixth Edition, 2012, Appendix B

BWA recommends that the City continue to align meter charges with the AWWA standard 5/8" meter equivalents. Meter equivalents denote the maximum flow capacity of the meter. Total City water system 5/8" meter equivalents amount to 34,582 (as of 2018), as shown in Appendix C, Table 6.

In **Table 7**, the proposed meter charges were developed by taking the fixed operating revenue requirement of \$4,616,210 from **Table 2** and dividing it by total Fiscal Year 2018/2019 system meter equivalents of 34,582 to arrive at a bimonthly meter charge of \$22.25 for the base 5/8" meter. This charge is then increased based on AWWA capacity ratios for larger meters. For example, a 1" meter has a capacity ratio of 2.5x and is recommended to be charged \$55.62 bimonthly.

Meters 6" and above were assigned a capacity ratio of 50x.

Based on AWWA guidelines, BWA recommends that fire meters be attributed 20% of the charge of regular meters to denote that these meters are on standby for emergencies, are not regularly used, and fire flow costs are estimated at about 20% of water system fixed costs.

Table 7
 City of Milpitas - Water Rate Study
 Fixed Operating Cost Allocation

Fixed Operating Costs

\$4,616,210

5/8" AWWA Meter Equivalents

34,582

\$/per 5/8" Meter Equivalent

\$133.49

Bimonthly \$/per 5/8" Meter Equivalent

\$22.25

Meter Size	Current Cost Ratio	AWWA Meter Equivalents ²	Current Proposed		% Increase / Decrease
			Current	Proposed	
5/8 inch	1.0	1.0	\$19.44	\$22.25	14.4%
3/4 inch	1.5	1.5	29.16	33.37	14.4%
1 inch	2.5	2.5	48.60	55.62	14.4%
1-1/2 inch	5.0	5.0	97.20	111.24	14.4%
2 inch	8.0	8.0	155.52	177.98	14.4%
3 inch	15.0	15.0	291.60	333.71	14.4%
4 inch	25.0	25.0	486.00	556.19	14.4%
6 inch and above	50.0	50.0	972.00	1,112.38	14.4%

Detector Valve (Fire Meter)	Proposed Meter Equivalents ¹	Current Proposed		% Increase / Decrease
		Current	Proposed	
2 inch	1.6	31.10	35.60	14.5%
3 inch	3.0	58.32	66.74	14.4%
4 inch	5.0	97.20	111.24	14.4%
6 inch and above	10.0	194.40	222.48	14.4%

1 Fire meter equivalents established at 20% of regular meter equivalents

2 Meter equivalents capped at 6".

Low Income Discount Program

California public agencies providing water service may implement low income rate assistance programs, but rate discounts must be funded from non-rate sources of revenue. If the City chooses to implement a low-income program, BWA recommends that the City qualify low income customers based on those already enrolled in the Pacific Gas and Electric (PG&E) Care program to minimize administration costs.

There are approximately 3,500 customers enrolled in the PG&E Care program in the City of Milpitas. The water enterprise generates approximately \$147,000 per year from non-rate sources; enough for a \$3.50/month discount for each PG&E Care enrolled customer.

Capital Costs

Table 8 shows the City water enterprise 5-year capital improvement program for potable water sources. The projects are identified in the City budget by funding source. All \$46.3 million of potable capital project costs are assumed to be funded in the 5-year study period.

Table 8
City of Milpitas - Water Rate Study
CIP Schedule - Funded Capital Projects

Project Expenses ¹	2018-19	2019-20	2020-21	2021-22	2022-23	Total	Total Projects			
							Extension Fund	Surcharge	Other Water Bonds	
2nd SCVWD Water Reservoir & Pump Sta.	\$0	\$0	\$3,250,000	\$3,250,000	\$0	\$6,500,000	\$0	\$0	\$6,500,000	\$0
SCVWD Second Water Supply Turnout	0	0	0	500,000	2,500,000	3,000,000	0	0	3,000,000	0
Well Upgrade Project	5,630,000	4,000,000	0	0	0	9,630,000	0	0	2,330,000	7,300,000
Aging Water System/Seismic Improvement	4,700,000	0	0	0	0	4,700,000	0	0	0	4,700,000
Hydrant Replacement Program	72,100	74,260	76,500	78,800	80,850	382,510	72,100	310,410	0	0
Reservoir Cleaning	150,000	0	150,000	0	150,000	450,000	0	450,000	0	0
Automated Meter Replacement Program	1,726,700	2,226,650	1,226,650	0	0	5,180,000	500,000	4,680,000	0	0
Water Supervisory Control and Data Acquisition	0	500,000	5,450,000	0	0	5,950,000	2,000,000	2,000,000	0	1,950,000
Annual Water Distribution Rehab. Program	600,000	600,000	600,000	600,000	600,000	3,000,000	300,000	2,700,000	0	0
Minor Water Projects	100,000	100,000	100,000	100,000	100,000	500,000	0	500,000	0	0
Water O&M Database Management	50,000	0	0	0	0	50,000	25,000	25,000	0	0
Water Leak Detection and Condition Asses	150,000	150,000	150,000	150,000	150,000	750,000	0	750,000	0	0
Water Master Plan 2019	400,000	0	0	0	0	400,000	0	400,000	0	0
<i>Additional SCVWD Zone 1 Pressure Red. Val</i>	0	0	0	490,000	0	490,000	0	490,000	0	0
Los Coches Backbone	0	850,000	3,350,000	0	0	4,200,000	0	4,200,000	0	0
Lower Berryessa Creek Water Line	0	0	0	0	1,025,000	1,025,000	0	1,025,000	0	0
Water System Replacement Study	0	100,000	0	0	0	100,000	100,000	0	0	0
Total	13,578,800	8,600,910	14,353,150	5,168,800	4,605,850	46,307,510	2,997,100	17,530,410	11,830,000	13,950,000

¹ Source: 2018-2023 Capital Improvements Program

Table 9 shows the City’s unfunded capital projects, which consist of \$45.7 million of recycled water projects. These projects have been excluded from this rate study and are not included in the proposed rate calculation.

Table 9
 City of Milpitas - Water Rate Study
 CIP Schedule - Unfunded Capital Projects

Project Expenses¹	Funding Source	2018-19	2019-20	2020-21	2021-22	2022-23	Total
Recycled Water Pipeline Segment 1	Unidentified	\$0	\$6,100,000	\$0	\$0	\$0	\$6,100,000
Recycled Water Pipeline Segment 2	Unidentified	0	0	0	4,755,000	0	4,755,000
Recycled Water Pipeline Segment 3	Unidentified	0	0	3,507,000	8,450,000	0	11,957,000
Recycled Water Pipeline Segment 4	Unidentified	0	6,178,193	13,400,000	0	0	19,578,193
Recycled Water Pipeline Segment 5	Unidentified	0	0	3,305,000	0	0	3,305,000
Total		0	12,278,193	20,212,000	13,205,000	0	45,695,193

¹ Source: 2018-2023 Capital Improvements Program

Capital Surcharges

BWA recommends that the City continue to recover capital costs through a “capital surcharge” levied on water use to recover all system capital costs. The capital surcharge was first implemented beginning FY 2016/17.

Table 10 shows the capital surcharge calculations based on capital costs identified in **Table 2**. The surcharge is designed to provide adequate ongoing cash funding for water enterprise capital projects and associated debt service. BWA recommends the City debt finance about \$14 million of capital in FY 2018/19, as the capital fund balance is not adequate to fund all needed projects.

Debt Funded Capital: BWA estimates debt service on a \$14 million borrowing for potable capital to be about \$916,500 per year beginning in FY 2018/19 (5%, 30-year financing).

Table 10
City of Milpitas - Water Rate Study
Capital Cost Allocation (Capital Surcharge)

FY 2018/19 Capital Costs
\$4,830,997

FY 2018/19 Estimated Potable Use (HCF)
3,456,885

Cost per Potable HCF (Capital Surcharge)
\$1.40

SECTION 4: RATE INCREASES

Table 11 shows a cash flow schedule for the Operating Fund. Rate increases are needed to meet key financial goals of the water enterprise including:

- Prevent further operating losses (estimated at \$115,000 per month)
- Meet debt service coverage requirements on any new debt issuances
- Maintain at least 30% of operating expenses in reserves
- Fund 5-year capital program
- Smooth out impact on rate payers

In addition to the rate structure adjustments recommended in FY 2018/19, BWA estimates the water enterprise requires overall rate increases to potable and recycled consumption and meter charges and the capital surcharge of **3.5%** in FY 2019/20, **3.5%** in FY 2020/21, **3.5%** in FY 2021/22 and **3.5%** in FY 2022/23.

The projected expenses are shown in **Table 11**, with operating expenses increasing from \$24.3 million in FY 2017/18 to \$29.6 million in FY 2022/23.

Detailed projections of water use, rate increases, and revenues are shown in Appendix C.

Appendix A shows the bill impacts of the proposed rates for a typical residential user based on different levels of water use. The average residential bimonthly bill (using 7 HCF monthly) would increase from the current amount of \$54.73 to \$59.77 under the uniform rate option, and remain the same at \$54.73 under the tier option.

Appendix B shows how the City's rates compare to regional agencies under current and proposed scenarios.

Table 11
 City of Milpitas - Water Rate Study
 Detailed Cash Flow Projection

	2016/17	Escalation %	2017/18	Projected				
				2018/19	2019/20	2020/21	2021/22	2022/23
Rate Increase %			0.0%	9.0%	3.5%	3.5%	3.5%	3.5%
% Revenue Increase			3.0%	10.7%	5.1%	4.3%	4.3%	4.1%
Water M&O - 400								
Beg. Fund Balance (Water M&O - 400)			\$7,170,819	\$5,789,679	\$6,572,351	\$7,733,998	\$9,052,881	\$10,518,331
Revenue								
Rate Revenue	\$22,054,033	Appendix C	\$22,747,195	\$25,237,336	\$26,515,594	\$27,651,861	\$28,837,354	\$30,018,564
Other Operating Income	147,340	0%	147,340	147,340	147,340	147,340	147,340	147,340
Subtotal Revenue	22,201,373		22,894,535	25,384,676	26,662,934	27,799,201	28,984,694	30,165,904
Expenses								
Purchased Water	15,548,813	Appendix C	18,137,521	18,218,325	18,862,260	19,575,732	20,338,473	22,158,046
Personnel Services	1,107,805	4%	1,152,117	1,198,202	1,246,130	1,295,975	1,347,814	1,401,727
Transfers Out (General Fund Admii	2,633,000	4%	2,593,705	2,697,453	2,805,351	2,917,565	3,034,268	3,155,639
Services and Supplies	1,848,628	4%	1,922,573	1,999,476	2,079,455	2,162,633	2,249,139	2,339,104
Repairs and Maintenance	451,690	4%	469,758	488,548	508,090	528,413	549,550	571,532
Subtotal Expenses	21,589,936		24,275,674	24,602,004	25,501,286	26,480,319	27,519,244	29,626,047
Net Revenue	611,437		(1,381,139)	782,671	1,161,648	1,318,883	1,465,451	539,857
Ending Fund Balance	7,170,819		5,789,679	6,572,351	7,733,998	9,052,881	10,518,331	11,058,188
Water Capital Funds - 402, 405								
Beg. Fund Balance (Water Capital Funds - 402, 405)			\$5,994,868	\$10,396,229	\$17,604,751	\$13,182,205	\$6,488,472	\$9,720,623
Revenue								
Bond (5% 30-Years)				14,089,500				
Capital Surcharges (Rate Revenue	4,315,060	Appendix C	4,401,361	4,826,093	5,094,906	5,325,960	5,567,492	5,805,572
Subventions and Grants	88,515	0%						
Capital Contributions	814,113	0%						
Connection Fees	2,183,279	0%						
Transfers In	1,343,207	TASP Funds		2,330,000	0	3,250,000	3,750,000	2,500,000
Interest Income	(10,106)	0%						
Subtotal Revenue	4,419,008		4,401,361	21,245,593	5,094,906	8,575,960	9,317,492	8,305,572
Expenses								
Capital Expenditures	1,556,692	Table 8		13,578,800	8,600,910	14,353,150	5,168,800	4,605,850
Debt Service	0		0	458,271	916,542	916,542	916,542	916,542
Subtotal Expenses	1,556,692		0	14,037,071	9,517,452	15,269,692	6,085,342	5,522,392
Net Revenues	2,862,316		4,401,361	7,208,522	(4,422,546)	(6,693,732)	3,232,150	2,783,180
Ending Fund Balance	5,994,868		10,396,229	17,604,751	13,182,205	6,488,472	9,720,623	12,503,803
Total Fund Balance	13,165,687		16,185,908	24,177,101	20,916,203	15,541,353	20,238,954	23,561,990
Total Rate Revenue	26,369,093		27,148,556	30,063,429	31,610,500	32,977,821	34,404,847	35,824,136
Total Operating Expenses	21,589,936		24,275,674	24,602,004	25,501,286	26,480,319	27,519,244	29,626,047
Debt Service Coverage (Currently No Debt)								
Net Operating Revenues	9,345,505		3,020,222	7,938,764	6,256,554	9,894,843	10,782,943	8,845,429
Total Debt Service	0		0	458,271	916,542	916,542	916,542	916,542
Coverage >1.25x				17.32	6.83	10.80	11.76	9.65
Operating Fund Reserve Target								
30% O&M	6,477,000		7,283,000	7,381,000	7,650,000	7,944,000	8,256,000	8,888,000
Target Met	Yes		No	No	Yes	Yes	Yes	Yes

Proposed Rate Schedule – Bimonthly

Table 12 shows BWA’s proposed bimonthly rate schedule for FY 2018/19 to FY 2022/23. Table 13 shows the rates converted to monthly.

Table 12
City of Milpitas - Water Rate Study
Water Rate Schedule (Bimonthly)

Overall % Increases					3.5%	3.5%	3.5%	3.5%
BIMONTHLY WATER RATES								
Meter Charges								
<u>Meter Size</u>	<u>Effective 2016/17 (Current)</u>	<u>Proposed 2018/19</u>	<u>% Increase</u>	<u>Proposed 2019/20</u>	<u>Proposed 2020/21</u>	<u>Proposed 2021/22</u>	<u>Proposed 2022/23</u>	
5/8"	\$19.44	\$22.25	14%	\$23.03	\$23.83	\$24.67	\$25.53	
3/4"	29.16	33.37	14%	34.54	35.75	37.00	38.29	
1"	48.60	55.62	14%	57.57	59.58	61.67	63.82	
1-1/2"	97.20	111.24	14%	115.13	119.16	123.33	127.65	
2"	155.52	177.98	14%	184.21	190.66	197.33	204.24	
3"	291.60	333.71	14%	345.39	357.48	370.00	382.95	
4"	486.00	556.19	14%	575.66	595.81	616.66	638.24	
6" & above	972.00	1,112.38	14%	1,151.32	1,191.61	1,233.32	1,276.48	
Quantity Charges (per hcf)								
Residential (Tier Option)								
MFR Residential (Bimonthly Tier Option per Dwelling Unit)								
0-10 HCF	5.13	4.83	-6%	5.00	5.18	5.36	5.55	
>10	5.13	7.31	42%	7.56	7.83	8.10	8.39	
SFR Residential (Bimonthly Tier Option)								
0-14 HCF	5.13	4.83	-6%	5.00	5.18	5.36	5.55	
>14	5.13	7.31	42%	7.56	7.83	8.10	8.39	
Residential (Uniform Option)	5.13	5.55	8%	5.74	5.94	6.15	6.36	
Commercial/Industrial/Institutional and Construction	5.13	5.55	8%	5.74	5.94	6.15	6.36	
Potable Irrigation	5.13	5.55	8%	5.74	5.94	6.15	6.36	
Santa Clara County (Ed Levin Park)	3.79	4.10	8%	4.10	4.10	4.10	4.47	
Recycled Irrigation	2.78	3.17	14%	3.28	3.39	3.51	3.63	
Recycled Water Industrial / Dual Plumbed	2.78	3.17	14%	3.28	3.39	3.51	3.63	
Recycled Water: City of Milpitas	2.78	3.17	14%	3.28	3.39	3.51	3.63	
Capital Surcharge (all potable use, per hcf)	1.30	1.40	8%	1.45	1.50	1.55	1.60	

Proposed Rate Schedule – Monthly

Table 13
 City of Milpitas - Water Rate Study
 Water Rate Schedule (Monthly) - Rounded for Bill Impacts

MONTHLY WATER RATES

Meter Charges

Meter Size	Current	Proposed									
		2018/19	% Increase	2019/20	% Increase	2020/21	% Increase	2021/22	% Increase	2022/23	% Increase
5/8"	\$9.72	\$11.12	14.4%	\$11.51	3.5%	\$11.92	3.6%	\$12.33	3.4%	\$12.76	3.5%
3/4"	14.58	16.69	14.5%	17.27	3.5%	17.87	3.5%	18.50	3.5%	19.15	3.5%
1"	24.30	27.81	14.4%	28.78	3.5%	29.79	3.5%	30.83	3.5%	31.91	3.5%
1-1/2"	48.60	55.62	14.4%	57.57	3.5%	59.58	3.5%	61.67	3.5%	63.82	3.5%
2"	77.76	88.99	14.4%	92.11	3.5%	95.33	3.5%	98.67	3.5%	102.12	3.5%
3"	145.80	166.86	14.4%	172.70	3.5%	178.74	3.5%	185.00	3.5%	191.47	3.5%
4"	243.00	278.10	14.4%	287.83	3.5%	297.90	3.5%	308.33	3.5%	319.12	3.5%
6" & above	486.00	556.19	14.4%	575.66	3.5%	595.81	3.5%	616.66	3.5%	638.24	3.5%

Quantity Charges (per hcf)

Residential (Tier Option)

MFR Residential (Monthly Tier Option per Dwelling Unit)

0-5 HCF	5.13	4.83	-5.8%	5.00	3.5%	5.18	3.6%	5.36	3.5%	5.55	3.5%
>5	5.13	7.31	42.5%	7.56	3.4%	7.83	3.6%	8.10	3.4%	8.39	3.6%

SFR Residential (Monthly Tier Option)

0-7 HCF	5.13	4.83	-5.8%	5.00	3.5%	5.18	3.6%	5.36	3.5%	5.55	3.5%
>7	5.13	7.31	42.5%	7.56	3.4%	7.83	3.6%	8.10	3.4%	8.39	3.6%

All Residential (Uniform Option)

	5.13	5.55	8.2%	5.74	3.4%	5.94	3.5%	6.15	3.5%	6.36	3.4%
--	------	------	------	------	------	------	------	------	------	------	------

Commercial/Industrial/Institutional and Construction

	5.13	5.55	8.2%	5.74	3.4%	5.94	3.5%	6.15	3.5%	6.36	3.4%
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Potable Irrigation

	5.13	5.55	8.2%	5.74	3.4%	5.94	3.5%	6.15	3.5%	6.36	3.4%
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Santa Clara County (Ed Levin Park)

	3.79	4.10	8.2%	4.10	0.0%	4.10	0.0%	4.10	0.0%	4.47	9.0%
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Recycled Irrigation

	2.78	3.17	14.0%	3.28	3.5%	3.39	3.4%	3.51	3.5%	3.63	3.4%
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Recycled Water Industrial / Dual Plumbed

	2.78	3.17	14.0%	3.28	3.5%	3.39	3.4%	3.51	3.5%	3.63	3.4%
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Recycled Water: City of Milpitas

	2.78	3.17	14.0%	3.28	3.5%	3.39	3.4%	3.51	3.5%	3.63	3.4%
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Capital Surcharge (all potable use, per hcf)

	1.30	1.40	7.7%	1.45	3.6%	1.50	3.4%	1.55	3.3%	1.60	3.2%
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APPENDIX A – MONTHLY RESIDENTIAL BILL IMPACTS

Current Single Family Residential, 5/8" Meter

Monthly Use (HCF)	Use Charge	Capital Surcharge	Meter Charge	Monthly Bill
0	\$0.00	\$0.00	\$9.72	\$9.72
2	10.26	2.60	9.72	22.58
3	15.39	3.90	9.72	29.01
5	25.65	6.50	9.72	41.87
7	35.91	9.10	9.72	54.73
10	51.30	13.00	9.72	74.02
15	76.95	19.50	9.72	106.17
20	102.60	26.00	9.72	138.32
30	153.90	39.00	9.72	202.62
40	205.20	52.00	9.72	266.92
50	256.50	65.00	9.72	331.22

Single Family Residential FY 2017 Avg. Monthly Use: 7.285

FY 2019 Proposed Single Family Residential, 5/8" Meter (Tier Option)

Monthly Use (HCF)	Use Charge	Capital Surcharge	Meter Charge	Monthly Bill	Monthly \$ Increase	% Increase
0	\$0.00	\$0.00	\$11.12	\$11.12	\$1.40	14.4%
2	9.66	2.80	11.12	23.58	1.00	4.4%
3	14.49	4.20	11.12	29.81	0.80	2.8%
5	24.15	7.00	11.12	42.27	0.40	1.0%
7	33.81	9.80	11.12	54.73	0.00	0.0%
10	55.74	14.00	11.12	80.86	6.84	9.2%
15	92.29	21.00	11.12	124.41	18.24	17.2%
20	128.84	28.00	11.12	167.96	29.64	21.4%
30	201.94	42.00	11.12	255.06	52.44	25.9%
40	275.04	56.00	11.12	342.16	75.24	28.2%
50	348.14	70.00	11.12	429.26	98.04	29.6%

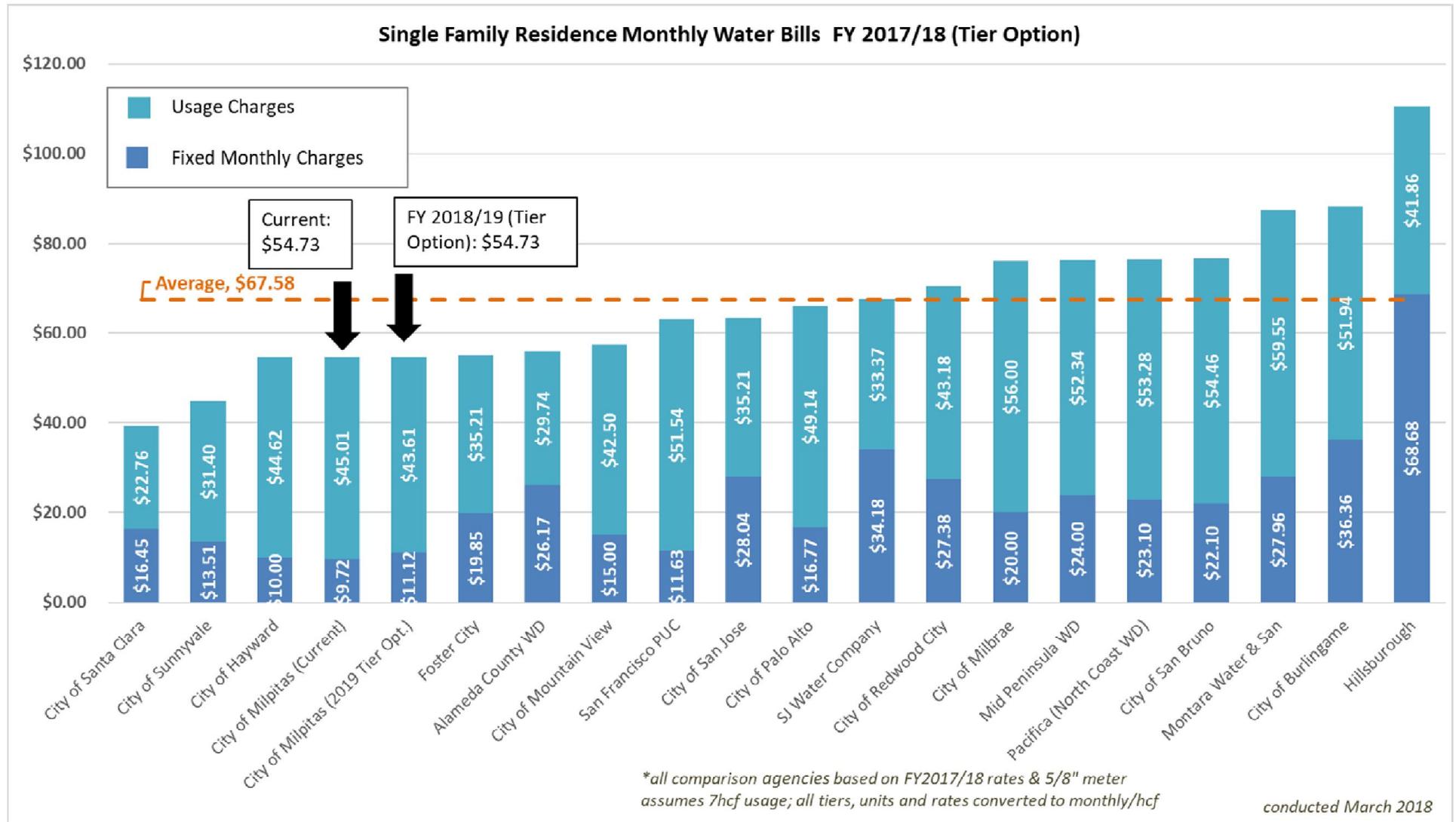
Single Family Residential FY 2017 Avg. Monthly Use: 7.285

FY 2019 Proposed Single Family Residential, 5/8" Meter (Uniform Rate Option)

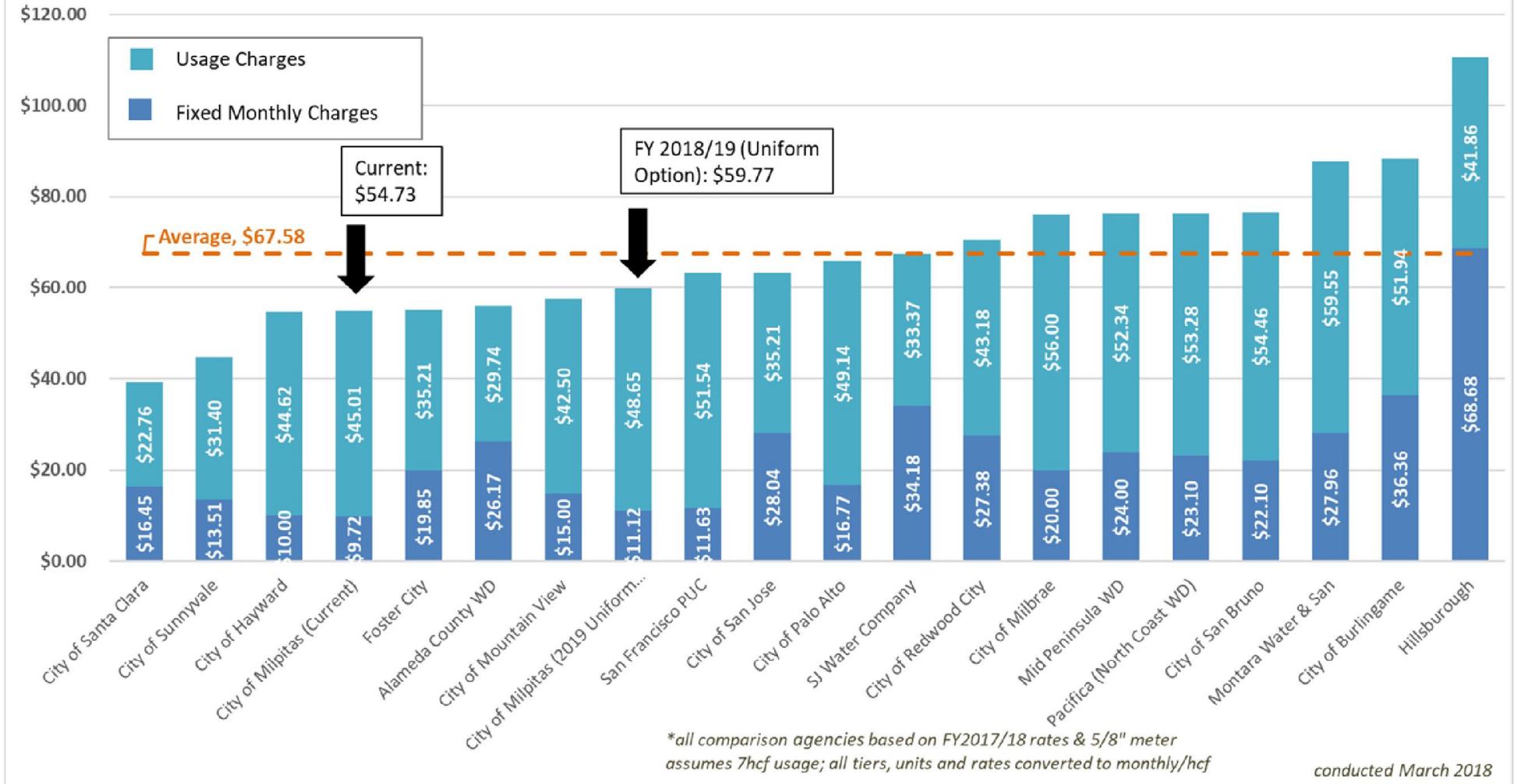
Monthly Use (HCF)	Use Charge	Capital Surcharge	Meter Charge	Monthly Bill	Monthly \$ Increase	% Increase
0	\$0.00	\$0.00	\$11.12	\$11.12	\$1.40	14.4%
2	11.10	2.80	11.12	25.02	2.44	10.8%
3	16.65	4.20	11.12	31.97	2.96	10.2%
5	27.75	7.00	11.12	45.87	4.00	9.6%
7	38.85	9.80	11.12	59.77	5.04	9.2%
10	55.50	14.00	11.12	80.62	6.60	8.9%
15	83.25	21.00	11.12	115.37	9.20	8.7%
20	111.00	28.00	11.12	150.12	11.80	8.5%
30	166.50	42.00	11.12	219.62	17.00	8.4%
40	222.00	56.00	11.12	289.12	22.20	8.3%
50	277.50	70.00	11.12	358.62	27.40	8.3%

Single Family Residential FY 2017 Avg. Monthly Use: 7.285

APPENDIX B – REGIONAL RATE SURVEY



Single Family Residence Monthly Water Bills FY 2017/18 (Uniform Option)



APPENDIX C – FINANCIAL DETAIL

Appendix C
City of Milpitas - Water Rate Study
Table 1 - Wholesale Water Purchases

Potable Water	17/18 Projected	18/19 Projected	19/20 Projected	20/21 Projected	21/22 Projected	22/23 Projected
SFPUC Quantity Charge, \$/HCF	\$4.10	\$4.10	\$4.10	\$4.10	\$4.10	\$4.47
% Increase	0%	0%	0%	0%	0%	9%
SFPUC Purchased, HCF	2,725,710	2,606,052	2,606,052	2,606,052	2,606,052	2,606,052
% Increase	14%	-4%	0%	0%	0%	0%
Subtotal: SFPUC Expenditures	\$11,175,411	\$10,684,813	\$10,684,813	\$10,684,813	\$10,684,813	\$11,649,052
% Increase	14%	-4%	0%	0%	0%	9%
SFPUC Monthly Meter Charge	\$14,022	\$14,022	\$14,022	\$14,022	\$14,022	\$14,022
BAWSCA Bond Surcharge (Monthly)	\$75,568	\$75,568	\$75,568	\$75,568	\$75,568	\$75,568
Subtotal: Annual Fixed Costs	\$1,075,080	\$1,075,080	\$1,075,080	\$1,075,080	\$1,075,080	\$1,075,080
% Increase	-4%	0%	0%	0%	0%	0%
Total \$Exp: SFPUC Purchased	\$12,250,491	\$11,759,893	\$11,759,893	\$11,759,893	\$11,759,893	\$12,724,132
% Increase	12%	-4%	0%	0%	0%	8%
SCVWD Quantity Charge, \$/HCF	\$2.93	\$3.19	\$3.48	\$3.80	\$4.14	\$4.52
% Increase	8.9%	8.9%	9.1%	9.2%	8.9%	9.2%
SCVWD Purchased, HCF	1,606,928	1,616,025	1,626,465	1,636,905	1,647,359	1,657,814
% Increase	14%	1%	1%	1%	1%	1%
Total \$Exp: SCVWD Purchased	\$4,708,299	\$5,155,120	\$5,660,098	\$6,220,239	\$6,820,066	\$7,493,319
% Increase	24%	9%	10%	10%	10%	10%
Total: Potable Purchases, HCF	4,332,638	4,222,077	4,232,517	4,242,957	4,253,411	4,263,866
% Increase	14%	-3%	0%	0%	0%	0%
Total: Potable \$Exp:	\$16,958,790	\$16,915,013	\$17,419,991	\$17,980,132	\$18,579,959	\$20,217,452
% Increase	15.3%	-0.3%	3.0%	3.2%	3.3%	8.8%

Recycled Water

WPCP Quantity Charge, \$/HCF	\$2.46	\$2.72	\$3.01	\$3.33	\$3.67	\$4.05
% Increase	11%	11%	11%	11%	10%	10%
WPCP Purchased, HCF	479,159	479,159	479,159	479,159	479,159	479,159
% Increase	0%	0%	0%	0%	0%	0%
Total: Recycled \$Exp:	\$1,178,731	\$1,303,312	\$1,442,269	\$1,595,599	\$1,758,514	\$1,940,594
% Increase	11%	11%	11%	11%	10%	10%

TOTAL: ALL PURCHASES, HCF	4,811,797	4,701,236	4,711,676	4,722,116	4,732,570	4,743,025
% Increase	13%	-2%	0%	0%	0%	0%
TOTAL: ALL PURCHASES \$EXP	\$18,137,521	\$18,218,325	\$18,862,260	\$19,575,732	\$20,338,473	\$22,158,046
% Increase	15%	0%	4%	4%	4%	9%

Appendix C
City of Milpitas - Water Rate Study
Table 2 - Water Use

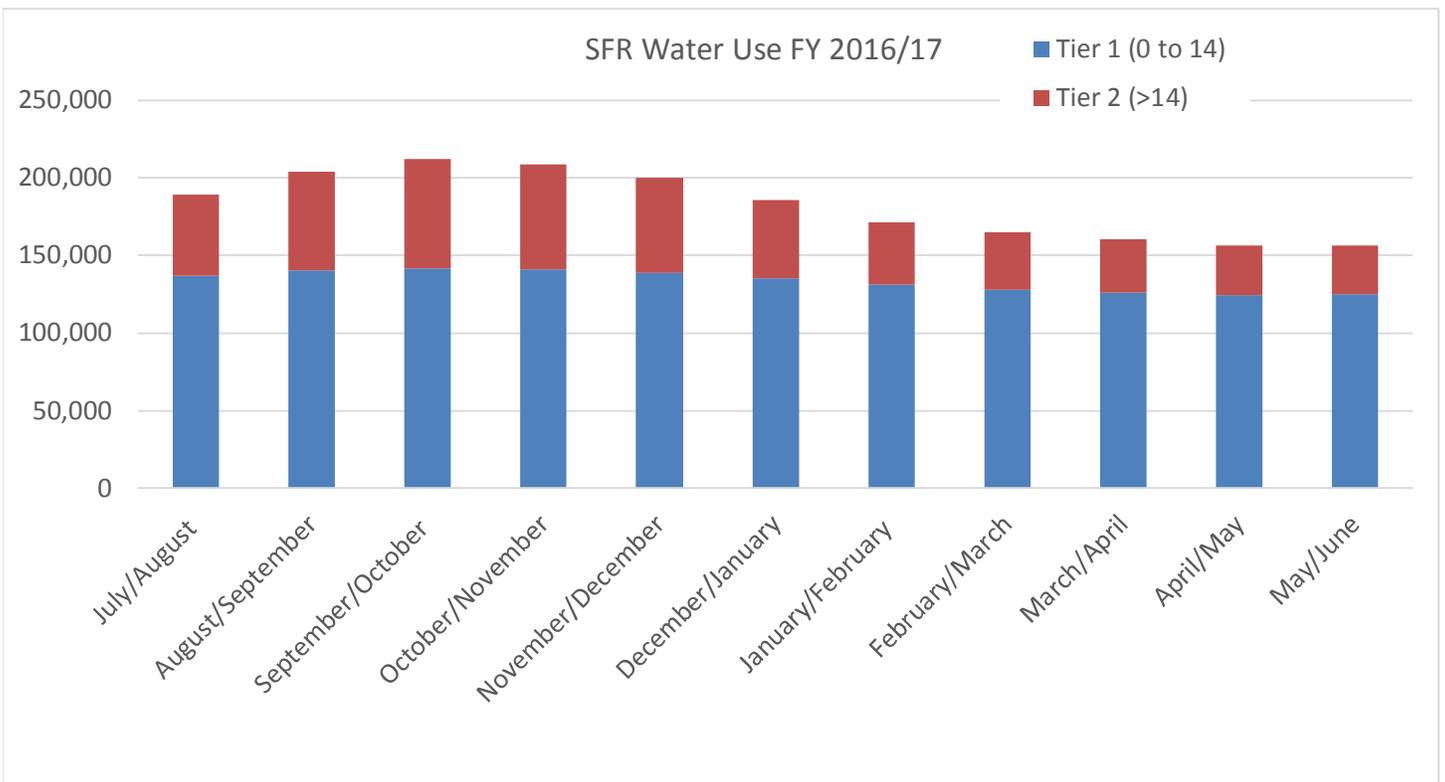
Potable Water	17/18 Projected	18/19 Projected	19/20 Projected	20/21 Projected	21/22 Projected	22/23 Projected
Single Family Residential:						
Tier 1 use (0 - 14)		831,491	848,121	856,602	865,168	871,657
Tier 2 use (>14)		301,740	307,775	310,852	313,961	316,316
Subtotal: Single Family Residential	1,111,011	1,133,231	1,155,895	1,167,454	1,179,129	1,187,972
% Increase	2%	2%	2.0%	1.0%	1.0%	0.8%
Multi Family Residential:						
Tier 1 use (0 - 10)		522,377	532,824	538,152	543,534	547,610
Tier 2 use (>10)		210,916	215,134	217,286	219,459	221,105
Subtotal: Multi Family Residential	718,914	733,293	747,959	755,438	762,992	768,715
% Increase	2%	2%	2.0%	1.0%	1.0%	0.8%
Subtotal Residential Usage, HCF	1,829,925	1,866,523	1,903,854	1,922,892	1,942,121	1,956,687
% Increase	2%	2%	2.0%	1.0%	1.0%	0.8%
Commercial:						
Usage, HCF	553,002	564,062	575,343	581,097	586,908	591,310
% Increase	2%	2%	2.0%	1.0%	1.0%	0.8%
Industrial:						
Usage, HCF	501,971	512,010	522,250	527,473	532,747	536,743
% Increase	2%	2%	2.0%	1.0%	1.0%	0.8%
Institutional:						
Usage, HCF	105,919	108,037	110,198	111,300	112,413	113,256
% Increase	2%	2%	2.0%	1.0%	1.0%	0.8%
Irrigation:						
Irrigation Usage, HCF	278,989	284,569	290,261	293,163	296,095	298,315
% Increase	2%	2%	2.0%	1.0%	1.0%	0.8%
Ed Levin Park:						
Ed Levin Usage, HCF	3,440	3,509	3,579	3,615	3,651	3,679
% Increase	2%	2%	2.0%	1.0%	1.0%	0.8%
CITY Domestic Accounts:						
CITY Domestic Usage, HCF	12,650	12,903	13,161	13,293	13,426	13,526
% Increase	2%	2%	2.0%	1.0%	1.0%	0.8%
CITY Irrigation Accounts:						
CITY Irrigation Usage, HCF	103,207	105,271	107,376	108,450	109,534	110,356
% Increase	2%	2%	2.0%	1.0%	1.0%	0.8%
Subtotal Potable Use	3,389,103	3,456,885	3,526,023	3,561,283	3,596,896	3,623,873
% Increase	2.0%	2.0%	2.0%	1.0%	1.0%	0.8%

Recycled Water

Irrigation (Piped)						
Recycled Irrigation Usage, HCF	436,147	436,147	436,147	436,147	436,147	436,147
% Increase	36%	0%	0%	0%	0%	0%
Industrial Process Use						
Recycled Industrial Usage, HCF	356	356	356	356	356	356
% Increase	36%	0%	0%	0%	0%	0%
City of Milpitas - Irrigation Recycled						
Recycled Irrigation Usage, HCF	42,656	42,656	42,656	42,656	42,656	42,656
% Increase	36%	0%	0%	0%	0%	0%
Subtotal Recycled Use	479,159	479,159	479,159	479,159	479,159	479,159
% Increase	36%	0%	0%	0%	0%	0%
TOTAL: ALL USE, HCF	3,868,262	3,936,044	4,005,182	4,040,442	4,076,055	4,103,032
% Total Use Increase	5.3%	1.8%	1.8%	0.9%	0.9%	0.7%
% of Unaccounted Potable Water	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
% Wholesale Contractual Obligation	6.8%	3.1%	1.7%	1.1%	0.4%	0.0%

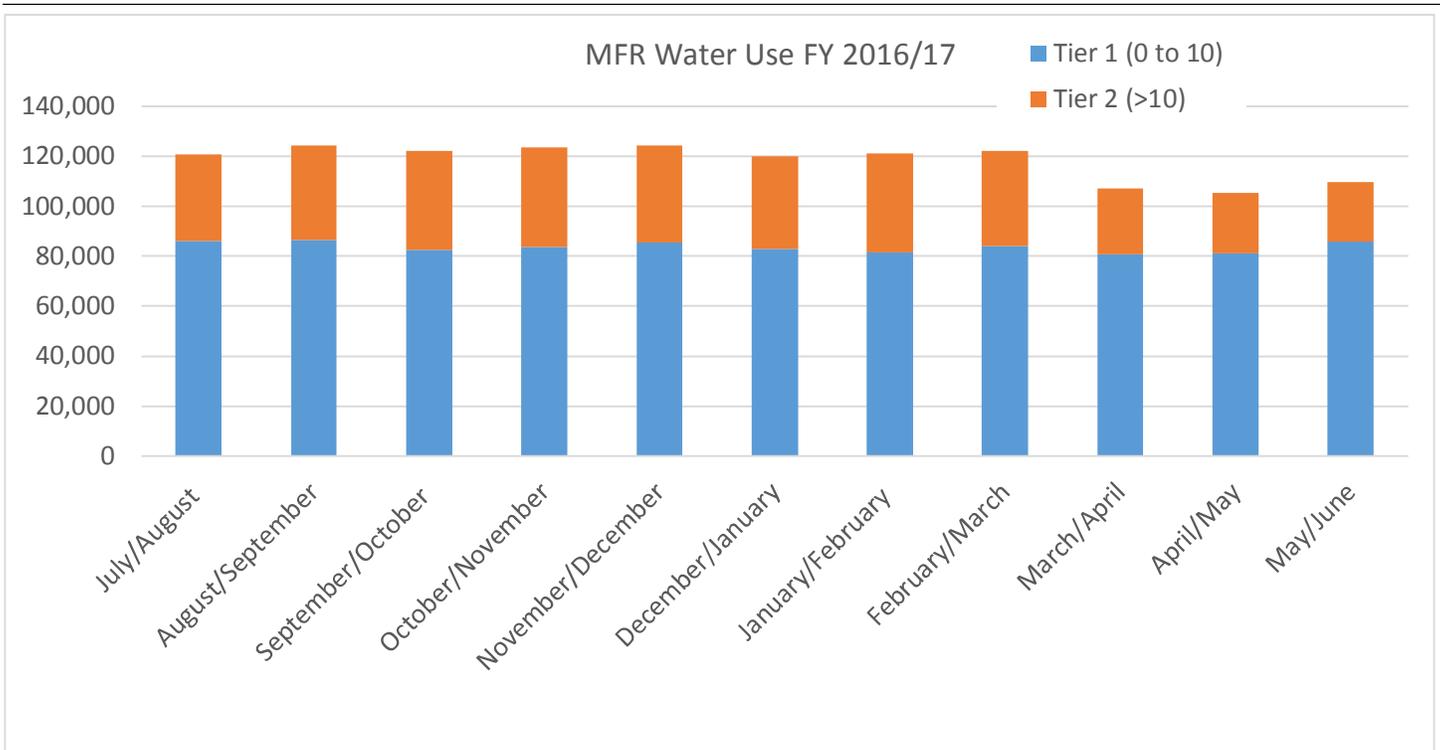
Appendix C
 City of Milpitas - Water Rate Study
 Table 3A - SFR Peaking Analysis

FY 2016/17	Tier 1 (0 to 14)		Tier 2 (>14)	Total	Bimonthly Total			
	Tier 1 (0 to 14)	Tier 2 (>14)			Tier 1 (0 to 14)	Tier 2 (>14)	Total	
July	77,062	25,119		102,181	July/August	137,005	52,273	189,278
August	59,943	27,154		87,097	August/September	140,438	63,769	204,207
September	80,495	36,615		117,110	September/October	141,329	70,554	211,883
October	60,834	33,939		94,773	October/November	140,686	67,891	208,577
November	79,852	33,952		113,804	November/December	138,888	61,097	199,985
December	59,036	27,145		86,181	December/January	135,146	50,389	185,535
January	76,110	23,244		99,354	January/February	131,292	40,014	171,306
February	55,182	16,770		71,952	February/March	127,746	37,083	164,829
March	72,564	20,313		92,877	March/April	125,912	34,471	160,383
April	53,348	14,158		67,506	April/May	124,626	31,539	156,165
May	71,278	17,381		88,659	May/June	124,777	31,614	156,391
June	<u>53,499</u>	<u>14,233</u>		<u>67,732</u>	June/July	130,561	39,352	169,913
	799,203	290,023		1,089,226				
% in Tier	73%	27%						
Lowest Period use (April/May)						Tier 1 (0 to 14)	Tier 2 (>14)	Total
Annualized (Base use)						124,626	31,539	156,165
Peak Units						747,756	189,234	936,990
						51,447	100,789	152,236
						34%	66%	100%
Average Use (Bimonthly)	14.57		Max			141,329	70,554	211,883
Median Use (Bimonthly)	12		Average			133,201	48,337	181,538
			Peaking Ratio			1.06	1.46	1.17



Appendix C
 City of Milpitas - Water Rate Study
 Table 3B - MFR Peaking Analysis

FY 2016/17	Tier 1 (0 to 10)	Tier 2 (>10)	Total	Bimonthly Total			
				Tier 1 (0 to 10)	Tier 2 (>10)	Total	
July	34,734	12,809	47,543	July/August	86,120	34,603	120,723
August	51,386	21,794	73,180	August/September	86,439	37,622	124,061
September	35,053	15,828	50,881	September/October	82,454	39,525	121,979
October	47,401	23,697	71,098	October/November	83,511	39,925	123,436
November	36,110	16,228	52,338	November/December	85,413	38,943	124,356
December	49,303	22,715	72,018	December/January	82,743	37,239	119,982
January	33,440	14,524	47,964	January/February	81,579	39,529	121,108
February	48,139	25,005	73,144	February/March	84,029	37,889	121,918
March	35,890	12,884	48,774	March/April	80,702	26,305	107,007
April	44,812	13,421	58,233	April/May	81,223	24,021	105,244
May	36,411	10,600	47,011	May/June	85,824	23,821	109,645
June	<u>49,413</u>	<u>13,221</u>	<u>62,634</u>	June/July	84,147	26,030	110,177
	502,092	202,726	704,818				
	71%	29%					
Lowest Period use (March/April)					80,702	26,305	109,645
Annualized (Base use)					484,212	157,830	657,870
Peak Units					17,880	44,896	62,776
					28%	72%	100%
Average Use (Bimonthly)	11.99		Max		86,439	39,925	124,356
Median Use (Bimonthly)	11.00		Average		83,682	33,788	117,470
			Peaking Ratio		1.03	1.18	1.06



Appendix C
City of Milpitas - Water Rate Study
Table 4 - Water Rates

Potable Water	Actual 17/18	18/19 Proposed	19/20 Projected	20/21 Projected	21/22 Projected	22/23 Projected
Single Family Residential:						
Tier 1 use (0 - 14), \$/HCF	\$5.13	\$4.83	\$5.00	\$5.18	\$5.36	\$5.55
% Increase		-5.8%	3.5%	3.5%	3.5%	3.5%
Tier 2 use (>14), \$/HCF	\$5.13	\$7.31	\$7.56	\$7.83	\$8.10	\$8.39
% Increase		42.5%	3.5%	3.5%	3.5%	3.5%
Multi Family Residential:						
Tier 1 use (0 - 10), \$/HCF	\$5.13	\$4.83	\$5.00	\$5.18	\$5.36	\$5.55
% Increase		-5.8%	3.5%	3.5%	3.5%	3.5%
Tier 2 use (>10), \$/HCF	\$5.13	\$7.31	\$7.56	\$7.83	\$8.10	\$8.39
% Increase		42.5%	3.5%	3.5%	3.5%	3.5%
Commercial:						
Rate, \$/HCF	\$5.13	\$5.55	\$5.74	\$5.94	\$6.15	\$6.36
% Increase		8.1%	3.5%	3.5%	3.5%	3.5%
Industrial:						
Rate, \$/HCF	\$5.13	\$5.55	\$5.74	\$5.94	\$6.15	\$6.36
% Increase		8.1%	3.5%	3.5%	3.5%	3.5%
Institutional:						
Rate, \$/HCF	\$5.13	\$5.55	\$5.74	\$5.94	\$6.15	\$6.36
% Increase		8.1%	3.5%	3.5%	3.5%	3.5%
Irrigation:						
Irrigation rate, \$/HCF	\$5.13	\$5.55	\$5.74	\$5.94	\$6.15	\$6.36
% Increase		8.1%	3.5%	3.5%	3.5%	3.5%
Ed Levin Park:						
Ed Levin rate, \$/HCF	\$3.79	\$4.10	\$4.10	\$4.10	\$4.10	\$4.47
% Increase		8.2%	0.0%	0.0%	0.0%	9.0%
CITY Domestic Accounts:						
CITY Domestic Rate, \$/HCF	\$5.13	\$5.55	\$5.74	\$5.94	\$6.15	\$6.36
% Increase		8.1%	3.5%	3.5%	3.5%	3.5%
CITY Irrigation Accounts:						
CITY Irrigation rate, \$/HCF	\$5.13	\$5.55	\$5.74	\$5.94	\$6.15	\$6.36
% Increase		8.1%	3.5%	3.5%	3.5%	3.5%

Recycled Water

Irrigation (Piped):						
Recycled Irrigation rate, \$/HCF	\$2.78	\$3.17	\$3.28	\$3.39	\$3.51	\$3.63
% Increase		13.8%	3.5%	3.5%	3.5%	3.5%
Industrial Process Use						
Recycled Industrial rate, \$/HCF	\$2.78	\$3.17	\$3.28	\$3.39	\$3.51	\$3.63
% Increase		13.8%	3.5%	3.5%	3.5%	3.5%
City of Milpitas - Irrigation Recycled						
Recycled Irrigation rate, \$/HCF	\$2.78	\$3.17	\$3.28	\$3.39	\$3.51	\$3.63
% Increase		13.8%	3.5%	3.5%	3.5%	3.5%
Capital Surcharge (Potable Use)						
	\$1.30	\$1.40	\$1.45	\$1.50	\$1.55	\$1.60
		7.5%	3.5%	3.5%	3.5%	3.5%

Appendix C
City of Milpitas - Water Rate Study
Table 5 - Water Sales Revenue

Potable Water	17/18 Projected	18/19 Projected	19/20 Projected	20/21 Projected	21/22 Projected	22/23 Projected
Single Family Residential:						
Tier 1 (0 - 14)		\$4,019,127	\$4,242,992	\$4,435,412	\$4,636,558	\$4,834,829
Tier 2 (>14)		2,205,102	2,327,927	2,433,498	2,543,857	2,652,639
Subtotal: Single Family Residential	\$5,699,484	6,224,229	6,570,919	6,868,910	7,180,415	7,487,468
% Increase	2.0%	9.2%	5.6%	4.5%	4.5%	4.3%
Multi Family Residential:						
Tier 1 (0 - 10)		2,524,980	2,665,621	2,786,507	2,912,875	3,037,437
Tier 2 (>10)		1,541,366	1,627,220	1,701,015	1,778,156	1,854,194
Subtotal: Multi Family Residential	3,688,031	4,066,346	4,292,842	4,487,522	4,691,031	4,891,631
% Increase	2.0%	10.3%	5.6%	4.5%	4.5%	4.3%
Subtotal: Residential Revenue	9,387,515	10,290,576	10,863,761	11,356,432	11,871,447	12,379,099
% Increase	2.0%	9.6%	5.6%	4.5%	4.5%	4.3%
Commercial:						
	2,836,901	3,127,909	3,302,133	3,451,885	3,608,428	3,762,733
% Increase	2.0%	10.3%	5.6%	4.5%	4.5%	4.3%
Industrial:						
	2,575,109	2,839,262	2,997,409	3,133,341	3,275,438	3,415,504
% Increase	2.0%	10.3%	5.6%	4.5%	4.5%	4.3%
Institutional:						
	543,364	599,102	632,471	661,154	691,137	720,692
% Increase	2.0%	10.3%	5.6%	4.5%	4.5%	4.3%
Irrigation:						
	1,431,216	1,578,029	1,665,925	1,741,474	1,820,450	1,898,297
% Increase	2.0%	10.3%	5.6%	4.5%	4.5%	4.3%
Ed Levin Park:						
	13,039	14,388	14,676	14,823	14,971	16,444
% Increase	2.0%	10.3%	2.0%	1.0%	1.0%	9.8%
CITY Domestic Accounts:						
	64,895	71,552	75,537	78,963	82,544	86,073
% Increase	2.0%	10.3%	5.6%	4.5%	4.5%	4.3%
CITY Irrigation Accounts:						
	529,450	583,761	616,276	644,224	673,440	702,238
% Increase	2.0%	10.3%	5.6%	4.5%	4.5%	4.3%
Subtotal: Potable Revenue	17,381,488	19,104,577	20,168,188	21,082,296	22,037,854	22,981,081
% Increase	2.0%	9.9%	5.6%	4.5%	4.5%	4.3%

Recycled Water

Irrigation (Piped):						
	1,212,488	1,380,414	1,428,729	1,478,734	1,530,490	1,584,057
% Increase	36.0%	13.8%	3.5%	3.5%	3.5%	3.5%
Industrial Process Use						
	990	1,127	1,167	1,208	1,250	1,294
% Increase	36.0%	13.8%	3.5%	3.5%	3.5%	3.5%
City of Milpitas - Irrigation Recycled						
	118,584	135,008	139,733	144,624	149,685	154,924
% Increase	36.0%	13.8%	3.5%	3.5%	3.5%	3.5%
Subtotal: Recycled Revenue	1,332,062	1,516,549	1,569,629	1,624,566	1,681,425	1,740,275
% Increase	36.0%	13.8%	3.5%	3.5%	3.5%	3.5%
Total Use Revenue	18,713,550	20,621,126	21,737,816	22,706,862	23,719,280	24,721,357
% Increase	3.8%	10.2%	5.4%	4.5%	4.5%	4.2%
Capital Surcharge Revenue	4,401,361	4,826,093	5,094,906	5,325,960	5,567,492	5,805,572
% Increase	2.0%	9.7%	5.6%	4.5%	4.5%	4.3%

Appendix C
 City of Milpitas - Water Rate Study
 Table 6 - Water Meters

Water Customers

Water Meter Size (inches)	Quantities						Meter Equivalents	
	FY 17/18	FY 18/19	FY 19/20	FY 20/21	FY 21/22	FY 22/23		
All Accts.								
5/8	13,149	13,149	13,149	13,149	13,149	13,149	1.0	13,149
3/4	593	593	593	593	593	593	1.5	890
1	1,443	1,443	1,443	1,443	1,443	1,443	2.5	3,608
1-1/2	617	617	617	617	617	617	5.0	3,085
2	872	872	872	872	872	872	8.0	6,976
3	125	125	125	125	125	125	15.0	1,875
4	82	82	82	82	82	82	25.0	2,050
6 & above	<u>59</u>	<u>59</u>	<u>59</u>	<u>59</u>	<u>59</u>	<u>59</u>	50.0	<u>2,950</u>
Subtotal	16,940	16,940	16,940	16,940	16,940	16,940		34,582

Appendix C
 City of Milpitas - Water Rate Study
 Table 7 - Water Meter Rates

	Actual 17/18	Projected 18/19	Projected 19/20	Projected 20/21	Projected 21/22	Projected 22/23
Rate Increases	0.0%	14.4%	3.5%	3.5%	3.5%	3.5%
All Meters						
5/8	\$19.44	\$22.25	\$23.03	\$23.83	\$24.67	\$25.53
3/4	29.16	\$33.37	\$34.54	\$35.75	\$37.00	\$38.29
1	48.60	\$55.62	\$57.57	\$59.58	\$61.67	\$63.82
1-1/2	97.20	\$111.24	\$115.13	\$119.16	\$123.33	\$127.65
2	155.52	\$177.98	\$184.21	\$190.66	\$197.33	\$204.24
3	291.60	\$333.71	\$345.39	\$357.48	\$370.00	\$382.95
4	486.00	\$556.19	\$575.66	\$595.81	\$616.66	\$638.24
6 & above	972.00	\$1,112.38	\$1,151.32	\$1,191.61	\$1,233.32	\$1,276.48

Appendix C
City of Milpitas - Water Rate Study
Table 8 - Water Meter Revenue

All Water Meters	Projected 17/18	Projected 18/19	Projected 19/20	Projected 20/21	Projected 21/22	Projected 22/23
Meter Size						
5/8	\$1,533,699	\$1,755,206	\$1,816,639	\$1,880,221	\$1,946,029	\$2,014,140
3/4	103,751	118,736	122,891	127,193	131,644	136,252
1	420,779	481,550	498,405	515,849	533,904	552,590
1-1/2	359,834	411,804	426,217	441,135	456,575	472,555
2	813,681	931,198	963,790	997,522	1,032,436	1,068,571
3	218,700	250,286	259,046	268,113	277,497	287,209
4	239,112	273,646	283,224	293,137	303,396	314,015
6 & above	<u>344,088</u>	<u>393,783</u>	<u>407,566</u>	<u>421,831</u>	<u>436,595</u>	<u>451,876</u>
	4,033,644	4,616,210	4,777,777	4,944,999	5,118,074	5,297,207

Appendix C
City of Milpitas - Water Rate Study
Table 9 - Rate Discounts

	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Other Operating Income	\$147,340	\$147,340	\$147,340	\$147,340	\$147,340	\$147,340
Non-rate Revenue Excluded from Offsets						
Ed Levin Discount	9,083	9,976	11,046	12,065	13,136	12,865
SFR Tier 1 Discount	<u>0</u>	<u>59,904</u>	<u>63,240</u>	<u>66,108</u>	<u>69,106</u>	<u>72,061</u>
	9,083	69,880	74,286	78,173	82,243	84,926

Appendix C
City of Milpitas - Water Rate Study
Table 10 - Projected Water Service Revenues

Projected Revenues	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Capital Surcharges	\$4,315,060	\$4,401,361	\$4,826,093	\$5,094,906	\$5,325,960	\$5,567,492	\$5,805,572
<i>% Increase</i>		2.00%	9.65%	5.57%	4.53%	4.54%	4.28%
Water Meter Charges	4,033,644	4,033,644	4,616,210	4,777,777	4,944,999	5,118,074	5,297,207
<i>% Increase</i>		0.00%	14.44%	3.50%	3.50%	3.50%	3.50%
Potable Water Volumetric Charges	17,040,675	17,381,488	19,104,577	20,168,188	21,082,296	22,037,854	22,981,081
<i>% Increase</i>		2.00%	9.91%	5.57%	4.53%	4.53%	4.28%
Recycled Water Volumetric Charges	979,714	1,332,062	1,516,549	1,569,629	1,624,566	1,681,425	1,740,275
<i>% Increase</i>		35.96%	13.85%	3.50%	3.50%	3.50%	3.50%
	26,369,093	27,148,556	30,063,429	31,610,500	32,977,821	34,404,847	35,824,136
<i>% Increase</i>		2.96%	10.74%	5.15%	4.33%	4.33%	4.13%

APPENDIX D – WATER USE CUTBACK SCENARIOS

BWA projected several water use cutback scenarios. Milpitas potable water use dropped from over 4 million hcf in FY 2013/14 to a low of 3.245 million hcf in FY 2015/16. Use has rebounded slightly as the regional drought has lifted, and BWA projects a 2% per year increase in use through 2019/20, with 1% increases thereafter.

BWA examined several overall cutback scenarios from projected FY 2017/18 use, shown in **Table 1**. Based on BWA’s analysis, the impact of implementing residential tiers would be an 8% to 9% increase in lost revenue during a cutback in use.

Appendix D
 City of Milpitas - Water Rate Study
 Table 1 - Projected Cutback Impacts

Uniform Rate Scenario

Use Reduction % in 2018/19	Potable Units Sold (hcf)	Capital Surcharges	Potable Water Volumetric Charges	Total
5%	3,219,648	-\$331,202	-\$1,255,306	-\$1,586,508
10%	3,050,193	-\$567,776	-\$2,194,741	-\$2,762,517
20%	2,711,282	-\$1,040,922	-\$4,073,612	-\$5,114,534

Tier Rate Scenario*

Use Reduction % in 2018/19	Potable Units Sold (hcf)	Capital Surcharges	Potable Water Volumetric Charges	Total	Increased Revenue Loss	% Loss Increase
5%	3,219,648	-\$331,202	-\$1,399,845	-\$1,731,048	-\$144,540	9%
10%	3,050,193	-\$567,776	-\$2,425,091	-\$2,992,867	-\$230,350	8%
20%	2,711,282	-\$1,040,922	-\$4,475,583	-\$5,516,505	-\$401,972	8%

*Assumes 2 units of cutback in Tier 2 for every 3 units of cutback