



City of Palo Alto

Utilities Advisory Commission Staff Report

UAC MEETING

December 02, 2020

☒ Received Before Meeting

Staff: Lisa Bilir

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(ID # 10591)

Report Type: Agenda Items

Meeting Date: 12/2/2020

Summary Title: Water Benchmarking

Title: Discussion on Comparison of Water Rates and Average Bills Among Cities Supplied by San Francisco Public Utilities Commission

From: City Manager

Lead Department: Utilities

Recommendation

The purpose of this report is to provide information for the UAC's consideration and discussion about how Palo Alto's water rates and average bills compare to other cities that have the same supplier as Palo Alto. Where Palo Alto's rates are higher, this report provides details about why.

Executive Summary

Palo Alto purchases all its potable water from the San Francisco Public Utilities Commission (SFPUC). Typically, Palo Alto compares its average water bills to neighboring communities, some of which utilize other water sources such as groundwater that do not have the same cost as water from the SFPUC. In spring 2020 the Finance Committee expressed interest in understanding how Palo Alto's water rates compare to other cities that have the same water supply as Palo Alto as well as gaining a detailed understanding of reasons why Palo Alto's rates are higher than others in this group.

There are eight Bay Area cities that obtain 100% of their potable water supply from the SFPUC. Palo Alto's single-family residential and commercial rates are second to lowest among this group. Hayward has lower single-family residential rates while Redwood City has lower commercial rates relative to Palo Alto. Within this group, the utilities with the largest number of customers have the lowest rates. Redwood City has the most similar number of customers to Palo Alto in the group.

The gap between Palo Alto, Redwood City and Hayward's water bills has narrowed over the years. This gap is partially explained by differences in rate design and operating costs. Hayward's costs are lower than Palo Alto's and so are its single-family residential water bills. However, the cost differences are small relative to the bill differences.

A key cost difference between Hayward and Palo Alto is water infrastructure investment costs.

Palo Alto's consistently high water infrastructure investments over the last four decades have led to a reliable water system that is resilient to seismic risks. However, the costs to fund that water infrastructure contribute to Palo Alto's higher costs compared to Hayward.

Water usage differences are also significant contributors to bill and rate differences between Palo Alto, Redwood City and Hayward. Palo Alto has a higher percentage of residential use compared with Hayward. Additionally, Hayward's non-residential usage is increasing while Palo Alto's is decreasing. These consumption differences put more upward pressure on Palo Alto's residential rates relative to Hayward's.

Background

Staff regularly compares Palo Alto's water rates and average bills to those of Redwood City, Mountain View, Menlo Park (Bear Gulch District of California Water Service Company), Hayward, and Santa Clara. This comparison group was selected to show how Palo Alto's total utility bills (including water, electric, gas, and wastewater rates) compare to neighboring communities that Palo Alto residents might instinctively compare themselves to. Palo Alto's single-family residential water bills are 9% higher than the rates in this comparison group and 4-7% higher than commercial water rates among this comparison group. On April 21, 2020, the Finance Committee passed a motion to "direct Staff to provide details as to why Palo Alto's rates are higher than cities with the same supplier at next year's Finance Committee." Within the comparison group listed above, only Redwood City and Hayward receive 100% of their potable supply from SFPUC like Palo Alto.

Discussion

Staff completed an analysis of this question that relied primarily on data from Comprehensive Annual Financial Reports and Bay Area Water Supply and Conservation Agency (BAWSCA) Annual Reports¹ to outline the main factors that contribute to Palo Alto's rates being higher than neighboring cities with the same supplier. The key insights are as follows:

Palo Alto Has Some of the Lowest Rates Among Cities Supplied 100% by SFPUC

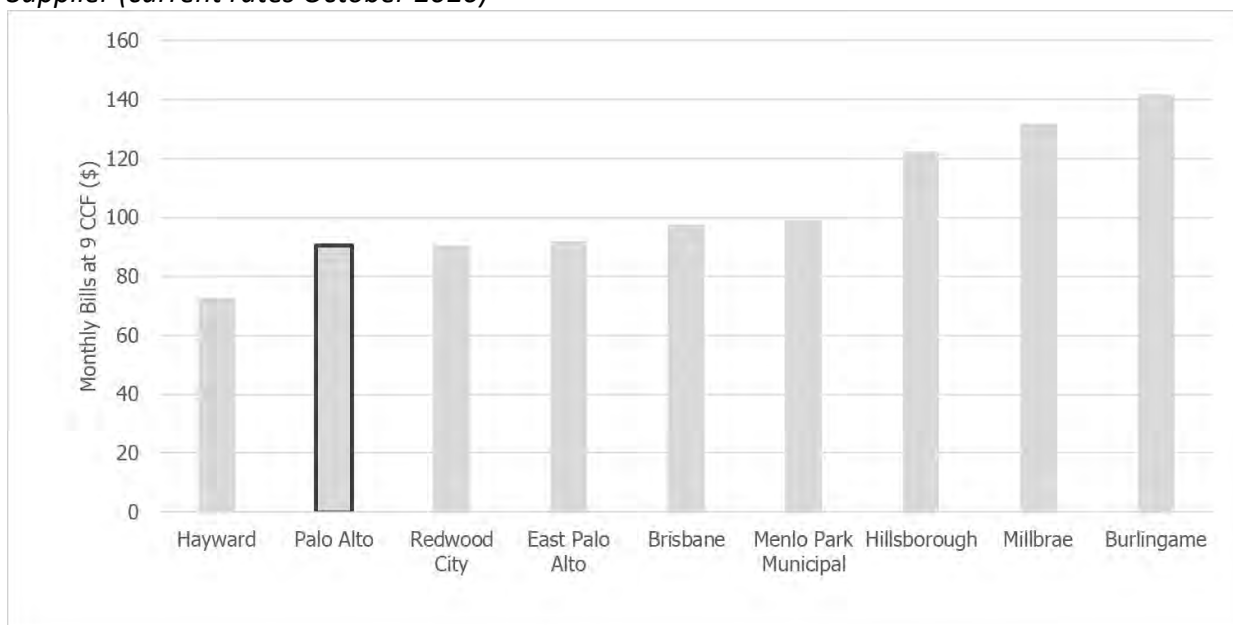
There are 16 total BAWSCA utilities that receive 100% of their potable supply from the San Francisco Regional Water System (SFPUC).² Of those, seven have a different organizational structure than Palo Alto; six are water districts and one is an investor-owned utility. Among Palo Alto and the eight other remaining cities, Palo Alto has the second to lowest single-family

¹ Other sources include budgets (operating and capital), Urban Water Management Plans, and Financial Plans/Rate Studies where available.

² BAWSCA Annual Report Table 2A, Brisbane, Burlingame, California Water Service, East Palo Alto, Estero MID, Guadalupe Valley MID, Hillsborough, Menlo Park, Mid-Peninsula WD, Millbrae, North Coast CWD, Palo Alto, Redwood City, Westborough WD, Purissima Hills, Hayward.

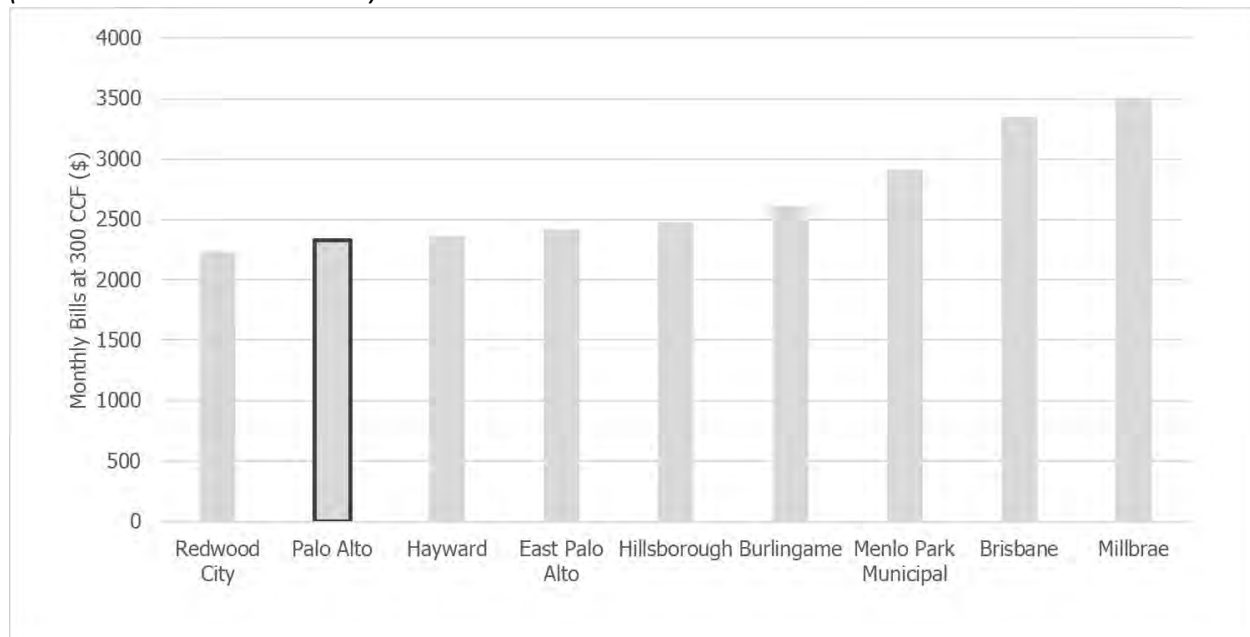
residential average bills.³ Coincidentally, the only other city in this group with lower single-family residential average bills is Hayward, one of the Palo Alto's comparison cities. The only other city in this group with lower commercial average bills is Redwood City, also one of the Palo Alto's comparison cities. Redwood City's single-family bills at a usage level of 9 CCF (hundred cubic feet) per month are similar to Palo Alto's while its commercial bills are lower than Palo Alto's at a usage level of 300 CCF per month. Figure 1 and 2 below summarize the average bills in this comparison group.

Figure 1: Single-Family Residential Monthly Average Bills at 9 CCF Among Cities With The Same Supplier (current rates October 2020)



³ Comparison calculated at 9 CCF per month per customer.

Figure 2: Commercial Monthly Average Bills at 300 CCF Among Cities With The Same Supplier (current rates October 2020)



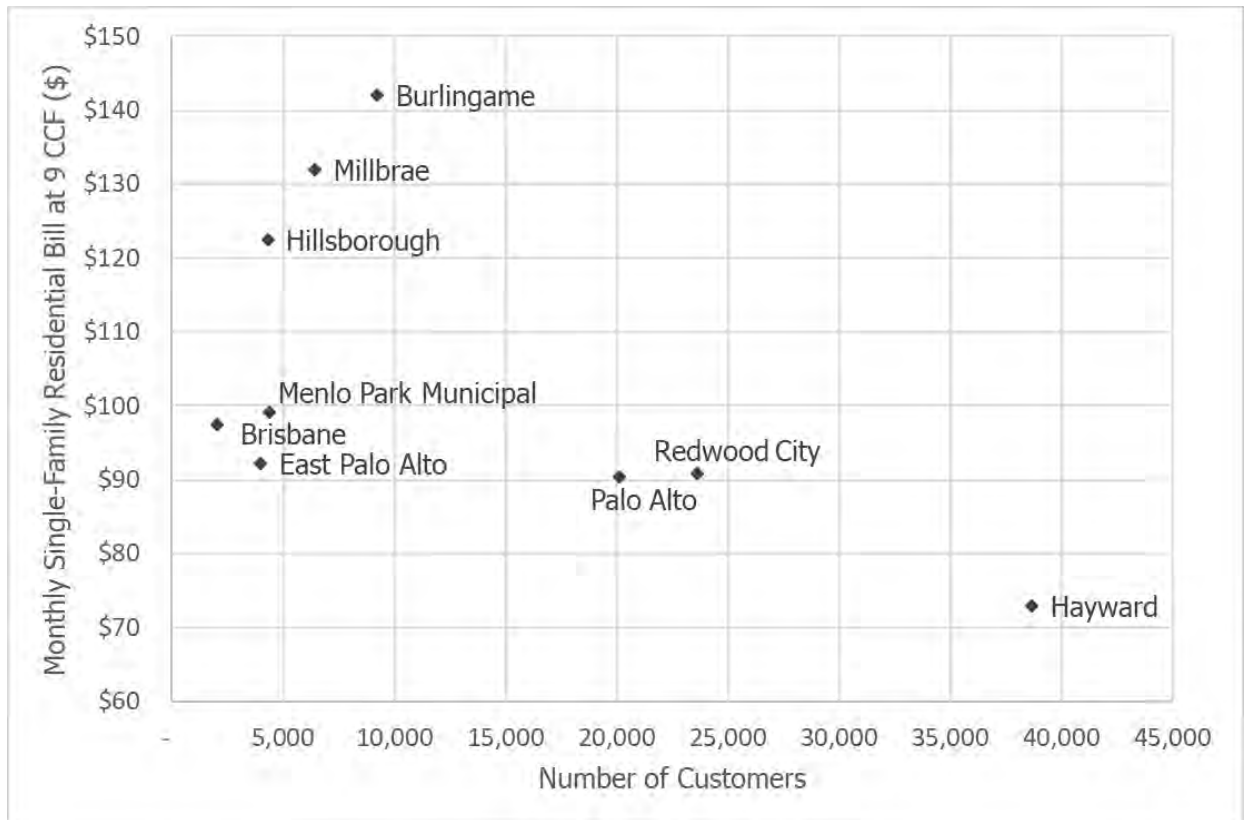
Palo Alto has lower single-family residential average bills at 9 CCF than Redwood City and lower commercial bills than Hayward (at usage levels above approximately 250 CCF/month).⁴

The Largest Cities Supplied 100% by SFPUC Have the Lowest Rates

For cities supplied by the SFPUC for 100% of their potable water supply, the larger cities have lower rates and bills.

Figure 3: Single-Family Residential Bill at 9 CCF Compared to Number of Customers for Cities Supplied 100% by SFPUC

⁴ Redwood City provided a 3% credit to all customers billed in the months of July, August, September and October due to the ongoing pandemic. The credit is not reflected in these charts.



Palo Alto, Redwood City, and Hayward benefit from economies of scale (relative to the other cities supplied 100% by SFPUC). Palo Alto has more than twice as many customers as most of the comparison cities in this group. Hayward has almost twice as many customers as Palo Alto. Redwood City is the most similar in size to Palo Alto among the cities supplied 100% by SFPUC.

This report focuses on Hayward and Redwood City to detail some of the other key differences that contribute to making their water bills at average usage levels lower than Palo Alto's for single-family residential and commercial customers, respectively.

Rate Design Contributes to the Differences in Rates and Bills

Palo Alto's monthly water service charges for single-family residential and commercial customer groups are in between those of Redwood City and Hayward (Table 1).

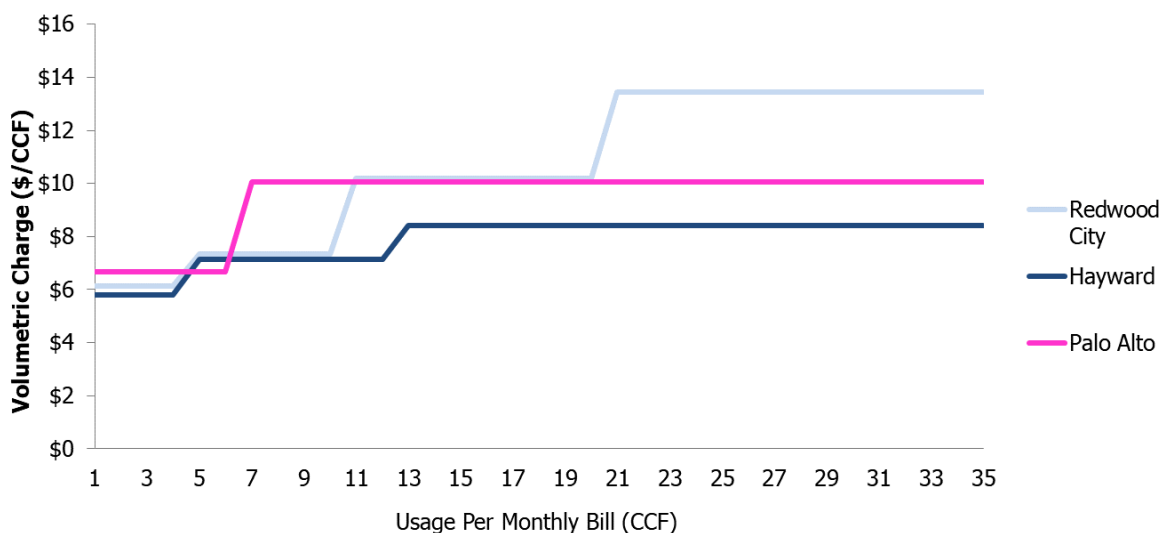
Table 1: Service Charges (Monthly Equivalent for 5/8" Meter)

	Single-Family Residential	Commercial
Palo Alto	\$20.25	\$17.71
Redwood City	\$29.52	\$29.52
Hayward	\$14.00	\$14.00

Figures 4 and 5 summarize the single-family residential and commercial quantity rates. Hayward has three tiers, Redwood City has four tiers and Palo Alto has two tiers for single-family residential customers. Hayward and Redwood City each have a small first tier that provides for 4 CCF of usage per month at the lowest rate per CCF. Palo Alto's first tier provides for 6 CCF of usage but at a higher rate.

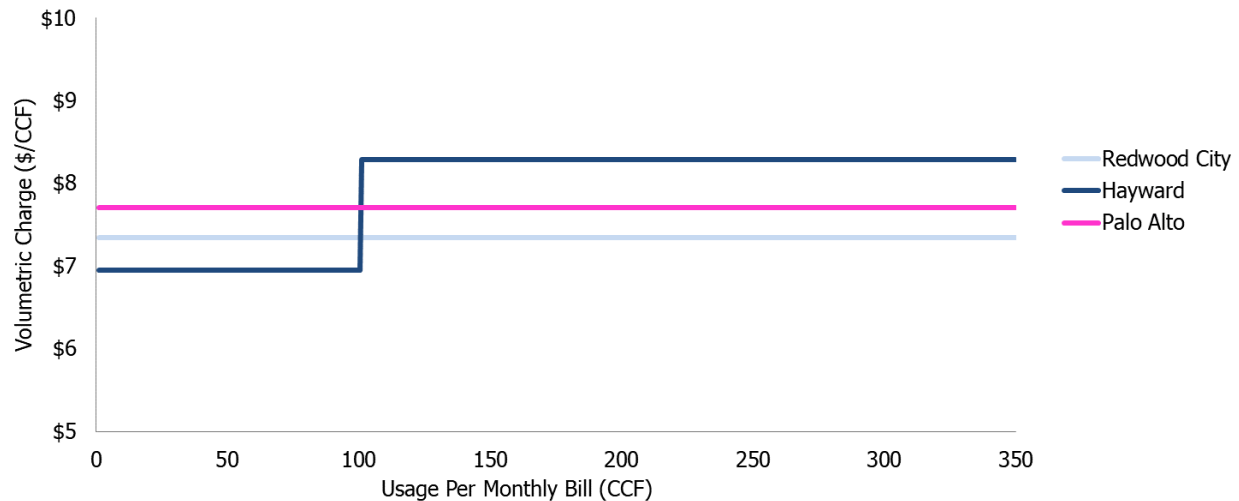
Hayward and Redwood City's lowest first tier together with Hayward's low monthly service charge contribute to Hayward and Redwood City's lower bills for low-use customers.

Figure 4: Single-Family Residential Volumetric Rates



Redwood City and Palo Alto have uniform volumetric rates for commercial customers. Hayward has a tiered rate with a lower tier for usage up to 100 CCF per month. There is no true average commercial usage because the customer class is heterogenous. However, this report uses 300 CCF as the quantity for bill comparisons; a large restaurant could use this much water.

Figure 5: Commercial Volumetric Rates



Palo Alto, Redwood City and Hayward each have different rate designs including the number of tiers, width of each tier and amounts charged for monthly service. Each city's pricing structure is specific to their customers and cost factors. These differences in rate design contribute to Palo Alto's higher bills.

The Gap Between Palo Alto, Redwood City and Hayward's Residential Water Bills Has Narrowed Over the Years

Figures 6 through 8 show how monthly single-family residential bills compare at low, medium and high usage levels across Palo Alto, Hayward and Redwood City annually since 2005.⁵ Hayward and Redwood City's single-family residential bills have grown faster than Palo Alto's bills which has narrowed the gap over the years. Because several factors go into calculating a water bill, the difference between cities varies by customer class, by quantity of water used and over time.

At low usage (4 CCF/month), Hayward's single-family residential water bills are lower than Palo Alto's and have been lower than Palo Alto's bills for approximately 15 years.

⁵ Redwood City and Hayward bill single-family residential customers bimonthly while Palo Alto bills customers monthly; these charts show a monthly bill equivalent for Hayward and Redwood City.

Figure 6: Single-Family Monthly Residential Bill Comparison at 4 CCF of Water Usage

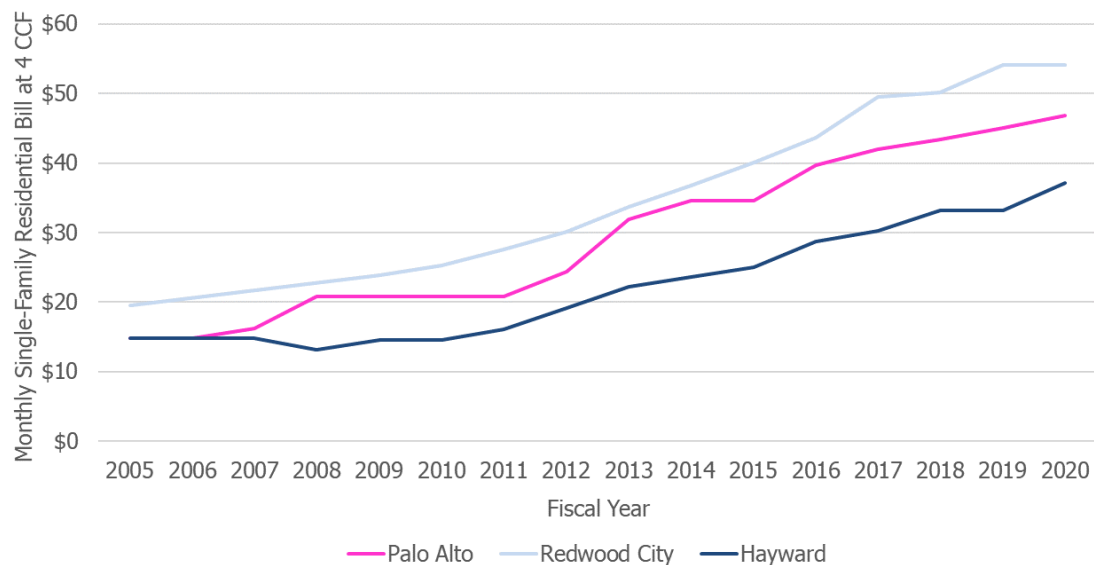
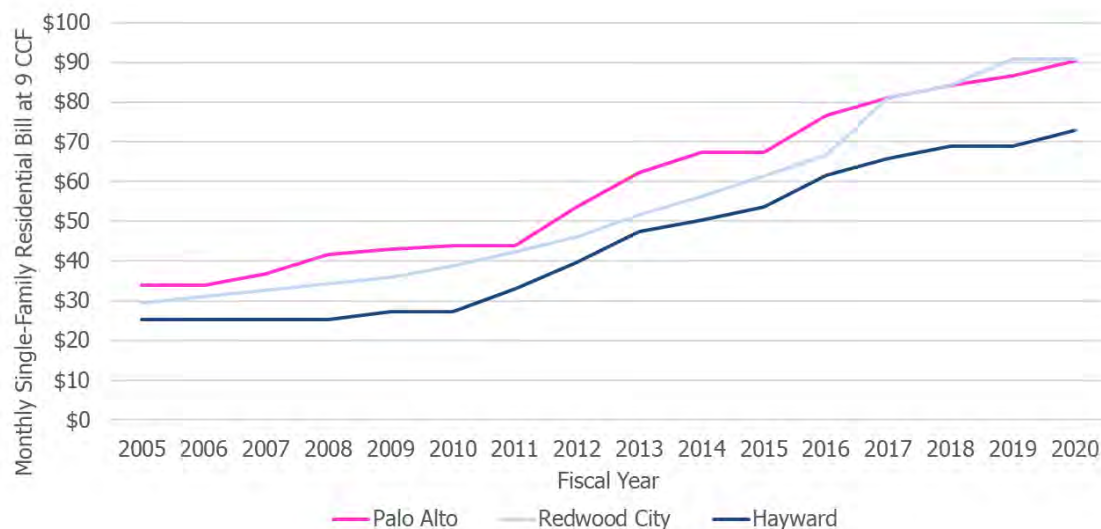


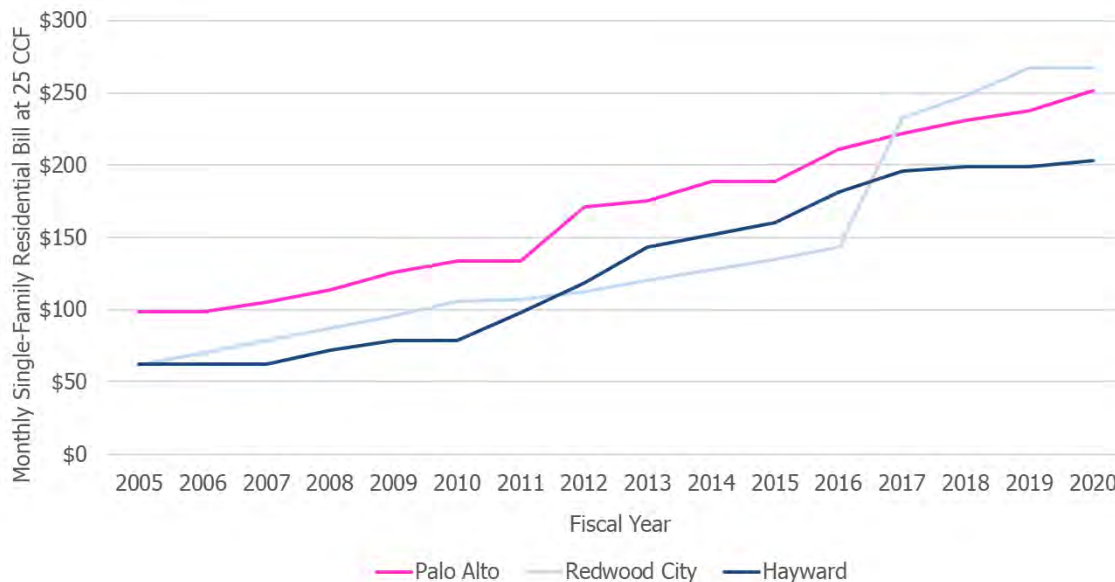
Figure 7: Single-Family Monthly Residential Bill Comparison at 9 CCF of Water Usage



At 9 CCF, Palo Alto's bills used to be higher than Redwood City's but since 2017 have reached parity with Redwood City. Hayward's water bills have consistently been lower than Palo Alto's. The dollar difference between Palo Alto and Hayward's single-family monthly bill at 9 CCF has remained approximately the same throughout this time period. However, the percentage difference between Palo Alto and Hayward's bills has declined substantially; Palo Alto's bills in this category are now approximately 24% higher than Hayward's while Palo Alto's bills used to be approximately 60% higher than Hayward's.

At higher usage of 25 CCF/month, Hayward’s single-family residential bills are lower than Palo Alto’s; Redwood City’s single-family residential bills were lower than Palo Alto’s until around 2017 when Redwood City began charging more for higher single-family residential use (including lowering breakpoints between volumetric tiers for single-family residential customers). Figure 8 shows these differences.

Figure 8: Single-Family Monthly Residential Bill Comparison at 25 CCF of Water Usage



Bill comparisons can be dynamic across years and usage levels. For simplicity, this report uses 9 CCF per month for comparisons of single-family residential bills across cities. For more reference information about each of the cities see Attachments A and B. Attachment A shows a map of the service areas and Attachment B shows a table comparing water utility characteristics.

Hayward and Redwood City’s rates have been growing at a rate faster than Palo Alto’s over the years, so the gap between Palo Alto, Hayward and Redwood City’s rates have narrowed.

Differences in Operating Costs Explain Some of the Gap

Focusing on operating costs can provide key insights but does not explain the majority of the differences in average bills among Palo Alto and neighboring cities with the same water supply. Average operating cost as well as growth in operating costs over the past decade only explains some of the gap between Palo Alto, Hayward and Redwood City.

Dividing operating revenue for the water utility by the volume of water purchased from SFPUC, derives a proxy for average cost per CCF as shown in Table 2.

Table 2: Average Cost (FY 2019) and Average Bills (FY 2020)

	Palo Alto	Redwood City	Redwood City Difference to Palo Alto		Hayward	Hayward Difference to Palo Alto	
			\$	%		\$	%
Average Operating Cost of Water per CCF*	\$9.90	\$11.41	\$1.51	15.3%	\$9.33	-\$0.57	-5.8%
Average Single-Family Residential bill at 9 CCF/month	\$90.42	\$90.79	\$0.37	0.4%	\$72.90	-\$17.52	-19.4%
Average Commercial bill at 300 CCF/month	\$2,330.71	\$2,234.52	-\$17.52	-4.1%	\$2,367	\$36.29	1.6%

* Operating Revenue (\$) / Water Purchases from SFPUC (CCF)

Hayward's average cost of water per CCF is 5.8% lower than Palo Alto's. Hayward's average single-family residential bills are also lower. However, the cost differences are small relative to the single-family residential bill differences. Redwood City's average cost of water per CCF is 15.3% higher than Palo Alto's and Redwood City's single-family residential bills are also higher. The cost differences are greater than the bill differences between Redwood City and Palo Alto.

From 2009-2018, Palo Alto's single-family residential bills have increased on average by 7.8% annually. Hayward and Redwood City have experienced even more upward pressure with average bills rising by 10-10.9% annually during the same time period. Purchased water costs across these cities grew at 13% annually during this same time period and is a key reason why rates have increased.⁶ However, this factor is similar across the three cities and does not explain the differences in the average bills or the different growth in rates. Table 3 illustrates average annual cost trends.

⁶ A key cost driver for purchased water costs is the Water Supply Improvement Program, an approximately \$4.8 billion dollar capital improvement program designed to improve reliability and improve seismic safety of the SFPUC Regional Water System.

Table 3: Average Annual Changes FY 2009-2018

	Palo Alto	Redwood City	Hayward
Single-Family Residential Bill (9 CCF)	7.8%	10.0%	10.9%
Operating Cost* / CCF Water Purchased	6.3%	6.6%	8.4%
Purchased Water Cost / CCF Water Purchased**	13.1%	13.6%	12.5%

** Other than Purchased Water and Depreciation Expense*

*** Average annual changes include minor variations due to different timing across datasets leading to slight percentage differences*

Operating cost (other than purchased water costs) grew on average in each city over the same time period but not as much as bills. Because operating expense is not increasing as quickly as average bills, operating expense is not a key driver of growth in Palo Alto's rates and bills relative to the other cities.

Understanding operating cost differences explains only part of the reason for the bill differences across cities. Purchased water cost is an important cost driver increasing rates in Palo Alto, Redwood City and Hayward. However, it is not driving the differences in bills across the cities. Other operating costs are not a key driver of growth in bills in Palo Alto, Hayward, and Redwood City.

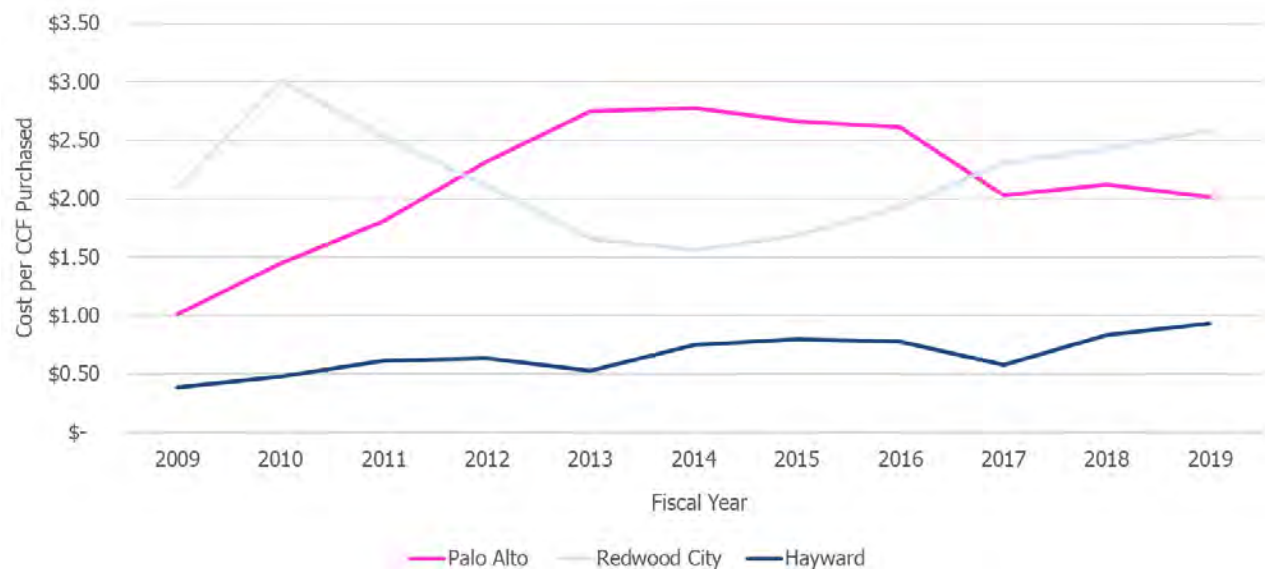
Palo Alto's Water Infrastructure Investments Increase Water Rates Relative To Hayward

Palo Alto began consistently investing in water infrastructure in the 1990s when leak rates rose significantly. This investment has helped greatly and Palo Alto has low leak rates. Palo Alto's consistent investments in water infrastructure, including emergency wells and reservoir have made the water distribution system resilient to water emergencies and seismic events.

Palo Alto and Redwood City have more capital assets serving water customers relative to Hayward per CCF of water purchased. Palo Alto and Redwood City each have nearly \$40 in water-related capital assets for each CCF of water that enters the system. Hayward has approximately \$23 in water-related capital assets for each CCF of water that enter Hayward's system. Palo Alto and Redwood City's water rates reflect these higher infrastructure investments.

Figure 9 shows this difference by combining acquisition and construction costs with interest and principal on long term debt.

Figure 9: Three Year Moving Average of Acquisition and Construction of Capital Assets and Interest and Principal on Long Term Debt per CCF Purchased



Palo Alto and Redwood City’s customers fund more water system capital investment annually than Hayward. Palo Alto and Redwood City’s water costs are between approximately \$2.00 and \$2.50 per CCF while Hayward’s water capital costs are approaching \$1.00 per CCF. On a 9 CCF monthly bill, this difference is approximately \$9.00 to \$13.50. This is a primary factor contributing to Palo Alto and Redwood City’s higher bills relative to Hayward’s.

Usage Differences Contribute to Bill Differences

Table 4 summarizes the usage for residential customers in 2010 and 2019. Palo Alto and Redwood City both have a higher portion of residential water use than Hayward and the portion of residential water use is increasing over time for Redwood City and Palo Alto.

Table 4: Residential Potable Water Usage

	2010	2019	Change (2010 to 2019)
Palo Alto	58%	63%	5%
Redwood City	68%	70%	2%
Hayward	61%	55%	-6%

Source: BAWSCA Annual Surveys

Because Palo Alto’s residential customer class collectively uses a larger percentage of the city’s water, this customer class is responsible for paying for a larger portion of the costs. Hayward’s single-family residential customers on average use 6.4 CCF per month while Palo Alto’s average is 10.9, or 70% more than Hayward. This high consumption contributes to Palo Alto’s higher residential bills.

Similarly, Redwood City's lower portion of usage among non-residential customers relieves upward pressure on Redwood City's non-residential rates and average bills relative to Palo Alto.

Additionally, Hayward's non-residential customer class increased its water consumption by 10% since 2010 while Palo Alto's non-residential customer class decreased its water consumption by 8% over the same time period. Hayward's growth in the non-residential sector means that the sector collectively is responsible for paying a larger portion of the costs which relieves some of the upward pressure on residential rates relative to Palo Alto.

Palo Alto's residents use more water on average and this contributes to their higher bills. Hayward's higher portion of usage and increasing usage among non-residential customers relieves upward pressure on Hayward's single-family residential rates and bills relative to Palo Alto.

Next Steps

Staff will review this analysis with the new Finance Committee in 2021. After hearing Finance Committee feedback, staff will determine what additional steps to take based on this analysis.

Resource Impacts

This analysis does not involve resource impacts beyond those already expended. Should Palo Alto pursue further analysis or changes to utilities operating practices, it could require additional staff time or consultant expenditure that would be absorbed within existing budgets.

Policy Implications

This report implements Finance Committee policy direction to evaluate differences between Palo Alto customer water bills and those of neighboring agencies, and is consistent with Utilities Strategic Plan Priority 4 (Finance and Resource Optimization) specifically the Key Performance Indicator (KPI) that states "Maintain average (e.g. median) or below residential and commercial utility bills as compared to surrounding utilities and communities." While this KPI refers to the total utility bill (which is lower in Palo Alto than in surrounding communities), examining how Palo Alto's water bills compare to those of neighboring agencies helps provide information that can be used to maintain compliance with this KPI and improve on it. And, of course, Palo Alto's utilities staff strives to maintain a low cost of utility services compared to surrounding communities in all services, not just for the utility bill overall, and this analysis provides information that can be used to help make progress toward that goal for the water utility.

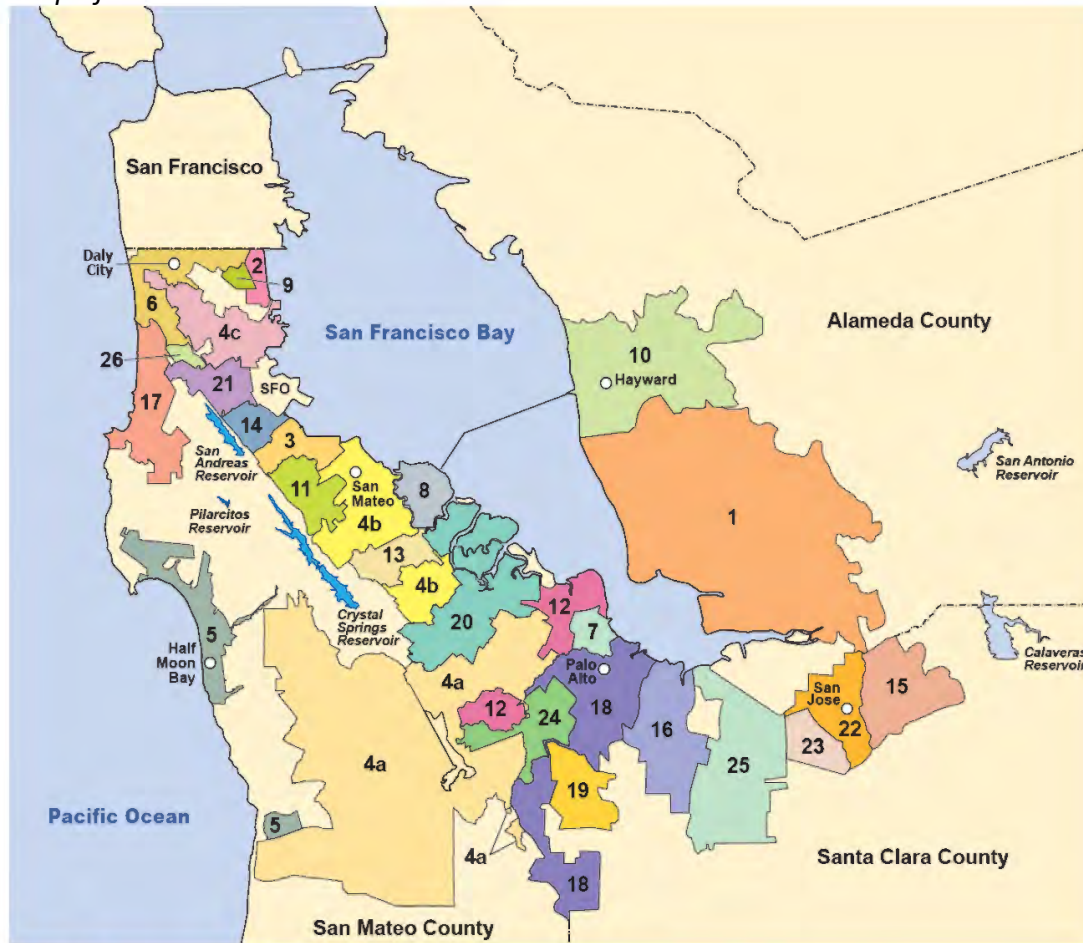
Environmental Review

This benchmarking analysis is not a Project requiring California Environmental Quality Act review, as an administrative activity that will not result in direct or indirect physical changes in the environment (14 CCR Section 15378(b)(5)).

Attachments:

- Attachment A: Map of Service Areas
- Attachment B: Water Utility Characteristics
- Attachment C: Presentation

Map of Service Areas



Legend

- | | |
|---|--------------------------------------|
| 1 Alameda County Water District | 13 Mid-Peninsula Water District |
| 2 City of Brisbane | 14 City of Millbrae |
| 3 City of Burlingame | 15 City of Milpitas |
| 4a CWS – Bear Gulch | 16 City of Mountain View |
| 4b CWS – Mid-Peninsula | 17 North Coast County Water District |
| 4c CWS – South San Francisco | 18 City of Palo Alto |
| 5 Coastside County Water District | 19 Purissima Hills Water District |
| 6 City of Daly City | 20 City of Redwood City |
| 7 City of East Palo Alto | 21 City of San Bruno |
| 8 Estero Municipal Improvement District | 22 San Jose Municipal Water System |
| 9 Guadalupe Valley MID | 23 City of Santa Clara |
| 10 City of Hayward | 24 Stanford University |
| 11 Town of Hillsborough | 25 City of Sunnyvale |
| 12 City of Menlo Park | 26 Westborough Water District |

Sources: BAWSCA, San Mateo County General Plan

Attachment B*Water Utility Characteristics*

Utility	Customers	SFPUC Water Purchased (MGD), % Potable Supply	Miles of Main	Single-Family Residential Average Monthly Use (CCF)	Single-Family Residential % of Demand
Palo Alto	20,126	9.43, (100%)	236	10.9	41%
Redwood City	23,623	8.08, (100%)	262	7.8	45%
Hayward	38,648	13.98, (100%)	340	6.4	36%
Mountain View	17,489	7.21, (86%)	176	6.8	26%
Cal Water – Bear Gulch	18,559	9.48, (92%)	318	19.7	84%
Santa Clara	25,293	3.03, (19%)	335	9.1	21%



Comparison of Water Rates in Cities Supplied by SFPUC

December 2, 2020

www.cityofpaloalto.org



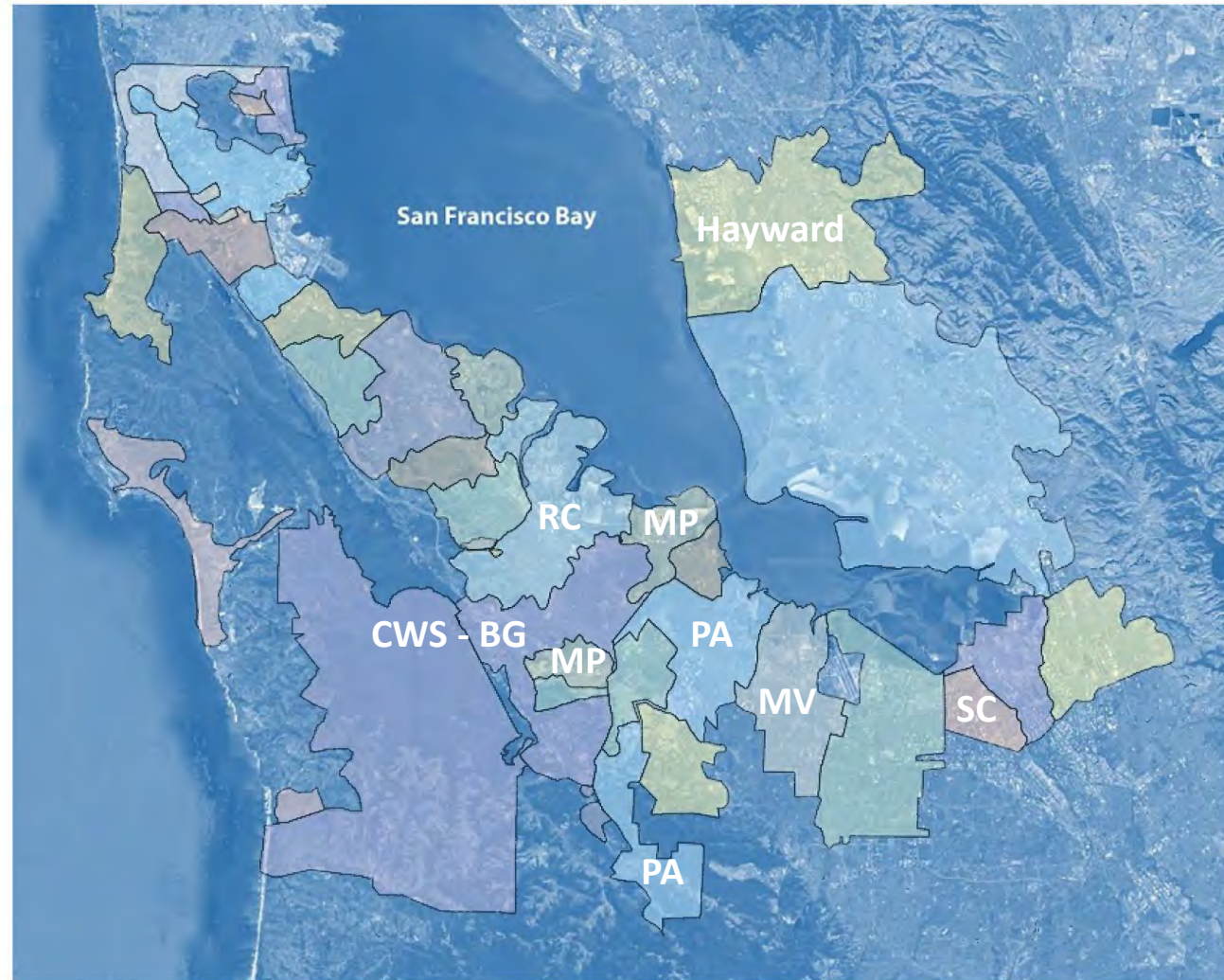
BACKGROUND

Spring 2020 – Finance Committee Adopted a Motion to “Direct Staff to provide details as to why Palo Alto’s rates are higher than cities with the same supplier at next year’s Finance Committee.”

- Analysis completed Summer of 2020
- Also implements Utilities Strategic Plan Priority 4, Action Strategy 2 (Utility Benchmarking)
- Previous benchmarking efforts:
 - 2010 consultant water benchmarking study
 - 2013 water benchmarking study
 - 2014 and 2013 AWWA benchmarking and Organizational Assessments

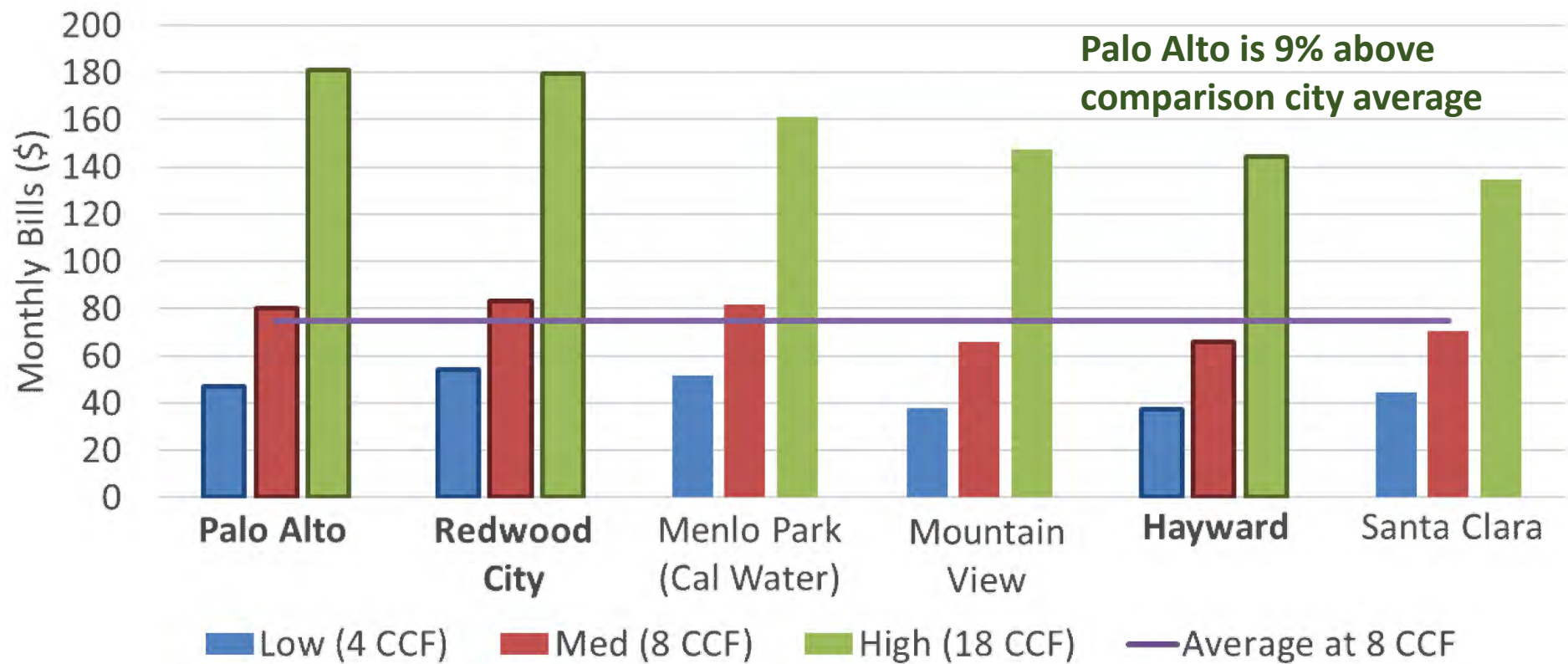
BAWSCA MEMBER AGENCIES

RC: Redwood City
MP: Menlo Park
Municipal
PA: Palo Alto
CWS – BG: California
Water Service,
Bear Gulch
District
MV: Mountain View
SC: Santa Clara



COMPARISON UTILITIES – WATER BILL COMPARISON

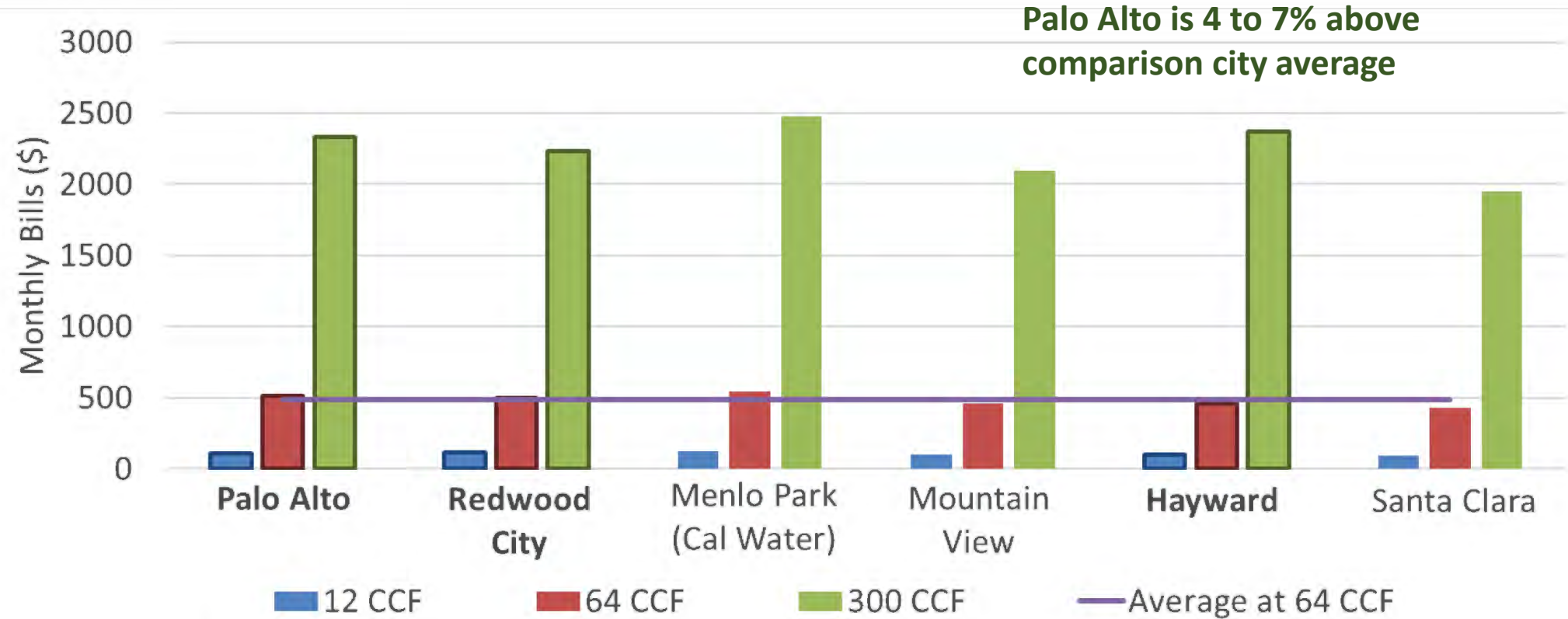
Single-Family Residential



Bold indicates 100% of Water Supply from SFPUC

COMPARISON UTILITIES – WATER BILL COMPARISON

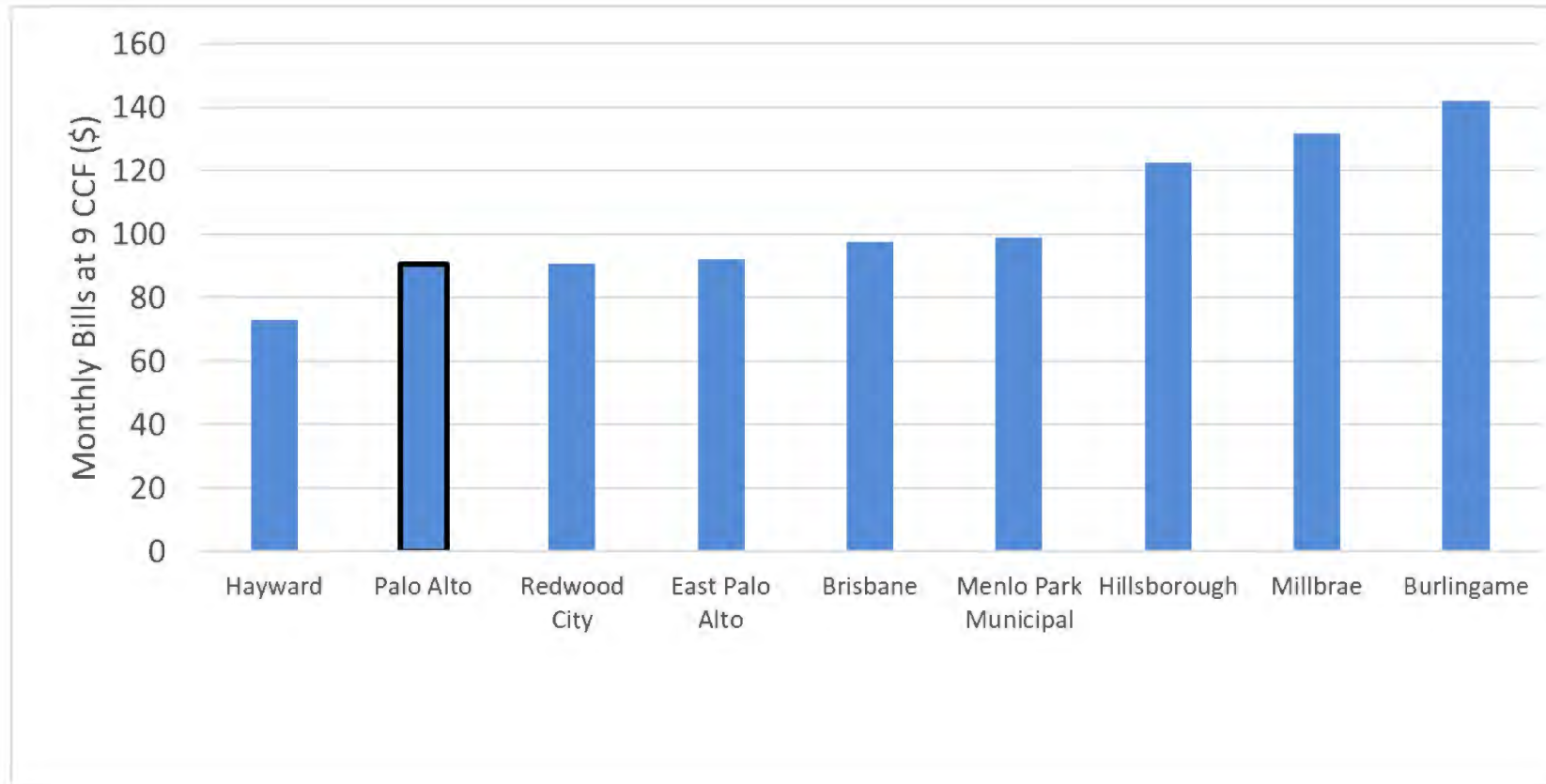
Commercial



Bold indicates 100% of Water Supply from SFPUC

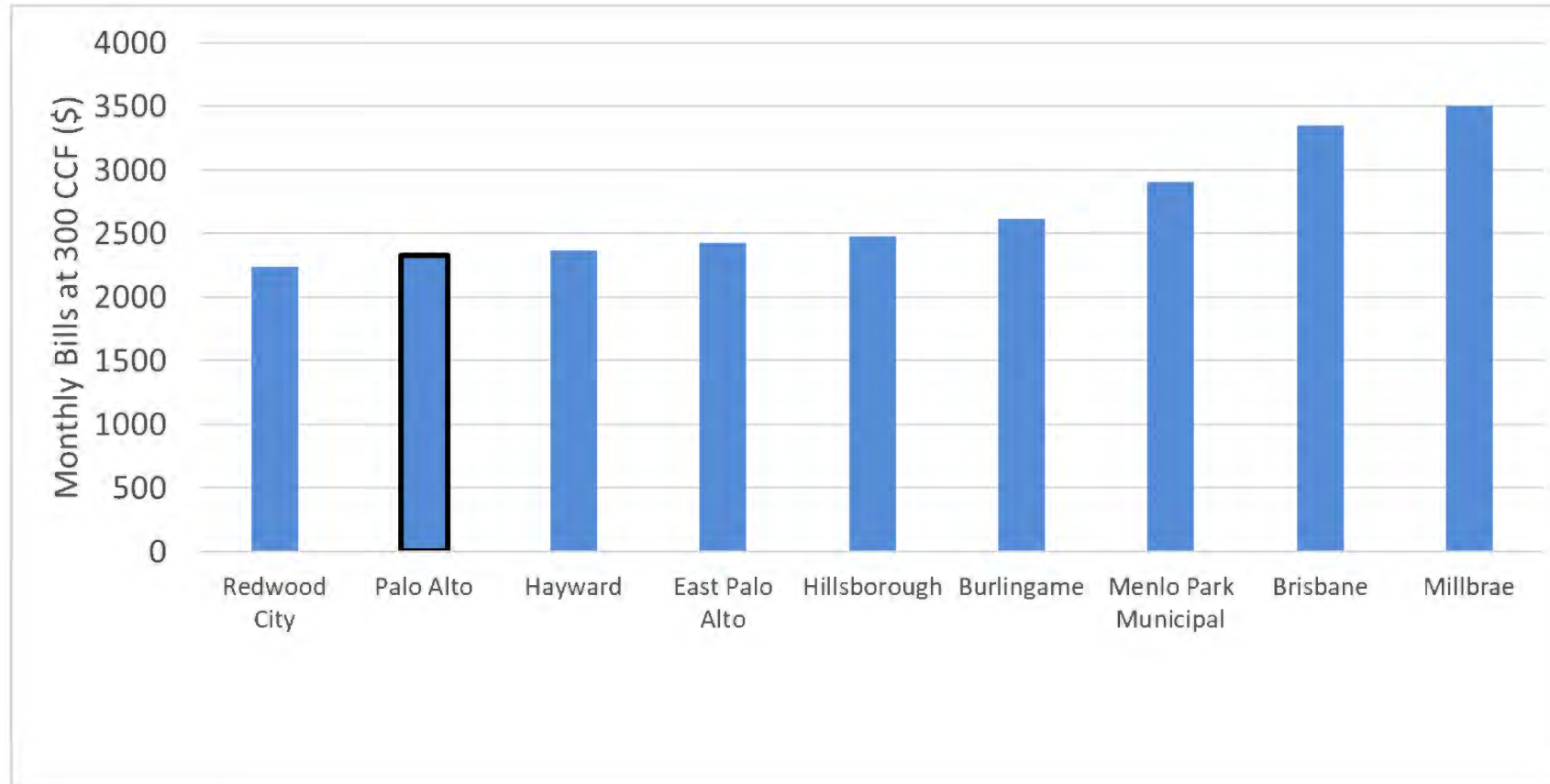
NEIGHBORING CITIES WITH SAME SUPPLIER

Single-Family Residential

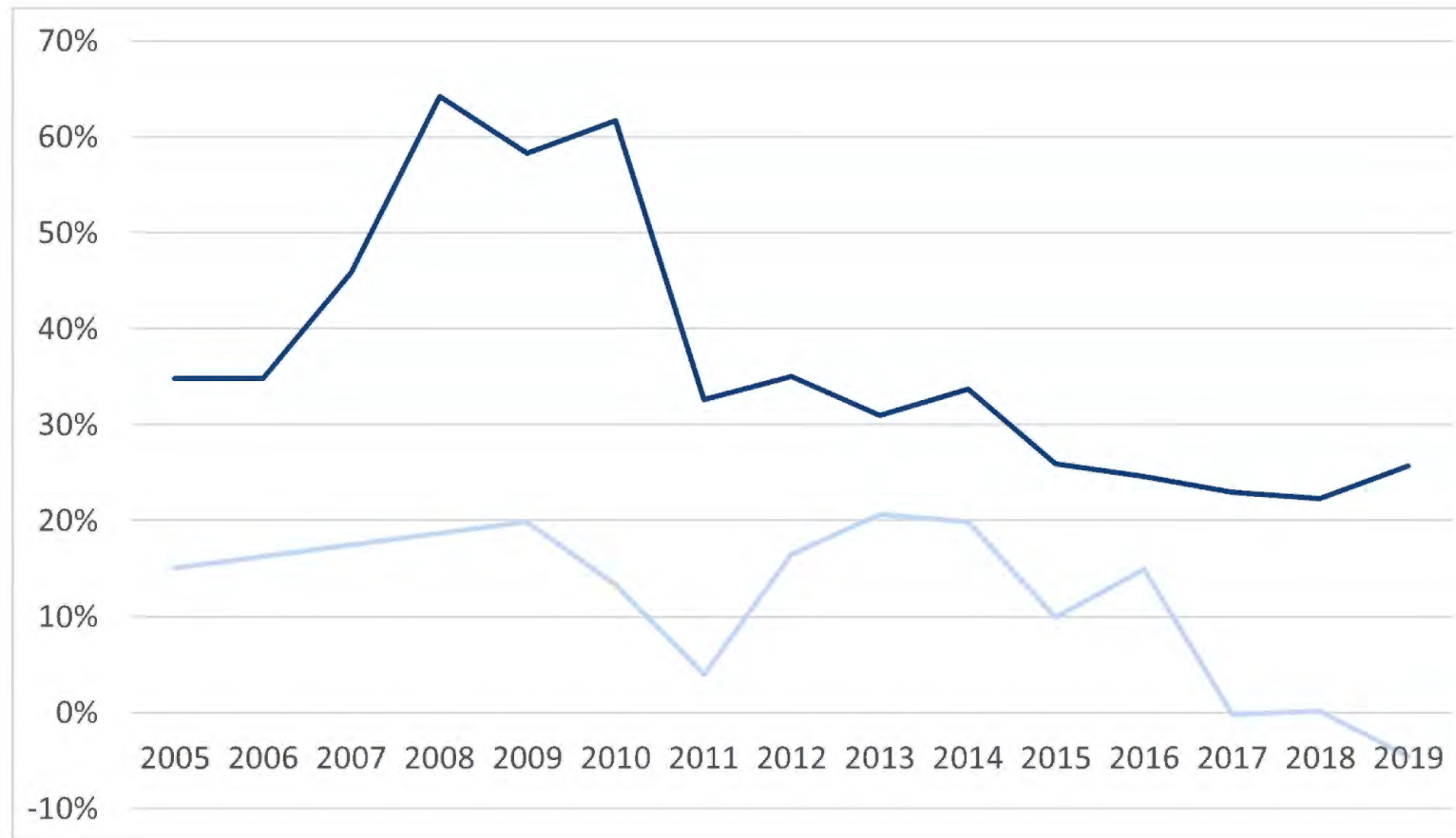


NEIGHBORING CITIES WITH SAME SUPPLIER

Commercial



BILL DIFFERENCES DECREASING



Palo Alto % higher than Hayward

Palo Alto % higher than
Redwood City

Bill differences shown above for single-family residential customers using 9 CCF/month



KEY TAKEAWAYS

- Most of the other Bay Area cities that receive 100% of their potable water supply from SFPUC are smaller than Palo Alto and have higher rates. Hayward and Redwood City are the only two that have lower rates
- The difference between Palo Alto and neighboring cities bills have decreased over the last 10 years; Redwood City's average residential bills are similar to Palo Alto's while Palo Alto's average residential bills are consistently higher than Hayward's
- Operating costs and rate design differences partially explain the gap
- A significant factor increasing Palo Alto and Redwood City's rates relative to Hayward is consistently higher water infrastructure investment
- Hayward's higher portion of usage and increasing usage among non-residential customers relieves upward pressure on Hayward's single-family residential rates & bills relative to Palo Alto