NewGen Strategies & Solutions

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FINAL REPORT

WATER COST OF SERVICE & RATE STUDY

NOVEMBER 2022

CITY of BREA

Prepared for:
City of Brea
1 Civic Center Circle, 3rd Floor
Brea, California 92821

NewGen Strategies & Solutions

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November 8, 2022

Kristin Griffith
Administrative Services Director
City of Brea
1 Civic Center Circle
Brea, CA 92821

Subject: **Water Cost of Service and Rate Study Final Report**

Dear Ms. Griffith:

NewGen Strategies and Solutions, LLC (NewGen) is pleased to submit to the City of Brea this final report detailing our completed Water Cost of Service and Rate Study. This report details the results of our analysis of the forecasted costs of providing water service to the City's customers and our recommendations for recovering these costs over the next five years.

We appreciate the opportunity to provide our professional services to the City and would like to express our sincere appreciation to City staff. The dedication and assistance provided by City staff was essential to the completion of this study. It has been a distinct pleasure to work with the City of Brea.

Very truly yours,

DocuSigned by:
C11651334F8F462...
Eric Callocchia
Principal
NewGen Strategies and Solutions, LLC

DocuSigned by:
Tianna Carnes
B4BF015F92D8459...
Tianna Carnes
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NewGen Strategies and Solutions, LLC

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EXECUTIVE SUMMARY

The City of Brea operates a water distribution system with over 13,000 customer connections, over 200 miles of pipes, and various pumps and reservoirs. The City's Water Division, part of the Department of Public Works, is responsible for the City's water system, with duties including backflow prevention and maintaining water quality. Brea imports 100% of its water from two major water suppliers, Metropolitan Water District of Orange County and California Domestic Water Company. Both suppliers have increased their rates consistently over that past several years. In addition, the City is required to expend capital for essential maintenance and improvements to the water system. The current water rates went into effect on July 1, 2017. The City recently completed a Water System Master Plan that defines over $18.8 million in projects to meet existing deficiencies, over $2.6 million in projects to improve system reliability, and over $103.8 million in projects to meet build-out demand.

The City engaged NewGen Strategies and Solutions, LLC (NewGen) to conduct a Water Cost of Service and Rate Study. The goal of the study is to ensure that revenues cover the cost of service, meet the Water Fund's debt coverage and reserve requirements, and provide for future capital improvement projects as defined by the Water System Master Plan.

Projected Water System Revenue Requirement

The revenue requirement of the City's water system is the total of the projected costs related to Operating and Maintenance (O&M), Pay-as-you-go (PAYGO, i.e., cash funded) Capital Improvements, and Debt Service (both existing and future) assuming escalation of the FY 2022 budget and financing of the City's Capital improvement plan. The projected revenue requirement assumes that the City will spend an average of $5.7 million on PAYGO capital spending each year and issue no new debt. Miscellaneous non-rate revenues assume that revenue collected from Water Connection Charges increase slightly over the projection period and interest income remains 1.5% of Water Fund Balance.

Table E-1
Water Fund Net Revenue Requirement Forecast

	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
Operating Expenses	$13,879,933	$15,923,873	$16,350,329	$16,820,202	$17,267,652	$17,720,284
Existing Debt Service	$2,423,579	$2,433,698	$2,447,812	$2,928,522	$2,941,370	$2,958,481
New Debt Service	$ -	$ -	$ -	$ -	$ -	$ -
PAYGO Capital	$3,887,250	$10,955,971	$8,834,314	$4,111,385	$3,142,943	$3,237,411
Total Rev. Req.	**$20,190,761**	**$29,313,542**	**$27,632,456**	**$23,860,108**	**$23,351,965**	**$23,916,176**
Less: Misc. Revenues	($1,184,376)	($1,236,658)	($1,285,240)	($1,336,051)	($1,388,186)	($1,442,276)
Net Rev. Req.	**$19,006,385**	**$28,076,884**	**$26,347,215**	**$22,524,058**	**$21,963,779**	**$22,473,899**

Recommended Rate Changes

Given the revenue requirement projection detailed above and assuming the City does not increase any water rates or fees from their FY 2022 level, the following exhibits show that revenues would not be able to cover system projected (including capital) expenses in the FY 2023 and FY 2024; however, the City's

existing Water Fund reserves can sustain the Fund above the minimum recommended reserve target, as shown in the following exhibits.

Exhibit E-2 Water Fund Expenses vs. Revenues Under FY 2022 Rates

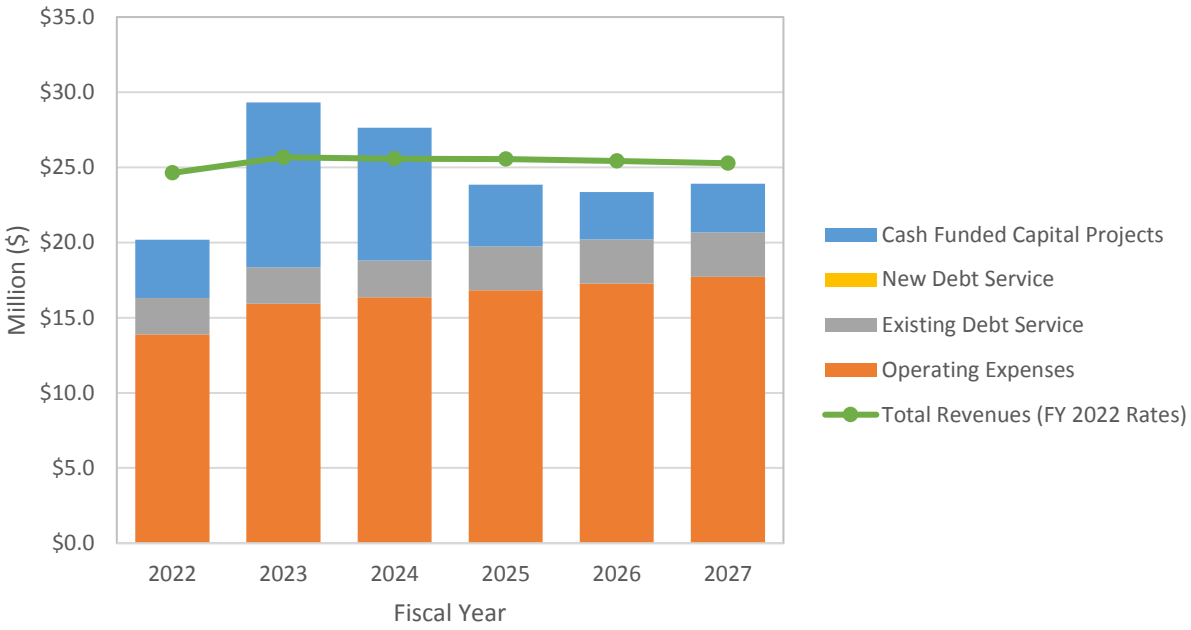
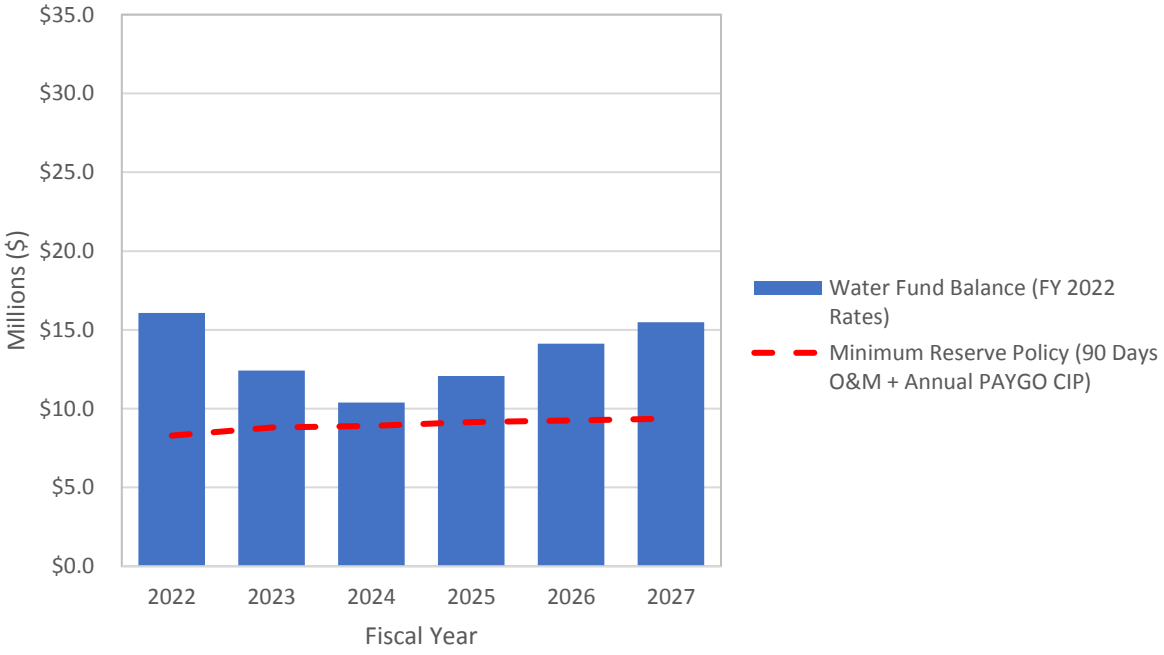


Exhibit E-3 Projected Water Fund Balance Under FY 2022 Rates



The revenue generated by the City's current water rates is sufficient to sustain the City's water system O&M and capital costs over the five-year projection period. Therefore, NewGen is not recommending any increases in water rate revenues. However, to create a more sustainable and stable revenue source for the Water Fund and align with water industry best practices, NewGen is recommending that the City adopt rates that increase the proportion of fixed revenues from the current 17% to 25%. NewGen's recommended rate adjustments for the City's fixed and variable water rates is shown in the following table.

Table E-4
Recommended Water Rate Changes

	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
Fixed Customer Charge	48.0%	0.0%	0.0%	0.0%	0.0%
Volumetric Charge per HCF	(11.0%)	0.0%	0.0%	0.0%	0.0%
Annual Cash Flow	$4,441,422	($3,724,631)	($2,115,345)	$1,630,598	$2,024,415
Ending Fund Balance	**$16,069,833**	**$12,345,202**	**$10,229,858**	**$11,860,456**	**$13,884,871**
Minimum Recommended Reserve	$8,289,117	$8,795,597	$8,904,231	$9,138,621	$9,252,119
Over / (Under) Recommended Reserve	**$7,780,717**	**$3,549,605**	**$1,325,627**	**$2,721,835**	**$4,632,751**

The minimum recommended reserve in the table above is equal to 90 days of O&M expenses plus one year of average PAYGO capital spending.

Rate Projections and Customer Impacts

The impact on the City's median residential, lifeline, and commercial customer of NewGen's recommended rates is as follows:

Table E-5
Projected Monthly Customer Bills – Median Residential Customer

Sample Customer	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
Median Inside City	**$65.90**	**$68.05**	**$68.05**	**$68.05**	**$68.05**	**$68.05**
5/8" Meter	*$ Change*	*$2.15*	*$0.00*	*$0.00*	*$0.00*	*$0.00*
13 HCF	*% Change*	*3.3%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Median Lifeline	**$49.88**	**$51.91**	**$51.91**	**$51.91**	**$51.91**	**$51.91**
5/8" Meter	*$ Change*	*$2.03*	*$0.00*	*$0.00*	*$0.00*	*$0.00*
12 HCF	*% Change*	*4.1%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Commercial	**$467.03**	**$469.81**	**$469.81**	**$469.81**	**$469.81**	**$469.81**
2" Meter	*$ Change*	*$2.78*	*$0.00*	*$0.00*	*$0.00*	*$0.00*
79 HCF	*% Change*	*0.6%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*

The study found that the City's water utility is well managed both operationally and financially.

Section 1
PROJECT BACKGROUND AND SCOPE

Study Background

The City of Brea (City) operates a water distribution system with over 13,000 customer connections, over 200 miles of pipes, and various pumps and reservoirs. The City's Water Division, part of the Department of Public Works, is responsible for the City's water system, including backflow prevention and water quality issues. Brea imports 100% of its water from two major water suppliers, Metropolitan Water District of Orange County (MWDOC) and California Domestic Water Company (Cal Domestic). Both suppliers have increased their rates consistently over that past several years. In addition, the city is required to expend capital for essential maintenance and improvements to the water system. The current water rates went into effect on July 1, 2017. The City recently completed a Water System Master Plan that defines over $18.8 million in projects to meet existing deficiencies, over $2.6 million in projects to improve system reliability, and over $103.8 million in projects to meet build-out demand.

The City engaged NewGen Strategies and Solutions, LLC (NewGen) to conduct a Water Cost of Service and Rate Study. The goal of the study is to ensure that revenues cover the cost of service, meet the Water Fund's debt coverage and reserve requirements, and provide for future capital improvement projects as defined by the Water System Master Plan.

Study Objectives and Guiding Principles

The following principles were used to guide the rate study and were developed with input from City staff:

- The City's water utility must be financially self-supporting. It is assumed that the cost of operating and maintaining the water system will be supported by the fees and charges collected from water customers with no support or subsidy from other City revenues.
- The City's water rates shall be sufficient to ensure the funding of an appropriate level of system rehabilitation and replacement. It is assumed that the City will continually reinvest in the water system to replace assets as they reach the end of their useful lives.
- The City shall maintain appropriate reserves to provide for contingencies and unplanned expenses.
- The City's water rates shall be kept as low as possible over time. While it is possible to keep rates low for a period of time by not investing sufficiently in the maintenance of the water system, eventually the system will deteriorate and require substantial investments leading to the need for significant and immediate rate increases.

NewGen's recommendations as a result of this study endeavor to maintain a balance between the increasing costs to own and operate the City's water infrastructure and the need to maintain affordable service for City customers.

Study Approach

NewGen's approach to developing sustainable water rates is governed by the view that the ideal rate structure must satisfy six criteria:

- ***Equity*** requires that rates and charges result in no undue discrimination among customers or customer types. Although equity is normally related to the cost of service, it should be realized that customer acceptance will center on preconceived notions of equity and fairness.
- ***Efficiency*** refers to the ability of the rate schedule to encourage wise use of the resources devoted to the services that the utility provides. Efficiency considerations require that:
  - Rates should reflect the cost of providing service.
  - Rates should be similar for customers or customer types served under similar conditions.
  - Customers should be able to understand the rate schedules so that they can make rational decisions regarding their purchase of water service.
- ***Revenue Adequacy*** is the most fundamental of all considerations. Revenue Adequacy recognizes that it is necessary that rates produce revenues sufficient to operate the system even if there are changes in demand for service.
- ***Sustainability*** means that the objective of the rate methodology is to keep rates low over time, not to merely keep them low for the short-term by omitting or deferring needed expenses such as maintenance and funding of necessary cash reserves.
- ***Administrative Simplicity*** recognizes that limits must be placed on the complexity of the rate schedules to keep them easy to administer and understandable to the public.
- ***Legal and Regulatory Compliance*** is a prime consideration because rate structures must incorporate applicable local, state, and federal statutes, as well and any interjurisdictional agreements.

The application of these criteria should recognize that a rate schedule is a form of public policy statement, setting forth those values that the City considers important. Rate structures must be tailored to community perceptions, realities, and values, while also adhering to industry standard approaches to cost allocation and rate design.

Fiscal Year

The City operates on a fiscal year beginning July 1st and ending on June 30st each year. All years shown in this report refer to the fiscal year ending that year. For example, 2022 refers to the fiscal year beginning July 1, 2021 and ending June 30, 2022.

Section 2
WATER SYSTEM REVENUE REQUIREMENTS

The first step of the rate study is to compile the costs of owning and operating the City's water utility system. The three cost components of the City's Water system are: Operating and Maintenance (O&M); Capital Improvements; and Debt Service (both existing and future). These three cost components total to the amount needed each year to run the water system. While the study is based on the latest available data, there are several major assumptions that are included in the study's cost projections.

Major Study Assumptions

In order to project the operating, capital improvement, and debt service expenses of the City's water system, several major assumptions must be made. NewGen's assumptions ensure that the study's recommendations reflect a reasonable projection of the costs of the City's system.

Operating and Maintenance Cost Escalation Factors

NewGen's cost projections are based on the latest available actual and budgeted data. To reasonably project future costs, escalation and inflation factors must be applied to the City's budget line items. NewGen's financial model includes the following operating and maintenance budget line item inflation factors in Table 2-1. NewGen estimated a historically higher than average rate of increase for the City's water O&M costs.

Table 2-1
O&M Cost Escalation Factors

	Change Per Year
General Inflation	4.0%
Salaries	4.0%
Benefits	4.0%

Although FY 2022 budgeted O&M expenses are forecasted to increase at a rate of 4.0% per year, on average, NewGen projects that the Water utility operating budget will increase 5.1% per year over the five-year projection period. This is due to the inclusion of additional Full Time Employees (FTEs) to support the water system.

Minimum Required Water Fund Cash Balance

Maintaining a minimum Water Fund cash balance is an essential component of the proper financial management of the City's Water system. The wise management of resources and maintenance of a reasonable cash balance allows the City to be responsive to emergencies and to plan for long term sustainability. As a part of the study, NewGen used the City's existing policy regarding the minimum fund balance reserves for the City's Water Fund. The City's current fiscal policies state: "The City will maintain adequate reserves in each of the enterprise funds to protect these essential City programs. Urban Runoff Fund reserves, Water Fund reserves and Sewer Fund reserves shall have a minimum operating reserve equal to three months of operating expenditures and a capital reserve equal to one-year of capital

expenditures". Therefore, there are two components to the City's minimum cash balance policy in the study:

- **Operating Reserve** – 90 days of each year's annual O&M expenses.
- **Capital Reserve** – 365 days of average annual PAYGO (i.e., cash funded) capital spending.[1]

The minimum reserve forecast is shown below in Table 2-2.

Table 2-2
Minimum Water Fund Reserve Requirement Forecast

	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
O&M Reserve	$4,020,044	$4,526,524	$4,635,158	$4,869,548	$4,983,047	$5,098,874
Capital Reserve	$4,269,073	$4,269,073	$4,269,073	$4,269,073	$4,269,073	$4,269,073
Reserve Recommendation	**$8,289,117**	**$8,795,597**	**$8,904,231**	**$9,138,621**	**$9,252,119**	**$9,367,946**

For the FY 2022-23 Budget, the City has reserved approximately $4.45 million in operating reserves and $5.0 million in capital reserves. These projected reserves are noted as being slightly higher than the reserves determined by this study. The amounts are contingent upon actual revenues received and expenditures spent for the year.

The City's minimum fund balance policy is a key driver of the financial plan detailed in this report. Rates and fees are set in order to cover the operating, debt service, and capital needs of the system, as well as to maintain the minimum cash balance shown above. If at any time the projected rates in a given year would not sustain the minimum cash balance in the next fiscal year, it is assumed that rates must be increased to achieve the minimum required balance.

Operating and Maintenance Expenses

The operating and maintenance expenses of the City's Water system are organized into several categories:

- Purchased Water
- Employee Costs
- Overhead Costs
- Operating Costs
- City Costs

Employee costs are related to salaries, benefits, training, and other employee related expenses. Overhead costs are allocations of City costs to the Water Fund for City-wide costs such as vehicles, technology, retiree benefits, and insurance. Operating costs are related to supplies and equipment necessary to maintain, rehabilitate, and repair the sewer system. City costs are costs developed as a part of this study that are assumed to begin in FY 2023 related to the Water Fund's use of City property and right-of-way. Further detail is provided later in this section.

Additional Full Time Employees

NewGen's study includes the addition of two (2) full time employees (FTEs) to the Water Fund budget beginning in FY 2023 at a total cost of $191,704. This cost is escalated in future years based on NewGen's overall study assumptions.

[1] NewGen used a ten-year period to determine the City's average PAYGO capital spending.

Purchased Water

The City purchases 100% of its water supply from two wholesale providers: Metropolitan Water District of Orange County (MWDOC) and California Domestic Water Company (Cal Domestic). A vast majority of the City's water comes from Cal Domestic, as the City owns 5,149.85 Acre Feet (AF) of entitlements with Cal Domestic. Entitlement water comes at a cost less than half of non-Entitlement water. The estimated FY 2023 amount of purchased water is 10,020 AF at a cost of about $8.5 million. The study includes a cost escalation factor of 3.0% per year for purchased water, as well as estimated of additional water purchases as the City's customer base grows. The City will pass through any increases in wholesale water costs that exceed this assumed increase, and therefore the City's water rates may be materially higher than those forecasted by NewGen under the study's assumptions.

City Costs

As a part of the study, NewGen was tasked with developing appropriate cost allocations to the Water Fund for the use of City property and right-of-way (ROW) beginning in FY 2023. NewGen's O&M cost forecast includes three costs related to the Water Fund's use of City property and ROW.

- **Office Space –** NewGen determined a reasonable cost per square foot of office space comparable to the utility billing counter in the commercial market in Brea based on a survey of fifteen commercial properties. The average cost per square foot is $2.21, and the City's utility billing counter and related office space is 720 square feet. The Water Fund splits this cost with other City services such as sewer, refuse, urban runoff, and street sweeping. The Water Fund allocation of the monthly cost is 78.0%, resulting in an annual office space cost of $1,721 (FY 2022). This cost is escalated at 4.0% per year thereafter.
- **City Property –** The water system includes facilities that occupy City owned land. Most Water Fund facilities are on land that was purchased with Water Fund money, and therefore are not included in this calculation. The City's Berry Street reservoir, however, occupies land purchased using City General Fund dollars. To determine an appropriate cost for the use of City land, NewGen calculated a reasonable lease rate for the acreage occupied by the Berry Reservoir. Based on recent land transactions in Orange County where undeveloped land was purchased, NewGen determined the value of an acre of undeveloped land in Brea to be $18,427 ($15.92 per square foot). Assuming a 3.0% lease rate, the annual cost of the land occupied by the Berry Street Reservoir is $190,718 (FY 2022). This cost is escalated at 4.0% per year in future years.
- **City Right-of-Way (ROW) –** The City's water utility occupies about 192 miles of the City's underground ROW. NewGen determined that a reasonable cost of this ROW is 50% of the total ROW cost, with the other 50% being the above-ground ROW unoccupied by the City's water utility pipes. Assuming a 12 inch clearance on both sides of City water pipe and given the various diameters of pipe, the City's buried water infrastructure occupies approximately 2.9 million square feet of City ROW. NewGen calculated the market value of the City's total ROW to be $7.96. At a 3.0% annual lease rate, the Water Fund's use of City ROW was determined to be $694,824 (FY 2022). This cost is escalated at 4.0% per year in future years.

The latest available O&M budget at the time of the study was the FY 2022 requested budget. The FY 2022 requested operating budget plus the allocations for City office space, land, and ROW is shown in Table 2-3 below.

Table 2-3
Operating and Maintenance Expenses Forecast

	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
Employee Costs	$2,593,844	$2,889,302	$3,004,874	$3,125,069	$3,250,072	$3,380,075
Overhead Costs	$1,217,397	$1,266,093	$1,316,737	$1,369,406	$1,424,182	$1,481,150
Operating Costs	$1,852,783	$1,933,068	$1,999,234	$2,068,722	$2,138,725	$2,210,971
Purchased Water	$8,215,909	$8,898,934	$9,055,550	$9,244,112	$9,401,265	$9,552,545
City Costs	$ -	$936,476	$973,935	$1,012,892	$1,053,408	$1,095,544
Total O&M Expenses	**$13,879,933**	**$15,923,873**	**$16,350,329**	**$16,820,202**	**$17,267,652**	**$17,720,284**
% Change		*14.73%*	*2.68%*	*2.87%*	*2.66%*	*2.62%*

The rates and fees developed in this study are sufficient to cover the increasing operating and maintenance costs of the water utility.

Existing Debt Obligations

From time to time, the City issues debt to fund water system capital projects. As of FY 2022, the City is obligated to pay two outstanding debt issues – Series 2019 and Series 2020. Table 2-4 shows the projected loan payments related to these debt obligations over the five-year study planning period.

Table 2-4
Current Debt Service Obligations by Issue

	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
Series 2019	$1,763,100	$1,774,300	$1,789,800	$1,802,300	$1,816,800	$1,833,050
Series 2020	$660,479	$659,398	$658,012	$1,126,222	$1,124,570	$1,125,431
Total Annual Debt Service	**$2,423,579**	**$2,433,698**	**$2,447,812**	**$2,928,522**	**$2,941,370**	**$2,958,481**

The Series 2019 loan will be paid off in FY 2039. The Series 2020 loan will be paid off in FY 2044. The rates and fees developed in this report are sufficient to fund the above stated debt obligations now and through their maturities.

Capital Improvement Plan

A major component of owning a sustainable water utility is the planning for the rehabilitation and replacement of the City's assets. The City's Capital Improvement Program (CIP) is a detailed list of projects including when they are planned to be completed and how much they are estimated to cost. NewGen's study includes funding for all CIP projects. The City can either pay cash for projects as they are completed (referred to as PAYGO funding), or the City may issue new debt to finance projects over a long term, typically 20 to 30 years. Table 2-5 details the projects included in the City's Master Plan. All projects are assumed to be PAYGO funded – that is, the City will outlay cash for those projects in the year in which they are planned without taking on any additional debt.

Table 2-5
FY 2022 – FY 2027 Capital Projects (as provided in the City's Master Plan)

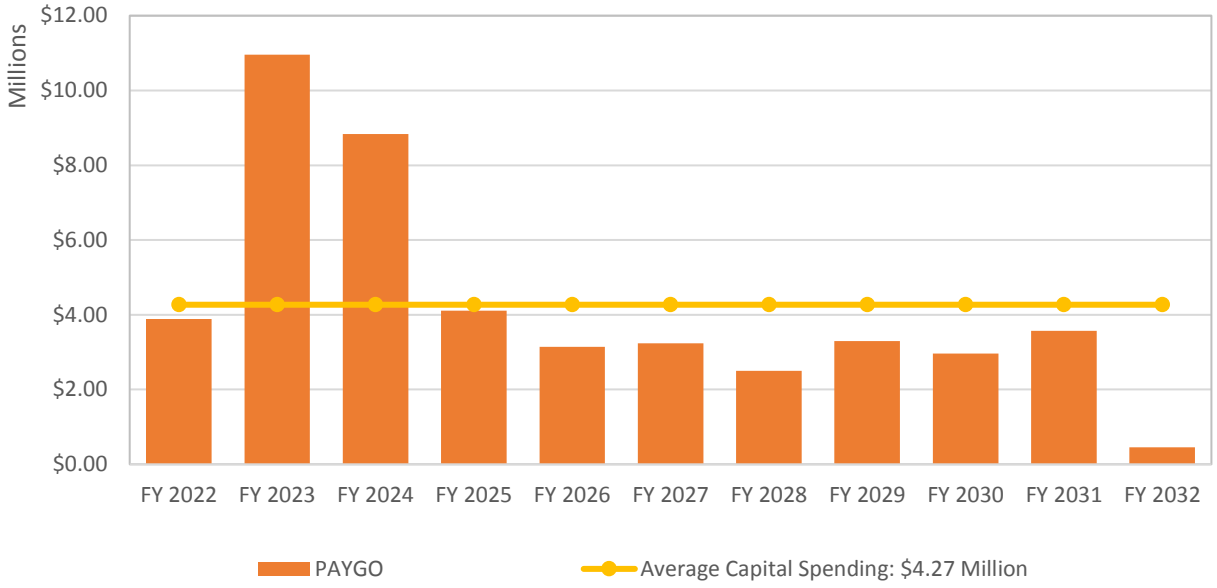
Project	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
Walnut/Orange/Juniper Lines	$2,473,239					
S. Brea Water Mains	$784,011					
Rehabilitate Ring Road	$200,000					
New Vehicle		$51,346				
New High Pressure Water Line	$80,000	$1,318,400				
Berry Street Pump		$360,500				
Replace Generator		$515,000				
Valencia Avenue Transmission		$1,712,375				
Candlewood Tract Water Mains		$1,359,600				
Buttonwood Drive Tract Main		$2,214,500				
M-Line Replacement Project		$1,750,000	$1,750,000			
Enterprise Tract Waterline		$1,313,250	$1,352,648			
Berry Street Low Pressure Pump			$530,450			
Pepper Tree Tract Water Main			$1,442,824			
Oleander St-Catalpa Ave.			$1,357,952			
Valencia Pipeline Replacement			$2,028,441	$2,089,294		
AMI Implementation				$1,639,091		
Puente, Site, and State College					$2,748,943	$2,831,411
Misc. Water Improvements	$350,000	$361,000	$372,000	$383,000	$394,000	$406,000
Total	**$3,887,250**	**$10,955,971**	**$8,834,314**	**$4,111,385**	**$3,142,943**	**$3,237,411**

The City's FY 2022 through FY 2032 CIP is included in the rate study model at the estimated costs shown above. Any increases in costs related to these projects will have a material effect on the rate forecasts developed during the study.

A key project is the implementation of Advanced Metering Infrastructure (AMI) in FY 2025. AMI includes the use of water meters that allow customers (and the City) to track individual account water on an hourly, daily, and monthly basis, typically through an online portal. Replacing traditional water meters with AMI meters can provide customers with round-the-clock readings and alert them to anomalies that may indicate a leak. With access to data in real-time, users can see changes in water usage as they happen and also monitor long-term patterns. Also, the City will have access to hourly usage data to develop a deeper understanding of how its customers use water, potentially leading to more refined cost allocations.

Exhibit 2-6 shows the City's planned annual CIP spending included in the study.

Exhibit 2-6 Five-Year Capital Plan Summary by Funding Source



The financial plan and rates developed during the study are projected to fully recover the cost of the above stated capital plan.

New Debt Service Projections

The City does not plan on issuing any new debt to finance water system capital projects.

Debt Service Coverage Ratio

An important metric that should be evaluated when determining the financial prudence of issuing new debt is a system's Debt Service Coverage Ratio (DSCR). A system's DSCR is the ratio of the system's annual debt service payment to its annual revenues net of operating expenses. The City's policy is to maintain a DSCR of 1.25, however utilities with the highest credit ratings often maintain debt service coverage ratios above 2.70[2].

[2] Barnes, Glenn. "Key Financial Indicators for Water and Water Systems: Debt Service Coverage Ratio." UNC Environmental Science Center - The Environmental Finance Blog [Chapel Hill, NC], 23 Apr. 2015, efc.web.unc.edu/2015/04/23/debt-service-coverage-ratio.

The City's DSCR projections given the capital financing assumptions included in the study are shown in Table 2-7 below.

Table 2-7
Forecasted Debt Service Coverage Ratio – Current and Recommended Rates

	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
Existing Debt Service	$2,423,579	$2,433,698	$2,447,812	$2,928,522	$2,941,370	$2,958,481
New Debt Service	-	-	-	-	-	-
Total Projected Debt Service	**$2,423,579**	**$2,433,698**	**$2,447,812**	**$2,928,522**	**$2,941,370**	**$2,958,481**
DSCR at FY 2022 Rates	4.44	4.00	3.77	2.98	2.77	2.55
DSCR at Recommended Rates	4.44	3.97	3.74	2.96	2.76	2.55

Because the revenue generated by the recommended rates is approximately equal to the revenues generated by current rates, the forecasted DSCR is equal in both scenarios.

Miscellaneous Non-Rate Revenues

The City accounts for certain Water Fund revenues that are unrelated to the various retail rates and fees charged to customers. These non-rate revenues may be highly volatile from year to year, and the City only budgets for a conservative amount each year. To determine the annual revenue needs of the water system, these non-rate revenues need to be taken into account. There are three non-rate revenues that NewGen included in the study – Water Connection Charges, Interest Income, and Other Income. Other income includes charges such as late fees, penalties, turn on fees, and other miscellaneous fees.

Projected Miscellaneous Non-Rate Revenues

The following Table 2-8 shows the revenues that are credited to the Water Fund but are not dependent on the rates charged to the systems users.

Table 2-8
Water Fund Non-Rate Revenues Forecast

	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
Water Connection Fees	$122,770	$132,588	$137,007	$141,888	$146,257	$150,670
Interest Income	$431,145	$448,391	$466,326	$484,979	$504,379	$524,554
Other Income	$630,461	$655,679	$681,907	$709,183	$737,550	$767,052
Total Misc. Revenue	**$1,184,376**	**$1,236,658**	**$1,285,240**	**$1,336,051**	**$1,388,186**	**$1,442,276**

In accordance with NewGen's approach to developing future projections, water connection charges are projected to increase in line with growth in new water connections.

Revenue Requirement Projection

Based on the latest available operating, debt service, and capital expense data and the methodologies and assumptions detailed above, NewGen developed a net revenue requirement forecast for the City's Water system, shown in Table 2-9.

Table 2-9
Water Fund Net Revenue Requirement Forecast

	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
Operating Expenses	$13,879,933	$15,923,873	$16,350,329	$16,820,202	$17,267,652	$17,720,284
Existing Debt Service	$2,423,579	$2,433,698	$2,447,812	$2,928,522	$2,941,370	$2,958,481
New Debt Service	$ -	$ -	$ -	$ -	$ -	$ -
Cash Capital	$3,887,250	$10,955,971	$8,834,314	$4,111,385	$3,142,943	$3,237,411
Total Rev. Req.	**$20,190,761**	**$29,313,542**	**$27,632,456**	**$23,860,108**	**$23,351,965**	**$23,916,176**
Less: Non-Rate Rev.	($1,184,376)	($1,236,658)	($1,285,240)	($1,336,051)	($1,388,186)	($1,442,276)
Net Rev. Req.	**$19,006,385**	**$28,076,884**	**$26,347,215**	**$22,524,058**	**$21,963,779**	**$22,473,899**

The net revenue requirement is the basis upon which all rates and fees are calculated for the City's system. Although the net revenue requirement varies from year to year, the financial plan developed during the study takes a long-term perspective in order to maintain stable rates and sufficient reserves.

Section 3
CUSTOMERS AND CONSUMPTION

The City has several types of water customers:

- Single-Family Residential
- Multi-Family Residential
- Irrigation
- Commercial
- Outside Brea
- Lifeline
- Brea Golf Course
- Fireline

The latest full year of customer and consumption data available for the study was FY 2021. Each subsection in Section 3 details the FY 2021 data used to develop the revenue and rate projections during NewGen's study.

Water System Customers and Consumption

The City serves about 13,250 water customers, both inside and outside the City. For most customers, the City's current rate structure includes a monthly fixed fee based on meter size and a volumetric rate per metered Hundred Cubic Feet (HCF, equal to 748 gallons). Therefore, the City tracks customers by the size of their meter and how much water they use monthly.

Inside City Single-Family Residential customers make up most of the City's water users. The number of City water customers by meter size is shown in Table 3-1 below.

Table 3-1
FY 2021 Water Customers

Meter Size	Single-Family Residential	Multi-Family Residential	Outside Brea	Commercial	Irrigation	Brea Golf Course	Firelines
5/8"	2,980	10		50	7		
3/4"	124				1		
1"	7,998	55		429	105		
1 1/2"	1	8		80	12		
2"	15	96	5	394	284		2
3"	1	11		39	3		
4"		14		19	1	1	120
6"		9	2	9	1		188
8"		2		1			152
10"							38
12"		2					0
Total	**11,119**	**207**	**7**	**1,021**	**414**	**1**	**500**

The total under Single-Family Residential includes customers that qualify for the City's Lifeline Rate, which includes a reduction in the monthly fixed charge and volumetric rate per HCF. The subsidy required to reduce the water rate from these customers is transferred into the Water Fund from the General Fund, and therefore the cost allocations in NewGen's study do not differentiate between these customer types.

Table 3-2 shows the billable water consumption by customer type in FY 2021.

Table 3-2
FY 2021 Water Consumption in HCF by Customer Type

Meter Size	Single-Family Residential	Multi-Family Residential	Outside Brea	Commercial	Lifeline	Irrigation	Brea Golf Course
Total HCF	1,737,676	512,303	264,620	1,033,838	60,337	596,932	54,538

Fireline customers are not charged a volumetric rate per HCF, and therefore data related to Fireline demand is not included in the study's cost allocations.

Single-Family Residential Tiers

Brea's Single-Family Residential customers are charged an inclining block volumetric charge structure. As a Single-Family Residential customer's consumption increases, the cost of each unit of water increases as defined by specific tiers of monthly volume. Table 3-3 shows the breakdown of Single-Family Residential demand in FY 2021.

Table 3-3
Single-Family Residential Tiered Consumption

Monthly Tier	Consumption (HCF)	% of Consumption
1 - 10 HCF	1,053,433	61%
11 - 20 HCF	454,726	26%
21 - 30 HCF	145,520	8%
30+ HCF	83,997	5%
Total	**1,737,676**	**100%**

The distribution of Single-Family Residential consumption within the tiered rate structure is consistent with the City's policy goals of incentivizing the wise use of water. NewGen does not recommend altering the City's tier cutoffs for Single-Family Residential customers.

Customer Growth Forecast

The City has several development projects planned over the study period. NewGen included conservative estimates of customer growth that may be realized as the City's customer base grows. These include a multi-family development Avalon Brea Place Apartments and Brea 265, a 1,100 home development planned, although Brea 265 is not estimated to come online until 2029, beyond this report's projections. Also included are various commercial developments within the City's service area. Table 3-4 shows the assumed growth in the total number of customer meters when considering the City's currently planned development.

Table 3-4
Water Customer Meter Forecast

Meter Size	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
5/8"	3,047	3,048	3,048	3,048	3,048	3,048
3/4"	125	127	127	127	127	127
1"	8,587	8,664	8,669	8,672	8,672	8,672
1 1/2"	101	106	106	106	106	106
2"	796	870	870	871	871	871
3"	54	57	57	57	57	57
4"	155	158	158	158	158	158
6"	209	210	210	210	210	210
8"	155	155	155	155	155	155
10"	38	38	38	38	38	38
12"	2	2	2	2	2	2
Total	**13,269**	**13,435**	**13,439**	**13,443**	**13,443**	**13,443**
% Increase		*1.3%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*

The growth in FY 2023 is due to the assumption that the City's meters will now be charged for water service.

Table 3-5
Water Demand Forecast

Type	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
Single Family Residential	1,737,676	1,721,067	1,703,966	1,686,926	1,670,057	1,653,356
Multi-Family Residential	512,303	538,524	537,602	541,641	537,565	532,189
Outside Brea	264,620	261,974	259,354	256,761	254,193	251,651
Commercial	1,044,511	1,077,067	1,076,522	1,081,159	1,072,472	1,062,524
Lifeline	60,337	59,734	59,136	58,545	57,959	57,380
Irrigation	596,932	729,317	722,024	714,803	707,655	700,579
Brea Gold Course	54,538	53,993	53,453	52,918	52,389	51,865
Total	**4,270,917**	**4,441,675**	**4,412,056**	**4,392,753**	**4,352,290**	**4,309,544**
% Increase		*4.0%*	*(0.7%)*	*(0.4%)*	*(0.9%)*	*(1.0%)*

Similarly to the results in Table 3-4, the growth in FY 2023 is due to the assumption that the City's meters will now be charged for water service. However, NewGen assumed a per capita decline in water demand of 1.0% per year throughout all customer types. Therefore, the City's water demand does not increase at the same rate as the increase in customers, but rather decreases in future years.

Section 4
COST OF SERVICE ANALYSIS

California Constitution - Article XIII D, Section 6 (Proposition 218)

Proposition 218, the applicable portion of which is set out in the California Constitution as Article XIII D, was enacted in 1996 to ensure that public agency utility service rates, fees, and charges are reasonable and proportional to the cost of providing the applicable service(s). The principal requirements for application of such rates, fees, and charges, as they relate to public water service, are as follows:

1. A property-related rate/fee/charge imposed by a public agency on a parcel shall not exceed the costs required to provide the property-related service.
2. Revenues derived by the rate/fee/charge shall not be used for any purpose other than that for which it was imposed.
3. The amount of the rate/fee/charge imposed upon any parcel shall not exceed the proportional cost of service attributable to the parcel.

The American Water Works Association's (AWWA) M1 Manual, Principles of Water Rates, Fees, and Charges, 7th edition (M1 Manual) states that water rates and charges should be recovered from types of customers in proportion to the cost of serving those customers. Proposition 218 requires that water rates/fees/charges cannot be "arbitrary and capricious," meaning that the rate-setting methodology must be sound and that there must be a nexus between the costs and the rates charged. NewGen's cost of service process follows industry standard rate-setting methodologies set forth by the M1 Manual, adhering to Proposition 218 requirements by developing rates that do not exceed the proportionate cost of providing the corresponding services.

Cost of Service Process

NewGen's approach distributes the annual cost of providing water service is among customer types commensurate with their service characteristics. A cost-of-service analysis involves the following tasks:

1. **Functionalize** costs**.** Examples of functions are supply (i.e., purchased water), distribution, storage, meter servicing, and customer billing and collection.
2. **Allocate** functionalized costs to cost causation components. Cost causation components include base, maximum day, maximum hour, public fire protection, and customer service and billing costs.
3. **Distribute** cost causation components, using unit costs, to customer types in proportion to their use of the water system, including fixed capacity and variable demand.

In this manner, NewGen's study develops rates that reflect the proportional demand on the City's system by similar types of customers.

Test Year Revenue Requirement

The City's forecasted FY 2023 net revenue requirement is the basis for the cost of service rate calculations detailed in this section. The total net revenue requirement in FY 2023 is $24,350,179, which is the total revenue requirement less miscellaneous revenues and drawdown on reserves to fund PAYGO capital.

Basis for System Wide Cost Allocation

To properly assign costs to the system's customer types, it is necessary to determine the cost of each of the systems cost causative components. For this analysis, those components are:

- Base (Average) Demand
- Maximum Day Demand
- Maximum Hour Demand
- Customer Costs
- MWDOC Water Purchases
- Cal Domestic Water Purchases
- Capital
- Distribution
- Fire Protection

The cost causative components are related to the various demands put on the system, as well as the fixed costs that do not vary with demand. To determine the distribution of demand based cost component allocations, the system's FY 2021 demand profile was the latest available. Table 4-1 shows the average, maximum day, and maximum hour system demand flows in cubic feet per minute (CFM) as well as the system wide peaking factors. The peaking factor for Maximum Day and Maximum Hour demand is the ratio of those demands in CFM to the system average.

Table 4-1
System Wide Peaking Factors

Demand	CFM	Peaking Factor
Average	833	1.00
Maximum Day	1,325	1.59
Maximum Hour[3]	3,974	4.77

Certain demand related costs of the City's system are assigned one of the demand factors above to determine the system wide costs of each component. Table 4-2 shows the percent allocation of costs under each assignment of demand related costs.

Table 4-2
Demand Allocation to System Flow Components

Cost Component Allocation Basis	System Wide Peaking Factor	Base	Maximum Day	Maximum Hour	Total
Base (Average)	1.00	100%			100%
Maximum Day	1.59	63%	37%		100%
Maximum Hour	4.77	21%	12%	67%	100%

Costs of the City's system are assigned an allocation to the following cost causative components shown in Table 4-3. Maximum Day and Maximum hour allocations have been adjusted to include 5% to Public Fire Protection.

[3] The City's latest Water Master Plan determined that the system's maximum hour production rate is three times the maximum daily production rate.

Table 4-3
Revenue Requirement Allocation to Cost Causative Components

	Base	Max Day	Max Hour	Customer	MWDOC	CDWC	Capital	Distribution	Fire
Base	100%								
Max Day	60%	35%							5%
Max Hour	20%	12%	63%						5%
Customer				100%					
Administrative	50%			50%					
MWDOC					100%				
CDWC						100%			
Capital							100%		
Distribution								100%	
Fire									100%

Customer costs are related to customer billing and customer service. Administrative costs are related to overall cost of the City's water system finances, administration, and management. Direct allocations exist for MWDOC, Cal Domestic (CDWC), Capital, Distribution, and Fire Protection costs.

When applied to the various line items and revenue requirement components of the City's forecasted FY 2023 costs, the result is the cost allocation shown in Table 4-4.

Table 4-4
FY 2023 Test Year Revenue Requirement

Cost Category	FY 2023 Net Revenue Requirement
Base	$3,342,632
Max Day	$1,972,153
Max Hour	$361,095
Customer	$2,583,426
MWDOC	$914,400
CDWC	$7,984,534
Capital	$2,626,751
Distribution	$4,220,546
Fire	$346,714
Total	**$24,352,253**

Note that system Capital costs reflected in Table 4-4 does not reflect all system debt service and PAYGO capital ($13.4 million). This is due to a portion of capital costs being assigned to demand based components of Base, Maximum Day, and Maximum Hour where appropriate. Therefore, not all capital costs are assigned to the system's fixed rate component. This allocation choice was made as to not increase the amount of fixed revenue generated from water rates above 25% (currently 17%).

Fixed Charge Cost Allocation

To properly assign fixed and variable costs of the system to customer types, NewGen developed a calculation of system wide equivalent meters based on AWWA flow capacity standards. Table 4-5 demonstrates the calculation of system equivalent meters, which is defined as stating the total flow capacity of all system meters in terms of 1" meters.

Table 4-5
FY 2023 Equivalent Meter Calculation

Meter Size	Meters	AWWA Capacity (gpm)[4]	AWWA Capacity Ratio	FY 2023 Equivalent Meters
5/8"	3,048	20	1.0	3,048
3/4"	127	30	1.0	127
1"	8,664	50	1.0	8,664
1 1/2"	106	100	5.0	530
2"	870	160	8.0	6,957
3"	57	350	17.5	998
4"	158	630	31.5	4,977
6"	210	1,300	65.0	13,650
8"	155	2,800	140.0	21,700
10"	38	4,200	210.0	7,980
12"	2	5,300	265.0	530
Total	**13,435**			**69,161**

Table 4-6 demonstrates that the City's system currently must maintain flow capacity to support 69,161 1" meters. Fixed costs related to system capacity are assigned based on equivalent meter units (EMUs).

Table 4-6
Fixed Charge Units Calculation

	Fixed Capital	Distribution	Customer Service and Billing
Total Cost	**$2,047,116**	**$4,220,546**	**$2,583,426**
Annual Units	829,930	829,930	161,219
Unit of measure	(EMUs)	(EMUs)	(Meters)
Monthly Cost per Unit	**$2.47**	**$5.09**	**$16.02**

[4] C713-15 Fluidic-Oscillator (5/8" – 2") C701-12 Turbine Type, Class I and II (3" – 12"), AWWA Manual M1 (Seventh Edition), Table B-2, p. 386

Fixed Capital costs are assigned to meters in order to maintain total cost assignments as nearly in line with AWWA meter rations as is reasonable given the Distribution and Customer Service and Billing cost allocations. Table 4-7 shows the assignment of fixed costs to develop the FY 2023 water rates.

Table 4-7
FY 2023 Monthly Fixed Charge Calculation

Meter Size	Meter Capacity Ratio	Fixed Capital	Distribution	Customer Service	Total
5/8"	1.0	$2.47	$5.09	$16.02	$23.58
3/4"	1.0	$2.47	$5.09	$16.02	$23.58
1"	1.0	$2.47	$5.09	$16.02	$23.58
1 1/2"	5.0	$46.28	$25.43	$16.02	$87.73
2"	8.0	$79.13	$40.68	$16.02	$135.83
3"	17.5	$183.17	$88.99	$16.02	$288.19
4"	31.5	$336.50	$160.19	$16.02	$512.72
6"	65.0	$703.41	$330.55	$16.02	$1,049.99
8"	140.0	$1,524.83	$711.96	$16.02	$2,252.81
10"	210.0	$2,291.47	$1,067.94	$16.02	$3,375.44
12"	265.0	$2,893.74	$1,347.64	$16.02	$4,257.40

Volumetric Charge Cost Allocation

The remaining costs of the system are assigned to variable rate components. Therefore, cost assignment is based on customer type demand characteristics.

First, because most supply costs apply equally to all customers, a blended cost of each unit of supply must be developed. These costs are averaged for every customer type except Outside Brea customers and the Brea Creek Golf Course. This is due to the fact that the City issued debt to purchase stocks in CDWC to reduce total cost, and therefore the benefit of this lower cost should not apply to customers who bear none of the City's debt risk. The City decided that in the interest of fairness, the remaining customer types would pay the blended rate. The Brea Creek Golf Course pays the average cost of CDWC water, and the Outside City customers pay the average cost of MWDOC water.

Table 4-8 shows the calculation of a blended cost of purchased water per HCF.

Table 4-8
Blended Supply Unit Cost Calculation

	Total Supply Purchases (AF)	Total Cost	Sales In HCF	Cost per HCF
CDWC (net BCGC)	9,382	$7,880,425	4,140,915	$1.90
MWDOC (net Outside)	601	$687,412	348,480	$1.97
		CDWC %	**MWDOC %**	**Blended Supply Rate**
Blended Cost Calculation	10,306	92.2%	7.8%	$1.91

Base demand costs are assigned according to the average demand of each customer type. Table 4-9 demonstrates the cost allocation of Base (average) water delivery costs to customer type.

Table 4-9
Base Delivery Unit Cost Calculation

	FY 2023 Usage	Percentage of Usage	Base Delivery Costs	Unit Rate
Single-Family Residential	1,780,801	40.1%	$1,340,162	$0.75
Multi-Family Residential	538,524	12.1%	$405,272	$0.75
Outside Brea	261,974	5.9%	$197,151	$0.75
Non-Residential	1,077,067	24.2%	$810,559	$0.75
Brea Creek Golf Course	53,993	1.2%	$40,633	$0.75
Irrigation	729,317	16.4%	$548,855	$0.75
Total			**$3,342,632**	

Because Base Delivery costs are assigned according to system-wide averages, the same unit rate applies to all customer types.

System peaking costs are assigned to customer types based on the peaking characteristics of each customer type. The City does not have daily or hourly peak demand data, and therefore NewGen utilized appropriate proxies to develop Maximum Day and Maximum Hour peaking factors for each customer type. As stated previously, the implementation of AMI meters throughout the City's system will allow the City to collect data about hourly peaking for each customer, and therefore each customer type. The data gathered from AMI technology will allow the City to refine the estimated peaking factors used in this study.

Table 4-10 shows the calculation of type peaking factors based on the ratio of average monthly consumption to maximum monthly consumption. The Brea Golf Course peaks off of a well on its property that is separate from the City's system and is therefore assigned no peak demand, resulting in a peaking factor of 1.00.

Table 4-10
Customer Type Peaking Factor Calculation

Customer Type	Average Monthly Consumption	Max Month Consumption	Peaking Factor
Single-Family Residential	149,834	182,426	1.22
Multi-Family Residential	42,692	46,752	1.10
Outside Brea	22,052	25,466	1.15
Non-Residential	87,041	108,985	1.25
Brea Creek Golf Course	4,545	-	1.00
Irrigation	61,275	83,213	1.36

For all customer types except Single-Family Residential, variable costs are assigned based on the peaking factors above. However, the Single-Family Residential customer type requires allocations of costs to the various HCF tiers of its variable rate structure. Table 4-11 demonstrates the calculation of peaking factor for each Single-Family Residential rate tier based on a comparison of average monthly consumption to maximum daily consumption.[5]

Table 4-11
Residential Tier Peaking Factor Calculation

Residential Tiers	Average Monthly Consumption	Max Day Consumption	Peaking Factor
Tier 1	87,786	91,821	1.05
Tier 2	37,894	50,582	1.33
Tier 3	12,127	20,399	1.68
Tier 4	7,000	13,585	1.94

Maximum Day and Maximum Hour system costs are assigned to customer types based on the peaking factors developed in Table 4-10. Table 4-12 shows the assignment of peaking costs to system customer types.

Table 4-12
Customer Type Peaking Cost Calculation

Customer Types	Annual Usage (HCF)	Peaking Factor	Peak Usage	% of Peak	Allocated Peak Costs	Unit Rate
Single-Family Residential	1,780,801	1.22	182,426	40.8%	$952,563	Allocated to Tiers
Multi-Family Residential	538,524	1.10	46,752	10.5%	$244,122	$0.45
Outside Brea	261,974	1.15	25,466	5.7%	$132,974	$0.51
Non-Residential	1,077,067	1.25	108,985	24.4%	$569,080	$0.53
Brea Creek Golf Course	53,993	1.00	-	-	$ -	$ -
Irrigation	729,317	1.36	83,213	18.6%	$434,508	$0.60

Tables 4-13 demonstrates the further allocation of Maximum costs to the Single-Family Residential tiers.

Table 4-13
Residential Maximum Day Peaking Cost Calculation

Residential Tiers	Annual Usage	Peaking Factor	Max Day Increment	% of Peak	Allocated Peak Cost	Unit Rate
Tier 1	1,053,433	1.05	48,419	12.8%	$102,870	$0.10
Tier 2	454,726	1.33	152,258	40.2%	$323,483	$0.71
Tier 3	145,520	1.68	99,268	26.2%	$210,902	$1.45
Tier 4	83,997	1.94	79,023	20.9%	$167,890	$2.00

[5] Due to the absence of daily demand data, the average day on the maximum month is used as a proxy for maximum day consumption.

Due to the absence of Maximum Hour data for Single-Family Residential customers, NewGen assigned a factor of 1.5 times to the Maximum Day peaking factors to develop a Maximum Hour factor for each Single-Family Residential tier. Table 4-14 shows the assignment of Maximum Hour costs to the Single-Family Residential tier structure.

Table 4-14
Single-Family Residential Maximum Hour Peaking Cost Calculation

Residential Tiers	Annual Usage	Peaking Factor	Max Hour Increment	% of Peak	Allocated Peak Cost	Unit Rate
Tier 1	1,053,433	1.57	599,345	41.7%	$61,473	$0.06
Tier 2	454,726	2.00	455,750	31.7%	$46,745	$0.10
Tier 3	145,520	2.52	221,662	15.4%	$22,735	$0.16
Tier 4	83,997	2.91	160,533	11.2%	$16,465	$0.20

Table 4-15 shows the sum of peaking costs assigned to Single-Family Residential volumetric rate tiers.

Table 4-15
Single-Family Residential Peaking Cost Totals

Residential Tiers	Maximum Day Unit Rate	Maximum Hour Unit Rate	Total Peak
Tier 1	$0.10	$0.06	$0.16
Tier 2	$0.71	$0.10	$0.81
Tier 3	$1.45	$0.16	$1.61
Tier 4	$2.00	$0.20	$2.19

Volumetric rates for all other customer types consist of the sum of Delivery Costs, Peaking Costs, Variable Capital Costs, and Supply costs. Variable Capital Costs are the costs remaining after Fixed Capital Cost assignment to the rate structure's fixed charge. Capital Cost assignments are based on an allocation of base, maximum day, and maximum hour allocations. Table 4-16 demonstrates the total cost of service (COS) variable rate for customer types other than Single-Family Residential.

Table 4-16
Proposed Volumetric Rates for Non-SFR Types

Customer Types	Delivery	Peaking	Capital	Blended Supply	COS Rate
Multi-Family Residential	$0.75	$0.45	$0.79	$1.91	$3.91
Outside Brea	$0.75	$0.51	$1.86	$1.97	$5.09
Non-Residential	$0.75	$0.53	$1.04	$1.91	$4.23
Brea Creek Golf Course	$0.75	$0.00	$0.00	$1.90	$2.66
Irrigation	$0.75	$0.60	$1.37	$1.91	$4.63

The Single-Family Residential tiered volumetric rates are shown in Table 4-17, which are again the sum of Delivery Costs, Peaking Costs, Capital Costs, and Supply costs.

Table 4-17
Proposed Volumetric Rates – Single-Family Residential

SFR Monthly Tiers	Delivery	Peaking	Capital	Blended Supply	COS Rate
1 - 10 Units	$0.75	$0.16	$0.38	$1.91	$3.20
11 - 20 Units	$0.75	$0.81	$0.70	$1.91	$4.17
21 - 30 Units	$0.75	$1.61	$1.23	$1.91	$5.50
30+ Units	$0.75	$2.19	$1.59	$1.91	$6.44

Section 5
FINANCIAL PLAN AND RECOMMENDED RATES

Financial Projections Under Current Rates

NewGen developed cash flow and cash balance projections assuming the revenue requirements detailed in Section 2 of this report and that the City does not change any water rates or fees. This establishes a baseline projection to which the recommended rate alternative can be compared. In order to project revenues under the current water rates and fees, NewGen compiled each rate and fee charged by the City in FY 2022. The City's FY 2022 rates are summarized below.

FY 2022 Water Rates

The City's current (FY 2022) water rates have two components. The first component is a Fixed Customer Charge that is charged on a monthly basis and based on the meter size of each retail customer. If a customer does not use any water in a given month, then their bill would consist only of the Fixed Customer Charge. Table 5-1 details the FY 2022 Fixed Customer Charges for the City's customers.

Table 5-1
FY 2022 Fixed Customer Charges

Meter Size	Single-Family Residential	Multi-Family Residential	Outside Brea	Commercial	Lifeline	Irrigation	Brea Golf Course
5/8"	$15.93	$15.93	$19.91	$15.93	$12.74	$15.93	$15.93
3/4"	$15.93	$15.93	$19.91	$15.93	$12.74	$15.93	$15.93
1"	$15.93	$15.93	$19.91	$15.93	$12.74	$15.93	$15.93
1 1/2"	$59.28	$59.28	$74.10	$59.28	$47.42	$59.28	$59.28
2"	$91.78	$91.78	$114.73	$91.78	$73.42	$91.78	$91.78
3"	$194.72	$194.72	$243.40	$194.72	$155.78	$194.72	$194.72
4"	$346.43	$346.43	$433.04	$346.43	$277.14	$346.43	$346.43
6"	$709.45	$709.45	$886.81	$709.45	$567.56	$709.45	$709.45
8"	$1,522.17	$1,522.17	$1,902.71	$1,522.17	$1,217.74	$1,522.17	$1,522.17
10"	$2,280.70	$2,280.70	$2,850.88	$2,280.70	$1,824.56	$2,280.70	$2,280.70
12"	$2,876.62	$2,876.62	$3,595.78	$2,876.62	$2,301.30	$2,876.62	$2,876.62

Outside Brea customers are charged 1.25 the inside City rate. The financial support for the Lifeline Rate is provided by funds transferred into the Water Fund from the General Fund. Although the Brea Golf Course pays a discounted volumetric rate that does not include peaking costs, it is assigned Fixed Charges the same as other customer types.

The second component of the City's current water rates is a volumetric charge per hundred cubic feet, or HCF (748 gallons) that is charged to each unit of metered consumption for all retail customers. The FY 2022 HCF rate structure of the City's system is shown in Table 5-2.

Table 5-2
FY 2022 Volumetric Charges per HCF

	Single-Family Residential	Multi-Family Residential	Outside Brea	Commercial	Lifeline	Irrigation	Brea Golf Course
All Usage		$4.39	$5.72	$4.75		$5.20	$0.43
0 – 10 HCF	$3.59				$2.87		
11 – 20 HCF	$4.69				$4.22		
21 – 30 HCF	$6.18				$5.87		
31+ HCF	$7.24				$7.24		

Again, outside Brea customers are charged 1.25 the inside City rate and the financial support for the Lifeline Rate is provided by funds transferred into the Water Fund from the General Fund.

Cash Flow and Fund Balance Projections Under Current Rates

The revenue generated by the FY 2022 rates alone cannot sustain the City Water Fund's annual revenue requirements in FY 2023 and FY 2024, however, the Water Fund consists of sufficient reserves to maintain compliance with the recommended minimum reserve policy. The expenses shown in the following charts include the projected operating, existing debt, new debt, and cash funded capital projects discussed in Section 2 of this report. The projected revenues assume that the City does not increase any water rates or fees in any fiscal year. The projected revenues and expenses are shown in Exhibit 5-3.

Exhibit 5-3 Expenses vs. Revenues Under Current FY 2022 Rates

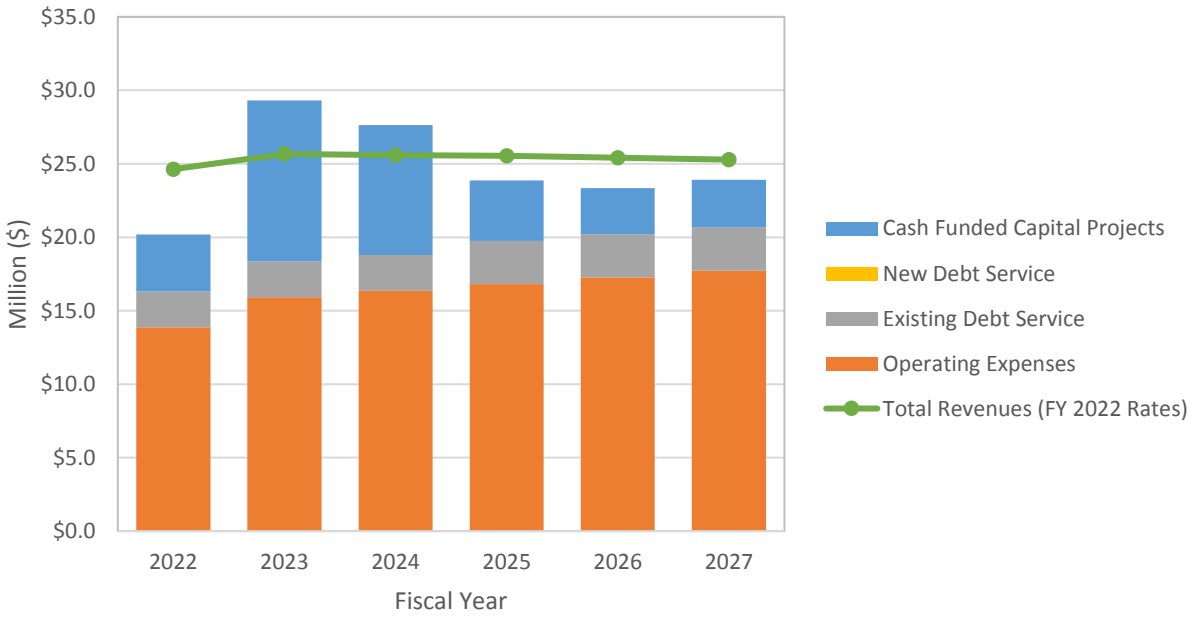
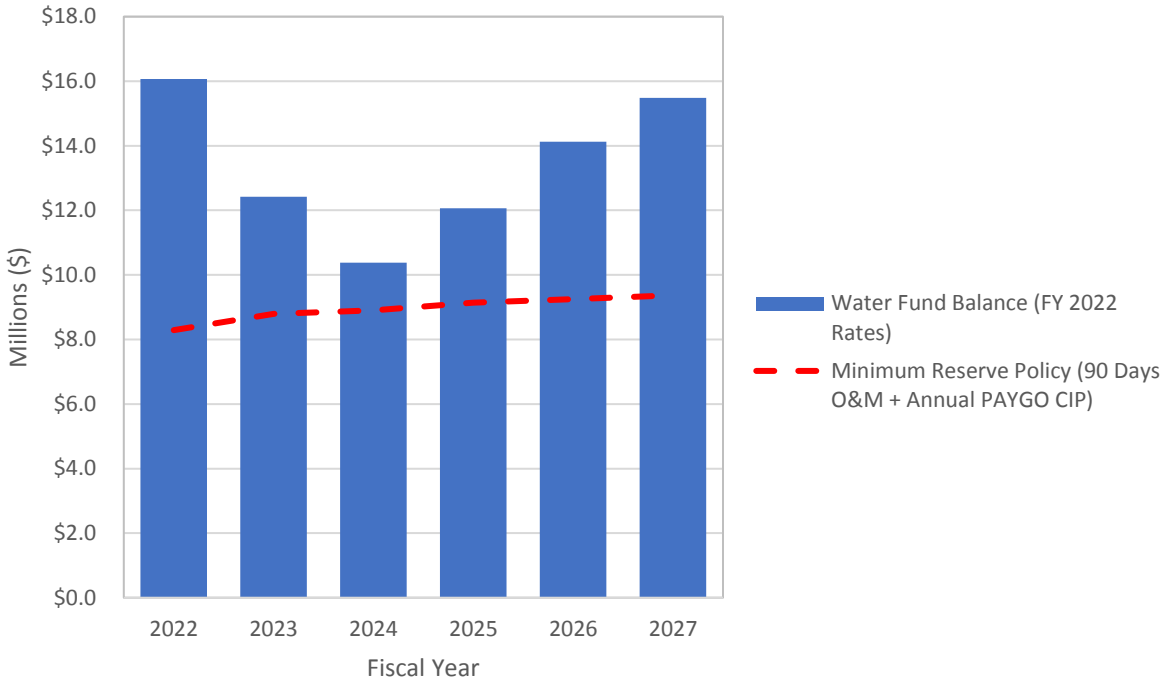


Exhibit 5-4 shows the forecasted Water Fund balance assuming that the City does not change any water rates or fees.

Exhibit 5-4 Projected Water Fund Cash Balance Projection Under Current FY 2022 Rates



Based on the expenses projected in Section 2 of this report, the City's Water customers and usage detailed in Section 3, and the City's FY 2022 Water rates detailed previously in this section, NewGen's rate study has determined that revenue increases are not necessary to sustain the City's Water system. However, NewGen recommends that the City increase the proportion of revenues from Fixed Charges consistent with the Cost of Service analysis detailed previously in this report.

Recommended Rate Changes

In order to increase fixed revenues that will sustain the water system and to remain consistent with NewGen's Cost of Service analysis, NewGen recommends the following revenue changes for the City's water rates.

Table 5-5
Recommended Rate Changes

	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
Fixed Customer Charge	48.0%	0.0%	0.0%	0.0%	0.0%
Volumetric Charge per HCF	(11.0%)	0.0%	0.0%	0.0%	0.0%
Annual Cash Flow	$4,441,422	($3,724,631)	($2,115,345)	$1,630,598	$2,024,415
Ending Fund Balance	**$16,069,833**	**$12,345,202**	**$10,229,858**	**$11,860,456**	**$13,884,871**
Minimum Recommended Reserve	$8,289,117	$8,795,597	$8,904,231	$9,138,621	$9,252,119
Over / (Under) Recommended Reserve	**$7,780,717**	**$3,549,605**	**$1,325,627**	**$2,721,835**	**$4,632,751**

Recommended Rates

Based on the Cost of Service analysis detailed in this report and the recommendation to increase fixed water rate revenue from 17% to 25%, NewGen recommends that the City adopt the following water rates.

Recommended Fixed Customer Charges

If the City adopts the recommended rate increases in FY 2024, then the City's Fixed Customer Charges would be as shown in Table 5-6.

Table 5-6
Recommended Fixed Customer Charges

Meter Size	Single-Family Residential	Multi-Family Residential	Outside Brea	Commercial	Lifeline	Irrigation	Brea Golf Course
5/8"	$23.58	$23.58	$29.47	$23.58	$18.86	$23.58	$23.58
3/4"	$23.58	$23.58	$29.47	$23.58	$18.86	$23.58	$23.58
1"	$23.58	$23.58	$29.47	$23.58	$18.86	$23.58	$23.58
1 1/2"	$87.73	$87.73	$109.67	$87.73	$70.18	$87.73	$87.73
2"	$135.83	$135.83	$169.80	$135.83	$108.66	$135.83	$135.83
3"	$288.19	$288.19	$360.23	$288.19	$230.55	$288.19	$288.19
4"	$512.72	$512.72	$640.90	$512.72	$410.17	$512.72	$512.72
6"	$1,049.99	$1,049.99	$1,312.48	$1,049.99	$839.99	$1,049.99	$1,049.99
8"	$2,252.81	$2,252.81	$2,816.01	$2,252.81	$1,802.26	$2,252.81	$2,252.81
10"	$3,375.44	$3,375.44	$4,219.30	$3,375.44	$2,700.35	$3,375.44	$3,375.44
12"	$4,257.40	$4,257.40	$5,321.75	$4,257.40	$3,405.92	$4,257.40	$4,257.40

Recommended Volumetric Charges per HCF

The following rates shown in Table 5-7 are projected to fully support the future operating, capital, debt service, and reserve requirements of the system.

Table 5-7
Recommended Volumetric Charges per HCF

	Single-Family Residential	Multi-Family Residential	Outside Brea	Commercial	Lifeline	Irrigation	Brea Golf Course
All Usage		$3.91	$5.09	$4.23		$4.63	$2.66
0 – 10 HCF	$3.20				$2.55		
11 – 20 HCF	$4.17				$3.76		
21 – 30 HCF	$5.50				$5.22		
31+ HCF	$6.44				$6.44		

Note that the volumetric rates shown in the table above reflect a decrease from the current FY 2022 fees, except for the Brea Creek Golf Course. This reflects a decrease in the City's reliance on revenues generated by volumetric charges.

Customer Bill Impact of Recommended Rates

The customer bill impact for several different types of customers if the City were to adopt the revenue increases shown in Table 5-8 but were not to alter any of the rate structures of its various fees is shown below.

Table 5-8
Forecasted Monthly Customer Bills – Median Customers

Sample Customer	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
Median Inside City	**$65.90**	**$68.05**	**$68.05**	**$68.05**	**$68.05**	**$68.05**
1" Meter	*$ Change*	$2.15	$0.00	$0.00	$0.00	$0.00
13 HCF per month	*% Change*	*3.3%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Lifeline	**$49.88**	**$51.91**	**$51.91**	**$51.91**	**$51.91**	**$51.91**
1" Meter	*$ Change*	$2.03	$0.00	$0.00	$0.00	$0.00
12 HCF per month	*% Change*	*4.1%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Commercial	**$467.03**	**$469.81**	**$469.81**	**$469.81**	**$469.81**	**$469.81**
2" Meter	*$ Change*	$2.78	$0.00	$0.00	$0.00	$0.00
79 HCF per month	*% Change*	*0.6%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*

Cash Flow Under Recommended Revenue Increases

Exhibit 5-9 shows the forecasted expenses and revenues assuming the City adopts the recommended Fixed Customer and Volumetric Charges per HCF calculated in this report.

Exhibit 5-9 Water Fund Expenses vs. Revenues Under Recommended Rates

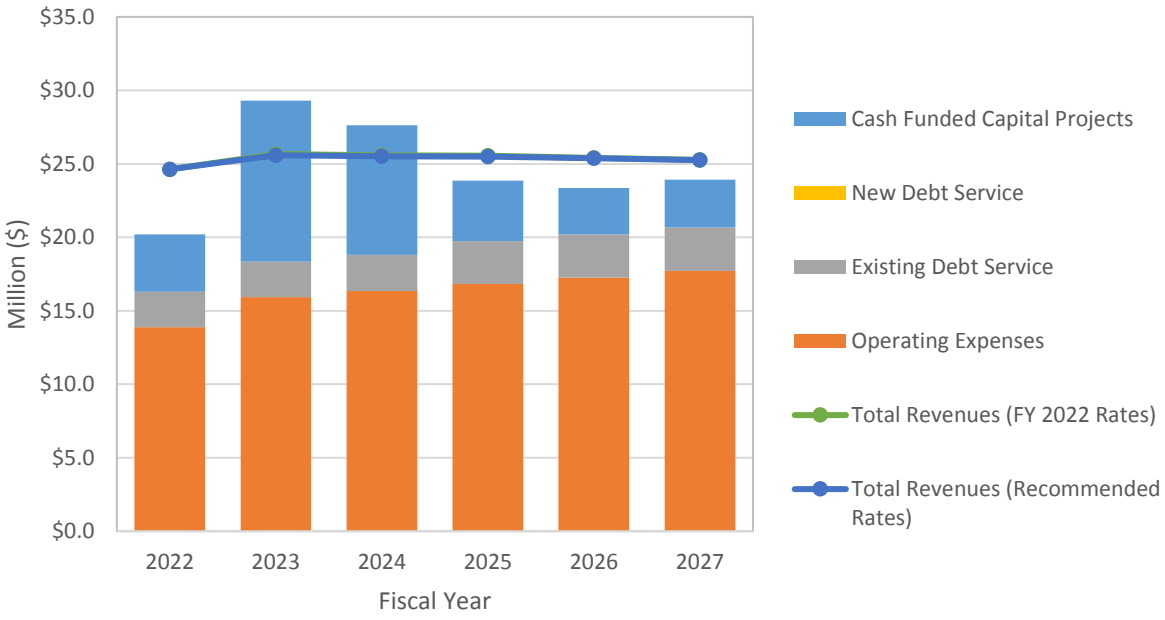
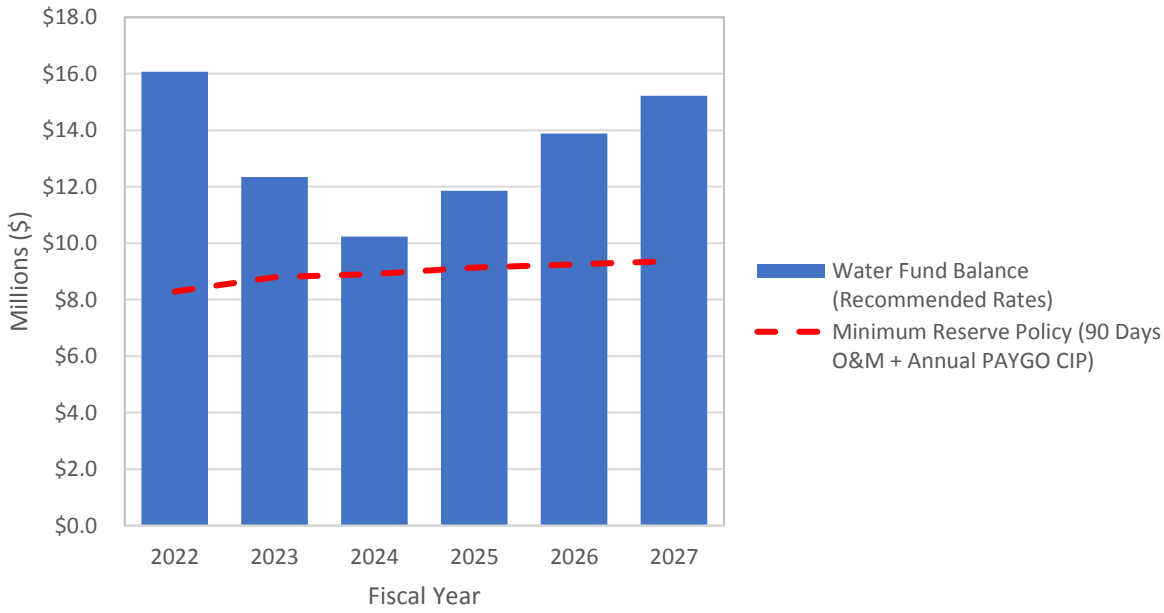


Exhibit 5-10 shows the forecasted Water Fund balance assuming the City adopts the recommended Fixed Customer and Volumetric Charges per HCF calculated in this report.

Exhibit 5-10 Projected Water Fund Balance Under Recommended Rates



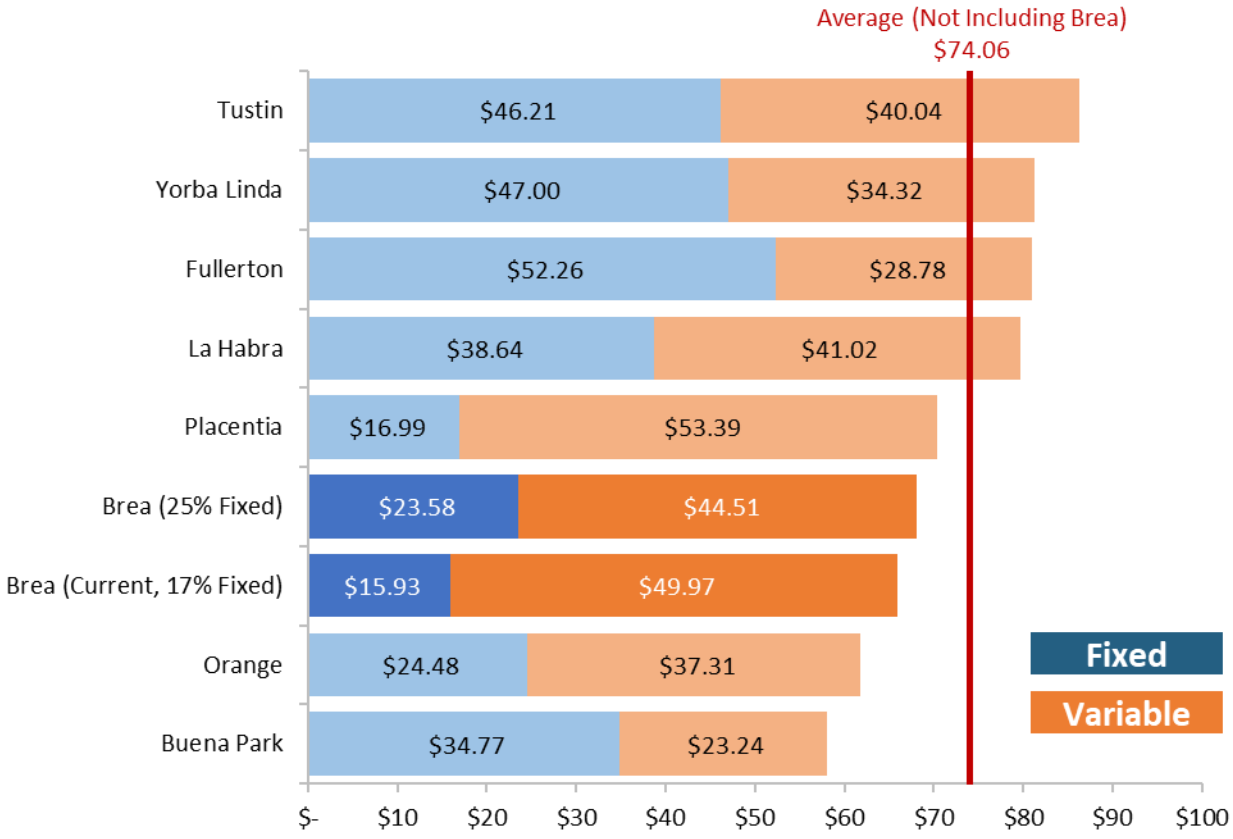
Section 6
REGIONAL BILL COMPARISON

A major consideration when developing any utility financial plan is the impact on the system's customer bills. The recommendations detailed in this report will result in changes to customer bills, and therefore cost increases to some of the system's customers.

Regional Bill Comparison

The following exhibit shows a comparative monthly water bill for a median Inside City Single-Family customer (1" meter, 13 HCF monthly usage) in surrounding water service areas.

Exhibit 6-1 Sample Customer Bill, 1" Meter, 13 HCF Monthly Usage



While regional comparisons may provide some context, the ranking of individual customer bills is not a consideration when developing a financial plan and rate structure. The City's cash needs are independent of the rates in the surrounding jurisdictions, and this comparison is provided for information only.

Section 7
CONSERVATION RATES

At times, pursuant to Executive Order, the State Water Board may direct urban water suppliers to develop rate structures and other pricing mechanisms to maximize water conservation consistent with statewide water use restrictions. The specific form of that direction is left to the discretion of the State Water Board.

As a part of the study, NewGen calculated conservation rates at the 10%, 20%, and 30% reduction levels that reflect the need for the City to continue to fund the fixed costs of the system given the reduction in demand. Specifically, NewGen calculated volumetric rates per HCF under the City's existing rate structure that ensure the City generates revenue consistent with the financial plan described in this report.'

NewGen's methodology includes adjustments for variable costs (i.e., purchased water) as well as reduction is system wide demand by customer type. This, combined with the assumption that the City must fund fixed system costs and maintain its minimum reserves according to its policy, determines the level of volumetric rate per HCF for all customer types.

Conservation Rates - Ten Percent Use Restriction

Table 7-1 demonstrates the demand reduction for Single-Family Residential tiers under a restriction where each Single-Family Residential customer reduces use by ten percent. The impact is not consistent across tiers, as customers are billed in different tiers each month, and some reductions span across two usage tiers.

Table 7-1
Single-Family Residential Demand Impact – Ten Percent Use Reduction

	FY 2021 Demand	Demand Reduction	10% Use Restriction Demand
0 – 10 HCF	1,053,433	(3.5%)	1,016,859
11 – 20 HCF	454,726	(15.6%)	383,760
21 – 30 HCF	145,520	(26.5%)	106,979
31+ HCF	83,997	(33.0%)	56,310

All other customer types are assumed to reduce demand by ten percent, as their volumetric charge per HCF applies to all usage. Table 7-2 shows the calculated rates under a ten percent use restriction scenario.

Table 7-2
Volumetric Charges per HCF – Ten Percent Use Restriction

	Single-Family Residential	Multi-Family Residential	Outside Brea	Commercial	Lifeline	Irrigation	Brea Golf Course
All Usage		$4.50	$5.87	$4.87		$5.33	$3.06
0 – 10 HCF	$3.68				$2.94		
11 – 20 HCF	$4.81				$4.33		
21 – 30 HCF	$6.34				$6.02		
31+ HCF	$7.42				$7.42		

Conservation Rates – Twenty Percent Use Restriction

Table 7-3 demonstrates the demand reduction for Single-Family Residential tiers under a restriction where each Single-Family Residential customer reduces use by twenty percent. The impact is not consistent across tiers, as customers are billed in different tiers each month, and some reductions span across two usage tiers.

Table 7-3
Single-Family Residential Demand Impact – Twenty Percent Use Reduction

	FY 2021 Demand	Demand Reduction	20% Use Restriction Demand
0 – 10 HCF	1,053,433	(7.8%)	971,519
11 – 20 HCF	454,726	(31.9%)	309,703
21 – 30 HCF	145,520	(49.6%)	73,328
31+ HCF	83,997	(57.6%)	35,590

All other customer types are assumed to reduce demand by twenty percent, as their volumetric charge per HCF applies to all usage. Table 7-4 shows the calculated rates under a twenty percent use restriction scenario.

Table 7-4
Volumetric Charges per HCF – Twenty Percent Use Restriction

	Single-Family Residential	Multi-Family Residential	Outside Brea	Commercial	Lifeline	Irrigation	Brea Golf Course
All Usage		$5.15	$6.72	$5.58		$6.11	$3.50
0 – 10 HCF	$4.21				$3.37		
11 – 20 HCF	$5.51				$4.95		
21 – 30 HCF	$7.26				$6.89		
31+ HCF	$8.50				$8.50		

Conservation Rates – Thirty Percent Use Restriction

Table 7-5 demonstrates the demand reduction for Single-Family Residential tiers under a restriction where each Single-Family Residential customer reduces use by thirty percent. The impact is not consistent across tiers, as customers are billed in different tiers each month, and some reductions span across two usage tiers.

Table 7-5
Single-Family Residential Demand Impact – Thirty Percent Use Reduction

	FY 2021 Demand	Demand Reduction	30% Use Restriction Demand
0 – 10 HCF	1,053,433	(13.1%)	915,224
11 – 20 HCF	454,726	(48.6%)	233,850
21 – 30 HCF	145,520	(68.1%)	46,447
31+ HCF	83,997	(75.2%)	20,852

All other customer types are assumed to reduce demand by thirty percent, as their volumetric charge per HCF applies to all usage. Table 7-6 shows the calculated rates under a thirty percent use restriction scenario.

Table 7-6
Volumetric Charges per HCF – Thirty Percent Use Restriction

	Single-Family Residential	Multi-Family Residential	Outside Brea	Commercial	Lifeline	Irrigation	Brea Golf Course
All Usage		$5.95	$7.75	$6.44		$7.05	$4.04
0 – 10 HCF	$4.86				$3.89		
11 – 20 HCF	$6.35				$5.72		
21 – 30 HCF	$8.37				$7.95		
31+ HCF	$9.81				$9.81		

NewGen Strategies & Solutions

THANK YOU!

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