

## STAFF REPORT

**DATE:** August 29, 2023

**TO:** City Council

**FROM:** Stan Gryczko, Director - Public Works Utilities & Operations  
Adrienne Heinig, Assistant to the Director

**RE:** Wastewater Utility Cost of Service and Rate Study and Approval to Initiate City Wastewater Utility Fee Proposition 218 Process

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### **Recommendations**

1. Receive Wastewater Fee Report (Attachment 1) and presentation from City staff and Bartle Wells Associates on the Wastewater Utility Cost of Service Study and development of rate structure recommendations; and
2. Direct staff to initiate the Proposition 218 process and take necessary steps including the preparation of Notices for City and County Service Area (CSA) customers to be mailed noticing a public hearing to be held on or after November 7, 2023 to consider implementation of rate adjustments by January 1, 2024.

### **Fiscal Impact**

Wastewater rates were last adjusted by City Council in 2017, to account for cost allocation among customer classes, due to changes in treatment costs based on upgrades to the City's Wastewater Treatment Plant (WWTP). This reallocation did not increase total revenue to the Wastewater Enterprise Funds (Funds 531, 532 & 533), rather the reallocation modified the revenue generated from each customer class. Wastewater rates have not increased since December 1, 2014. The proposed rate adjustments will ensure that utility expenditures do not exceed revenue, a positive fund balance and reserve allocation is maintained, major and necessary capital improvement projects can continue to be completed and quality wastewater services continue for ratepayers. With this increase, the total revenue anticipated for Fiscal Year 2023-24 will increase from approximately \$13.7million to \$14.4 million.

Any changes to the rates or rate structure are fully within the wastewater enterprise funds and do not affect the General Fund.

### **Commission Input**

Recommendations for utility rate setting and structures that are able to sufficiently meet the financial needs of City utilities, as well as distribute the proportionate share of the operational, regulatory and capital improvement costs of the utility among ratepayers, is a core function of the City's Utilities Commission. Over a number of meetings in 2020 and 2021, the Utilities Commission reviewed the Wastewater Utility's financial needs, regulatory requirements and capital improvement needs, along with adjustments to the

methodology of how the City charges for Wastewater Utility services, to ensure that the costs were thoroughly vetted and the methodology was a representative capture of the City's cost to provide Wastewater services. Ultimately, the Commission recommended Council establish a revised fee structure and methodology, as well as adjustments for customer classes for the City's Wastewater Utility fees at their meeting in December of 2021.

### **City Council Goals**

This effort is consistent with the Council Goals to Ensure Fiscal and Economic Stability; Pursue Environmental Sustainability; Fund, Maintain and Improve Infrastructure and Foster Excellence in City Services.

### **Background**

The City of Davis Wastewater Utility is housed within the Public Works Utilities & Operations Department. It is supported by an enterprise fund, meaning revenues are derived primarily from service charges, which must be adequate to fund the utility operation, capital programs and debt service (where applicable).

The Wastewater Utility operates and maintains the City's sanitary sewer system (in Davis, called the *collections system*) in accordance with federal, state and local regulations to protect public health and ensure the efficient, economical and environmentally sound collection, treatment and disposal of the City's treated wastewater. This includes the operation and maintenance of the City's Wastewater Treatment Plant (WWTP), the wetlands adjacent to the plant, the administration of the City's permit (National Pollutant Discharge Elimination System - NPDES permit) and the City's pretreatment program. The Division also includes the operation and maintenance of the special districts of El Macero and North Davis Meadows (part of the County Service Area outside of Davis city limits), and the education and outreach associated with pollution prevention.



### *Sewer, Sanitary Sewer or Wastewater?*

On the City's utility bill, wastewater charges are labeled as "sanitary sewer." Municipalities will often interchangeably call the service 'sewer', 'sanitary sewer' or a newer term, wastewater. Changes in the wastewater industry in recent years have expanded the services provided in wastewater utilities, to include recycled water and other services, making the 'sewer' terminology somewhat outdated. The City of Davis uses 'wastewater' to refer to the programs and services of the utility. Staff will recommend that the utility bill language be updated to reflect the current terminology.

### *Wastewater Treatment Plant Upgrades (2013-2017)*

The Wastewater Treatment Plant was significantly upgraded in recent years in order to meet State and Federal regulatory discharge requirements. The upgrade was accomplished in two phases, with the WWTP fully operational in its new configuration in 2018. The upgraded facility allowed the City to move wastewater treatment from a land-based system, with an average treatment time of 40 days, to an activated sludge system with an average treatment time of 23 hours. This change has also significantly improved effluent<sup>1</sup> quality, allowing the City to work to obtain a recycled water permit for the City and for other agencies to utilize the water for operations and to offset potable water use.

### *Strength Treatment Changes - 2017 and Current Recommendations*

With the new treatment processes, however, costs for strength-related wastewater treatment increased. While wastewater rates have historically reflected cost allocations based almost entirely on the total flow that customers generated, the adjusted allocations that were approved by Council in 2017 into account the customer classes with *higher strength influent* (i.e. those customers that send more material with the wastewater to the WWTP for treatment), and are calculated to ensure the rates of each customer class reflect the associated cost of the treatment. In addition to flow, the study in 2017 included review of the cost of treating BOD (Biological oxygen demand<sup>2</sup>) and TSS (Total suspended solids<sup>3</sup>).

With the new plant upgrades, ammonia removal became a significant driver in energy costs for wastewater treatment. For this reason, staff recommended to the Utilities Commission that ammonia be included as a cost factor in the development of rates for customer classes. The Commission concurred with staff and the study includes recommended cost allocations for the treatment of ammonia among customer classes.

### *Challenges with Imbalanced Expenditures & Revenue*

At the close of the previously approved Proposition 218 rate schedule for wastewater rates in 2014, it was decided to not increase rates for five years, and use the existing fund balance to pay for capital expenditures. This action kept rates the same (aside from the cost reallocation in 2017, which did not increase revenue), but increasing expenditures have outpaced revenue, and the wastewater fund balance has dropped from around \$32M in 2013 to about \$13M in 2023.

### *Proposition 218 Passed by Voters*

In 1996, California voters passed Proposition 218, also called the “Right to Vote on Taxes” Act. Proposition 218 defines the majority protest process by which fees

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<sup>1</sup> Effluent is treated wastewater that leaves the wastewater treatment plant

<sup>2</sup> Biochemical oxygen demand is the amount of oxygen consumed by bacteria and other microorganisms while they decompose organic matter under aerobic conditions

<sup>3</sup> Total suspended solids is a measurement of total solids in wastewater that can be trapped by a filter

associated with sewer, water and refuse collection services can be enacted. A notice is required to be mailed to all ratepayers for a 45-day protest period, and charges are required to reflect the cost of providing the service.

**Current Rates**

The existing wastewater rates are based on a traditional rate structure which includes a fixed base rate for all users, a flat per unit charge for residential customers and volumetric charges based on estimated wastewater demand and strength for each customer class in hundred cubic foot (CCF) units. The calculation of strength factors is described in more detail in the table below.

First Step	Second Step
<p>Customer Classes are Determined by Strength Factors</p> <p>This includes:</p> <ul style="list-style-type: none"> <li>• Water flow (CCF) <i>Estimated flow going to the Wastewater Treatment Plant from each customer class (calculated by winter water use average).</i></li> <li>• Biochemical Oxygen Demand (BOD) <i>Determines the impact of decaying matter on species in a specific ecosystem.</i></li> <li>• Total Suspended Solids (TSS) <i>Particles larger than 2 microns found in water, including anything floating or drifting in the water.</i></li> <li>• Ammonia (N) &lt;- <b>Not currently included in cost allocation</b> <i>Consideration of ammonia levels as a portion of the charge for ratepayers is related to the impacts that larger concentrations of ammonia can have on the ability of the bacteria to divide and process organic material.</i></li> </ul>	<p>Grouped into Classes based on shared Strength Factors</p> <p>Current classes include:</p> <ul style="list-style-type: none"> <li>• Residential Single Family</li> <li>• Residential Multi-family (10 classes)</li> <li>• Commercial (7 classes)</li> <li>• Industrial (some by individual agreement)</li> </ul>



*Residential Customers*

Residential wastewater rates are currently billed monthly and are determined by several factors: average winter water usage (per CCF), a monthly customer-related base rate and a monthly fixed charge per dwelling unit. Non-single-family customers have fixed monthly charges based upon housing type (all are less than the single-family charge).

*Commercial/Industrial Customers*

Non-residential wastewater rates for commercial and industrial customers are billed monthly and are determined by average winter water usage (per CCF) and a monthly customer-related base rate. No fixed monthly charges apply to commercial and industrial customers; however, their volumetric rates are higher to offset the absence of this charge and their volumetric rates vary based upon type of use.

## **Unmet Needs**

Since the 2017 cost allocation adjustment and subsequent pause on further rate adjustments, the wastewater utility fund balance has gradually reduced over the last nine years to just over \$13M in 2023. The enterprise fund reserve level and required debt coverage for the utility, based on 2022/23 expenditures, is on average \$9M. With the expenditures outpacing revenue, the draw on the working capital balance will likely increase, and without a change in the revenue for the utility, the working capital balance will drop below the minimum enterprise reserve levels. To ensure that the fiscal health of the utility is maintained, the balance between expenditures to revenue is essential.

In addition to ensuring the balance between expenditures and revenue, the other largest driver of wastewater rates is capital improvements. Unlike infrastructure systems moving only water (such as potable water and stormwater utility systems), wastewater pipes move water, large solids and grit (among other things). These can disrupt the treatment process, cause extensive wear and tear on equipment and often result in the need for equipment replacement sooner than water and stormwater counterparts. Regular upgrades can be planned, including annual repair and replacement programs, however larger, more costly projects can become necessary when there is limited time for pre-planning. Upcoming efforts include replacement of sections of force mains delivering wastewater to the WWTP, rehabilitation of major portions of the primary sedimentation tanks (first stage of treatment at the WWTP), and completing replacement of two wastewater lift stations (part of the collection system delivering wastewater to the WWTP).

## **Proposed Rate Structure Adjustments**

Rate structures for the wastewater utility have not been reviewed since the last rate adjustment in 2014 except for the 2017 customer cost allocation updates. Consequently, a number of suggested revisions to the rates were discussed by City staff, the Utilities Commission and the consultant for the cost of service study. The recommended changes, with more details included below, include adjusting the balance between the fixed to volumetric costs for residential wastewater customer classes, condensing multi-family user classes, developing a new rate for larger dormitory-style housing units, and condensing commercial customer classes. The addition of ammonia as a component of the strength calculation for influent was previously discussed in this report.

### *Adjusting Fixed to Volumetric Ratio of Charges for Residential Customer Classes*

The City's current rate breakdown is roughly split equally between fixed and volumetric. Within this most recent study, it has been recommended that the City shift to a 60% fixed, 40% volumetric rate structure, as the cost of service study determined that wastewater *expenditures* actually reflect a 73% fixed and 27% volumetric mix. A survey of agencies conducted in 2021 showed six of the eight agencies had rate structures over 75% fixed.

Though the exact fixed and variable percentage of individual wastewater customer bills may vary (especially between residential and commercial customers), the overall percentage of fixed and variable revenues that the City collects is set by the City to serve as the basis of the rates. In discussions with the consultant it was clear that while there is no single correct approach for cost attribution and rate-setting, costs should be allocated within a reasonable range between fixed and variable components.

Fixed expenses include costs that do not vary with wastewater demand, including personnel costs and annual debt service payments. Fixed rates are charged monthly regardless of water use, as the base rate per account and the residential fixed cost per dwelling unit. A greater portion of fixed rate revenue collection would allow for greater revenue stability for the City and may align more closely with expenditures, but could reduce the ability for customers to have some control over the amount of their bill and may raise bills slightly for low water users.

Variable expenses include costs that vary with wastewater demand, including costs associated with electricity and chemicals. Variable rates are charged each month based on the average monthly winter water use for the last year. Higher variable rate revenues can allow for customers to have more control over their bill and encourage reductions in consumption, but may leave the City more vulnerable to revenue fluctuations when cost of operations are more fixed.

Shifting to a more fixed structure for the rates allows for greater predictability in revenue for the utility and appropriately allocates the largely fixed costs. Maintaining a portion of the rate as volumetric (still higher than surrounding municipalities surveyed by this study) contributes to reinforcement of water conservation goals and aids the customer in managing their wastewater bill.

#### *Larger "Dormitory Style Housing" Specific Rates*

The City has had a handful of developments considered to be "dormitory-style" multi-family housing, with as many as 8 beds in one apartment, resulting in a higher occupancy per unit than typical multi-family units. To capture the increased demand from these users, City staff, the Utilities Commission and the consultant discussed a per-bed charge to replace the existing per unit charge for fixed residential charges for complexes with 5+ beds per unit. The variable charge would remain the same as single-family residential units, since the relative strength of a higher occupancy unit would be consistent with single-family residential strength factors.

The use factor in the calculation would be as follows:

$$\text{Use Factor} = \frac{175 \text{ gallons per single family residential unit (SFR) per day of use}}{57 \text{ gallons per capita per day, indoor (CA EPA)}}$$

Use factor = **3.06** as the assumed average number of people (beds) per SFR. One bed, therefore, equals 1/3 of the SFR. The proposed 1/3 factor applied to the current SFR

rate of \$18.26 would result in a charge of \$6.09 per bed per month for dormitory-style multi-family units.

Example calculation:

A multi-family housing development with 57 units, each with five or more beds per unit, totaling 549 beds. The current rate calculation for the fixed rate component would be \$12.88 (multi-family with 50 or more units) multiplied by 57 units, or \$734 per month. With the adjustment to a per-bed charge based on the above calculation, it would be \$6.09 (per bed, per month for dormitory-style units) multiplied by 549 beds, or \$3,343 per month.

Utilizing a per bed charge for residential units set up for dormitory-style housing would more accurately reflect higher occupancy and higher amount of wastewater flow based on per-person water use for these apartment complexes. It is important to note that the most common use of by-the-bed charges includes institutions such as nursing homes and boarding schools with high-density residential occupancy. In a survey of area wastewater providers, the City of Sacramento includes a per bed rate for college dorms or boarding houses, which would have a similar density to the dormitory-style housing.

#### *Multi-family Customer Class Consolidation*

The City currently has ten multi-family fixed per unit rates for the following types of multi-family housing: condo, duplex, triplex, quadplex, 5-10, 11-19, 20-49, 50 or more units and mobile home park. The smallest difference between these rates is as low as \$0.39 (between condo and mobile home) and the largest difference is \$2.86 (between condo and 4 units). The fixed rates for housing with 5 or more units (with the exception of mobile home parks) are the same. As identified by the consultant, the number of units in multi-family housing is less of an influence on flow than the type of housing. In discussions with the consultant, it was recommended that the City consider simplifying the multi-family rate by consolidating the multi-family fixed per unit rate into one blended rate. This also more closely mirrors the one single family rate. This consolidation would not include the new dormitory rate described in the previous section.

#### *Commercial Customer Class Consolidation*

The City currently has seven commercial customer classes with volumetric rates associated with the commercial businesses estimated strength, added to the \$3.94/month base rate (the fixed charge). In discussions with the consultant, it was recommended the City consider four categories: Low, Standard, Medium and High strength.

Examples of these classes are included in the table below:

<b>Strength Category</b>	<b>Example Commercial Customer Classes</b>
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Low	Banks & Financial Institutions, Barber Shops, Hair Salons, Dry Cleaners, Laundromats, Offices – Business and Professional, Offices-Medical/Dental (without surgery)
Standard	Auto Dealers, Beauty Shops, Nail Salons, Pet Groomers, Bars & Taverns, Halls & Lodges, Fire Stations, Hospitals, Hotels, Motels, Vacation Rentals
Medium	Restaurants without dishwasher/garbage disposal, Hotels/Motels with a restaurant, carpet cleaners, Funeral Homes, Tasting Rooms
High	Restaurants with a Dishwasher, Bakeries, Butcher Shops, Markets with Food Service and Specialty Foods Manufacturing

Condensing the customer classes by strength factor as recommended simplifies the rate structure and allows for more flexibility between commercial use types.

**Proposed Rate Amount Adjustments**

Through the cost of service study, it was determined that revenue adjustments would be necessary to accomplish the following:

- Complete annual operations and Capital Improvement Plan funding
- Meet minimum fund balance targets
- Meet minimum debt service coverage of 110% net operating revenues

To meet these minimums, the consultant and staff put forward 5% adjustments for the utility each year for five years. The proposed table from the study is included below:

**Table 1 – 5-Year Wastewater Cash Flow Projection: Proposed Rate Revenue Requirements**

Fiscal Year	FY 2023/24	2024/25	2025/26	2026/27	2027/28
Adoption Date	1/1/24	5/1/25	5/1/26	5/1/27	5/1/28
Revenue Increase	5.0%	5.0%	5.0%	5.0%	5.0%
Rate Revenue	\$14,390,331	\$14,938,480	\$15,763,831	\$16,634,783	\$17,553,854

The City calculates wastewater rates (based on the prior year winter water use) for the utility bill in May of each year. It is proposed that the first adjustment take place in January 1, 2024 (off cycle) and then in May each subsequent year starting in 2025. The recommended rates are the maximum amount for the rate adjustments. Grant funding or debt financing for larger projects, or offsets to operational costs currently unanticipated resulting in lower costs could give Council the ability to adopt rate increases lower than the maximum recommended in this report. Annual fund updates presented to the Utilities Commission will allow for regular reviews of the utility operations and costs. Staff continue to closely monitor revenue returns for all utilities. In addition, staff continue to review the operation of each utility to find opportunities to reduce expenditures.

**Utilities Commission Discussion and Action**

The Utilities Commission reviewed the wastewater cost of service study with the consultant during a number of meetings in 2020 and 2021. As part of the Commission’s detailed cost of service study and rate review process, the discussion included a review of the financial plan, outlining the fund requirements of the utility (some of which was



discussed in the paragraphs above), rate scenarios and the calculation of the rate structure for the wastewater fees and the final draft of the full cost of service report.

On December 15, 2021, the Utilities Commission recommended staff move forward with the following adjustments to Wastewater Rates for Council approval (all motions included below were approved unanimously):

- Support for the BWA/staff recommendation to move to wastewater rates that are 60% fixed, 40% volumetric. (*Moved by L Deos, Seconded by E Roberts Musser*)
- Support for the BWA/staff recommendation to simplify current rate structures for multi-family charges, excluding developments with 5+ bedroom units. (*Moved by L Deos, Seconded by E Roberts Musser*)
- Support for the BWA/staff recommendation to adopt a separate fixed rate per bed for future dormitory-style multi-family customers with 5 or more beds per unit. (*Moved by L Deos, Seconded by E Roberts Musser*)
- Support for the BWA/staff recommendation to combine customer classes for commercial customers. (*Moved by L Deos, Seconded by E Roberts Musser*)

Previous Commission discussion approved a 5% adjustment for each year of the 5-year rate schedule by consensus.

Commission discussion highlights are included below:

- The pros and cons of a “phase in” approach to shifting the rate structure to a higher fixed percentage from variable. The consultant stated that phasing does provide more gradual change. However, adjusting between fixed and variable percentages would likely not result in rate shocks. A new fixed/variable ratio in the first year provides more revenue stability.
- Whether the revised rate recommendation for “dorm-style” apartments is ambiguous, how the rate would be determined, as well as questions about single-family properties housing a higher number of occupants. Staff indicated that the “dorm-style” billing category would be assessed when new multi-family developments are in the planning stages.
- Staff indicated that the rates in the five-year schedule, if approved, are the maximum amount that rates can be implemented. Should future years of the wastewater utility see a higher than anticipated revenue return, rates could be set lower than the maximum amount (including postponement of rate adjustments altogether).
- If the increases in wastewater billing for large multi-family developments would impact rent. Staff indicated that the increase would be an impact to the landlord, but whether or not the owner would pass on the full amount in the lease agreement is unknown. The assessment conducted by BWA indicated the cost would be around \$7-9.00 per bed per month.
- The consideration of the income of the population most likely living in multi-family housing, and the importance of considering affordability and possibilities for subsidies where possible. Staff indicated that rates are set around the cost of operating the utility, which is guided by the financial plan and proportioning the cost

among customers. Considerations of subsidies are a discussion outside of setting the rates.

- In response to a question regarding impacts to customers, and if any one customer class might see a higher adjustment than others, staff responded that the adjustment to cost allocation in 2017 did impact restaurants. However, the City does work with commercial customers on requests to evaluate wastewater strength based on measurements.

**Rate Tables**

The tables below show the proposed rates inclusive of the recommend structure changes discussed in the sections above. The restructure of the rates to the 60% fixed/40% variable structure and the first increase would occur concurrently in January 2024.

**Proposed Wastewater Rates – Residential**

	Current Rates	Fixed/Volumetric Rate Restructure
<b>Fixed Rates - Monthly \$/account</b>		
All Users	\$3.94	\$4.24
<b>Monthly per Dwelling Unit Rate</b>		
Single Family	\$18.26	\$26.33
Multi Family	varies	\$18.81
Dormitory ** (per bed)	N/A	\$8.78
<b>Volumetric Rate* - Per CCF</b>		
Residential	\$3.13	\$1.99

<b>Rate Adjustment By Year</b>				
2024	2025	2026	2027	2028
January 1	May 1	May 1	May 1	May 1
<b>Fixed Rates</b>				
\$4.45	\$4.67	\$4.90	\$5.15	\$5.41
<b>Monthly per Dwelling Unit Rate</b>				
\$27.65	\$29.03	\$30.48	\$32.01	\$33.61
\$19.75	\$20.74	\$21.78	\$22.87	\$24.01
\$9.22	\$9.68	\$10.16	\$10.67	\$11.20
<b>Volumetric Rate</b>				
\$2.09	\$2.19	\$2.30	\$2.42	\$2.54

(1 CCF = 748 gallons)

\*billable use equal to average monthly winter water use (in CCF) from November – February of prior year, subject to a cap

\*\*dormitory rates apply to multi-family apartments with more than 5 beds per dwelling unit.

**Proposed Wastewater Rates - Commercial**

	Current Rates	Fixed/Volumetric Rate Restructure
<b>Fixed Rates - Monthly \$/account</b>		
Base Rate	\$3.94	\$4.24
<b>Volumetric Rates* - Per CCF</b>		
Low Strength	\$4.67	\$4.48
Standard Strength	\$4.96	\$4.82
Medium Strength	\$5.11	\$5.00
High Strength	\$7.46	\$7.85

<b>Rate Adjustment By Year</b>				
2024	2025	2026	2027	2028
January 1	May 1	May 1	May 1	May 1
<b>Fixed Rates</b>				
\$4.45	\$4.67	\$4.90	\$5.15	\$5.41
<b>Volumetric Rates</b>				
\$4.71	\$4.94	\$5.19	\$5.45	\$5.72
\$5.06	\$5.32	\$5.58	\$5.86	\$6.16
\$5.25	\$5.52	\$5.79	\$6.08	\$6.39
\$8.24	\$8.65	\$9.08	\$9.54	\$10.01

(1 CCF = 748 gallons)

\*billable use equal to average monthly winter water use (in CCF) from November – February of prior year

### **Delay in Implementation**

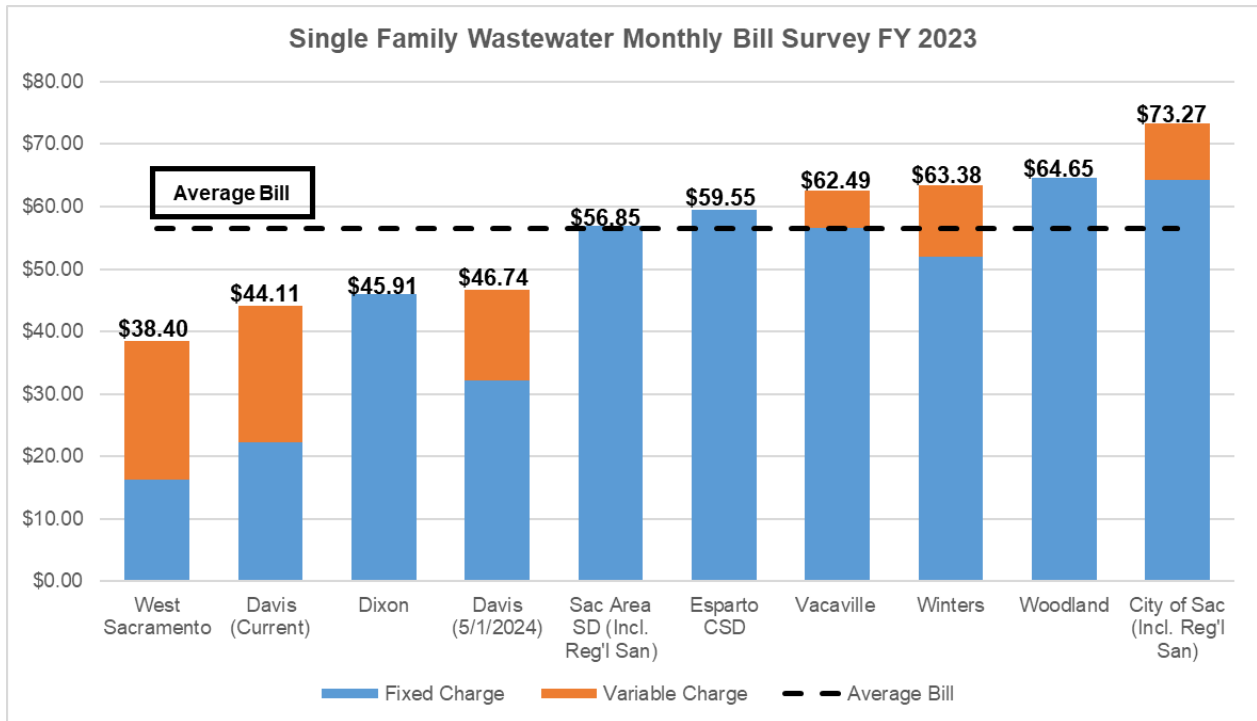
In 2022, City staff reviewed a number of factors in the consideration of the timing of moving forward with the Proposition 218 process for wastewater rates, including the healthy working capital balance and repayment of the \$2M loan to the Wastewater Fund from the Stormwater Fund<sup>4</sup>. With those factors, staff determined the first year of the adjusted rates could start in 2023, and planned to bring the cost of service study forward to Council in November or December 2022. When checking in with Bartle Wells and Associates prior returning to Council, City staff provided an additional year of data for the study to determine if the assumptions and recommendations could be adjusted in any way. Although work began on this analysis, the effort was delayed by the significant weather in January and February of 2023 and the effort of the PWUO staff to address the impacts of the storms. Additional unforeseen challenges with staffing resources further delayed completion of the study and the presentation to Council. With the completed analysis, the recommendations of the Commission do not require adjustment and can move forward as recommended. It is not recommended at this time that the rate adjustments be any further delayed.

### **Rates of Surrounding Communities & Degree of Impact**

As part of the cost of service study, Bartle Wells Associates conducted a survey of wastewater rates in surrounding communities, using an average single-family customer charge (combination of fixed and variable charges). The table below shows the City's current and proposed rates compared to eight other agencies. The blue portion of the column represents the fixed charge, with the orange portion representing the variable component of the average single-family wastewater component of the utility bill.

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<sup>4</sup> At the time of completion of the Wastewater Cost of Service Study, the anticipated timeline for payoff of the wastewater loan from the stormwater utility was many years out.



As demonstrated by the table, City of Davis wastewater rates remain lower than many surrounding communities.

*Degree of Impact*

The Environmental Protection Agency (EPA) has issued guidance<sup>5</sup> to municipalities to aid in the consideration of the degree of economic and social impact of potential water utility decisions that would in turn impact the cost of providing water service to the consumer. The full tool can be used to determine if debt financing is an avenue for utility providers to make necessary upgrades and examine all financial impacts, including those on rate payers. This guidance includes a Residential Indicator Score calculation that characterizes whether the proposed rates impose a “low,” “mid-range”, or “high” financial impact on residential customers.

**Exhibit 1. Residential Indicator Score**

RESIDENTIAL INDICATOR FINANCIAL IMPACT	RESIDENTIAL INDICATOR (CPH AS % MHI) <sup>12</sup>
Low	Less than 1.0 Percent of MHI
Mid-Range	1.0 to 2.0 Percent of MHI
High	Greater than 2.0 Percent of MHI

This indicator is determined by dividing the cost of the proposed monthly bill for wastewater service by the average household income for Davis (per the 2022 census).

<sup>5</sup> <https://www.epa.gov/system/files/documents/2023-01/cwa-financial-capability-assessment-guidance.pdf>

Proposed Single Family Monthly Bill	\$46.58
Davis Proposed Average Annual Bill	\$557.16
Davis Average Household Income (2022)	\$81,231
<hr/>	
% of Davis Household Income of Wastewater Bill	<b>0.69%</b>

The percentage indicates that the degree of impact of the proposed rate on residential users is “low.”

**Staff Rate Recommendation**

Consistent with the recommendations from the Utilities Commission in December 2021 and Bartle Wells Associates, staff recommend that Council move forward with the Proposition 218 Notices containing wastewater rate adjustments and structure updates for residential customers and commercial customers as presented.

**Tentative Timeline for Proposition 218 Notice and Rate Implementation**

<b>Date</b>	<b>Action</b>
August 29, 2023	City Council approval of initiation of Proposition 218 process
September 7, 2023	Notices sent to property owners (Postmarked by)
November 7, 2023	Public Hearing/Protest Hearing at City Council meeting
January 1, 2024	Rates become effective (if adopted)

**Attachments**

1. Wastewater Rate Report, Bartle Wells Associates



# CITY OF DAVIS

2023 WASTEWATER RATE STUDY

*Draft Financial Plan & Cost of Service Report  
August 25, 2023*



**BARTLE WELLS ASSOCIATES**  
INDEPENDENT PUBLIC FINANCE ADVISORS

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# Introduction & Background

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The City retained Bartle Wells Associates (BWA) to conduct a wastewater rate study that examines current and projected costs and the existing wastewater rate structure as it pertains to California legislation.

The City's wastewater system is a self-sustaining enterprise, meaning revenues (primarily sourced from wastewater rates) aim to recover the cost to operate and maintain the wastewater system. Primary cost factors impacting wastewater rates include ongoing debt service requirements and the high cost of capital improvements to repair aging infrastructure.

Primary objectives of the rate study include:

- Develop long-term financial projections for the wastewater enterprise, including operations, maintenance, debt, and capital improvement costs;
- Determine rate revenue requirement sufficient to provide service and generate adequate funding for capital needs;
- Conduct a cost-of-service study to determine the ratepayer share of expenses attributable to each customer class; and
- Recommend wastewater rates designed to equitably recover the costs of providing service according to Proposition 218.

Based on input from City staff, vital guiding principles included developing rates that:

- Are fair and equitable to all customer classes;
- Recover the costs of providing service and generate adequate funding for capital needs;
- Are easy to understand and implement; and
- Comply with the legal requirements of Proposition 218 and other California laws.

## Proposition 218

Utility rates are subject to the procedural and substantive requirements outlined in Proposition 218. Proposition 218 was adopted by California voters in 1996 and added Articles 13C and 13D to the California Constitution. Article 13D, Section 6 governs property-related charges, which the California Supreme Court subsequently ruled includes ongoing utility service charges such as water and wastewater. Article 13D, Section 6 establishes a) procedural requirements for imposing or increasing property-related charges and b) substantive requirements for those charges. Article 13D also requires voter approval for new or increased property-related charges but exempts from this voting requirement rates for water and wastewater service. The substantive requirements of Article 13D, Section 6 require the City's utility rates to meet the following conditions:

- Revenues derived from the fee or charge shall not exceed the funds required to provide the property-related service.
- Revenues derived from the fee or charge shall not be used for any purpose other than that for which the fee or charge was imposed.

- The amount of a fee or charge imposed upon any parcel or person as an incident of property ownership shall not exceed the proportional cost of the service attributable to the parcel.
- No fee or charge may be imposed for a service unless that service is used by, or immediately available to, the owner of the property in question.
- No fee or charge may be imposed for general governmental services, such as police or fire services, where the service is available to the public at large in substantially the same manner as it is to property owners.

The procedural requirements of Proposition 218 for all utility rate increases are as follows:

- **Noticing Requirement:** The City must mail notice of proposed rate increases to all affected property owners. The notice must specify the basis of the fee, the reason for the fee, and the date/time/location of a public rate hearing at which the proposed rates will be considered/adopted.
- **Public Hearing:** The City must hold a public hearing prior to adopting the proposed rate increases. The public hearing must be held not less than 45 days after the required notices are mailed.
- **Rate Increases Subject to Majority Protest:** At the public hearing, the proposed rate increases are subject to majority protest. If 50% plus one of the affected property owners submit written protests, the proposed rate increases, the increases cannot be adopted.

## Use of Generally Accepted Rate-Making Principles

The California Constitution does not allow agencies to set rates purely based on policy preferences arbitrarily. Instead, it provides agencies with the flexibility to implement rates within a cost-of-service framework established by Proposition 218. The rates developed in this report are designed to achieve the City's policy preferences while complying with the requirements of the California Constitution.

The rates developed in this study use a straightforward methodology to establish an equitable system of fixed and variable charges that recover the cost of providing wastewater service and fairly apportion costs, first to fixed/variable cost components, and then to account, flow, and strength-based cost components. All cost allocations align with the framework of California legal requirements and industry-standard rate-making practices. The rates were developed using generally accepted cost-based principles and methodologies for establishing wastewater rates, charges, and fees.

BWA used the following criteria when developing our recommendations for the City's wastewater rates and finances:

- 1) *Revenue Sufficiency:* Rates should recover the annual cost of service and provide revenue stability.
- 2) *Rate Impact:* While rates are calculated to generate sufficient revenue to cover operating and capital costs, they should be designed to minimize, as much as possible, the impact on ratepayers.
- 3) *Equitability:* Rates should be fairly allocated among all customer classes based on their estimated demand characteristics. Each user class only pays its proportionate share.
- 4) *Practicality:* Rates should be simple in form and, therefore, adaptable to changing conditions, easy to administer, and easy to understand.

# Financial Plan and Projected Revenue Requirements

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## Financial Plan Overview

BWA developed a long-term financial plan to review the financial condition of the wastewater enterprise and estimate annual revenue requirements to fund operating, debt and capital expenditures.

Bartle Wells Associates conducted an independent evaluation of the City's wastewater enterprise finances. Key observations are summarized as follows:

- As a self-supporting enterprise fund, the majority of revenues are derived from wastewater service charges (rates). Wastewater rates were last increased in December of 2014. Annual rate revenue totaled just under \$14.0 million in FY 2023.
- The wastewater enterprise has annual debt service payments totaling about \$2.1 million on one loan issued in 2014.
- The current Capital Improvement Plan, which addresses aging infrastructure and other needed improvements, totals \$12.8 million over the next 5 years. The 10-year capital program totals \$23.9 million.
- Wastewater expenses were projected over the next 20 years based on historical audits, the 2022/23 budget, and financial projections provided by the City. Projected expenses and minimum reserve fund targets were used to develop annual rate revenue requirements in the 20-year period.
- Within the 5-year rate structure recommendations in this study, the City will need to increase rates on an annual basis to meet the cost of wastewater service. The primary cost factors impacting wastewater rates are the significant capital improvement costs and inflationary pressure on resources.

This section details the revenue and expenditure assumptions used to project the wastewater utility's expenditures and determine the proposed annual rate revenue requirements. Detailed financial projections are provided in the Appendix of this report.

## Current Rates

The existing wastewater rates became effective October 1, 2017, and include a fixed base rate for all users, a flat per unit charge for residential customers, and volumetric charges based on estimated sewer flow and effluent strength for each customer class in hundred cubic foot (CCF) units.

### Residential Sewer Rates

Single family homes (both attached and detached), multi-family apartments and mobile home park customers are billed each month according to three rate categories: a fixed base rate reflecting administrative costs, a fixed per unit charge based on dwelling unit size, and a volumetric charge based on winter water use (November – February) in the prior year. Average winter water use is used to estimate sewer flow, where water used for irrigation that does not impact the sewer system cannot be determined from a customer with a single meter for both purposes. Average winter water use is capped at 24 units for a single-family home to avoid any irrigation use in wintertime. Non-single-family customers have reduced fixed per-unit charges and a lower cap on monthly average winter water use, reflecting a lower sewer demand from these customer classes.

## Non-Residential Sewer Rates

Commercial customers are billed a monthly fixed base rate that recovers administrative expenses, and volumetric charges based on monthly average winter wastewater usage (per CCF) in the prior year. Commercial users do not face a fixed charge but pay higher volumetric rates to reflect the total commercial portion of rate revenues. Volumetric rates are charged according to seven customer classes (C1-C7) based on the sewer demand and strength for various commercial use categories.

The City's current wastewater rates are summarized in Table 1 below.

**Table 1 – Current Rates**

Rates Effective		10/1/2017
Base Rate - Monthly \$/account, all users		
Base Rate		\$3.94
Monthly Per Unit Rate (\$/dwelling unit, residential only)		
Single Family		18.26
Multi Family		
Condominium		12.46
Duplex		14.22
3 Units		15.02
4 Units		15.32
5+ Units		12.88
Mobile Home		12.85
Volumetric Rate (\$/CCF* by customer class)		
Single Family Residential		\$3.13
Commercial		
C-1	Office, Retail, Motels	\$4.53
C-2	Laundry, Dry Cleaning	\$4.69
C-3	Churches, Schools, Medical/Dental, Manufacturing, Storage	\$4.69
C-4	Convalescent Hospital	\$4.96
C-5	Auto Repair / Auto Dealers / Car Wash	\$5.33
C-6	Restaurants / Fast Food	\$8.12
C-7	Industrial	\$6.74
*CCF is equal to average monthly winter wastewater use from November - February of prior year		
Monthly Sewer Cap (maximum monthly CCF billable, by customer class)		
Single Family		24
Multi Family		
Condo		19
Duplex		36
Triplex		56
Quadplex		76
5+ units		19 CCF/unit
Mobile Home Park		19 CCF/unit

## Current Wastewater Fund Revenues

The wastewater enterprise has multiple sources of revenue, including wastewater rates, capacity fees, interest earnings, and "other revenues." BWA evaluated current and projected revenues as summarized below:

- Rate Revenues:** Revenues from wastewater rates were derived from the fixed base, per unit, and volumetric wastewater rates paid by customers. In FY 2023/24 the City is projected to receive \$14.4 million in rate revenue, provided the first rate increase takes effect January 2024. Rate revenues currently represent 93 percent of the utility's total revenues. Future annual wastewater rate revenues are projected based on the required revenue increases, with adjustments made for customer growth estimated to be 0.5% per year.

FY 2021/22 rate revenues are summarized in Table 2.

**Table 2 – Current Wastewater Rate Revenues**

	<b>Base Rates</b>	<b>Per Unit Rates</b>	<b>Volumetric Rates*</b>	<b>Total Revenue</b>
**Inside City Revenue	\$746,602	\$5,102,432	\$7,751,049	\$13,600,084
Total Rate Revenue	\$762,034	\$5,207,893	\$7,911,253	\$13,881,179

*\*Reflects prior year average winter water use, November 2020 - February 2021. Residential users subject to usage cap*

*\*\*Does not include irrigation accounts or city accounts inside the City, El Macero, and North Davis Meadows accounts outside city (billed separately)*

- Investment Earnings:** Interest is earned on wastewater utility reserve funds and other investments. For fiscal year 2023/24, investment earnings are estimated to be \$133,166. Investment earnings projections were estimated based on a conservative market rate of 1 percent.
- Capacity Fees:** The City is projected to receive \$533,562 in capacity fee revenue from new connections in 2023/24. Capacity fee revenue projections were calculated based on the City's current capacity fees and projected new development through FY 2040. The City's current capacity fee is \$6,150 for a typical single family residential wastewater connection. Other fees are assigned EDU ratings according to their estimated demand in single family Equivalent Dwelling Units (EDUs). Fees are increased annually for inflation, approximately 3.0% per year. New development was projected based on assumed growth of 0.5% per year.
- Other Operating Revenues:** These revenues include sewer service fees, maintenance fees, pretreatment fees, and land lease revenues. Revenues in this "other operating revenue" category are expected to be \$370,376 in FY 2023/24 and are projected based on assumed inflation of 0.5% per year.

## Wastewater Reserve Fund Balance

As of July 1, 2022, the wastewater enterprise held \$13.1 million in operations, capital, and expansion reserve funds. Currently the City is meeting its minimum policy fund balance targets as shown in Table 3.

**Table 3 – Wastewater Fund Reserves Policy Targets**

<b>Fund Targets</b>		
<u>Fund</u>	<u>Description</u>	<u>Target Minimum</u>
531	Operations	\$2,832,039
532	Capital Replacement	\$3,355,783
	Rate Stabilization	\$716,902
	Debt Funds Held as Required	\$2,086,828
<b>Total Target</b>		<b>\$8,991,552</b>
<b>Total Wastewater Fund Balance - Working Capital</b>		<b>\$13,054,169</b>

### Reserve Fund Balance Policies

Maintaining a prudent minimal level of fund reserves provides a financial cushion for dealing with unanticipated expenses, revenue shortfalls, debt requirements, and emergency capital repairs. The financial plan was designed to meet the following fund balance targets:

- **Wastewater Operations:** The City shall maintain a reserve balance of at least 3 months of its annual operating cost.
- **Capital Replacement Fund:** Target reserve shall be the average of the planned expenditures in the 5-year CIP.
- **Rate Stabilization:** Target reserve shall be 5% of annual operating revenue for wastewater.
- **Debt funds held as required:** one year of debt service payments.

In addition to the reserve policy, the City holds debt funds as required. The City is legally required to abide by debt service covenants on each bond and must raise wastewater rates as needed to achieve a minimum of 110% coverage on annual debt service. In other words, annual net revenues (total revenues less total operations and maintenance expenses) must be at least 110% of combined annual debt service payments on all parity (i.e., first-lien) wastewater obligations. Coverage ratios are a financial measure of the wastewater utility's ability to repay outstanding debt and are a standard legal covenant for securing wastewater revenue bonds or similar debt financing. BWA has ensured that the City maintains a minimum 110% debt service coverage ratio each year of the financial plan.

Based on 2022/23 budget expenditures, the total minimum reserve fund for the wastewater enterprise is \$9.0 million.

## Baseline Operating Expenses

Operations and maintenance costs are expenditures that the City incurs in the daily operations of the wastewater system. Operations and maintenance costs were budgeted to be \$11.3 million in 2022/23. BWA projected the annual wastewater operating expenditures according to City-provided estimates of labor costs, chemicals, treatment fees, and other expenditures. The wastewater operations fund faces an average overall

cost increases of 3% to 15% per year through FY 2025 followed by 3% per year through FY 2041. Detailed operating cost projections can be found in the Appendix.

## Capital Improvement Plan

City staff developed a 20-year schedule of necessary capital improvement projects through FY 2041, including projects for the ongoing repair and replacement of wastewater system infrastructure, wastewater treatment projects, and ongoing annual repair and replacement. These projects are necessary for the long-term sustainability and integrity of the wastewater system.

The 5-year Capital Improvement Plan has a total project cost of \$12.8 million in current dollars. BWA has included a 5% annual inflation factor per year to reflect the average annual change in construction costs, resulting in a 5-year CIP total of \$14.5 million when adjusting for inflation. Inflation-adjusted CIP costs are summarized in Table 4.

**Table 4 – Five Year Wastewater CIP Summary**

	<b>2023/24</b>	<b>2024/25</b>	<b>2025/26</b>	<b>2026/27</b>	<b>2027/28</b>
Total CIP Project Cost (Inflation-Adjusted)	\$4,462,500	\$3,461,399	\$2,691,478	\$1,811,104	\$2,093,102

The detailed 20-year Capital Improvement Plan is provided in the Appendix.

## Current Debt Service

The wastewater enterprise pays annual debt service on one loan, issued by the State Revolving Fund (SRF) loan in December 2014, to pay for Davis Wastewater Treatment Plant Secondary and Tertiary Improvement projects and meet the City's future wastewater treatment needs. Annual debt service payments for this loan are shown on Table 5:

**Table 5 – Summary of Debt Service Payments**

	<b>Total Annual Payment</b>
SRF Loan - WWTP 8010	\$2,086,828

## Cash Flow Projection

BWA developed 5-year and 20-year cash flow projections to summarize the current and projected revenue and expenditures discussed in this report and evaluate the need for wastewater rate revenue adjustments.

The 5-year cash flow projection, including proposed rate adjustments, is provided in Table 6.

**Table 6 – Five Year Wastewater Cash Flow Projection**

Projection	Budget	Projection ->				
	1	2	3	4	5	6
Fiscal Year	<u>2022-23</u>	<u>2023-24</u>	<u>2024-25</u>	<u>2025-26</u>	<u>2026-27</u>	<u>2027-28</u>
Effective Date of First Rate Increase		1/1/2024	5/1/2025	5/1/2026	5/1/2027	5/1/2028
Effective Date of Second Rate Increase						
<b>Proposed Rate Revenue Increase</b>	<b>0.0%</b>	<b>5.0%</b>	<b>5.0%</b>	<b>5.0%</b>	<b>5.0%</b>	<b>5.0%</b>
Growth	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Beginning Fund Balance	\$13,054,169	\$12,272,076	\$8,871,524	\$9,613,110	\$8,591,357	\$8,951,586
<b>REVENUE</b>						
<b>Operating Revenue</b>						
Wastewater Rate Revenue	\$13,969,500	\$14,390,331	\$14,938,480	\$15,763,831	\$16,634,783	\$17,553,854
All Other Operating Revenue	\$368,534	\$370,376	\$372,228	\$374,089	\$375,960	\$377,839
<i>Total Operating Revenue</i>	<i>\$14,338,034</i>	<i>\$14,760,707</i>	<i>\$15,310,708</i>	<i>\$16,137,920</i>	<i>\$17,010,742</i>	<i>\$17,931,694</i>
<b>Non- Operating Revenue</b>						
Total Investment Income	\$131,847	\$133,166	\$134,497	\$135,842	\$137,201	\$138,573
Capacity Fees	\$515,444	\$533,562	\$552,316	\$571,730	\$591,826	\$612,629
All Other Non-Operating Revenue	\$2,000,000	\$0	\$3,000,000	\$0	\$0	\$0
<i>Total Non-Operating Revenue</i>	<i>\$2,647,291</i>	<i>\$666,727</i>	<i>\$3,686,813</i>	<i>\$707,572</i>	<i>\$729,027</i>	<i>\$751,202</i>
<b>TOTAL REVENUE</b>	<b>\$16,985,324</b>	<b>\$15,427,434</b>	<b>\$18,997,521</b>	<b>\$16,845,493</b>	<b>\$17,739,769</b>	<b>\$18,682,896</b>
<b>EXPENDITURES</b>						
<b>Operating Expenses</b>						
Total Salaries and Wages	\$3,610,525	\$4,152,104	\$4,320,767	\$4,450,390	\$4,583,902	\$4,721,419
Total Personnel Costs	\$740,636	\$794,653	\$834,385	\$859,417	\$885,200	\$911,755
Other Resources	\$6,976,996	\$7,331,902	\$7,552,556	\$7,779,132	\$8,012,506	\$8,252,881
<b>Total Operating Expenses</b>	<b>\$11,328,157</b>	<b>\$12,278,659</b>	<b>\$12,707,708</b>	<b>\$13,088,940</b>	<b>\$13,481,608</b>	<b>\$13,886,056</b>
<b>Non-Operating Expenses</b>						
Total CIP	\$4,352,432	\$4,462,500	\$3,461,399	\$2,691,478	\$1,811,104	\$2,093,102
Debt Service	\$2,086,828	\$2,086,828	\$2,086,828	\$2,086,828	\$2,086,828	\$2,086,828
<b>Total Non-Operating Expenditures</b>	<b>\$6,439,260</b>	<b>\$6,549,328</b>	<b>\$5,548,227</b>	<b>\$4,778,306</b>	<b>\$3,897,932</b>	<b>\$4,179,930</b>
<b>TOTAL EXPENDITURES</b>	<b>\$17,767,417</b>	<b>\$18,827,986</b>	<b>\$18,255,935</b>	<b>\$17,867,246</b>	<b>\$17,379,540</b>	<b>\$18,065,986</b>
Net Revenue	(\$782,093)	(\$3,400,552)	\$741,586	(\$1,021,753)	\$360,229	\$616,910
<b>Ending Fund Balance</b>	<b>\$12,272,076</b>	<b>\$8,871,524</b>	<b>\$9,613,110</b>	<b>\$8,591,357</b>	<b>\$8,951,586</b>	<b>\$9,568,496</b>
<i>Fund Balance Target</i>	<i>\$8,991,552</i>	<i>\$8,894,528</i>	<i>\$9,029,290</i>	<i>\$9,165,959</i>	<i>\$9,307,767</i>	<i>\$9,454,927</i>
<b>Debt Service Coverage</b>	<b>2.40</b>	<b>1.19</b>	<b>2.68</b>	<b>1.46</b>	<b>1.69</b>	<b>1.94</b>



## Rate Revenue Requirements

The 5-year cash flow projection indicates that the City will need increases to wastewater rate revenue to accomplish the following:

- Complete annual operations and Capital Improvement Plan funding
- Meet minimum fund balance targets
- Meet minimum debt service coverage of 110% net operating revenues

Due to the length of time since the City implemented a rate increase, BWA recommends that the City implement the first proposed rate increase of 5% on January 1, 2024. BWA recommends that thereafter, all rate increases be adopted on May 1 of each year (or as soon after as possible), beginning May 1, 2025.

The 5-year schedule of rate revenue requirements is shown in Table 7.

**Table 7 – 5-Year Wastewater Cash Flow Projection: Proposed Rate Revenue Requirements**

<b>Fiscal Year</b>	<b>FY 2023/24</b>	<b>2024/25</b>	<b>2025/26</b>	<b>2026/27</b>	<b>2027/28</b>
<b>Adoption Date</b>	<b>1/1/24</b>	<b>5/1/25</b>	<b>5/1/26</b>	<b>5/1/27</b>	<b>5/1/28</b>
Revenue Increase	5.0%	5.0%	5.0%	5.0%	5.0%
Rate Revenue	\$14,390,331	\$14,938,480	\$15,763,831	\$16,634,783	\$17,553,854

Please find additional details and long range cash flow projections in the Appendix tables attached.

# Cost of Service Study

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In addition to the proposed increases, Bartle Wells Associates recommends that the City make changes to the current rate structure to align with the latest cost of service. The rates recommended ensure compliance with the requirements set forth in Proposition 218, equality between customer classes, and provide greater security for revenue collection.

BWA conducted a comprehensive cost of service analysis of the City’s wastewater enterprise expenses first to fixed/variable cost components, and second to account, flow and strength cost components. Costs were analyzed in the base year FY 2022/23, or the basis of the proposed rate schedule, for inside City customers only.

## System Demand Factors

First, costs were allocated to major demand factors that impact the Wastewater System. Cost components include:

1. Number of Accounts
2. Total Flow (shown as million gallons per day, or mgd)
3. Biochemical Oxygen Demand (BOD, shown as total lbs/day)
4. Total Suspended Solids (TSS, shown as total lbs/Day)
5. Ammonia (N, shown as mg/L)

Cost allocation percentages for each factor were based on the engineering and staff input on current system utilization.

**Table 8 – 2023 Cost Allocation Summary**

	<b>% CS</b>	<b>% Flow</b>	<b>% BOD</b>	<b>% TSS</b>	<b>% Ammonia</b>	<b>Total</b>
<b>% Cost</b>						
<b>Allocation*</b>	6%	62%	15%	15%	3%	100%
<b>\$ Revenue</b>						
<b>Requirement</b>	\$802,333	\$8,395,937	\$1,981,144	\$1,981,144	\$439,527	\$13,600,084

\*Inside City rate revenues only, see Table 2

The FY 2022/23 revenue requirement was allocated to account, flow, BOD TSS, and Ammonia cost components. BWA used average system data from FY 2016-FY 2020 as the assumed demand factors for the cost of service study. Demand factors are summarized in Table 9.

**Table 9 – Summary of Billable Units**

<b>Cost Component</b>	<b>Billable Units</b>
Accounts	15,781
Flow (CCF)	2,242,430
BOD (lbs/Yr)	3,446,568
TSS (lbs/yr)	3,662,831
Ammonia (total N)	250

Unit rates were developed by dividing the rate revenue allocation by the demand factor for each cost component (account, flow, BOD, TSS, Ammonia). Unit rates should be used in any case where a customer’s wastewater is tested on a regular basis, or they exceed the strength assumptions in the City’s defined customer classes. Unit rates are calculated in Table 10 below. For the purpose of the cost allocation, this study uses flow and loading data provided by the City in 2021.

**Table 10 – 2023 COS Proposed Unit Rates**

	<b>Customer Service</b>	<b>Flow</b>	<b>BOD</b>	<b>TSS</b>	<b>Ammonia</b>
Total Cost Allocation	\$802,333	\$8,395,937	\$1,981,144	\$1,981,144	\$439,527
Billable Units	15,781	2,242,430	3,446,568	3,662,831	250
\$/Unit	\$4.24	\$3.74	\$0.57	\$0.54	\$1.76

A detailed cost allocation summary can be found in the Appendix tables.

# Fixed Rates

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## Fixed Charge Recommendations

### **BWA Recommendation: Blended Multi Family Fixed Rate**

The current schedule of per dwelling unit rates is difficult for customers to understand. While multi-family wastewater flow does not vary greatly with the number of apartments in each complex, demand for each class may vary based on the types of housing developments in the City at any given time. BWA recommends that the City consider condensing the current per-dwelling-unit classes to one single family and one multi-family user class. A single rate would apply more broadly and equitably to all multi-family customers.

### **BWA Recommendation: Dormitory-Style Multi Family Housing Fixed Rate**

In recent years, several new student housing developments have been proposed or built that have as many as 8 beds per dwelling unit. This type of housing generates wastewater flow with high concentrations of wastewater flow per dwelling unit (i.e. more use of the same toilet, showers, and sinks) based on the number of beds in each unit.

BWA recommends that the City charge student housing complexes a fixed rate per bed (rather than per dwelling unit) based on a factor of 1/3 the single-family residential per dwelling unit rate as outlined in Table 11 below.

**Table 11 – Dormitory Style Housing Assumptions**

Gallons per capita per day, indoor	57
CCF single family monthly average	7
<u>Gallons per SFR per month</u>	<u>5,236</u>
<b>Assumed number of people (beds) per SFR</b>	<b>3.06</b>
Rounded factor for per-bed fixed charge	1/3
<b>Proposed Dormitory-Style Housing Rate</b>	<b>\$8.78</b>

This recommended charge per bed deviates from the current Per Unit rate category structured on a per-dwelling-unit basis. To avoid confusion, BWA recommends that the City rename this category of charges from “Per unit Charges” to “Residential Fixed Rates” in the future.

## Fixed Charge Derivation

### **Customer Classes and Billing Units**

Fixed rates include account-based rates and flow-based per dwelling unit charges (for residential customers only). Account data is assumed to be constant from FY 2019, while residential flow data reflects billable water use for each customer class.

A summary of wastewater customer data assumed for the fixed rate calculation (including adjustments to the fixed per-dwelling-unit customer classes) is shown on Table 12.

**Table 12 – Fixed Rate Demand Assumptions**

	# Accounts	# Dwelling Units	Flow (CCF)
<b>Residential</b>	15,229	27,393	1,968,798
<b>Commercial Class</b>			
Low Strength	249	249	93,206
Standard Strength	212	212	92,203
Medium Strength	2	2	12,020
High Strength	89	89	75,503

**Fixed Base Rate Calculation**

Proposed wastewater base rates were developed according to the customer service revenue requirement shown in Table 10 and the number of billing units as identified in the FY 2022/23 cost of service study. The proposed base rates are calculated on Table 13.

**Table 13 – Proposed Base Rate Calculation**

	<b>FY 2022/23</b>
Base Rate Revenue Requirement	\$802,333
Total Accounts (All Users)	15,781
<b>Monthly Base Rate (\$/account)</b>	<b>\$4.24</b>

**Fixed Per Unit Rate Calculation**

Fixed rates were developed based on flow-related costs for each residential housing type. BWA has updated the fixed revenue requirement by customer class according to the latest flow data from these customers and the updated overall rate revenue allocation to flow-related costs. Account-level water consumption was adjusted to reflect overall system flow. Revenue requirements and associated per-dwelling-unit rates are shown on Table 14.

**Table 14 – Fixed, Per-Dwelling Unit Rates by Customer Class**

<b>Customer Class</b>	<b># Units</b>	<b>\$ Revenue Req.</b>	<b>\$/Unit</b>
Single Family (\$/unit)	13,008	\$2,850,368	\$26.33
Multi Family (\$/unit)	14,385	\$2,252,065	\$18.81
Dormitory-Style Housing (\$/bed)			\$8.78

# Variable Rates

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## Variable Rate Recommendations

### BWA Recommendation: Condense Customer Classes

BWA proposes that the City update the current commercial volumetric customer classes (C-1 to C-7) to a larger listing of commercial customer classes under four strength categories: low, standard, medium, and high strength). Examples of commercial user types in each category are shown in Table 15.

**Table 15 – Example Customer Classes**

<b>Strength Category</b>	<b>Example Customer Classes</b>
<b>Low Strength</b>	Banks & Financial Institutions, Barber Shops, Hair Salons, Dry Cleaners, Laundromats, Offices – Business and Professional, Offices- Medical/Dental (without surgery)
<b>Standard Strength</b>	Residential (All) Auto Dealers, Beauty Shops, Nail Salons, Pet Groomers, Bars & Taverns, Halls & Lodges, Fire Stations, Hospitals, Hotels, Motels, Vacation Rentals
<b>Medium Strength</b>	Restaurants without dishwasher/garbage disposal, Hotels/Motels with a restaurant, carpet cleaners, Funeral Homes, Tasting Rooms
<b>High Strength</b>	Restaurants with a Dishwasher, Bakeries, Butcher Shops, Markets with food service, dairy products, and specialty foods manufacturing

## Proposed Variable Rate Derivation

### Volumetric Demands

Account level strength factors including BOD, TSS, and Ammonia were developed based on Staff input, California State Revenue Guidelines, and BWA expertise. Total flows and strengths were adjusted to reflect the total average annual effluent strength measured at the wastewater plant. A summary of adjusted wastewater demand data by proposed customer class is shown on Table 16.

**Table 16 – Volumetric Demands – Proposed Customer Classes**

<b>Strength Category</b>	<b>Flow (CCF)</b>	<b>BOD (mg/L)<sup>2</sup></b>	<b>TSS (mg/L)<sup>2</sup></b>	<b>Ammonia mg-N/L</b>	<b>BOD (lbs/Yr)</b>	<b>TSS (lbs/yr)</b>	<b>Ammonia (total N)</b>
Residential	1,968,798	244	264	0.035	2,998,880	3,236,670	246
Commercial							
Low Strength	93,206	127	84	0.000	73,825	49,033	0.0
Standard Strength	92,903	137	166	0.005	79,538	96,148	1.5
Medium Strength	12,020	244	105	0.005	18,309	7,904	0.2
High Strength	75,503	586	580	0.008	276,015	273,076	1.9
<b>Total</b>	<b>2,242,430</b>				<b>3,446,568</b>	<b>3,662,831</b>	<b>250</b>

**Proposed Variable Rates**

Volumetric wastewater rates were calculated according to the volumetric rate revenue requirement and billable units. A summarized calculation of volumetric rates is shown on Table 17.

**Table 17 – Proposed Volumetric Rates**

							<b>2022/23</b>
<b>Total Variable Rate Revenue Requirement</b>							<b>\$5,440,034</b>
	<u>\$ Revenue Requirement</u>				<u>Billable Units</u>		<u>\$/ccf</u>
	<u>\$ Flow (Net)</u>	<u>BOD</u>	<u>TSS</u>	<u>Ammonia</u>	<u>Total</u>	<u>Flow (ccf)</u>	
<b>Residential</b>	<b>\$13,707</b>	<b>\$1,723,806</b>	<b>\$1,750,642</b>	<b>\$433,455</b>	<b>\$3,921,610</b>	<b>1,968,798</b>	<b>\$1.99</b>
<b>Commercial</b>							
Low Strength	\$348,975	\$42,436	\$26,521	\$0	<b>\$417,932</b>	93,206	<b>\$4.48</b>
Standard Strength	\$347,840	\$45,720	\$52,004	\$2,554	<b>\$448,118</b>	92,903	<b>\$4.82</b>
Medium Strength	\$45,004	\$10,524	\$4,275	\$330	<b>\$60,134</b>	12,020	<b>\$5.00</b>
High Strength	\$282,693	\$158,658	\$147,701	\$3,321	<b>\$592,373</b>	75,503	<b>\$7.85</b>
<b>Total</b>	<b>\$1,038,219</b>	<b>\$1,981,144</b>	<b>\$1,981,144</b>	<b>\$439,660</b>	<b>\$5,440,167</b>	<b>273,632</b>	

# Proposed Rate Summary

The proposed restructured rates were calculated to generate approximately the same rate revenue as the 2022-23 budget while adjusting the proportional share of rates between customer classes based on the updated cost of service. In order to generate the annual rate revenue requirements established in the financial plan projection, the wastewater rate revenues will need to be increased.

Table 18 summarizes the proposed 5-year rate schedule.

**Table 18 – 5-Year Schedule of Proposed Rates**

Year	Current	Restructure	2	3	4	5	6
Fiscal Year	FY 2022/23	FY 2022/23	FY 2023/24	FY 2024/25	FY 2025/26	FY 2026/27	FY 2027/28
Effective Date			1/1/2024	5/1/2025	5/1/2026	5/1/2027	5/1/2028
<b>Overall Rate Revenue Increase</b>			5.0%	5.0%	5.0%	5.0%	5.0%
<b>Fixed Charges</b>							
<b>Base Rate - Monthly \$/account, all users</b>							
Base Rate	\$3.94	\$4.24	\$4.45	\$4.67	\$4.90	\$5.15	\$5.41
<b>Monthly Per Unit Rate (\$/dwelling unit, residential only)</b>							
Single Family	\$18.26	\$26.33	\$27.65	\$29.03	\$30.48	\$32.01	\$33.61
Multi Family	N/A	\$18.81	\$19.75	\$20.74	\$21.78	\$22.87	\$24.01
Dormitory-Style Housing (per bed)	N/A	\$8.78	\$9.22	\$9.68	\$10.16	\$10.67	\$11.20
<b>Volumetric Rate (\$/CCF* by customer class) - No Structure Change</b>							
<b>Residential</b>	\$3.13	\$1.99	\$2.09	\$2.20	\$2.31	\$2.42	\$2.54
<b>Commercial</b>							
Low Strength	\$4.53	\$4.48	\$4.71	\$4.94	\$5.19	\$5.45	\$5.72
Standard Strength	\$4.69	\$4.82	\$5.06	\$5.32	\$5.58	\$5.86	\$6.16
Medium Strength	\$4.96	\$5.00	\$5.25	\$5.52	\$5.79	\$6.08	\$6.39
High Strength	\$8.12	\$7.85	\$8.24	\$8.65	\$9.08	\$9.54	\$10.01

(1 CCF = 748 gallons)

\*billable use equal to average monthly winter water use (in CCF) from November - February of prior year

Detailed rate calculations are provided in the appendix following this document.



DRAFT



# City of Davis

## Draft Wastewater COS Rate Study 2023

Agency:

**City of Davis**

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# Financial Plan

**Table S1: Current Monthly Wastewater Rates**  
**City of Davis**  
**Draft Wastewater COS Rate Study 2023**

## Current Monthly Wastewater Rates

Rates Effective 7/1/2019

**Base Rate - Monthly \$/account, all users**

Base Rate \$3.94

**Monthly Per Unit Rate (\$/dwelling unit, residential only)**

Single Family	\$18.26
Multi Family	
Condominium	\$12.46
Duplex	\$14.22
3 Units	\$15.02
4 Units	\$15.32
5+ Units	\$12.88
Mobile Home	\$12.85

**Volumetric Rate (\$/ccf\* by customer class)**

Residential	\$3.13
Commercial	
C-1 Office, Retail, Motels	\$4.53
C-2 Laundry, Dry Cleaning	\$4.69
C-3 Churches, Schools, Medical/Dental, Manufacturing, Storage	\$4.69
C-4 Convalescent Hospital	\$4.96
C-5 Auto Repair / Auto Dealers / Car Wash	\$5.33
C-6 Restaurants / Fast Food	\$8.12
C-7 Industrial	\$6.74

(1 ccf = 748 gallons)

*\*billable use equal to average monthly winter water use (in ccf) from November - February of prior year*

**Monthly Sewer Cap (maximum monthly ccf billable, by customer class)**

Single Family	24
<b>Multi Family</b>	
Condo	19
Duplex	36
Triplex	56
Quadplex	76
5+ units	19 ccf/unit
Mobile Home Park	19 ccf/unit
Commercial	N/A

Table S2: Wastewater O&M Expense Projection  
 City of Davis  
 Draft Wastewater COS Rate Study 2023

## Wastewater O&M Expense Projection

Expense Category	% Escalation -->				
	2023-24	2024-25	2025-26	2026-27	2027-28
New Labor	15%	5%	3%	3%	3%
Existing Labor	15%	4%	3%	3%	3%
Benefits	5%	5%	3%	3%	3%
Administration	5%	3%	3%	3%	3%
Supplies & Equipment	5%	3%	3%	3%	3%
Services	0%	0%	0%	0%	0%

Category	Budget(1)	Projection ->					
		2022-23	2023-24	2024-25	2025-26	2026-27	2027-28
Salaries/Wages	Existing Labor	\$3,315,115	\$3,812,382	\$3,964,878	\$4,083,824	\$4,206,339	\$4,332,529
Part time Wages/Benefits	New Labor	\$224,310	\$257,957	\$270,854	\$278,980	\$287,349	\$295,970
Overtime/Standby/Callback	Existing Labor	\$71,100	\$81,765	\$85,036	\$87,587	\$90,214	\$92,921
Retirement	Benefits	\$0	\$0	\$0	\$0	\$0	\$0
Leave	Benefits	\$24,600	\$25,830	\$27,122	\$27,935	\$28,773	\$29,636
Health/Dental/Cafeteria Plan	Benefits	\$0	\$0	\$0	\$0	\$0	\$0
Retiree Medical	Benefits	\$0	\$0	\$0	\$0	\$0	\$0
Add Pays	Benefits	\$546,186	\$573,495	\$602,170	\$620,235	\$638,842	\$658,007
Other Benefits	Benefits	\$0	\$0	\$0	\$0	\$0	\$0
Workers Comp	Benefits	\$0	\$0	\$0	\$0	\$0	\$0
Unemployment Insurance	Benefits	\$0	\$0	\$0	\$0	\$0	\$0
Additional Labor Expenses**	New Labor	\$169,850	\$195,328	\$205,094	\$211,247	\$217,584	\$224,112
Resiliency	Benefits	\$0	\$0	\$0	\$0	\$0	\$0
<u>Other Resources (All Other Expenses)</u>							
45 Professional Services	Services	\$1,350,133	\$1,417,640	\$1,460,169	\$1,503,974	\$1,549,093	\$1,595,566
19 Transfers	Administration	\$0	\$0	\$0	\$0	\$0	\$0
13 Insurance	Administration	\$524,231	\$550,443	\$566,956	\$583,965	\$601,483	\$619,528
41 Internal Support Services	Services	\$1,082,855	\$1,136,998	\$1,171,108	\$1,206,241	\$1,242,428	\$1,279,701
Staff Development/Training	Administration	\$0	\$0	\$0	\$0	\$0	\$0
10 Leave Time Pay	Benefits	\$0	\$0	\$0	\$0	\$0	\$0
95 Transfers	Administration	\$0	\$0	\$0	\$0	\$0	\$0
88 Indirect Cost Recovery	Administration	\$1,245,160	\$1,307,418	\$1,346,641	\$1,387,040	\$1,428,651	\$1,471,510
49 Rental/Leasing	Administration	\$171,400	\$179,970	\$185,369	\$190,930	\$196,658	\$202,558
01 Regular Full Time	Existing Labor	\$0	\$0	\$0	\$0	\$0	\$0
11 Special Duty Pay	Existing Labor	\$20,562	\$23,646	\$24,592	\$25,330	\$26,090	\$26,873
12 Additional Pays	Existing Labor	\$40,000	\$46,000	\$47,840	\$49,275	\$50,753	\$52,276
23 Materials & Supplies	Supplies & Equipment	\$859,965	\$902,963	\$930,052	\$957,954	\$986,692	\$1,016,293
25 Small Tools & Equipment	Supplies & Equipment	\$186,000	\$195,300	\$201,159	\$207,194	\$213,410	\$219,812
43 Maint & Repair Services	Services	\$235,675	\$247,459	\$254,883	\$262,529	\$270,405	\$278,517
46 Technical Services	Services	\$287,000	\$301,350	\$310,391	\$319,702	\$329,293	\$339,172
04 Temporary Part Time	Existing Labor	\$0	\$0	\$0	\$0	\$0	\$0
05 Overtime Pay	Existing Labor	\$0	\$0	\$0	\$0	\$0	\$0
48 Special/Utility Services	Services	\$831,015	\$872,566	\$898,743	\$925,705	\$953,476	\$982,080
50 Payment To Other Agencies	Administration	\$143,000	\$150,150	\$154,655	\$159,294	\$164,073	\$168,995
Total Other Resources		\$6,976,996	\$7,331,902	\$7,552,556	\$7,779,132	\$8,012,506	\$8,252,881
<b>Total Operations &amp; Maintenance Expenses</b>		<b>\$11,328,157</b>	<b>\$12,278,659</b>	<b>\$12,707,708</b>	<b>\$13,088,940</b>	<b>\$13,481,608</b>	<b>\$13,886,056</b>
<u>Overall Percent Change</u>			8%	3%	3%	3%	3%

\*\*Staff augmentation and additional staff for identified needs

(1) FY 2022/23 Budget provided by the City.

Table S3: Capital Improvement Plan  
 City of Davis  
 Draft Wastewater COS Rate Study 2023

## Capital Improvement Plan

	Budget(1)	Projection ->				
	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28
Sewer Lift Station 4 , 1 , 3	\$138,000	\$1,300,000	\$939,591			
WWTP Biofilter	\$408,032					
WWTP Storage Building						
WWTP Access Rd Repair	\$1,635,400					
Sewer Trunk Rehabilitation	\$950,000	\$1,000,000	\$2,000,000	\$2,000,000	\$750,000	\$500,000
Phase II MCC-60 Device Net Replacement	\$1,221,000					
Sed Tank 1 Rehab Coating/Equipment			\$100,000	\$100,000	\$100,000	\$300,000
Sed Tank 2 Rehab Coating/Equipment						
Sed tank 3 Complete Overhaul(1997)/Grit Basin Coating		\$1,400,000				
Primary/Scum Equipment Replacement (1997)		\$100,000	\$100,000	\$100,000	\$300,000	
Digester Improvement (Coating, Mixing system (1.2M)				\$125,000	\$125,000	\$125,000
Miscellaneous Improvements						
Influent barscreen Structure (5M)		\$450,000				\$500,000
<b>Wastewater Resiliency Projects</b>						
Equipment Replacement Schedule					\$215,000	\$215,000
Additional Aeration Basin/WWTP Future						
	\$0	\$0	\$0	\$0		
<b>Total</b>	<b>\$4,352,432</b>	<b>\$4,250,000</b>	<b>\$3,139,591</b>	<b>\$2,325,000</b>	<b>\$1,490,000</b>	<b>\$1,640,000</b>
<b>Inflation Adjusted Total (5% per year)</b>	<b>\$4,352,432</b>	<b>\$4,462,500</b>	<b>\$3,461,399</b>	<b>\$2,691,478</b>	<b>\$1,811,104</b>	<b>\$2,093,102</b>

(1) FY 2022/23 Capital Improvement Plan provided by the City.

Table S4: Current Debt Service  
 City of Davis  
 Draft Wastewater COS Rate Study 2023

## Current Debt Service

			2022-23	2023-24	2024-25	2025-26	2026-27	2027-28
<b>Issuance:</b>	SRF Loan - WWTP 8010							
<b>Annual Debt Service:</b>	\$2,086,828	<b>Interest</b>	\$690,770	\$669,829	\$648,574	\$627,000	\$605,103	\$582,877
<b>FYE 2023 Outstanding Principal:</b>	\$44,655,262	<b>Principal</b>	<u>\$1,396,058</u>	<u>\$1,416,999</u>	<u>\$1,438,254</u>	<u>\$1,459,828</u>	<u>\$1,481,725</u>	<u>\$1,503,951</u>
<b>Year of Final Payment:</b>	2049	<b>Annual Debt Service</b>	\$2,086,828	\$2,086,828	\$2,086,828	\$2,086,828	\$2,086,828	\$2,086,828
<b>Description:</b>	2014 loan for Davis Wastewater Treatment Plant Secondary and Tertiary Improvements project to meet the City's future wastewater treatment needs.							

## Fund Balance & Targets

Fund Balance - Working Capital	Actual (1)
<b>Total Fund Balance - Working Capital</b>	<b>\$13,054,169</b>

Minimum Fund Balance Requirements	Current		Calculated Projection			
	FY 2022-23	2023-24	2024-25	2025-26	2026-27	2027-28
<b>1. Fund 531 - Operations</b>	<b>\$2,832,039</b>	\$3,069,665	\$3,176,927	\$3,272,235	\$3,370,402	\$3,471,514
The City will maintain a target 3-month operating cost reserve balance						
<b>2. Fund 532 - Capital Replacement</b>	<b>\$3,355,783</b>	\$3,000,000	\$3,000,000	\$3,000,000	\$3,000,000	\$3,000,000
Target reserve shall be the average of the planned expenditures in the 5-year CIP <i>recommended: 5-year rolling average CIP, minimum of \$3 million</i>						
<b>3. Rate Stabilization</b>	<b>\$716,902</b>	\$738,035	\$765,535	\$806,896	\$850,537	\$896,585
5% of annual wastewater operating revenue						
<b>4. Debt Funds Held as Required</b>	<b>\$2,086,828</b>	\$2,086,828	\$2,086,828	\$2,086,828	\$2,086,828	\$2,086,828
One year of debt service payments						
<b>Total Minimum Fund Balance</b>	<b>\$8,991,552</b>	<b>\$8,894,528</b>	<b>\$9,029,290</b>	<b>\$9,165,959</b>	<b>\$9,307,767</b>	<b>\$9,454,927</b>

(1) FY 2022/23 Current fund balance and fund policies provided by the City.

Table S6: Rate Revenue Requirements  
 City of Davis  
 Draft Wastewater COS Rate Study 2023

## Rate Revenue Requirements

	Budget(1)	Projection ->				
	1	2	3	4	5	6
Fiscal Year	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28
Effective Date of First Rate Increase		1/1/2024	5/1/2025	5/1/2026	5/1/2027	5/1/2028
<b>First Rate Revenue Increase</b>		5.0%	5.0%	5.0%	5.0%	5.0%
Growth Projection	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
<i>Assumed # Months Growth</i>	12	12	12	12	12	12
<i># Months without Rate Increase</i>	12	6	10	10	10	10
<i># Months with First Rate Increase</i>		6	2	2	2	2
<i># Months with Second Rate Increase</i>		0	0	0	0	0
Revenue from Months without Rate Increase	\$13,969,500	\$7,019,674	\$12,345,851	\$13,027,959	\$13,747,754	\$14,507,318
Revenue from Months with First Rate Increase		\$7,370,657	\$2,592,629	\$2,735,871	\$2,887,028	\$3,046,537
<b>Adjusted Total Rate Revenue Projection</b>	<b>\$13,969,500</b>	<b>\$14,390,331</b>	<b>\$14,938,480</b>	<b>\$15,763,831</b>	<b>\$16,634,783</b>	<b>\$17,553,854</b>

(1) FY 2022/23 Budget provided by the City.



Table S7: Capacity Fee Revenue  
 City of Davis  
 Draft Wastewater COS Rate Study 2023

## Capacity Fee Revenue

	Capacity Fees	Accounts	2022-23	2023-24	2024-25
Estimated Capacity Fee Increase <sup>1</sup>			3.0%	3.0%	3.0%
<b>Capacity Fee, \$/EDU<sup>2</sup></b>	\$6,150	15,556	\$6,335	\$6,525	\$6,720
<b>Residential</b>					
Single-family	\$6,150	13,001			
Single-family condo	\$4,780	0			
Duplex	\$4,640	1,219			
Triplex	\$4,810	629			
Quadplex	\$4,860	62			
Multiple-family (five or more units)	\$3,320	88			
MH mobile homes	\$3,400	225			
<b>Commercial/Industrial</b>		562			
Flow (hcf/day, Nov-Feb)	\$14,346				
BOD (lbs/day)	\$1,556				
TSS (lbs/day)	\$853				
Estimated Annual Growth:		0.5%			
Estimated Growth, EDUs <sup>3</sup>		157	81	82	82
Total EDUs		16,274	16,356	16,437	16,520
Estimated Revenue			\$515,444	\$533,562	\$552,316

(1) Estimated annual increase of Engineering News Record Construction Cost Index (ENR CCI) for San Francisco

Table S8: Total Revenue Projection  
 City of Davis  
 Draft Wastewater COS Rate Study 2023

## Total Revenue Projection

% Escalation by Activity #	
Sales	0.5%
Investments	1.0%
Other Agencies	0.0%
SRF Reimbursements	0.0%

	Budget	% Escalation	Budget	Projected				
	2021-22		2022-23	2023-24	2024-25	2025-26	2026-27	2027-28
<b>531 - Operations and Maintenance</b>								
Rate Revenue		0.5%	\$13,969,500	\$14,390,331	\$14,938,480	\$15,763,831	\$16,634,783	\$17,553,854
Install Fee	\$4,000	0.5%	\$4,020	\$4,040	\$4,060	\$4,081	\$4,101	\$4,122
El Macero	\$207,200	0.5%	\$208,236	\$209,277	\$210,324	\$211,375	\$212,432	\$213,494
North Davis Meadows	\$90,000	0.5%	\$90,450	\$90,902	\$91,357	\$91,814	\$92,273	\$92,734
Other Operating (Leases, etc.)	\$65,500	0.5%	\$65,828	\$66,157	\$66,487	\$66,820	\$67,154	\$67,490
<b>Total Fund 531</b>		0.5%	<b>\$14,338,034</b>	<b>\$14,760,707</b>	<b>\$15,310,708</b>	<b>\$16,137,920</b>	<b>\$17,010,742</b>	<b>\$17,931,694</b>
<b>532 - Capital Replacement</b>								
Interest Earned / From Investments	\$130,542	1.00%	\$131,847	\$133,166	\$134,497	\$135,842	\$137,201	\$138,573
<b>Total Fund 532</b>			<b>\$131,847</b>	<b>\$133,166</b>	<b>\$134,497</b>	<b>\$135,842</b>	<b>\$137,201</b>	<b>\$138,573</b>
<b>533 - Capital Expansion</b>								
Wastewater Capacity Fees		Growth Proj.	\$151,444	\$153,562	\$155,316	\$157,730	\$159,826	\$162,629
<b>Total Fund 532</b>			<b>\$151,444</b>	<b>\$153,562</b>	<b>\$155,316</b>	<b>\$157,730</b>	<b>\$159,826</b>	<b>\$162,629</b>
<b>Total Revenue</b>			<b>\$14,985,324</b>	<b>\$15,427,434</b>	<b>\$15,997,521</b>	<b>\$16,845,493</b>	<b>\$17,739,769</b>	<b>\$18,682,896</b>
Rate Revenue		0.5%	\$13,969,500	\$14,390,331	\$14,938,480	\$15,763,831	\$16,634,783	\$17,553,854
All Other Operating Revenue		0.5%	\$368,534	\$370,376	\$372,228	\$374,089	\$375,960	\$377,839
<b>Total Operating Revenue</b>			<b>\$14,338,034</b>	<b>\$14,760,707</b>	<b>\$15,310,708</b>	<b>\$16,137,920</b>	<b>\$17,010,742</b>	<b>\$17,931,694</b>
Total Investment Income		1.00%	\$131,847	\$133,166	\$134,497	\$135,842	\$137,201	\$138,573
Capacity Fees		Growth Proj.	\$151,444	\$153,562	\$155,316	\$157,730	\$159,826	\$162,629
All Other Non-Operating Revenue		0.00%	\$2,000,000		\$3,000,000			
<b>Total Non-Operating Revenue</b>			<b>\$2,647,291</b>	<b>\$666,727</b>	<b>\$3,686,813</b>	<b>\$707,572</b>	<b>\$729,027</b>	<b>\$751,202</b>

Table S9: Cash Flow Projection  
 City of Davis  
 Draft Wastewater COS Rate Study 2023

## Cash Flow Projection

Projection	Budget	Projection ->				
		1	2	3	4	5
Fiscal Year	<u>2022-23</u>	<u>2023-24</u>	<u>2024-25</u>	<u>2025-26</u>	<u>2026-27</u>	<u>2027-28</u>
Effective Date of First Rate Increase		1/1/2024	5/1/2025	5/1/2026	5/1/2027	5/1/2028
Effective Date of Second Rate Increase						
<b>Proposed Rate Revenue Increase</b>	<b>0.0%</b>	<b>5.0%</b>	<b>5.0%</b>	<b>5.0%</b>	<b>5.0%</b>	<b>5.0%</b>
<i>Growth</i>	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Beginning Fund Balance	\$13,054,169	\$12,272,076	\$8,871,524	\$9,613,110	\$8,591,357	\$8,951,586
<b><u>REVENUE</u></b>						
<b>Operating Revenue</b>						
Wastewater Rate Revenue	\$13,969,500	\$14,390,331	\$14,938,480	\$15,763,831	\$16,634,783	\$17,553,854
All Other Operating Revenue	\$368,534	\$370,376	\$372,228	\$374,089	\$375,960	\$377,839
<i>Total Operating Revenue</i>	<i>\$14,338,034</i>	<i>\$14,760,707</i>	<i>\$15,310,708</i>	<i>\$16,137,920</i>	<i>\$17,010,742</i>	<i>\$17,931,694</i>
<b>Non- Operating Revenue</b>						
Total Investment Income	\$131,847	\$133,166	\$134,497	\$135,842	\$137,201	\$138,573
Capacity Fees	\$515,444	\$533,562	\$552,316	\$571,730	\$591,826	\$612,629
All Other Non-Operating Revenue	\$2,000,000	\$0	\$3,000,000	\$0	\$0	\$0
<i>Total Non-Operating Revenue</i>	<i>\$2,647,291</i>	<i>\$666,727</i>	<i>\$3,686,813</i>	<i>\$707,572</i>	<i>\$729,027</i>	<i>\$751,202</i>
<b>TOTAL REVENUE</b>	<b>\$16,985,324</b>	<b>\$15,427,434</b>	<b>\$18,997,521</b>	<b>\$16,845,493</b>	<b>\$17,739,769</b>	<b>\$18,682,896</b>
<b><u>EXPENDITURES</u></b>						
<b>Operating Expenses</b>						
Total Salaries and Wages	\$3,610,525	\$4,152,104	\$4,320,767	\$4,450,390	\$4,583,902	\$4,721,419
Total Personnel Costs	\$740,636	\$794,653	\$834,385	\$859,417	\$885,200	\$911,755
Other Resources	\$6,976,996	\$7,331,902	\$7,552,556	\$7,779,132	\$8,012,506	\$8,252,881
<b>Total Operating Expenses</b>	<b>\$11,328,157</b>	<b>\$12,278,659</b>	<b>\$12,707,708</b>	<b>\$13,088,940</b>	<b>\$13,481,608</b>	<b>\$13,886,056</b>
<b>Non-Operating Expenses</b>						
Total CIP	\$4,352,432	\$4,462,500	\$3,461,399	\$2,691,478	\$1,811,104	\$2,093,102
Debt Service	\$2,086,828	\$2,086,828	\$2,086,828	\$2,086,828	\$2,086,828	\$2,086,828
<b>Total Non-Operating Expenditures</b>	<b>\$6,439,260</b>	<b>\$6,549,328</b>	<b>\$5,548,227</b>	<b>\$4,778,306</b>	<b>\$3,897,932</b>	<b>\$4,179,930</b>
<b>TOTAL EXPENDITURES</b>	<b>\$17,767,417</b>	<b>\$18,827,986</b>	<b>\$18,255,935</b>	<b>\$17,867,246</b>	<b>\$17,379,540</b>	<b>\$18,065,986</b>
Net Revenue	(\$782,093)	(\$3,400,552)	\$741,586	(\$1,021,753)	\$360,229	\$616,910
<b>Ending Fund Balance</b>	<b>\$12,272,076</b>	<b>\$8,871,524</b>	<b>\$9,613,110</b>	<b>\$8,591,357</b>	<b>\$8,951,586</b>	<b>\$9,568,496</b>
<i>Fund Balance Target</i>	<i>\$8,991,552</i>	<i>\$8,894,528</i>	<i>\$9,029,290</i>	<i>\$9,165,959</i>	<i>\$9,307,767</i>	<i>\$9,454,927</i>
<b>Debt Service Coverage</b>	<b>2.40</b>	<b>1.19</b>	<b>2.68</b>	<b>1.46</b>	<b>1.69</b>	<b>1.94</b>

## **Demand and Accounts**

Table S10: Revenue & Accounts  
 City of Davis  
 Draft Wastewater COS Rate Study 2023

## Revenue & Accounts

Wastewater Customer Class	Current Demand			Current Rates			Wastewater Rate Revenue			
	# Accounts	# Dwelling Units	Billable Water Use (ccf)*	Fixed Unit Rates			Account Base Charges	Dwelling Unit Charges	Volumetric Revenue	Total
				Fixed Base Rates (\$/acct)	(\$/dwelling unit)	Volumetric Rates (\$/ccf)				
<b>Single Family</b>										
Inside City	13,001	13,008	1,135,155	\$3.94	\$18.26	\$3.13	\$614,699	\$2,850,368	\$3,553,035	\$7,018,102
El Macero	229	338	35,961	\$3.94	\$18.26	\$3.13	\$10,842	\$74,095	\$112,558	\$208,236
North Davis Meadows	97	143	15,222	\$3.94	\$18.26	\$3.13	\$4,589	\$31,365	\$47,646	\$90,450
<b>Subtotal</b>	<b>13,328</b>	<b>13,490</b>	<b>1,186,338</b>				<b>\$630,130</b>	<b>\$2,955,828</b>	<b>\$3,713,239</b>	<b>\$7,316,788</b>
<b>Multi Family</b>										
Condo *	1,219	1,280	63,309	\$3.94	\$12.46	\$3.13	\$57,650	\$191,438	\$198,157	\$447,245
Duplex	629	1,261	82,625	\$3.94	\$14.22	\$3.13	\$29,715	\$215,177	\$258,616	\$503,509
Triplex	62	186	13,372	\$3.94	\$15.02	\$3.13	\$2,931	\$33,525	\$41,854	\$78,310
Quadplex	88	352	21,804	\$3.94	\$15.32	\$3.13	\$4,161	\$64,712	\$68,247	\$137,119
5+ Units	225	10,741	633,977	\$3.94	\$12.88	\$3.13	\$10,650	\$1,660,090	\$1,984,349	\$3,655,089
Mobile Home Park	5	565	18,556	\$3.94	\$12.85	\$3.13	\$236	\$87,123	\$58,080	\$145,440
<b>Subtotal MF</b>	<b>2,228</b>	<b>14,385</b>	<b>833,643</b>				<b>\$105,344</b>	<b>\$2,252,065</b>	<b>\$2,609,303</b>	<b>\$4,966,712</b>
<b>Total Residential</b>	<b>15,556</b>	<b>27,875</b>	<b>2,019,981</b>				<b>\$735,474</b>	<b>\$5,207,893</b>	<b>\$6,322,542</b>	<b>\$12,283,500</b>
<b>Commercial</b>										
Office/Retail	249	249	93,206	\$3.94		\$4.53	\$11,761		\$422,223	\$433,984
Laundry	3	3	4,840	\$3.94		\$4.69	\$142		\$22,700	\$22,841
All Other	159	159	70,459	\$3.94		\$4.69	\$7,529		\$330,453	\$337,982
Conv. Hospital	2	2	12,020	\$3.94		\$4.96	\$95		\$59,619	\$59,714
Auto/Service Station	50	50	17,604	\$3.94		\$5.33	\$2,364		\$93,829	\$96,193
Restaurants	89	89	75,503	\$3.94		\$8.12	\$4,196		\$613,084	\$617,280
Industrial	10	10	6,944	\$3.94		\$6.74	\$473		\$46,803	\$47,275
<b>Subtotal Commercial</b>	<b>562</b>	<b>562</b>	<b>280,576</b>				<b>\$26,560</b>	<b>\$0</b>	<b>\$1,588,711</b>	<b>\$1,615,270</b>
<b>**Inside City Revenue</b>	<b>15,791</b>	<b>27,955</b>	<b>2,249,374</b>				<b>\$746,602</b>	<b>\$5,102,432</b>	<b>\$7,751,049</b>	<b>\$13,600,084</b>
<b>Total Rate Revenue</b>	<b>16,117</b>	<b>28,436</b>	<b>2,300,557</b>				<b>\$762,034</b>	<b>\$5,207,893</b>	<b>\$7,911,253</b>	<b>\$13,898,770</b>

% Total

\*Reflects average winter water use, November 2020 - February 2021. Residential users subject to cap

\*\*Does not include irrigation accounts or city accounts inside the City, El Macero and North Davis Meadows accounts outside city (billed separately)

# **Cost of Service Analysis**

Table S11: Cost Allocation (60-40)  
 City of Davis  
 Draft Wastewater COS Rate Study 2023

### Cost Allocation (60-40)

Revenue Requirement Derivation	2022-23 Budget	% CS	% Flow	% BOD	% TSS	% Ammonia	Total	% Fixed	% Variable	\$ CS	\$ Flow	\$ BOD	\$ TSS	\$ Ammonia	\$ Total	\$ Fixed	\$ Variable
Operations & Maintenance	\$11,328,157	6%	62%	15%	15%	3%	100%	61%	39%	\$668,301	\$6,993,375	\$1,650,189	\$1,650,189	\$366,103	\$11,328,157	\$6,911,051	\$4,417,106
Debt Service	\$2,086,828	6%	62%	15%	15%	3%	100%	61%	39%	\$123,112	\$1,288,292	\$303,991	\$303,991	\$67,442	\$2,086,828	\$1,273,126	\$813,702
Capital Improvement Plan	\$4,352,432	6%	62%	15%	15%	3%	100%	61%	39%	\$256,770	\$2,686,950	\$634,025	\$634,025	\$140,662	\$4,352,432	\$2,655,320	\$1,697,112
<b>Total Expenditures<sup>1</sup></b>	<b>\$17,767,417</b>	<b>6%</b>	<b>62%</b>	<b>15%</b>	<b>15%</b>	<b>3%</b>	<b>100%</b>	<b>60%</b>	<b>40%</b>	<b>\$1,048,183</b>	<b>\$10,968,616</b>	<b>\$2,588,205</b>	<b>\$2,588,205</b>	<b>\$574,207</b>	<b>\$17,767,417</b>	<b>\$10,839,498</b>	<b>\$6,927,919</b>
<b>Total Revenue Requirement</b>	<b>\$13,600,084</b>									<b>\$802,333</b>	<b>\$8,395,937</b>	<b>\$1,981,144</b>	<b>\$1,981,144</b>	<b>\$439,527</b>	<b>\$13,600,084</b>	<b>\$8,160,050</b>	<b>\$5,440,034</b>
<b>Overall Percent Allocation</b>		<b>6%</b>	<b>62%</b>	<b>15%</b>	<b>15%</b>	<b>3%</b>	<b>100%</b>	<b>60%</b>	<b>40%</b>								

(1) Rate Revenue Requirement for the cost allocation and rate design are based on the most recent billing units and customer data from 2020 for rate making and cost allocation purposes only in order to maintain proportionality of billing units. The expected rate revenue is shown in the cash flow analysis.

Table S12: Sewer Use by Customer Class  
 City of Davis  
 Draft Wastewater COS Rate Study 2023

## Sewer Use by Customer Class

	<u># Accounts</u>	<u># Dwelling Units</u>	<u>Water Use Period</u>	<u>Flow (ccf)</u>	<u>Average (ccf/unit)</u>	<u>Strength Category</u>
<b>Single Family</b>	<b>13,001</b>	<b>13,008</b>	<b>Nov - Feb</b>	<b>1,135,155</b>	<b>7</b>	
<b>Multi Family</b>						
Condo	1,219	1,280	Nov - Feb	<b>63,309</b>	4	
Duplex	629	1,261	Nov - Feb	82,625	5	
Triplex	62	186	Nov - Feb	13,372	6	
Quadplex	88	352	Nov - Feb	21,804	5	
5+ Units	225	10,741	Nov - Feb	633,977	5	
Mobile Home Park	5	565	Nov - Feb	18,556	123	
Dormitory-Style Housing (per bed)			Nov - Feb			
<b>Multi Family</b>	<b>2,228</b>	<b>14,385</b>		<b>833,643</b>		
<b>Subtotal Residential</b>	<b>15,229</b>			<b>2,019,981</b>		
<b>Commercial</b>						
Office/Retail	249	249	All Use	93,206	31	Low Strength
Laundry	3	3	All Use	4,840	134	Standard Strength
All Other	159	159	All Use	70,459	37	Standard Strength
Conv. Hospital	2	2	All Use	12,020	501	Medium Strength
Auto/Service Station	50	50	All Use	17,604	29	Standard Strength
Restaurants	89	89	All Use	75,503	71	High Strength
<b>Commercial</b>	<b>552</b>	<b>552</b>		<b>273,632</b>		
<b>Total</b>	<b>15,781</b>	<b>27,945</b>		<b>2,242,430</b>		

<b>Dormitory Style Multi Family Assumptions</b>	
57	gallons per capita per DAY, indoor**
7	ccf single family MONTHLY average
5236	gallons per SFR per MONTH
<b>3.06</b>	<b>assumed number of people (dorm beds) per SFR</b>
1/3	Rounded factor for per-bed fixed charge

\*proposed cap = 2.5 times the average monthly winter water consumption for each customer class, ccf per billing unit

\*\*gpcd data provided by City Staff



Table S13: Flows & Loadings  
 City of Davis  
 Draft Wastewater COS Rate Study 2023

## Flows & Loadings

	Strength Factor Assumptions			2021 Sewer Use by Customer Class			2021 Calculated Sewer Flows & Loadings					Adjusted Strength Factors			% total demand				
	BOD (mg/L) <sup>2</sup>	TSS (mg/L) <sup>2</sup>	Ammonia mg-N/L	# Accounts	# Dwelling Units	Flow (ccf)	Flow (mg)	Flow (gpd)	BOD (lbs/Yr)	TSS (lbs/yr)	Ammonia (total N)	BOD (mg/L) <sup>2</sup>	TSS (mg/L) <sup>2</sup>	Ammonia mg-N/L	% CS	% Flow	% BOD	% TSS	% N
<b>Residential</b>	244	264	0.035	15,229	27,393	1,968,798	1,473	4,034,968	2,998,880	3,236,670	246	244	264	0.035	97%	88%	87%	88%	99%
<b>Customer Class - (4 commercial strength categories)</b>																			
Low Strength	127	84	0.000	249	249	93,206	70	191,022	73,825	49,033	0.0	127	84	0.000	2%	4%	2%	1%	0%
Standard Strength	137	166	0.005	212	212	92,903	69	190,401	79,538	96,148	1.5	137	166	0.005	1%	4%	2%	3%	1%
Medium Strength	244	105	0.005	2	2	12,020	9	24,634	18,309	7,904	0.2	244	105	0.005	0%	1%	1%	0%	0%
High Strength	586	580	0.008	89	89	75,503	56	154,740	276,015	273,076	1.9	586	580	0.008	1%	3%	8%	7%	1%
<b>Subtotal Commercial</b>				<b>15,781</b>	<b>27,945</b>	<b>2,242,430</b>	<b>1,677</b>	<b>4,595,765</b>	<b>3,446,568</b>	<b>3,662,831</b>	<b>250</b>				<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

Table S14: Revenue Requirement Allocation  
 City of Davis  
 Draft Wastewater COS Rate Study 2023

## Revenue Requirement Allocation

	% Demand					% Fixed		\$ Revenue Requirement						% Fixed		% Variable	
	% CS	% Flow	% BOD	% TSS	% N	% Fixed	% Variable	CS	Flow	BOD	TSS	Ammonia	Total	Fixed	Variable		
<b>Total Revenue Requirem</b>	<b>6%</b>	<b>62%</b>	<b>15%</b>	<b>15%</b>	<b>3%</b>	<b>60%</b>	<b>40%</b>	<b>\$802,333</b>	<b>\$8,395,937</b>	<b>\$1,981,144</b>	<b>\$1,981,144</b>	<b>\$439,527</b>	<b>\$13,600,084</b>	<b>\$8,160,050</b>	<b>\$5,440,034</b>		
<b>Demand by Customer Class - Alternative Option (4 strength categories)</b>																	
Residential	97%	88%	87%	88%	99%	99.7%	72%	\$774,281	\$7,371,425	\$1,723,806	\$1,750,642	\$433,455	\$12,053,609	(CS Only)	(All Other)		
Low Strength	2%	4%	2%	1%	0%	0%	8%	\$12,647	\$348,975	\$42,436	\$26,521	\$0	\$430,579	\$12,647	\$417,932		
Standard Strength	1%	4%	2%	3%	1%	0%	8%	\$10,791	\$347,840	\$45,720	\$52,004	\$2,554	\$458,909	\$10,791	\$448,118		
Medium Strength	0%	1%	1%	0%	0%	0%	1%	\$102	\$45,004	\$10,524	\$4,275	\$330	\$60,236	\$102	\$60,134		
High Strength	1%	3%	8%	7%	1%	0%	11%	\$4,512	\$282,693	\$158,658	\$147,701	\$3,321	\$596,885	\$4,512	\$592,373		
<b>Subtotal Commercial</b>	<b>3%</b>	<b>12%</b>	<b>13%</b>	<b>12%</b>	<b>1%</b>	<b>0.3%</b>	<b>28%</b>	<b>\$28,052</b>	<b>\$1,024,512</b>	<b>\$257,338</b>	<b>\$230,501</b>	<b>\$6,205</b>	<b>\$1,546,609</b>	<b>\$28,052</b>	<b>\$1,518,557</b>		
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>\$802,333</b>	<b>\$8,395,937</b>	<b>\$1,981,144</b>	<b>\$1,981,144</b>	<b>\$439,660</b>	<b>\$13,600,217</b>	<b>\$28,052</b>	<b>\$1,518,557</b>		

Unit Rate Calculation (Total costs/Total billable Units)

	CS	Flow	BOD	TSS	Ammonia
<b>Total Cost Allocation</b>	<b>\$802,333</b>	<b>\$8,395,937</b>	<b>\$1,981,144</b>	<b>\$1,981,144</b>	<b>\$439,527</b>
<b>Billable Units</b>	<b>15,781</b>	<b>2,242,430</b>	<b>3,446,568</b>	<b>3,662,831</b>	<b>250</b>
<b>Unit Rates</b>	<b>\$4.24</b>	<b>\$3.74</b>	<b>\$0.57</b>	<b>\$0.54</b>	<b>\$1.76</b>
	\$/acct	\$/hcf	\$/lb	\$/lb	\$/mg total N

# Rate Design

Table S15: Fixed Rate Calculation  
 City of Davis  
 Draft Wastewater COS Rate Study 2023

## Fixed Rate Calculation

<b>Total Fixed Rate Revenue Requirement</b>			<b>2022-23</b> <b>\$8,160,050</b>
<b>Base Rate Revenue Requirement</b>			<b>\$802,333</b>
Total Accounts (All Users)			15,781
<b>Monthly Base Rate (\$/account)</b>			<b>\$4.24</b>
<b>Monthly Per Dwelling Unit Rate (\$/unit, residential only)</b>			
<b>Dwelling Unit Rate Revenue Requirement</b>			<b>\$7,357,718</b>
Total Residential Dwelling Units			27,393
<b>Customer Class</b>	<b># Units</b>	<b>\$ Rev Req.</b>	<b>\$/Unit</b>
Single Family \$/Unit	13,008	\$2,850,368	\$26.33
Multi Family \$/Unit (Blended Rate)	14,385	\$2,252,065	\$18.81
Dormitory-Style Housing (per bed)	N/A	N/A	\$8.78



Table S17: Proposed Rate Summary  
 City of Davis  
 Draft Wastewater COS Rate Study 2023

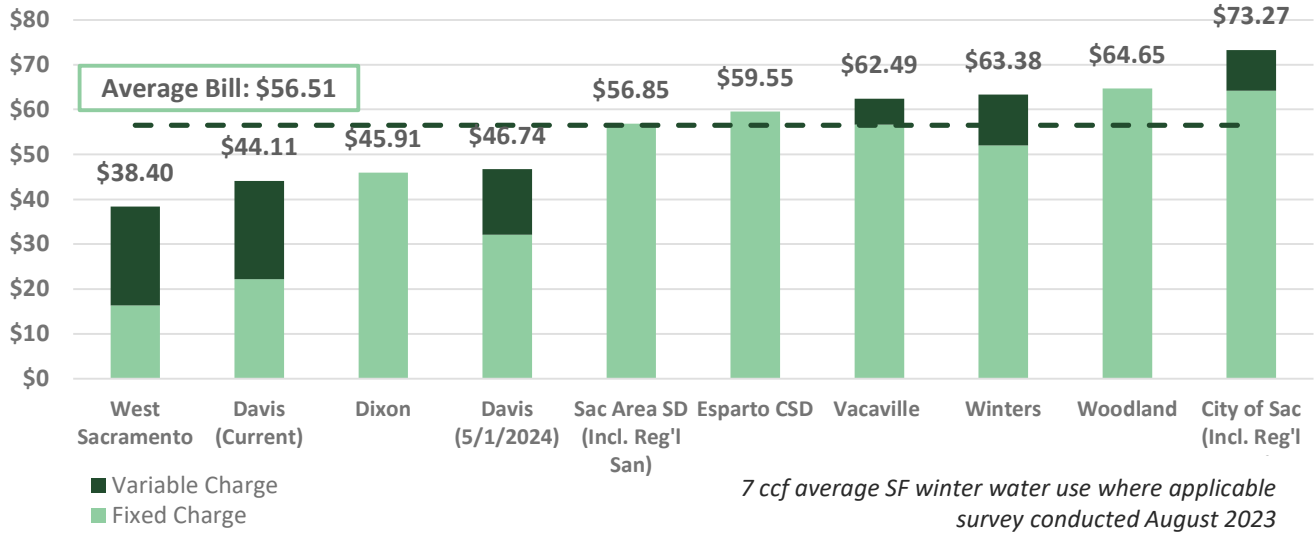
## Proposed Rate Summary

Year	Current	Restructure	2	3	4	5	6
Fiscal Year	FY 2022/23	FY 2022/23	FY 2023/24	FY 2024/25	FY 2025/26	FY 2026/27	FY 2027/28
Effective Date			1/1/2024	5/1/2025	5/1/2026	5/1/2027	5/1/2028
<b>Overall Rate Revenue Increase</b>			<b>5.0%</b>	<b>5.0%</b>	<b>5.0%</b>	<b>5.0%</b>	<b>5.0%</b>
<b>Fixed Charges</b>							
<b>Base Rate - Monthly \$/account, all users</b>							
Base Rate	\$3.94	\$4.24	\$4.45	\$4.67	\$4.90	\$5.15	\$5.41
<b>Monthly Per Unit Rate (\$/dwelling unit, residential only)</b>							
Single Family	\$18.26	\$26.33	\$27.65	\$29.03	\$30.48	\$32.01	\$33.61
Multi Family	N/A	\$18.81	\$19.75	\$20.74	\$21.78	\$22.87	\$24.01
Dormitory-Style Housing (per bed)	N/A	\$8.78	\$9.22	\$9.68	\$10.16	\$10.67	\$11.20
<b>Volumetric Rate (\$/CCF* by customer class) - No Structure Change</b>							
<b>Residential</b>	<b>\$3.13</b>	\$1.99	\$2.09	\$2.20	\$2.31	\$2.42	\$2.54
<b>Commercial</b>							
Low Strength	\$4.53	\$4.48	\$4.71	\$4.94	\$5.19	\$5.45	\$5.72
Standard Strength	\$4.69	\$4.82	\$5.06	\$5.32	\$5.58	\$5.86	\$6.16
Medium Strength	\$4.96	\$5.00	\$5.25	\$5.52	\$5.79	\$6.08	\$6.39
High Strength	\$8.12	\$7.85	\$8.24	\$8.65	\$9.08	\$9.54	\$10.01

(1 CCF = 748 gallons)

\*billable use equal to average monthly winter water use (in CCF) from November - February of prior year

### Single Family Wastewater Monthly Bill Survey FY 2023



### Single Family Bill Survey, Fixed & Variable Charges

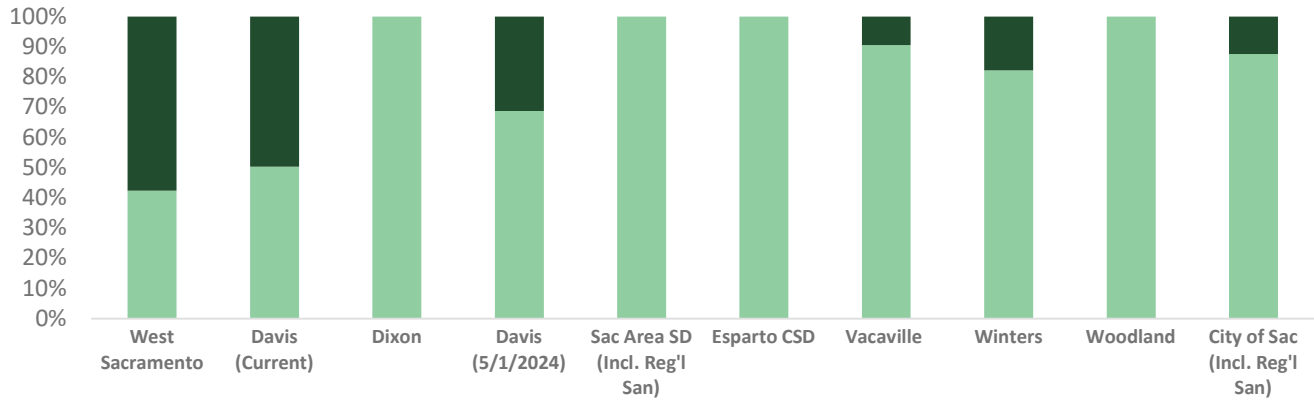


Table S19: Bill Impacts  
 City of Davis  
 Draft Wastewater COS Rate Study 2023

## Bill Impacts

Average Winter Water Use ccf	1 Current	2	3	4	5	6	
		FY 2023/24 5/1/2024 5%	FY 2024/25 5/1/2025 5%	FY 2025/26 5/1/2026 5%	FY 2026/27 5/1/2027 5%	FY 2027/28 5/1/2028 5%	
<b>Residential</b>							
Single Family	7	\$44.11	\$46.74	\$46.74	\$49.07	\$51.53	\$54.10
Multi Family (5+ Units)	5	\$32.47	\$34.41	\$34.41	\$36.13	\$37.93	\$39.83
<b>Commercial</b>							
Low Strength	8	\$40.18	\$42.11	\$42.11	\$44.22	\$46.43	\$48.75
Standard Strength	8	\$41.46	\$44.97	\$44.97	\$47.21	\$49.58	\$52.05
Medium Strength	8	\$43.62	\$46.47	\$46.47	\$48.80	\$51.24	\$53.80
High Strength	8	\$68.90	\$70.35	\$70.35	\$73.87	\$77.56	\$81.44