

CITY OF SACRAMENTO

Office of the City Auditor – Research and Analysis Division

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Water and Wastewater Fund Review

Water Fund Report

FINAL REPORT / December 18, 2024

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Department Response

Department of Utilities Response to the Water and Wastewater Funds Review

Abbreviations

AACE	Association for the Advancement of Cost Engineering
AC	Asbestos Cement
Act	Water Shutoff Protection Act
AWWA	American Water Works Association
BRE	Business Risk Exposure
CAAP	Climate Action and Adaptation Plan
CAGR	Compound Annual Growth Rate
CIP	Capital Improvement Program
City	City of Sacramento
COF	Consequence of Failure
CPI	Consumer Price Index
CSOs	Combined System Overflows
CSS	Combined Sewer System
DIF	Development Impact Fee
DOU	Department of Utilities
FTE	Full-Time Equivalent
FWTP	Fairbairn Water Treatment Plant
GAAS	Generally Accepted Auditing Standards
LOF	Likelihood of Failure
LQI	Lowest Quintile Income
LTCP	Long-Term Control Plan
MCL	Maximum Contaminant Level
MG	Million Gallons
MGD	Million Gallons per Day
MYOP	Multi-Year Operating Projects
O&M	Operation and Maintenance
PLCs	Programmable Logic Controller
R/R	Renewal/Replacement
RCM	Reliability Centered Maintenance
Report	Water Fund Review
SRWTP	Sacramento River Water Treatment Plant
USEPA	United States Environmental Protection Agency
USGS	US Geological Survey
VFDs	Variable Frequency Drive
WMP	Water Master Plan
ZEVs	Zero-Emission Vehicles
CCF	Hundred Cubic Feet

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1. Executive Summary

1.1. Study Objectives

Raftelis is pleased to provide the Water Fund Report (Report) for the City of Sacramento (City) to assess the fiscal stability of the Water Fund. The Water Fund accounts for the operation and maintenance of the City's water treatment and water transmission and distribution systems, which are run by the Department of Utilities (DOU).

The major study objectives include a detailed review and analysis of:

- Fiscal policies and procedures;
- Expense, revenue, and funding history;
- Service level and capacity of the water system;
- Relationship and impact of deferred maintenance and capital investments on the value of water infrastructure; and
- Fiscal forecasting by developing financial plans for the Water Fund to ensure financial sufficiency and funds to meet operation and maintenance (O&M) costs, the capital improvement program (CIP), multi-year operating projects (MYOP), capital replacement and refurbishment recommendations, and operating and capital gaps identified by DOU staff across several Divisions while improving the financial health of the Water Fund and mitigating the burden that substantial rate increases could have on the City's most vulnerable customers.

The report summarizes the key findings and recommendations related to the DOU Water Fund review and the development of financial plans for the Water Fund in the following sections:

- Benchmarking – Section 3
- Expense, Revenue, and Funding History – Section 4
- Service Level and System Capacity – Section 5
- Valuation – Section 6
- Fiscal Forecasting – Section 7

This analysis and report are primarily based on data provided from FY 2024 instead of the approved budget for FY 2025 due to timing. There are often differences between actual and projected data. Some of the assumptions used in this report may not be realized, and unanticipated events and circumstances may occur. Therefore, there are likely to be differences between the data or results projected in the report and the actual results achieved. Nevertheless, this report provides valuable information and analysis for the City to consider in its strategic and financial planning for the Water Fund.

1.2. Conclusion

The objectives of this review were achieved by combining current operating and capital revenue requirements with different levels of revenue requirements identified by City personnel and recommended revenue requirements aligned with utility best practices to address additional and necessary renewal/replacement (R/R) for deferred and high-risk assets capital investments. An analysis of the current conditions of the fund (status quo) shows that if the water utility does not implement rate increases, it will not meet its capital reserve target beginning in FY 2028. It will not meet its minimum operating reserve target beginning in FY 2029. It

will also not be able to meet its required absolute floor parity lien debt service coverage ratio beginning in FY 2030. Thus, a cash flow analysis for three scenarios was completed to determine the projected rate increases necessary for the Water Fund to have sufficient funds to meet the water utility’s operating and capital revenue requirements, achieve operating and capital reserve targets, and achieve the absolute floor parity lien debt service coverage ratio¹ required per debt covenants for a fiscally stable Water Fund. These needed investments will require additional capital dollars than currently included in the Water Fund and future rate increases are necessary. The following tables are summaries comparing the descriptions and proposed rate increases for each scenario. Financial Plan 3 has the highest total of proposed rate increases as it is the most holistic representation of the water utility’s operational and capital needs.

Table 1-1: Financial Plan Descriptions

Scenario	Description	30-year CIP	MYOP	Additional & Necessary O&M	Additional & Necessary MYOP	Additional & Necessary Capital	Additional & Necessary R/R
1	Financial Plan 1	Yes	Yes	No	No	No	No
2	Financial Plan 2	Yes	Yes	Yes	Yes	Yes	No
3	Financial Plan 3	Yes	Yes	Yes	Yes	Yes	Yes

Table 1-2: Comparison of Projected Water Rate Increases

Fiscal Year	Financial Plan 1	Financial Plan 2	Financial Plan 3
FY 2025	0%	0%	0%
FY 2026	0%	0%	0%
FY 2027	0%	0%	0%
FY 2028	22%	22%	45%
FY 2029	20%	22%	15%
FY 2030	7%	22%	12%
FY 2031	6%	5%	6%
FY 2032	6%	4%	4%
FY 2033	5%	4%	4%
FY 2034 – FY 2049	4% (34, 35)	3% (34)	4% (34)
Total	74%	82%	90%

While the water utility requires rate increases to meet its fiscal requirements to keep the status quo, the results of the three financial planning scenarios demonstrate that additional water rate increases will also be needed to implement the 30-year CIP, MYOP, as well as additional and necessary O&M, MYOP, capital, and R/R.

¹ DOU must strive for a coverage ratio that is consistent with the applicable credit rating category for the water and wastewater systems.

However, we recognize that it may not be feasible to implement the full projected water rate increases in Table 1-2. Therefore, it is likely that the DOU will need to prioritize the most critical, highest-risk, and regulatory projects as full funding for the water utility's comprehensive needs may not be available.

2. Introduction

In accordance with the City Auditor's 2023/2024 Audit Plan, we have completed the *Department of Utilities' Water and Wastewater Funds Review*. We believe this report meets our objective of reviewing the fiscal sustainability of the Water Fund. We did not seek to test internal controls, such as those related to the department's evaluation of the water infrastructure or the fund's revenue and expenses.

We would like to thank the Department of Utilities staff for their time, effort, and transparency to enable our completion of a thorough and independent review of the Water Fund.

2.1. Objective, Scope, and Methodology

Raftelis is pleased to provide the Water Fund Report (Report) for the City of Sacramento (City) to assess the fiscal stability of the Water Fund. The Water Fund accounts for the operation and maintenance of the City's water treatment and water transmission and distribution systems, which are run by the Department of Utilities (DOU).

The major study objectives include a detailed review and analysis of:

- Fiscal policies and procedures;
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The report summarizes the key findings and recommendations related to the DOU Water Fund assessment and developing financial plans for the Water Fund. It is primarily based on data provided from the end of calendar year 2023. There are often differences between actual and projected data. Some of the assumptions used in this report may not be realized, and unanticipated events and circumstances may occur. Therefore, there are likely to be differences between the data or results projected in the report and the actual results achieved. Nevertheless, this report provides valuable information and analysis for the City to consider in its strategic and financial planning for the Water Fund.

2.2. Background

Sitting at the confluence of the Sacramento and American Rivers, the City of Sacramento was founded in 1849, and the water system began providing service to the area in 1854. Today, the City has a population of roughly 525,000 and a water service area that covers approximately 63,182 acres and approximately 147,150 accounts. Between the two treatment facilities, there are 5 distributed storage tanks (clearwells). The City has

an additional 11 distributed storage tanks located throughout the City. Among the 16 water storage facilities, the City has a distribution system storage capacity of 45 million gallons (MG).

In addition to treating surface water from the Sacramento and American Rivers, the City has maintained and operated groundwater wells for over 50 years. Currently, the City is permitted to operate 30 municipal groundwater wells. Twenty-six of these wells are north of the American River while the remaining four are south of the American River. Today, 10 of these wells are active and the City has a groundwater production capacity of 20 million gallons per day (MGD).

For transmission and distribution, the City has approximately 160 miles of transmission mains and 1,479 miles of distribution mains.

3. Benchmarking

3.1. Benchmarking of Peer Communities

Benchmarking can be a useful tool to assess a utility's operations to similar organizations. Comparing operations to other organizations can help the City understand if it is in line with peer communities or if there is an area that needs more attention or investment. Although this comparison is helpful, benchmarking does not include an evaluation of how well organizations are providing services; this is where knowledge of best practices is useful. Understanding best practices allows the City to better provide context to the comparison made with peer utilities.

As part of the review of the structure and staffing of the DOU, Raftelis conducted benchmarking research regarding staffing, organization, and functions. Apples-to-apples comparisons are often difficult given the geographic, operational, political, economic, and other differences between communities and regions. With the collaboration of City staff, fourteen peer organizations, including ten from California, were identified. Peers were selected based on the number of accounts, services provided, similar regulatory environments, and similar operating functions. Regional data from the American Water Works Association's (AWWA) most recent utility benchmarking survey is also included for comparison when available and applicable.²

The project team collected data from publicly available sources such as budget documents, annual financial reports, and organization websites. Nine of the peer organizations are municipalities, and eight of the organizations provide both water and wastewater services. Five peer organizations operate as independent authorities, and three also provide stormwater services³. Table 3-1 presents information about each benchmark organization including retail customers, FY 2024 operating budget, and full-time equivalent (FTE) employees.⁴ Although this report focuses on water, information about all utility services (water, wastewater, and stormwater) offered by each organization is included.

² AWWA survey data are not acquired from a random sample and may not represent the industry. Regional data contains data from AWWA's Region V, which includes survey responses from utilities in California, Oregon, Washington, Alaska, Montana, Nevada, Hawaii, Guam, American Samoa, and the seven westernmost Canadian provinces.

³ The City of Sacramento also provides stormwater services. Stormwater services are only included in Table 3-1 where the data was combined with another service and could not be separated.

⁴ When possible, information is obtained from the current (FY24) budget. However, some data (such as the number of accounts) is obtained from the peers' most recent Annual Comprehensive Financial Report.

Table 3-1: Benchmark Organization Information¹

Utility	Utility Type	Wastewater C or CT ⁴	Total FTEs	Water Accounts	Wastewater Accounts	Total Operating Budget (\$ millions)
Boston Water and Sewer Commission	Combined Wastewater, Water, Wastewater	C	502	88,215	88,172	\$369.9
City of Bakersfield	Wastewater	CT	51	N/A	1,054,072 ²	\$14.4
City of Folsom	Water, Wastewater	C	105	23,770	25,498	\$35.8
City of Modesto	Water, Wastewater	CT	283	74,527	62,162	\$93.3
City of Roseville	Water, Wastewater, Stormwater	CT	178	47,000	51,000	\$105.6
City of Sacramento	Water, Wastewater	CT	416	147,150	79,114	\$123.8
City of Santa Rosa	Water, Wastewater, Stormwater	C	478	53,000	49,000	\$111
City of Seattle	Water, Combined Wastewater, Wastewater	C	1,132.10	Not found	Not found	\$272.7
City of Stockton	Water, Wastewater, Stormwater	CT	398.01 ³	50,000	116,000	\$116.2
Portland Water Bureau	Water, Combined Wastewater, Wastewater	CT	1,337.70	194,938	194,938	\$532.4
Sacramento Area Sewer District	Wastewater	CT	294	N/A	427,616	\$146.6
Sacramento County Water Agency	Water	N/A	147	63,803	N/A	\$135.1
Sacramento Suburban Water District	Water	N/A	73	47,680	N/A	\$24.8
San Juan Water District	Water	N/A	49	11,896	N/A	\$22.8
Truckee Meadows	Water	N/A	254	138,412	N/A	\$125

¹ When possible, information is obtained from the current (FY24) budget. However, some data (such as the number of accounts) is obtained from the peers' most recent Annual Comprehensive Financial Report.

² Parcels served, rather than the number of accounts.

³ Total FTEs for Municipal Utilities Department, including Stormwater.

⁴ C is collection, CT is collection and treatment.

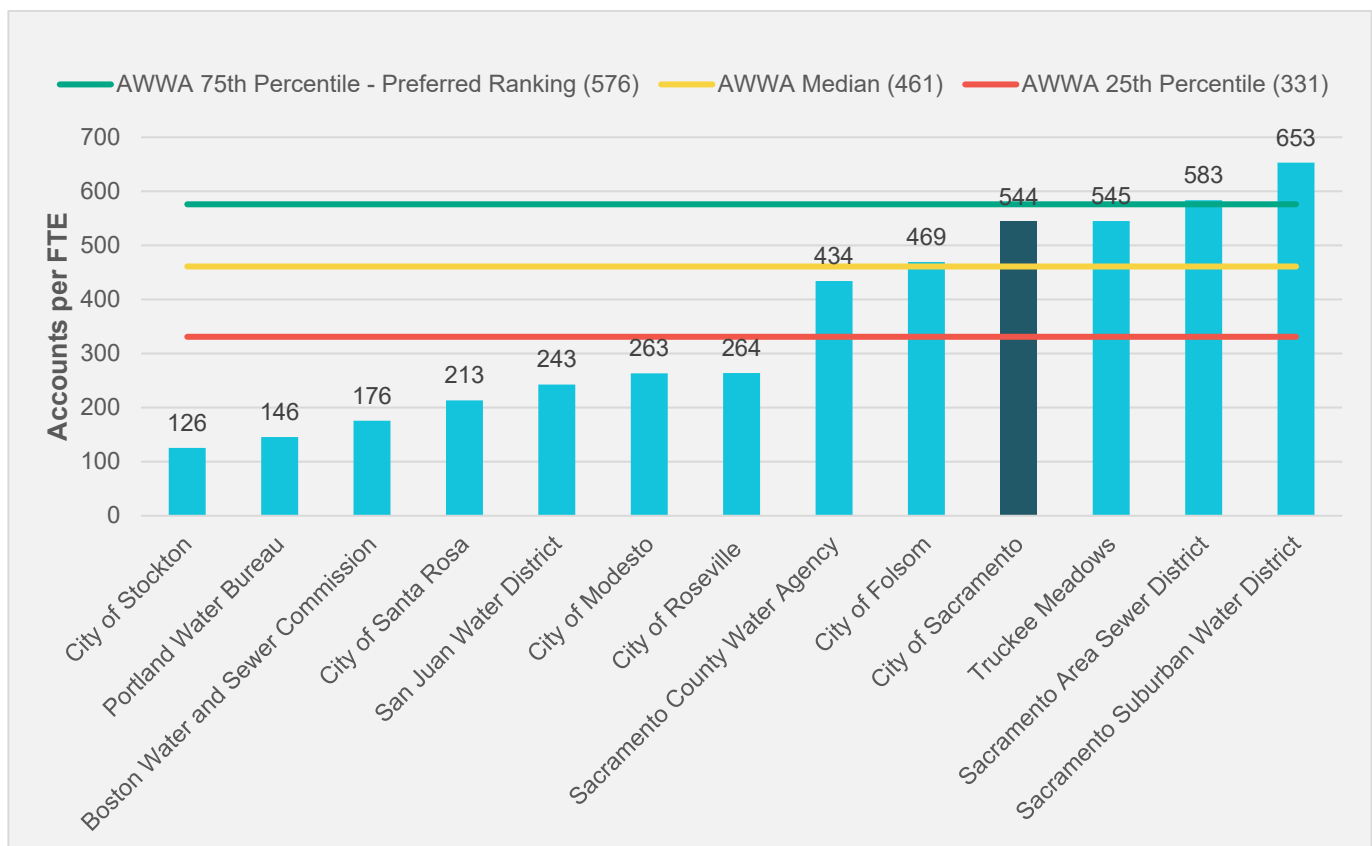
3.2. Staffing Levels

Benchmarking attempts to use a variety of metrics to piece together a picture of how utilities compare. One of the common performance metrics used by AWWA to show relative staffing levels is the number of customer

accounts per FTE. AWWA defines an FTE as the allocation of employee time equal to 2,080 hours per year based on 40 hours per week and 52 weeks per year. For combined water and wastewater utilities, this is expressed as the sum of water customer accounts and wastewater customer accounts divided by the total number of FTEs (226,264 accounts divided by 416 FTEs equals 544 accounts per FTE).

The preferred ranking is above the AWWA 75th percentile of 576 accounts per FTE. As seen in Figure 3-1, the City serves 544 customer accounts per FTE, which falls below the preferred AWWA 75th percentile.⁵ However, in comparison with the selected benchmark organizations, the City is grouped on the higher end of its peers.⁶

Figure 3-1: Total Water and Wastewater Accounts per FTE



Note: We excluded the City of Seattle due to insufficient data regarding the number of accounts served and the City of Bakersfield because they charge on a parcel basis multiplied by a Revised Single-Family Dwelling Equivalent (SFDE) ratio, which is not equivalent to accounts.

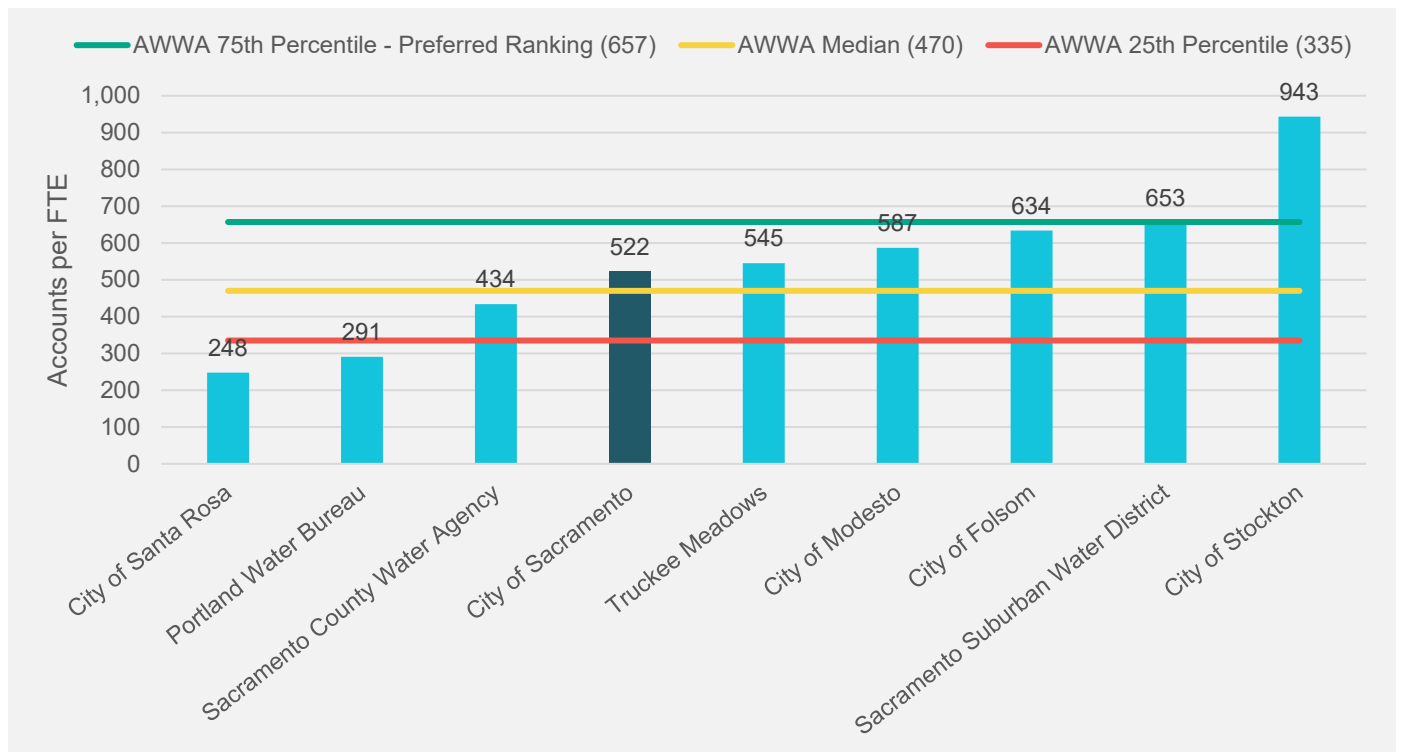
⁵ AWWA reports its benchmarking survey results in terms of 25th percentile, median, and 75th percentile. However, the 25th percentile does not always indicate the lowest value, and the 75th percentile does not always indicate the highest numerical value. Usually, AWWA ascribes the 75th percentile to the perceived “most-efficient” quartile (e.g, most customer accounts served per FTE, lowest operating cost per million gallons, etc.).

⁶ We excluded the City of Seattle due to insufficient data regarding the number of accounts served and the City of Bakersfield from the per account comparison since they charge on a parcel basis multiplied by a Revised Single-Family Dwelling Equivalent (SFDE) ratio, which is not equivalent to accounts.

The comparison of water accounts served per FTE is shown in Figure 3-2. The Water Fund serves 522 water accounts per FTE (147,150 accounts divided by 282 FTEs equals 522 accounts per FTE), which is more than the AWWA median but less than the AWWA 75th percentile, and approximately in the middle of the benchmarked peers. The preferred ranking is above the AWWA 75th percentile of 657 accounts per FTE.

There are numerous open FTE positions for the water utility that the City is trying to fill, with a total staffing cost need of \$1.1 million over the next 5 years. Finding qualified staff has been difficult and a Citywide classification and compensation study is currently underway.

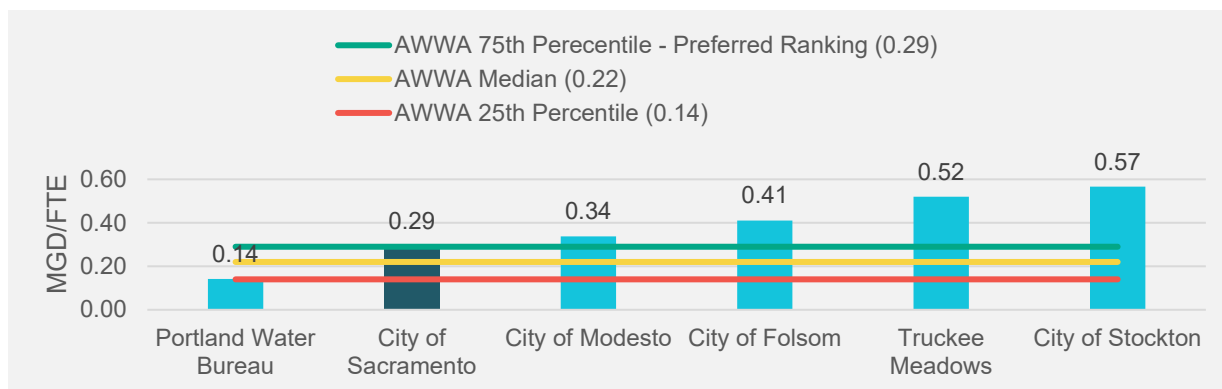
Figure 3-2: Water Accounts per FTE



Note: We excluded the City of Seattle due to insufficient data regarding the number of accounts served and the City of Bakersfield because they charge on a parcel basis multiplied by a Revised Single-Family Dwelling Equivalent (SFDE) ratio, which is not equivalent to accounts.

A common metric used by the AWWA to show relative staffing levels is the amount of treated water produced per FTE (82.55 MGD of average water treatment divided by 282 FTEs equals 0.29 MGD per FTE). Figure 3-3 shows the water produced per FTE across the benchmarked organizations with the preferred ranking above the AWWA 75th percentile of 0.29 MGD per FTE. Four of the five peers produce more water per FTE than the AWWA 75th percentile, while one of the peers produces at the AWWA 25th percentile. The City of Sacramento generally produces less water per treatment and distribution FTE than the selected peers, but is at the AWWA 75th percentile. It is important to note that Sacramento maintains overlapping capacity to serve customers with surface water or switch to groundwater when needed; this resiliency could account for Sacramento’s lower MGD per FTE ratio.

Figure 3-3: Water Produced (MGD) per FTE



Note: Sacramento County Water Agency, Sacramento Suburban Water District, City of Roseville, City of Santa Rosa, San Juan Water District, City of Seattle, and Boston Water and Sewer Commission are excluded from this figure due to a lack of average water treatment data found.

3.3. Operational Comparisons

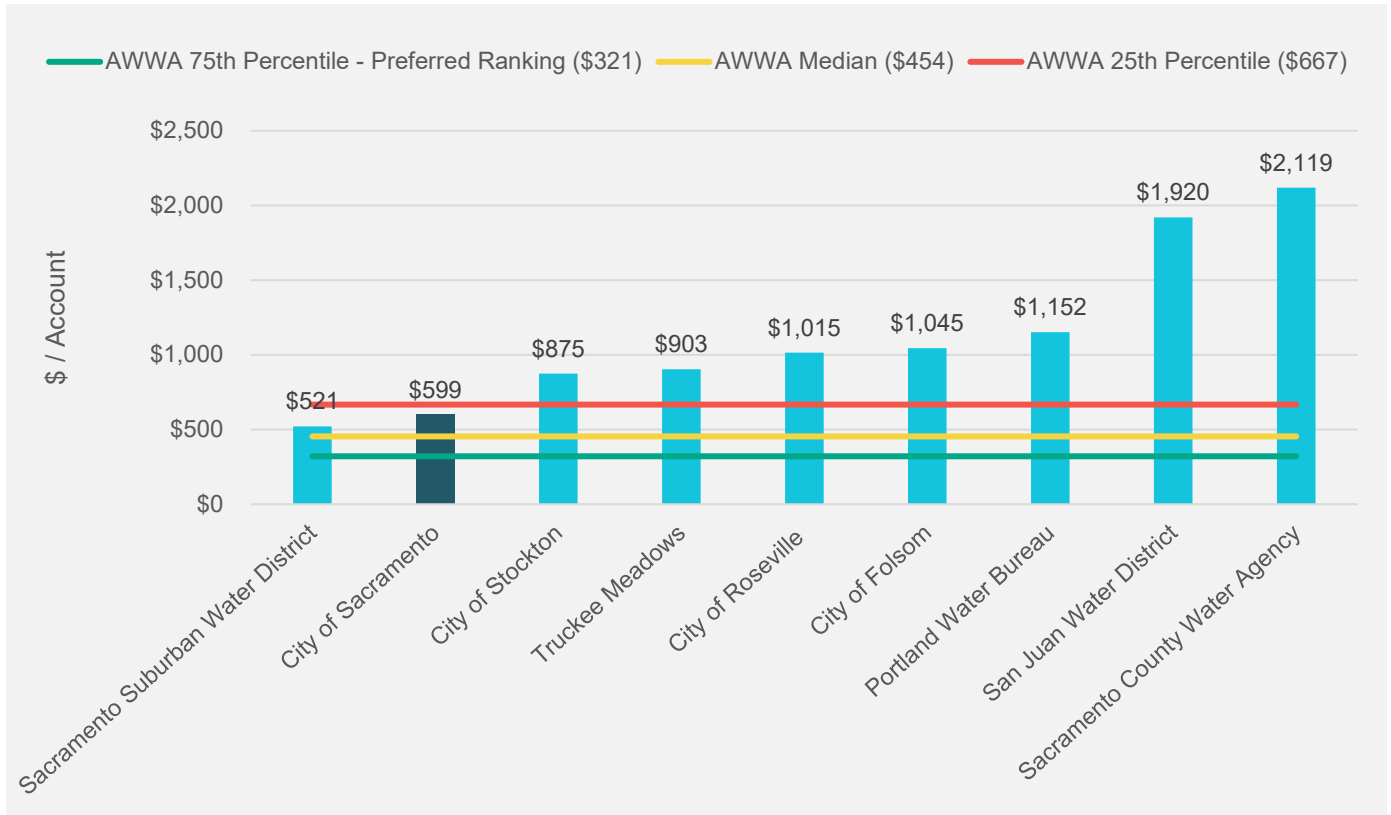
To examine the relative cost of service across different organizations, a common industry metric is to calculate the annual operations and maintenance (O&M) expenditures per customer account⁷ (FY 2024 Water Operating Budget of \$88.2 million divided by 147,150 water accounts equals \$599 per account). The preferred ranking is below the AWWA 75th percentile.

Figure 3-4 shows water operations and maintenance expenditures per customer account across the benchmarked organizations. The City of Sacramento appears to spend less per account than most of the peer communities and kept O&M costs down, except for Sacramento Suburban Water District which operates a field of groundwater wells that are lower in cost to operate and maintain. The City is higher than the AWWA median and the AWWA 75th percentile of Region V data.

As discussed in later sections of this report, Raftelis identified that the City has a deferred capital investment of \$739.2 million in R/R needs for its existing water assets. However, DOU has had limited capital budget funding available for several years, due to a lack of water rate increases in FY 2021 through FY 2023, so sufficient asset R/R has been deferred due to lack of funding. This lack of funding increases the risk of assets failing catastrophically, increases the consequences of failure, and increases the need for higher levels of O&M costs to keep the existing assets functional. These reasons are likely why the City’s O&M costs are above the AWWA 75th percentile.

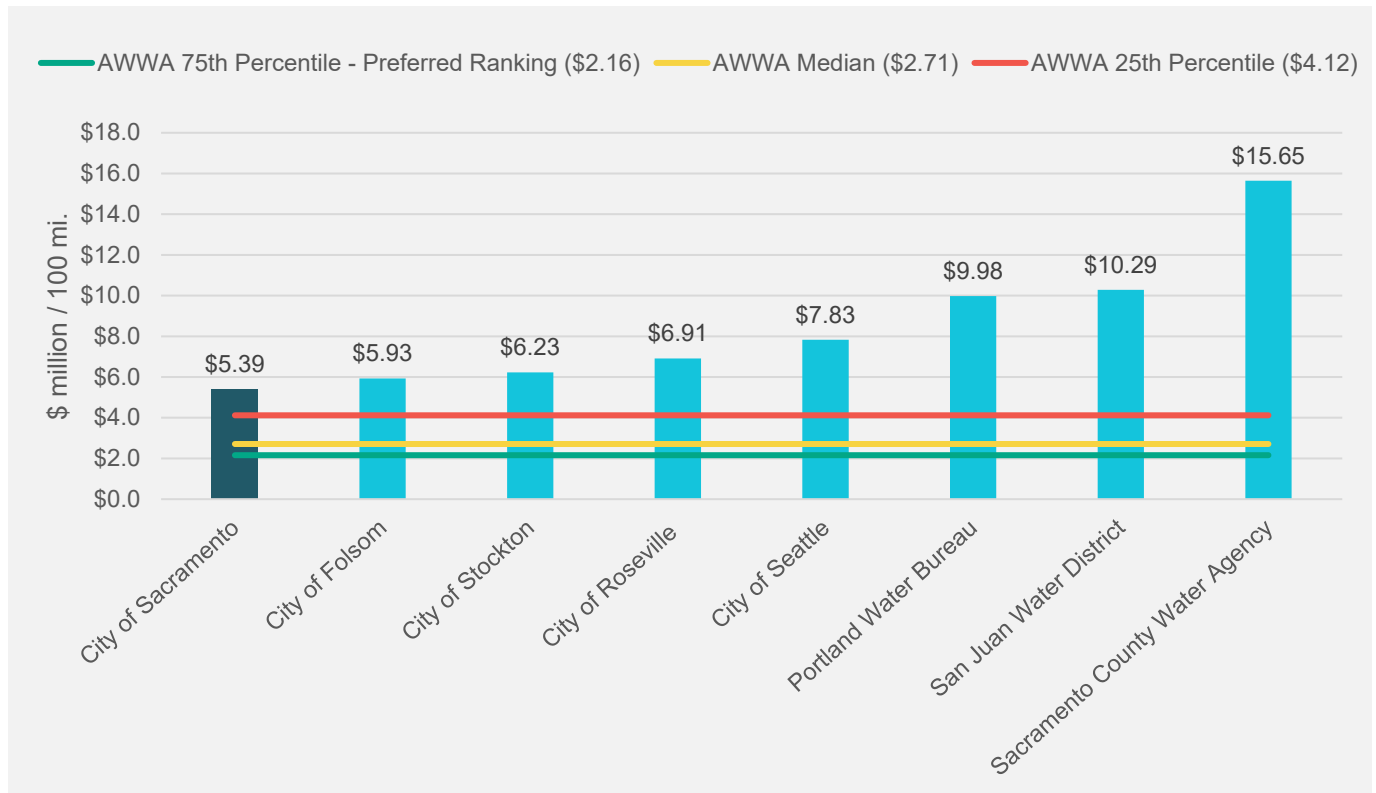
⁷ Operations and maintenance costs generally consist of labor (e.g., wages and benefits), services (e.g., repair services, janitorial services, etc.), and consumables (e.g., chemicals, utilities, office supplies) that need to be expended on a periodic or ongoing basis to operate a utility. Operations and maintenance costs exclude the costs of debt service and capital.

Figure 3-4: Annual Water Operations and Maintenance Expenditures per Customer Account



To examine another aspect of the cost of providing water service, the annual water operations and maintenance cost is calculated using pipeline length rather than the number of customer accounts. Figure 3-5 presents the annual water operating cost per 100 miles of water pipeline (FY 2024 Water Operating Budget of \$88.2 million divided by 16.35 (100 miles of pipe) equals \$5.4 million per 100 miles of pipe). The preferred ranking is below the AWWA 75th percentile. The City of Sacramento does not compare favorably against the communities surveyed by the AWWA and is above the 25th percentile. However, the City has lower O&M costs for this metric in comparison to the benchmarked peer communities. The same reasons discussed above are likely why O&M costs are above the AWWA 75th percentile.

Figure 3-5: Annual Water Operations and Maintenance Costs per 100 Miles of Water Pipeline

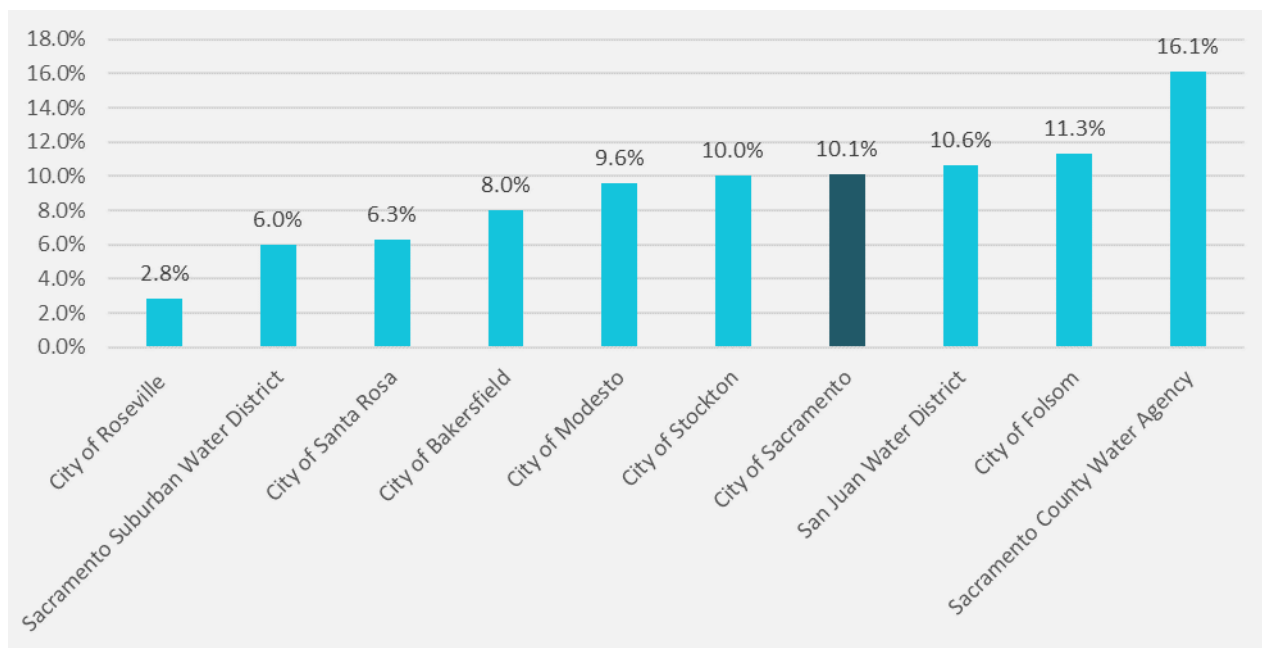


Note: Sacramento Suburban Water District, City of Santa Rosa, Truckee Meadows, City of Modesto, and Boston Water and Sewer Commission are excluded from this figure due to insufficient pipeline data.

3.4. Water Loss Comparisons

The State of California requires that every water utility conduct and submit an annual water loss audit using free software from the AWWA which is then posted on the state’s Department of Water Resources website. This provides a useful, standardized collection of data regarding water loss and system integrity. One of the metrics provided by the audit is the rate of non-revenue water loss, which is composed of three sub-categories: real losses (leakage on mains and service connections, leakage, and overflows on water storage tanks); apparent losses (unauthorized consumption, customer metering inaccuracies); and authorized unbilled consumption (water used for activities such as firefighting or metered unbilled consumption). Figure 3-6 presents the non-revenue water loss rate from the most recent available 2021 water loss audit. The City of Sacramento reported its non-revenue water loss rate as 10.1% with six benchmarked peers at a lower rate and three peers with a higher rate.

Figure 3-6: Non-Revenue Water Loss Rate



Note: Only California-based peers are included in this figure, due to state reporting requirements.

3.5. Water Rate Comparisons

Comparing rates between peers is not always a straightforward process. Given different rate structures between utilities, one utility may have relatively lower bills at one usage level and relatively higher bills at another usage level. Moreover, the rates that a utility charges reflect many factors, some of which are often outside of a community’s control (e.g., source water quality, topography, environmental regulations, etc.). This benchmarking effort presents calculated monthly bills at 5 hundred cubic feet (ccf) and 10 ccf consumption levels to provide an average range of residential consumption. In addition to the benchmarked peers, rates from the AWWA Rate Survey are included. As before, AWWA reports the 25th percentile, median, and 75th percentile of bills. Note that the rate data from the benchmarked peers is current; however, the AWWA Rate Survey collected its data in July 2022. Below the 25th percentile is preferred.

Figure 3-7 shows the calculated monthly residential water bill for the benchmarked peers and AWWA data at 5 ccf of usage. The City’s water bill at 5 ccf well exceeds the 25th percentile among AWWA respondents and is towards the higher end of the benchmarked peers.

Figure 3-7: Monthly Residential Water Bill – 5 ccf

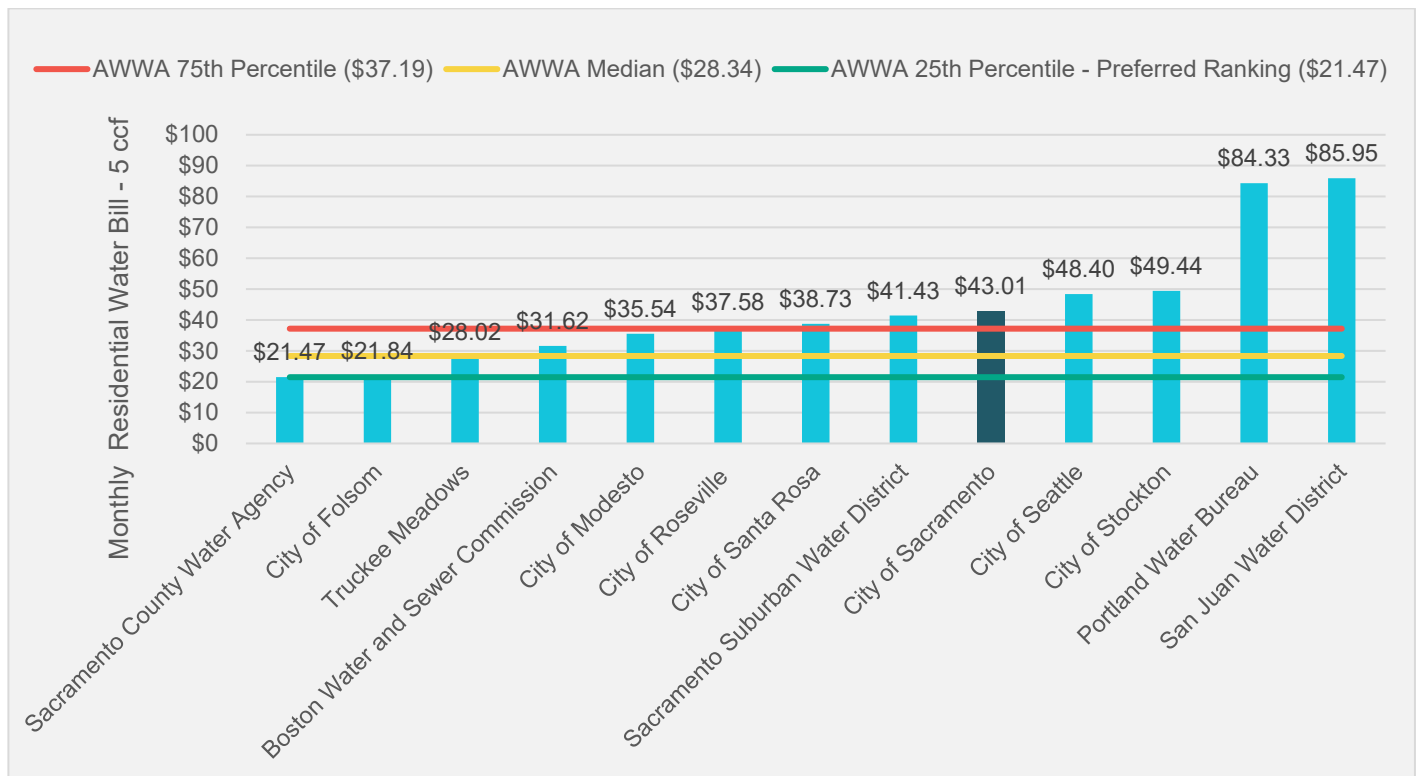
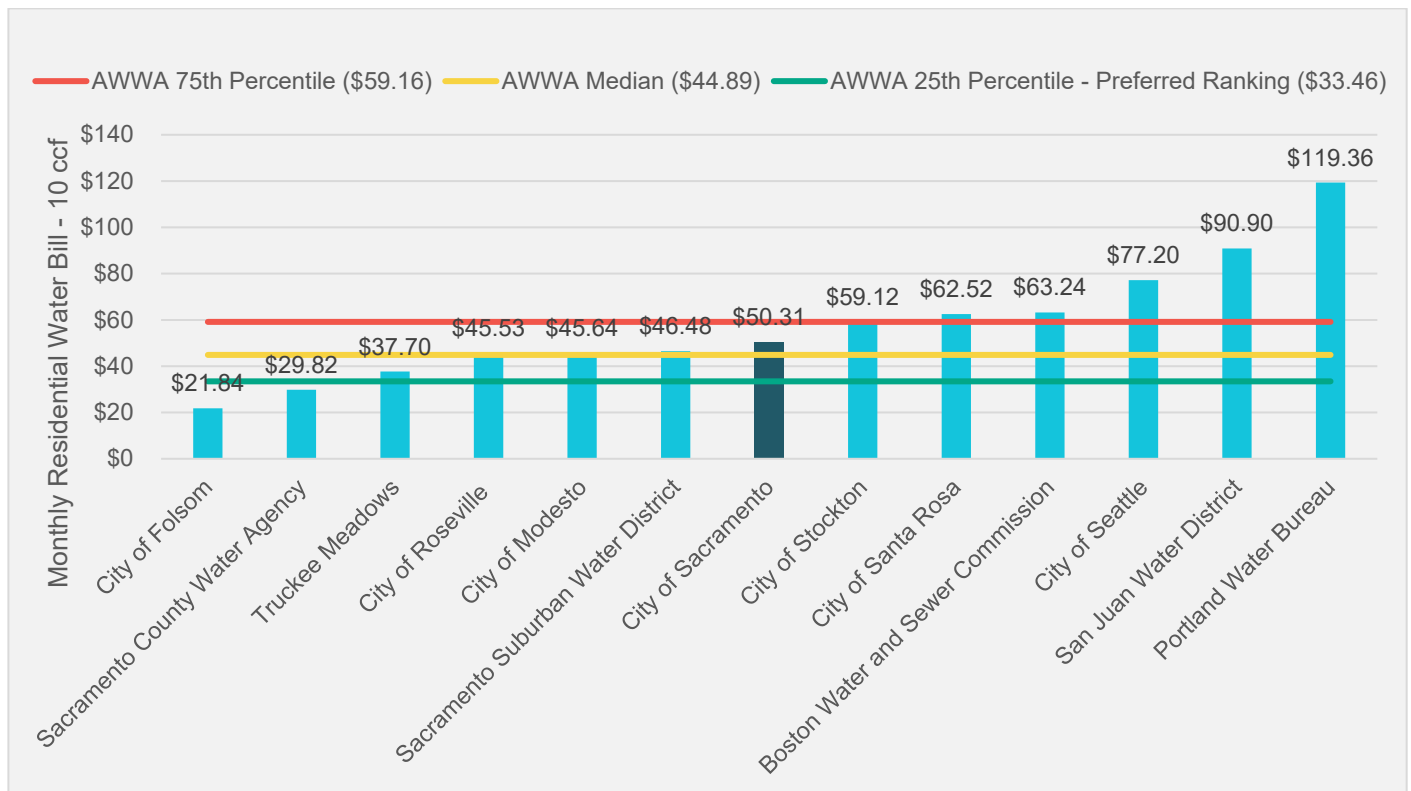


Figure 3-8 shows the calculated monthly water bill at 10 ccf for residential users. In this figure, it is seen that the City’s water bill at 10 ccf is still above the AWWA 25th percentile, but does not exceed the AWWA’s 75th percentile as 5 ccf of consumption does, and is in the middle of its benchmarked peers.

Figure 3-8: Monthly Residential Water Bill – 10 ccf



As discussed in later sections of this report, Raftelis identified that DOU has significant additional capital investment needs over the next 10 years that need to be funded and addressed to efficiently operate and maintain the water system. The associated rate increases are summarized in the Conclusions section of this report.

3.6. Benchmarking Summary

A summary of the benchmarking section is presented below. Rankings based on FTEs, O&M costs, and residential bills are in the order of highest to lowest compared to the City's benchmarked peers:

- The comparison of water accounts per FTE shows that the City serves 522 water accounts per FTE, which is more than the AWWA median but less than the AWWA 75th percentile, and approximately in the middle of benchmarked peers. The preferred ranking is above the AWWA 75th percentile of 657 water accounts per FTE. There are numerous open FTE positions for the water utility that the City is trying to fill, with a total staffing cost need of \$1.1 million over the next 5 years. Finding qualified staff has been difficult and a Citywide classification and compensation study is currently underway.
- A common metric used by the AWWA to show relative staffing levels is the amount of treated water produced per FTE. This is expressed in MGD per FTE. The preferred ranking is above the AWWA 75th percentile of 0.29 MGD per FTE. The City generally produces less water per treatment and distribution FTE than the benchmarked peers, but is at the AWWA 75th percentile. It is important to note that Sacramento maintains overlapping capacity to serve customers with surface water or switch to groundwater when needed; this resiliency results in a lower MGD per FTE ratio.
- The O&M costs for providing services are compared by normalizing the data and dividing the O&M costs by the number of accounts served. The preferred ranking is below the AWWA 75th percentile. The City appears to spend less per account than most of the benchmarked peer communities and kept O&M costs down. The City is higher than the AWWA median and the preferred AWWA 75th percentile. As discussed in later sections of this report, Raftelis identified that the City has a deferred capital investment of \$739.2 million in R/R needs for its existing water assets. However, DOU has had limited capital budget funding available for several years, due to a lack of water rate increases in FY 2021 through FY 2023, so sufficient asset R/R has been deferred due to lack of funding. This lack of funding increases the risk of assets failing catastrophically, increases the consequences of failure, and increases the need for higher levels of O&M costs to keep the existing assets functional. These reasons are likely why the City's O&M costs are above the AWWA 75th percentile.
- Another method to normalize O&M costs is to divide the O&M costs by the length of pipe maintained. The preferred ranking is below the AWWA 75th percentile. The City does not compare favorably against the communities surveyed by the AWWA and is above the 25th percentile. However, the City has lower O&M costs for this metric in comparison to the benchmarked peer communities. The same reasons discussed above are likely why O&M costs are above the AWWA 75th percentile.
- The non-revenue water loss rate is a metric used to measure water loss and evaluate system integrity. The City's non-revenue water loss rate is 10.1% with six benchmarked peers at a lower rate and three peers with a higher rate.
- The City's water bill at 5 ccf well exceeds the 25th percentile among AWWA respondents and is towards the higher end of the benchmarked peers. The City's water bill at 10 ccf is still above the AWWA 25th percentile, but does not exceed the AWWA's 75th percentile as 5 ccf of consumption does, and is in the middle of its benchmarked peers. As discussed in later sections of this report,

Raftelis identified that DOU has significant additional capital investment needs over the next 10 years that need to be funded and addressed to efficiently operate and maintain the water system. The associated rate increases are summarized in the Conclusions section of this report.

4. Expense, Revenue, and Funding History

4.1. Operating Expenses

Raftelis reviewed the budgeted and actual expenses for water from FY 2014 through FY 2023. Budgets were compared to actuals to evaluate the accuracy of budget assumptions and projections and to identify escalation factors that could be used in the fiscal forecast. Revenues were compared to expenses to determine if past rate revenue increases have been sufficient to meet operating and capital revenue requirements.

The budgeted and actual expenses and revenues analyzed for this review were provided by the DOU and are based on cash monitored by the DOU. Therefore, these numbers vary from audited financial statements that are reported by Generally Accepted Auditing Standards (GAAS) and Government Auditing Standards. The DOU, like most utilities, uses a cash basis to identify total revenues required to meet its annual cash expenditures and to set rates needed to meet fiscal requirements and targets. This is different than accrual accounting cash basis that recognizes revenues as earned when cash is received, and expenses charged when cash is distributed.⁸

4.1.1. Budgeted Operating Expenses

The budgeted expenses and Compound Annual Growth Rate (CAGR) for each line item in the Water Fund are shown in the following tables. Interfund expenses on lines 2 through 4 are related to various activities for the Water Fund including but not limited to the General Fund Tax, annual Water Forum share of costs, interfund loans, central services mail, annual citywide cost plan, project labor and indirect cost reimbursements, grant labor reimbursements, and interdepartmental reimbursements or expenses for services provided or received.

Table 4-1: Budgeted Expenses from FY 2014 through FY 2018 (in thousands)

Line No.	Description	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
1	Employee Services	\$23,690	\$24,780	\$27,259	\$37,646	\$40,394
2	Interfund Reimbursement	\$2,069	(\$1,211)	(\$125)	(\$10,450)	(\$9,022)
3	Interfund Provided & Used	\$25	\$25	\$25	\$25	\$25
4	Interfund Transfer	\$10,751	\$10,858	\$10,902	\$11,935	\$24,094
5	Other Objects	\$1,610	\$948	\$944	\$962	\$970
6	Property	\$857	\$969	\$942	\$1,067	\$857
7	Services and Supplies	\$19,404	\$19,434	\$19,832	\$21,666	\$19,981
8	MYOP	\$2,432	\$2,065	\$6,602	\$146	\$1,744
9	Budgeted Expenses Total	\$60,839	\$57,868	\$66,380	\$62,997	\$79,045

⁸ American Water Works Association, M1: Principles of Water Rates, Fees, and Charges, Seventh Edition

Table 4-2: Budgeted Expenses from FY 2019 through FY 2023 (in thousands)

Line No.	Description	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
1	Employee Services	\$42,649	\$46,383	\$44,995	\$46,670	\$47,111
2	Interfund Reimbursement	(\$9,286)	(\$10,889)	(\$8,409)	(\$9,646)	(\$9,011)
3	Interfund Provided & Used	\$27	\$27	\$26	\$21	\$20
4	Interfund Transfer	\$3,048	\$15,631	\$15,711	\$14,907	\$14,980
5	Other Objects	\$1,100	\$1,179	\$1,754	\$1,925	\$1,510
6	Property	\$850	\$1,296	\$6,134	\$1,838	\$1,964
7	Services and Supplies	\$20,695	\$22,240	\$22,200	\$24,601	\$26,563
8	MYOP	\$3,538	\$2,775	\$3,959	\$3,877	\$3,008
9	Budgeted Expenses Total	\$62,620	\$78,640	\$86,371	\$84,193	\$86,146

Table 4-3: Budgeted Expenses CAGR from FY 2014 through FY 2023

Line No.	Description	CAGR
1	Employee Services	7.9%
2	Interfund Reimbursement	-217.8%
3	Interfund Provided & Used	-2.2%
4	Interfund Transfer	3.8%
5	Other Objects	-0.7%
6	Property	9.7%
7	Services and Supplies	3.6%
8	MYOP	2.39%
9	Budgeted Expenses Total	4.0%

4.1.2. Actual Operating Expenses

The actual expenses and CAGR for each line item in the Water Fund are shown in the following tables. Actual expenses had a higher CAGR of 4.9% compared to 4.0% for budgeted expenses from 2014 to 2023. Since the percentage increase difference is less than a percentage, it indicates that the DOU is accurately budgeting for operating expenses.

Inflation as measured by the Consumer Price Index (CPI)⁹ was 2.8% from 2014 to 2023. Employee services, other objects, property, and services and supplies had CAGRs for actual expenses in Table 4-6 that were higher than inflation. However, there were planned increases during this period due to approved rate increases that do not have a relationship to inflation.

⁹ Bureau of Labor Statistics Data, Series ID CUUR0000SA0, U.S. City Average, All urban customers, Unadjusted.

Table 4-4: Actual Expenses from FY 2014 through FY 2018 (in thousands)

Line No.	Description	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
1	Employee Services	\$24,107	\$24,144	\$25,765	\$34,795	\$34,731
2	Interfund Reimbursement	(\$488)	(\$944)	(\$616)	(\$8,613)	(\$6,963)
3	Interfund Provided & Used	\$40	\$42	\$37	\$39	\$28
4	Interfund Transfer	\$10,372	\$11,356	\$10,998	\$12,118	\$24,297
5	Other Objects	\$696	\$725	\$606	\$581	\$739
6	Property	\$708	\$532	\$280	\$2,309	\$1,033
7	Services and Supplies	\$14,942	\$16,440	\$18,166	\$17,119	\$18,384
8	MYOP	\$692	\$873	\$1,572	\$1,508	\$2,016
9	Actual Expenses Total	\$51,068	\$53,168	\$56,807	\$59,856	\$74,265

Table 4-5: Actual Expenses from FY 2019 through FY 2023 (in thousands)

Line No.	Description	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
1	Employee Services	\$37,211	\$41,712	\$39,925	\$40,982	\$42,467
2	Interfund Reimbursement	(\$6,887)	(\$10,003)	(\$6,829)	(\$6,698)	(\$7,717)
3	Interfund Provided & Used	\$15	\$12	\$8	\$9	\$9
4	Interfund Transfer	\$2,865	\$15,465	\$15,317	\$14,945	\$14,420
5	Other Objects	\$716	\$617	\$1,240	\$1,110	\$1,172
6	Property	\$2,229	\$1,607	\$3,959	\$1,393	\$2,004
7	Services and Supplies	\$18,306	\$20,798	\$19,757	\$21,343	\$23,382
8	MYOP	\$2,564	\$2,936	\$3,007	\$4,144	\$2,919
9	Actual Expenses Total	\$57,019	\$73,143	\$76,384	\$77,228	\$78,656

Table 4-6: Actual Expenses CAGR from FY 2014 through FY 2023

Line No.	Description	CAGR
1	Employee Services	6.5%
2	Interfund Reimbursement	35.9% ¹
3	Interfund Provided & Used	-15.5%
4	Interfund Transfer	3.7%
5	Other Objects	6.0%
6	Property	12.3%
7	Services and Supplies	5.1%
8	MYOP	17.34%
9	Actual Expenses Total	4.9%

4.2. Capital Expenses

4.2.1. Budgeted Capital Expenses

The budgeted capital expenses for the Water Fund are shown in the following tables. The average annual cash funded capital was \$16.4 million. Some years have more of an impact on the average expense than others. For example, bond proceeds were awarded in FY 2017 for \$62.6 million, and a Drinking Water State Revolving Fund Loan was awarded for \$173.1 million in FY 2018, which resulted in a total average capital budget expense of \$42.5 million.

Table 4-7: Budgeted Capital Expenses from FY 2014 through FY 2018 (in thousands)

Line No.	Description	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
1	Water Development Fees	\$0	\$0	(\$90)	\$4,200	\$4,882
2	Water Fund	\$4,312	\$10,050	\$18,235	\$7,960	\$6,957
3	Water Grant Fund	\$560	\$231	\$1,749	\$628	(\$14)
4	Water Revenue Bonds 2013	\$0	\$0	\$17	(\$17)	\$0
5	Water Revenue Bonds 2017	\$0	\$0	\$0	\$62,600	\$0
6	Drinking Water State Revolving Fund Loan	\$0	\$0	\$0	\$0	\$173,142
7	Total Budgeted Capital Expenses	\$4,872	\$10,281	\$19,911	\$75,370	\$184,967

Table 4-8: Budgeted Capital Expenses from FY 2019 through FY 2023 (in thousands)

Line No.	Description	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
1	Water Development Fees	(\$2,460)	\$4,600	\$2,650	\$6,200	\$3,000
2	Water Fund	\$13,869	\$9,772	\$29,860	\$23,784	\$30,308
3	Water Grant Fund	\$196	\$0	\$2,522	\$59	\$0
4	Water Revenue Bonds 2013	\$0	\$0	\$4,234	\$41	\$0
5	Water Revenue Bonds 2017	\$0	\$0	\$602	\$7	\$0
6	Drinking Water State Revolving Fund Loan	\$0	\$0	\$0	\$0	\$0
7	Total Budgeted Capital Expenses	\$11,605	\$14,372	\$39,868	\$30,091	\$33,308

4.2.2. Actual Capital Expenses

The actual capital expenses for the Water Fund are shown in the following tables. The average annual actual capital expenses were \$56.7 million, which was approximately \$14.2 million higher than the budgeted capital expenses. Capital projects have multi-year funding. Carryover funding was available in the CIP to support the annual variance of approximately \$14.2 million.

Table 4-9: Actual Capital Expenses from FY 2014 through FY 2018 (in thousands)

Line No.	Description	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
1	Water Development Fees	\$730	\$269	\$68	\$5,618	\$8,070
2	Water Fund	\$4,560	\$6,914	\$6,289	\$11,244	\$5,105
3	Water Grant Fund	\$6	\$652	\$1,275	\$1,774	(\$398)
4	Water Revenue Bonds 2013	\$52,638	\$90,018	\$84,468	\$9,558	\$1
5	Water Revenue Bonds 2017	\$0	\$0	\$0	\$5,992	\$48,953
6	Drinking Water State Revolving Fund Loan	\$0	\$0	\$0	\$0	\$17,877
7	Total Actual Capital Expenses	\$57,934	\$97,853	\$92,100	\$34,186	\$79,608

Table 4-10: Actual Capital Expenses from FY 2019 through FY 2023 (in thousands)

Line No.	Description	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
1	Water Development Fees	\$3,293	\$1,778	\$2,265	\$2,128	\$1,747
2	Water Fund	\$13,439	\$11,429	\$13,176	\$7,892	\$11,326
3	Water Grant Fund	\$1,762	\$418	\$6	\$419	\$147
4	Water Revenue Bonds 2013	\$1	\$0	\$1	\$4,275	\$0
5	Water Revenue Bonds 2017	\$7,657	\$0	(\$2)	\$609	\$0
6	Drinking Water State Revolving Fund Loan	\$65,175	\$32,873	\$20,193	\$2,991	\$92
7	Total Actual Capital Expenses	\$91,327	\$46,498	\$35,638	\$18,314	\$13,313

4.3. Debt Service History

4.3.1. Budgeted Debt Service

The budgeted debt service history for water is shown in the following tables. The total debt service the water utility budgeted to pay from FY 2014 through FY 2023 was approximately \$293.4 million.

Table 4-11: Budgeted Debt Service History from FY 2014 through FY 2018 (in thousands)

Line No.	Description	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
1	Debt Service Transfer out	\$9,769	\$14,059	\$14,066	\$14,357	\$14,066
2	Principal Payments	\$5,424	\$5,685	\$5,961	\$5,821	\$6,062
3	Interest Payment	\$7,657	\$7,389	\$7,108	\$6,565	\$6,317
4	Budgeted Debt Service Total	\$22,849	\$27,133	\$27,135	\$26,743	\$26,445

Table 4-12: Budgeted Debt Service History from FY 2019 through FY 2023 (in thousands)

Line No.	Description	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
1	Debt Service Transfer out	\$17,440	\$17,431	\$17,426	\$26,670	\$22,960
2	Principal Payments	\$6,323	\$6,614	\$6,911	\$7,198	\$6,906
3	Interest Payment	\$6,044	\$5,747	\$5,436	\$5,140	\$4,820
4	Budgeted Debt Service Total	\$29,807	\$29,792	\$29,773	\$39,007	\$34,686

4.3.2. Actual Debt Service

The actual debt service history paid from FY 2014 through FY 2023 was \$295.3 million. The actual expenditures for debt services aligned with the budgeted amounts and are shown in the following tables.

Table 4-13: Actual Debt Service History from FY 2014 through FY 2018 (in thousands)

Line No.	Description	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
1	Debt Service Transfer out	\$9,769	\$14,019	\$13,956	\$14,291	\$15,887
2	Principal Payments	\$5,424	\$5,685	\$416	\$5,821	\$6,062
3	Interest Payment	\$7,657	\$7,389	\$6,086	\$6,565	\$6,364
4	Actual Debt Service Total	\$22,849	\$27,092	\$20,458	\$26,677	\$28,312

Table 4-14: Actual Debt Service History from FY 2019 through FY 2023 (in thousands)

Line No.	Description	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
1	Debt Service Transfer out	\$17,438	\$18,080	\$16,096	\$26,670	\$24,311
2	Principal Payments	\$6,323	\$6,614	\$6,911	\$7,198	\$6,906
3	Interest Payment	\$6,044	\$5,747	\$5,436	\$5,140	\$4,820
4	Actual Debt Service Total	\$29,806	\$30,441	\$28,443	\$39,007	\$36,037

4.4. Revenues

4.4.1. Budgeted Revenues

The budgeted revenues and CAGR for the Water Fund are shown in the following tables.

Table 4-15: Budgeted Revenues from FY 2014 through FY 2018 (in thousands)

Line No.	Description	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
1	Interest and Investment Income	\$400	\$400	\$400	\$400	\$400
2	Miscellaneous	\$276	\$76	\$105	\$114	\$114
3	User Fees and Charges	\$95,386	\$95,882	\$94,752	\$105,529	\$115,297
4	Total Budgeted Revenues	\$96,063	\$96,358	\$95,258	\$106,043	\$115,811

Table 4-16: Budgeted Revenues from FY 2019 through FY 2023 (in thousands)

Line No.	Description	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
1	Interest and Investment Income	\$400	\$400	\$400	\$400	\$865
2	Miscellaneous	\$114	\$114	\$4,673	\$1,000	\$1,100
3	User Fees and Charges	\$126,709	\$139,262	\$135,861	\$134,052	\$134,127
4	Total Budgeted Revenues	\$127,223	\$139,776	\$140,934	\$135,452	\$136,092

Table 4-17: Budgeted Revenues CAGR from FY 2014 through FY 2023

Line No.	Description	CAGR
1	Interest and Investment Income	8.9%
2	Miscellaneous	16.6%
3	User Fees and Charges	3.9%
4	Budgeted Revenues Total	3.9%

4.4.2. Actual Revenues

The actual revenues and CAGR for the Water Fund are shown in the following tables.

Table 4-18: Actual Revenues from FY 2014 through FY 2018 (in thousands)

Line No.	Description	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
1	Interest and Investment Income	\$535	\$627	\$856	\$1,213	\$1,878
2	Miscellaneous	\$581	\$4,756	\$314	\$243	\$304
3	User Fees and Charges	\$94,470	\$100,468	\$98,645	\$108,998	\$119,552
4	Total Actual Revenues	\$95,587	\$105,851	\$99,816	\$110,454	\$121,734

Table 4-19: Actual Revenues from FY 2019 through FY 2023 (in thousands)

Line No.	Description	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
1	Interest and Investment Income	\$3,108	\$3,435	\$2,000	\$1,657	\$4,101
2	Miscellaneous	\$2,791	\$400	\$4,613	\$1,829	\$5,945
3	User Fees and Charges	\$127,982	\$141,793	\$139,896	\$134,914	\$129,187
4	Total Actual Revenues	\$133,881	\$145,628	\$146,509	\$138,400	\$139,233

Table 4-20: Actual Revenues CAGR from FY 2014 through FY 2023

Line No.	Description	CAGR
1	Interest and Investment Income	25.4%
2	Miscellaneous	29.5%
3	User Fees and Charges	3.5%
4	Actual Revenues Total	4.3%

Budgeted revenues for water averaged \$116.8 million annually, and actual revenues averaged slightly higher at \$117.7 million annually from FY 2014 through FY 2023. Actual revenues had a higher CAGR of 4.3% compared to 3.9% for budgeted revenues from FY 2014 to FY 2023. The CAGR for actual revenues of 4.3% was close to the CAGR for actual expenses of 4.6%. Since the growth in actual revenues was higher than budgeted revenues and approximately the growth of actual expenses, it indicates that the City is accurately budgeting for water revenues.

As previously discussed, inflation as measured by the CPI was 2.8% from FY 2014 to FY 2023. The following revenue categories had increases higher than inflation over the same period: interest and investment income, miscellaneous, and user fees and charges. However, the approved rate increases for rate revenues do not have a relationship to inflation.

4.5. Capital Improvement Funding History

The water capital improvement projects funded from FY 2014 through FY 2023 were analyzed to determine the ratio of cash-funded, grant, and debt-financed projects. The cash-funded projects include cash from rate

revenues and revenues from water development fees¹⁰. The debt-financed projects include proceeds from revenue bonds and State Revolving Loan Funds.

Table 4-21 includes carryover funding from prior years that included the 2013 Water Revenue Bonds for \$239 million. However, the budgeted amounts for capital improvement funding show a more even mix of cash and debt funding.

Table 4-21: Capital Improvement Funding History for FY 2014 through FY 2023

Line No.	Description	Budget	Percentage	Actual	Percentage
1	Cash funded capital	\$178,088,617	41.9%	\$117,339,127	20.7%
2	Grants	\$5,931,363	1.4%	\$6,061,627	1.1%
3	Debt financing	\$240,625,768	56.7%	\$443,368,880	78.2%
4	Total	\$424,645,748	100.0%	\$566,769,635	100.0%

4.6. Historical Water Rates

The City implemented the water rate increases, as approved by City Council, shown in the following table for a 60% total increase between FY 2014 and FY 2023. However, actual rate revenues from User Fees and Charges, which is less than total revenues, have only increased by 37% over the same period. Ideally, if rates were increased by 60%, then revenues generated from those rates should increase by the same proportion.

The total number of water accounts in 2014 was 135,590. The total number of accounts in 2023 was 148,237, which is an increase of 9.3%. However, the total amount of water distributed was 34,896 MG in 2014, but only 25,884 MG in 2023, which is a decrease of 25.8%. This decrease is likely related to the City's meter program and water conservation efforts.

All water customers are metered. These customers are charged a monthly fixed fee that varies by meter size and a uniform commodity rate for all water consumption. The monthly fixed fee accounts for approximately 59% of rate revenues and 41% of consumption charges. Since consumption has declined over the years and accounts for a significant portion of revenues, it partially explains why the proportion of rate increases does not match the total increase in rate revenues from FY 2014 to FY 2023. However, the rate structure used for recovering revenues should still be investigated to help resolve this issue. This type of in-depth investigation is part of a cost-of-service analysis to ensure rates are adequate and have a nexus to water costs.

¹⁰ Water development fees are restricted revenues that can only be used for development-related projects

Table 4-22: Historical Water Rate Increases for FY 2014 through FY 2023

Line No.	Year	Rate Increase
1	2014	10%
2	2015	10%
3	2016	0%
4	2017	10%
5	2018	10%
6	2019	10%
7	2020	10%
8	2021	0%
9	2022	0%
10	2023	0%
11	Total	60%

4.7. Regulatory Requirement Changes

The water utility sector has experienced several changes in regulatory requirements over the previous five years. For example, the State Water Board adopted Making Conservation a California Way of Life on July 3, 2024. The framework aims to give each water agency an objective, or budget, for residential and outdoor water use and contains three major components that affect urban retail water suppliers: 1) a unique urban water use objective; 2) commercial, industrial, and institutional performance measures; and 3) annual reporting. These cost impacts have not yet been identified.

This section of the report presents key changes in California legislation and regulatory requirements. This is not a legal review or a comprehensive list of all legal changes in California and should not be used as legal guidance. The details of compliance would need to be reviewed by the City's legal counsel.

4.7.1. California Legislation

Senate Bill 200

Senate Bill 200 was passed in 2019. The bill addresses drinking water needs for water systems providing services to disadvantaged communities. It provides funding to small community water systems not achieving safe drinking water standards. Funds appropriated from this bill are transferred from the Greenhouse Gas Reduction Fund to establish the Safe and Affordable Drinking Water Fund. This fund is administered by the California State Water Board. Senate Bill 200 does not appear to have any financial impact on the City.

Senate Bill 323

Senate Bill 323 was passed in 2021. The bill requires lawsuits challenging water or wastewater rates to be filed within 120 days of the effective date. Utilities must include a statement of the 120-day statute of limitations to challenge any new, increased, or extended fee or rate in their proposed rate notification. It also mandates that challenges be brought through a reverse validation action. Senate Bill 323 does not appear to have any financial impact on the City.

Senate Bills 606 and 1668

Senate Bills 606 and 1668 became effective in 2019. These bills require the State of California to establish new efficiency standards for water use by 2022. The bills also require local agencies to create drought and water-shortage plans. The bills set indoor residential water use at 55 gallons per person per day, and water usage is incrementally reduced after January 1, 2025. These changes impact water use efficiency and drought planning for the City. Senate Bills 606 and 1668 could potentially have a relatively minor financial impact on the City.

Senate Bill 974

Senate Bill 974 was passed in 2020. This bill enables communities providing drinking water services to disadvantaged communities to apply for exemption from some state environmental review requirements. The exemption lasts until 2028 and applies to projects that install or repair water infrastructure. The exemption will allow disadvantaged communities to complete water projects that are necessary to improve water quality. Senate Bill 974 does not appear to have any financial impact on the City.

Assembly Bill 1572

Assembly Bill 1572 was passed in 2023. This bill builds upon previous legislation restricting wasteful water use on nonfunctional turf or purely decorative grass such as grass in parking lots and within rights-of-way. It applies to common areas of residential homeowner's associations, commercial, industrial, municipal, and institutional properties. The City must revise its ordinances to implement the restrictions outlined in this bill by 2027.

Senate Bill 3

Senate Bill 3 was passed in 2023. Under the previous Water Shutoff Protection Act (Act), water service providers were exempt from requirements if the providers had less than 200 service connections. This bill removed the exemption, and the requirements of the Act apply to providers with at least 15 service connections. Senate Bill 3 does not appear to have any financial impact on the City.

Senate Bill 122

Senate Bill 122 was passed in 2023. This bill designates aquifers as "natural infrastructure," which allows more funds to be available for groundwater recharge projects. It will also enable floodplain expansion and wetland restoration projects to qualify for funding allocated to groundwater recharge. Senate Bill 122 could potentially have a financial impact on the City if or when eligible projects exist.

Senate Bill 389

Senate Bill 389 was passed in 2023. This bill grants the California State Board oversight authority of appropriative rights to surface water and riparian rights established before 1914. Senate Bill 389 does not appear to have any financial impact on the City.

Assembly Bill 755

Assembly Bill 755 was passed in 2023. This bill requires a water usage demand analysis to be conducted as part of a cost-of-service analysis for water service. The cost-of-service and the average annual volume of water consumed by high-water users must be identified in the analysis. This information must also be made publicly available. High water users are defined as users with the top 10% of water volume consumption. Senate Bill 755 could potentially have a relatively minor financial impact on the City.

4.7.2. Water Regulations

The City is subject to regulations adopted by the United States Environmental Protection Agency (USEPA) under the Safe Drinking Water Act of 1974 and the State Water Board under the California Safe Drinking

Act. California's Health and Safety Code is intended to improve upon the federal regulations by establishing standards that are more protective of public health by exceeding federal minimums.

PFAS

The USEPA issued the first-ever national drinking water standard to address per- and polyfluoroalkyl (PFAS) contamination in 2024. The USEPA is setting a non-enforceable health-based goal of zero for PFOA and PFOS. It set an enforceable maximum contaminant level (MCL) of 4 parts per trillion for PFOA and PFOS. It set an MCL goal of 10 parts per trillion for PFNA, PFHxS, and HFPO-DA.

The requirements of the USEPA's new rules state that public water systems must conduct initial and ongoing compliance monitoring for regulated PFAS; implement solutions to reduce regulated PFAS in drinking water if levels exceed the MCLs; and inform the public of the levels of regulated PFAS measured in the drinking water if an MCL is exceeded. The initial monitoring must be completed within three years or by 2027. Starting three years after the rule promulgation (2027 - 2029) the results of initial monitoring must be included in Consumer Confidence Reports; regular monitoring for compliance must commence; and public notices must be issued for monitoring and test violations. Commencing in 2029, utilities must comply with all MCLs and issue public notices for MCL violations.¹¹

Utilities are faced with increased operating and capital costs to monitor and reduce PFAS contaminants and are still struggling to estimate the true cost. The USEPA estimates water system monitoring, treatment, disposal, and administration will cost the water industry approximately \$1,548,000,000 per year.¹²

Hexavalent Chromium

The State Water Board established a drinking water standard in 2024 in the form of an MCL of 10 µg/L (micrograms per liter) or 10 parts per billion as defined in 22 California Code of Regulations, section 64400.34.

The State Water Board estimates the annual costs for treated monitoring for communities to be approximately \$390,000. It estimates the cost to prepare compliance and operations plans and to review those plans for hexavalent chromium as \$1,220,000 and \$510,000, respectively. It estimates the annual cost of treatment for an MCL of 10 µg/L for a community with more than 10,000 connections, such as Sacramento, to be \$3,440,000.¹³

Perchlorate

California changed the detection limit for reporting in 2021 by decreasing the limit from 4 µg/L to 2 µg/L and it decreases again in 2024 to 1 µg/L. Perchlorate is considered an acute toxic substance with damaging effects on the thyroid. The MCL is set at the public health goal of 6 parts per billion. This is the maximum concentration of perchlorate that could be ingested in drinking water without posing a significant risk to human health. The State Water Board estimated modest cost increases to monitoring because of the rule change.

¹¹ USEPA. Final PFAS National Primary Drinking Water Regulation Presentation by the Office of Water.

<https://www.epa.gov/system/files/documents/2024-04/general-overview-webinar-presentation-final-pfas-ndpwr.pdf>

¹² USEPA. Benefits and Cost of Reducing PFAS in Drinking Water Fact Sheet.

¹³ California Water Boards (2023). Initial Statement of Reasons for the Hexavalent Chromium Maximum Contaminant Level (MCL) Regulation, Title 22, California Code of Regulations.

4.8. Weather Impacts

Raftelis was asked to answer the following question based on available information from the City:

How have changes in the frequency and severity of weather events in the previous twenty years affected the water system costs?

The City has recognized that global warming is posing risks to human health and property due to hotter average daytime temperatures, increased rainfall, and more extreme weather events. The City has prepared both the Sacramento 2040 General Plan and the Climate Action & Adaptation Plan (CAAP) to not only preserve and enhance environmental resources in and around the City but also provide protection from natural hazards and to build community-wide resilience to climate change.

The City recognizes the urgent need for bold action to reduce greenhouse gas (GHG) emissions. The City's CAAP lays out strategies and specific measures for achieving a pathway to carbon neutrality by 2045, with bold actions that will cut waste, pollution, and carbon emissions community-wide and commit to building resilience for all its communities from the effects of climate change, especially the most vulnerable.

Climate change is affecting DOU's water infrastructure as well as the associated capital costs. For example, DOU will be required to convert its fleet vehicles to zero-emission vehicles (ZEVs) by 2045. It is estimated that the cost of purchasing some vehicles, such as heavy-duty vehicles, could double. Additionally, the City does not currently have sufficient infrastructure in place, such as charging stations, to accommodate the increase in ZEVs. DOU is in the process of determining what the required costs will be, including the limitations of meeting this requirement for heavy excavation equipment and trucks. These costs have not yet been included in the 30-year capital plans prepared for the water system infrastructure but are expected to have a significant financial impact.

Using global climate model projections, DOU has evaluated and analyzed changes to rainfall amounts, designed storm distribution analysis, and changes to designed storms to account for climate change effects on the water system infrastructure. DOU has also incorporated the findings from the 2022 American River Basin Study into their climate change impacts analysis. DOU's work and findings to date on climate change impacts on the water system are discussed below.

- Projected temperature increases over the coming decades and their negative impacts on snowpacks, and the surface water levels used for freshwater supply have driven DOU to focus on the groundwater program in its 30-year CIP. To meet increasing drinking water demands, the City may need to increase groundwater supply wells in areas that the City may not have otherwise located them. Groundwater quality conditions will likely also require increased levels of treatment. These climate change impacts will drive both capital and O&M costs. The full costs of these impacts on the groundwater supply have not yet been determined, however, the 30-year water CIP (FY 2024 through FY 2054) includes \$206.3 million for the well rehabilitation program which includes well improvements, new wells, and treatment. These costs are likely to be insufficient to address the full scope of climate change impacts; DOU is actively working to evaluate and determine those additional costs.
- The RiverArc project, which aims to augment the currently pressured water supply from the American River with increased supply access to the Sacramento River is being largely driven by

climate change impacts with only a small portion of the increased capacity being tied to Development Impact Fees. The 30-year water CIP includes \$229.2 million for the RiverArc project.

- Increased investment in more advanced water treatment technology (e.g., using ozone) at the treatment plants is required to address changing raw water quality. Long-term cost projections for this program are estimated to be approximately \$466.0 million (Water+ Resiliency projects in the CIP).
- From a water conservation perspective, the City ensured the recently adopted CAAP acknowledged the need for living landscapes as a buffer against heat island effects with increasing temperatures; however, these cost impacts have not yet been identified.
- Additional investments in the Water Forum to support ecosystem improvements in the face of increasingly unsuitable water temperatures are likely. These cost impacts have not yet been identified.
- Increased water temperature can be harmful to upstream reservoir and hydroelectric operation. The City does not generate electricity directly, but DOU is a significant user of electricity, and if the electric supply is impacted, that will likely increase DOU's electric costs. These cost impacts have not yet been identified.
- Additional investment into finished water storage is required to adapt to the compressed irrigation schedule. The pressure for more water conservation overall is statewide and is related to growth and climate change projections. DOU is preparing a study to best understand the investments needed to meet the new water conservation regulations. However, the need for water, even with conservation measures in place, will grow by 7-8% due to more prolonged and hotter summers.¹⁴

It is clear from DOU's analyses to date that climate change is currently impacting and highly likely to continue to impact the water system infrastructure needs and capital costs. The current 30-year water system CIP doesn't currently reflect the full cost impacts of climate change as DOU is actively working to evaluate and determine those additional costs.

4.9. Summary

A summary of the expense, revenue, and funding history is as follows:

- Actual operating and capital expenses were higher than their budgeted projections. Actual expenses had a higher CAGR of 4.6% compared to 4.0% for budgeted expenses from 2014 to 2023. Also, additional operations budget is needed for critical operating needs; these costs have been included as part of Financial Plans 1 and 2 later in this report.
- The average annual budgeted capital expenses were \$42.5 million. The average annual actual capital expenses were \$56.7 million, which was approximately \$14.2 million higher than the budgeted expenses. This is because capital projects have multi-year funding, and carryover funding was available in the CIP to support the annual variance of approximately \$14.2 million.

¹⁴ U.S. Department of the Interior, American River Basin Study, Interior Region 10 – California Great Basin, August 2022.

- Budgeted revenues averaged \$116.8 million annually, and actual revenues averaged slightly higher at \$117.7 million annually from FY 2014 through FY 2023. Actual revenues had a higher CAGR of 4.3% compared to 3.9% for budgeted revenues from FY 2014 to FY 2023. This indicates that the City is accurately budgeting for water revenues.
- Actual revenues (4.3% CAGR) increased at approximately the same pace as expenses (4.6% CAGR) from FY 2014 to FY 2023.
- Capital projects were funded as follows: cash-funded capital (20.7%), grants (1.1%), and debt (78.2%). However, this does not indicate that the City typically issues debt to fund projects. During this time, the City Council required and approved the DOU to accelerate the installation of water meters, which required additional debt funding.
- The City implemented rate increases totaling 60% from FY 2014 to FY 2023. However, actual rate revenues from User Fees and Charges have only increased by 37% over the same period. This indicates rate revenues have been impacted by different factors such as declining consumption, non-revenue water, climate change, conservation, and the water meter program. Growth alone is not enough to sustain and DOU should consider evaluating the water rates with a comprehensive rate cost-of-service analysis.
- While the full scope of additional costs due to regulatory changes and weather impacts has not been determined, the overall financial impact is likely to be significant. DOU is actively working to determine these additional costs.

5. Service Level and Water System Capacity

5.1. Current Capacity of Water Infrastructure

Raftelis was asked to answer the following question based on available information from the City:

What is the current capacity of the water infrastructure and how does that compare to stated policies and levels of service?

The City provides domestic water treatment and distribution, wastewater collection, and stormwater systems services. These systems are complemented by other regional agencies and organizations that provide additional sewage and stormwater collection and treatment. The City’s General Plan states that “ensuring that this infrastructure operates in ways that minimize adverse impacts on the environment, protect public health, and optimize benefit to the community is essential for a sustainable and equitable city.”

The City has developed policies included in the General Plan to provide for proactive planning and maintenance of utility systems, with investments made strategically to ensure that built capacity matches demand and that improvements to accommodate new development are balanced with the need to maintain quality services for existing residents and businesses.

The City’s policies are also intended to improve the sustainability, resilience, and energy efficiency of its facilities, infrastructure, and operations consistent with the goal to achieve carbon neutrality by 2045. The City’s goals, policies, and levels of service included in the General Plan for the water system infrastructure are provided in Table 5-1 below.

Table 5-1: City of Sacramento General Plan Key Goals and Policies for Water Infrastructure

City of Sacramento General Plan Key Goals and Policies for Water Infrastructure	
Goal PFS-3 – Efficient, high-quality utility infrastructure and services to meet the needs of residents and businesses throughout the City.	
Goal PFS-4 – A reliable supply of high-quality water that meets projected needs within the City’s place of use.	
Goal ERC-1 – Responsible management of water resources that preserves and enhances water quality and availability.	
Goal PFS-1 – Responsive police and fire services that ensure a high level of public safety.	
Policy Number	Policy
PFS-3.1 - Provision of Adequate Utilities	The City shall continue to provide reliable water, wastewater, and stormwater drainage utility services.

City of Sacramento General Plan Key Goals and Policies for Water Infrastructure	
<p>Goal PFS-3 – Efficient, high-quality utility infrastructure and services to meet the needs of residents and businesses throughout the City.</p> <p>Goal PFS-4 – A reliable supply of high-quality water that meets projected needs within the City’s place of use.</p> <p>Goal ERC-1 – Responsible management of water resources that preserves and enhances water quality and availability.</p> <p>Goal PFS-1 – Responsive police and fire services that ensure a high level of public safety.</p>	
Policy Number	Policy
PFS-3.2 – Utility Sustainability Standards	The City shall continue to improve the sustainability, resilience, and energy efficiency of its facilities, infrastructure, and operations consistent with the CAAP and the goal of achieving carbon neutrality by 2045.
PFS-3.3 – Development Impacts	Through the development review process, including through development impact fees and offsite improvements constructed by new development, the City shall ensure that adequate public utilities and services are available to serve new development.
PFS-3.4 – Water Distribution System Management	The City shall maintain and periodically update the Water Distribution System Master Plan to guide the rehabilitation, replacement, and management of the potable water distribution system.
PFS-3.5 – Water Treatment Capacity and Infrastructure	<p>The City shall plan, secure funding for, and procure sufficient water treatment capacity and infrastructure to meet projected maximum daily water demands. Options to explore may include the following:</p> <ul style="list-style-type: none"> • Expansion or rehabilitation of existing treatment plant infrastructure; • Development and management of groundwater wells; and • Collaboration on regional water supply solutions.
PFS-3.7 – Rate and Fee Studies	The City shall periodically conduct rate and fee studies to ensure adequate funds are collected to maintain and expand utility systems as needed to support projected growth, implementing rate and fee increases as needed.

City of Sacramento General Plan Key Goals and Policies for Water Infrastructure	
<p>Goal PFS-3 – Efficient, high-quality utility infrastructure and services to meet the needs of residents and businesses throughout the City.</p> <p>Goal PFS-4 – A reliable supply of high-quality water that meets projected needs within the City’s place of use.</p> <p>Goal ERC-1 – Responsible management of water resources that preserves and enhances water quality and availability.</p> <p>Goal PFS-1 – Responsive police and fire services that ensure a high level of public safety.</p>	
Policy Number	Policy
PFS-3.8 – Capital Improvement Programming	The City shall give high priority in capital improvement programming to funding the rehabilitation or replacement of critical infrastructure that has reached the end of its useful life, considering the probability and risk of infrastructure failure. In prioritizing R/R projects for inclusion in the CIP, the City shall consider the potential for projects and locations to support inclusive economic development and climate adaptation objectives and serve to build healthy, climate-resilient, sustainable, and inclusive communities.
PFS-3.10 – Meet Projected Needs	The City shall foster the orderly and efficient expansion of facilities and infrastructure to adequately meet projected needs, comply with current and future regulations, and maintain public health, safety, and welfare. Infrastructure and facility planning should discourage oversizing of infrastructure that could induce growth at the edges of the city beyond what is anticipated in the General Plan.
PFS-3.11 – Joint-Use Facilities	Wherever feasible, the City shall pursue the development of joint use water, stormwater quality, flood control and other utility facilities as appropriate in conjunction with schools, parks, bike paths, golf courses, and other suitable uses to achieve economy and efficiency in the provision of services and facilities.
PFS-3.12 – Safe and Compatible Utility Design	The City shall ensure that public utility facilities are designed to be safe and compatible with adjacent uses.
PFS-3.13 – Impacts to Environmentally Sensitive Lands	The City shall consider the impacts on environmentally sensitive areas and habitats when locating and designing municipal utilities.
PFS-4.1 – Exercise and Protect Water Rights	The City shall exercise and protect its water rights and entitlements in perpetuity.
PFS-4.2 – Water Supply Sustainability	The City shall maintain a surface water/groundwater conjunctive use program, which uses more surface water when it is available and more groundwater when surface water is limited.

City of Sacramento General Plan Key Goals and Policies for Water Infrastructure	
<p>Goal PFS-3 – Efficient, high-quality utility infrastructure and services to meet the needs of residents and businesses throughout the City.</p> <p>Goal PFS-4 – A reliable supply of high-quality water that meets projected needs within the City’s place of use.</p> <p>Goal ERC-1 – Responsible management of water resources that preserves and enhances water quality and availability.</p> <p>Goal PFS-1 – Responsive police and fire services that ensure a high level of public safety.</p>	
Policy Number	Policy
PFS-4.3 – Surface Water Supply	The City shall continue to explore and advance options for diverting, treating, and conveying surface water to be able to continue fully meeting potable supply demand.
PFS-4.4 – Groundwater Infrastructure	The City shall maintain investment in groundwater infrastructure to provide for water supply reliability. Groundwater sustainability, cost-effectiveness, and the quality of the resource shall be factored into groundwater investments.
PFS-4.5 – Comprehensive Water Supply Planning	The City shall prepare and implement an Urban Water Management Plan, updating it on a 5-year cycle, to ensure a reliable, long-term water supply and service under projected future conditions.
PFS-4.7 – Water Supply During Emergencies	The City shall, to the extent feasible, maintain adequate water supply during emergencies in accordance with the water master plan (WMP) and the Urban Water Management Plan.
PFS-4.8 – New Development	The City shall ensure that water supply capacity is in place prior to granting building permits for new development.
ERC-1.6 – Groundwater Management	The City shall promote sustainable groundwater management practices through continued participation in regional initiatives and relevant Groundwater Sustainability Agencies.
PFS-1.7 – Water Supply for Fire Suppression	The City shall ensure that adequate water supplies are available for fire suppression throughout the city and shall require development to construct all necessary fire suppression infrastructure and equipment.

5.1.1. Water System Infrastructure

DOU maintains two water treatment plants, 30 active ground water wells, storage facilities, and approximately 1,645 miles of water mains. The water system currently serves a resident population of about 525,000 in approximately 203,000 housing units.

The City’s water transmission and distribution system pipelines range in size from two inches to 72 inches in diameter. There are about 159 miles of transmission main (larger than 12-inch pipes), 1,484 miles of distribution pipe (12 inches and less), and 1.8 miles of supply pipe. Six- and eight-inch-diameter pipelines

make up approximately 70% of the City's system. The age of the City's pipelines appears to range from new to over 100 years old in the older parts of the City, with approximately 46% of the City's pipelines aged over 50 years old.

The City has about 673 miles of asbestos cement (AC) pipe (37% of total length) that was installed from 1950 to 1980 in the older parts of the City (including North Sacramento, Arden-Arcade, South Natomas, Land Park/Pocket/Meadowview, South Sacramento and the eastern parts of East Sacramento). AC pipe can fail catastrophically and has the potential to leach asbestos into the water system over time. Most utilities with a significant quantity of AC pipe have a focused program to replace the pipe; the DOU's pipe replacement program is currently in development

The North Sacramento and Arden-Arcade areas have steel pipes installed from 1920 to 1960. East Broadway and Land Park have areas with 50- to 100-year-old steel and cast-iron pipe. The oldest pipes, located in Central Sacramento, are cast iron pipes estimated to range in age from 70 to 130 years old.

DOU completed a water master plan (WMP) in January 2023. The WMP recommended the following improvements to the water system.

Supply Capacity Improvements

- No specific peak supply capacity improvements were identified.
- Nearly all the City's groundwater facilities/wells are beyond the recommended useful life of 50 years. Continue to rehabilitate and replace aging wells so that sufficient active groundwater facilities are available to meet the City's needs, particularly in areas where groundwater supply and/or system pressures could be improved.

Storage Capacity Improvements

- A new ground-level storage reservoir be constructed in the Northeast region in the near term.
- Continue to increase access to groundwater supply/storage at new and rehabilitated wells during an emergency by installing plug-in adapters and transfer switches for portable generators during power outages.
- Implement improvements at the City's existing storage facilities to promote mixing within the tank.

Pumping Capacity Improvements

- No additional pumping capacity improvements have been identified besides the pumping capacity associated with new groundwater wells and storage capacity.

Transmission System Improvements

- Replace existing identified transmission mains or provide additional transmission capacity in the near term.
- Perform condition assessment studies to determine if the identified existing transmission mains should be replaced and upsized, or can remain and be paralleled with new mains to provide additional capacity.

Distribution System Improvements

- Prioritize approximately 228 miles of pipelines for renewal/replacement (R/R) with low available fire flow and pressures caused by older and smaller pipelines, starting with areas of known leak history to minimize water loss, as part of the City's ongoing R/R efforts.
- Add approximately 30 new sampling stations and develop/expand the City's flushing program for areas in the distribution system that have average velocities less than 0.1 ft/s or known areas with low

chlorine residuals.

Other Improvements

- Continue to update the hydraulic model to add additional junctions to improve hydrant location representation to refine the available fire flow results and to reflect operational changes associated with new groundwater wells, storage facilities, and transmission mains.
- Perform a comprehensive review of the City’s SCADA system and verify the integrity of the recorded system data.

The WMP incorporates the City’s General Plan goals, policies, and desired levels of service. DOU appears to have included \$2.65 billion in funding in the 30-year CIP for all of the above-recommended improvements, as summarized below. Costs shown are the total over the 30-year CIP period from FY 2024 through FY 2054:

- Distribution System Improvements - \$326 million
- Drinking Water Quality/Sampling Stations - \$8.7 million
- FWTP Assets Improvements - \$75.8 million
- SRWTP Assets Improvements - \$179 million
- Transmission Main Improvements - \$423 million
- Water+ Program (RiverArc, Water+ & SRWTP Expansion) - \$1.26 billion*
- Groundwater Well Rehab program - \$206 million
- Reservoir Storage Rehab Program - \$160 million
- SCADA - \$10.9 million

*The second expansion project may extend beyond FY 2054.

Based on our review, DOU appears to have incorporated the City’s General Plan goals, policies, and desired levels of service considerations into their water 30-year CIP.

5.1.2. Recommendations for Water Infrastructure

DOU has developed an extensive and detailed 30-year CIP for its water utility. Additionally, they have performed detailed studies and evaluations of their future water needs with additional studies ongoing. As DOU is still developing and maturing their water asset management program, the linear and facilities asset R/R costs in the 30-year CIP likely does not reflect the full cost needs for ongoing linear and facilities assets R/R. In addition, DOU has had limited capital budget funding available for several years, due to the lack of water rate increases in FY 2021 to FY 2023, so sufficient asset R/R has been deferred due to lack of funding. This lack of funding increases the risk of assets failing catastrophically, increases the consequences of failure, and increases the need for higher levels of asset R/R funding in the next 5 to 10 years to “catch up” on the deferrals.

To help address these issues, the following recommendations are offered for consideration.

1. DOU indicated they do not have current Business Risk Exposure (BRE) scores developed for their water linear and facility assets. To develop BRE scores, each asset is assessed for condition and given a likelihood of failure (LOF) score and then assessed for its consequence(s) of failure (COF) and given a COF score. BRE scores are then calculated as $LOF \times COF$. Assets are typically categorized as Extreme, High, Medium, and Low risk based on the BRE scores. The higher the BRE score the higher

the priority for investment for asset renewal or replacement. (i.e., addressing all the Extreme risk assets first, High-risk assets second, etc.) Developing these BRE scores will allow Sacramento to prioritize which assets should be renewed or replaced first, the level of investments needed, and the timeframes for completing those investments. DOU indicated they are currently working on a water asset management plan that will be completed at the end of the 2024 calendar. The plan includes identifying risk scores for the water assets.

2. If asset condition or COF data is not available, DOU should first determine COF scores for the missing assets, and then collect and develop the missing asset condition data; this should take 2 to 3 years based on DOU currently developing their asset management plan. When considering asset condition data, inspections or physical condition data of the asset should be collected and used. Age, material, and assumed useful life data could be used for initial future projections of asset renewal needs, but this approach can often oversimplify the estimations and lead to higher estimated capital cost needs, especially for timeframes beyond 5 years, compared to a BRE-based approach. Age, material, and assumed useful life data could also be used for initial future projections of asset renewal needs, but should be appropriately qualified and BRE scores updated routinely as asset condition data gaps are filled from collected data.
3. For linear water assets, i.e., distribution and transmission pipelines:
 - A. A target annual R/R rate by total system length should be selected and tailored to Sacramento. An R/R rate of 1% represents an average asset renewal timeframe of once every 100 years for renewing or replacing the asset. This R/R rate is used by many utilities in the industry.

Utility best practices are to tailor the utility's R/R rate depending on the actual condition of the linear assets and the consequences of failure. Utilities moving from reactive to proactive asset renewal may need to "catch up" on renewing existing Extreme or High-risk assets, thus increasing the R/R rate to greater than 1%, i.e. 2 – 3%, by total system length. Other utilities that are more proactive with R/R may find that achieving a 1% or less R/R rate is sufficient to mitigate risks of failures.

For example, DOU has approximately 1,800 miles of water pipelines. A 1% annual R/R rate would be 18 miles per year which at an average cost of \$300/ft¹⁵ equals a potential R/R budget need of \$28.5 million per year for linear asset renewal. It appears the distribution main improvements budget included in the 30-year CIP equals about \$10.9 million per year on average. This is a great start but may reflect less than a 1% R/R rate and therefore DOU may want to revisit these budget needs based on a BRE prioritization approach. Again, the needed annual rate of investment may need to be lower or higher per year based on the actual assets BRE scores.

- B. A BRE prioritization approach will allow the City to perform a deeper dive into the linear assets conditions, COF, and available BRE data to help develop more defensible and data-driven annual linear assets R/R investment rates and capital budgets for the water infrastructure. The R/R rate should be linked to actual assets and condition assessment data, and an intentional balancing of risk and COF. Utilities that have invested in R/R for some time, or have newer pipeline assets, may find that 1% is too high because the pipeline condition does not warrant the need for that much R/R.

¹⁵ While the WMP appeared to use \$235/ft, Raftelis increased the amount to \$300/ft to account for inflation based on the Engineering News-Record (ENR) index.

Therefore, it is important to consider these details when selecting and tailoring an annual R/R rate for the utility.

- C. The selected asset's annual R/R rate also may not be able to be completed in Year 1 and may take several years to ramp up to the selected rate. For example, if a 1% annual R/R rate is selected, ramping up to that rate of R/R over 3 to 5 years considering available funding, staff, and capital project delivery capabilities may be necessary.
 - D. Projects should be selected from BRE scores developed for each asset to address Extreme and High-risk assets first.
 - E. Accurate costs for the R/R projects should be developed based on recent bid costs or recent cost estimates. Engineering and construction costs should be calculated and used to develop a total project cost following the Association for the Advancement of Cost Engineering (AACE) Class 5 estimates or better.
 - F. For Extreme and High-risk assets, it may be too expensive or not possible from a capital delivery standpoint to renew or replace all Extreme risk (and/or High-risk) assets in 5 years, or even in 10 years. A balance of costs and priority for asset renewal and replacement should be developed with the available funding and available condition assessment and BRE scores data.
4. For water facilities assets, i.e., equipment, pumps, valves, etc. at treatment facilities, storage facilities, groundwater well facilities and other system facilities:
- A. Projects should be selected primarily from BRE scores developed for each asset (see Item 1 above for the explanation of how BRE scores are developed) to address Extreme and High-risk assets. If there is a backlog of existing projects or assets that need improvements, those projects should be prioritized for implementation based on the asset BRE score.
 - B. Selecting an annual R/R rate for facilities assets should be tailored to Sacramento's asset needs and BRE scores. This rate may need to be 1%, 2%, or higher of the asset replacement value depending on the amount of asset renewal that has been deferred and the number of current Extreme and High-risk assets. Achieving the selected annual R/R rate by ramping up to that R/R rate over 3 to 5 years considering available funding, staff, and capital project delivery capabilities may be necessary.
 - C. In 2022, the reconstruction cost value of the City's two water treatment facilities was estimated to be \$2.35 billion and their ground and elevated storage tanks were estimated to have a reconstruction cost value of \$362 million. Using 0.5% to 1% of the water treatment facilities reconstruction value as a potential annual R/R investment rate equates to \$12 million to \$24 million for these water facilities. The 30-year water CIP budget appears to include about \$10.7 million of annual facilities R/R. Therefore, there is potentially about a \$1.3 million to \$13.3 million shortfall in water facilities assets annual R/R investment.
Again, this annual rate of investment may need to be lower or higher based on the actual assets' BRE scores. A BRE prioritization approach will allow the City to perform a deeper dive into the facilities assets conditions and available BRE data to help develop more defensible and data-driven annual facilities R/R investment rates and capital budgets for the water infrastructure.

- D. If asset condition or COF data is not available, DOU should first determine COF scores for the missing assets, and then collect and develop the missing asset condition data. When considering asset condition data, inspections or physical condition data of the asset should be collected and used. Using age, material, and assumed useful life data can be used for initial future projections of asset renewal needs, but this approach can often oversimplify the estimations and lead to higher estimated capital cost needs, especially for timeframes beyond 5 years, compared to a BRE based approach. Age, material, and assumed useful life data can be used for initial future projections of asset renewal needs but should be appropriately qualified and BRE scores updated routinely as asset condition data gaps are filled from collected data.
- E. Implement reliability-centered maintenance (RCM) approaches for all treatment and facilities primary assets to inform ongoing asset O&M and triggers for asset replacement. Evaluate if the current computerized maintenance management system (CMMS) software is sufficient for recording the necessary RCM data and adjust as necessary to efficiently record the needed data.
- F. Use the collected data to monitor asset performance and proactively rehabilitate or replace worn components of the assets, when O&M costs become excessive, or performance drops below allowable levels.
- G. Record O&M costs at the asset level and review annual asset O&M costs to compare to replacement costs for critical assets. Use this data to determine which assets should be prioritized to be replaced through a capital investment versus continuing to maintain. A good metric is when annual maintenance cost divided by asset replacement cost exceeds 4% to 5%, the asset should be evaluated for replacement. For example, if a pump costs \$100,000 to replace and is costing \$4,000 - \$5,000 annually to maintain (4% - 5%), then the pump should be evaluated for replacement. Use the RCM data and the BRE scores to inform the asset life cycle and the priority for inclusion of the asset renewal or replacement in the capital budget.

5.2. Risks of Catastrophic Failure and Extent of Deferred Capital Investment

Raftelis was asked to answer the following questions based on available information from the City:

What are the risks of catastrophic system failure?

What is the extent of any deferred capital investment of water infrastructure?

How does the deferred capital investment impact infrastructure capacity and valuation?

These three questions are best answered together because they are inextricably linked. DOU has developed an extensive and detailed 30-year CIP for their water utility. DOU has performed detailed studies and evaluations of their future water needs with additional studies ongoing. In addition, DOU has had limited capital budget funding available for several years, so sufficient asset R/R has been deferred. This lack of funding increases the risk of assets failing catastrophically, increases the consequences of failure, and increases the need for higher levels of asset R/R funding in the next 5 to 10 years to “catch up” on the deferrals. From a financial perspective, the assets’ book value is also lower because many assets are at or beyond their remaining useful lives; meaning little to no residual value because they haven’t been renewed or replaced.

5.2.1. Water System Infrastructure Deferred Capital Needs

DOU conducted a review of existing asset information and has identified significant deferred maintenance needs for the water system infrastructure. The water system infrastructure and facilities require routine maintenance and repair to keep them in acceptable condition and to preserve and extend their useful lives. This includes preventative maintenance, replacement of parts, systems, or components, and other activities needed to preserve or maintain the various assets. Deferred maintenance refers to necessary maintenance and repairs that have accumulated, typically due to a lack of dedicated funding to perform non-routine replacements, upgrades, or preventative maintenance, and were therefore delayed.

Deferred maintenance also includes equipment and infrastructure components that need to be replaced as they are past the end of their useful life and can no longer be repaired. For example, in the Central City, underground infrastructure can be more than or close to 100 years old. Deferred maintenance is a critical issue as it can result in failures in infrastructure and services (e.g., broken water mains or treatment facilities, leaking roofs, electrical outages, insufficient water supply, unsafe water, and violations of drinking water permits and water quality limits), often results in increased costs due to the need for major emergency repairs or replacements, can increase risks and liability, and can result in sub-optimal services to users of City facilities and infrastructure.

DOU provided the following deferred capital R/R costs and descriptions by asset category. These costs represent DOU’s current cost investment needs for the listed assets.

Table 5-2: Water System Infrastructure Summary of Deferred Capital Investments

Asset Category	30-Year Deferred Capital Investment Amount
Water Facilities Electrical Switchgear, Instrumentation and SCADA	\$12.3 million
Water Supply Projects (Groundwater Well Program)	\$111.6 million
Water Supply Projects (Water Treatment Plants)	\$342.7 million
Water Distribution/Transmission Main Replacement projects	\$272.6 million
Total	\$739.2 million

The asset R/R needs descriptions for each water asset category are provided below:

Table 5-3: Description of Asset Renewal and Replacement Needs

Asset Category	Need Description
Water Facilities Electrical Switchgear, Instrumentation and SCADA	The City maintains 45 water facilities that provide clean and environmentally friendly water to the citizens of Sacramento. Every water facility contains electrical switchgear which is used to power each facility. As this gear ages it needs to be replaced. The industry recommendation is to replace electrical switchgear after 30 years of service. Currently, the City has a backlog of

Asset Category	Need Description
	\$8.8 million of electrical switchgear which needs replacing due to age or equipment becoming obsolete. In addition, other electrical, instrumentation, and SCADA unmet needs at water facilities entail the replacement of Programmable Logic Controllers (PLCs) and Variable Frequency Drives (VFDs).
Water Supply Projects (Groundwater Well Program)	The Groundwater Well Replacement Program will build replacement groundwater wells as recommended by DOU’s completed 2017 Groundwater Master Plan. Most of the City’s groundwater wells were built in the 1950s and are at the end of their useful lives. This project supports City policies related to maintaining both a surface water and groundwater supply (conjunctive use).
Water Supply Projects (Water Treatment Plants)	Resiliency projects at the SRWTP and FWTP include adding ozone, installing sodium hypochlorite to replace gaseous chlorine, replacement of aged-out infrastructure such as filters, and reservoirs, and replacement of electrical and maintenance shops.
Water Distribution/Transmission Main Replacement projects	This program will replace water mains that have exceeded their useful life. Cast iron mains within the downtown and midtown neighborhoods are over 100 years old, have reduced pipe capacity, sometimes don’t meet fire flow standards, contain lead joints, and are more susceptible to leaks than all other water mains in the system. Much of the older Asbestos Cement (AC) pipe (also called transite pipe) has lost most of its structural integrity and needs replacement.

Given the deferred investments listed above, the need for BRE scores for the assets, and the historical lack of funding experienced by DOU, the risks of catastrophic water system asset failure appear to be high.

In addition to the recommendations Raftelis provided under section 5.1, we offer the following for consideration:

1. Additional capital funding for the water system is needed to address the \$739 million¹⁶ of water system deferred capital investments to-date.
2. When these funds are provided, performing a capital projects delivery assessment of DOU is recommended for potential project management process improvements and staffing needs to spend the additional water system capital and efficiently convert the increased funding into completed projects.

5.3. Extent of Deferred O&M of Water Infrastructure

Raftelis was asked to answer the following questions based on available information from the City:

*What is the extent of any deferred operations and maintenance of the water infrastructure?
How does the deferred O&M maintenance impact infrastructure capacity and valuation?*

¹⁶ Note that the \$739 million will continue to increase as DOU seeks additional funding.

While DOU indicated that the water facilities and linear assets can be operated and maintained within the approved annual operating budgets, with the deferred capital investment discussed above, keeping the existing assets functioning and running efficiently and at necessary distribution and treatment capacities is becoming increasingly difficult. And because many assets are older, finding spare parts to keep the assets running is a challenge, often requiring custom parts to be fabricated at increased costs. Additionally, DOU has also identified an additional \$7.03 million in O&M funding needs over the next 5 years associated with the deferred capital investments. These costs are summarized in Table 7-11 in Section 7 of this report.

The deferred capital investment is increasing the risk of assets failing catastrophically, increasing the consequences of failure and increasing the need for higher levels of asset R/R funding in the next 5 to 10 years to “catch up” on the deferrals. In addition, by not renewing and replacing the existing assets they become harder to keep operational and properly maintained, the capacity of the infrastructure decreases, it is significantly less reliable and resilient, and the value of the assets decreases.

Another potential concern is recruiting and hiring qualified staff to operate and maintain the existing assets. Historically, as assets have been added, the necessary staffing to maintain and operate those assets has not kept pace. As stated previously, there are numerous open FTE positions for the water utility that the City is trying to fill, with a total staffing cost need of \$1.1 million over the next 5 years. Finding qualified staff has been difficult and a Citywide classification and compensation study is currently underway.

In addition to the recommendations Raftelis provided under sections 5.1.2 and 5.2.1, we offer the following for consideration:

1. Perform a staffing study and organizational assessment for the Water Utility to: a) evaluate the number, positions, and experience of current staff; b) confirm the staffing needs for the City’s current and future water infrastructure needs, and the needed increase in O&M spending; and c) recommend necessary improvements. This assessment would build upon the benchmarking work discussed in this report.

6. Valuation

6.1. Value, Age, and Remaining Useful Life of Water Infrastructure

Raftelis was asked to determine the valuation, age, and remaining useful life of the water infrastructure based on available information from the City.

DOU maintains two water treatment plants (WTP), 30 active groundwater wells, storage facilities, and approximately 1,645 miles of water mains. DOU hired outside engineering consultants to prepare asset valuations for the WTPs, reservoirs, and wells in 2022. The consultants estimated reconstruction cost value of the two water treatment facilities was \$2.35 billion and the reconstruction cost value of the ground and elevated storage tanks was \$362 million. The consultants estimated the current (2022) value for all wells was \$40.4 million and an individual well replacement cost was \$5,060,500. With 32 wells, the approximate replacement cost in 2022 was \$161.9 million.

In May 2022, DOU staff prepared a time and materials (TM) for transmission mains valuation which indicated a replacement cost of \$569.2 million. In 2024, DOU staff also estimated the replacement cost for cast iron pipes within the distribution system to be \$1.19 billion. Raftelis reviewed each of the valuation reports and the valuations methods and costs appear reasonable and appropriate. The total replacement/reconstruction cost value of the water system assets, based on the above numbers, equals in excess of \$4.6 billion.

The City's water transmission and distribution system pipelines range in size from two inches to 72 inches in diameter. There are about 159 miles of transmission main (larger than 12-inch pipes), 1,484 miles of distribution pipe (12 inches and less), and 1.8 miles of supply pipe. Six and eight-inch diameter pipelines make up approximately 70% of the City's water system. The data indicates the age of the City's water pipelines ranges from new to over 100 years old in the older parts of the City, with approximately 46% of the City's pipelines over 50 years old. The average age of the water distribution system and transmission system is 46 years old and 43 years old, respectively.

The City has about 673 miles of AC pipe (37% of total length) that was installed from 1950 to 1980 in the older parts of the City (including North Sacramento, Arden-Arcade, South Natomas, Land Park/Pocket/Meadowview, South Sacramento and the eastern parts of East Sacramento). AC pipe can fail catastrophically and has the potential to leach asbestos into the water system over time. Most utilities with a significant quantity of AC pipe have a focused and targeted program to replace the pipe; the DOU's pipe replacement program is currently in development.

The North Sacramento and Arden-Arcade areas had steel pipes installed from 1920 to 1960. East Broadway and Land Park have areas with 50- to 100-year-old steel and cast-iron pipe. The oldest pipes, located in Central Sacramento, are cast iron pipes estimated to range in age from 70 to 130 years old. Steel and cast-iron pipes typically have a useful life of 50 to 75 years, meaning many of these pipes need to be replaced. DOU indicated that a detailed breakdown of the remaining useful life for the linear water assets by size and material type has not yet been developed.

This data indicates the majority of the water distribution and transmission systems have reached the end of their useful life or have less than 10 to 15 years of useful life remaining. Approximately 248 miles, out of the approximately 1,645 miles of the water distribution and transmission systems have been renewed or replaced since 2008.

DOU provided a water assets lifecycle and replacement cost list that included a register of 7,324 separate assets associated with the water system. This information shows that about 68% of the assets (4,946 out of the 7,324) have 20 years or less of remaining useful life and about 38% of the assets (2,770 out of 7,324) have 10 years or less of remaining useful life.

There are about 9% of the water assets (695 out of 7,324) that have 5 years or less of remaining useful life and should be assessed for immediate replacement. Table 6-1 summarizes the remaining useful life of the water system's assets based on the available information from DOU.

Table 6-1: Water Assets Remaining Useful Life

Number of Water Assets	Remaining Useful Life (years)
169	0
526	3 - 5
2,075	6 - 10
1,106	12 - 15
1,070	17 - 20
1,793	25 - 30
585	>30
Total = 7,324	

By not renewing and replacing the existing assets, the capacity of the infrastructure decreases, it is significantly less reliable and resilient, and the value of the assets decreases. From a financial perspective, the asset's book value is also lower because many assets are at or beyond their remaining useful lives, meaning little to no residual value because they haven't been renewed or replaced. DOU indicated they do not have an asset register list for all of their linear and facility water system assets that includes original installed cost, remaining useful life, depreciation, and current asset values, so a comprehensive list of these asset values was not available.

6.2. Risks and Costs to Replace Aging Water Infrastructure

The current risks of catastrophic water system assets failure appear to be high. DOU has identified \$739.2 million in needed capital investments into the water system infrastructure that have been deferred (see Section 5.2.1 of this report). Catastrophic failure of the water system could be a major transmission or distribution line breaking, or one of the treatment facilities failing, causing a water outage to large portions of the population. These types of failures are very expensive and can take considerable time to fix, resulting in a significant risk to public health.

As discussed in Section 5, DOU has performed detailed studies and evaluations of their future water needs with additional studies ongoing. DOU is still developing and maturing their water asset management program

so the linear and facilities asset R/R costs in the 30-year CIP likely does not reflect the full cost needs. In addition, DOU has had limited capital budget funding available for several years, so sufficient asset R/R has been deferred. This lack of funding increases the risk of assets failing catastrophically, increases the consequences of failure, and increases the need for higher levels of asset R/R funding in the next 5 to 10 years to “catch up” on the deferments.

In addition to the recommendations Raftelis provided under sections 5.1.2, 5.2.1, and 5.3, we offer the following for consideration:

1. The DOU has completed a financial asset register for all of the linear and facility water system assets based on available data. For assets that may not have original installed cost data available, these assets should still be included in the asset register, and an engineering estimate developed for the current replacement costs. Remaining useful life should also be estimated based on available condition data.

7. Fiscal Forecasting

This section of the report details financial plans developed for the Water Fund based on the projected revenues, expenses, debt service, and capital project costs from the City’s 30-year CIP schedule and multi-year operating projects (MYOP). Raftelis modeled the current conditions of the fund (status quo) without any proposed rate increases as well as three different financial planning scenarios. Financial Plan 1 includes the existing 30-year CIP and MYOP without any additional operating and capital costs. Financial Plan 2 includes everything from Financial Plan 1 and additional operating and capital costs to address aging infrastructure, deficiencies, and gaps not included in the 30-year CIP. Financial Plan 3 includes everything from the first two financial plans and additional linear and facilities renewal and replacement costs from the recommendations outlined in Section 5.

This analysis and report are primarily based on data provided from FY 2024 instead of the approved budget for FY 2025 due to timing. There are often differences between actual and projected data. Some of the assumptions used in this report may not be realized, and unanticipated events and circumstances may occur. Therefore, there are likely to be differences between the data or results projected in the report and the actual results achieved. Nevertheless, this report provides valuable information and analysis for the City to consider in its strategic and financial planning for the Water Fund.

7.1. Assumptions

The assumptions outlined below were utilized to project the number of customer accounts, revenues, and expenses for future years.

7.1.1. Customer Demand and Account Growth

Water customer demand is used for growth in billed consumption, and account growth is the increase or decrease in the total number of accounts. Customer demand and account growth projections for each customer class are shown below and are based on historical trends and data provided by the City. Demand and account growth factors are applied to the previous year’s estimate of billed consumption and number of accounts.

Table 7-1: Customer Demand and Account Growth Projections

Line No.	Description	Demand Growth Factor	Account Growth Factor
1	All meter sizes	--	0.2%
2	Consumption	0.2%	--

7.1.2. Revenue Escalation Factors

Table 7-2 shows the revenue escalation factors used to project future water revenues and calculate investment income. The reserve interest rate is used to calculate the investment income based on projected fund balances and uses an estimated interest earnings rate of 1.0%.

Table 7-2: Revenue Escalation Factors

Line No.	Description	Escalation Factors
1	Miscellaneous and Non-Rate Revenues	1.75% (FY 2025), 0.0% (thereafter)
2	Interest Earnings	1.0%

7.1.3. Expenditures Escalation Factors

Table 7-3 shows the expense escalation factors used to project future operating expenses for the study periods. These factors were determined based on a review of City data.

Table 7-3: Expenditures Escalation Factors

Line No.	Description	Escalation Factors
1	Non-inflated	0.0%
2	Employee Services	2.0%
3	Interfund Reimbursement	3.0%
4	Interfund Service Provided and Used	3.0%
5	Interfund Transfer	3.0%
6	MYOP	2.5%
7	Other Objects ¹⁷	2.5%
8	Property	2.5%
9	Service and Supplies	2.5%

7.2. Projected Water Demand

City staff provided the number of accounts served and billed consumption for FY 2023. Raftelis forecasted future accounts and billed consumption using the growth factors presented in Table 7-1. Table 7-4 shows the assumed growth in the number of accounts and billed consumption for the next five years. The projections for the total forecast period are shown in the Appendix.

¹⁷ Examples of other objects include chemicals, fuel, and utilities.

Table 7-4: Projected Water Accounts and Billed Consumption (CCF)

Line No.	Description	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
1	5/8-in	185	185	186	186	186
2	3/4-in	194	194	194	195	195
3	1-in	144,206	144,495	144,784	145,073	145,364
4	1-1/2-in	4,271	4,279	4,288	4,296	4,305
5	2-in	4,751	4,761	4,770	4,780	4,789
6	3-in	870	872	874	875	877
7	4-in	776	777	779	780	782
8	6-in	255	255	256	256	257
9	8-in	120	120	120	120	121
10	10-in	20	20	20	20	20
11	12-in	0	0	0	0	0
12	Total Accounts	155,646	155,958	156,270	156,582	156,895
13	Billed Consumption (CCF)	36,760,276	36,833,797	36,907,465	36,981,280	37,055,242

7.3. Projected Water Revenues

City staff provided the actual revenues for FY 2014 through FY 2023 and budgeted FY 2024 revenues for the water utility, which were used to confirm calculated rate revenues and project miscellaneous revenues for the study periods. Table 7-5 shows the projected revenues without rate increases for the first five years of the study period; the remaining years are shown in the Appendix. Rate revenues on line 1 were calculated using the units of service in Table 7-4 and the existing rates.

The City expects increases in water rate revenues for all years of the study as a result of increases in customer accounts and demand. The interest earning (line 2) is calculated using the reserve interest rate (Table 7-2, line 2). The interest earning calculations reflect lower fund balances since there are no revenue adjustments from rate increases. The remaining revenues are escalated using the non-rate revenue escalation factor (Table 7-2, line 1).

Table 7-5: Projected Water Revenues without Rate Increases

Line No.	Description	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
1	Rate Revenue	\$133,775,046	\$134,042,596	\$134,310,681	\$134,579,302	\$134,848,461
2	Interest Earnings	\$1,275,398	\$1,158,168	\$928,452	\$651,138	\$337,103
3	Other Revenue	\$3,742,000	\$3,742,000	\$3,742,000	\$3,742,000	\$3,742,000
4	Total Revenue	\$138,792,444	\$138,942,764	\$138,981,133	\$138,972,441	\$138,927,564

The projected development impact fees (DIF) revenues were provided by the City and are shown in the following table. DIF revenues are restricted for growth-related capital improvement projects.

Table 7-6: Projected Water Development Impact Fee Revenues

Line No.	Description	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
1	DIF Revenue	\$5,336,141	\$6,605,384	\$8,382,324	\$9,397,719	\$9,444,708
2	Interest Earnings	\$546,615	\$579,789	\$650,526	\$735,931	\$827,503
3	Total Revenue	\$5,882,756	\$7,185,173	\$9,032,850	\$10,133,650	\$10,272,210

7.4. Projected Water O&M Expenses

City staff provided the actual O&M expenses for FY 2014 through FY 2023 and budgeted FY 2024 O&M expenses for the water utility, based on expense function. Table 7-7 shows the projected O&M expenses for the first five years of the study period summarized by expense function, and the remainder of the study period is shown in the Appendix. Each line is escalated based on the expense escalation factors in Table 7-3.

The City also includes MYOP in its budget and forecast. The projected MYOP expenses for water were provided by the City for the next five years. MYOP expenses after FY 2029 are based on the annual average of MYOP expenses from FY 2024 through FY 2029, escalated by an escalation factor of 2.5%, and include additional MYOP identified by the DOU. The water MYOP projected expenses are shown on line 8.

Table 7-7: Projected Water O&M Expenses

Line No.	Description	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
1	Employee Services	\$50,061,431	\$51,062,660	\$52,083,913	\$53,125,591	\$54,188,103
2	Interfund Reimbursement	(\$10,666,269)	(\$10,986,257)	(\$11,315,845)	(\$11,655,320)	(\$12,004,980)
3	Interfund Provided & Used	\$16,747	\$17,249	\$17,767	\$18,300	\$18,849
4	Interfund Transfer	\$15,464,992	\$15,928,941	\$16,406,810	\$16,899,014	\$17,405,984
5	Other Objects	\$1,390,116	\$1,424,869	\$1,460,491	\$1,497,003	\$1,534,428
6	Property	\$2,002,826	\$2,052,896	\$2,104,219	\$2,156,824	\$2,210,745
7	Service And Supplies	\$28,790,659	\$29,510,426	\$30,248,186	\$31,004,391	\$31,779,501
8	MYOP	\$3,630,130	\$4,949,005	\$6,488,914	\$6,873,781	\$5,257,829
9	Total	\$90,690,632	\$93,959,789	\$97,494,454	\$99,919,584	\$100,390,459

7.5. Debt Service

The City currently has several existing debt issuances for the water utility. Table 7-8 shows the annual payments for the existing debt service.

Table 7-8: Existing Water Debt Service Schedules

Line No.	Description	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
1	Series 2006 Revenue Bond, Series E	\$11,071,460	\$11,062,328	\$11,047,941	\$11,041,888	\$11,028,257
2	2003 Cirbs + 2006 Refinancing	\$33,631	\$33,621	\$33,820	\$34,064	\$35,474
3	Series 2013 Water Revenue Bonds	\$2,859,259	\$0	\$0	\$0	\$0
4	Series 2017 Water Revenue Bonds	\$3,375,663	\$3,376,288	\$3,379,038	\$3,378,788	\$3,375,538
5	Series 2020 Water Revenue Bonds	\$5,200,307	\$9,091,004	\$10,066,377	\$10,714,974	\$12,117,505
6	Series 2023 Water Revenue Bonds	\$1,259,100	\$3,282,000	\$2,304,625	\$1,654,250	\$824,000
7	American Recovery and Reinvestment Act Loan	\$638,529	\$638,529	\$638,529	\$638,529	\$638,530
8	Water State Revolving Fund Loan	\$8,239,514	\$8,239,514	\$8,229,514	\$8,239,514	\$8,239,514
9	Total	\$32,677,464	\$35,723,284	\$35,699,843	\$35,702,007	\$36,258,818

7.6. Capital Improvement Projects

City staff provided a 30-year CIP for the water utility for the study period. Table 7-9 shows a summary of the CIP costs for the first five years of the study period on line 1. CIP costs significantly increase in FY 2030 because of the City's water resiliency projects. The entire CIP plan with project-level detail is provided in the Appendix. Projects are funded through a combination of water rate revenues, cash reserves, water development impact fees (DIF), and bond proceeds.

Due to the extent of capital improvement planned, the CIP cannot be entirely funded with pay-go from water operations; therefore, debt is needed to fund a portion of the capital program beginning in FY 2030¹⁸. The terms for this debt issue are assumed to be a 20-year bond at 4% interest with a 0.85% issuance cost. It is assumed an additional reserve fund would not need to be created for the debt. Future debt will be included in the debt service coverage requirement as shown in the financial planning sections 7.7, 7.8, and 7.9. The proposed annual debt service is also shown in the financial planning section.

Table 7-9: 30-year CIP – Summary of Total Costs

Line No.	Description	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
1	30-year CIP Costs	\$18,542,060	\$29,705,200	\$31,514,247	\$28,595,802	\$28,981,851

The growth-related capital projects are separate from the CIP projects listed in the previous table and are funded with DIF revenues. The following table provides a summary of the growth-related CIP.

¹⁸ Debt issuance begins in FY 2030 due to timing of the projects included in the 30-year CIP.

Table 7-10: 30-year growth-related CIP – Summary of Total Costs

Line No.	Description	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
1	Growth-related CIP Costs	\$5,400,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000

7.7. Status Quo without Rate Increases

The current conditions of the fund (status quo) without rate increase was modeled to show when the water utility will no longer be able to meet its required absolute floor parity lien debt service coverage ratio of 1.20 for parity obligations and bonds, minimum operating reserve target of 120 days of O&M, and capital reserve target of next year’s pay-go¹⁹. If the water utility does not implement rate increases, it will not meet its capital reserve target beginning in FY 2028. It will not meet its minimum operating reserve target beginning in FY 2029. It will not be able to meet its absolute floor debt service coverage ratio requirement beginning in FY 2030.

Table 7-11 shows the proforma through FY 2029. Rate revenues on line 2 are derived from the projected baseline revenues in Table 7-5 (line 1). Interest earnings and other revenues are shown on lines 3 and 4. O&M expenses on line 6 are derived from projected O&M expenses in Table 7-7. Existing debt service on lines 8 and 9 are from the annual debt service payments for outstanding debt in Table 7-8. Cash funded capital projects on line 12 are from the capital financing plan in Table 7-9.

The total revenue requirements on line 13 are a sum of the operating expenses, debt service payments, and cash-funded capital. Net cash flow on line 14 is calculated by subtracting the total revenue requirements from the total revenues. Net operating revenue on line 21 is equal to total revenues less O&M expenses. The parity lien debt service coverage ratio on line 22 is calculated by dividing the net operating revenue by the senior lien debt service on line 8. The projected ending fund balance with reserves, ending balance less reserves, operating reserve, and capital reserve are shown on lines 16 through 19.

¹⁹ Pay-go is cash funded capital.

Table 7-11: Water Proforma for Status Quo

Line No.	Description	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
Revenues						
1	Rate Increase	0%	0%	0%	0%	0%
2	Rate Revenues	\$133,775,046	\$134,042,596	\$134,310,681	\$134,579,302	\$134,848,461
3	Interest Earnings	\$1,275,398	\$1,158,168	\$928,452	\$674,977	\$417,043
4	Other Revenue	\$3,742,000	\$3,742,000	\$3,742,000	\$3,742,000	\$3,742,000
5	Total Revenues	\$138,792,444	\$138,942,764	\$138,981,133	\$138,996,279	\$139,007,504
Revenue Requirements						
6	Operating Expenses	\$90,690,632	\$93,959,789	\$97,494,454	\$99,919,584	\$100,390,459
Debt Service						
7	Existing Debt Service (Parity lien)	\$21,606,004	\$24,660,956	\$24,651,903	\$24,660,120	\$25,230,562
8	Existing Debt Service (Unsecured)	\$11,071,460	\$11,062,328	\$11,047,941	\$11,041,887	\$11,028,256
9	Proposed Debt Service	\$0	\$0	\$0	\$0	\$0
10	Total Debt Service	\$32,677,464	\$35,723,284	\$35,699,843	\$35,702,007	\$36,258,818
11	Cash Funded Capital	\$18,542,060	\$29,705,200	\$31,514,247	\$28,595,802	\$28,981,851
12	Total Revenue Requirements	\$141,910,156	\$159,388,273	\$164,708,545	\$164,217,393	\$165,631,129
13	Net Cash Flow	(\$3,117,712)	(\$20,445,510)	(\$25,727,412)	(\$25,221,114)	(\$26,623,625)
14	Beginning Balance with Reserves	\$129,736,340	\$126,618,628	\$106,173,118	\$80,445,707	\$55,224,593
15	Ending Balance with Reserves	\$126,618,628	\$106,173,118	\$80,445,707	\$55,224,593	\$28,600,968
16	Ending Cash Balance less Reserves	\$68,297,330	\$44,967,982	\$20,996,933	(\$5,407,533)	(\$42,082,854)
17	Operating Reserve	\$29,816,098	\$30,890,890	\$32,052,971	\$32,850,274	\$33,005,082
18	Capital Reserve	\$28,505,200	\$30,314,247	\$27,395,802	\$27,781,851	\$37,678,739
Debt Coverage Section						
19	Net Operating Revenue	\$48,101,812	\$44,982,975	\$41,486,679	\$39,076,695	\$38,617,044
20	Parity Lien Debt Service Coverage Ratio	2.23	1.82	1.68	1.58	1.53

Notes: Other revenues include service fees, other agency payments, and miscellaneous revenues.

The minimum operating target of 120 days of O&M is a policy set by the DOU.

The absolute floor parity lien debt service coverage ratio of 1.20 is required for parity obligation per the water utility’s existing bond covenants.

This financial plan is based on data from FY 2024 instead of the FY 2025 approved budget due to timing.

Figure 7-1 shows the ending cash balance compared to the operating and capital reserve targets. If the water utility does not implement rate increases, it will not meet its capital reserve target beginning in FY 2028 nor its operating reserve in FY 2029.

Figure 7-1: Status Quo – Ending Balances and Reserve Targets

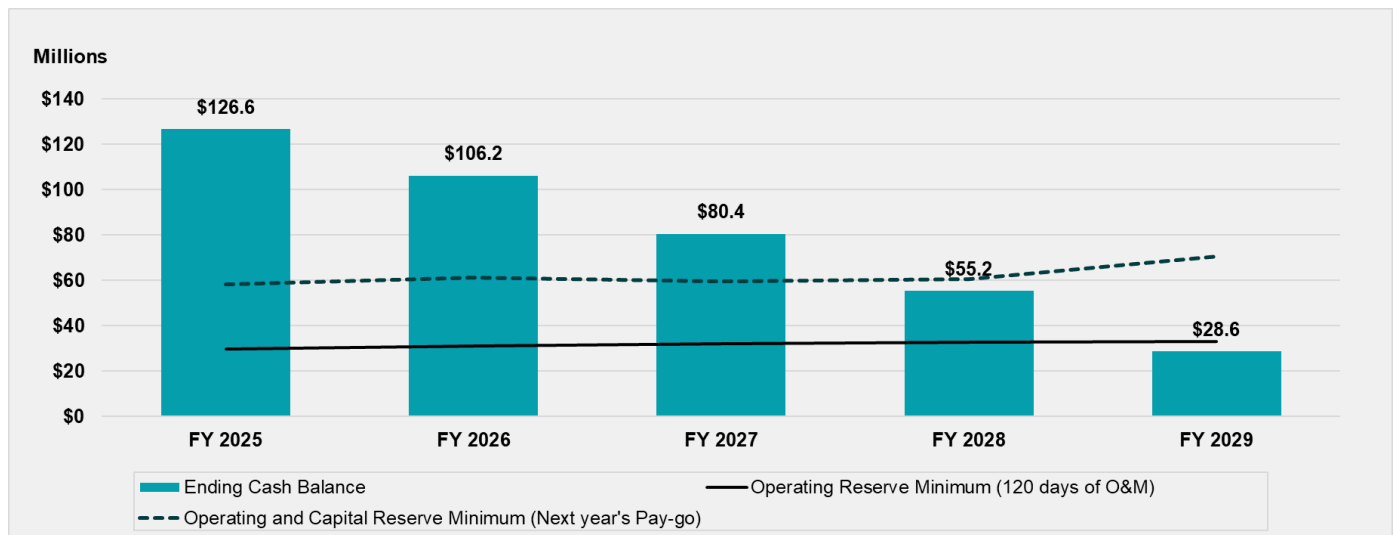
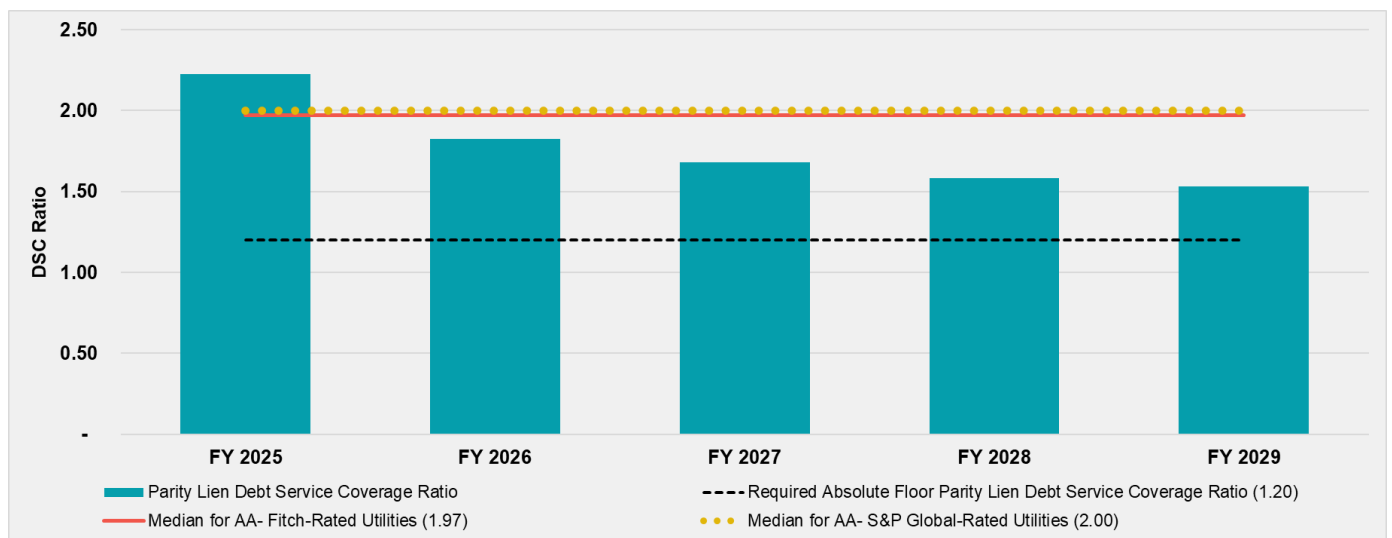


Figure 7-2 shows the parity lien debt service coverage ratio compared to its requirement. The required absolute floor parity lien debt service coverage ratio is met during the first five years. However, if the water utility does not implement rate increases, it will not meet its required absolute floor parity lien debt service coverage ratio of 1.20 for parity lien debt in FY 2030.

Figure 7-2: Status Quo – Debt Service Coverage Ratio



Without rate increases, the water utility will soon not be able to meet its fiscal requirements. Specifically, it will not meet its capital reserve target beginning in FY 2028, it will not meet its minimum operating reserve target beginning in FY 2029, and it will not be able to meet its absolute floor parity lien debt service coverage ratio requirement beginning in FY 2030. Additionally, this does not account for the 30-year CIP, additional MYOPs, additional operating and capital needs, and R/R to efficiently and effectively operate the water utility. Sections 7.9 through 7.11 below offer proposed financial plans that incorporate these needs while also meeting fiscal requirements.

7.8. Development Impact Fee Fund for All Scenarios

Table 7-12 shows the development impact fee (DIF) fund for the status quo, financial plan 1, financial plan 2, and financial plan 3. The tables and figures for the first five years are included in this section. The tables and figures for years 6 through 25 are in the Appendix.

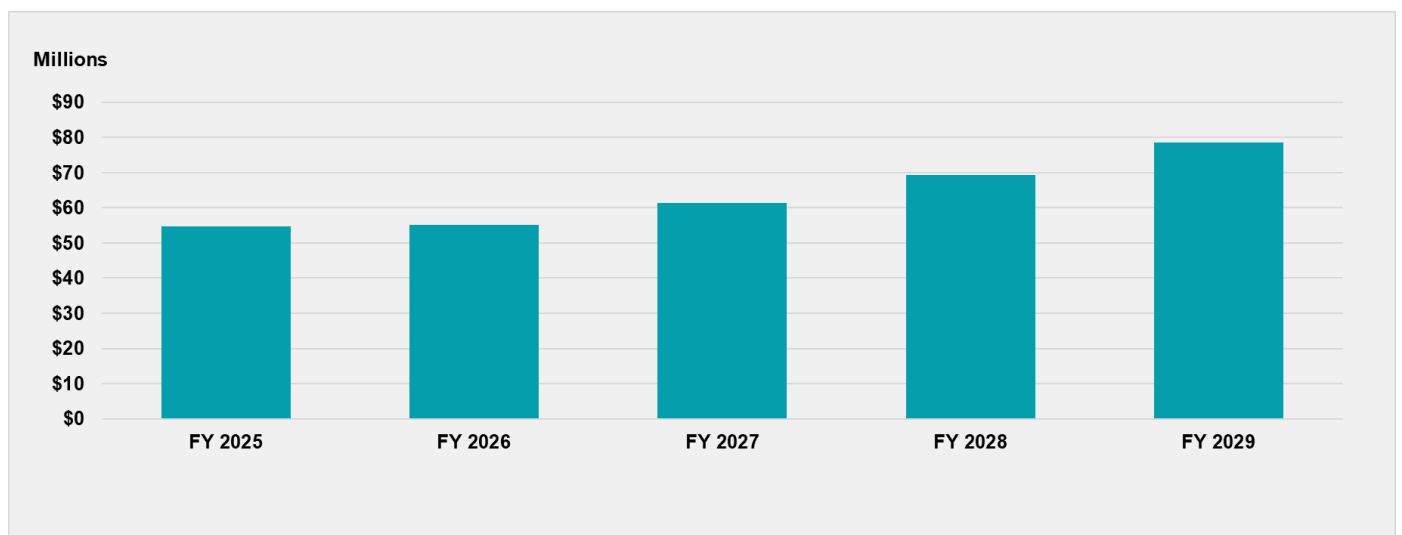
The projection of DIF funds and growth-related CIP are the same for each scenario. The projection of DIF funds for the first four years were provided by the City, and the remaining years were escalated by 0.2 percent each year to match the assumption used for account growth.

The City plans to reevaluate DIF fees in the future with another DIF nexus study. Projects are delayed for three years in FY 2033 and again in FY 2041 through the end of the study period due to inadequate DIF funds.

Table 7-12: DIF Proforma

Line No.	Description	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
1	Development Impact Fee Revenues	\$5,336,141	\$6,605,384	\$8,382,324	\$9,397,719	\$9,416,514
2	Interest Earnings	\$546,615	\$579,789	\$650,526	\$735,931	\$827,362
3	Total Revenues	\$5,882,756	\$7,185,173	\$9,032,850	\$10,133,650	\$10,243,876
4	Growth-related CIP	\$5,400,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000
5	Net Cash Flow	\$482,756	\$6,185,173	\$8,032,850	\$9,133,650	\$9,243,876
6	Beginning Balance	\$54,693,468	\$55,176,224	\$61,361,397	\$69,394,247	\$78,527,897
7	Ending Balance	\$55,176,224	\$61,361,397	\$69,394,247	\$78,527,897	\$87,771,773

Figure 7-3: DIF Fund Ending Cash Balance



7.9. Financial Plan 1 with 30-year CIP and MYOP

Table 7-13 shows the proposed capital financing plan for the water utility. The City will need to fund its 30-year water CIP with a mix of pay-go and debt financing. This plan assumes 100% of the projects will be completed within the funding schedule as noted in the 30-year CIP. The escalated capital costs (line 2) are the result of applying a capital escalation factor of 3% to the uninflated total capital costs from Table 7-7 (line 3). The proposed debt funding (line 6) uses the assumptions outlined in the previous section. The remainder will be funded with pay-go from rates and capacity fees.

Table 7-13: Financing Plan with 30-year CIP Schedule and MYOP

Line No.	Description	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
1	Uninflated Capital Costs	\$18,002,000	\$28,000,000	\$28,840,000	\$25,407,000	\$25,000,000
2	Escalated Capital Costs	\$18,542,060	\$29,705,200	\$31,514,247	\$28,595,802	\$28,981,851
3	Capital Spending Factor	100%	100%	100%	100%	100%
4	Total Funded Capital	\$18,542,060	\$29,705,200	\$31,514,247	\$28,595,802	\$28,981,851
Capital Financing Plan						
5	Proposed Debt Funding	\$0	\$0	\$0	\$0	\$0
6	Pay-go	\$18,542,060	\$29,705,200	\$31,514,247	\$28,595,802	\$28,981,851
7	Total	\$18,542,060	\$29,705,200	\$31,514,247	\$28,595,802	\$28,981,851

Table 7-14 shows the projected water financial plan with the 30-year CIP and water MYOP. Rate increases needed to meet fiscal targets and requirements are shown on line 1 and applied to the projected baseline revenues in Table 7-5 (line 1) to derive the rate revenues shown on line 2. Interest earnings and other revenues are shown on lines 3 and 4. O&M expenses on line 6 are derived from projected O&M expenses in Table 7-7. Existing debt service on lines 8 and 9 are from the annual debt service payments for outstanding debt in Table 7-8. The proposed debt service on line 10 is for debt-financed capital projects and will begin in FY 2030. Cash funded capital projects on line 12 are from the capital financing plan in Table 7-9. This scenario assumes capital projects are funded with a mix of pay-go and debt financing.

The total revenue requirements on line 13 are a sum of the operating expenses, debt service payments, and cash-funded capital. Net cash flow on line 14 is calculated by subtracting the total revenue requirements from the total revenues. Net operating revenue on line 20 is equal to total revenues less O&M expenses. The parity lien debt service coverage ratio on line 22 is calculated by dividing the net operating revenue by the parity lien debt service on lines 8 and 10 and is well over the required absolute floor debt service coverage ratio of 1.20. Net cash flow is negative in FY 2025 through FY 2027 in Figure 7-10, which means that the Water Fund is using unrestricted cash to fund some of its revenue requirements. The projected ending fund balance with reserves, ending balance less reserves, operating reserve, and capital reserve are shown on lines 16 through 19.

The tables and figures for the first five years are included in this section. The tables and figures for years 6 through 25 are in the Appendix.

Table 7-14: Financial Plan 1 with 30-year CIP Schedule and MYOP

Line No.	Description	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
Revenues						
1	Rate Increase	0%	0%	0%	22%	20%
2	Rate Revenues	\$133,775,046	\$134,042,596	\$134,310,681	\$164,186,749	\$197,418,147
3	Interest Earnings	\$1,275,398	\$1,158,168	\$928,452	\$823,014	\$1,027,446
4	Other Revenue	\$3,742,000	\$3,742,000	\$3,742,000	\$3,742,000	\$3,742,000
5	Total Revenues	\$138,792,444	\$138,942,764	\$138,981,133	\$168,751,763	\$202,187,593
Revenue Requirements						
6	Operating Expenses	\$90,690,632	\$93,959,789	\$97,494,454	\$99,919,584	\$100,390,459
Debt Service						
7	Existing Debt Service (Parity Lien)	\$21,606,004	\$24,660,956	\$24,651,903	\$24,660,120	\$25,230,562
8	Existing Debt Service (Unsecured)	\$11,071,460	\$11,062,328	\$11,047,941	\$11,041,887	\$11,028,256
9	Proposed Debt Service	\$0	\$0	\$0	\$0	\$0
10	Total Debt Service	\$32,677,464	\$35,723,284	\$35,699,843	\$35,702,007	\$36,258,818
11	Cash Funded Capital	\$18,542,060	\$29,705,200	\$31,514,247	\$28,595,802	\$28,981,851
12	Total Revenue Requirements	\$141,910,156	\$159,388,273	\$164,708,545	\$164,217,393	\$165,631,129
13	Net Cash Flow	(\$3,117,712)	(\$20,445,510)	(\$25,727,412)	\$4,534,370	\$36,556,464
14	Beginning Balance with Reserves	\$129,736,340	\$126,618,628	\$106,173,118	\$80,445,707	\$84,980,077
15	Ending Balance with Reserves	\$126,618,628	\$106,173,118	\$80,445,707	\$84,980,077	\$121,536,541
16	Ending Cash Balance less Reserves	\$68,297,330	\$44,967,982	\$20,996,933	\$24,347,951	\$50,852,719
17	Operating Reserve	\$29,816,098	\$30,890,890	\$32,052,971	\$32,850,274	\$33,005,082
18	Capital Reserve	\$28,505,200	\$30,314,247	\$27,395,802	\$27,781,851	\$37,678,739
Debt Coverage Section						
19	Net Operating Revenue	\$48,101,812	\$44,982,975	\$41,486,679	\$68,832,179	\$101,797,134
20	Parity Lien Debt Service Coverage Ratio	2.23	1.82	1.68	2.79	4.03

Notes: Other revenues include service fees, other agency payments, and miscellaneous revenues.
 The minimum operating target of 120 days of O&M is a policy set by the DOU.
 The absolute floor parity lien debt service coverage ratio of 1.20 is required for parity obligation per the water utility’s existing bond covenants.
 This financial plan is based on data from FY 2024 instead of the FY 2025 approved budget due to timing.

Figure 7-4 shows Financial Plan 1 in a graphical format based on the proforma shown in Table 7-14.

Figure 7-4: Financial Plan 1

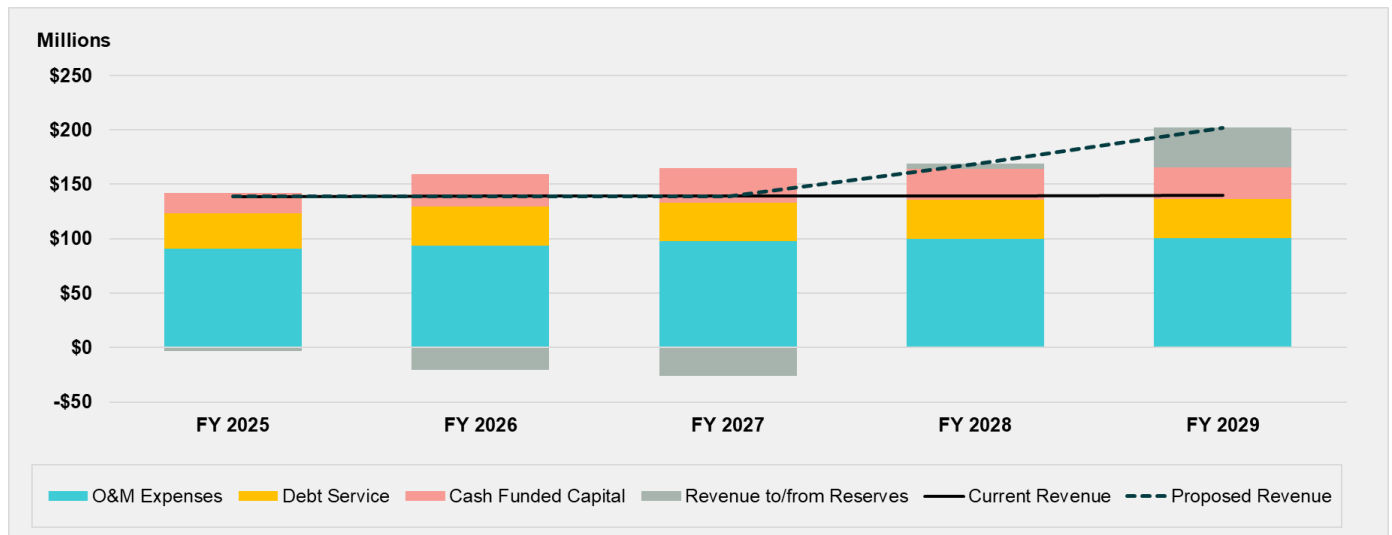


Figure 7-5 shows the capital financing plan for Financial Plan 1 in graphical format. Capital projects are funded with a mix of debt and cash. Debt funding is used for projects beginning in FY 2030.

Figure 7-5: Financial Plan 1 – Capital Financing Plan

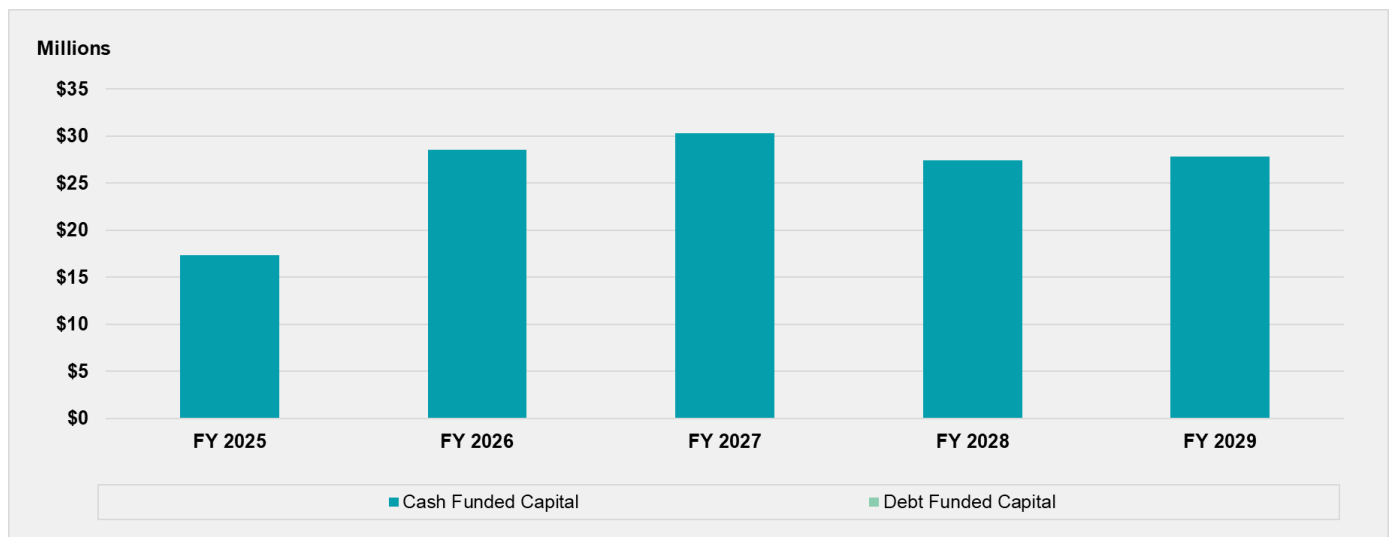


Figure 7-6 shows the water operating funds ending cash balance in comparison to the reserve targets. The ending cash balance exceeds the minimum operating balance and the minimum capital reserve target in each year. The minimum operating reserve target is shown with the solid line. The sum of the minimum operating and capital reserve target is shown with the dashed line.

Figure 7-6: Financial Plan 1 – Ending Balances and Reserve Targets

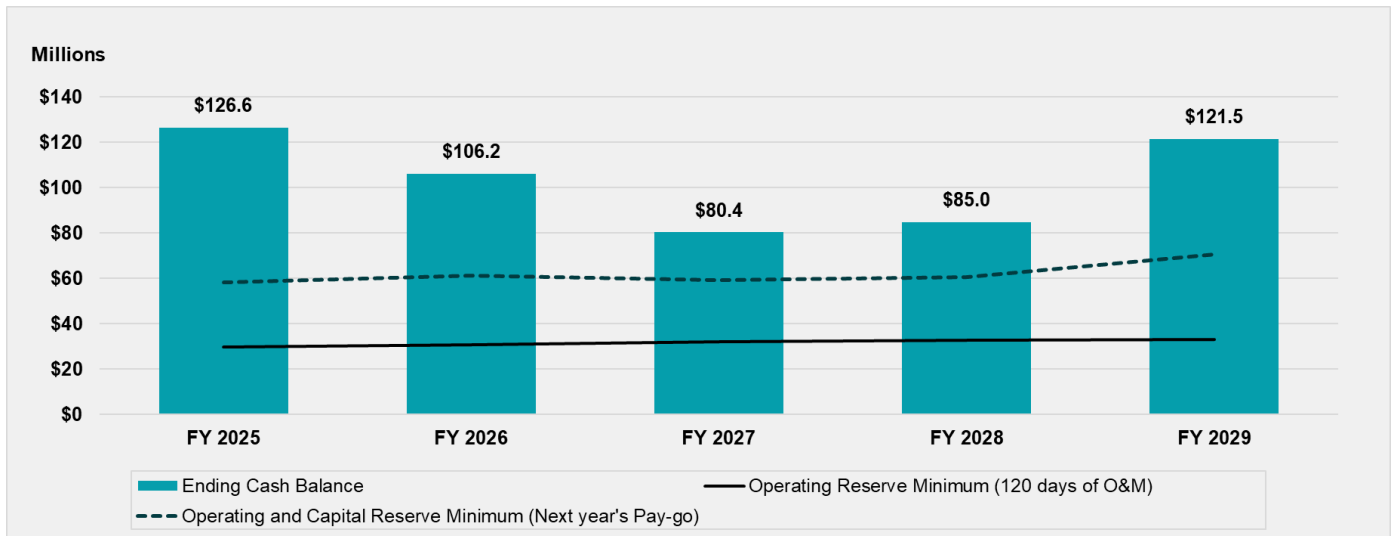


Figure 7-7 shows the calculated parity lien debt service coverage ratio with bars. The required absolute floor parity lien debt service coverage ratio of 1.20 is achieved each year and shown with the black dashed line. Fitch issued an AA- rating for the City’s water utility in 2023. The median debt service coverage ratio for water utilities with a similar rating reported by Fitch is equal to 1.97 and shown with the red solid line. The median reported by S&P Global is equal to 2.00 and is shown with the yellow dotted line.

Figure 7-7: Financial Plan 1 – Debt Service Coverage Ratio

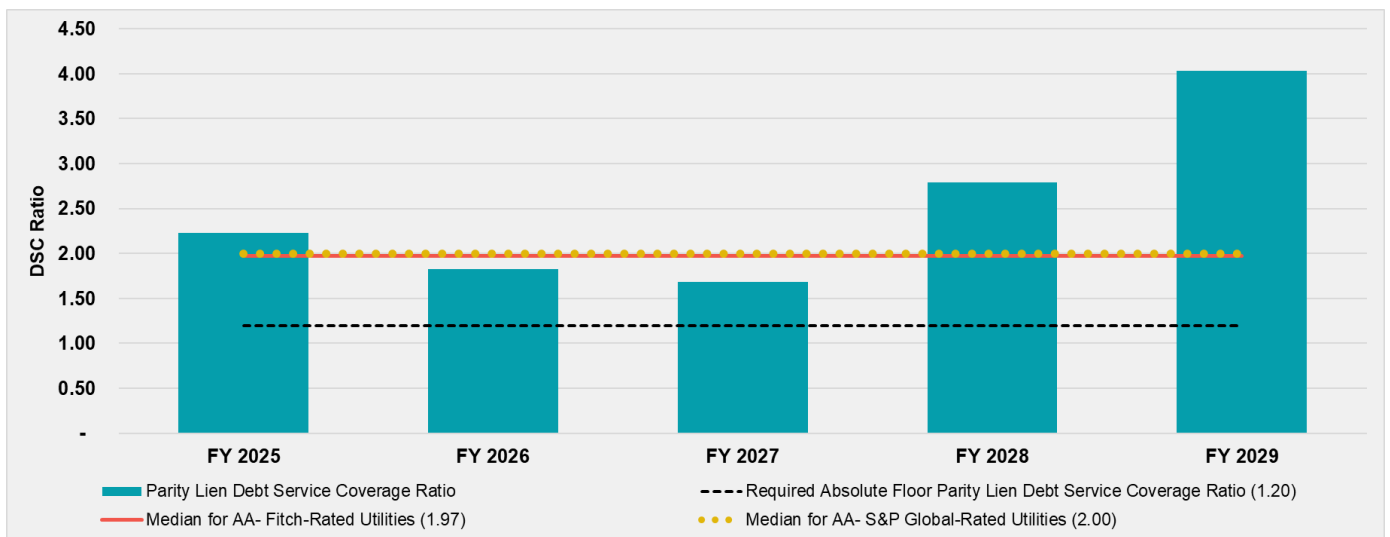


Figure 7-8 shows the days of cash on hand for Financial Plan 1. The ending cash balance is divided by the operating expenses and then divided by 365. It is an indicator of financial flexibility to fund near-term obligations. The median days of cash on hand for water utilities with a similar rating reported by Fitch is equal to 390 days and shown with the red solid line. The median reported by S&P Global is equal to 534 days and is shown with the yellow dotted line. The days of cash on hand for Financial Plan 1 are below the S&P Global median each year and below the Fitch median in FY 2027 and FY 2028.

Figure 7-8: Financial Plan 1 – Days of Cash on Hand

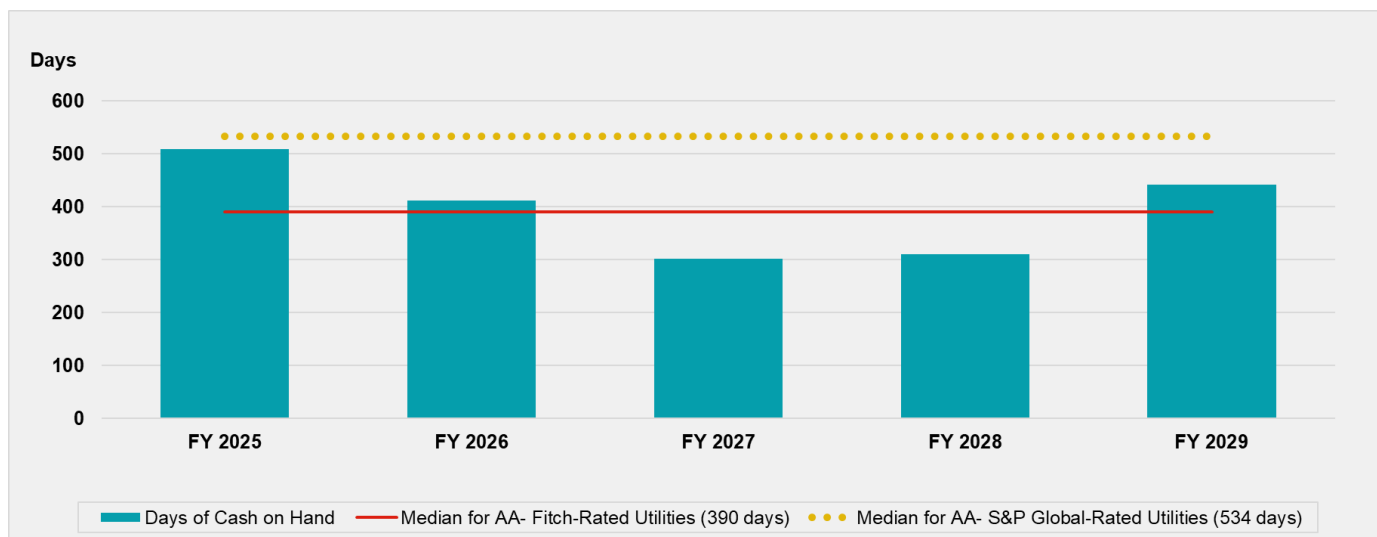
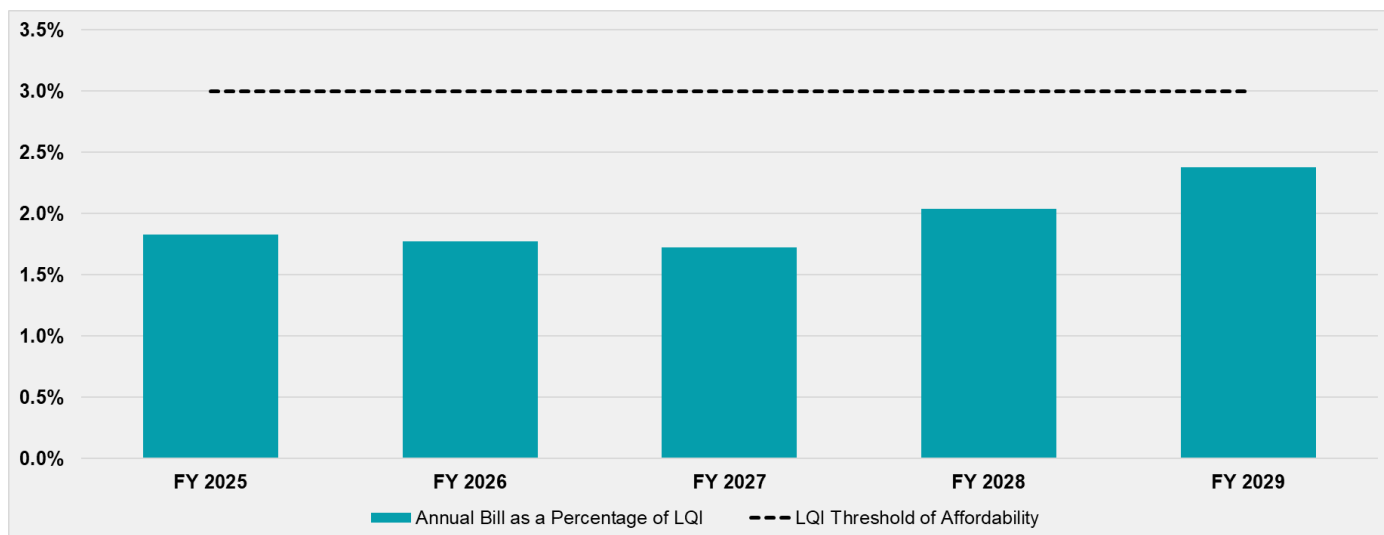


Figure 7-9 shows the annual water bill as a percentage of the lowest quintile income (LQI). The USEPA uses the annual bill as a percentage of median household income (MHI) for the residential indicator in its Financial Capability Assessment Guidance.²⁰ However, MHI does not account for the variability of income distribution between communities, therefore LQI is used in this study to assess the potential impact of rate increases. It is commonly inferred by many utilities that annual water bills as a percentage of LQI of 3% or higher are considered to place a burden on those households. This threshold is represented with the dashed line.

The City estimated that an average residential water customer uses approximately 11.7 hundred cubic feet (CCF) per month. The estimated annual water bill for a residential customer with this consumption equals \$633.62. The estimated annual water bill increases by the proposed rates for that fiscal year. The US Census Bureau reported that the LQI for Sacramento, CA was \$31,769 in 2022. The LQI was escalated by 3% each year of the study period to account for inflation and was assumed to be approximately \$34,715 in 2025. The annual water bill as a percentage of LQI is calculated by dividing the estimated water bill as the numerator by the LQI as the denominator. The water bills as a percentage of LQI are below the 3 percent affordability threshold each year.

²⁰ Clean Water Act Financial Capability Assessment Guidance, USEPA, February, 2023.

Figure 7-9: Financial Plan 1 – Annual Water Bill as Percentage of Lowest Quintile Income



The following are key takeaways for Financial Plan 1:

Key Takeaways for Financial Plan 1 (First Five Years):

- Rate increases are as follows: 0% (FY 2025 through FY 2027), 22% (FY 2028), and 20% (FY 2029).
- The average cash funded capital for the first five years is \$27.5 million annually.
- The minimum operating target is achieved each year.
- The minimum capital reserve target is achieved each year.
- The required absolute floor parity lien debt service coverage ratio is achieved each year.
- Annual water bills as a percentage of LQI are below the 3% affordability threshold.
- The days of cash on hand do not exceed the S&P Global median during the first five years and do not exceed the Fitch median in FY 2027 and FY 2028.

Key Takeaways for Financial Plan 1 (Years 6 through 25):

- Rate increases are as follows: 7% (FY 2030), 6% (FY 2031 and FY 2032), 5% (FY 2033), 4% (FY 2034 and FY 2035), and 0% for the remainder of the study period.
- The average cash funded capital throughout the study period is \$59.5 million annually.
- The minimum operating target is achieved each year.
- The minimum capital reserve target is achieved each year.
- The required absolute floor parity lien debt service coverage ratio is achieved each year.
- Annual water bills as a percentage of LQI remain below the 3% affordability threshold. It reaches a maximum point of 2.7% in FY 2035.
- The days of cash on hand exceed the Fitch median for water utilities with an AA- rating each year and exceeds the median reported by S&P Global in FY 2035 through the end of the study period.

7.10. Financial Plan 2 with Costs to Address Deficiencies and Gaps

Raftelis coordinated with City staff to identify additional FTE staffing, operating, MYOP, and capital needs to address aging infrastructure, deficiencies, and gaps. The needs included in this section are not in the City’s current budget, projections, or 30-year CIP schedule. Financial Plan 2 includes these additional operating, MYOP, and capital needs along with everything from Financial Plan 1.

7.10.1. Additional Operating Costs

The DOU provided a schedule of additional operating costs that are one-time and recurring expenditures. The additional operating and MYOP costs for the next five years are shown in the table below, and the additional operating and MYOP costs for the remainder of the study period are shown in the Appendix. They were included in this financial scenario and not escalated above the DOU’s estimates.

Table 7-15: Additional Water Operating Costs

Line No.	Description	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
1	Additional Operating Costs	\$0	\$0	\$0	\$1,488,550	\$1,507,435
2	Additional MYOP	\$0	\$0	\$0	\$4,767,654	\$6,405,005

7.10.2. Additional Capital Costs

The additional capital costs for the next five years are shown in the following table, and the additional capital costs for the remainder of the study period are shown in the Appendix. They were included in this financial scenario and escalated using the CIP escalation factor.

Table 7-16: Additional Water Capital Costs

Line No.	Description	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
1	Additional Capital	\$0	\$0	\$0	\$5,875,363	\$5,060,842

7.10.3. Financial Plan 2 with Additional Operating and Capital Costs

Table 7-17 shows Financial Plan 2 with funding for the 30-year CIP, MYOP, additional operating expenses, additional MYOP, and additional capital costs. Rate increases needed to meet fiscal targets and requirements are shown on line 1 and applied to the projected baseline revenues in Table 7-5 (line 1) to derive the rate revenues shown on line 2. Interest earnings and other revenues are shown on lines 3 and 4. O&M expenses on line 6 are derived from projected O&M expenses in Table 7-7 and include additional costs from Table 7-15. Existing debt service on lines 8 and 9 are from the annual debt service payments for outstanding debt in Table 7-8. The proposed debt service on line 10 is for debt-financed capital projects and will begin in FY 2030. Cash funded capital projects on line 12 are from the capital financing plan in Table 7-9 and additional costs from Table 7-16. This scenario assumes capital projects are funded with a mix of pay-go and debt financing.

The total revenue requirements on line 13 are a sum of the operating expenses, debt service payments, and cash-funded capital. Net cash flow on line 14 is calculated by subtracting the total revenue requirements from

the total revenues. Net operating revenue on line 20 is equal to total revenues less O&M expenses. The parity lien debt service coverage ratio on line 22 is calculated by dividing the net operating revenue by the parity lien debt service on lines 8 and 10 and is well over the absolute floor debt service coverage ratio of 1.20. Net cash flow is negative in FY 2025 through FY 2028 in Figure 7-10, which means that the Water Fund is using unrestricted cash to fund some of its revenue requirements. The projected ending fund balance with reserves, ending balance less reserves, operating reserve, and capital reserve are shown on lines 16 through 19.

The tables and figures for the first five years are included in this section. The tables and figures for years 6 through 25 are in the Appendix.

Table 7-17: Financial Plan 2 with Additional Operating and Capital Costs

Line No.	Description	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
Revenues						
1	Rate Increase	0%	0%	0%	22%	22%
2	Rate Revenues	\$133,775,046	\$134,042,596	\$134,310,681	\$164,186,749	\$200,708,449
3	Interest Earnings	\$1,275,398	\$1,158,168	\$928,452	\$758,669	\$845,667
4	Other Revenue	\$3,742,000	\$3,742,000	\$3,742,000	\$3,742,000	\$3,742,000
5	Total Revenues	\$138,792,444	\$138,942,764	\$138,981,133	\$168,687,418	\$205,296,117
Revenue Requirements						
6	Operating Expenses	\$90,690,632	\$93,959,789	\$97,494,454	\$106,175,787	\$108,302,899
Debt Service						
7	Existing Debt Service (Parity Lien)	\$21,606,004	\$24,660,956	\$24,651,903	\$24,660,120	\$25,230,562
8	Existing Debt Service (Unsecured)	\$11,071,460	\$11,062,328	\$11,047,941	\$11,041,887	\$11,028,256
9	Proposed Debt Service	\$0	\$0	\$0	\$0	\$0
10	Total Debt Service	\$32,677,464	\$35,723,284	\$35,699,843	\$35,702,007	\$36,258,818
11	Cash Funded Capital	\$18,542,060	\$29,705,200	\$31,514,247	\$35,208,575	\$34,848,754
12	Total Revenue Requirements	\$141,910,156	\$159,388,273	\$164,708,545	\$177,086,369	\$179,410,471
13	Net Cash Flow	(\$3,117,712)	(\$20,445,510)	(\$25,727,412)	(\$8,398,951)	\$25,885,646
14	Beginning Balance with Reserves	\$129,736,340	\$126,618,628	\$106,173,118	\$80,445,707	\$72,046,755
15	Ending Balance with Reserves	\$126,618,628	\$106,173,118	\$80,445,707	\$72,046,755	\$97,932,401
16	Ending Cash Balance less Reserves	\$68,297,330	\$44,967,982	\$14,384,160	\$3,490,893	\$18,595,854
17	Operating Reserve	\$29,816,098	\$30,890,890	\$32,052,971	\$34,907,108	\$35,606,433
18	Capital Reserve	\$28,505,200	\$30,314,247	\$34,008,575	\$33,648,754	\$43,730,114
Debt Coverage Section						
19	Net Operating Revenue	\$48,101,812	\$44,982,975	\$41,486,679	\$62,511,631	\$96,993,218
20	Parity Lien Debt Service Coverage Ratio	2.23	1.82	1.68	2.53	3.84

Notes: Other revenues include service fees, other agency payments, and miscellaneous revenues. The minimum operating target of 120 days of O&M is a policy set by the DOU.

The absolute floor parity lien debt service coverage ratio of 1.20 is required for parity obligation per the water utility’s existing bond covenants.

This financial plan is based on data from FY 2024 instead of the FY 2025 approved budget due to timing.

Figure 7-10 show Financial Plan 2 in a graphical format based on the proforma shown in Table 7-17.

Figure 7-10: Financial Plan 2

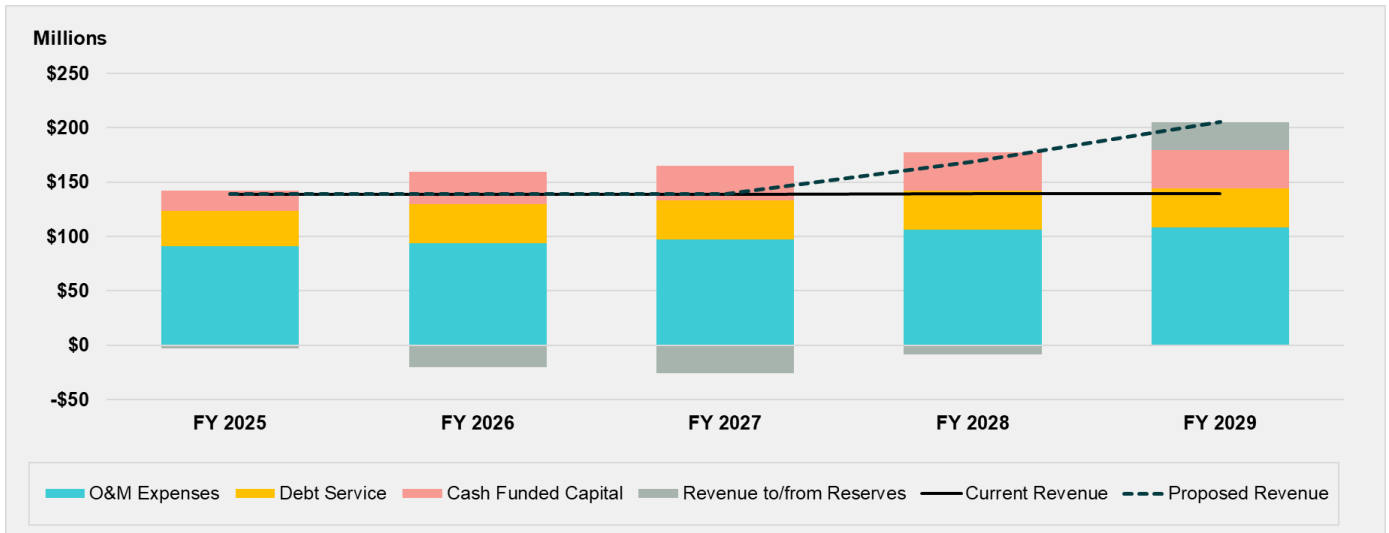


Figure 7-11 shows the financing plan for Financial Plan 2 in graphical format. Capital projects are funded with a mix of debt and cash. Debt funding is used for projects beginning in FY 2030.

Figure 7-11: Financial Plan 2 – Capital Financing Plan

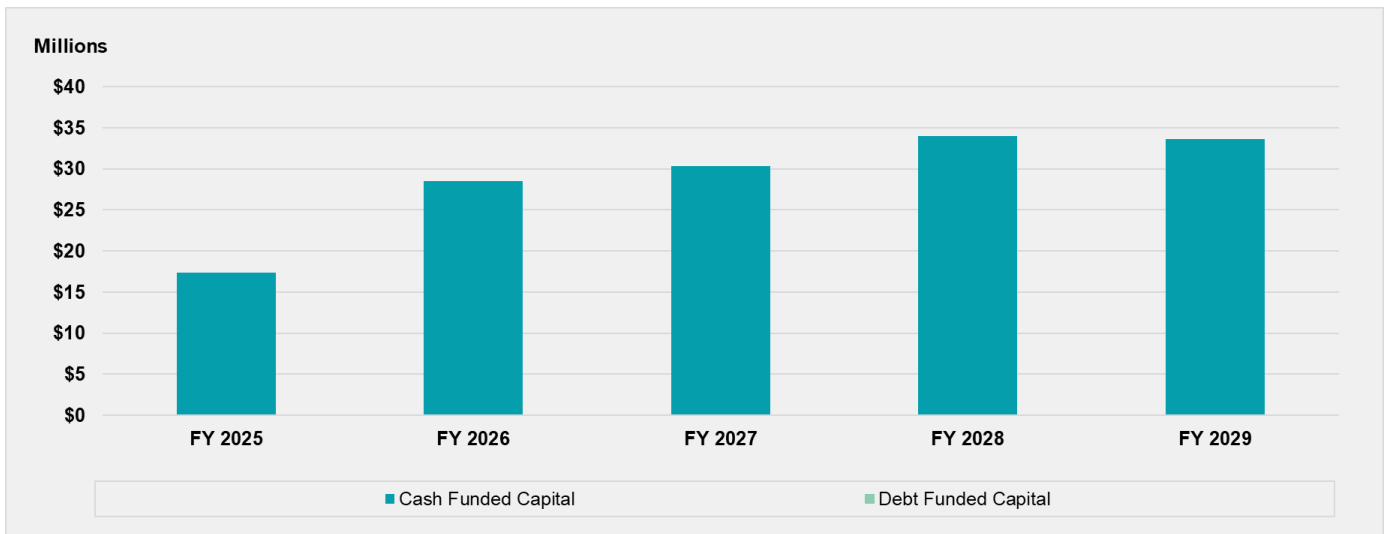


Figure 7-12 shows the water operating funds ending cash balance in comparison to the reserve targets. The ending cash balance exceeds the minimum operating balance and capital reserve targets each year. The minimum operating reserve target is shown with the solid line. The sum of the minimum operating and capital reserve target is shown with the dashed line.

Figure 7-12: Financial Plan 2 – Ending Balances and Reserve Targets

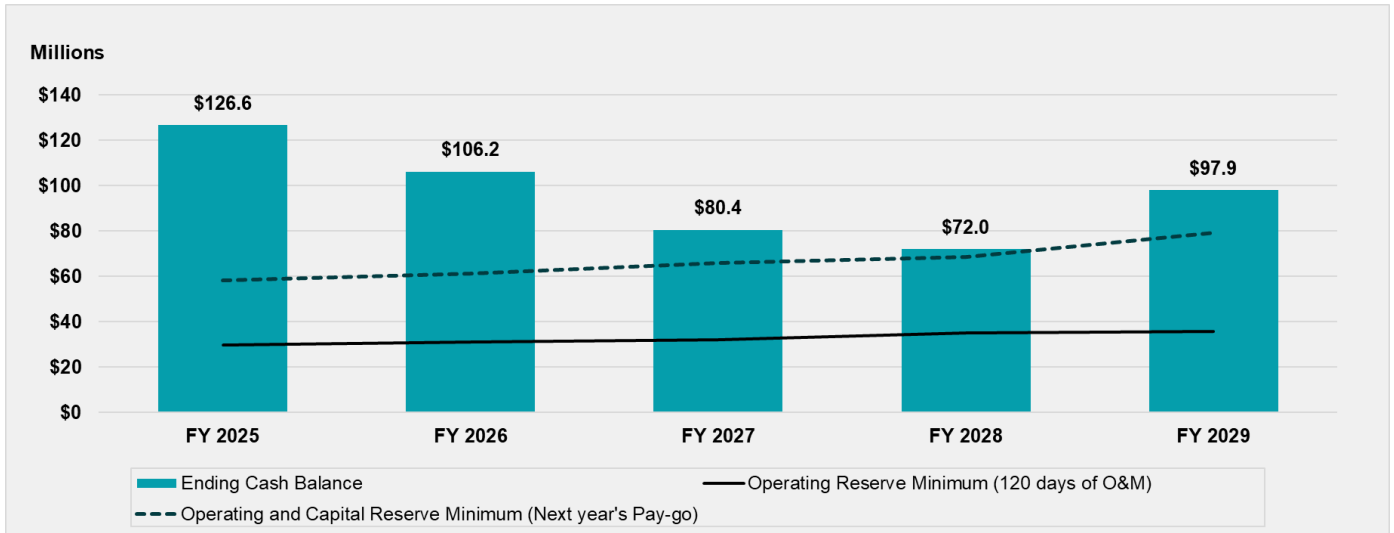


Figure 7-13 shows the calculated parity lien debt service coverage ratio with bars. The required absolute floor parity lien debt service coverage ratio of 1.20 is achieved each year and shown with the black dashed line. Fitch issued an AA- rating for the City’s water utility in 2023. The median debt service coverage ratio for water utilities with a similar rating reported by Fitch is equal to 1.97 and shown with the red solid line. The median reported by S&P Global is equal to 2.00 and is shown with the yellow dotted line.

Figure 7-13: Financial Plan 2 – Debt Service Coverage Ratio

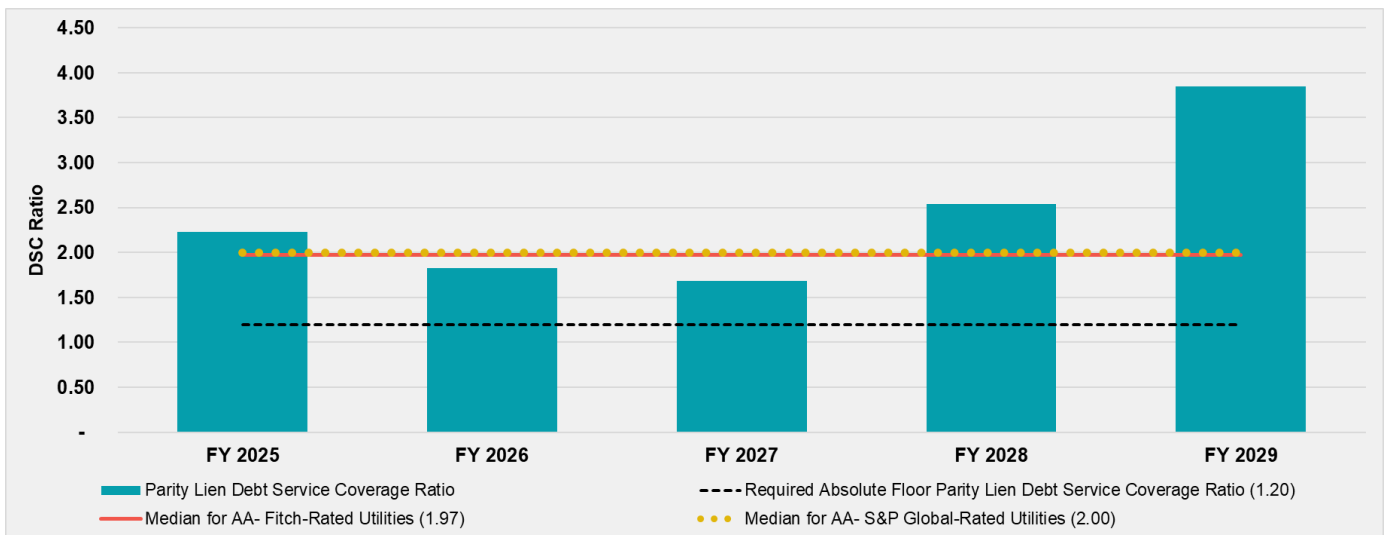


Figure 7-14 shows the days of cash on hand for Financial Plan 2. The ending cash balance is divided by the operating expenses and then divided by 365. It is an indicator of financial flexibility to fund near-term obligations. The median days of cash on hand for water utilities with a similar rating reported by Fitch is equal to 390 days and shown with the red solid line. The median reported by S&P Global is equal to 534 days and is shown with the yellow dotted line. The days of cash on hand for Financial Plan 2 are below the S&P Global median each year and below the Fitch median in FY 2027 through FY 2029.

Figure 7-14: Financial Plan 2 – Days of Cash on Hand

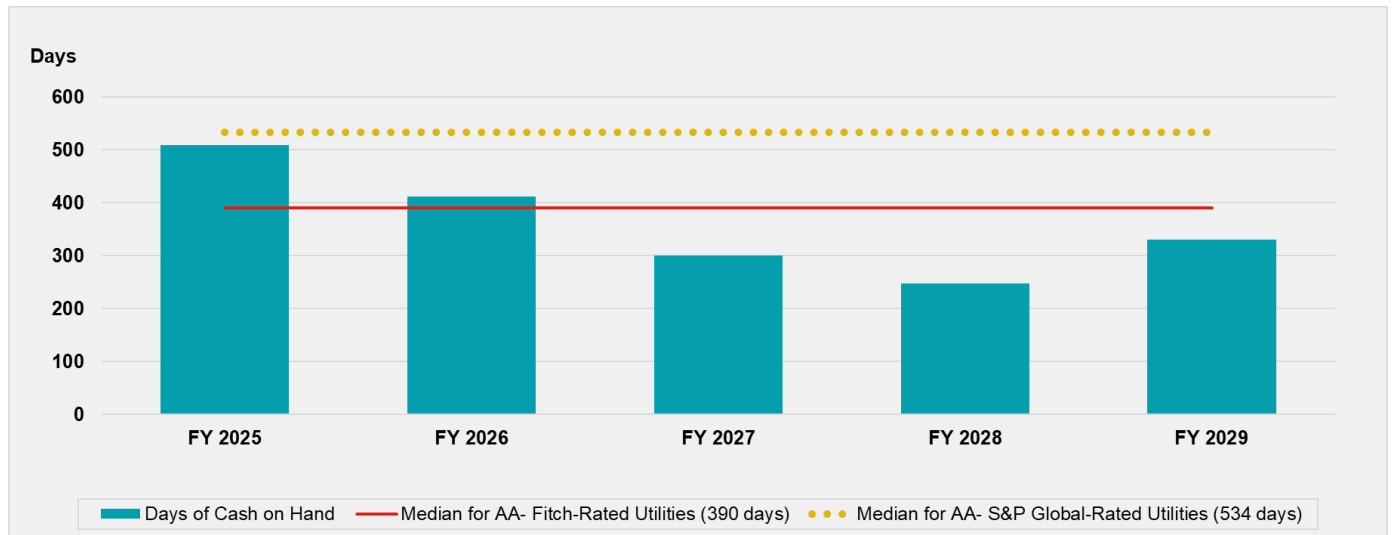
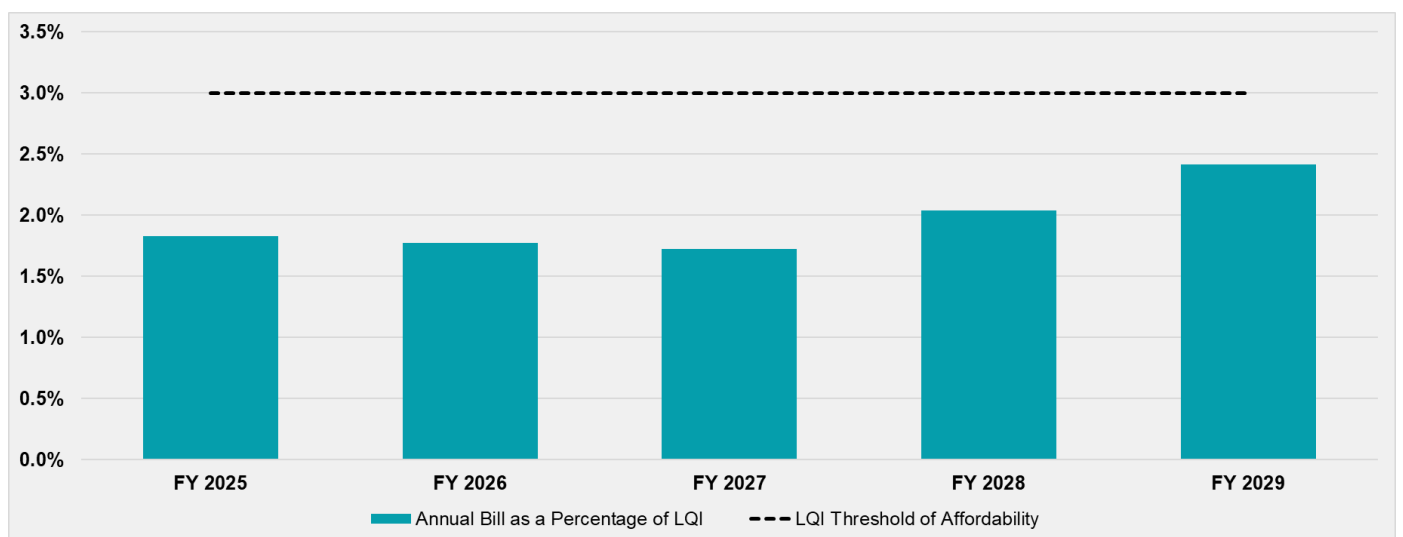


Figure 7-15 shows the annual water bill as a percentage of the LQI. The water bills as a percentage of LQI are below the 3% affordability threshold each year.

Figure 7-15: Financial Plan 2 – Annual Water Bill as Percentage of Lowest Quintile Income



The following are key takeaways for Financial Plan 2:

Key Takeaways for Financial Plan 2 (First Five Years):

- Rate increases are as follows: 0% (FY 2025 through FY 2027) and 22% (FY 2028 and FY 2029).
- The average cash funded capital for the first five years is \$30.0 million annually, which is \$2.5 million more than the average for Financial Plan 1.
- The minimum operating target is achieved each year.
- The minimum capital reserve target is achieved each year except for FY 2029.
- The required absolute floor parity lien debt service coverage ratio is achieved each year.
- Annual water bills as a percentage of LQI remain below the 3% affordability threshold each year.
- The days of cash on hand do not exceed the S&P Global median during the first five years and do not exceed the Fitch median in FY 2027 through FY 2029.

Key Takeaways for Financial Plan 2 (Years 6 through 25):

- Rate increases are as follows: 22% (FY 2030), 5% (FY 2031), 4% (FY 2032 and FY 2033), 3% (FY 2034), and 0% for the remainder of the study period.
- The average cash-funded capital throughout the study period is \$68.7 million annually, which is \$9.2 million more than the average for Financial Plan 1.
- The minimum operating target is achieved each year.
- The minimum capital reserve target is achieved each year.
- The required absolute floor parity lien debt service coverage ratio is achieved each year.
- Annual water bills as a percentage of LQI hit the 3% affordability threshold in FY 2033 and FY 2034 and are below it in other years. It reaches the maximum point of 3.0% in FY 2033 and FY 2034.
- The days of cash on hand exceed the Fitch median for water utilities with an AA- rating beginning in FY 2033 and exceeds the median reported by S&P Global in FY 2035 through the end of the study period.

7.11. Financial Plan 3 with Renewal and Replacement Costs

Raftelis provided additional linear and facilities renewal and replacement costs in Section 5 of this Report. Financial Plan 3 includes everything from Financial Plans 1 and 2 and additional linear facilities renewal and replacement costs. The renewal and replacement costs for linear assets are gradually included in the projections beginning in FY 2028 and are fully included by FY 2031. The renewal and replacement costs for facilities are fully included beginning in FY 2028. The renewal and replacement costs were not escalated beyond the recommended values in Financial Plan 3.

Table 7-18 shows Financial Plan 3 with funding for the 30-year CIP, MYOP, additional operating expenses, additional MYOP, additional capital costs, and the renewal and replacement costs. Rate increases needed to meet fiscal targets and requirements are shown on line 1 and applied to the projected baseline revenues in Table 7-5 (line 1) to derive the rate revenues shown on line 2. Interest earnings and other revenues are shown on lines 3 and 4. O&M expenses on line 6 are derived from projected O&M expenses in Table 7-7 and include additional costs from Table 7-15. Existing debt service on lines 8 and 9 are from the annual debt service payments for outstanding debt in Table 7-8. The proposed debt service on line 10 is for debt-financed capital projects and will begin in FY 2030. Cash funded capital projects on line 12 are from the capital financing plan, additional capital costs, and renewal and replacement costs. This scenario assumes capital projects are funded with a mix of pay-go and debt financing.

The total revenue requirements on line 13 are a sum of the operating expenses, debt service payments, and cash-funded capital. Net cash flow on line 14 is calculated by subtracting the total revenue requirements from the total revenues. Net operating revenue on line 20 is equal to total revenues less O&M expenses. The parity lien debt service coverage ratio on line 22 is calculated by dividing the net operating revenue by the parity lien debt service on lines 8 and 10 and is well over the absolute floor debt service coverage ratio of 1.20. Net cash flow is negative in FY 2025 through FY 2027 in Figure 7-10, which means that the Water Fund is using unrestricted cash to fund some of its revenue requirements. The projected ending fund balance with reserves, ending balance less reserves, operating reserve, and capital reserve are shown on lines 16 through 19.

The tables and figures for the first five years are included in this section. The tables and figures for years 6 through 25 are in the Appendix.

Table 7-18: Financial Plan 3 with Additional Operating, MYOP, Capital, and R/R Costs

Line No.	Description	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
Revenues						
1	Rate Increase	0%	0%	0%	45%	15%
2	Rate Revenues	\$133,775,046	\$134,042,596	\$134,310,681	\$195,139,989	\$224,859,809
3	Interest Earnings	\$1,275,398	\$1,158,168	\$928,452	\$868,985	\$1,132,210
4	Other Revenue	\$3,742,000	\$3,742,000	\$3,742,000	\$3,742,000	\$3,742,000
5	Total Revenues	\$138,792,444	\$138,942,764	\$138,981,133	\$199,750,974	\$229,734,019
Revenue Requirements						
6	Operating Expenses	\$90,690,632	\$93,959,789	\$97,494,454	\$106,175,787	\$108,302,899
Debt Service						
7	Existing Debt Service (Parity Lien)	\$21,606,004	\$24,660,956	\$24,651,903	\$24,660,120	\$25,230,562
8	Existing Debt Service (Unsecured)	\$11,071,460	\$11,062,328	\$11,047,941	\$11,041,887	\$11,028,256
9	Proposed Debt Service	\$0	\$0	\$0	\$0	\$0
10	Total Debt Service	\$32,677,464	\$35,723,284	\$35,699,843	\$35,702,007	\$36,258,818
11	Cash Funded Capital	\$18,542,060	\$29,705,200	\$31,514,247	\$44,098,575	\$46,038,754
12	Total Revenue Requirements	\$141,910,156	\$159,388,273	\$164,708,545	\$185,976,369	\$190,600,471
13	Net Cash Flow	(\$3,117,712)	(\$20,445,510)	(\$25,727,412)	\$13,774,604	\$39,133,548
14	Beginning Balance with Reserves	\$129,736,340	\$126,618,628	\$106,173,118	\$80,445,707	\$94,220,311
15	Ending Balance with Reserves	\$126,618,628	\$106,173,118	\$80,445,707	\$94,220,311	\$133,353,859
16	Ending Cash Balance less Reserves	\$68,297,330	\$44,967,982	\$5,494,160	\$14,474,449	\$40,104,912
17	Operating Reserve	\$29,816,098	\$30,890,890	\$32,052,971	\$34,907,108	\$35,606,433
18	Capital Reserve	\$28,505,200	\$30,314,247	\$42,898,575	\$44,838,754	\$57,642,514
Debt Coverage Section						
19	Net Operating Revenue	\$48,101,812	\$44,982,975	\$41,486,679	\$93,575,187	\$121,431,120
20	Parity Lien Debt Service Coverage Ratio	2.23	1.82	1.68	3.79	4.81

Notes: Other revenues include service fees, other agency payments, and miscellaneous revenues.

The minimum operating target of 120 days of O&M is a policy set by the DOU.

The absolute floor parity lien debt service coverage ratio of 1.20 is required for parity obligation per the water utility’s existing bond covenants.

This financial plan is based on data from FY 2024 instead of the FY 2025 approved budget due to timing.

Figure 7-16 shows Financial Plan 3 in a graphical format based on the proforma shown in Table 7-18.

Figure 7-16: Financial Plan 3

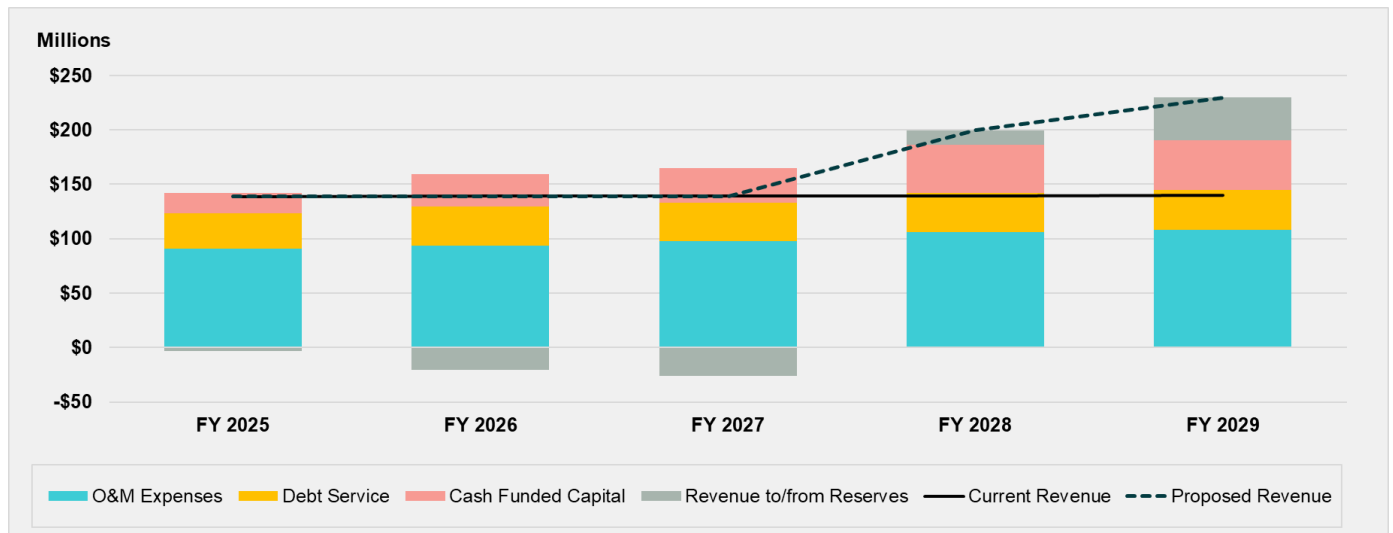


Figure 7-17 shows the financing plan for Financial Plan 3 in graphical format. Capital projects are funded with a mix of debt financing and cash. Debt funding is used for projects beginning in FY 2030.

Figure 7-17: Financial Plan 3 – Capital Financing Plan

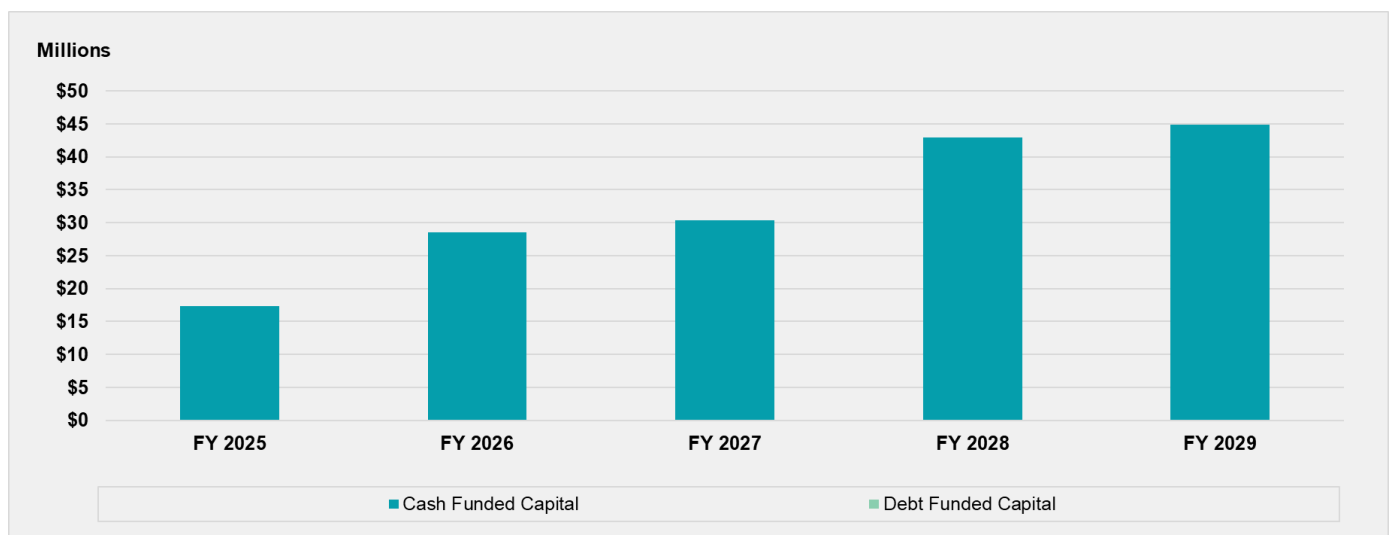


Figure 7-18 shows the water operating funds ending cash balance in comparison to the reserve targets. The ending cash balance exceeds the minimum operating and capital reserve target each year. The minimum operating reserve target is shown with the solid line. The sum of the minimum operating and capital reserve targets is shown with the dashed line.

Figure 7-18: Financial Plan 3 – Ending Balances and Reserve Targets

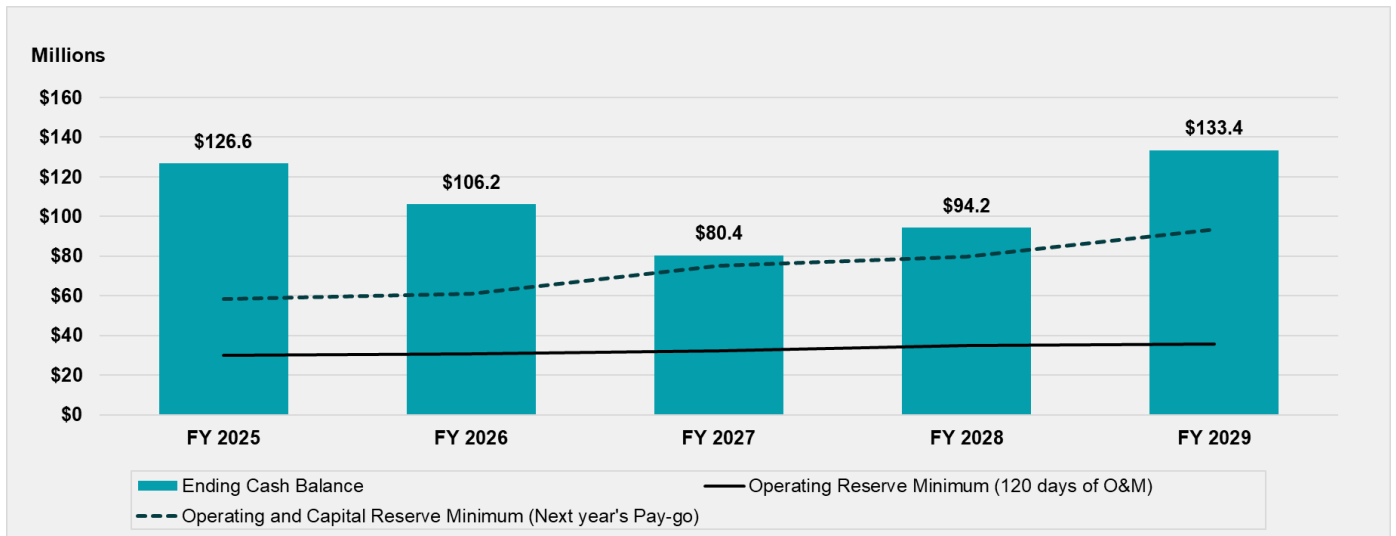


Figure 7-18 shows the calculated parity lien debt service coverage ratio with bars. The required absolute floor parity lien debt service coverage ratio of 1.20 is achieved each year and shown with the black dashed line. Fitch issued an AA- rating for the City’s water utility in 2023. The median debt service coverage ratio for water utilities with a similar rating reported by Fitch is equal to 1.97 and shown with the red solid line. The median reported by S&P Global is equal to 2.00 and is shown with the yellow dotted line.

Figure 7-19: Financial Plan 3 – Debt Service Coverage Ratio

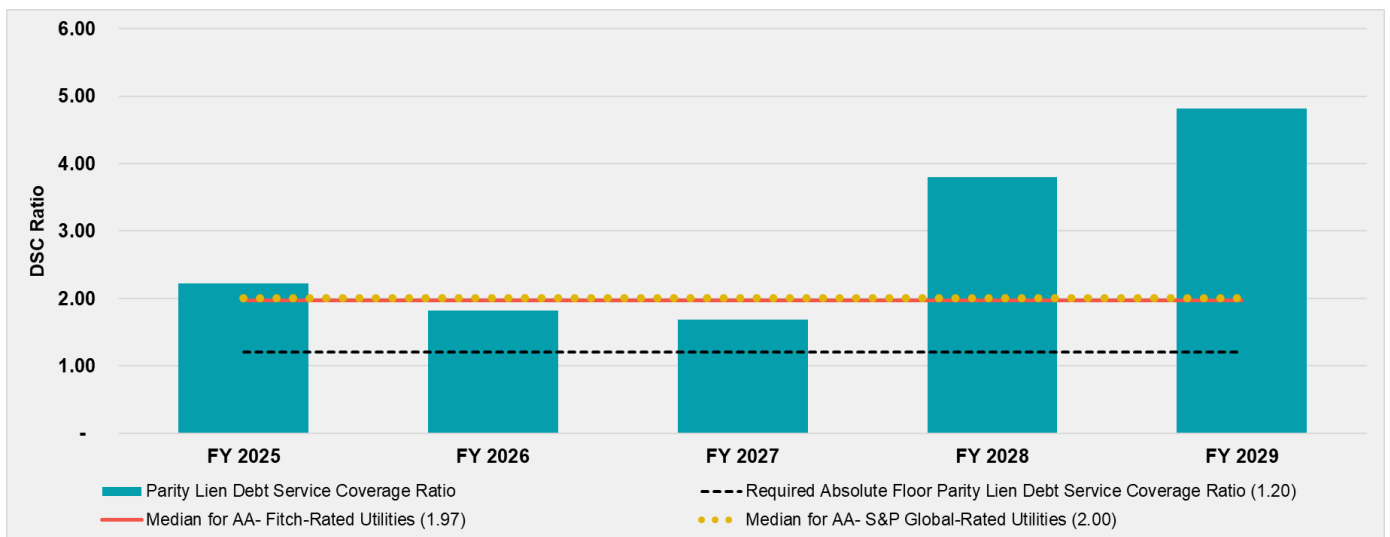


Figure 7-19 shows the days of cash on hand for Financial Plan 3. The ending cash balance is divided by the operating expenses and then divided by 365. It is an indicator of financial flexibility to fund near-term obligations. The median days of cash on hand for water utilities with a similar rating reported by Fitch is equal to 390 days and shown with the red solid line. The median reported by S&P Global is equal to 534 days and is shown with the yellow dotted line. The days of cash on hand for Financial Plan 3 are below the S&P Global median each year and below the Fitch median in FY 2027 and FY 2028.

Figure 7-20: Financial Plan 3 – Days of Cash on Hand

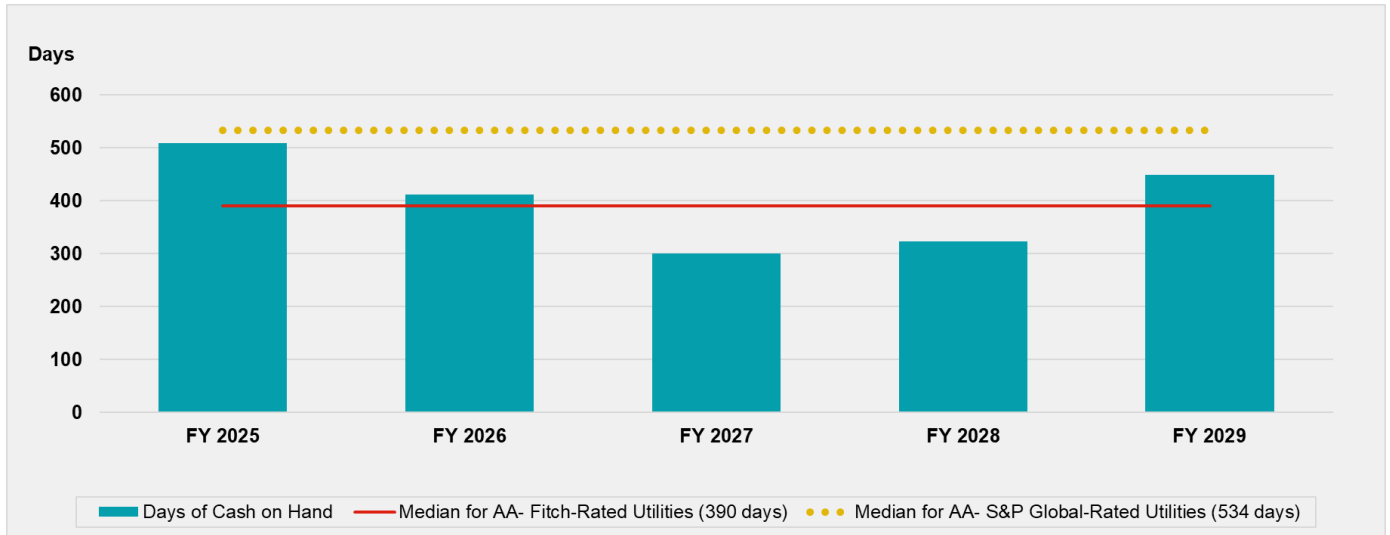
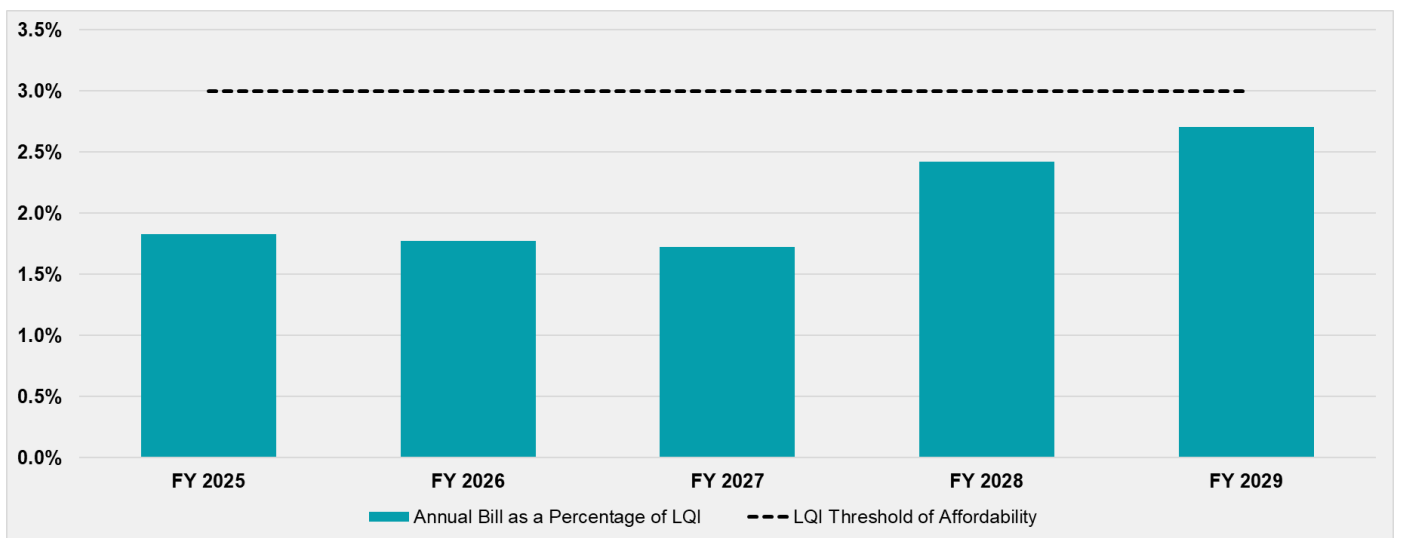


Figure 7-20 shows the annual water bill as a percentage of the LQI. The water bills as a percentage of LQI are below the 3% affordability threshold each year.

Figure 7-21: Financial Plan 3 – Annual Water Bill as Percentage of Lowest Quintile Income



The following are key takeaways for Financial Plan 3:

Key Takeaways for Financial Plan 3 (First Five Years):

- Rate increases are as follows: 0% (FY 2025 through FY 2027), 45% (FY 2028), and 15% (FY 2029).
- The average cash-funded capital for the first five years is \$34.0 million annually, which is \$6.5 million more than the average for Financial Plan 1 and \$4.0 million more than the average for Financial Plan 2.
- The minimum operating target is achieved each year.
- The minimum capital reserve target is achieved each year except for FY 2029.
- The absolute floor parity lien debt service coverage ratio is achieved each year.
- Annual water bills as a percentage of LQI remain below the 3% affordability threshold each year.
- The days of cash on hand do not exceed the S&P Global median during the first five years and do not exceed the Fitch median in FY 2027 through FY 2029.

Key Takeaways for Financial Plan 3 (Years 6 through 25):

- Rate increases are as follows: 12% (FY 2030), 6% (FY 2031), 4% (FY 2032 through FY 2034), and 0% for the remainder of the study period.
- The average cash-funded capital throughout the study period is \$89.2 million annually, which is \$29.7 million more than the average for Financial Plan 1 and \$20.5 million more than the average for Financial Plan 2.
- The minimum operating target is achieved each year.
- The minimum capital reserve target is achieved each year.
- The absolute floor parity lien debt service coverage ratio is achieved each year.
- Annual water bills as a percentage of LQI exceed the 3% affordability threshold in FY 2031 through FY 2035 and is below for the remainder of the study period. It reaches the maximum point of 3.1% in FY 2034.
- The days of cash on hand exceed the Fitch median for water utilities with an AA- rating beginning in FY 2030 and exceeds the median reported by S&P Global in FY 2035 through the end of the study period.

8. Conclusion

The primary objective of this review was to assess the fiscal stability of the Water Fund. An analysis of the status quo consisting of the 30-year CIP and MYOP shows that if the water utility does not implement rate increases, it will not meet its capital reserve target beginning in FY 2028. It will not meet its minimum operating reserve target beginning in FY 2029. It will also not be able to meet its required absolute floor parity lien debt service coverage ratio beginning in FY 2030.

Additionally, the analysis of status quo does not account for the 30-year CIP, MYOPs, additional operating and capital needs, and R/R to efficiently and effectively operate the water utility. About 68% of water assets have 20 years or less of remaining useful life, about 38% have 10 years or less of remaining useful life, and about 9% have 5 years or less of remaining useful life. The current risks of catastrophic water system assets failure appear to be high. DOU has identified \$739.2 million in needed capital investments into the water system infrastructure that have been deferred. Catastrophic failure of the water system could be a major transmission or distribution line breaking, or one of the treatment facilities failing, causing a water outage to large portions of the population. These types of failures are very expensive and can take considerable time to fix, resulting in a significant risk to public health.

Other financial impacts that have and will continue to increase costs are regulatory requirements and increased frequency and severity of weather events. For example, the City will be required to convert its fleet vehicles to zero-emission vehicles (ZEVs) by 2045. It is estimated that the cost of purchasing some vehicles, such as heavy-duty vehicles, could double. Additionally, the City does not currently have sufficient infrastructure in place, such as charging stations, to accommodate the increase in ZEVs. DOU is in the process of determining what the required costs will be, including the limitations of meeting this requirement for heavy excavation equipment and trucks. These costs have not yet been included in the 30-year capital plans prepared for the water system infrastructure but are expected to have a significant financial impact.

The last approved water rate increase took effect in 2020. Thus, a cash flow analysis for three scenarios was completed to determine the projected rate increases necessary for the Water Fund to have sufficient funds to meet the water utility's operating and capital revenue requirements, achieve operating and capital reserve targets, and achieve the absolute floor parity lien debt service coverage ratio²¹ required per debt covenants for a fiscally stable Water Fund. These needed investments will require more capital dollars than currently included in the Water Fund and would make future rate increases necessary. The following tables are summaries comparing the descriptions and proposed rate increases for each scenario. Financial Plan 3 has the highest total of proposed rate increases, 90%, as it is the most wholistic representation of the water utility's operational and capital needs.

²¹ DOU must strive for a coverage ratio that is consistent with the applicable credit rating category for the water and wastewater systems.

Table 8-1: Water Financial Plan Descriptions

Scenario	Description	30-year CIP	MYOP	Additional & Necessary O&M	Additional & Necessary MYOP	Additional & Necessary Capital	Additional & Necessary R/R
1	Financial Plan 1	Yes	Yes	No	No	No	No
2	Financial Plan 2	Yes	Yes	Yes	Yes	Yes	No
3	Financial Plan 3	Yes	Yes	Yes	Yes	Yes	Yes

Table 8-2: Comparison of Projected Water Rate Increases

Fiscal Year	Financial Plan 1	Financial Plan 2	Financial Plan 3
FY 2025	0%	0%	0%
FY 2026	0%	0%	0%
FY 2027	0%	0%	0%
FY 2028	22%	22%	45%
FY 2029	20%	22%	15%
FY 2030	7%	22%	12%
FY 2031	6%	5%	6%
FY 2032	6%	4%	4%
FY 2033	5%	4%	4%
FY 2034 – FY 2049	4% (34, 35)	3% (34)	4% (34)
Total	74%	82%	90%

While the water utility requires rate increases to meet its fiscal requirements to keep the status quo, the results of the three financial planning scenarios demonstrate that additional water rate increases will also be needed to implement the 30-year CIP, MYOP, as well as additional and necessary O&M, MYOP, capital, and R/R. However, we recognize that it may not be feasible to implement the full projected water rate increases in Table 8-2. Therefore, it is likely that the DOU will need to prioritize the most critical, highest-risk, and regulatory projects as full funding for the water utility’s comprehensive needs may not be available.

This analysis and report are primarily based on data provided from FY 2024. There are often differences between actual and projected data. Some of the assumptions used in this report may not be realized, and unanticipated events and circumstances may occur. Therefore, there are likely to be differences between the data or results projected in the report and the actual results achieved. Nevertheless, this report provides valuable information and analysis for the City to consider in its strategic and financial planning for the Water Fund.

APPENDIX:

Tables and Figures for the 25-year Study Period



Wastewater Fund:

Development Impact Fees



Line	Description	FYE 2025	FYE 2026	FYE 2027	FYE 2028	FYE 2029	FYE 2030	FYE 2031	FYE 2032	FYE 2033	FYE 2034	FYE 2035
102	Water Development Impact Fee Fund											
103	Beginning Cash Balance	\$54,693,468	\$55,176,224	\$61,361,397	\$69,394,247	\$78,527,897	\$87,771,773	\$83,950,460	\$47,104,694	\$5,890,478	\$15,488,916	\$25,202,417
104												
105	Sources of Funds											
106	Transfers (to)/from											
107	Cash Funded CIP and CIP Related Expenses (Labor)											
108	Development Impact Fee Revenues	\$5,336,141	\$6,605,384	\$8,382,324	\$9,397,719	\$9,416,514	\$9,435,347	\$9,454,218	\$9,473,127	\$9,492,073	\$9,511,057	\$9,530,079
109	Miscellaneous Revenues											
110	Interest Income	\$546,615	\$579,789	\$650,526	\$735,931	\$827,362	\$854,339	\$652,016	\$263,658	\$106,365	\$202,444	\$299,675
111	Capacity Fees											
112	Total - Source of Funds	\$5,882,756	\$7,185,173	\$9,032,850	\$10,133,650	\$10,243,876	\$10,289,687	\$10,106,234	\$9,736,784	\$9,598,438	\$9,713,501	\$9,829,754
113												
114	Use of Funds											
115	Water CIP	\$5,400,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$14,111,000	\$46,952,000	\$50,951,000	\$0	\$0	\$0
116	Total - Use of Funds	\$5,400,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$14,111,000	\$46,952,000	\$50,951,000	\$0	\$0	\$0
117												
118	Net Cash Balance	\$482,756	\$6,185,173	\$8,032,850	\$9,133,650	\$9,243,876	(\$3,821,313)	(\$36,845,766)	(\$41,214,216)	\$9,598,438	\$9,713,501	\$9,829,754
119												
120	Ending Balances	\$55,176,224	\$61,361,397	\$69,394,247	\$78,527,897	\$87,771,773	\$83,950,460	\$47,104,694	\$5,890,478	\$15,488,916	\$25,202,417	\$35,032,171

Line	Description	FYE 2036	FYE 2037	FYE 2038	FYE 2039	FYE 2040	FYE 2041	FYE 2042	FYE 2043	FYE 2044	FYE 2045	FYE 2046	FYE 2047	FYE 2048	FYE 2049
102	Water Development Impact Fee Fund														
103	Beginning Cash Balance	\$35,032,171	\$7,864,727	\$9,870,199	\$3,294,066	\$8,961,589	\$18,222,595	\$28,098,060	\$38,091,665	\$48,204,632	\$58,438,193	\$68,793,592	\$79,272,087	\$89,874,948	\$100,603,459
104															
105	Sources of Funds														
106	Transfers (to)/from														
107	Cash Funded CIP and CIP Related Expenses (Labor)														
108	Development Impact Fee Revenues	\$9,549,139	\$9,568,238	\$9,587,374	\$9,606,549	\$9,625,762	\$9,645,013	\$9,664,303	\$9,683,632	\$9,702,999	\$9,722,405	\$9,741,850	\$9,761,334	\$9,780,856	\$9,800,418
109	Miscellaneous Revenues	\$213,417	\$88,233	\$65,494	\$60,973	\$135,245	\$230,451	\$329,302	\$429,335	\$530,561	\$632,994	\$736,645	\$841,528	\$947,654	\$1,055,037
110	Interest Income														
111	Capacity Fees														
112	Total - Source of Funds	\$9,762,557	\$9,656,471	\$9,652,868	\$9,667,522	\$9,761,007	\$9,875,464	\$9,993,606	\$10,112,967	\$10,233,561	\$10,355,399	\$10,478,495	\$10,602,861	\$10,728,510	\$10,855,455
113															
114	Use of Funds														
115	Water CIP	\$36,930,000	\$7,651,000	\$16,229,000	\$4,000,000	\$500,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
116	Total - Use of Funds	\$36,930,000	\$7,651,000	\$16,229,000	\$4,000,000	\$500,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
117															
118	Net Cash Balance	(\$27,167,443)	\$2,005,471	(\$6,576,132)	\$5,667,522	\$9,261,007	\$9,875,464	\$9,993,606	\$10,112,967	\$10,233,561	\$10,355,399	\$10,478,495	\$10,602,861	\$10,728,510	\$10,855,455
119															
120	Ending Balances	\$7,864,727	\$9,870,199	\$3,294,066	\$8,961,589	\$18,222,595	\$28,098,060	\$38,091,665	\$48,204,632	\$58,438,193	\$68,793,592	\$79,272,087	\$89,874,948	\$100,603,459	\$111,458,914

Water Development Impact Fee Fund Ending Cash Balance

Millions

\$120

\$100

\$80

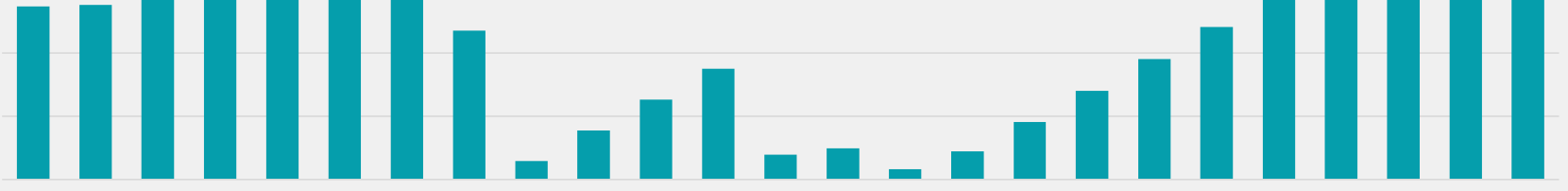
\$60

\$40

\$20

\$0

FY 2025 FY 2026 FY 2027 FY 2028 FY 2029 FY 2030 FY 2031 FY 2032 FY 2033 FY 2034 FY 2035 FY 2036 FY 2037 FY 2038 FY 2039 FY 2040 FY 2041 FY 2042 FY 2043 FY 2044 FY 2045 FY 2046 FY 2047 FY 2048 FY 2049



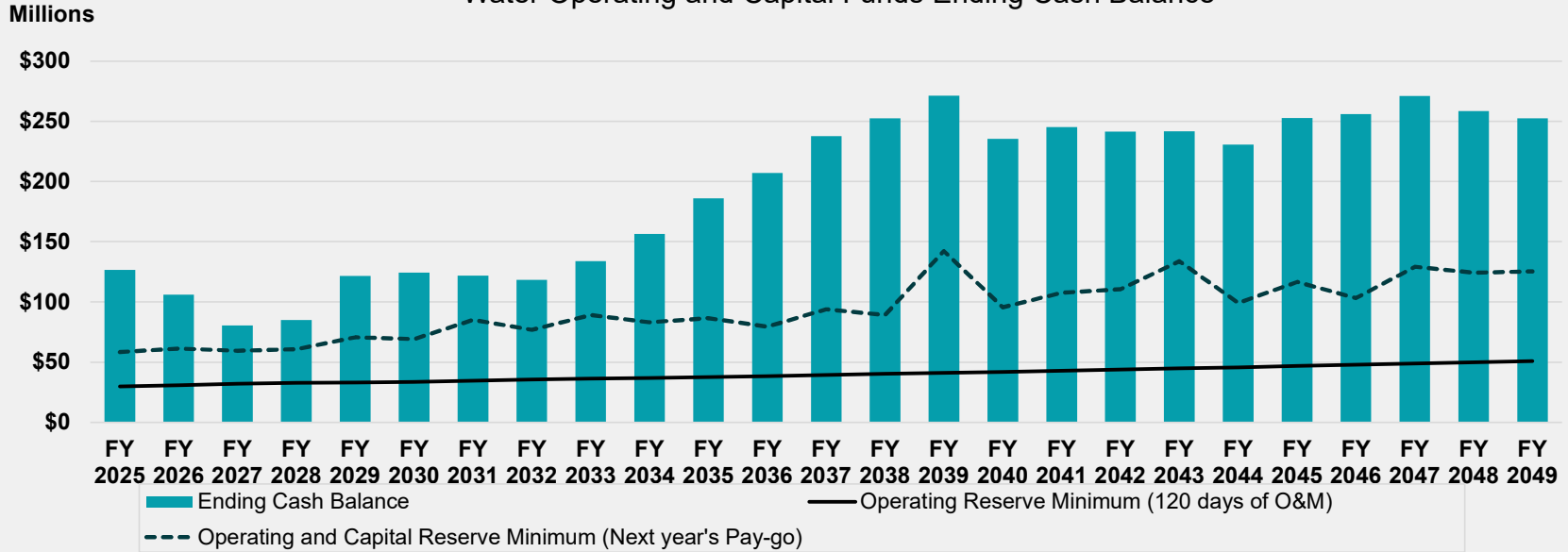
Water Fund:

Financial Plan 1

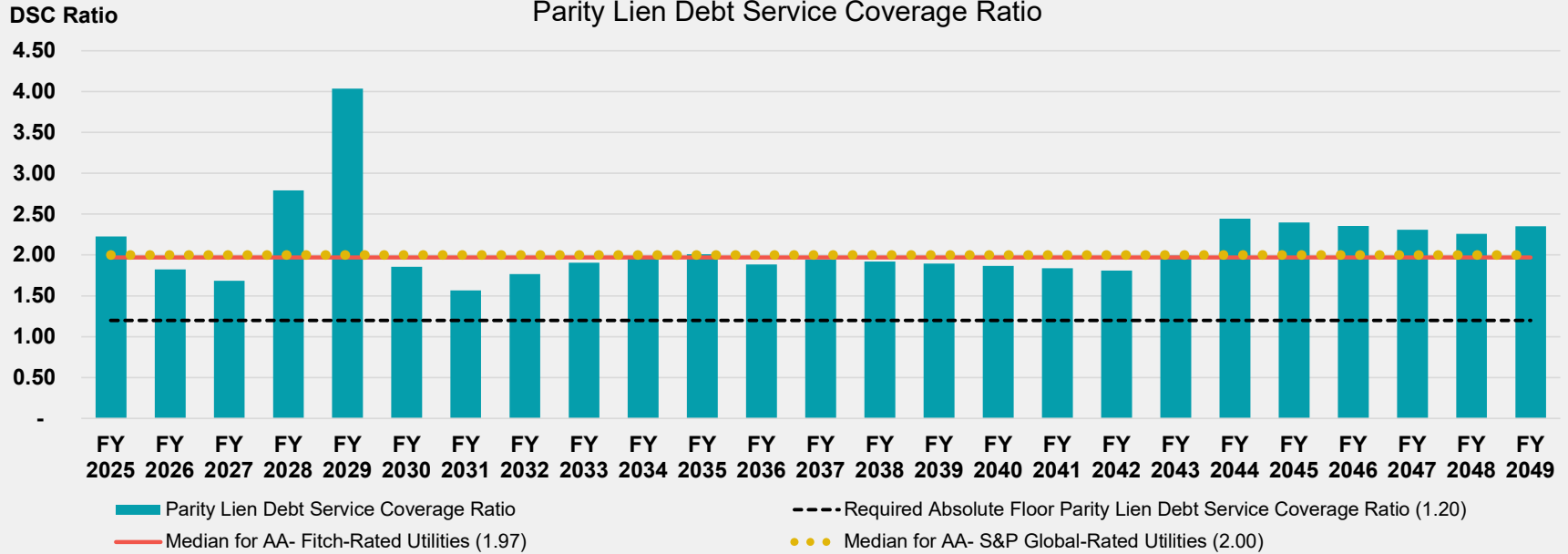


Cash Flow		FYE 2036	FYE 2037	FYE 2038	FYE 2039	FYE 2040	FYE 2041	FYE 2042	FYE 2043	FYE 2044	FYE 2045	FYE 2046	FYE 2047	FYE 2048	FYE 2049
1	POTABLE WATER REVENUE														
2	Rate Revenue from Existing Rates	\$136,747,705	\$137,021,200	\$137,295,242	\$137,569,833	\$137,844,973	\$138,120,663	\$138,396,904	\$138,673,698	\$138,951,045	\$139,228,947	\$139,507,405	\$139,786,420	\$140,065,993	\$140,346,125
3	Proposed Revenue Adjustments														
4															
5															
6	Fiscal Year	Revenues	Months	Months											
7	Adjustment	Effective	Effective												
8	FYE 2024	0.0%	July 12		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
9	FYE 2025	0.0%	July 12		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
10	FYE 2026	0.0%	July 12		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
11	FYE 2027	0.0%	July 12		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
12	FYE 2028	22.0%	July 12		\$30,084,495	\$30,144,664	\$30,204,953	\$30,265,363	\$30,325,894	\$30,386,546	\$30,447,319	\$30,508,213	\$30,569,230	\$30,630,368	\$30,691,629
13	FYE 2029	20.0%	July 12		\$33,366,440	\$33,433,173	\$33,500,039	\$33,567,039	\$33,634,173	\$33,701,442	\$33,768,845	\$33,836,382	\$33,904,055	\$33,971,863	\$34,039,807
14	FYE 2030	7.0%	July 12		\$14,013,905	\$14,041,933	\$14,070,016	\$14,098,156	\$14,126,353	\$14,154,605	\$14,182,915	\$14,211,281	\$14,239,703	\$14,268,183	\$14,296,719
15	FYE 2031	6.0%	July 12		\$12,852,753	\$12,878,458	\$12,904,215	\$12,930,024	\$12,955,884	\$12,981,795	\$13,007,759	\$13,033,774	\$13,059,842	\$13,085,962	\$13,112,134
16	FYE 2032	6.0%	July 12		\$13,623,918	\$13,651,166	\$13,678,468	\$13,705,825	\$13,733,237	\$13,760,703	\$13,788,224	\$13,815,801	\$13,843,433	\$13,871,119	\$13,898,862
17	FYE 2033	5.0%	July 12		\$12,034,461	\$12,058,530	\$12,082,647	\$12,106,812	\$12,131,026	\$12,155,288	\$12,179,598	\$12,203,957	\$12,228,365	\$12,252,822	\$12,277,328
18	FYE 2034	4.0%	July 12		\$10,108,947	\$10,129,165	\$10,149,423	\$10,169,722	\$10,190,062	\$10,210,442	\$10,230,863	\$10,251,324	\$10,271,827	\$10,292,371	\$10,312,955
19	FYE 2035	4.0%	July 12		\$10,513,305	\$10,534,332	\$10,555,400	\$10,576,511	\$10,597,664	\$10,618,859	\$10,640,097	\$10,661,377	\$10,682,700	\$10,704,065	\$10,725,474
20	FYE 2036	0.0%	July 12		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
21	FYE 2037	0.0%	July 12		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
22	FYE 2038	0.0%	July 12		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
23	FYE 2039	0.0%	July 12		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
24	FYE 2040	0.0%	July 12		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
25	FYE 2041	0.0%	July 12		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
26	FYE 2042	0.0%	July 12		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
27	FYE 2043	0.0%	July 12		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
28	FYE 2044	0.0%	July 12		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
29	FYE 2045	0.0%	July 12		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
30	FYE 2046	0.0%	July 12		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
31	FYE 2047	0.0%	July 12		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
32	FYE 2048	0.0%	July 12		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
33	FYE 2049	0.0%	July 12		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
34	Total Revenue Adjustments	\$126,084,918	\$126,337,088	\$126,589,762	\$126,842,942	\$127,096,627	\$127,350,821	\$127,605,522	\$127,860,733	\$128,116,455	\$128,372,688	\$128,629,433	\$128,886,692	\$129,144,465	\$129,402,754
35	Rate Revenue (including Revenue Adjustments)	\$262,832,623	\$263,358,288	\$263,885,004	\$264,412,774	\$264,941,600	\$265,471,483	\$266,002,426	\$266,534,431	\$267,067,500	\$267,601,635	\$268,136,838	\$268,673,112	\$269,210,458	\$269,748,879
36	Interest Earnings	\$1,955,943	\$2,211,843	\$2,438,132	\$2,606,495	\$2,522,572	\$2,392,633	\$2,421,808	\$2,403,693	\$2,349,461	\$2,405,216	\$2,532,126	\$2,623,492	\$2,635,621	\$2,543,076
37	Other Revenue	\$3,742,000	\$3,742,000	\$3,742,000	\$3,742,000	\$3,742,000	\$3,742,000	\$3,742,000	\$3,742,000	\$3,742,000	\$3,742,000	\$3,742,000	\$3,742,000	\$3,742,000	\$3,742,000
38	TOTAL REVENUE	\$268,530,566	\$269,312,131	\$270,065,136	\$270,761,270	\$271,206,172	\$271,606,116	\$272,166,234	\$272,680,124	\$273,158,961	\$273,748,851	\$274,410,964	\$275,038,604	\$275,588,079	\$276,033,955
39	O&M EXPENSES														
40	Water Operating Expenses	\$117,006,005	\$119,614,010	\$122,231,637	\$124,863,514	\$127,541,294	\$130,308,385	\$133,174,106	\$136,082,813	\$139,048,630	\$142,078,502	\$145,181,319	\$148,360,909	\$151,614,030	\$154,936,312
41	Additional Expenditures Identified by the City														
42	FTE Expenditures	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
43	Additional Operating from the Divisions	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
44	TOTAL O&M EXPENSES	\$117,006,005	\$119,614,010	\$122,231,637	\$124,863,514	\$127,541,294	\$130,308,385	\$133,174,106	\$136,082,813	\$139,048,630	\$142,078,502	\$145,181,319	\$148,360,909	\$151,614,030	\$154,936,312
45															
46	DEBT SERVICE														
47	Existing Debt Service - Senior Lien	\$28,914,597	\$25,595,761	\$25,549,141	\$25,493,013	\$25,445,955	\$25,391,949	\$25,340,427	\$17,101,488	\$3,374,406	\$3,375,688	\$3,374,225	\$3,374,625	\$3,376,363	\$0
48	Existing Debt Service - Subordinate	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
49	Proposed Debt Service	\$51,507,225	\$51,507,225	\$51,507,225	\$51,507,225	\$51,507,225	\$51,507,225	\$51,507,225	\$51,507,225	\$51,507,225	\$51,507,225	\$51,507,225	\$51,507,225	\$51,507,225	\$51,507,225
50	TOTAL DEBT SERVICE	\$80,421,823	\$77,102,987	\$77,056,366	\$77,000,238	\$76,953,180	\$76,899,174	\$76,847,652	\$68,608,713	\$64,881,631	\$64,882,913	\$64,881,450	\$64,881,850	\$64,883,588	\$61,507,225
51															
52	Transfers (from)to														
53	Cash Funded Capital	\$50,159,594	\$42,102,475	\$55,785,716	\$50,047,834	\$102,429,904	\$54,798,180	\$65,880,635	\$67,893,651	\$90,224,160	\$54,585,322	\$71,041,316	\$56,738,245	\$81,710,050	\$75,572,403
54	Total Revenue Requirements	\$247,587,422	\$238,819,472	\$265,073,719	\$251,911,586	\$306,924,379	\$262,005,739	\$275,902,393	\$272,585,177	\$284,154,422	\$251,546,737	\$271,104,085	\$259,981,004	\$288,207,668	\$282,015,940
55	NET CASH FLOW	\$20,943,144	\$30,492,658	\$14,991,417	\$18,849,684	(\$35,718,206)	\$9,600,377	(\$3,736,159)	\$94,947	(\$10,995,461)	\$22,202,114	\$3,306,880	\$16,057,599	(\$12,619,588)	(\$5,981,985)
56															
57															
58	TOTAL BEGINNING CASH BALANCE WITH RESERVES	\$186,100,732	\$207,043,876	\$237,536,534	\$252,527,951	\$271,377,635	\$235,659,429	\$245,259,806	\$241,623,647	\$241,618,594	\$230,623,133	\$252,825,247	\$256,132,127	\$271,189,726	\$258,570,138
59	ENDING CASH BALANCE INCLUDING RESERVES	\$207,043,876	\$237,536,534	\$252,527,951	\$271,377,635	\$235,659,429	\$245,259,806	\$241,623,647	\$241,618,594	\$230,623,133	\$252,825,247	\$256,132,127	\$271,189,726	\$258,570,138	\$252,588,153
60	Ending Cash Balance	\$127,673,673	\$143,625,664	\$163,494,373	\$129,096,712	\$140,129,864	\$137,738,057	\$131,046,729	\$107,854,879	\$131,523,193	\$136,273,191	\$152,863,038	\$141,903,487	\$134,352,027	\$127,277,785
61	Operating Reserve	\$38,467,728	\$39,325,154	\$40,185,744	\$41,051,018	\$41,931,384	\$42,841,113	\$43,783,268	\$44,739,555	\$45,714,618	\$46,710,740	\$47,730,845	\$48,776,189	\$49,845,708	\$50,937,966
62	Capital Reserve	\$40,902,475	\$54,585,716	\$48,847,834	\$101,229,904	\$53,598,180	\$64,680,635	\$66,693,651	\$89,024,160	\$53,385,322	\$69,841,316	\$55,538,245	\$80,510,050	\$74,372,403	\$74,372,403
63															
64	<i>Minimum Operating Reserve Target Met?</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
65	<i>Minimum Capital Reserve Target Met?</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
66															
67															
68	DEBT COVERAGE														
69	Net Operating Revenue	\$151,524,561	\$149,698,120	\$147,833,499	\$145,897,756	\$143,664,878	\$141,297,731	\$138,992,129	\$136,597,311	\$134,110,331	\$131,670,349	\$129,229,646	\$126,677,694	\$123,974,050	\$121,097,643
70	Parity Lien Debt Service Coverage Ratio	1.88	1.94	1.92	1.89	1.87	1.84	1.81	1.99	2.44	2.40	2.35	2.31	2.26	2.35
71	Required Absolute Floor Parity Lien Debt														

Water Operating and Capital Funds Ending Cash Balance

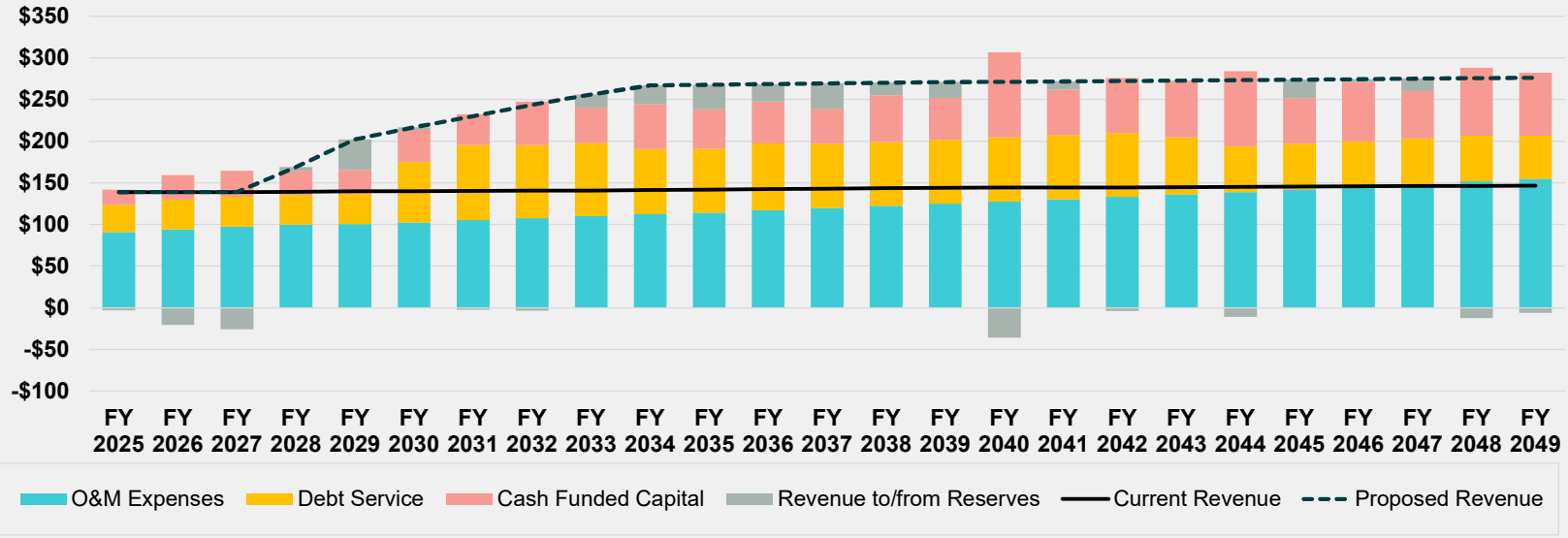


Parity Lien Debt Service Coverage Ratio



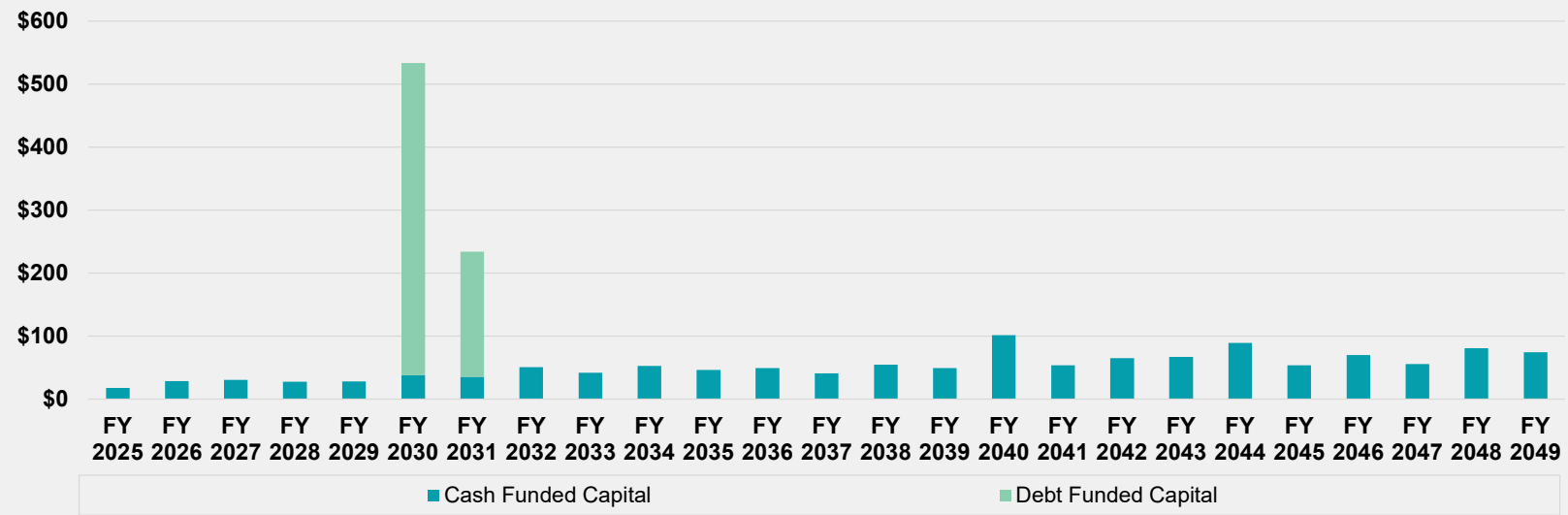
Millions

Water Financial Plan

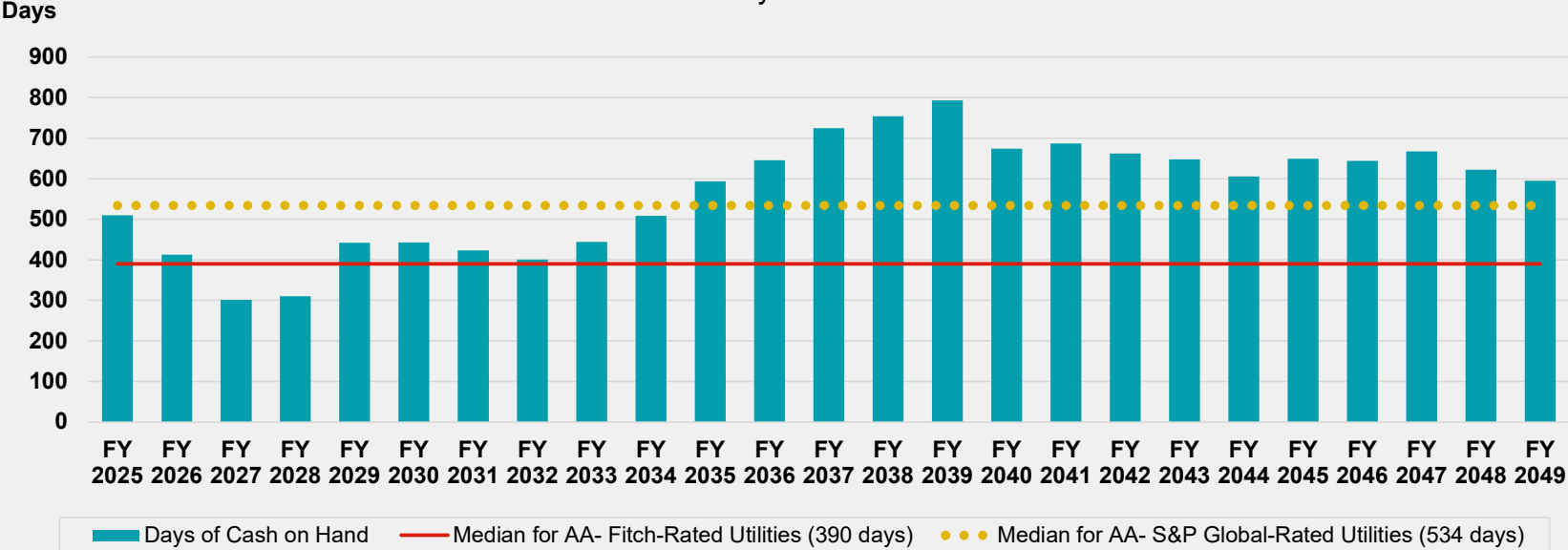


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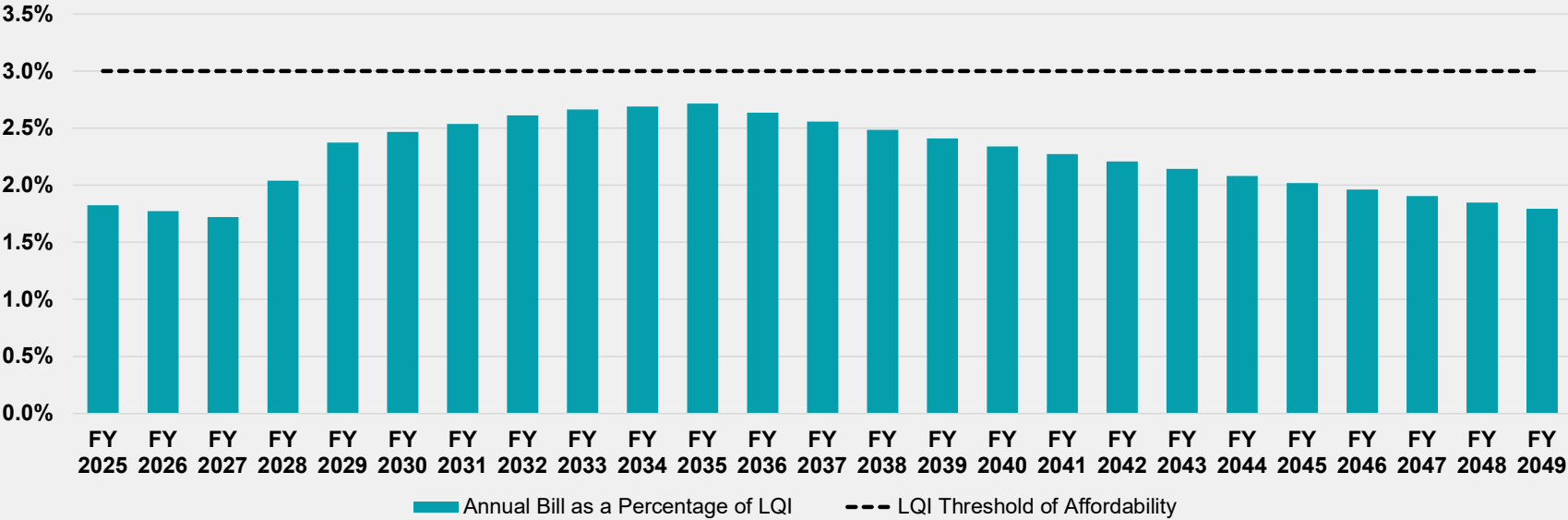
Capital Financing Plan



Days of Cash on Hand



Annual Water Bill as Percentage of Lowest Quintile Income



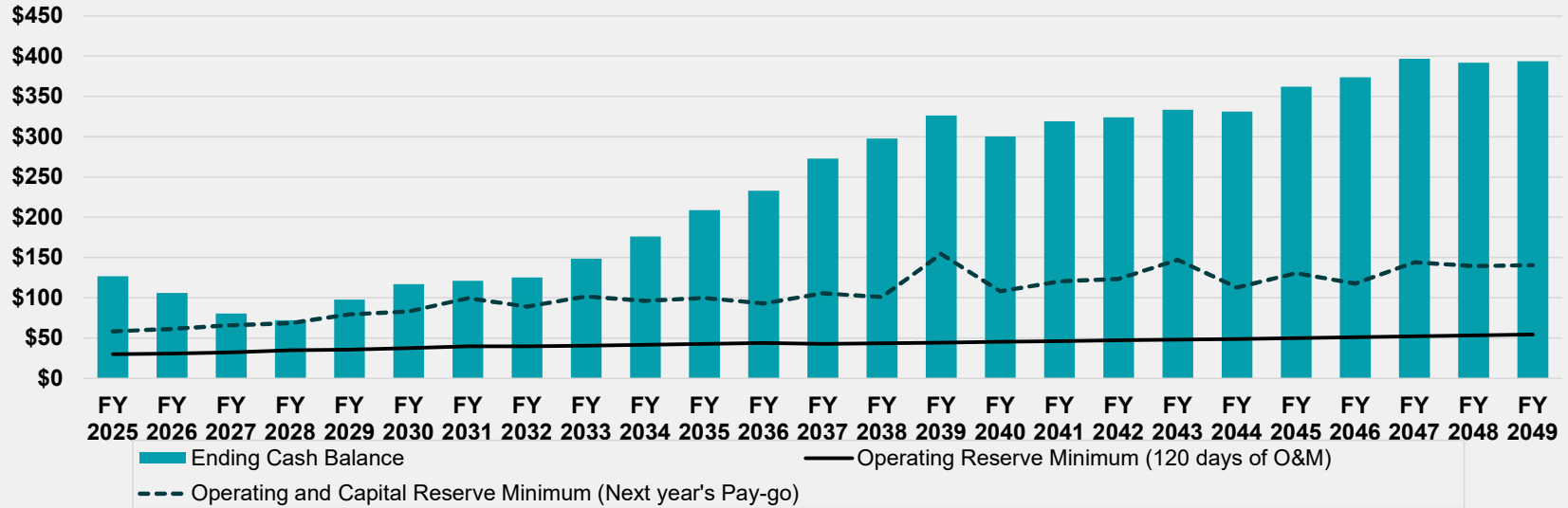
Water Fund:

Financial Plan 2



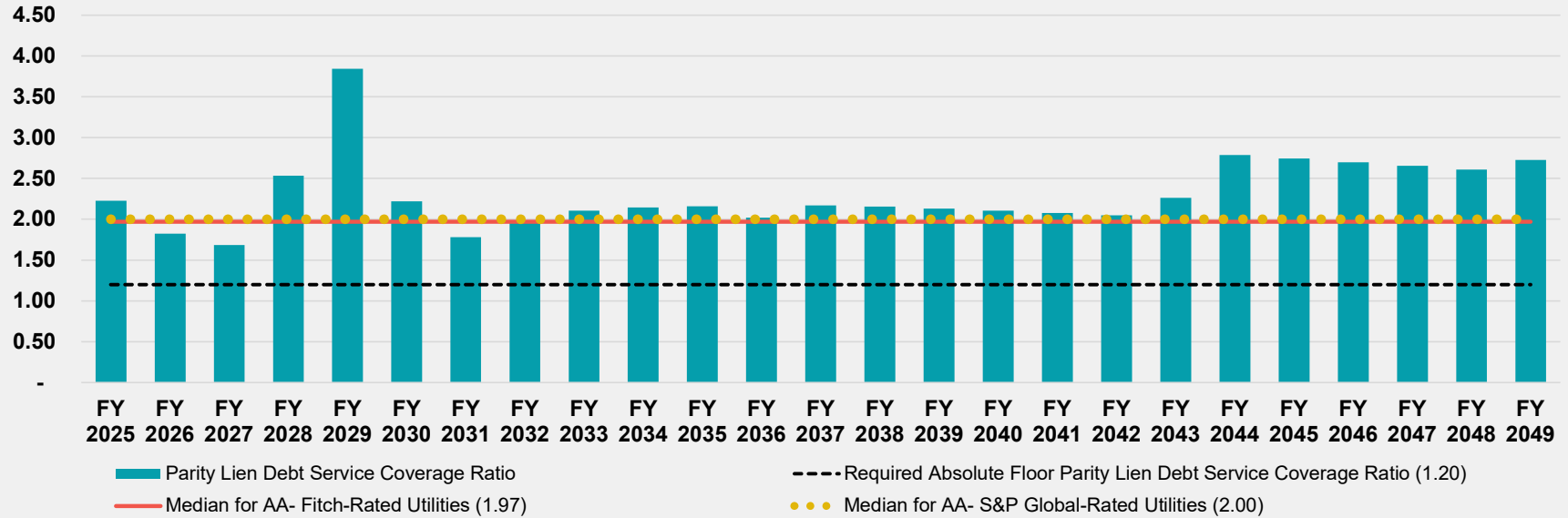
Water Operating and Capital Funds Ending Cash Balance

Millions



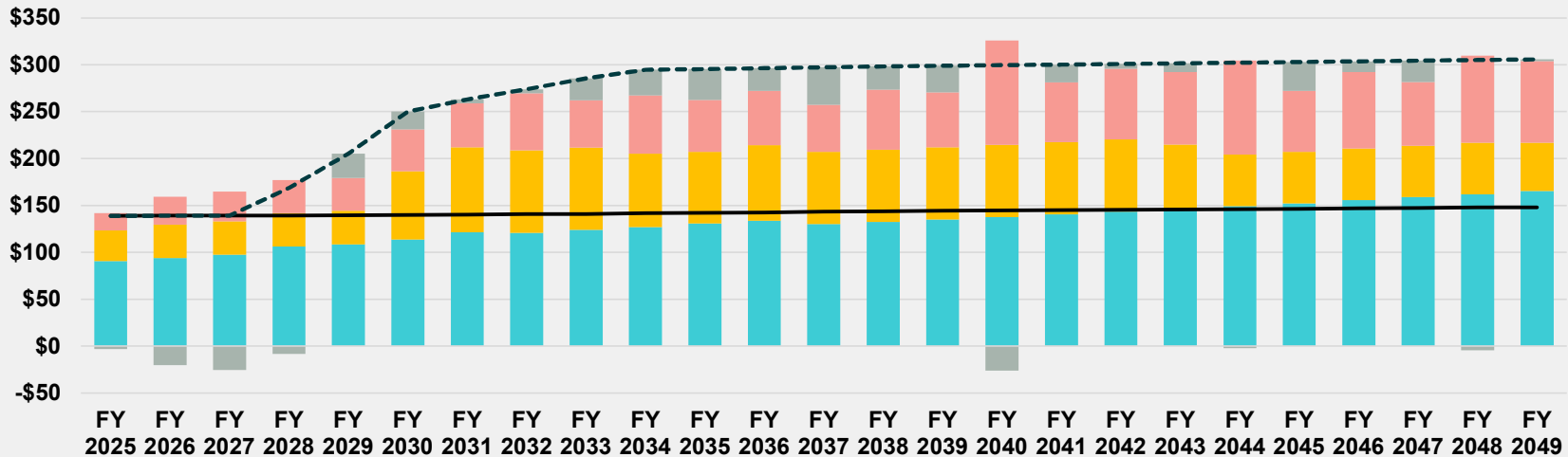
Parity Lien Debt Service Coverage Ratio

DSC Ratio



Millions

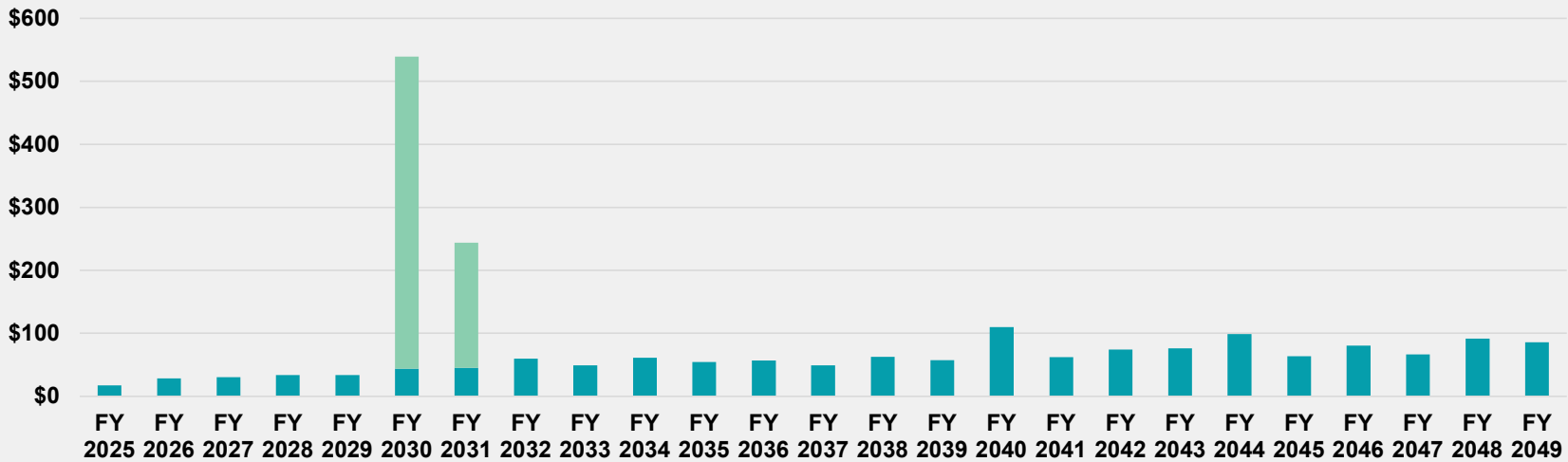
Water Financial Plan



Legend: O&M Expenses (Cyan), Debt Service (Yellow), Cash Funded Capital (Pink), Revenue to/from Reserves (Grey), Current Revenue (Solid Black Line), Proposed Revenue (Dashed Black Line)

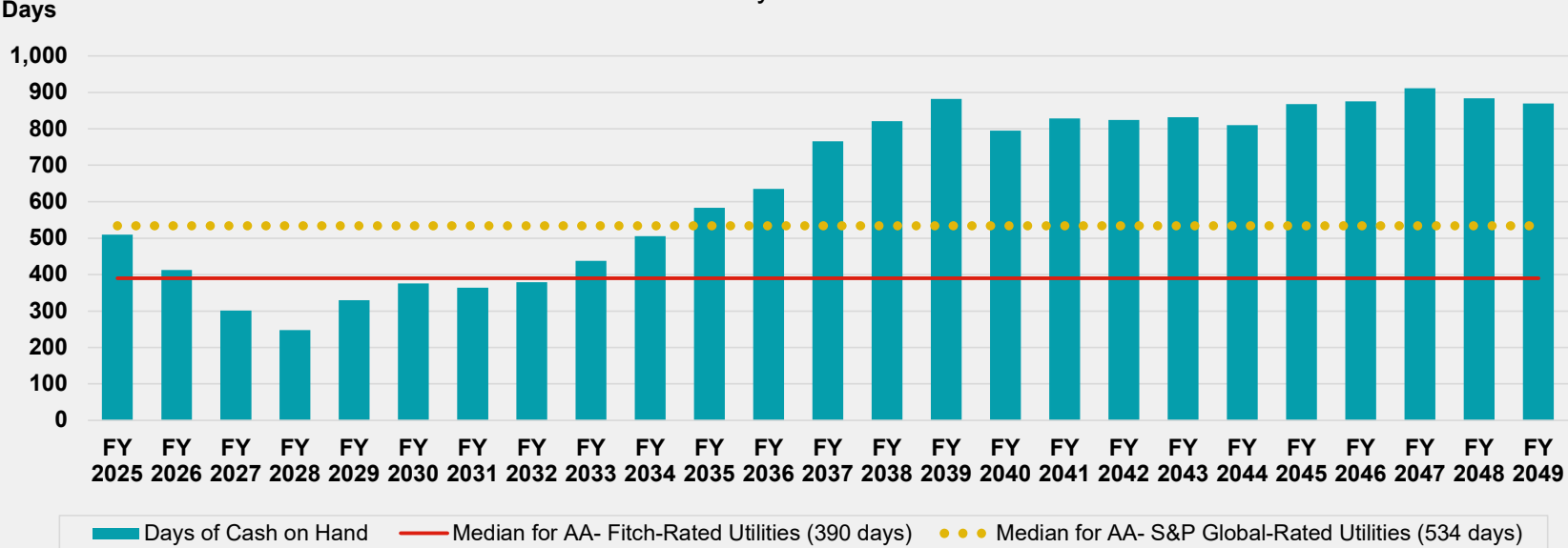
Millions

Capital Financing Plan

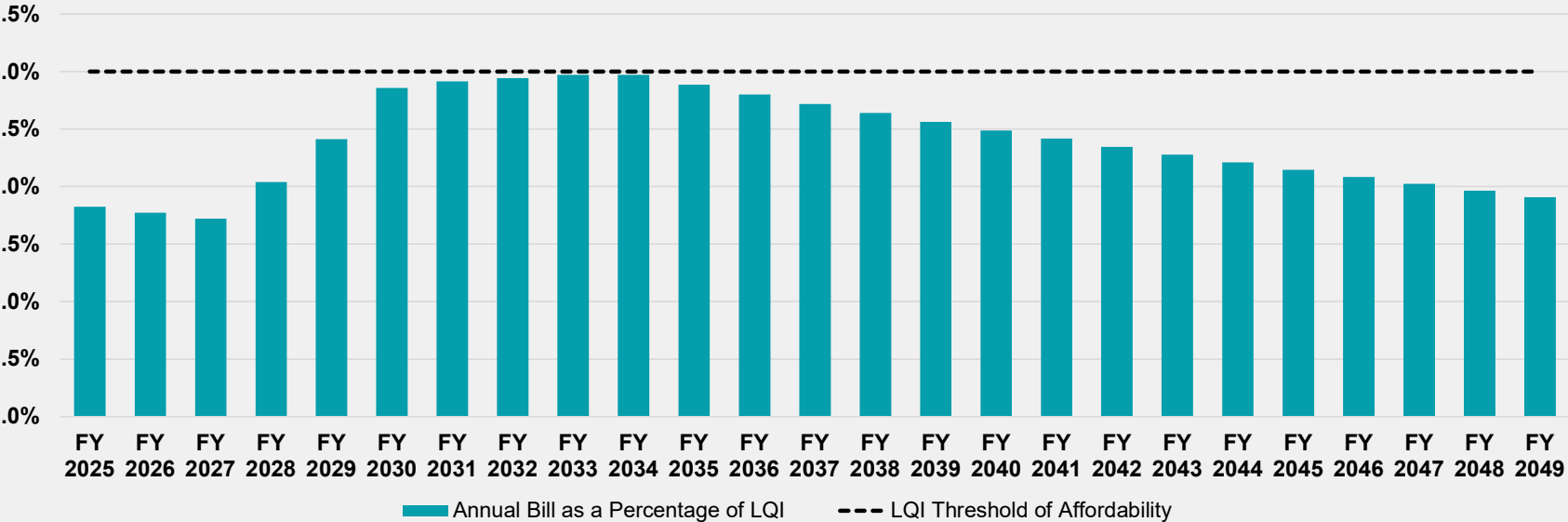


Legend: Cash Funded Capital (Cyan), Debt Funded Capital (Light Green)

Days of Cash on Hand



Annual Water Bill as Percentage of Lowest Quintile Income

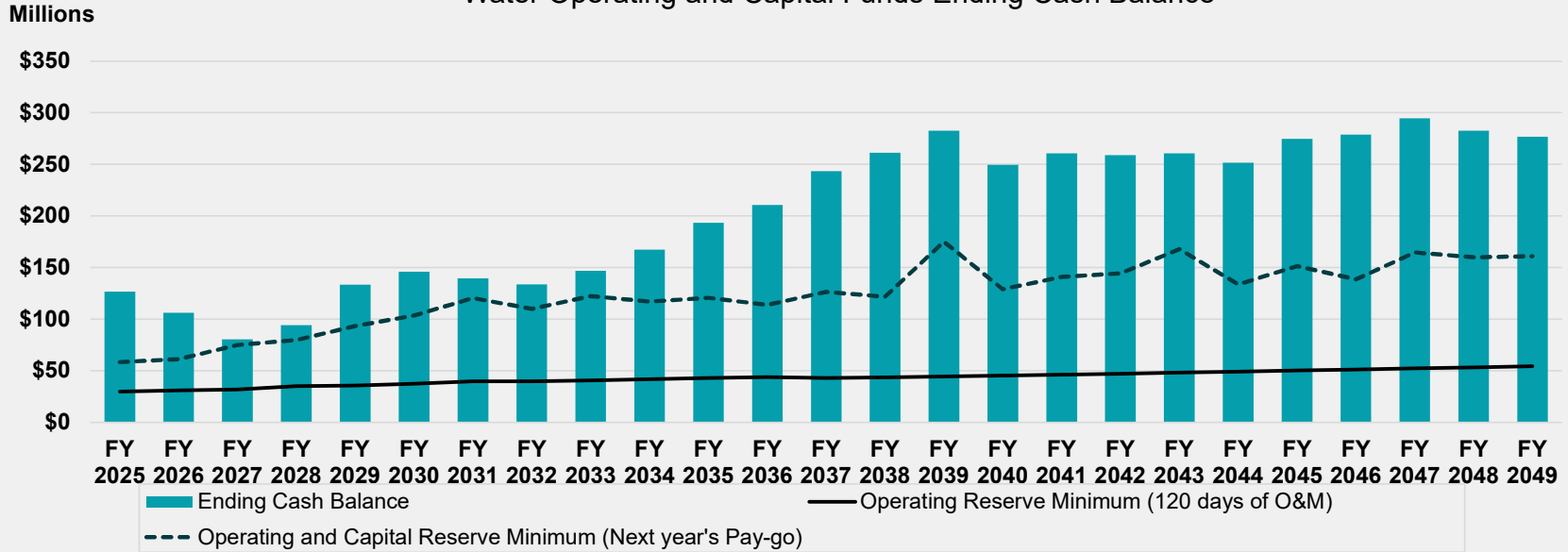


Water Fund:

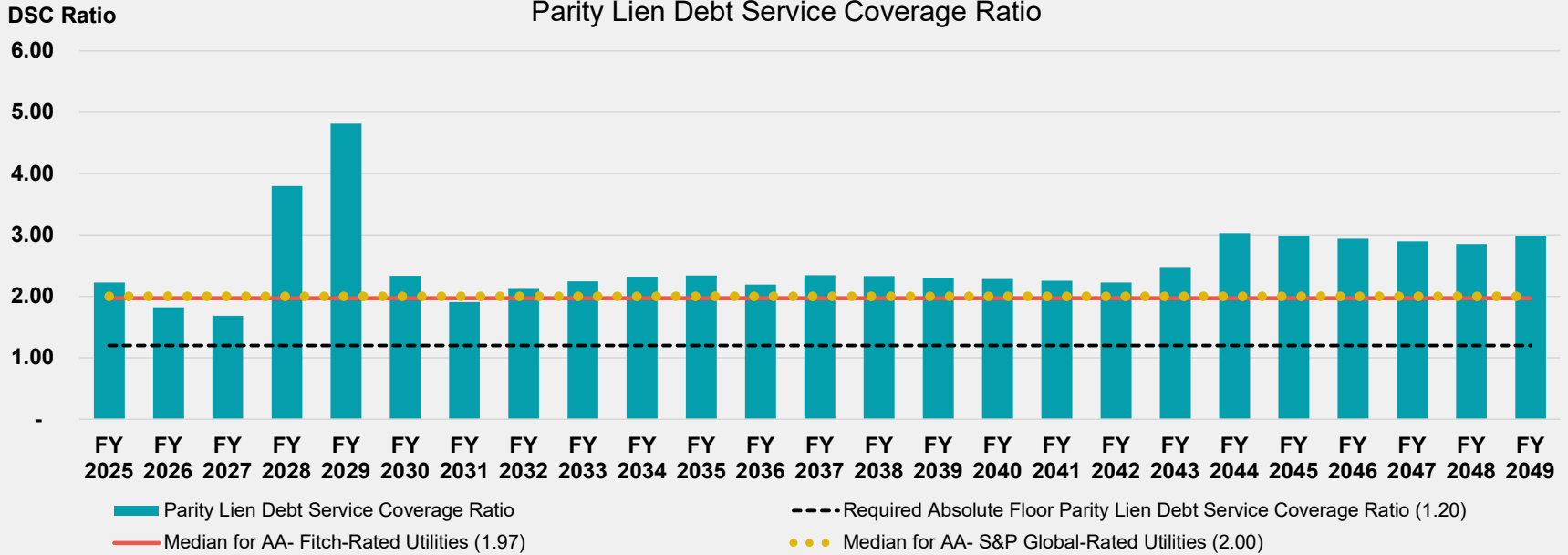
Financial Plan 3



Water Operating and Capital Funds Ending Cash Balance

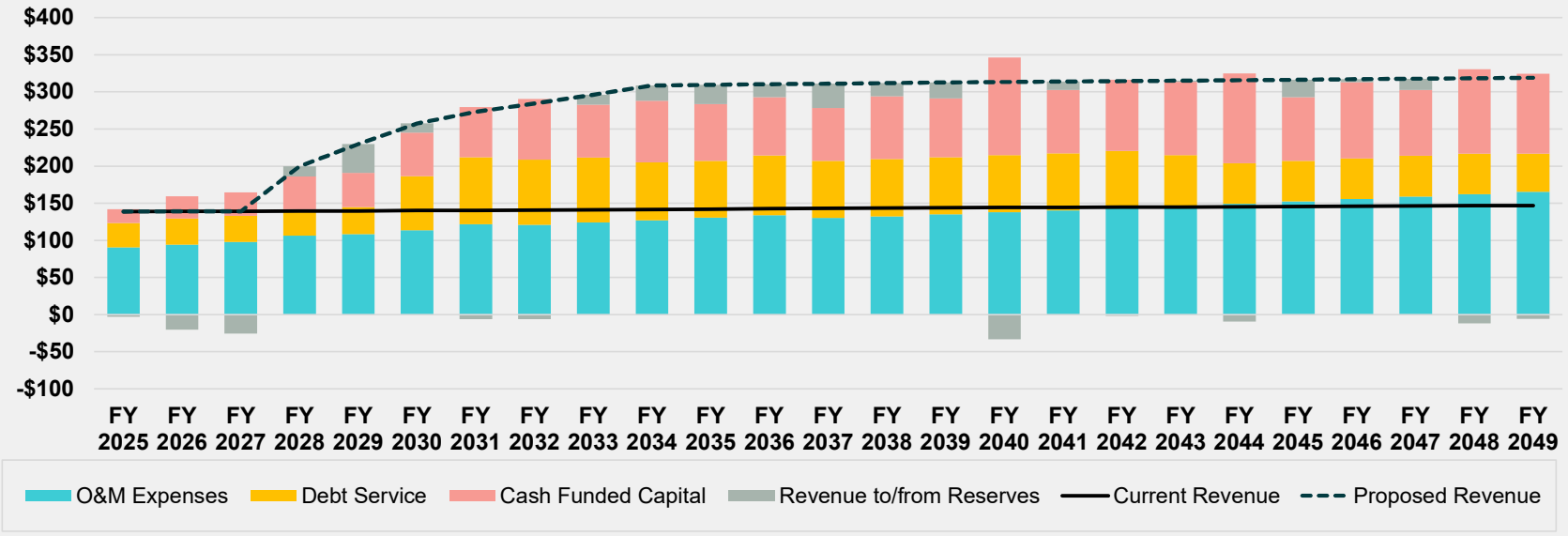


Parity Lien Debt Service Coverage Ratio



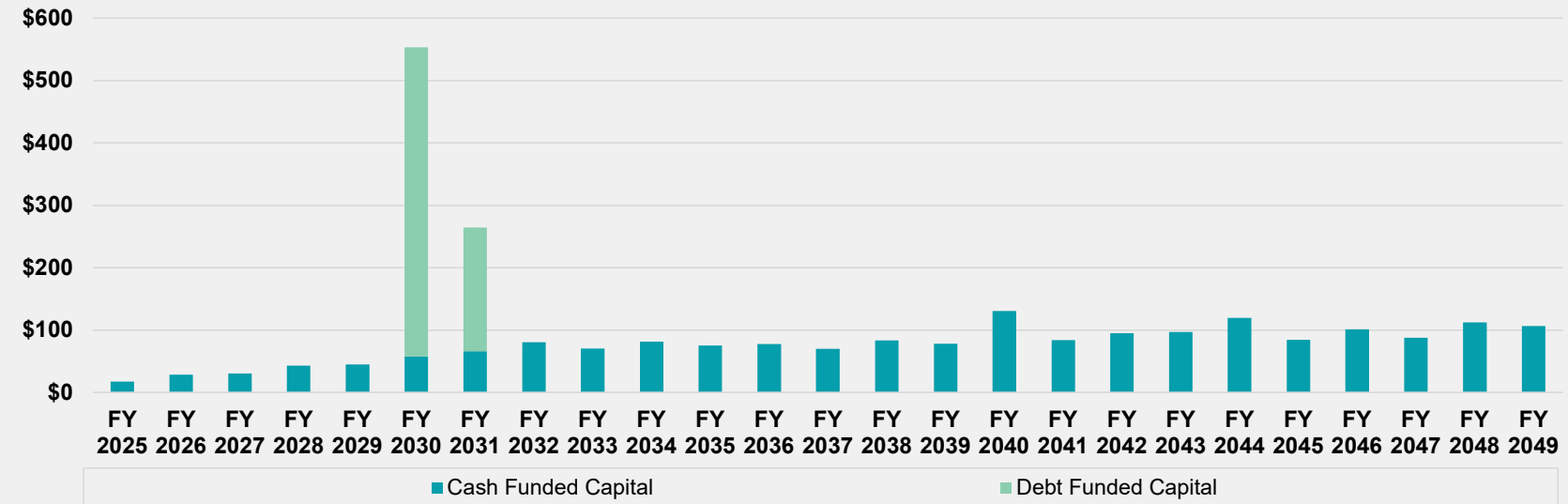
Millions

Water Financial Plan

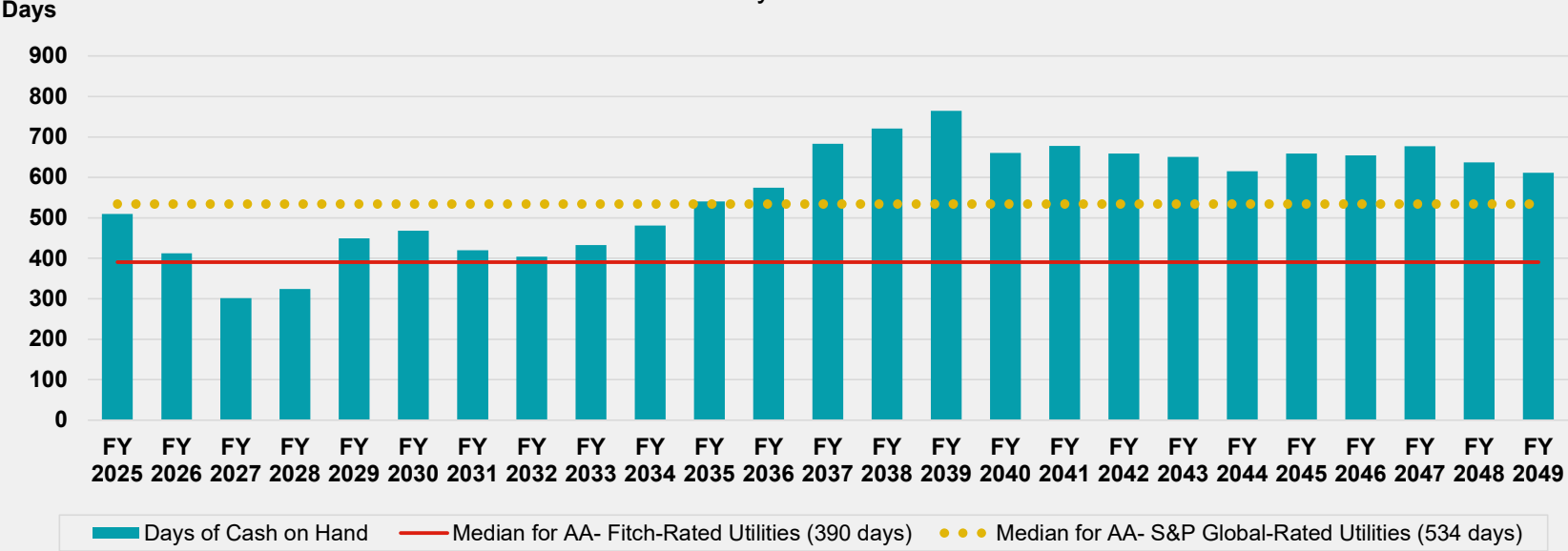


Millions

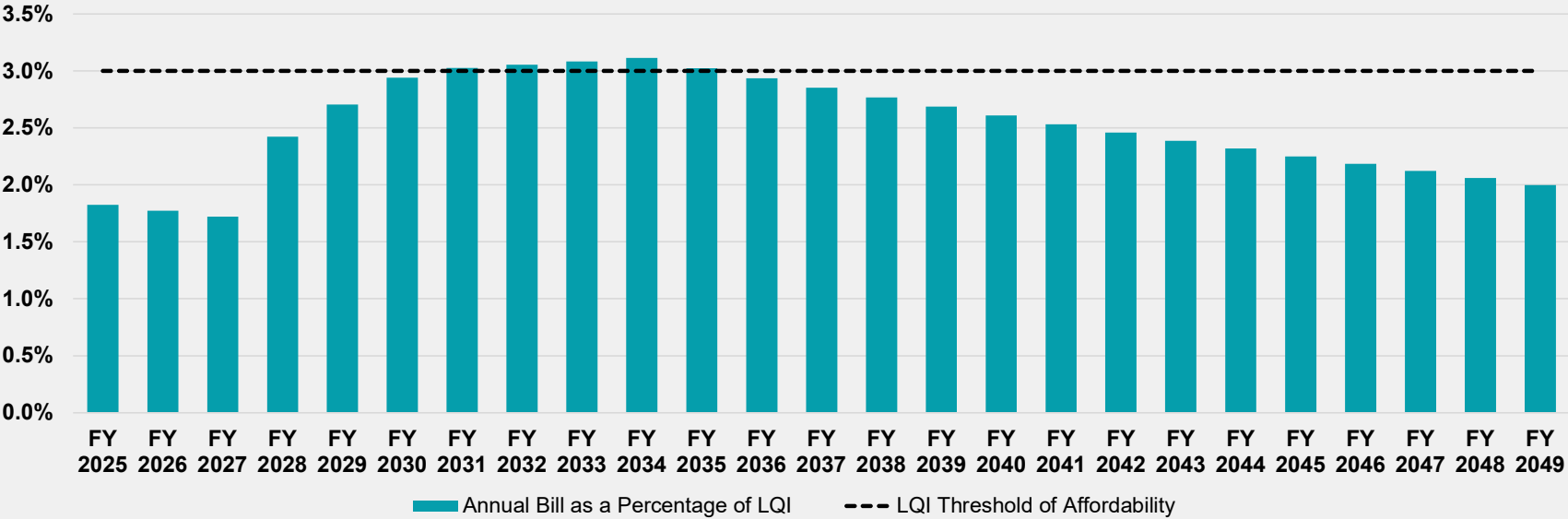
Capital Financing Plan



Days of Cash on Hand



Annual Water Bill as Percentage of Lowest Quintile Income



MEMORANDUM

DATE: January 10, 2025
TO: Farishta Ahrary, City Auditor
FROM: Pravani Vandeyar, Director Department of Utilities
CC: Yvette Rincon, Assistant Director
SUBJECT: Department of Utilities Response to Auditor's Water & Wastewater Funds Review

This memo serves as the Department of Utilities (DOU) response to the Auditor's Water & Wastewater Funds Review.

We want to thank the Auditor and their team for their diligent work on this review. DOU agrees with the findings and conclusions in this report.