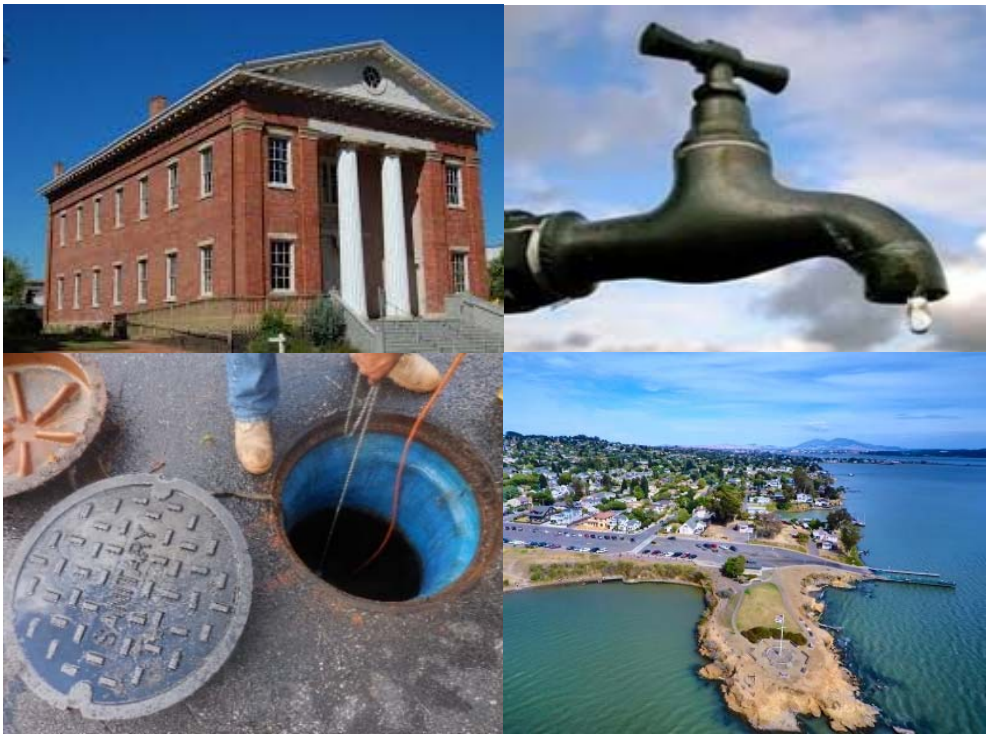
THE CITY OF BENICIA CALIFORNIA



Water & Wastewater Capacity Fee Update

November 2020

BARTLE WELLS ASSOCIATES
INDEPENDENT PUBLIC FINANCE ADVISORS

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November 9, 2020

City of Benicia
250 East L Street
Benicia, CA 94510

Re: Water & Wastewater Capacity Fee Update

Bartle Wells Associates is pleased to submit the attached *Water & Wastewater Capacity Fee Update*. The study develops updated capacity fees designed to equitably recover the costs of water and wastewater system infrastructure benefitting new development. This study was conducted as part of a more comprehensive review and update of all of the City's development impact fees.

Key objectives of the study included developing new capacity fees that recover the costs of capacity in water and wastewater system infrastructure, are fair and equitable to both existing customers and new connections, are based on industry standard methodology, and comply with all legal requirements. The updated capacity charges were developed with substantial input from the City's project team.

I enjoyed working with the City on this assignment and appreciate the ongoing input and assistance received from the City's project team. Please contact me anytime if you have questions about the recommendations presented in this report or other related issues.

Sincerely,

BARTLE WELLS ASSOCIATES

Alex Handlers
Principal/Vice-President

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1. Background & Objectives, Updated Capacity Fees, Fee Surveys & Fee Methodology

Background

The City of Benicia provides water and wastewater utility services to residential and commercial customers within the City's boundaries. The City has a population of roughly 28,000 and approximately 900 commercial, industrial, and institutional utility customers. Benicia is located along the northern shoreline of the Carquinez Straight in southwestern Solano County, approximately 30 miles northeast of San Francisco. The City was incorporated in 1847 and is a General Law City. The City is governed by a 5-member City Council elected at large from the community and operates under a Council/Manager form of government. The water and wastewater utilities operate under the City's Public Works Department.

The City levies water and wastewater development impact fees on new or expanded connections to the water and wastewater systems. These charges are designed to recover the cost of capacity in existing and planned infrastructure that is available to serve new development. This report refers to the City's water and sewer development impact fees as "capacity fees"[1]. The City's water and wastewater capacity charges were last updated in 2016.

Capacity fees are one-time charges, paid up-front as a condition of new development or for redevelopment that results in increased demand for utility service. Capacity charges are separate from the City's rates for water and wastewater service. New connections begin paying the City's water and wastewater rates after they have paid their capacity fees and become ongoing utility customers. Water and sewer capacity fees are governed by California Government Code Section 66013, which states that the fees cannot exceed the estimated reasonable cost of providing the service for which the fee is imposed.

Objectives

Bartle Wells Associates (BWA) was retained to update the City's water and wastewater capacity charges as part of a comprehensive review and update of all of the City's development impact fees being managed by Economic & Planning Systems, Inc.

[1] The City's Municipal Code refers to the wastewater capacity fees as Sewer Capacity Fees, but this report uses the term "wastewater," rather than "sewer," throughout. (See Benicia Municipal Code, § 13.52.040)

Key objectives of the water and wastewater capacity fee updates are to develop new charges that:

- Recover the costs of water and wastewater system infrastructure and assets that benefit new or expanded development to help ensure that growth pays its own way;
- Equitably recover costs based on the new or increased capacity needs of new development or redevelopment;
- Are consistent with industry-standard practices and methodologies;
- Comply with government code.

Government Code

Development impact fees are governed by California Government Code Section 66000 et. seq This section of the Code was initially established by Assembly Bill 1600 (AB 1600) and is commonly referred to as the Mitigation Fee Act. Pursuant to the Code, a development impact fee is not a tax or special assessment, but is, instead, a voluntary charge levied to defray the cost of public facilities needed to serve new development.

Section 66013 of the Code specifically governs water and wastewater capacity charges. This section of the Code defines a "capacity charge" to mean "*a charge for public facilities in existence at the time a charge is imposed or charges for new public facilities to be acquired or constructed in the future that are of proportional benefit to the person or property being charged.*" The Code distinguishes "capacity charges" from "connection fees" which are defined as fees for the physical facilities necessary to make a water or sewer connection, such as costs related to installation of meters and pipelines from a new building to a water or sewer main. This report refers to capacity charges as "capacity fees", in line with the City's Municipal Code.

According to the Section 66013, a water or wastewater capacity charge *"shall not exceed the estimated reasonable cost of providing the service for which the fee or charge is imposed*" unless approved by a two-thirds vote. As such, the capacity fees calculated in this report represent the maximum charges that the City can levy. Section 66013 does not detail any specific methodology for calculating capacity fees.

Section 66016 of the Code identifies the procedural requirements for adopting or increasing water and wastewater capacity charges and Section 66022 summarizes the general process by which the charges can be legally challenged. The full text of Sections 66013, 66016 and 66022 are attached in Appendix C.

Updated Water & Wastewater Capacity Fees

This report develops updated water and wastewater capacity fees designed to equitably recover the costs of facilities and assets benefitting new development. The recommended charges are based on an *average cost approach* under which new or expanded connections would fund their proportionate share of costs (in current dollars) for capacity needed in existing and planned water and wastewater system facilities and assets. Under this approach, new connections pay for their proportionate share of the average cost of facilities needed to meet the demands of the City's service area through projected build-out in 2040.

This report develops updated capacity fees under two scenarios including:

- A **maximum fee scenario** which accounts for a cost recovery factor of 90% of the estimated value of infrastructure benefitting new development. By excluding 10% of the estimated costs of infrastructure, the fee calculation recognizes that the sources of data used to calculate the updated charges are themselves estimates and conservatively excludes cost recovery for facilities that may not provide benefit to new connections.
- A **recommended fee scenario** which recovers 75% of the estimated value of infrastructure benefitting new development and provides additional assurance that the fees do not exceed the estimated reasonable cost of providing water and wastewater capacity to new development as required by California Government Code.

BWA believes that both of these approaches represent reasonable and defensible calculations for facility cost recovery and balance the goals of a) recovering the cost of facilities benefitting new development and b) ensuring that the fees do not exceed the estimated reasonable cost of facilities benefitting growth.

Water Capacity Fees with 75% Cost Recovery

	AWWA Meter Capacity Ratio	Water Demand (gpd)		**Water Capacity Fee**
WATER CAPACITY FEE PER GPD				**$56.1565**
RESIDENTIAL				
Capacity fees per residential dwelling unit				
Single Family [1]		220	per dwelling unit	**$12,354**
Multifamily [2]		150	per dwelling unit	**8,423**
Accessory Dwelling Unit [3]		0.0786	per square foot	**4.41**
NON-RESIDENTIAL				
Capacity fees based on water meter size				
Meter Size				
Up to 3/4-inch [4]	1.00	220		**$12,354**
1-inch [5]	1.67	367		**20,591**
1-1/2-inch	3.33	733		**41,181**
2-inch	5.33	1,173		**65,890**
3-inch	10.00	2,200		**123,544**
4-inch	16.67	3,667		**205,907**
6-inch	33.33	7,333		**411,814**
8-inch	53.33	11,733		**658,903**

The City reserves the authority to determine Capacity Fees for new or expanded connections on a case-by-case basis to help ensure the charges reflect the estimated demand and capacity needs for serving each connection.

Notes:

1 Single Family Residential water demand based on average use per single family home of 224 gpd based on analysis of FY2018/19 water use.

2 Multifamily Residential water demand based on average use per multifamily dwelling unit of 156 gpd based on analysis of FY2018/19 water use.

3 ADU water demand per square feet proportionately based on wastewater demand per single family home assuming a typical new home size of 2,800 square feet based on City Planning Department analysis of development applications over past 5 years. Fees for ADUs are based on square footage in compliance with California Government Code Section 65852.2.

4 Water demand for small non-residential meters up to 3/4-inch based on conservative estimate of average 2018/19 water use for all such meters.

5 Water demand for 1-inch and larger non-residential meters based on demand for the base 3/4-inch meter multiplied by the capacity ratio for each meter size based AWWA standard meter capacity ratios.

Abbreviations:

Accessory Dwelling Unit (ADU); American Water Works Association (AWWA); Gallons per Day (gpd)

Water Capacity Fees with 90% Cost Recovery

	AWWA Meter Capacity Ratio	Water Demand (gpd)		**Water Capacity Fee**
WATER CAPACITY FEE PER GPD				**$67.7571**
RESIDENTIAL				
Capacity fees per residential dwelling unit				
Single Family [1]		220	per dwelling unit	**$14,907**
Multifamily [2]		150	per dwelling unit	**10,164**
Accessory Dwelling Unit [3]		0.0786	per square foot	**5.32**
NON-RESIDENTIAL				
Capacity fees based on water meter size				
Meter Size				
Up to 3/4-inch [4]	1.00	220		**$14,907**
1-inch [5]	1.67	367		**24,844**
1-1/2-inch	3.33	733		**49,689**
2-inch	5.33	1,173		**79,502**
3-inch	10.00	2,200		**149,066**
4-inch	16.67	3,667		**248,443**
6-inch	33.33	7,333		**496,885**
8-inch	53.33	11,733		**795,017**

The City reserves the authority to determine Capacity Fees for new or expanded connections on a case-by-case basis to help ensure the charges reflect the estimated demand and capacity needs for serving each connection.

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5 Water demand for 1-inch and larger non-residential meters based on demand for the base 3/4-inch meter multiplied by the capacity ratio for each meter size based AWWA standard meter capacity ratios.

Abbreviations:

Accessory Dwelling Unit (ADU); American Water Works Association (AWWA); Gallons per Day (gpd)

Wastewater Capacity Fees with 75% Cost Recovery

	Flow (gpd)	BOD (mg/l)	SS (mg/l)	Wastewater Capacity Fee
WASTEWATER CAPACITY FEES PER UNIT	$93.55 per gpd	$12.20 per lb/year	$8.98 per lb/year	
RESIDENTIAL				
Capacity fees per residential dwelling unit				
Single Family [1]	130	250	250	**$14,257 per unit**
Multifamily [2]	120	250	250	**13,160 per unit**
Accessory Dwelling Unit [3]		250	250	**5.09 per sq ft**

NON-RESIDENTIAL

Capacity fees based on water meter size and wastewater class

See Attachment A for a list of land use categories and associated charges

	Class A Low Strength	Class B Medium Strength	Class C High Strength
Combined BOD + SS Strength (mg/l)	Up to 400	401 - 800	> 800
Used for Fee Calculation			
BOD (mg/l)	150	300	600
SS (mg/l)	150	300	500

Meter Size	Ratio	Flow (gpd) [4]	Wastewater Capacity Fee		
Up to 3/4-inch	1.00	176	**$18,167**	**$19,869**	**$22,792**
1-inch	1.67	293	**30,244**	**33,077**	**37,944**
1-1/2-inch	3.33	587	**60,591**	**66,268**	**76,017**
2-inch	5.33	939	**96,925**	**106,006**	**121,601**
3-inch	10.00	1,760	**181,669**	**198,690**	**227,921**
4-inch	16.67	2,933	**302,748**	**331,113**	**379,826**
6-inch	33.33	5,867	**605,598**	**662,339**	**759,781**
8-inch	53.33	9,387	**968,937**	**1,059,719**	**1,215,624**

Industrial & Non-Standard Commercial

Capacity fees based on estimated wastewater flow and strength & unit charges for Flow, BOD & SS

Flow Charge	**$93.55 per gpd**
BOD Charge	**12.20 per lb/year**
SS Charge	**8.98 per lb/year**

The City reserves the authority to determine Capacity Fees for new or expanded connections on a case-by-case basis to help ensure the charges reflect the estimated demand and capacity needs for serving each connection.

Notes:

1 Single Family Residential wastewater demand based on 95% of average water use per single family home during the 4 lowest contiguous months (Jan-Apr) based on analysis of FY2018/19 water use.

2 Multifamily Residential wastewater demand based on 95% of average water use per multifamily dwelling unit during the 4 lowest contiguous months (Jan-Apr) based on analysis of FY2018/19 water use.

3 ADU water demand per square feet proportionately based on wastewater demand per single family home assuming a typical new home size of 2,800 square feet based on City Planning Department analysis of development applications over past 5 years. Fees for ADUs are based on square footage in compliance with California Government Code Section 65852.2.

4 Wastewater demand for non-residential connections conservatively based on 80% of estimated water demand for each meter size shown in the schedule of Water Capacity Charges.

Abbreviations:

Accessory Dwelling Unit (ADU); Biological Oxygen Demand (BOD), Suspended Solids (SS); Gallons per Day (gpd); Milligrams per Liter (mg/l)

Wastewater Capacity Fees with 90% Cost Recovery

	Flow (gpd)	BOD (mg/l)	SS (mg/l)	Wastewater Capacity Fee
WASTEWATER CAPACITY FEES PER UNIT	$112.93 per gpd	$14.64 per lb/year	$10.78 per lb/year	
RESIDENTIAL				
Capacity fees per residential dwelling unit				
Single Family [1]	130	250	250	**$17,196 per unit**
Multifamily [2]	120	250	250	**15,873 per unit**
Accessory Dwelling Unit [3]		250	250	**6.14 per sq ft**

NON-RESIDENTIAL

Capacity fees based on water meter size and wastewater class

See Attachment A for a list of land use categories and associated charges

	Class A Low Strength	Class B Medium Strength	Class C High Strength
Combined BOD + SS Strength (mg/l)	Up to 400	401 - 800	> 800
Used for Fee Calculation			
BOD (mg/l)	150	300	600
SS (mg/l)	150	300	500

Meter Size	Ratio	Flow (gpd) [4]	Wastewater Capacity Fee		
Up to 3/4-inch	1.00	176	**$21,919**	**$23,961**	**$27,470**
1-inch	1.67	293	**36,489**	**39,890**	**45,731**
1-1/2-inch	3.33	587	**73,103**	**79,917**	**91,617**
2-inch	5.33	939	**116,940**	**127,840**	**146,556**
3-inch	10.00	1,760	**219,185**	**239,614**	**274,696**
4-inch	16.67	2,933	**365,267**	**399,311**	**457,774**
6-inch	33.33	5,867	**730,659**	**798,759**	**915,704**
8-inch	53.33	9,387	**1,169,030**	**1,277,987**	**1,465,095**

Industrial & Non-Standard Commercial

Capacity fees based on estimated wastewater flow and strength & unit charges for Flow, BOD & SS

Flow Charge	**$112.93 per gpd**
BOD Charge	**14.64 per lb/year**
SS Charge	**10.78 per lb/year**

The City reserves the authority to determine Capacity Fees for new or expanded connections on a case-by-case basis to help ensure the charges reflect the estimated demand and capacity needs for serving each connection.

Notes:

1 Single Family Residential wastewater demand based on 95% of average water use per single family home during the 4 lowest contiguous months (Jan-Apr) based on analysis of FY2018/19 water use.

2 Multifamily Residential wastewater demand based on 95% of average water use per multifamily dwelling unit during the 4 lowest contiguous months (Jan-Apr) based on analysis of FY2018/19 water use.

3 ADU water demand per square feet proportionately based on wastewater demand per single family home assuming a typical new home size of 2,800 square feet based on City Planning Department analysis of development applications over past 5 years. Fees for ADUs are based on square footage in compliance with California Government Code Section 65852.2.

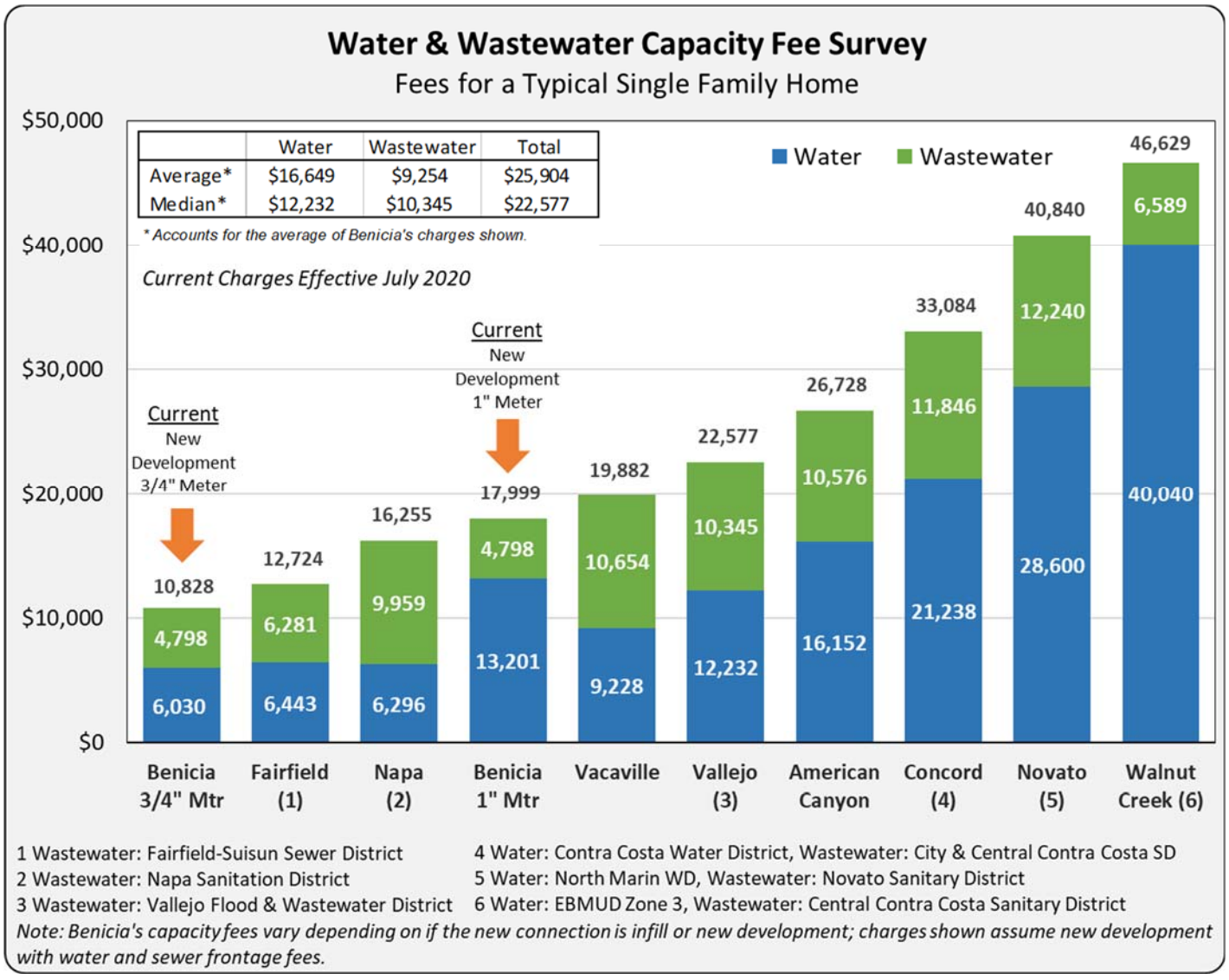
4 Wastewater demand for non-residential connections conservatively based on 80% of estimated water demand for each meter size shown in the schedule of Water Capacity Charges.

Abbreviations:

Accessory Dwelling Unit (ADU); Biological Oxygen Demand (BOD), Suspended Solids (SS); Gallons per Day (gpd); Milligrams per Liter (mg/l)

Survey of Regional Water & Wastewater Capacity fees

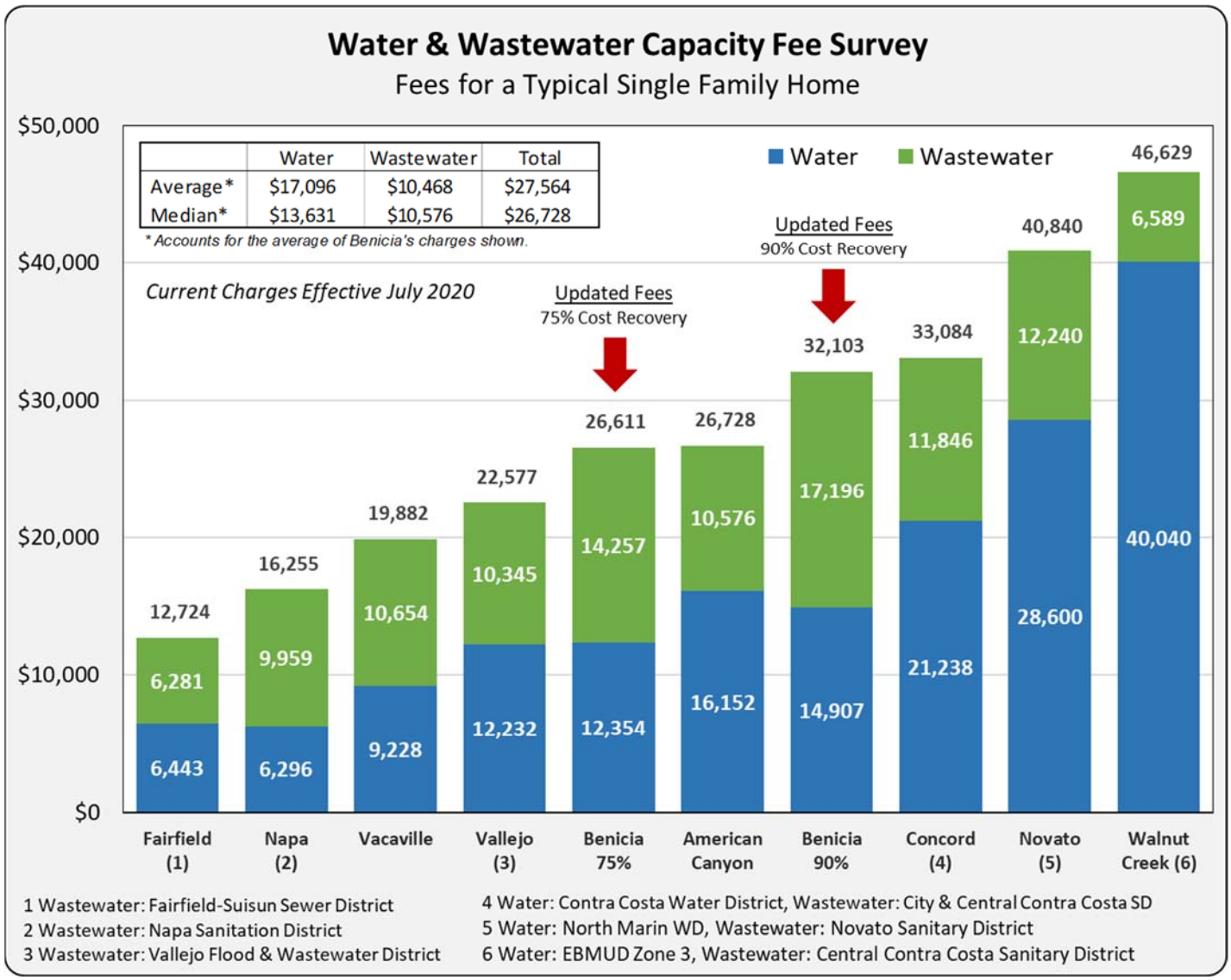
The following chart shows a comparison of current regional water and wastewater capacity fees for a typical new single family home. Benicia's current water and wastewater capacity fees vary depending on whether new residential development is infill that connects to existing City water and wastewater pipelines, or is new development in which the developer or City installs new water or wastewater pipelines. The fees shown for Benicia are for single family homes with both 3/4-inch and 1-inch water meters that are new development served by City-installed pipelines. As shown, Benicia's current water and wastewater capacity fees are low compared to most of the other regional agencies surveyed and are below the regional average and median.



1 Wastewater: Fairfield-Suisun Sewer District
2 Wastewater: Napa Sanitation District
3 Wastewater: Vallejo Flood & Wastewater District
4 Water: Contra Costa Water District, Wastewater: City & Central Contra Costa SD
5 Water: North Marin WD, Wastewater: Novato Sanitary District
6 Water: EBMUD Zone 3, Wastewater: Central Contra Costa Sanitary District

Note: Benicia's capacity fees vary depending on if the new connection is infill or new development; charges shown assume new development with water and sewer frontage fees.

The following chart shows a comparison of regional water and wastewater capacity charges for a typical new single family home but incorporates the updated capacity fees calculated in this report under both 75% and 90% cost recovery scenarios. As shown on the chart, the updated water and wastewater capacity fees are in the middle to slightly-above middle range compared to the current charges of other regional agencies surveyed.

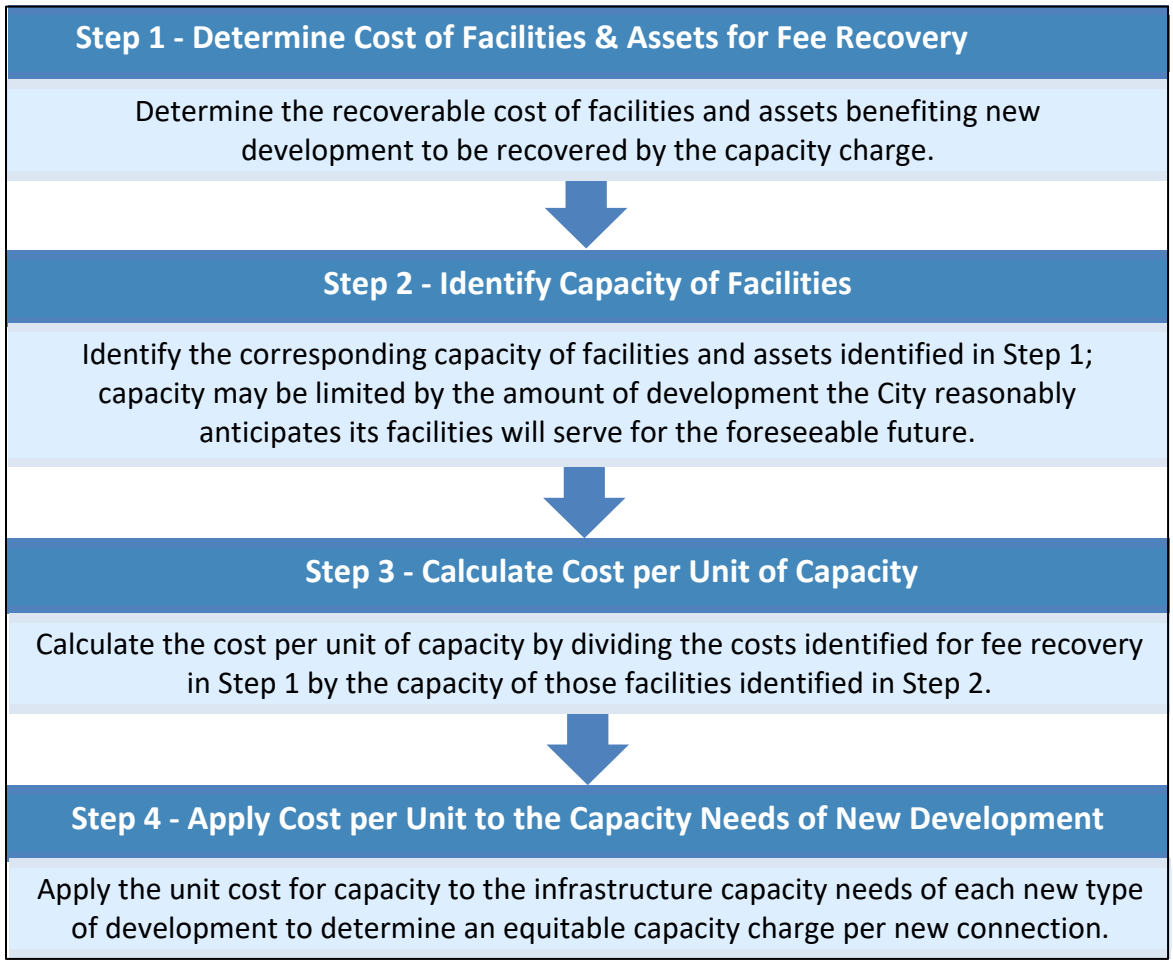


	Water	Wastewater	Total
Average*	$17,096	$10,468	$27,564
Median*	$13,631	$10,576	$26,728

Capacity fee Methodology

BWA recommends use of an *average cost approach* to calculate updated water and wastewater capacity fees. Under this approach, new connections buy in for a proportionate share of capacity needs in existing and planned water and wastewater system facilities and assets. The fees are calculated based on the total cost of facilities, including existing infrastructure and planned upgrades and expansions, divided by the total capacity the City is projected to serve through projected build-out in 2040. Hence, the charges are calculated by determining the average cost of capacity in infrastructure and assets through build-out and then equitably and proportionately assigning those costs to each type of customer based on their relative capacity needs. The *average cost approach* is a widely used and accepted approach for calculating capacity fees, particularly for service areas that are largely built out but will require additional infrastructure improvements to meet the demands of anticipated growth.

The general methodology used to calculate updated water and wastewater capacity fees is summarized below.



2. Water Capacity Fees

Water System Overview

The City owns and operates a water system consisting of a water treatment plant with a capacity of 12 million gallons per day, a raw water supply transmission system with approximately 18 miles of pipelines and two pump stations, and a municipal water distribution system that includes three booster pump stations, eight pressure reducing valves stations, six treated water storage tanks, and approximately 160 miles of water distribution pipelines. The City also provides raw water to the Valero refinery. The City's main source of water supply is untreated surface water from the State Water Project delivered via the North Bay Aqueduct, which is supplemented by water supply from Lake Berryessa via the Solano Project and local supply from Lake Herman, which also provides water storage capacity.

Water System Infrastructure Value

Under the methodology used in this report, updated water capacity fees are designed to recover a) the remaining value of existing water system infrastructure (in current dollars) as well as b) the cost of system upgrades and expansion needed to meet future demand through projected build-out in 2040.

Table 1 shows a summary of existing water system infrastructure along with estimates of the replacement value of each type of asset based on data provided in the *2020 Water Condition Assessment* by the engineering firm Stantec as well as input from the City's engineering staff. The total water system replacement value is estimated at $647 million excluding the value of land/easements and water rights. Since much of the City's water system has been in operation for many years, the updated capacity charge calculation only includes costs for the value of system assets over their remaining useful life. Based on the remaining life divided by the total useful life of each asset type, the total remaining value of water system infrastructure is estimated at a little under $230 million, approximately 36% of the total system replacement value.

Table 1 – Existing Water System Asset Valuation

Asset Type	Estimated Replacement Value[1,2]	Primary Asset Useful Life (Years)[3]	Estimated Remaining Life (Years)[4,5]	Estimated Remaining Life (%)	Estimated Remaining Value
Raw Water Pump Stations	$8,000,000	50	15	30%	$2,400,000
Raw Water Mains	120,000,000	75	20	27%	32,000,000
Lake Herman Reservoir	70,000,000	75	20	27%	18,670,000
Water Distribution System	320,000,000	75	30	40%	128,000,000
Water Booster Pump Stations	12,000,000	50	20	40%	4,800,000
Water Storage	36,000,000	50	16	32%	11,640,000
Water Treatment Plant	81,000,000	50	20	40%	32,400,000
Land, Easement, Right of Way	N/A				Excluded
Water Rights	N/A				Excluded
Subtotal	647,000,000			36%	229,910,000

Source: 2020 Water Condition Assessment.
1 Source: 2020 Water Condition Assessment, Table 12-8
2 Costs are in 2020 dollars based on an ENR Construction Cost Index (20-Cities Avg) of 11392.
3 Source: 2020 Water Condition Assessment, Table 12-9.
4 Conservatively estimated based on data from the 2020 Water Condition Assessment and City estimates.
5 Conservatively estimated assuming average pipeline installation year of 1975.

Treated Water vs. Raw Water Assets

The City provides treated, potable water for the City's municipal water system and also provides raw water to Valero for industrial use. Some of the City's water supply and transmission facilities benefit both the treated municipal water system and the Benicia Refinery's raw water supply. The updated water capacity fee calculation applies to the City's municipal water system. As such, the fee calculation excludes the share of facility costs that benefit raw water service to the Benicia Refinery (Valero).

Table 2 shows a breakdown of projected treated water and raw water demands through 2040.

Table 2 – Projected Treated vs. Raw Water Demand

	Water Demand (Acre-Feet per Year)	% of Total
Projected 2040 Water Demand		
Raw Water	5,800	56.0%
Treated Water*	4,556	44.0%
Total	10,356	100.0%

* Treated water is supplied to the City's municipal water system.
Source: 2020 Water Condition Assessment, Table 1-4.

Table 3 allocates the estimated remaining value of City water infrastructure to treated vs. raw water. The value of facilities that benefit both systems are proportionately allocated to each system based on the share of water demand shown in **Table 2** to ensure that only the share of facility costs that benefit the City's municipal treated water system are included in the fee calculations.

Table 3 – Treated vs. Raw Water Cost Allocation

Asset Type	Estimated Remaining Value[1]	Treated & Raw Water Cost Allocation[2,3]			
		Treated %	Raw %	Treated $	Raw $
Raw Water Pump Stations	$2,400,000	44%	56%	$1,055,852	$1,344,148
Raw Water Mains	32,000,000	44%	56%	14,078,022	17,921,978
Lake Herman Reservoir	18,670,000	44%	56%	8,213,646	10,456,354
Water Distribution System	128,000,000	100%	0%	128,000,000	-
Water Booster Pump Stations	4,800,000	100%	0%	4,800,000	-
Water Storage	11,640,000	100%	0%	11,640,000	-
Water Treatment Plant	32,400,000	100%	0%	32,400,000	-
Land, Easement, Right of Way	Excluded	-	-	-	-
Water Rights	Excluded	-	-	-	-
Subtotal	229,910,000	87%	13%	200,187,520	29,722,480

1 Source: Table 1.
2 Raw water supply infrastructure serves both treated and raw water system.
3 Costs for shared treated and raw water facilities allocated based on projected 2040 demand from Table 2.

Water Capital Improvement Program

Table 4 shows a summary of the City's 20-Year Water Capital Improvement Program (CIP). A more detailed version of the CIP listing each project is included in Appendix A.

Based on input from City staff, costs are allocated to either a) upgrade/expansion or b) rehabilitation/replacement. Of the approximately $293 million of planned capital improvement costs, approximately $201 million is related to system upgrades or expansion and is included in the updated fee calculation. Approximately $92 million of costs related to system rehabilitation and replacement are excluded from the updated fee calculation to ensure no double-counting of cost recovery for existing facilities and their replacement.

Table 4 – Water Capital Improvement Plan Summary

Capital Improvement	Cost Estimate[1]	Upgrade/Expansion[2]		Rehab/Replacement[2]	
		%	$	%	$
Treated Water System Improvements	$87,695,000	48.3%	$42,334,389	51.7%	$45,360,611
Raw Water System Improvements	181,436,000	74.4%	135,064,000	25.6%	46,372,000
Vallejo Treated Water Intertie (50%)[3]	3,901,500	100.0%	3,901,500	0.0%	-
Vallejo Raw Water Intertie (50%)[3]	19,803,500	100.0%	19,803,500	0.0%	-
Total	292,836,000	68.7%	201,103,389	31.3%	91,732,611

1 Source: Water CIP Project Cost Estimates from 2020 Water Condition Assessment.
2 Based on City of Benicia engineering estimates; allocations for each project are detailed on Table A-1 in Appendix A.
3 Excludes 50% share of intertie cost allocated to the City of Vallejo.

BWA notes that the updated fee calculation only includes cost recovery for the remaining value of existing infrastructure (roughly 36% of the total replacement value), and also excludes capital improvement costs for rehabilitation and replacement projects. This is in contrast to many capacity fee studies that include the full replacement value of existing infrastructure, with no reduction for the remaining value. As such, the updated fee calculations not only avoid any double-counting of existing facilities and their replacement, they also exclude cost recovery for some improvements that could have been legitimately included in the fee calculation, resulting in a conservatively low fee calculation.

Table 5 allocates the share of CIP upgrade/expansion improvements to treated vs. raw water. The value of facilities that benefit both systems are proportionately allocated to each system based on the share of water demand shown in Table 2. As previously noted, the updated fee calculation excludes the share of facility costs that benefit raw water service to the Benicia Refinery (Valero).

Table 5 – Allocation of Upgrade/Expansion Improvements to Treated vs. Raw Water

Capital Improvement	Upgrade/ Expansion[1]	Treated & Raw Water Cost Allocation[2]			
		Treated %	Raw %	Treated $	Raw $
Treated Water System Improvements	$42,334,389	100%	0%	$42,334,389	$0
Raw Water System Improvements	135,064,000	44%	56%	59,419,813	75,644,187
Vallejo Treated Water Intertie (50%)	3,901,500	100%	0%	3,901,500	-
Vallejo Raw Water Intertie (50%)	19,803,500	44%	56%	8,712,316	11,091,184
Total	201,103,389			114,368,018	86,735,371

1 Source: Table 4
2 Source: Raw water cost allocation from Table 2

Water Debt Adjustments

Some of the City's water facilities were funded via debt. Assets funded by debt are included in the City's schedule of fixed assets, but the City has not yet paid some of the cost of these facilities as it has not yet fully paid principal on outstanding debt. Hence, the updated fees exclude cost recovery for future principal on outstanding debt since those costs have not yet been incurred. While the amount of interest previously paid on debt service could have potentially been included in the updated fee calculation, these costs were not included in order to help ensure the updated charges are reasonable and conservative and only include cost recovery for actual facilities, not finance charges.

Table 6 shows a summary of water debt adjustments based on the water utility's only outstanding debt issue, a low-interest rate State Revolving Fund that helped finance improvements to the City's water treatment plant.

Table 6 – Water Debt Adjustments

Payment Date	Outstanding Debt Principal
Water SRF Loan	
Water Treatment Plant Improvement Project	
01/01/21	$313,477.64
07/01/21	317,223.70
01/01/22	321,014.53
07/01/22	324,850.65
01/01/23	328,732.61
07/01/23	332,660.97
01/01/24	336,636.27
07/01/24	340,659.07
01/01/25	344,729.95
07/01/25	348,849.47
01/01/26	353,018.22
07/01/26	357,236.79
01/01/27	361,505.77
07/01/27	365,747.04
Total	4,746,342.68

Water System Cost Recovery

As previously discussed, this report calculates updated capacity fees assuming both 75% cost recovery and 90% cost recovery of the estimated value of infrastructure benefitting new development. Bartle Wells Associates believes that both of these calculations represent reasonable and defensible amounts for facility cost recovery that balance the goals of a) recovering the cost of facilities benefitting new development and b) ensuring that the fees do not exceed the estimated reasonable cost of facilities benefitting growth.

Table 7 shows a summary of water system costs used to calculate updated capacity fees assuming 75% cost recovery of estimated facility costs. The table also factors in adjustments to account for a) water capacity fee fund reserves held by the City as of June 30, 2020, which are applied to reduce the total costs recovered by the updated fees, and b) outstanding principal on debt.

Table 7 – Water System 75% Cost Recovery

COSTS FOR FEE RECOVERY	
Treated Water Facilities & Assets[1]	
Estimated Remaining Value	$200,187,520
Treated Water Capital Improvements[2]	
Upgrades & Capacity Enhancement Projects	114,368,018
Repairs & Replacements	Excluded
Subtotal	114,368,018
Total Facilities & Upgrade/Expansion Improvements	314,555,538
Cost Recovery Factor	*75%*
Cost Recovery for Fee Calculation	*235,916,654*
Adjustments	
Less Water Capacity Fee Fund Balance as of June 30, 2020[3]	(2,763,395)
Plus Operating/Capital Fund Reserves	Excluded
Less Outstanding Principal on Debt after 2020	(4,746,343)
Plus Prior Interest Payments on Debt	Excluded
Subtotal	(7,509,738)
Costs for Fee Recovery	*228,406,916*

1 Source: Table 3

2 Source: Table 5

3 Fund Balance for June 30, 2020 is unaudited and excludes $3,848,539 of Net Capital Assets.

Table 8 shows a summary of water system costs used to calculate updated capacity fees assuming 90% cost recovery of estimated facility costs.

Table 8 – Water System 90% Cost Recovery

COSTS FOR FEE RECOVERY	
Treated Water Facilities & Assets[1]	
Estimated Remaining Value	$200,187,520
Treated Water Capital Improvements[2]	
Upgrades & Capacity Enhancement Projects	114,368,018
Repairs & Replacements	Excluded
Subtotal	114,368,018
Total Facilities & Upgrade/Expansion Improvements	314,555,538
Cost Recovery Factor	*90%*
Cost Recovery for Fee Calculation	*283,099,985*
Adjustments	
Less Water Capacity Fee Fund Balance as of June 30, 2020[3]	(2,763,395)
Plus Operating/Capital Fund Reserves	Excluded
Less Outstanding Principal on Debt after 2020	(4,746,343)
Plus Prior Interest Payments on Debt	Excluded
Subtotal	(7,509,738)
Costs for Fee Recovery	*275,590,247*

1 Source: Table 3
2 Source: Table 5
3 Fund Balance for June 30, 2020 is unaudited and excludes $3,848,539 of Net Capital Assets.

Water Capacity Fee per Unit

Table 9 calculates the water capacity charge per gallon per day (gpd) by dividing a) the total costs included for fee recovery with the 75% cost recovery factor, by b) the most recent projections of treated water demand of the City's municipal water system through build-out in 2040 as projected in the *2020 Water Condition Assessment*.

Table 9 – Water Capacity Fee per Unit with 75% Cost Recovery

Costs for Fee Recovery[1]	$228,406,916
Municipal Water System Projected 2040 Demand[2]	
Acre-Feet per Year (AFY)	4,556
Gallons per Day (gpd)	4,067,329
Water Capacity Fee per Unit	
Net Costs for Fee Recovery / Projected Demand ($/gpd)	$56.1565

1 Source: Table 7, includes 75% cost recovery for fee calculation.
2 Source: 2020 Water Condition Assessment, Table 1-4, Potable Water Forecast Demand for 2040.

Table 10 calculates the water capacity fee per gallon per day (gpd) accounting for a 90% cost recovery factor for facilities benefitting new development.

Table 10 – Water Capacity Fee per Unit with 90% Cost Recovery

Costs for Fee Recovery[1]	$275,590,247
Municipal Water System Projected 2040 Demand[2]	
Acre-Feet per Year (AFY)	4,556
Gallons per Day (gpd)	4,067,329
Water Capacity Fee per Unit	
Net Costs for Fee Recovery / Projected Demand ($/gpd)	$67.7571

1 Source: Table 8, includes 90% cost recovery for fee calculation.
2 Source: 2020 Water Condition Assessment, Table 1-4, Potable Water Forecast Demand for 2040.

Residential Water Demand

In order to determine reasonable estimates of residential water demand per single family and multi-family dwelling units for use in the updated capacity fee calculations, BWA analyzed City water consumption data for fiscal year 2018/19. Water use in 2018/19 reflects usage during a period in which water use was rebounding following a drought and a corresponding temporary reduction in water sales. As such future water demands per residential unit may be higher than the estimates developed based on data for 2018/19 if water use continues to rebound toward prior historic norms.

Table 11 and the subsequent chart show bi-monthly water use for the single family customers. Single family residential water demand averaged approximately 224 gpd per home in 2018/19.

Table 11 – Single Family Residential Water Use 2018/19

	JUL/AUG	SEP/OCT	NOV/DEC	JAN/FEB	MAR/APR	MAY/JUN	TOTAL
Metered Water Use (hcf)	183,185	178,653	139,004	88,887	77,038	132,411	799,178
SFR Accounts (With Billed Use> 0 hcf)	7,122	7,211	7,282	7,331	7,406	7,519	7,312
Avg Monthly Use per Account (hcf)	12.9	12.4	9.5	6.1	5.2	8.8	9.1
Avg Demand per Account (gpd)	316	305	235	149	128	217	224

Hundred Cubic Feet (hcf); Gallons per Day (gpd)

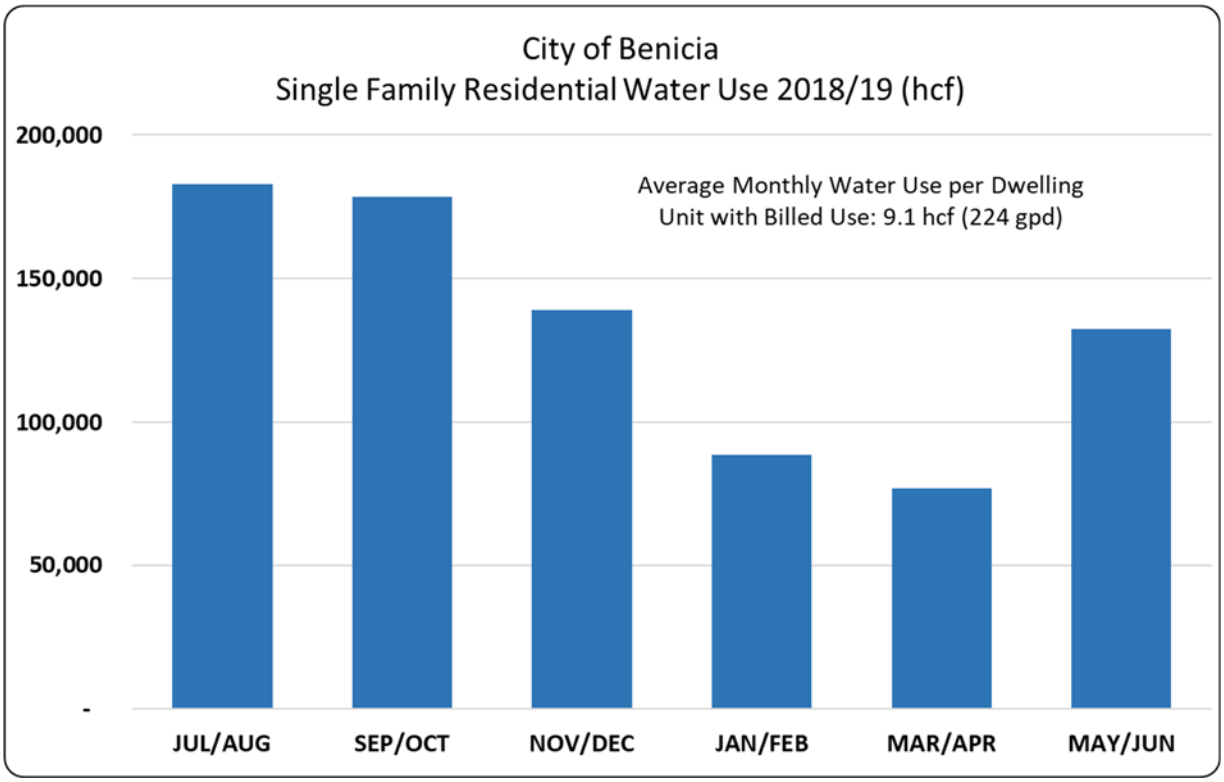
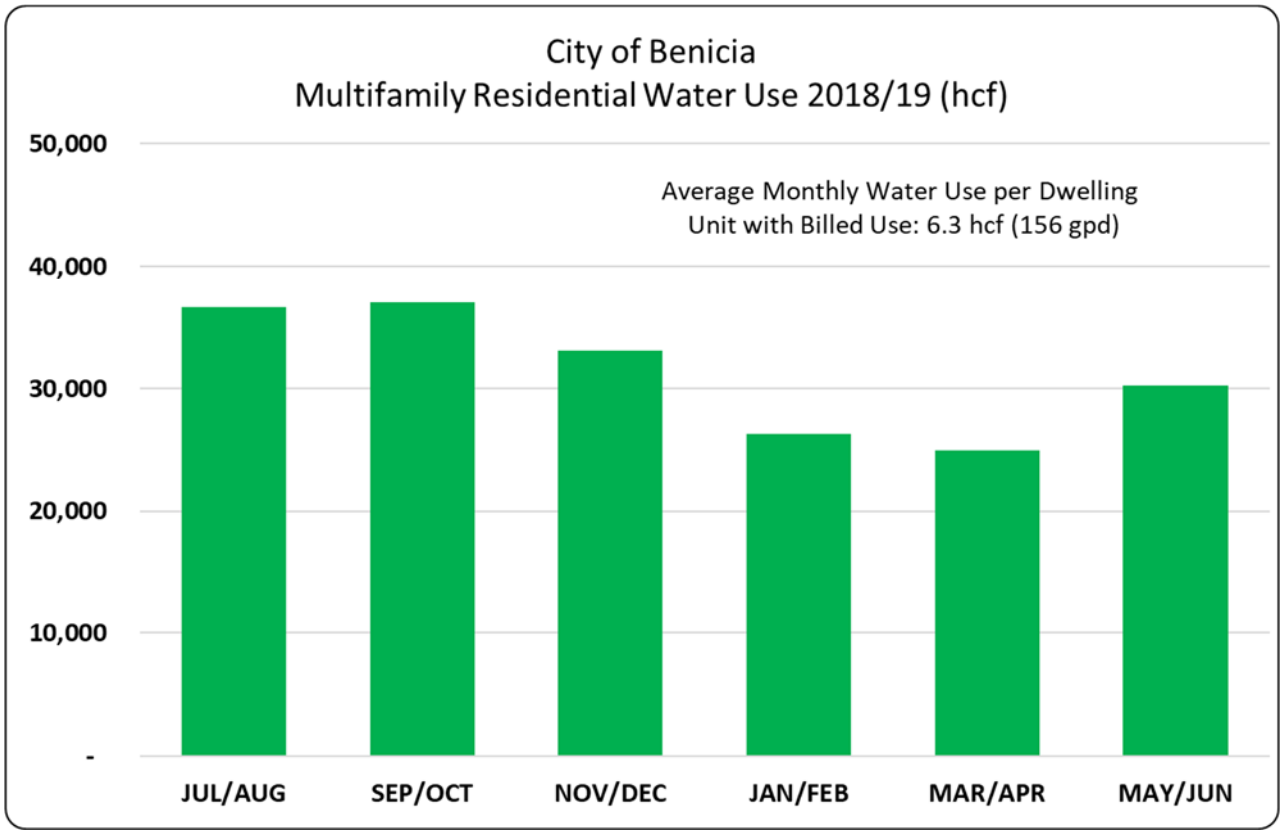


Table 12 and the subsequent chart show bi-monthly water use for the City's multi-family residential customers. Multi-family demand averaged approximately 156 gpd per dwelling unit in 2018/19.

Table 12 – Multi-Family Residential Water Use 2018/19

	JUL/AUG	SEP/OCT	NOV/DEC	JAN/FEB	MAR/APR	MAY/JUN	TOTAL
Metered Water Use (hcf)	36,644	37,008	33,041	26,317	24,913	30,208	188,131
Dwelling Units (With Billed Use> 0 hcf)	2,470	2,472	2,477	2,475	2,481	2,481	2,476
Avg Monthly Use per Account (hcf)	7.4	7.5	6.7	5.3	5.0	6.1	6.3
Avg Demand per Account (gpd)	182	184	164	131	123	150	156

Hundred Cubic Feet (hcf); Gallons per Day (gpd)



Updated Water Capacity Fees

Tables 13 and 14 on the following pages show updated water capacity fees under the 75% and 90% cost recovery alternatives that BWA believes represents a reasonable and defensible range for facility cost recovery that balances the goals of a) recovering the cost of facilities benefitting new development and b) ensuring that the fees do not exceed the estimated reasonable cost of facilities benefitting growth.

The updated charges are calculated by multiplying the unit charge per gpd by slightly conservative estimates of water demand per residential dwelling unit or per meter size for non-residential connections based on analysis of water consumption data from 2018/19. As proposed, water capacity fees would be applied as follows:

- **Residential Water Capacity Fees** are applied based on the number of single or multi-family dwelling units multiplied by the respective charge per unit. Charges for Accessory Dwelling Units (ADUs) are based on square footage in compliance with the requirements of Government Code 65852.2.
- **Non-Residential Water Capacity Fees** are applied based on the water meter size of each new connection. The charge for the base 3/4-inch meter is conservatively estimated based on average water demand for all meters up to 3/4-inches. Charges for larger meter sizes are based on the water demand for the 3/4-inch meter multiplied by the meter capacity ratio for each meter size based on American Water Works Association standard meter capacities, resulting in charges that reflect the proportionate level of demand placed on the water system by each meter size. For example, a 3-inch meter has 10 times the capacity as the base 3/4-inch meter and would correspondingly pay a capacity fee that is 10 times the charge for the 3/4-inch meter.

The updated charges are standard charges that would apply in most cases. However, in rare cases the standard charges may not accurately reflect the water demands of a new connection. For example, since the average new single family home in Benicia is 2,800 square feet, the standard charge per single family home would likely not accurately reflect the water demands of a new 10,000 square foot home. As such, the City should reserve the authority to determine Capacity Fees for non-standard connections on a case-by-case basis to help ensure the charges reasonably reflect the estimated water demand and capacity needs for serving each connection.

Table 13 – Updated Water Capacity Fees with 75% Cost Recovery

	AWWA Meter Capacity Ratio	Water Demand (gpd)		**Water Capacity Fee**
WATER CAPACITY FEE PER GPD				**$56.1565**
RESIDENTIAL				
Capacity fees per residential dwelling unit				
Single Family [1]		220	per dwelling unit	**$12,354**
Multifamily [2]		150	per dwelling unit	**8,423**
Accessory Dwelling Unit [3]		0.0786	per square foot	**4.41**
NON-RESIDENTIAL				
Capacity fees based on water meter size				
Meter Size				
Up to 3/4-inch [4]	1.00	220		**$12,354**
1-inch [5]	1.67	367		**20,591**
1-1/2-inch	3.33	733		**41,181**
2-inch	5.33	1,173		**65,890**
3-inch	10.00	2,200		**123,544**
4-inch	16.67	3,667		**205,907**
6-inch	33.33	7,333		**411,814**
8-inch	53.33	11,733		**658,903**

The City reserves the authority to determine Capacity Fees for new or expanded connections on a case-by-case basis to help ensure the charges reflect the estimated demand and capacity needs for serving each connection.

Notes:

1 Single Family Residential water demand based on average use per single family home of 224 gpd based on analysis of FY2018/19 water use.

2 Multifamily Residential water demand based on average use per multifamily dwelling unit of 156 gpd based on analysis of FY2018/19 water use.

3 ADU water demand per square feet proportionately based on wastewater demand per single family home assuming a typical new home size of 2,800 square feet based on City Planning Department analysis of development applications over past 5 years. Fees for ADUs are based on square footage in compliance with California Government Code Section 65852.2.

4 Water demand for small non-residential meters up to 3/4-inch based on conservative estimate of average 2018/19 water use for all such meters.

5 Water demand for 1-inch and larger non-residential meters based on demand for the base 3/4-inch meter multiplied by the capacity ratio for each meter size based AWWA standard meter capacity ratios.

Abbreviations:

Accessory Dwelling Unit (ADU); American Water Works Association (AWWA); Gallons per Day (gpd)

Table 14 – Updated Water Capacity Fees with 90% Cost Recovery

	AWWA Meter Capacity Ratio	Water Demand (gpd)		Water Capacity Fee
WATER CAPACITY FEE PER GPD				**$67.7571**
RESIDENTIAL				
Capacity fees per residential dwelling unit				
Single Family [1]		220	per dwelling unit	**$14,907**
Multifamily [2]		150	per dwelling unit	**10,164**
Accessory Dwelling Unit [3]		0.0786	per square foot	**5.32**
NON-RESIDENTIAL				
Capacity fees based on water meter size				
Meter Size				
Up to 3/4-inch [4]	1.00	220		**$14,907**
1-inch [5]	1.67	367		**24,844**
1-1/2-inch	3.33	733		**49,689**
2-inch	5.33	1,173		**79,502**
3-inch	10.00	2,200		**149,066**
4-inch	16.67	3,667		**248,443**
6-inch	33.33	7,333		**496,885**
8-inch	53.33	11,733		**795,017**

The City reserves the authority to determine Capacity Fees for new or expanded connections on a case-by-case basis to help ensure the charges reflect the estimated demand and capacity needs for serving each connection.

Notes:

1 Single Family Residential water demand based on average use per single family home of 224 gpd based on analysis of FY2018/19 water use.

2 Multifamily Residential water demand based on average use per multifamily dwelling unit of 156 gpd based on analysis of FY2018/19 water use.

3 ADU water demand per square feet proportionately based on wastewater demand per single family home assuming a typical new home size of 2,800 square feet based on City Planning Department analysis of development applications over past 5 years. Fees for ADUs are based on square footage in compliance with California Government Code Section 65852.2.

4 Water demand for small non-residential meters up to 3/4-inch based on conservative estimate of average 2018/19 water use for all such meters.

5 Water demand for 1-inch and larger non-residential meters based on demand for the base 3/4-inch meter multiplied by the capacity ratio for each meter size based AWWA standard meter capacity ratios.

Abbreviations:

Accessory Dwelling Unit (ADU); American Water Works Association (AWWA); Gallons per Day (gpd)

3. Wastewater Capacity Fees

Wastewater System Overview

The City owns and operates wastewater collection, treatment, and disposal facilities that serve customers within the City's boundaries. The wastewater treatment plant has an average dry weather flow capacity of 4.5 million gallons per day (MGD) and a wet weather capacity of 11 MGD. The wastewater collection system consists of approximately 150 miles of wastewater pipelines, a 3-mile wet weather relief interceptor pipeline, and 24 lift stations. Treated effluent is discharged to the Carquinez Strait through a submerged diffuser outfall.

Wastewater System Infrastructure Value

Under the methodology used in this report, updated wastewater capacity fees are designed to recover a) the remaining value of existing wastewater system infrastructure (in current dollars) as well as b) the cost of system upgrades and expansion needed to meet future demand through projected build-out in 2040.

Table 15 shows a summary of existing wastewater system infrastructure along with estimates of the replacement value of each type of asset based on data provided in the *2020 Wastewater Condition Assessment* by the engineering firm Stantec as well as input from the City's engineering staff. The total wastewater system replacement value is estimated at $656 million excluding the value of land. Since much of the City's wastewater system has been in operation for many years, the updated capacity fee calculation only recovers costs for the remaining value of system assets that will provide benefit to new development. Based on the remaining life divided by the total useful life of each asset type, the total remaining value of wastewater system infrastructure is estimated at a little over $235 million, approximately 36% of the total system replacement value.

Table 15 – Existing Wastewater System Asset Valuation

Asset Type	Estimated Replacement Value[1,2]	Primary Asset Useful Life (Years)[3]	Estimated Remaining Life (Years)[4,5]	Estimated Remaining Life (%)	Estimated Remaining Value
Wastewater Collection System	$470,000,000	75	30	40%	$188,000,000
Wastewater Lift Stations	46,000,000	50	6	12%	5,520,000
Wastewater Treatment Plant	140,000,000	50	15	30%	42,000,000
Land	N/A				Excluded
Subtotal	656,000,000			36%	235,520,000

Source: 2020 Wastewater Condition Assessment.
1 Source: 2020 Wastewater Condition Assessment, Table 12-6.
2 Costs are in 2020 dollars based on an ENR Construction Cost Index (20-Cities Avg) of 11392.
3 Source: 2020 Wastewater Condition Assessment, Table 12-7.
4 Conservatively estimated based on data from 2020 Wastewater Condition Assessment.
5 Conservatively estimated assuming average pipeline installation year of 1975.

Wastewater Capital Improvement Program

Table 16 shows a summary of the City's 20-Year Wastewater Capital Improvement Program (CIP). A more detailed version of the CIP listing each project is included in Appendix B. Based on input from City staff, costs are allocated to either a) upgrade/expansion or b) rehabilitation/ replacement. Of the approximately $167 million of planned capital improvement costs, approximately $128 million is related to system upgrades or expansion and is included in the updated fee calculation. Approximately $38 million of costs related to system rehabilitation and replacement are excluded from the updated fee calculation to ensure no double-counting of cost recovery for existing facilities and their replacement.

Table 16 – Wastewater Capital Improvement Plan Summary

Capital Improvement	Cost Estimate[1]	Upgrade/Expansion[2]		Rehab/Replacement[2]	
		%	$	%	$
WWTP Improvements	139,050,000	84.2%	117,148,000	15.8%	21,902,000
Collection System Improvements	27,689,000	40.4%	11,193,311	59.6%	16,495,689
Total	166,739,000	77.0%	128,341,311	23.0%	38,397,689

1 Source: Wastewater CIP Project Cost Estimates from 2020 Wastewater Condition Assessment.
2 Based on City of Benicia engineering estimates; allocations for each project are detailed on Table B-1 in Appendix B.

BWA notes that the updated fee calculation only includes cost recovery for the remaining value of existing infrastructure (roughly 36% of the total replacement value), and also excludes capital improvement costs for rehabilitation and replacement projects. This is in contrast to many capacity fee studies that include the full replacement value of existing infrastructure, with no reduction for the remaining value. As such, the updated fee calculations not only avoid any double-counting of existing facilities and their replacement, they may also exclude cost recovery for some improvements that could have been legitimately included in the fee calculation, resulting in a conservatively low fee calculation.

Wastewater System Cost Recovery

As previously discussed, this report calculates updated capacity fees assuming both 75% cost recovery and 90% cost recovery of the estimated value of infrastructure benefitting new development. Bartle Wells Associates believes that both of these calculations represent reasonable and defensible amounts for facility cost recovery that balance the goals of a) recovering the cost of facilities benefitting new development and b) ensuring that the fees do not exceed the estimated reasonable cost of facilities benefitting growth.

Table 17 shows a summary of wastewater treatment plant costs used to calculate updated capacity fees with 75% cost recovery of estimated facility costs and **Table 18** shows costs with 90% cost recovery. The wastewater treatment plant is designed to both process volumes of wastewater flow and treat concentrations of wastewater contaminants. As such, the treatment plant's components are sized to account for both wastewater flow and strength. The bottom of each table allocates treatment plant costs to wastewater flow and strength -- with strength measured by Biological Oxygen Demand (BOD) and Suspended Solids (SS) – based on input from the City's engineering staff.

Table 19 shows a summary of wastewater collection system costs used to calculate updated capacity fees assuming 75% cost recovery of estimated facility costs and **Table 20** shows costs with 90% cost recovery. The wastewater collection system is sized to handle adequate volumes of wastewater flow. As such, costs for the wastewater collection system are allocated 100% to wastewater flow.

Table 17 – Wastewater Treatment Plant 75% Cost Recovery

WASTEWATER TREATMENT PLANT		
Estimated Remaining Value[1]		$42,000,000
WWTP Capital Improvements[2]		
Upgrades & Capacity Enhancements		117,148,000
Repairs & Replacements		Excluded
Subtotal		117,148,000
Total Facilities & Upgrade/Expansion Improvements		159,148,000
Cost Recovery Factor		*75%*
Cost Recovery for Fee Calculation		*119,361,000*
Adjustments		
Less Outstanding Principal on Debt after 2020		None
Plus Prior Interest Payments on Debt		Excluded
Total WWTP Cost Recovery		*119,361,000*
Cost Allocation[3]		
Flow	50%	**59,680,500**
BOD	25%	**29,840,250**
SS	25%	**29,840,250**

1 Source: Table 15

2 Source: Table 16

3 Based on input and assessment from City wastewater utility staff.

Table 18 – Wastewater Treatment Plant 90% Cost Recovery

WASTEWATER TREATMENT PLANT		
Estimated Remaining Value[1]		$42,000,000
WWTP Capital Improvements[2]		
Upgrades & Capacity Enhancements		117,148,000
Repairs & Replacements		Excluded
Subtotal		117,148,000
Total Facilities & Upgrade/Expansion Improvements		159,148,000
Cost Recovery Factor		*90%*
Cost Recovery for Fee Calculation		*143,233,200*
Adjustments		
Less Outstanding Principal on Debt after 2020		None
Plus Prior Interest Payments on Debt		Excluded
Total WWTP Cost Recovery		*143,233,200*
Cost Allocation[3]		
Flow	50%	**71,616,600**
BOD	25%	**35,808,300**
SS	25%	**35,808,300**

1 Source: Table 1

2 Source: Table 2

3 Based on input and assessment from City wastewater utility staff.

Table 19 – Wastewater Collection System 75% Cost Recovery

SEWER COLLECTION SYSTEM & OTHER ASSETS		
Estimated Remaining Value[1]		
Wastewater Collection System		$188,000,000
Wastewater Lift Stations		5,520,000
Subtotal		193,520,000
Collection System Capital Improvements[2]		
Upgrades & Capacity Enhancements		11,193,311
Repairs & Replacements		Excluded
Subtotal		11,193,311
Total Facilities & Upgrade/Expansion Improvements		204,713,311
Cost Recovery Factor		*75%*
Cost Recovery for Fee Calculation		*153,534,983*
Adjustments		
Less Wastewater Capacity Fee Fund Balance as of June 30, 2020[3]		(7,407,364)
Plus Operating/Capital Fund Reserves		Excluded
Less Outstanding Principal on Debt after 2020		None
Plus Prior Interest Payments on Debt		Excluded
Subtotal		(7,407,364)
Total Collection System Cost Recovery		146,127,619
Cost Allocation		
Flow	100%	**146,127,619**

1 Source: Table 15

2 Source: Table 16

3 Fund Balance for June 30, 2020 is unaudited and excludes $14,397,275 of Net Capital Assets.

Table 20 – Wastewater Collection System 90% Cost Recovery

SEWER COLLECTION SYSTEM & OTHER ASSETS		
Estimated Remaining Value[1]		
Wastewater Collection System		$188,000,000
Wastewater Lift Stations		5,520,000
Subtotal		193,520,000
Collection System Capital Improvements[2]		
Upgrades & Capacity Enhancements		11,193,311
Repairs & Replacements		Excluded
Subtotal		11,193,311
Total Facilities & Upgrade/Expansion Improvements		204,713,311
Cost Recovery Factor		*90%*
Cost Recovery for Fee Calculation		*184,241,980*
Adjustments		
Less Wastewater Capacity Fee Fund Balance as of June 30, 2020[3]		(7,407,364)
Plus Operating/Capital Fund Reserves		Excluded
Less Outstanding Principal on Debt after 2020		None
Plus Prior Interest Payments on Debt		Excluded
Subtotal		(7,407,364)
Total Collection System Cost Recovery		176,834,616
Cost Allocation		
Flow	100%	**176,834,616**

1 Source: Table 1

2 Source: Table 2

3 Fund Balance for June 30, 2020 is unaudited and excludes $14,397,275 of Net Capital Assets.

Projected Wastewater Flow & Loadings

Table 21 shows future wastewater flows and loadings through build-out in 2040, as projected in the *2020 Wastewater Condition Assessment*. The capital improvements identified in the Master Plan are designed to handle these projected wastewater demands.

Table 21 – Projected Wastewater Flow & Loading Through 2040

Projected Wastewater Flows & Loadings 2040*		
Average Dry Weather Flow	2.20	mgd
Average Dry Weather Flow	2,200,000	gpd
BOD Load	6,700	lbs/day
SS Load	9,100	lbs/day
BOD Load	2,445,500	lbs/year
SS Load	3,321,500	lbs/year

* Source: 2020 Wastewater Condition Assessment, Table 2-1; Future Flows and Loads projected for 2040.

Wastewater Capacity Fees per Unit

Table 22 calculates wastewater capacity fees per unit for flow, BOD and SS with 75% cost recovery. The unit costs for flow, BOD and SS are each calculated by dividing a) the costs allocated for fee recovery for each component by b) projected wastewater system capacity for each component through build-out in 2040 as projected in the *2020 Wastewater Condition Assessment*.

Table 22 – Wastewater Capacity Fees per Unit with 75% Cost Recovery

	Flow	BOD	SS
WASTEWATER TREATMENT PLANT			
Costs for Fee Recovery[1]	$59,680,500	$29,840,250	$29,840,250
Projected Wastewater Demand 2040[2]	2,200,000 gpd	2,445,500 lbs/year	3,321,500 lbs/year
Cost per Unit	$27.13 per gpd	$12.20 per lb/yr	$8.98 per lb/yr
WASTEWATER COLLECTION SYSTEM & OTHER ASSETS			
Costs for Fee Recovery[3]	$146,127,619		
Projected Wastewater Demand 2040[2]	2,200,000 gpd		
Cost per Unit	$66.42 per gpd		
COMBINED TOTAL			
Cost per Unit	$93.55 per gpd	$12.20 per lb/yr	$8.98 per lb/yr

1 Source: Table 17, includes 75% cost recovery for fee calculation.
2 Source: Table 21.
3 Source: Table 19, includes 75% cost recovery for fee calculation.

Table 23 calculates wastewater capacity fees per unit for flow, BOD and SS with 90% cost recovery.

Table 23 – Wastewater Capacity Fees per Unit with 90% Cost Recovery

	Flow	BOD	SS
WASTEWATER TREATMENT PLANT			
Costs for Fee Recovery[1]	$71,616,600	$35,808,300	$35,808,300
Projected Wastewater Demand 2040[2]	2,200,000 gpd	2,445,500 lbs/year	3,321,500 lbs/year
Cost per Unit	$32.55 per gpd	$14.64 per lb/yr	$10.78 per lb/yr
WASTEWATER COLLECTION SYSTEM & OTHER ASSETS			
Costs for Fee Recovery[3]	$176,834,616		
Projected Wastewater Demand 2040[2]	2,200,000 gpd		
Cost per Unit	$80.38 per gpd		
COMBINED TOTAL			
Cost per Unit	$112.93 per gpd	$14.64 per lb/yr	$10.78 per lb/yr

1 Source: Table 18, includes 90% cost recovery for fee calculation.
2 Source: Table 21.
3 Source: Table 20, includes 90% cost recovery for fee calculation.

Residential Wastewater Demand

In order to determine reasonable estimates of residential wastewater demand per single family and multi-family dwelling units for use in the updated capacity fee calculations, BWA analyzed water consumption data for fiscal year 2018/19. Water use during the wet weather winter months provides a reasonable basis for estimating indoor water use that is discharged to the wastewater system as it includes minimal to no outdoor irrigation.

Water use in 2018/19 reflects usage during a period in which water use was rebounding following a drought and a corresponding temporary reduction in water sales. As such future demands may be higher than the estimates developed based on data for 2018/19 if water use continues to rebound toward prior historic norms.

Table 24 and the subsequent chart show bi-monthly water use for the single family customers. Single family residential water demand during the four lowest contiguous wet weather months from January through April averaged approximately 138 gpd per home with wastewater discharge estimated at 95% of this amount, or 132 gpd, to account for a small amount of water use that may not be discharged to the wastewater system.

Table 24 – Single Family Residential Wet Weather Water Use 2018/19

	JUL/AUG	SEP/OCT	NOV/DEC	JAN/FEB	MAR/APR	MAY/JUN	TOTAL
Metered Water Use (hcf)	183,185	178,653	139,004	88,887	77,038	132,411	799,178
SFR Accounts (With Billed Use> 0 hcf)	7,122	7,211	7,282	7,331	7,406	7,519	7,312
Avg Monthly Use per Account (hcf)	12.9	12.4	9.5	6.1	5.2	8.8	9.1
Avg Demand per Account (gpd)	316	305	235	149	128	217	224

Hundred Cubic Feet (hcf); Gallons per Day (gpd)

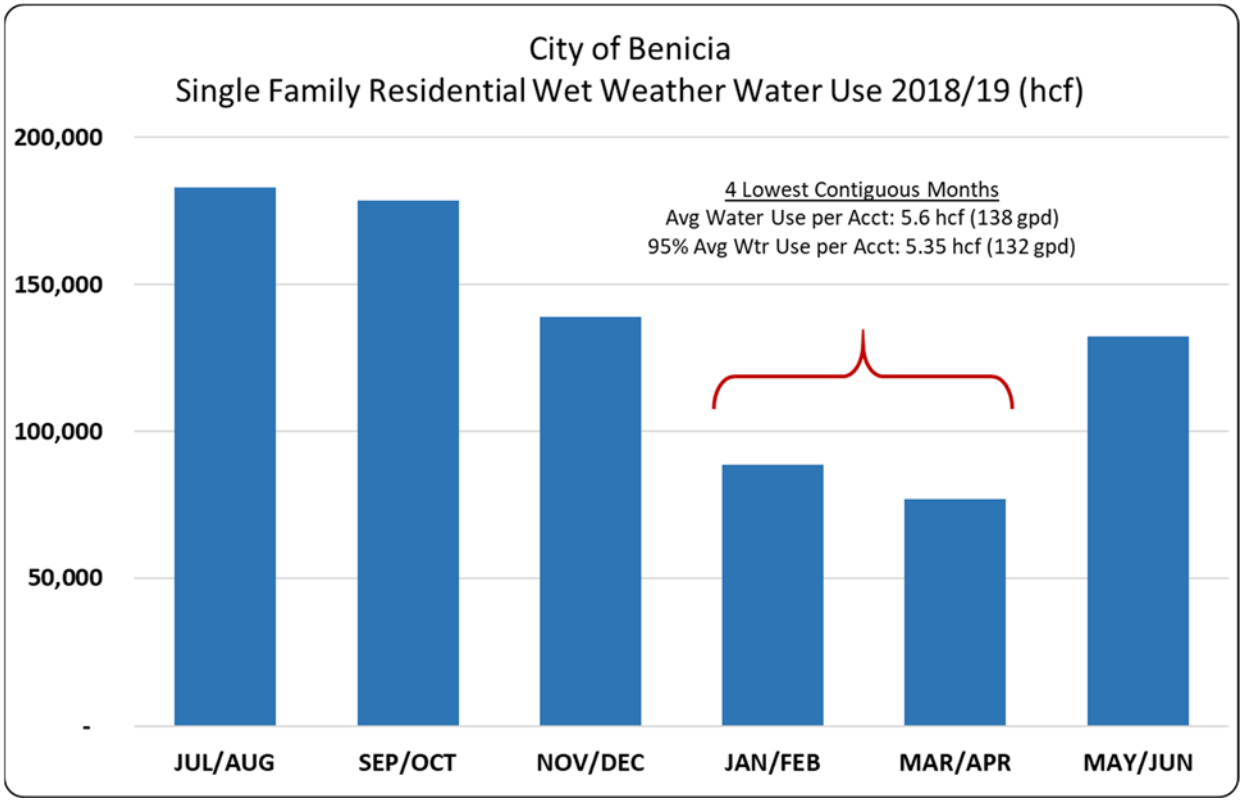
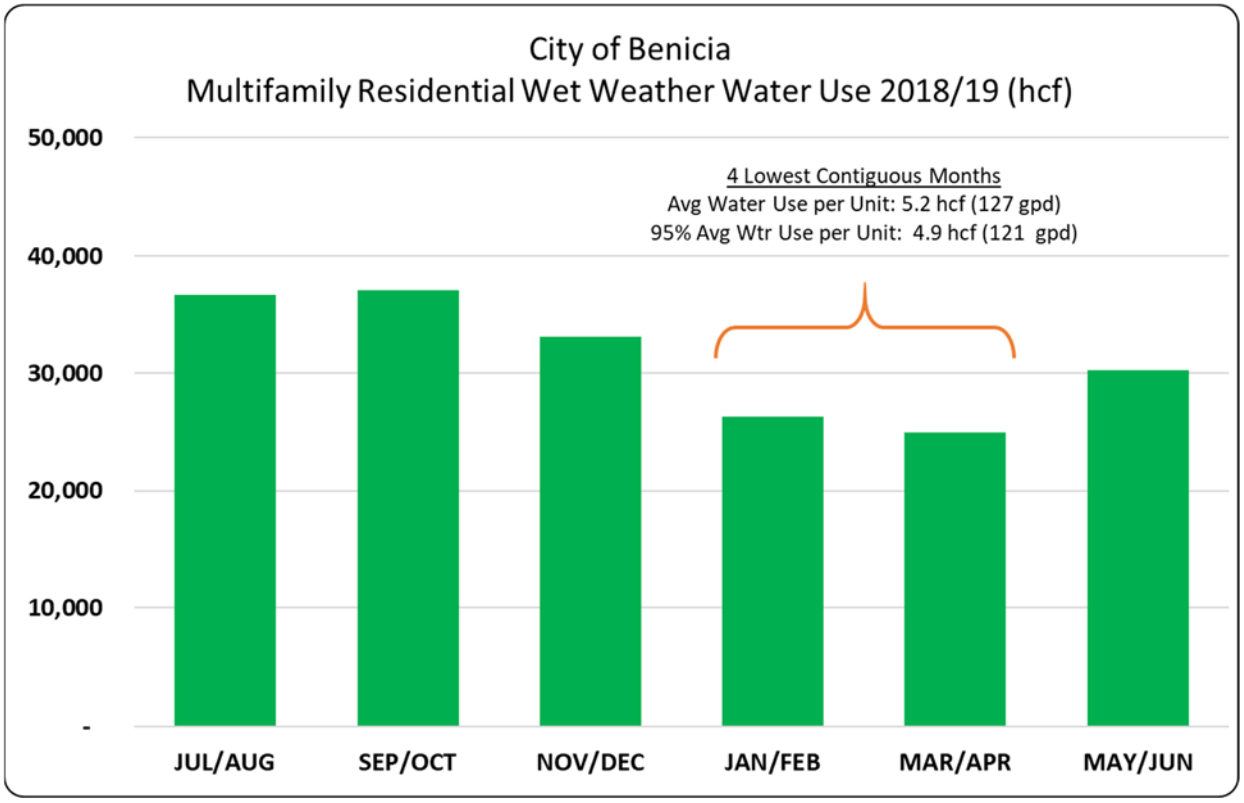


Table 25 and the subsequent chart show bi-monthly water use for the City's multi-family residential customers. Multi-family water demand during the four lowest contiguous wet weather months averaged approximately 127 gpd per home with wastewater discharge estimated at 95% of this amount, or 121 gpd, to account for a small amount of water use that may not be discharged to the wastewater system.

Table 25 – Multi-Family Residential Wet Weather Water Use 2018/19

	JUL/AUG	SEP/OCT	NOV/DEC	JAN/FEB	MAR/APR	MAY/JUN	TOTAL
Metered Water Use (hcf)	36,644	37,008	33,041	26,317	24,913	30,208	188,131
Dwelling Units (With Billed Use> 0 hcf)	2,470	2,472	2,477	2,475	2,481	2,481	2,476
Avg Monthly Use per Account (hcf)	7.4	7.5	6.7	5.3	5.0	6.1	6.3
Avg Demand per Account (gpd)	182	184	164	131	123	150	156

Hundred Cubic Feet (hcf); Gallons per Day (gpd)



Updated Wastewater Capacity Fees

Tables 26 and 27 on the following pages show updated wastewater capacity fees under the 75% and 90% cost recovery alternatives that BWA believes represent reasonable and defensible calculations for facility cost recovery that balances the goals of a) recovering the cost of facilities benefitting new development and b) ensuring that the fees do not exceed the estimated reasonable cost of facilities benefitting growth.

The updated charges are calculated by multiplying the unit charges for flow, BOD and SS by conservative estimates of wastewater flow and strength for each customer type. As proposed, wastewater capacity fees would be applied as follows:

- **Residential Wastewater Capacity Fees** are applied based on the number of single or multi-family dwelling units multiplied by the respective charge per unit. Charges for Accessory Dwelling Units (ADUs) are based on square footage in compliance with the requirements of Government Code 65852.2.
- **Non-Residential Wastewater Capacity Fees** are applied based on both a) the water meter size of each new connection, which serves as a reasonable proxy for wastewater demand, and b) wastewater strength classification. Wastewater demands are based on 80% of the water demand for each meter size. Non-residential charges are shown for three wastewater strength classes. A list of typical businesses and their appropriate wastewater strength class is attached after the tables showing updated capacity fees. Capacity fees for connections with mixed uses, such as buildings with offices and restaurants, or a shopping center with various types of businesses, would be applied based on the square footage of building area for each type of use based on the guidelines shown on **Table 28**.
- **Industrial & Non-Standard Commercial Capacity Fees** are applied based on estimated wastewater flow and loading for each new connection and the unit capacity fees for flow, BOD and SS. To help ensure the appropriateness of the amount of capacity fees paid, the City should verify or calculate the estimated flows and loadings for each connection.

Note: The formulas for determining the underlying components of the Wastewater Capacity Fees are:
Flow = Flow (gpd) x Unit Fee for Flow
BOD = Flow (gpd) ÷ 1,000,000 x 365 x BOD Strength Concentration (mg/l) x 8.34 x Unit Fee for BOD
SS = Flow (gpd) ÷ 1,000,000 x 365 x SS Strength Concentration (mg/l) x 8.34 x Unit Fee for SS

Table 26 – Updated Wastewater Capacity Fees with 75% Cost Recovery

	Flow (gpd)	BOD (mg/l)	SS (mg/l)	Wastewater Capacity Fee
WASTEWATER CAPACITY FEES PER UNIT	$93.55 per gpd	$12.20 per lb/year	$8.98 per lb/year	
RESIDENTIAL				
Capacity fees per residential dwelling unit				
Single Family [1]	130	250	250	**$14,257 per unit**
Multifamily [2]	120	250	250	**13,160 per unit**
Accessory Dwelling Unit [3]		250	250	**5.09 per sq ft**

NON-RESIDENTIAL

Capacity fees based on water meter size and wastewater class

See Attachment A for a list of land use categories and associated charges

	Class A Low Strength	Class B Medium Strength	Class C High Strength
Combined BOD + SS Strength (mg/l)	Up to 400	401 - 800	> 800
Used for Fee Calculation			
BOD (mg/l)	150	300	600
SS (mg/l)	150	300	500

Meter Size	Ratio	Flow (gpd) [4]	Wastewater Capacity Fee		
Up to 3/4-inch	1.00	176	**$18,167**	**$19,869**	**$22,792**
1-inch	1.67	293	**30,244**	**33,077**	**37,944**
1-1/2-inch	3.33	587	**60,591**	**66,268**	**76,017**
2-inch	5.33	939	**96,925**	**106,006**	**121,601**
3-inch	10.00	1,760	**181,669**	**198,690**	**227,921**
4-inch	16.67	2,933	**302,748**	**331,113**	**379,826**
6-inch	33.33	5,867	**605,598**	**662,339**	**759,781**
8-inch	53.33	9,387	**968,937**	**1,059,719**	**1,215,624**

Industrial & Non-Standard Commercial

Capacity fees based on estimated wastewater flow and strength & unit charges for Flow, BOD & SS

Flow Charge	**$93.55 per gpd**
BOD Charge	**12.20 per lb/year**
SS Charge	**8.98 per lb/year**

The City reserves the authority to determine Capacity Fees for new or expanded connections on a case-by-case basis to help ensure the charges reflect the estimated demand and capacity needs for serving each connection.

Notes:

1 Single Family Residential wastewater demand based on 95% of average water use per single family home during the 4 lowest contiguous months (Jan-Apr) based on analysis of FY2018/19 water use.

2 Multifamily Residential wastewater demand based on 95% of average water use per multifamily dwelling unit during the 4 lowest contiguous months (Jan-Apr) based on analysis of FY2018/19 water use.

3 ADU water demand per square feet proportionately based on wastewater demand per single family home assuming a typical new home size of 2,800 square feet based on City Planning Department analysis of development applications over past 5 years. Fees for ADUs are based on square footage in compliance with California Government Code Section 65852.2.

4 Wastewater demand for non-residential connections conservatively based on 80% of estimated water demand for each meter size shown in the schedule of Water Capacity Charges.

Abbreviations:

Accessory Dwelling Unit (ADU); Biological Oxygen Demand (BOD), Suspended Solids (SS); Gallons per Day (gpd); Milligrams per Liter (mg/l)

Table 27 – Updated Wastewater Capacity Fees with 90% Cost Recovery

	Flow (gpd)	BOD (mg/l)	SS (mg/l)	Wastewater Capacity Fee
WASTEWATER CAPACITY FEES PER UNIT	$112.93 per gpd	$14.64 per lb/year	$10.78 per lb/year	
RESIDENTIAL				
Capacity fees per residential dwelling unit				
Single Family [1]	130	250	250	**$17,196 per unit**
Multifamily [2]	120	250	250	**15,873 per unit**
Accessory Dwelling Unit [3]		250	250	**6.14 per sq ft**
NON-RESIDENTIAL				
Capacity fees based on water meter size and wastewater class				
See Attachment A for a list of land use categories and associated charges				
	Class A	Class B	Class C	
	Low Strength	Medium Strength	High Strength	
Combined BOD + SS Strength (mg/l)	Up to 400	401 - 800	> 800	
Used for Fee Calculation				
BOD (mg/l)	150	300	600	
SS (mg/l)	150	300	500	

Meter Size	Ratio	Flow (gpd) [4]	Wastewater Capacity Fee		
Up to 3/4-inch	1.00	176	**$21,919**	**$23,961**	**$27,470**
1-inch	1.67	293	**36,489**	**39,890**	**45,731**
1-1/2-inch	3.33	587	**73,103**	**79,917**	**91,617**
2-inch	5.33	939	**116,940**	**127,840**	**146,556**
3-inch	10.00	1,760	**219,185**	**239,614**	**274,696**
4-inch	16.67	2,933	**365,267**	**399,311**	**457,774**
6-inch	33.33	5,867	**730,659**	**798,759**	**915,704**
8-inch	53.33	9,387	**1,169,030**	**1,277,987**	**1,465,095**

Industrial & Non-Standard Commercial

Capacity fees based on estimated wastewater flow and strength & unit charges for Flow, BOD & SS

Flow Charge	**$112.93 per gpd**
BOD Charge	**14.64 per lb/year**
SS Charge	**10.78 per lb/year**

The City reserves the authority to determine Capacity Fees for new or expanded connections on a case-by-case basis to help ensure the charges reflect the estimated demand and capacity needs for serving each connection.

Notes:

1 Single Family Residential wastewater demand based on 95% of average water use per single family home during the 4 lowest contiguous months (Jan-Apr) based on analysis of FY2018/19 water use.

2 Multifamily Residential wastewater demand based on 95% of average water use per multifamily dwelling unit during the 4 lowest contiguous months (Jan-Apr) based on analysis of FY2018/19 water use.

3 ADU water demand per square feet proportionately based on wastewater demand per single family home assuming a typical new home size of 2,800 square feet based on City Planning Department analysis of development applications over past 5 years. Fees for ADUs are based on square footage in compliance with California Government Code Section 65852.2.

4 Wastewater demand for non-residential connections conservatively based on 80% of estimated water demand for each meter size shown in the schedule of Water Capacity Charges.

Abbreviations:

Accessory Dwelling Unit (ADU); Biological Oxygen Demand (BOD), Suspended Solids (SS); Gallons per Day (gpd); Milligrams per Liter (mg/l)

Table 28 – Proposed Non-Residential Wastewater Capacity Fee Classes

Land Use Category	Classification
Retail/Commercial	
Retail & Department Stores	Class A
Grocery Stores/Markets (without garbage grinder)	Class A
Grocery Stores/Markets (with garbage grinder)	Class C
Convenience Stores	Class A
Service/Commercial	
Fitness Facilities/Gyms	Class A
Beauty Salons/Barber Shops/Nail Salons	Class A
Hospitals	Class A
Social Services	Class A
Laundromat	Class A
Day Care Center	Class A
Dry Cleaners	Class A
General Commercial Services	Class A
Bars/Nightclubs (without dining)	Class A
Delicatessen (no cooking)	Class A
Yoga/Dance Studio	Class A
Coffee Shops	Class B
Juice Bar	Class B
Ice Cream Shop	Class B
Gas Stations/Auto Repair	Class B
Auto Steam Cleaning	Class C
Restaurants	Class C
Bakeries	Class C
Mortuaries	Class C
Office	
Professional Offices	Class A
Medical/Dental/Health Care/Veterinary Offices	Class A
Institutional/Assembly	
Theaters	Class A
Assembly Halls	Class A
Places of Worship	Class A
Middle & High Schools	Class A
Elementary Schools	Class A
Day Care Facilities	Class A
Lodging	
Hotels/Motels (without restaurant, *breakfast buffet ok)*	Class B
Hotels/Motels (with restaurant)	Class C
Warehouse/Distribution	
Warehouse/Storage Facilities	Class A
(includes ancilliary office space)	
Industrial	
Industrial & Food/Beverage	Based on Unit Charges and Estimated Wastewater Flow and Strength
Mixed Use (Class assignment based on square footage of building area associated with each type of use)	
Mixed use accounts with partial Class A use would be assigned to Class A unless:	Class A
Class B area > 50% of total area	Class B
Class C or combined Class B&C area > 25% but < 50% of total area	Class B
Class C or combined Class B&C area > 50% of total area	Class C
Mixed use accounts with only Class B and Class C use would assigned to Class B unless	Class B
Class C area > 50% of total area	Class C
Class assignments for mixed use residential & commercial accounts would be based	
on the same criteria listed above accounting for residential area as Class B.	

4. Application of Fees & Related Issues

This section highlights some key issues regarding the application and implementation of the updated capacity fees and also identifies some related issues for City consideration.

Capacity Fee Ordinance: Purpose of Fee

Pursuant to Government Code, revenues derived from the City's capacity fees can only be used for the purpose for which the charges are collected. In order to maximize the City's flexibility for use of capacity fee revenues, BWA recommends that the ordinances/resolutions adopting new charges broadly define the purpose of each capacity fee, such as to recover a proportionate share of costs for existing and future water/wastewater system facilities and assets from new or expanded connections to the water/wastewater systems.

Use of Capacity Fee Revenues

All of the updated capacity fee revenues are eligible to help fund capital improvements that represent upgrades and expansions. At the same time, a little over 63% of the updated water capacity fees and a little over 65% of the wastewater capacity fees recover costs for buying in to existing facilities and assets. This portion of each charge represents a reimbursement to the existing customer base for previously-funded facilities and therefore may be used to help fund rehabilitation and replacement capital improvements.

Capacity Fee Credits for Redevelopment

Capacity fees for redevelopment projects and/or expansions should be based on the incremental demand generated from the new project. Under this approach, future redevelopment projects would get credited for the capacity used by the prior development and only have to pay charges for the increase in demand as calculated based on the updated capacity fees. For example, a redevelopment project with a 2-inch water meter that is replacing an existing building served by a 1-inch meter would pay the difference between the updated capacity fee for the 2-inch meter and 1-inch meter.

Changes in Property Use

In cases where a property experiences a change in use, such as if an office is converted into a restaurant, the City is entitled to collect capacity fees for any change in water or wastewater demand, similar to a redevelopment project. Even in cases in which there is no change in water demand or meter size, additional wastewater capacity fees may apply for changes in wastewater strength classification. For example, an office with a 1-inch meter and a low-strength classification that is converted to a restaurant with a 2-inch meter and a high-strength classification would pay the difference between the fees for the respective categories.

Future Fee Adjustments

In future years, BWA recommends that the City update its capacity fees annually by adjusting the charges by the change in the Engineering News-Record Construction Cost Index (20-Cities Average) to account for future construction cost inflation. The fee adjustment should be based on the change in the ENR index from the most recent preceding fee update, which allows for a multi-year adjustment if the City ever opted to temporarily defer any fee adjustments. The City's capacity fee ordinances can allow for automatic annual adjustments.

Additionally, the City should review and consider updating its capacity fees when substantial revisions are made to anticipated capital improvement costs or to substantial changes in projected demand. In general, BWA recommends that capacity fees be independently reviewed and/or updated approximately once every five years.

APPENDIX A

Water Capital Improvement Program & Cost Allocation

Table A-1
City of Benicia
Water 20-Year CIP & Cost Allocation

Project #	Project Name	Category	Project Cost ($)[1]	Upgrade/Expansion[2] %	Upgrade/Expansion[2] $	Rehab/Replacement[2] %	Rehab/Replacement[2] $
Municipal Water System Improvements							
WD-006	Reliability Transmission Main from WTP	Distribution	5,398,000	31%	1,649,389	69%	3,748,611
WD-001	Park Road Transmission Main (18-inch)	Distribution	2,324,000	0%	-	100%	2,324,000
WD-013	Viewmont St Water Main	Distribution	1,388,000	0%	-	100%	1,388,000
WD-008	Adams Street Water Main Replacement	Distribution	809,000	0%	-	100%	809,000
WD-002	Park Road Transmission Main (24-inch)	Distribution	1,954,000	0%	-	100%	1,954,000
WD-003	Military West Zone 1 Water Main	Distribution	3,175,000	0%	-	100%	3,175,000
WD-010	E 5th Street Water Main	Distribution	798,000	0%	-	100%	798,000
WD-012	Jackson St Reliability Loop	Distribution	418,000	100%	418,000	0%	-
WD-015	Valve Replacement (Clearview & East E St areas)	Distribution	785,000	0%	-	100%	785,000
WD-009	R-1 Old Reservoir Water Main	Distribution	1,254,000	100%	1,254,000	0%	-
WD-016	Ongoing Condition Assessment Wtr Distro Syst	Distribution	220,000	0%	-	100%	220,000
WD-004	Drolette Way Loop	Distribution	197,000	100%	197,000	0%	-
WD-007	Service Line Replacement	Distribution	1,293,000	0%	-	100%	1,293,000
WD-005	W 7th Street Water Main	Distribution	668,000	0%	-	100%	668,000
WD-011	Industrial Way Transmission Main Valves	Distribution	435,000	0%	-	100%	435,000
BPS-002	Booster Pump Station - 2	Pump Stations	3,636,000	50%	1,818,000	50%	1,818,000
BPS-003	Booster Pump Station - 3	Pump Stations	2,628,000	50%	1,314,000	50%	1,314,000
BPS-004	Ongoing Condition Assess Booster Pump Stations	Pump Stations	220,000	0%	-	100%	220,000
BPS-001	Booster Pump Station - 1	Pump Stations	624,000	50%	312,000	50%	312,000
ST-004	R2 Reservoir	Tanks	268,000	0%	-	100%	268,000
ST-001/002	Chlorine Contact Tank & Clearwell Rehabilitation	Tanks	576,000	0%	-	100%	576,000
ST-005/006	R3A & R3B Reservoir	Tanks	509,000	0%	-	100%	509,000
ST-007	Ongoing Condition Assessment Treated Wtr Tanks	Tanks	220,000	0%	-	100%	220,000
ST-003	R1 Reservoir	Tanks	86,000	0%	-	100%	86,000
WTP-027	Ozonation System	WTP	24,768,000	100%	24,768,000	0%	-
WTP-007	Filter Pipe Gallery Improvements	WTP	832,000	100%	832,000	0%	-
WTP-019	WTP SCADA Improvements	WTP	1,977,000	100%	1,977,000	0%	-
WTP-016	Finish Water Sample Pump	WTP	406,000	100%	406,000	0%	-
WTP-009	Filter Backwash Control Valve Replacement	WTP	237,000	0%	-	100%	237,000
WTP-005	Filter Basin 3 & 4 Improvements	WTP	1,014,000	100%	1,014,000	0%	-
WTP-024	Cathodic Protection Rehabilitation	WTP	988,000	0%	-	100%	988,000
WTP-017	Power Distribution Upgrade	WTP	3,073,000	100%	3,073,000	0%	-
WTP-018	Emergency Standby Power Upgrade	WTP	930,000	100%	930,000	0%	-
WTP-028	Ongoing Condition Assessment of the WTP	WTP	220,000	0%	-	100%	220,000
WTP-001	Diversion Structure Gate and Actuator Replacement	WTP	201,000	0%	-	100%	201,000
WTP-025	Inspection of Burried Metallic Pipes	WTP	1,215,000	0%	-	100%	1,215,000
WTP-002	Flocculation/Sedimentation Basin 1 Improvements	WTP	2,372,000	100%	2,372,000	0%	-
WTP-013	Dissipator Box Rehabilitation	WTP	170,000	0%	-	100%	170,000
WTP-026	Operations/Chem Bldg Annual Repair & Replacement	WTP	3,623,000	0%	-	100%	3,623,000

Table A-1
City of Benicia
Water 20-Year CIP & Cost Allocation

Project #	Project Name	Category	Project Cost ($)[1]	Upgrade/Expansion[2] %	Upgrade/Expansion[2] $	Rehab/Replacement[2] %	Rehab/Replacement[2] $
WTP-012	Operations and Chemical Building Investigations	WTP	169,000	0%	-	100%	169,000
WTP-003	Flocculation & Sedimentation Basin 2 Improvements	WTP	3,156,000	0%	-	100%	3,156,000
WTP-004	Filter Basin 1 & 2 Improvements	WTP	1,035,000	0%	-	100%	1,035,000
WTP-006	Filter Basin 5 & 6 Improvements	WTP	1,014,000	0%	-	100%	1,014,000
WTP-014	General Pipe and Equipment Recoating	WTP	252,000	0%	-	100%	252,000
WTP-011	Solids Residuals, Storage and Pumping	WTP	5,790,000	0%	-	100%	5,790,000
WTP-010	Chemical Feed Piping Improvements	WTP	537,000	0%	-	100%	537,000
WTP-021	Facility Electrical Safety Improvements	WTP	290,000	0%	-	100%	290,000
WTP-015	Plantwide Concrete Rehabilitation	WTP	1,022,000	0%	-	100%	1,022,000
WTP-022	Facility Safety Improvements	WTP	320,000	0%	-	100%	320,000
WTP-020	Facility Site Lighting	WTP	557,000	0%	-	100%	557,000
WTP-023	Clarifier Demolition	WTP	1,522,000	0%	-	100%	1,522,000
WTP-008	Filter Backwash Tank Safety Improvements	WTP	122,000	0%	-	100%	122,000
Subtotal			87,695,000	48%	42,334,389	52%	45,360,611
Raw Water Infrastructure Improvements							
RW-002	Cordelia Pump Station Improvements	Raw Water	6,802,000	100%	6,802,000	0%	-
RW-003	Parallel Raw Water Transmission Line	Raw Water	116,594,000	100%	116,594,000	0%	-
RW-004	Existing Raw Water Transmission Line Rehab	Raw Water	46,152,000	0%	-	100%	46,152,000
RW-001	Lake Herman Pump Station Improvements	Raw Water	2,945,000	100%	2,945,000	0%	-
RW-006	Lake Herman Control Tower Improvements	Raw Water	8,723,000	100%	8,723,000	0%	-
RW-007	Ongoing Condition Assessment Raw Wtr Supply	Raw Water	220,000	0%	-	100%	220,000
Subtotal			181,436,000	74%	135,064,000	26%	46,372,000
Vallejo Treated & Raw Water Interties							
WD-014	Vallejo Treated Water Intertie	Distribution	7,803,000	100%	7,803,000	0%	-
RW-005	Vallejo Raw Water Intertie	Distribution	39,607,000	100%	39,607,000	0%	-
Subtotal			47,410,000	100%	47,410,000	0%	-
Total			**316,541,000**	**71%**	**224,808,389**	**29%**	**91,732,611**

1 Source: City of Benicia, based on 2020 Water Condition Assessment.

2 Based on City of Benicia engineering estimates.

APPENDIX B

Wastewater Capital Improvement Program & Cost Allocation

Table B-1
City of Benicia
Wastewater 20-Year CIP & Cost Allocation

Project #	Project Name	Category	Project Cost ($)[1]	Upgrade/Expansion[2] %	Upgrade/Expansion[2] $	Rehab/Replacement[2] %	Rehab/Replacement[2] $
Wastewater Treatment Plant Improvements							
WWTP-025	ECR-1 and ECR-2 Electrical Distribution Modification	WWTP	2,961,000	0%	-	100%	2,961,000
WWTP-019	Drainage System Rehabilitation at Dewatering Building	WWTP	135,000	0%	-	100%	135,000
WWTP-026	MCC Modifications and Improvements	WWTP	8,711,000	100%	8,711,000	0%	-
WWTP-023	Flare and Gas Pipes Replacement	WWTP	1,312,000	0%	-	100%	1,312,000
WWTP-031	Inspection of Burried Metallic Pipes	WWTP	1,215,000	0%	-	100%	1,215,000
WWTP-030	Cathodic Protection Rehabilitation	WWTP	915,000	0%	-	100%	915,000
WWTP-039	Effluent Piping Replacement	WWTP	5,078,000	0%	-	100%	5,078,000
WWTP-006	Grit Pipes Replacement	WWTP	189,000	0%	-	100%	189,000
WWTP-001	Industrial Monitoring Station Rehabilitation	WWTP	415,000	0%	-	100%	415,000
WWTP-002	Industrial Diversion Structure Rehabilitation/Replacement	WWTP	552,000	0%	-	100%	552,000
WWTP-013	Effluent Diversion (Wrap Around) Pipe Replacement	WWTP	210,000	50%	105,000	50%	105,000
WWTP-024	Disinfection Analyzing Room Improvements	WWTP	99,000	100%	99,000	0%	-
WWTP-038	Replace Chlorine Injection Pipe to RAS Header	WWTP	145,000	0%	-	100%	145,000
WWTP-005	Influent Pump Station Improvements	WWTP	1,072,000	100%	1,072,000	0%	-
WWTP-050	Plantwide Concrete Rehabilitation	WWTP	2,183,000	0%	-	100%	2,183,000
WWTP-014	3W System Improvements	WWTP	300,000	100%	300,000	0%	-
WWTP-018	Ventilation Improvements at Dewatering Building	WWTP	84,000	100%	84,000	0%	-
WWTP-022	Boiler Replacement	WWTP	647,000	100%	647,000	0%	-
WWTP-037	Plantwide Valve Replacement Program	WWTP	125,000	0%	-	100%	125,000
WWTP-029	Control System Improvements	WWTP	1,025,000	100%	1,025,000	0%	-
WWTP-003	Stormwater Holding Basins Improvements	WWTP	340,000	100%	340,000	0%	-
WWTP-004	Headworks Improvements	WWTP	514,000	100%	514,000	0%	-
WWTP-016	Dissolved Air Floatation Equipment Rehabilitation	WWTP	268,000	0%	-	100%	268,000
WWTP-017	Digesters Cleaning	WWTP	360,000	0%	-	100%	360,000
WWTP-020	Sludge Cake Conveyor Replacement	WWTP	177,000	0%	-	100%	177,000
WWTP-021	Sludge Dewatering Improvements - BFP Replacement	WWTP	845,000	0%	-	100%	845,000
WWTP-051	Ongoing Condition Assessment	WWTP	220,000	0%	-	100%	220,000
WWTP-008	Cover and Aeration Valves Replacement at Aeration Basins	WWTP	210,000	0%	-	100%	210,000
WWTP-007	Primary Clarifiers Cross Collectors Replacement	WWTP	547,000	0%	-	100%	547,000
WWTP-011	Scum Collector Replacement of RBC Clarifier 3	WWTP	91,000	0%	-	100%	91,000
WWTP-015	Chemical Storage Tanks Replacement	WWTP	86,000	0%	-	100%	86,000
WWTP-035	Feasibility Study of Accepting High Strength Waste	WWTP	260,000	0%	-	100%	260,000
WWTP-033	Plant Site Civil Improvements	WWTP	168,000	100%	168,000	0%	-
WWTP-010	Secondary Clarifier Mechanism Coating	WWTP	357,000	0%	-	100%	357,000
WWTP-012	Effluent Pumps Replacement Project	WWTP	393,000	0%	-	100%	393,000
WWTP-032	Yard Piping Replacement	WWTP	2,758,000	0%	-	100%	2,758,000
WWTP-034	Secondary Treatment Upgrade	WWTP	38,789,000	100%	38,789,000	0%	-
WWTP-036	Co-Processing of SSO and Energy Production	WWTP	21,358,000	100%	21,358,000	0%	-
SUS-001	IPR Treatment System	WWTP	30,719,000	100%	30,719,000	0%	-
SUS-002	IPR Conveyance System	WWTP	13,217,000	100%	13,217,000	0%	-
Subtotal: Wastewater Treatment Plant Improvements			139,050,000	84%	117,148,000	16%	21,902,000

Table B-1
City of Benicia
Wastewater 20-Year CIP & Cost Allocation

Project #	Project Name	Category	Project Cost ($)[1]	Upgrade/Expansion[2] %	Upgrade/Expansion[2] $	Rehab/Replacement[2] %	Rehab/Replacement[2] $
Wastewater Collection System Improvements							
WWC-023	Park Road Forcemain	Collection	2,789,000	50%	1,394,500	50%	1,394,500
WWC-004	Elane Way	Collection	442,000	0%	-	100%	442,000
WWC-001	181 East K Street	Collection	390,000	0%	-	100%	390,000
WWC-019	Bayshore Road	Collection	3,222,000	27%	854,816	73%	2,367,184
WWC-016	E Channel Road Sewer Replacement	Collection	2,994,000	0%	-	100%	2,994,000
WWC-007	Jackson Street	Collection	798,000	0%	-	100%	798,000
WWC-008	Polk Street	Collection	487,000	0%	-	100%	487,000
WWC-002	El Bonito Way - Forcemain	Collection	395,000	56%	219,444	44%	175,556
WWC-014	Clocktower	Collection	433,000	0%	-	100%	433,000
WWC-018	Rose Drive/London Circle	Collection	2,937,000	100%	2,937,000	0%	-
WWC-017	I-780 Crossing @ W 7th St	Collection	1,072,000	0%	-	100%	1,072,000
WWC-015	E 3rd St/E S St	Collection	730,000	36%	262,800	64%	467,200
WWC-011	Chelsea Hills Sewer Rehab	Collection	511,000	25%	127,750	75%	383,250
WWC-020	E 7th Street	Collection	274,000	0%	-	100%	274,000
WWC-003	Hillcrest Avenue	Collection	1,194,000	0%	-	100%	1,194,000
WWC-005	255 E O St & Wingfield Wy	Collection	416,000	0%	-	100%	416,000
WWC-022	El Bonito Way - Gravity	Collection	384,000	0%	-	100%	384,000
WWC-013	375 Military East	Collection	300,000	50%	150,000	50%	150,000
WWC-006	500 E H St	Collection	273,000	0%	-	100%	273,000
WWC-024	Ongoing Condition Assessment of the Collection System	Collection	220,000	0%	-	100%	220,000
WWC-009	200 Block E L Street	Collection	399,000	0%	-	100%	399,000
WWC-010	300 Block E L Street	Collection	328,000	0%	-	100%	328,000
WWC-012	W 2nd Street/Military West	Collection	132,000	0%	-	100%	132,000
WWC-021	W H Street	Collection	172,000	0%	-	100%	172,000
LS-005	Lift Stations I/I Studies	Lift Stations	930,000	0%	-	100%	930,000
LS-001	Lift Stations Electrical Improvements	Lift Stations	1,944,000	100%	1,944,000	0%	-
LS-004	Lift Station Improvements	Lift Stations	905,000	100%	905,000	0%	-
LS-002	Barn & Park Lift Station Improvements	Lift Stations	1,403,000	100%	1,403,000	0%	-
LS-003	E 7th Street & B St Lift Station Improvements	Lift Stations	995,000	100%	995,000	0%	-
LS-006	Ongoing Condition Assessment of the Sewer Lift Stations	Lift Stations	220,000	0%	-	100%	220,000
Subtotal: Wastewater Collection System Improvements			27,689,000	40%	11,193,311	60%	16,495,689
Total Capital Improvements			**166,739,000**	**77%**	**128,341,311**	**23%**	**38,397,689**

1 Source: 2020 Wastewater Condition Assessment.
2 Based on City of Benicia engineering estimates.

APPENDIX C

California Government Code:
Key Sections Pertaining to Water & Wastewater Capacity Charges

California Government Code
Key Sections Pertaining to Water & Wastewater Capacity Charges
Sections 66013, 66016, 66022 & 66023

66013

(a) Notwithstanding any other provision of law, when a local agency imposes fees for water connections or sewer connections, or imposes capacity charges, those fees or charges shall not exceed the estimated reasonable cost of providing the service for which the fee or charge is imposed, unless a question regarding the amount of the fee or charge imposed in excess of the estimated reasonable cost of providing the services or materials is submitted to, and approved by, a popular vote of two-thirds of those electors voting on the issue.

(b) As used in this section:

(1) “Sewer connection” means the connection of a structure or project to a public sewer system.

(2) “Water connection” means the connection of a structure or project to a public water system, as defined in subdivision (f) of Section 116275 of the Health and Safety Code.

(3) “Capacity charge” means a charge for public facilities in existence at the time a charge is imposed or charges for new public facilities to be acquired or constructed in the future that are of proportional benefit to the person or property being charged, including supply or capacity contracts for rights or entitlements, real property interests, and entitlements and other rights of the local agency involving capital expense relating to its use of existing or new public facilities. A “capacity charge” does not include a commodity charge.

(4) “Local agency” means a local agency as defined in Section 66000.

(5) “Fee” means a fee for the physical facilities necessary to make a water connection or sewer connection, including, but not limited to, meters, meter boxes, and pipelines from the structure or project to a water distribution line or sewer main, and that does not exceed the estimated reasonable cost of labor and materials for installation of those facilities.

(6) “Public facilities” means public facilities as defined in Section 66000.

(c) A local agency receiving payment of a charge as specified in paragraph (3) of subdivision (b) shall deposit it in a separate capital facilities fund with other charges received, and account for the charges in a manner to avoid any commingling with other moneys of the local agency, except for investments, and shall expend those charges solely for the purposes for which the charges were collected. Any interest income earned from the investment of moneys in the capital facilities fund shall be deposited in that fund.

(d) For a fund established pursuant to subdivision (c), a local agency shall make available to the public, within 180 days after the last day of each fiscal year, the following information for that fiscal year:

(1) A description of the charges deposited in the fund.

(2) The beginning and ending balance of the fund and the interest earned from investment of moneys in the fund.

(3) The amount of charges collected in that fiscal year.

(4) An identification of all of the following:

(A) Each public improvement on which charges were expended and the amount of the expenditure for each improvement, including the percentage of the total cost of the public improvement that was funded with those charges if more than one source of funding was used.

(B) Each public improvement on which charges were expended that was completed during that fiscal year.

(C) Each public improvement that is anticipated to be undertaken in the following fiscal year.

(5) A description of each interfund transfer or loan made from the capital facilities fund. The information provided, in the case of an interfund transfer, shall identify the public improvements on which the transferred moneys are, or will be, expended. The information, in the case of an interfund loan, shall include the date on which the loan will be repaid, and the rate of interest that the fund will receive on the loan.

(e) The information required pursuant to subdivision (d) may be included in the local agency's annual financial report.

(f) The provisions of subdivisions (c) and (d) shall not apply to any of the following:

(1) Moneys received to construct public facilities pursuant to a contract between a local agency and a person or entity, including, but not limited to, a reimbursement agreement pursuant to Section 66003.

(2) Charges that are used to pay existing debt service or which are subject to a contract with a trustee for bondholders that requires a different accounting of the charges, or charges that are used to reimburse the local agency or to reimburse a person or entity who advanced funds under a reimbursement agreement or contract for facilities in existence at the time the charges are collected.

(3) Charges collected on or before December 31, 1998.

(g) Any judicial action or proceeding to attack, review, set aside, void, or annul the ordinance, resolution, or motion imposing a fee or capacity charge subject to this section shall be brought pursuant to Section 66022.

(h) Fees and charges subject to this section are not subject to the provisions of Chapter 5 (commencing with Section 66000), but are subject to the provisions of Sections 66016, 66022, and 66023.

(i) The provisions of subdivisions (c) and (d) shall only apply to capacity charges levied pursuant to this section.

(Amended by Stats. 2007, Ch. 94, Sec. 1. Effective January 1, 2008.)

66016

(a) Prior to levying a new fee or service charge, or prior to approving an increase in an existing fee or service charge, a local agency shall hold at least one open and public meeting, at which oral or written presentations can be made, as part of a regularly scheduled meeting. Notice of the time and place of the meeting, including a general explanation of the matter to be considered, and a statement that the data required by this section is available, shall be mailed at least 14 days prior to the meeting to any interested party who files a written request with the local agency for mailed notice of the meeting on new or increased fees or service charges. Any written request for mailed notices shall be valid for one year from the date on which it is filed unless a renewal request is filed. Renewal requests for mailed notices shall be filed on or before April 1 of each year. The legislative body may establish a reasonable annual charge for sending notices based on the estimated cost of providing the service. At least 10 days prior to the meeting, the local agency shall make available to the public data indicating the amount of cost, or estimated cost, required to provide the service

for which the fee or service charge is levied and the revenue sources anticipated to provide the service, including General Fund revenues. Unless there has been voter approval, as prescribed by Section 66013 or 66014, no local agency shall levy a new fee or service charge or increase an existing fee or service charge to an amount which exceeds the estimated amount required to provide the service for which the fee or service charge is levied. If, however, the fees or service charges create revenues in excess of actual cost, those revenues shall be used to reduce the fee or service charge creating the excess.

(b) Any action by a local agency to levy a new fee or service charge or to approve an increase in an existing fee or service charge shall be taken only by ordinance or resolution. The legislative body of a local agency shall not delegate the authority to adopt a new fee or service charge, or to increase a fee or service charge.

(c) Any costs incurred by a local agency in conducting the meeting or meetings required pursuant to subdivision (a) may be recovered from fees charged for the services which were the subject of the meeting.

(d) This section shall apply only to fees and charges as described in Sections 51287, 56383, 65104, 65456, 65584.1, 65863.7, 65909.5, 66013, 66014, and 66451.2 of this code, Sections 17951, 19132.3, and 19852 of the Health and Safety Code, Section 41901 of the Public Resources Code, and Section 21671.5 of the Public Utilities Code.

(e) Any judicial action or proceeding to attack, review, set aside, void, or annul the ordinance, resolution, or motion levying a fee or service charge subject to this section shall be brought pursuant to Section 66022.

(Amended by Stats. 2006, Ch. 643, Sec. 19. Effective January 1, 2007.)

66022

(a) Any judicial action or proceeding to attack, review, set aside, void, or annul an ordinance, resolution, or motion adopting a new fee or service charge, or modifying or amending an existing fee or service charge, adopted by a local agency, as defined in Section 66000, shall be commenced within 120 days of the effective date of the ordinance, resolution, or motion.

If an ordinance, resolution, or motion provides for an automatic adjustment in a fee or service charge, and the automatic adjustment results in an increase in the amount of a fee or service charge, any action or proceeding to attack, review, set aside, void, or

annul the increase shall be commenced within 120 days of the effective date of the increase.

(b)Any action by a local agency or interested person under this section shall be brought pursuant to Chapter 9 (commencing with Section 860) of Title 10 of Part 2 of the Code of Civil Procedure.

(c) This section shall apply only to fees, capacity charges, and service charges described in and subject to Sections 66013, 66014, and 66016.

(Amended by Stats. 2006, Ch. 643, Sec. 20. Effective January 1, 2007.)

66023

(a) Any person may request an audit in order to determine whether any fee or charge levied by a local agency exceeds the amount reasonably necessary to cover the cost of any product, public facility, as defined in Section 66000, or service provided by the local agency. If a person makes that request, the legislative body of the local agency may retain an independent auditor to conduct an audit to determine whether the fee or charge is reasonable, but is not required to conduct the audit if an audit has been performed for the same fee within the previous 12 months.

(b) To the extent that the audit determines that the amount of any fee or charge does not meet the requirements of this section, the local agency shall adjust the fee accordingly. This subdivision does not apply to a fee authorized pursuant to Section 17620 of the Education Code, or Sections 65995.5 and 65995.7.

(c) Except as otherwise provided in subdivision (h), the local agency shall retain an independent auditor to conduct an audit only if the person who requests the audit deposits with the local agency the amount of the local agency's reasonable estimate of the cost of the independent audit. At the conclusion of the audit, the local agency shall reimburse unused sums, if any, or the requesting person shall pay the local agency the excess of the actual cost of the audit over the sum which was deposited.

(d) Any audit conducted by an independent auditor to determine whether a fee or charge levied by a local agency exceeds the amount reasonably necessary to cover the cost of providing the product or service shall conform to generally accepted auditing standards.

(e) The procedures specified in this section shall be alternative and in addition to those specified in Section 54985.

(f) The Legislature finds and declares that oversight of local agency fees is a matter of statewide interest and concern. It is, therefore, the intent of the Legislature that this chapter shall supersede all conflicting local laws and shall apply in charter cities.

(g) This section shall not be construed as granting any additional authority to any local agency to levy any fee or charge which is not otherwise authorized by another provision of law, nor shall its provisions be construed as granting authority to any local agency to levy a new fee or charge when other provisions of law specifically prohibit the levy of a fee or charge.

(h) Notwithstanding subdivision (c), if a local agency does not comply with subdivision (b) of Section 66006 following the establishment, increase, or imposition of a fee, but requires payment of that fee in connection with the approval of a development project for three consecutive years, the local agency shall not require a deposit for an independent audit requested pursuant to this section and shall pay the cost of the audit.

(Amended by Stats. 2018, Ch. 357, Sec. 1. (SB 1202) Effective January 1, 2019.)
