Water and Wastewater Rate Study Refresh

Presentation to Board of Supervisors

March 5, 2020

Water & Wastewater Utility Rates

Presentation Overview

1. Background of existing rates and connection fees
2. Review of financial policies and FCS model assumptions
3. Review of Farr West updates to FCS model
4. FCS model results for water and wastewater rates changes 2021-2025

Background

- 2012 – FCS Group Cost of Service Rate Study
  - Established rates effective FY 2014-18 that phased in the cost of service for each customer class over the study period
    - Last rate increase was effective Jul 1, 2017
  - Wastewater rate = 15% yearly increase
  - Water rate = 6.5% yearly increase
  - Due to the recession, BOS voted against FCS recommended connection charges and remained at the existing connection fee schedules

Background Cont.

- In 2015, the City adopted a water & wastewater connection fee ordinance that:
  - Established a phased in connection fee increase FY 2016 through 2021 with the last increase effective Jul 1, 2020
  - The indexing of the connection fees will begin Jul 1, 2021. Connection fees to increase yearly based on the Engineering News-Record Construction Cost Index (ENR CCI) with a cap of 3%

Connection Fee	Effective 7/1/2019	Effective 7/1/2020
Wastewater per SERC	$3,710	$4,493
Water per WERC (5/8" meter)	$2,843	$3,440

Background Cont.

- In 2019, Carson City contracted Farr West to update the existing FCS Models to ensure continued compliance with City financial policies
  - Farr West did not modify the FCS model approach
  - Approach being evaluated is an "across-the-board" rate change in which each customer class would experience the same percentage rate change

Financial Policies & FCS Model Assumptions

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March 5, 2020

Carson City Public Works

Financial Policies & FCS Model Assumptions

1. Operating Reserves[i] :
   - Wastewater: 30 to 45 days of O&M expense
   - Water: 60 to 90 days of O&M expense
   - When operating reserves exceed the maximum target, excess cash is earmarked to the capital account to cover capital projects

2. Capital Account Minimum Target Balance:
   - 2% of system fixed assets

i – "M1 - Principles of Water Rates, Fees, and Charges" *American Water Works Association.* Seventh Edition, 2017.

Financial Policies & FCS Model Assumptions

3. Capital Funding:

- Model assumes that capital projects that are not funded through the capital fund balance will be funded through bond sales

4. Debt Service Coverage Goals:

- Rates include a minimum coverage factor of 1.00 times annual debt service
- Internal goal of 1.25 times annual debt service
- Debt-to-equity ratio goal of no greater than 50% debt to 50% equity (cash)

Financial Policies & FCS Model Assumptions

5. System Reinvestment Funding:

- Funded through rates using percent of annual depreciation expense as the benchmark for the appropriate funding level

Water System Reinvestment Funding Strategy

2013	2014	2015	2016	2017	2018	2019
0%	20%	40%	60%	80%	100%	100%
$ -	$ 619,305	$ 1,268,792	$ 1,932,989	$ 2,644,062	$ 3,384,510	$ 3,253,981

Wastewater System Reinvestment Funding Strategy

2013	2014	2015	2016	2017	2018	2019
0%	0%	20%	40%	60%	80%	80%
$ -	$ -	$ 640,672	$ 1,378,192	$ 2,234,609	$ 3,117,947	$ 3,690,000

Financial Policies & FCS Model Assumptions

6. Economic & Financial Factors

- Govern the forecast basis for revenues, expenditures, and connection fee increases

		2020	2021	2022	2023	2024	2025
General Cost Inflation	Based on CPI	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
Construction Cost Inflation		3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
Labor Cost Inflation	Per City - 3/22/19	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
Benefits Cost Inflation	Per City - 3/22/19	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%
Engineering News Record's Construction Cost Index*		2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
Marlette Cost Inflation*		0.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Fund Earnings	Per City Approval 7/29/19	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
Customer Growth	Per City - 3/22/19	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%
Cumulative Growth		0.70%	1.40%	2.11%	2.83%	3.55%	4.27%

* Factor added since the FCS 2012 analysis. Marlette Cost Inflation only included in water rate model.

Farr West Efforts Made to Update FCS Models

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Farr West's Process to Update Models

1. Obtained updated financial and utility data
   - FY 2020 budget revenues and expenditures
   - Existing debt schedules
   - 5- and 20-year Capital Improvement Plans (CIPs)
   - Fixed assets list including asset, cost, date purchased, and useful life
   - Customer counts and water usage data
2. Entered all updated data into the FCS model
3. Applied the economic and financial factors to the revenue and expenditures to forecast future costs

Water Model
Rate Results

Water Model Rate Results

To comply with the financial policies, the FCS Model suggested the following rate increases:

	FYE				
	2021	2022	2023	2024	2025
Model Suggested Increase to Generate Req. Revenue	4.09%	3.17%	2.13%	1.31%	4.28%

Farr West recommends a 3% yearly increase starting Jul 1, 2020

Water Model Rate Results

3% yearly increases across-the-board to all customer classes starting Jul 1, 2020

- Meets financial goals and policies
  - Operating fund remains between 60 to 90 days of O&M expense
  - Capital fund remains above minimum target balance (2% of system fixed assets)
- Cash funds CIP until FY 2024
  - $12.5M in bond sales to fund CIP projects in 2024 and 2025. Quill Treatment Plant anticipated design in 2024 & construction in 2025
- Funds system reinvestment (depreciation) 100% throughout study period

2020	2021	2022	2023	2024	2025
100%	100%	100%	100%	100%	100%
$ 3,285,380	*$ 3,340,738*	*$ 3,426,522*	*$ 3,515,995*	*$ 3,585,551*	*$ 3,705,884*

Water CIP 2020-2025

Description	TOTAL FORECASTED PROJECT COSTS: FYE					
	2020	2021	2022	2023	2024	2025
Equipment & Fleet Replacement Program	655,000	275,000	215,000	265,000	265,000	250,000
Well Rehabilitation/Replacement Program		200,000	200,000	200,000	1,200,000	200,000
Water Line Replacement/Rehabilitation Program	743,000	2,042,000	2,100,000	2,100,000	2,100,000	2,100,000
Tank Maintenance Program	500,000		350,000		300,000	
Emergency Generator Program			200,000			250,000
Pumps Motor Program	150,000	150,000	150,000	150,000	150,000	150,000
Communications-Fiber-SCADA		80,000	75,000	75,000		70,000
Facility Improvements	80,000	195,000	175,000	175,000	175,000	125,000
Quill Treatment Plant Rehabilitation					1,000,000	9,000,000
Pressure Reducing Stations	100,000			125,000		75,000
Airport Road Wastewater and Water Main	110,000					
Prison Hill Booster	429,896					
Local 1 Booster		151,000	629,000			
Arsenic Treatment Plant						225,000
Medical Parkway Booster Pump Station		950,000				
Booster Stations						640,000
Total Capital Projects	**2,767,896**	**4,043,000**	**4,094,000**	**3,090,000**	**5,190,000**	**13,085,000**

Water CIP 2020-2025

Water Line Replacement/Rehabilitation Program

- Carson City water collection system consists of 334 miles of pipeline.
- Approximately 55% is made of materials susceptible to corrosion from soil, groundwater and other conditions (i.e. not PVC).
- CIP funding based on replacing all steel, cast iron, old ductile iron and 35% of asbestos mains over next 50 years.

Quill Treatment Plant Rehabilitation

- Surface water plant is currently 30 years old, serves as conjunctive water management sources in order to keep groundwater as drought reserves.
- Currently only able to treat 1.5 million gallons per day (mgd), project would take the plant to a 6 mgd capacity
- Environmental Protection Agency regulations have disallowed City to use two of the three water sources.
  - Disinfection Byproduct Rule 1 & 2 (2002/2006)
    - Marlette/Hobart Water
  - Long Term Surface Water Treatment Rule (2016)
    - Ash Creek Water (free water source to City)

Water Model Debt Services

$12.5M in bond sales to fund CIP projects in 2024 and 2025

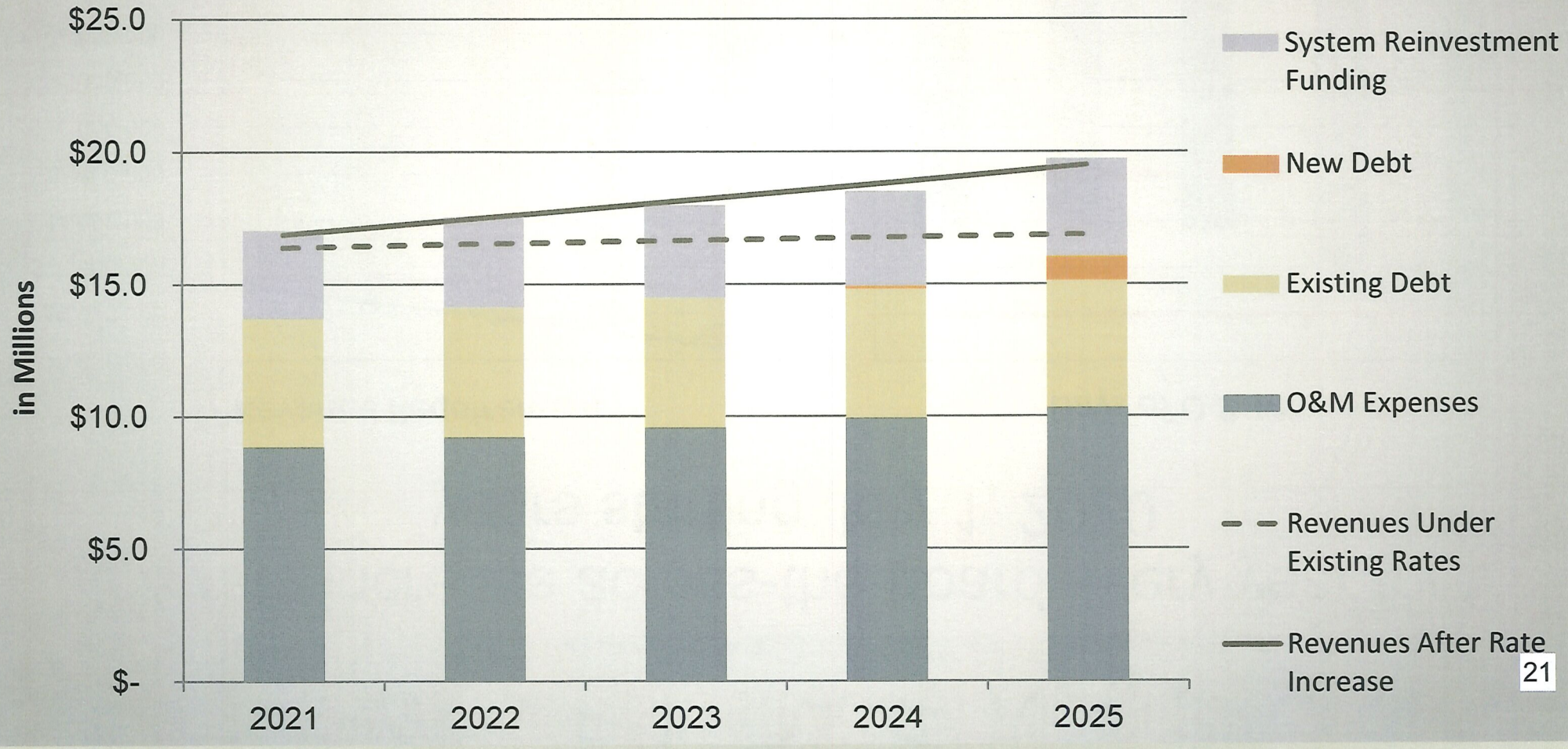
- Quill Treatment Plant anticipated design (2024) & construction (2025)

	2021	2022	2023	2024	2025	2026
Existing Debt Service Payment	4,857,850	4,901,289	4,925,884	4,915,316	4,839,789	4,849,432
Estimated New Debt Service Payment				86,833	886,171	889,754
Total Estimated Debt Service	**4,857,850**	**4,901,289**	**4,925,884**	**5,002,149**	**5,725,960**	**5,739,186**

	2027	2028	2029	2030	2031	2032	2033
Existing Debt Service Payment	4,899,404	3,169,104	3,180,890	3,177,847	3,186,263	2,222,509	2,252,485
Estimated New Debt Service Payment	889,754	1,107,120	1,107,120	1,107,120	1,107,120	1,107,120	1,107,120
Total Estimated Debt Service	**5,789,158**	**4,276,224**	**4,288,010**	**4,284,967**	**4,293,383**	**3,329,629**	**3,359,605**

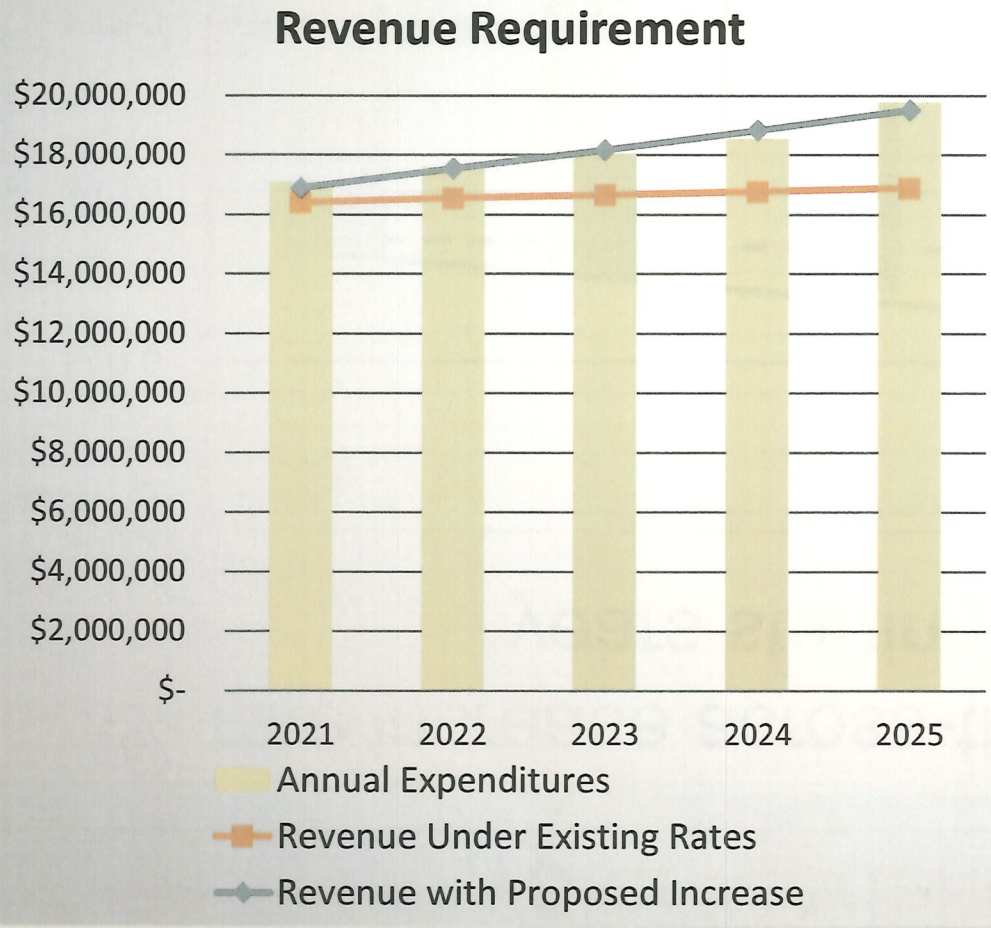
Water Model Rate Results

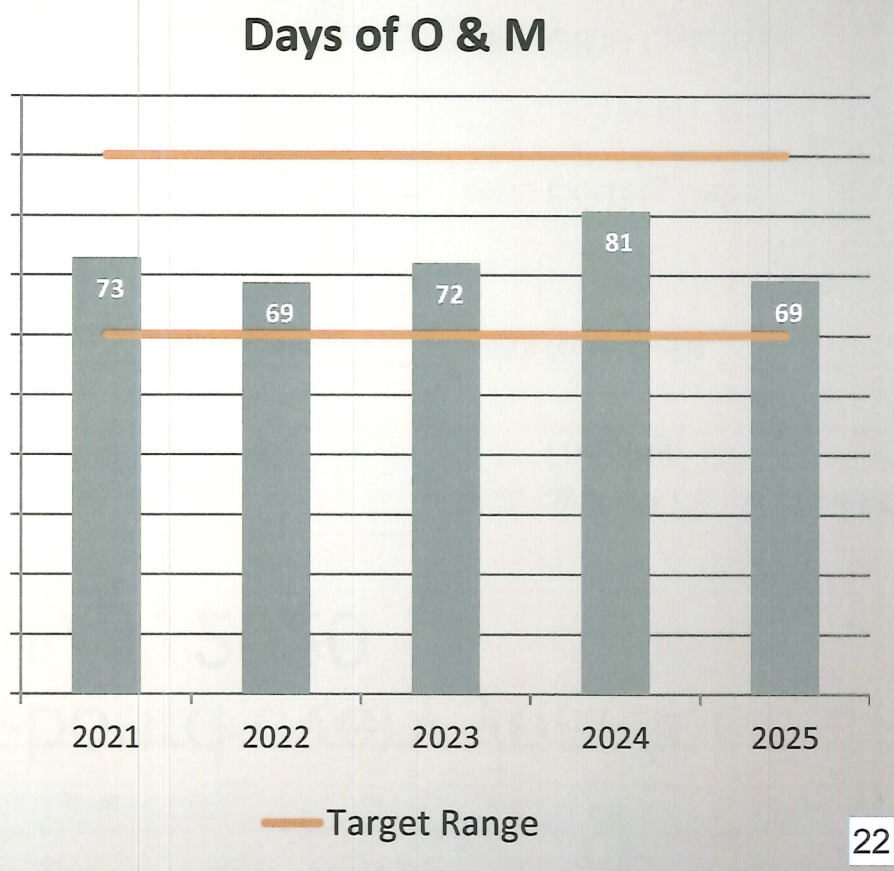
3% rate increase across-the-board every year for 5 years starting July 1, 2020



Water Rates Model Results

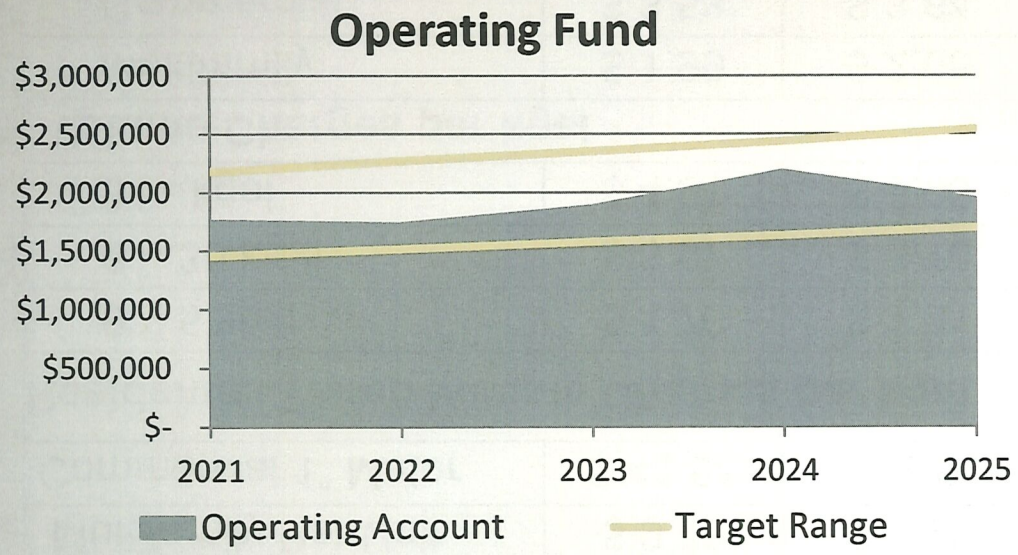
3% rate increase across-the-board every year for 5 years starting July 1, 2020

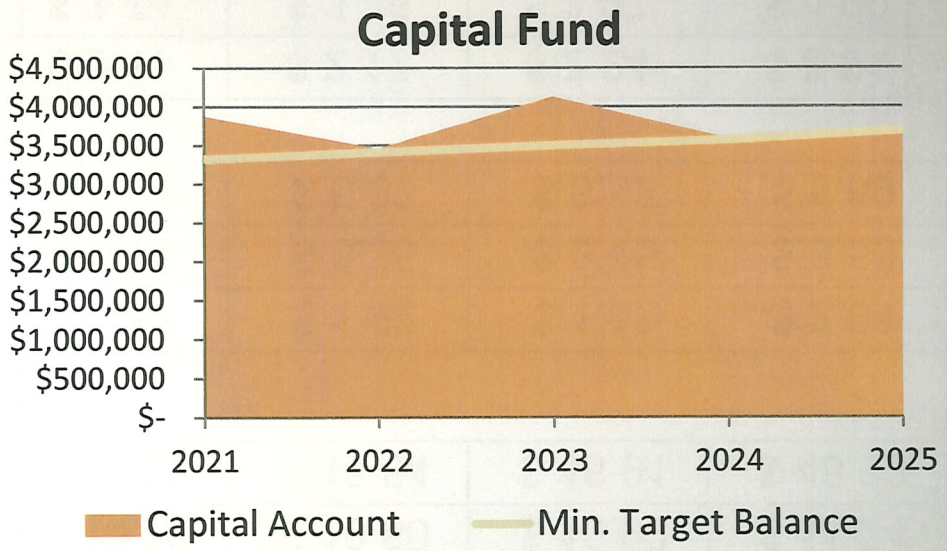


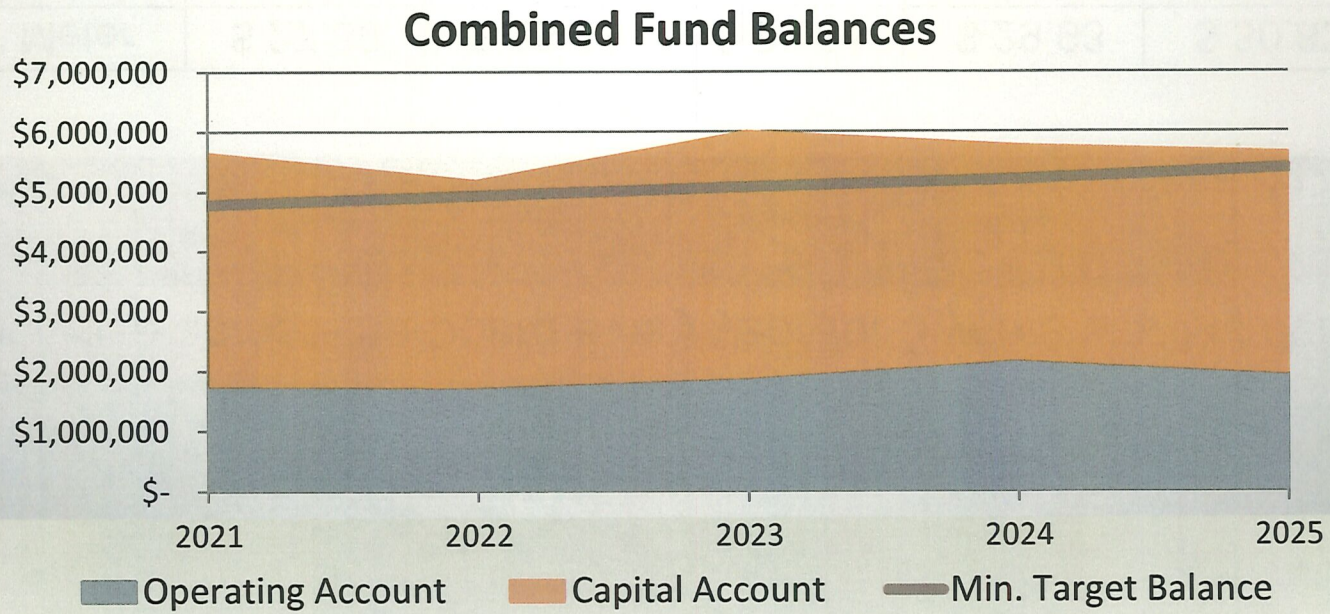


Water Rates Model Results

3% rate increase across-the-board every year for 5 years starting Jul 1, 2020







Water Rates Model Results

3% rate increase across-the-board every year for 5 years starting Jul 1, 2020

Customer Class	Existing Rates[i]	2021 Rates	2022 Rates	2023 Rates	2024 Rates	2025 Rates
Flat Rates						
Residential 5/8" Meter	$ 27.39	$ 28.21	$ 29.06	$ 29.93	$ 30.83	$ 31.79
Multifamily Per Unit	$ 9.70	$ 9.99	$ 10.29	$ 10.60	$ 10.92	$ 11.24
Commercial 1" Meter	$ 41.68	$ 42.93	$ 44.22	$ 45.54	$ 46.91	$ 48.32
Residential Tiered Volume Charges per kgal						
0 – 5 kgal	$ 1.76	$ 1.81	$ 1.87	$ 1.92	$ 1.98	$ 2.04
6 – 30 kgal	$ 3.07	$ 3.16	$ 3.26	$ 3.35	$ 3.46	$ 3.56
31+ kgal	$ 4.91	$ 5.06	$ 5.21	$ 5.37	$ 5.53	$ 5.69
Volume Charges per kgal						
Multifamily	$ 1.99	$ 2.05	$ 2.11	$ 2.17	$ 2.24	$ 2.31
Commercial	$ 3.53	$ 3.64	$ 3.74	$ 3.86	$ 3.97	$ 4.09
Large Commercial	$ 3.71	$ 3.82	$ 3.94	$ 4.05	$ 4.18	$ 4.30

i - Existing rates are effective 7/1/2017

Water Model
Rate Results – Alternative A

Water Rates - Alternative A

Alternative A considers moving the Quill Treatment Plant Rehabilitation design and construction projects from FY 2024 and 2025 to 2021 and 2022, respectively.

Benefits:

- Potential to benefit from lower loan interest rates if the project takes place sooner, potential for lower debt payments
- The Quill Treatment Plant will receive needed upgrades sooner, allowing the City to treat water it is currently not able to treat

Drawbacks:

- Larger rate increase is needed in first three years to fund the FY 2021, 2022 and 2023 CIP and to comply with financial policies
- The water system will incur debt sooner in the study period (FY 2021 and 2022)

Water CIP 2020-2025 – Alt. A

Description	TOTAL FORECASTED PROJECT COSTS: FYE					
	2020	2021	2022	2023	2024	2025
Equipment & Fleet Replacement Program	655,000	275,000	215,000	265,000	265,000	250,000
Well Rehabilitation/Replacement Program		200,000	200,000	200,000	1,200,000	200,000
Water Line Replacement/Rehabilitation Program	743,000	2,042,000	2,100,000	2,100,000	2,100,000	2,100,000
Tank Maintenance Program	500,000		350,000		300,000	
Emergency Generator Program			200,000			250,000
Pumps Motor Program	150,000	150,000	150,000	150,000	150,000	150,000
Communications-Fiber-SCADA		80,000	75,000	75,000		70,000
Facility Improvements	80,000	195,000	175,000	175,000	175,000	125,000
Quill Treatment Plant Rehabilitation		1,000,000	9,000,000			
Pressure Reducing Stations	100,000			125,000		75,000
Airport Road Wastewater and Water Main	110,000					
Prison Hill Booster	429,896					
Local 1 Booster		151,000	629,000			
Arsenic Treatment Plant						225,000
Medical Parkway Booster Pump Station		950,000				
Booster Stations						640,000
Total Capital Projects	**2,767,896**	**5,043,000**	**13,094,000**	**3,090,000**	**4,190,000**	**4,085,000**

Water Model Rate Results – Alt. A

To comply with the financial policies, the FCS Model suggested the following rate increases:

	FYE				
	2021	2022	2023	2024	2025
Model Suggested Increase to Generate Req. Revenue	4.32%	6.34%	4.75%	3.29%	1.81%

Farr West recommends a 4.5% yearly increase effective FY 2021-2023 then a 3% yearly increase FY 2024-2025

Water Model Rate Results – Alt. A

4.5% increases FY 2021-23 then 3% increase FY 2024-25

- Meets financial goals and policies
  - Operating fund remains between 60 to 90 days of O&M expense
  - Capital fund remains above minimum target balance (2% of system fixed assets)
- Cash funds CIP in FY 2023
  - $10.9M in bond sales to fund CIP projects in 2021 and 2022. Quill Treatment Plant proposed design in 2021 & construction in 2022 under alternative A.
- Funds system reinvestment (depreciation) 100% throughout study period

2020	2021	2022	2023	2024	2025
100%	100%	100%	100%	100%	100%
$ 3,285,380	$ 3,340,738	$ 3,447,740	$ 3,733,904	$ 3,803,460	$ 3,900,607

Water Model Debt Services – Alt. A

~$10.9M in bond sales to fund CIP projects in 2021 and 2022

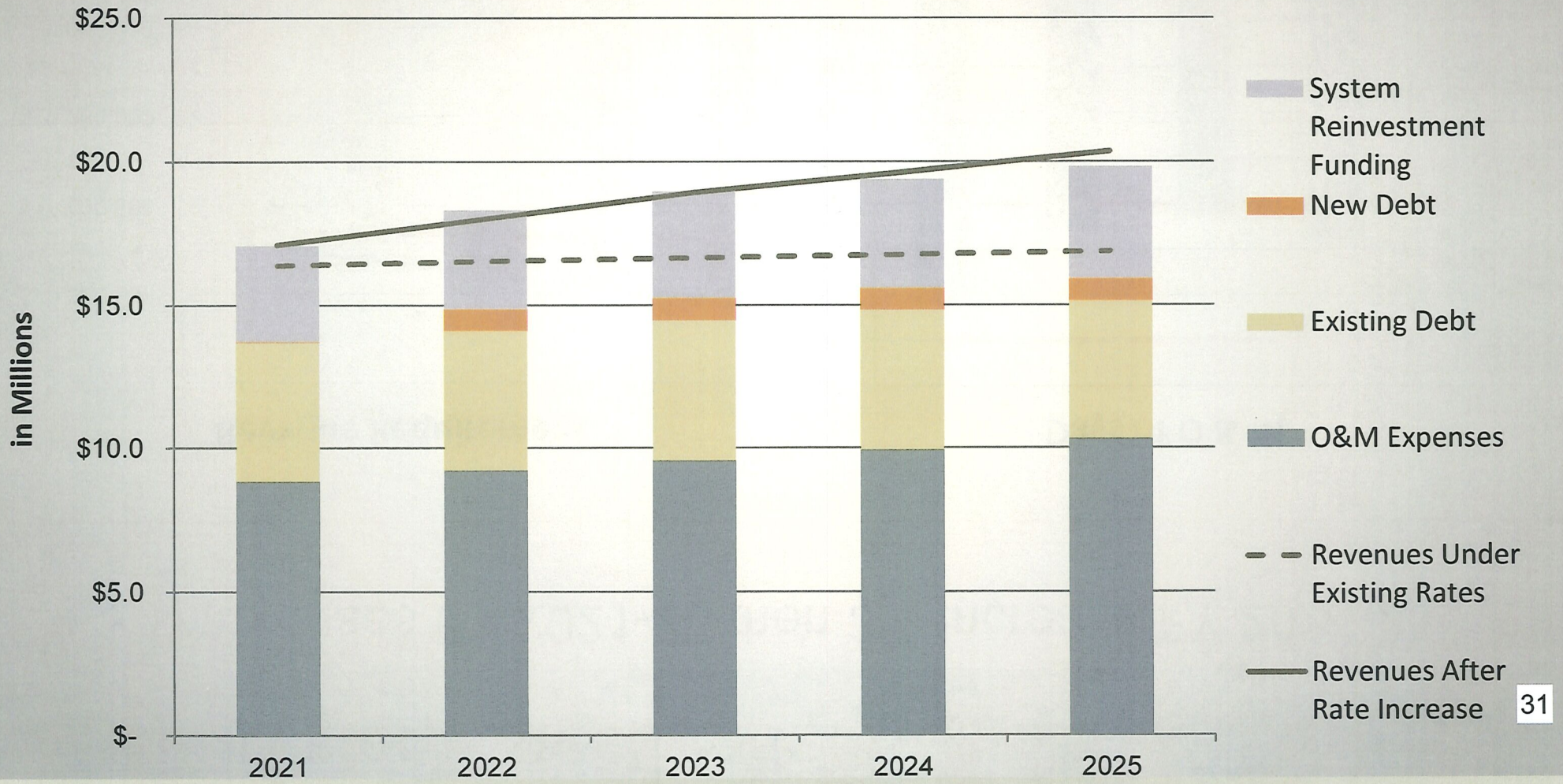
- Quill Treatment Plant anticipated design (2021) & construction (2022)

	2021	2022	2023	2024	2025	2026
Existing Debt Service Payment	4,857,850	4,901,289	4,925,884	4,915,316	4,839,789	4,849,432
Estimated New Debt Service Payment	36,587	764,711	764,711	764,711	783,048	783,048
Total Estimated Debt Service	**4,894,436**	**5,666,000**	**5,690,595**	**5,680,026**	**5,622,837**	**5,632,479**

	2027	2028	2029	2030	2031	2032	2033
Existing Debt Service Payment	4,899,404	3,169,104	3,180,890	3,177,847	3,186,263	2,222,509	2,252,485
Estimated New Debt Service Payment	783,048	819,060	819,060	819,060	819,060	819,060	819,060
Total Estimated Debt Service	**5,682,451**	**3,988,163**	**3,999,949**	**3,996,907**	**4,005,322**	**3,041,568**	**3,071,545**

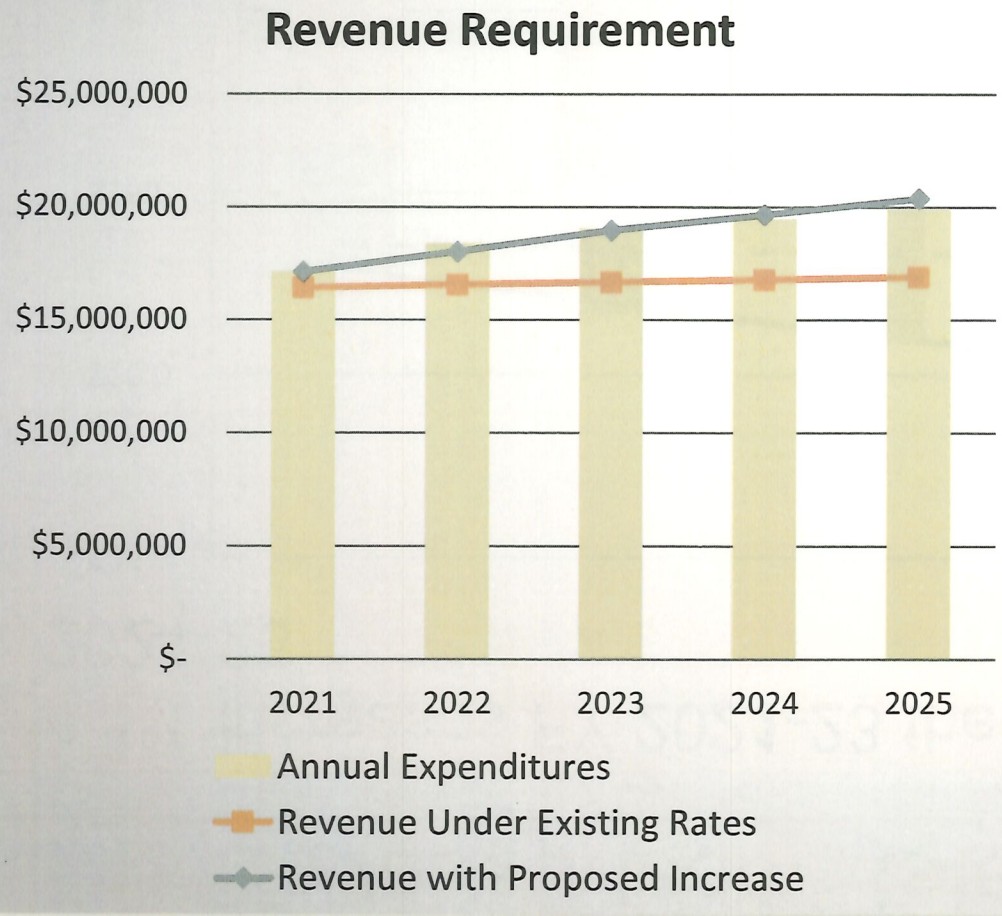
Water Model Rate Results – Alt. A

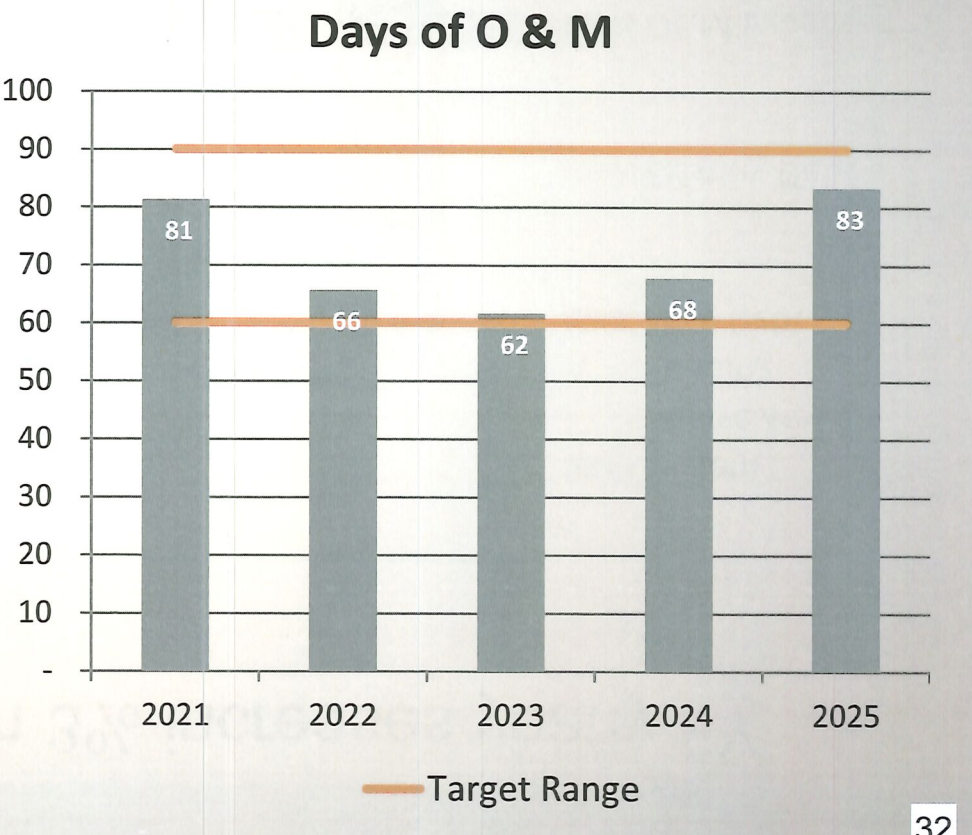
4.5% increases FY 2021-23 then 3% increases yearly FY 2024-25



Water Rates Model Results – Alt. A

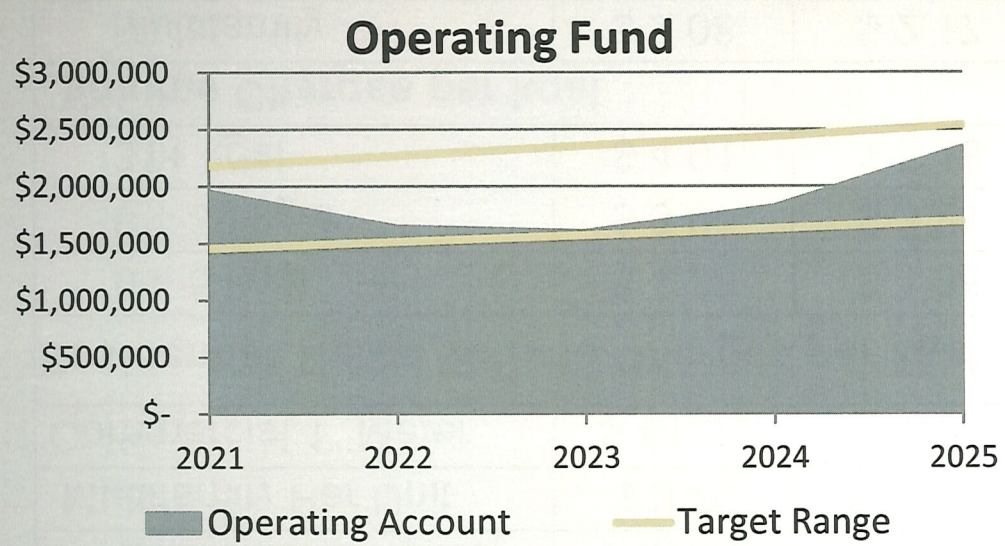
4.5% increases FY 2021-23 then 3% increase FY 2024-25

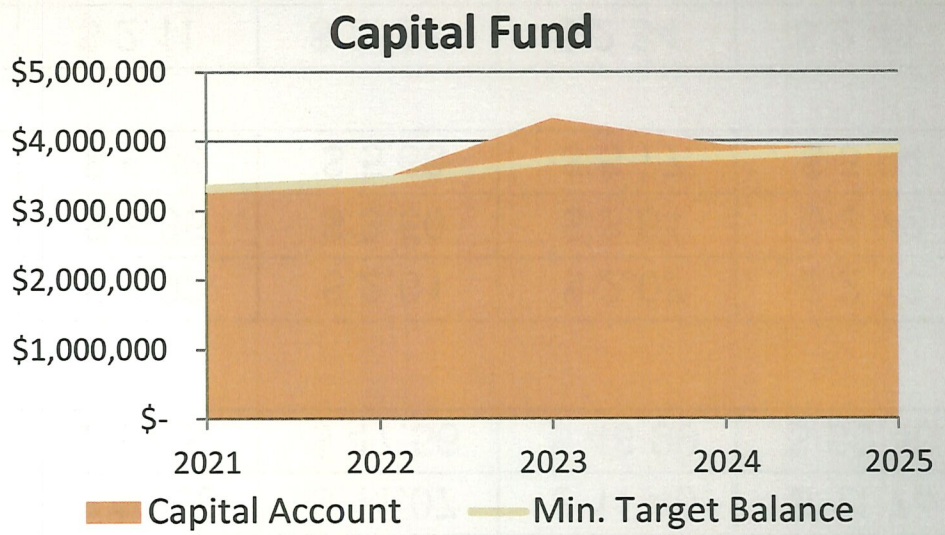


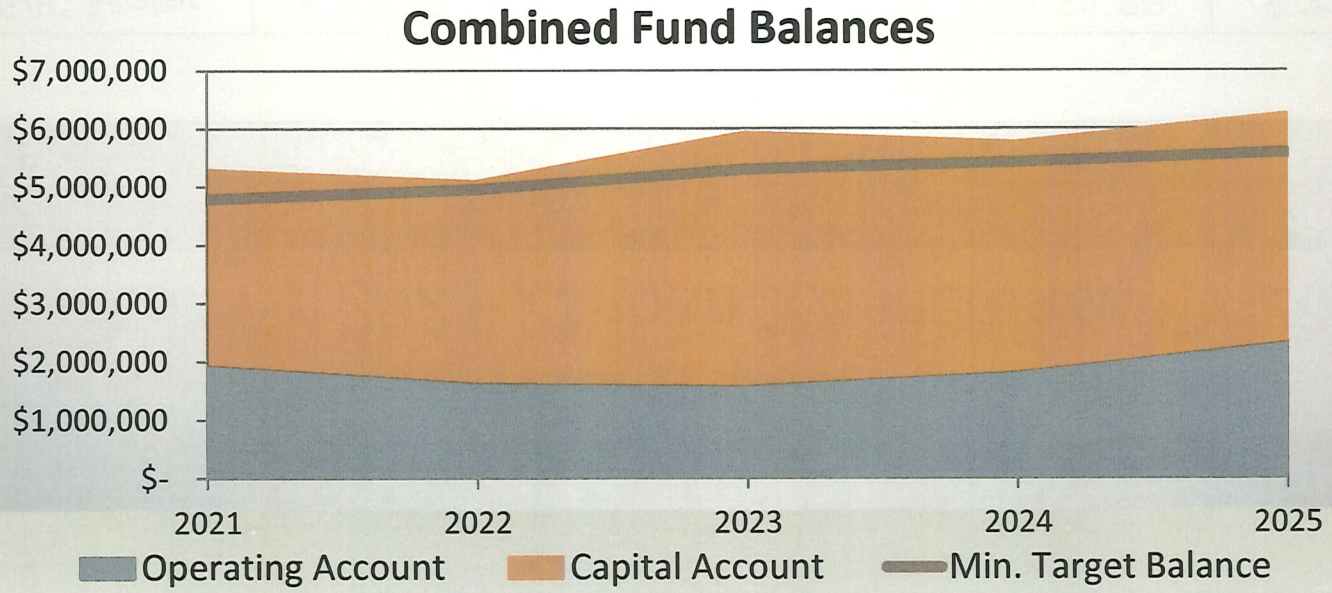


Water Rates Model Results – Alt. A

4.5% increases FY 2021-23 then 3% increase FY 2024-25







Water Rates Model Results – Alt. A

4.5% increases FY 2021-23 then 3% increase FY 2024-25

Customer Class	Existing Rates[i]	2021 Rates	2022 Rates	2023 Rates	2024 Rates	2025 Rates
Flat Rates						
Residential 5/8" Meter	$ 27.39	$ 28.62	$ 29.91	$ 31.26	$ 32.19	$ 33.16
Multifamily Per Unit	$ 9.70	$ 10.14	$ 10.59	$ 11.07	$ 11.40	$ 11.74
Commercial 1" Meter	$ 41.68	$ 43.56	$ 45.52	$ 47.56	$ 48.99	$ 50.46
Residential Tiered Volume Charges per kgal						
0 – 5 kgal	$ 1.76	$ 1.84	$ 1.92	$ 2.01	$ 2.07	$ 2.13
6 – 30 kgal	$ 3.07	$ 3.21	$ 3.35	$ 3.50	$ 3.61	$ 3.72
31+ kgal	$ 4.91	$ 5.13	$ 5.36	$ 5.60	$ 5.77	$ 5.94
Volume Charges per kgal						
Multifamily	$ 2.08	$ 2.17	$ 2.11	$ 2. 27	$ 2.34	$ 2.41
Commercial	$ 3.53	$ 3.69	$ 3.85	$ 4.03	$ 4.15	$ 4.27
Large Commercial	$ 3.71	$ 3.88	$ 4.05	$ 4.23	$ 4.36	$ 4.49

i - Existing rates are effective 7/1/2017