COUNCIL AGENDA REPORT

To:	The Honorable Commissioners of Cambridge
From:	Tom Carroll, City Manager
Date:	July 21, 2022
Subject:	Utility Rate White Paper

This report is for informational purposes only. No action is needed at this time.

In the near term, though, the City will need to invest at least $10-14 million in sanitary sewer upgrades and $5.5 million in water system upgrades. Even as the City pursues grants, forgivable loans, and discounted financing for these investments, the City of Cambridge's revenue requirements will increase to pay for these investments. Both our water and sewer system are enterprises—basically a separate business entity operated under the direction of the Commissioners of Cambridge.[1] The fees we charge for water pay for the water we provide, and we do not typically use other taxes or fee revenues to pay for water and sewer services. Additionally, the City does not use water or sewer funds to purchase police cruisers or fire trucks. Each enterprise has its own fund to account for its activity.

With large capital investments on the horizon, the City will need to either increase revenues or delay investments. Especially on the sanitary sewer side, delaying investments is not a recommended policy option because parts of our sewer system overflow when Cambridge experiences as little as 3 cm of rain in a short period of time. This causes sewage to pollute the Choptank River and other waterways and is both a violation of the Clean Water Act and a threat to public health.

Pro Forma Objective

In this white paper, staff forecasts revenues and expenditures for the water and sewer funds over the next five years, building on the FY 23 Budget for the water and sewer enterprises. The FY 23 Budget is projected out through FY 2027-2028. This is usually referred to as a *pro forma*. The purpose of the *pro forma* is to determine the ability of each fund to pay for its operating and capital needs in the near term. If expenditures exceed revenue, then policy options to increase revenue can be explored, and it can be determined when the additional revenue will be needed.

This is a medium-term budgeting exercise that informs setting rates and fees so that residents and business owners have some degree of certainty as to what future costs will be. It also allows the Commissioners to alter plans for capital projects in lieu of other policy considerations, such as whether we receive a grant with local matching requirements. A *pro forma* is thus a dynamic planning

[1] The water system operates as the Municipal Utilities Commission, or MUC. It has a separate citizen commission appointed by the Commissioners of Cambridge. It is not uncommon to have a separate advisory board for utilities, though it is unusual that Cambridge has this for water but not for sewer.

tool that will enable this and subsequent councils to amend its work program as circumstances evolve.

This white paper will first explain how the City of Cambridge charges for utilities including water, sewer, solid waste, and the Chesapeake Bay Restoration Fund (CBRF). Then, it will briefly describe identified water and sewer capital projects, including the estimated cost of each and detailing any funding already secured. Part of this analysis is to identify and detail replacement equipment that is needed for both MUC and the Department of Public Works (DPW). The *pro forma* will then detail a baseline analysis showing the fiscal position of each utility fund without major capital projects but merely replacing existing equipment and facilities. Then it will model the fiscal position of both funds after undertaking $16 to $20 million of capital projects in the next five years using grants, revolving loans, and municipal bonds. The model will then show that a combination of increased fees and service charges can enable the City to undertake this capital program. Finally, this white paper will discuss possible implications for Cambridge ratepayers and identify other fees for service that will enhance utility revenues. The goal of this white paper is to stimulate a policy decision about utility projects and utility rates by October or November, following additional public engagement and policy analysis that Commissioners may wish to have staff conduct.

Utility Charges

Before analyzing the capital needs of both utilities, staff will detail the four charges that comprise the current City of Cambridge utility bill. The City charges for water, sewer, solid waste, and the mandated CBRF. While the solid waste and the CBRF are fixed at a constant monthly rate, water and sewer charges are based on consumption. Sewer bills are a direct function of how much water an account uses. The sewer bill is 290% of the water bill. The more water a household uses, the higher they are charged for the clean water going into the house and the used water collected and treated by the sewer system.

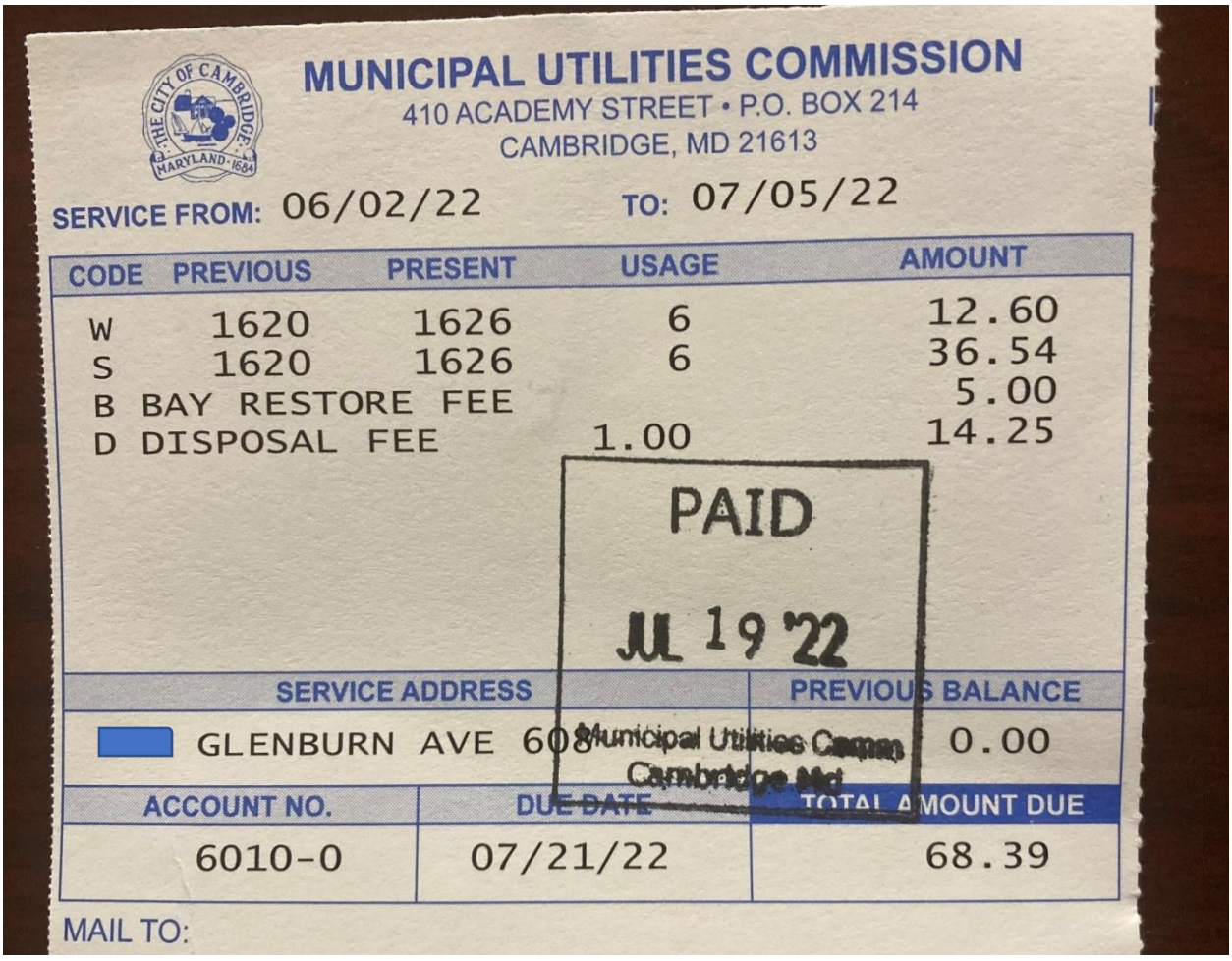
It is worth noting that approximately 60% of Cambridge households are charged a minimum bill each month. A household paying a minimum bill uses 4,000 gallons or less of water monthly. The commonly used minimum bill concept recognizes that the fixed cost of providing water to a household is the primary cost driver. It costs a great deal to deliver the first gallon of water to a household (a fixed cost) but it costs very little to deliver the next 10,000 or more gallons (a marginal cost). Most utility operating expenditures are relatively fixed, so minimum billing enables the municipal enterprise to cover its fixed costs across a broad range of customers. Interestingly, while most Cambridge's utility accounts usually pay a minimum bill, the City's ten largest water customers use almost half of our total water.

In addition to providing services within the Cambridge corporate limits, the City serves nearby non-City residents through a variety of agreements that have been made between the City and Dorchester County. A careful review of the Sewer Fund in the draft FY 23 Budget shows lines 829 to 833 capture revenue from five separate sewer service areas outside the corporate limits. Non-City residents pay double what Cambridge residents pay for water and sewer.

The City of Cambridge has not raised water and sewer rates since July of 2013. At that time, the minimum monthly water charge was set at $8.69 for 4,000 gallons or less of water per month. Each additional 1,000 gallons costs $2.10 up to 17,000 gallons of total usage with the marginal cost per 1,000 gallons falling according to a MUC schedule. If a household uses 4,000 or less gallons of water

a month, their minimum monthly sewer charge is $25.20, with sewer charges increasing $6.09 per additional 1,000 gallons.

While not directly relevant to this paper, it is worth noting that the City's charge for solid waste services was raised $3.00 to $14.25 per month in July of 2016 and has remained the same since. In 2017, the City contracted out solid waste services to Chesapeake Waste and this contract has been extended through December of 2022. Staff anticipates the cost for Cambridge's next solid waste contract will be higher, and solid waste services will be rebid in the next two or three months.



MUNICIPAL UTILITIES COMMISSION
410 ACADEMY STREET • P.O. BOX 214
CAMBRIDGE, MD 21613

SERVICE FROM: 06/02/22 TO: 07/05/22

CODE	PREVIOUS	PRESENT	USAGE	AMOUNT
W	1620	1626	6	12.60
S	1620	1626	6	36.54
B	BAY RESTORE FEE			5.00
D	DISPOSAL FEE		1.00	14.25

PAID
JUL 19 '22
Municipal Utilities Comm
Cambridge Md

SERVICE ADDRESS	PREVIOUS BALANCE
[redacted] GLENBURN AVE 608	0.00

ACCOUNT NO.	DUE DATE	TOTAL AMOUNT DUE
6010-0	07/21/22	68.39

MAIL TO:

Figure 1. This image shows a monthly bill for a Cambridge utility household which used almost 6,000 gallons in a month. (Usage is measured in thousands of gallons.) Accordingly, this customer had to pay more than $53.14 minimum bill. This household used just under 6,000 gallons of water, and thus had to pay an additional $3.91 for almost 2000 gallons of water above the minimum and an additional $11.34 in sewer charges for a total above the minimum bill of $16.38. Note the Chesapeake Bay Restoration Fee and the solid waste disposal fee are constant each month at $5 and $14.25, respectively.

Now that this report has detailed how Cambridge charges for utility services, it will now turn to upcoming utility capital projects before addressing the financial condition of each enterprise fund.

Sewer Capital Projects

Commissioners have already identified and developed the West End Sewer Upgrade ($2.5 million) and the Trenton Street Pump Station Upgrade ($4 million) projects. Both projects will reduce or eliminate sewer overflows from common rain events. Both projects are urgent, and engineering has

begun on both. The West End Sewer Upgrade will be bid in early 2023. The City has obtained a $504,000 direct spending allocation from the federal government and will need an estimated $2 million to undertake this work in the second half of the fiscal year. Cash is not currently available in the City's Sewer Fund to pay for the unfunded portion of this project, so we anticipate borrowing at least $2 million for this project later in FY 23. The last sewer overflow occurred at Water Street and Oakley on July 22nd, and this is a routine occurrence.

The Trenton Street Pump Station Upgrade will be bid in the first half of FY 24, or late in calendar year 2023. Thanks to the efforts of City Engineer George Hyde, the City has received a $1.5 million forgivable loan and $2.5 million of low-interest loans for Trenton Street.

The Cambridge Creek Sewer Rehabilitation project is a lower profile project compared to the West End and Trenton Street projects. It is currently estimated to cost $4 million and is slated for construction in FY 26. In general, the City of Cambridge will need to replace large sections of aging sewer lines every year or two for many years into the future. Accordingly, this white paper assumes the Sewer Fund will undertakes a $4 million capital project in FY 27, using a combination of grants and low-interest loans. The City's sewer construction and rehabilitation needs will be ongoing.

Water Capital Project
MUC plans to add a booster station in FY 26 to maintain pressure for newer subdivisions. The projected cost of this booster station is $5.5 million. It is needed less to serve existing customers, and thus should be partially or largely paid for by the newer customers who are tapping into the water system. This project creates a rational nexus between growth and the need for this investment.

Baseline Analysis
To examine the revenue requirements of each utility enterprise fund, we will first analyze a five-year project with no rate increases and no major capital projects. This analysis does require some capital investments—normal replacement of large equipment, such as vacuum trucks and backhoes for example.[2] But the schedule does not contemplate major underground construction. Moreover, this analysis assumes personnel costs grow 4% per year and a modest 1% growth in water sales annually for Cambridge customers only. We do not assume growth in Dorchester County.

This analysis in Figure 2 shows that the Sanitary Sewer Fund will generally be solvent and maintain healthy fund balances in excess of $1 million each year with current rates. Please remember this analysis assumes the City does not undertake the necessary upgrades to the West End Sewer, Trenton Street Pump Station, and other sewers such as Cambridge Creek. This baseline is not realistic though it is helpful in that it shows our sewer rates support existing operations but not needed capital investment.

This analysis shows the Water Fund will experiences modest but increasing annual deficits which deplete its working fund balance levels over the next four years. In FY 27, fund balances drop sharply because the model assumes the City pays cash for a medium-size capital investment, the replacement of a building at Brohawn Avenue. This baseline model shows a water rate increase would be necessary just to maintain necessary working capital reserves and to replace existing assets and equipment. This is not surprising given that utility rates have not been raised for over nine years.

[2] Attached to this report is a listing of water and sewer equipment and maintenance replacement schedules for FY 2024 through FY 28. All models will assume this same level of capital replacement takes place going forward.

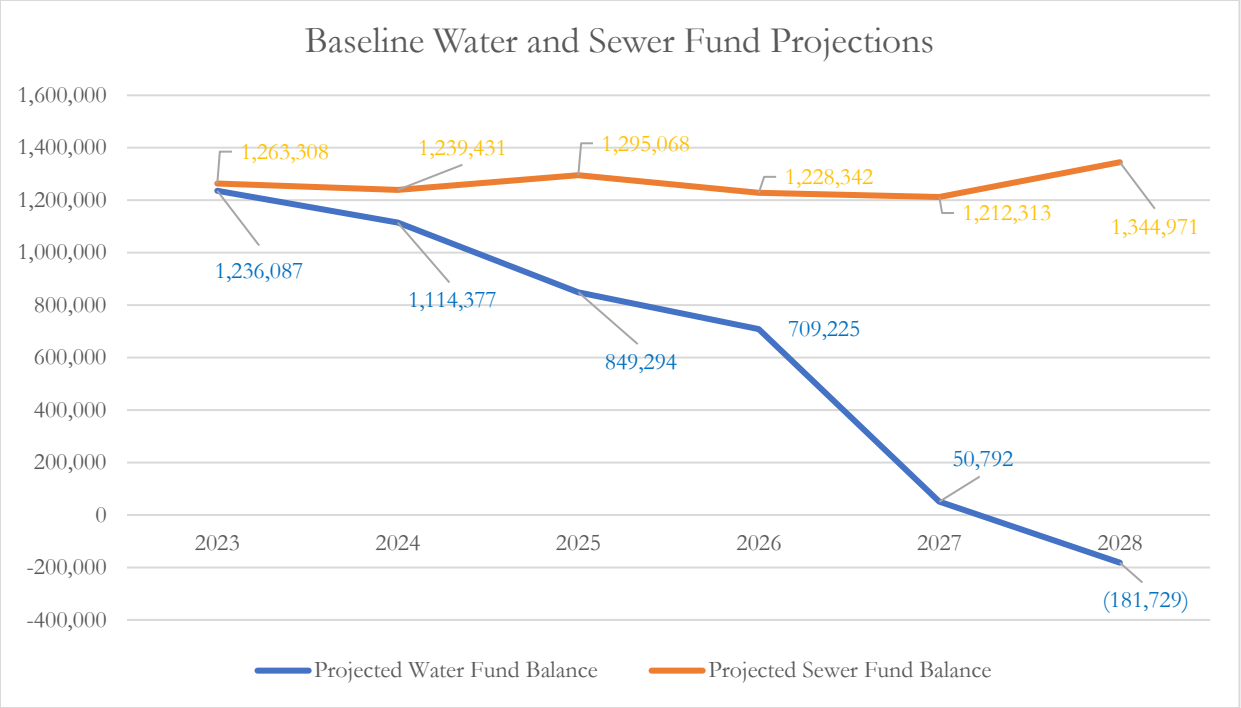


Figure 2: This table shows projected fund balances in the Water Fund and Sewer Fund with replacement equipment only but not undertaking major capital projects. It shows that a water rate increase is necessary by or before FY 27 simply to maintain current assets while the Sewer Fund would be financially healthy at current rates but for the needed major capital projects.

This baseline analysis is helpful because it shows even in a do-nothing-other-than-replace-equipment scenario, the Sewer Fund does not need additional revenue, but the Water Fund will.

Projected Capital Investment Analysis

Now that a baseline projection has been established, staff can model revenue needed to undertake necessary water and sewer capital projects. Again, this analysis assumes the same capital equipment and small capital investments are made as detailed in footnote 2. It also assumes the same 4% increase annually in personnel costs and a modest 1% growth in water sales annually. These inputs are thus held constant. In addition, it assumes the following projects are undertaken:

- West End Sewer Upgrade FY 23 $2,500,000
- Trenton Street Pump Station Upgrade FY 24 $4,000,000
- Cambridge Creek Sewer Rehabilitation FY 26 $4,000,000
- Water Booster Station FY 26 $5,500,000
- Additional pump station upgrades FY 27 $4,000,000

One can see this phase of modeling assumes $16-20 million of capital investment in the next five years. The only way to achieve this level of investment is through a combination of grants, state revolving loans, and bonds. Fortunately, we know we have received $504,000 in federal assistance for the West End Sewer project and a $1.5 million forgivable loan, plus a $2.5 million low-interest loan for the Trenton Street Pump Station project. This analysis will assume the following additional grants and debt:

- A $2 million municipal bond in FY 23 from the Local Government Infrastructure Financing program through DHCD. The *pro forma* assumes a 20-year term at 4% interest obtained through this favorable state financing mechanism. Interest rates are rising quickly, so actual rates may be higher later in 2022 than what is modeled here.
- A 50/50 split of low-interest loan and grant for the Cambridge Creek Sewer project in FY 26 from the Maryland Water Infrastructure Financing Administration Water Quality Revolving Loan Fund program. This is the same state program assisting the City with the Trenton Street Pump Station project. In other words, this model assumes more success with state funding, an assumption that may or may not come to pass. Importantly, this assumption seems realistic because the Bipartisan Infrastructure Law (BIL) provides considerable funding for this state revolving loan fund over the next five years.
- A 50/50 split of low-interest loan and grant for the Water Booster Station FY 26 from the Maryland Water Infrastructure Financing Administration. Again, staff is assuming in this instance we are successful obtaining a grant.
- A 50/50 split of low-interest loan and grant for the fourth sewer project in FY 26 from the Maryland Water Infrastructure Financing Administration Water Quality Revolving Loan Fund program. As before, this model assumes plausible but favorable outcomes obtaining competitive grants.

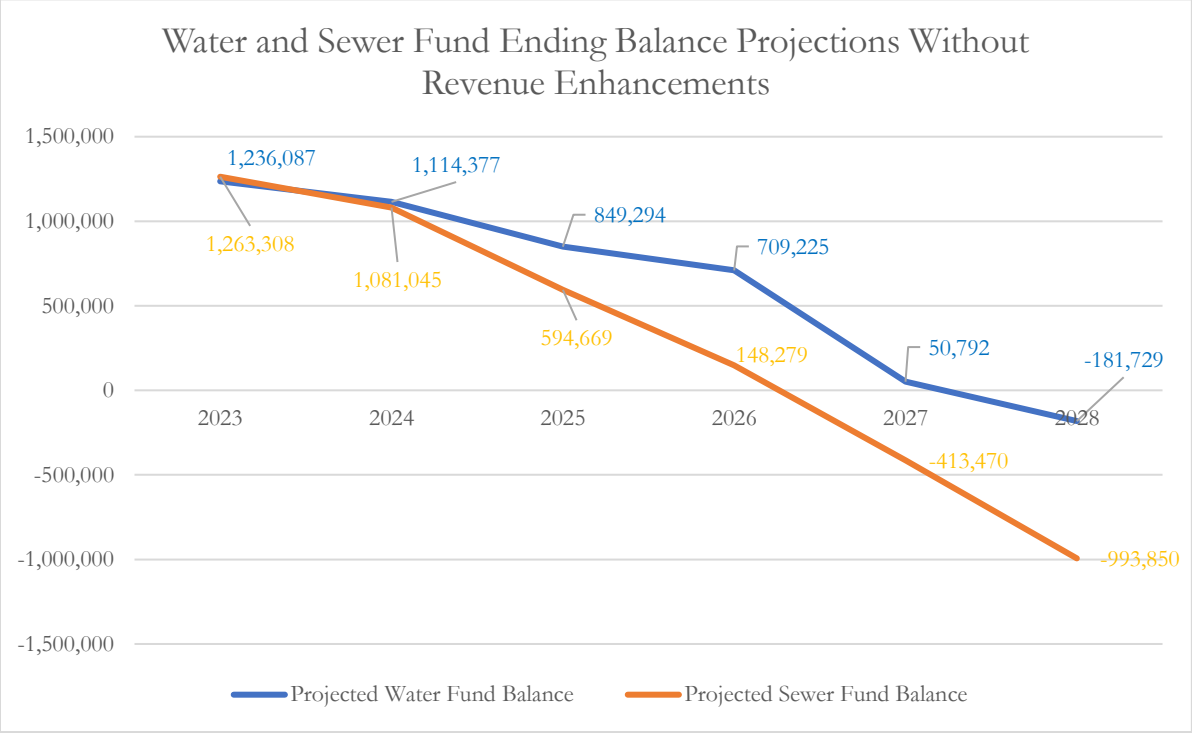


Figure 3. This chart models the water and sewer funds having undertaken $20 million in investments through grants and loans but without additional operating revenue. Both funds will require additional revenue to avoid the downward trajectory of fund balance decline because of new annual debt service payments.

Please note the *pro forma* adds new annual debt service in the year immediately following the completion of each project. So by the end of this period of analysis, the Sewer Fund has $540,719 of new debt service and the Water Fund has an additional $133,105 of debt added to each fund's annual base budget until all debt is retired.

This analysis shows that the Sewer Fund balances will start to decline rapidly in FY 25. By the end of FY 26, the Sewer Fund is still positive but will not have adequate reserves. The Sewer Fund will be in a negative cash position by the end of FY 27. Additional revenue will be necessary to meet sanitary sewer obligations and invest in sewer capital projects.

This model shows the Water Fund is in a substantially similar financial position as it was in prior to investing in the booster station in FY 26. The prior model has already established that the Water Fund needs additional revenue soon and the investment in the booster station with grants and loans does not noticeably change that requirement.

Meeting the Revenue Requirements

The following summarizes the revenue requirements to correct the trajectory depicted in Figure 3:

- The Sewer Fund will require approximately $450,000 more revenue in FY 24 and FY 25 plus $525,000 in FY 26 through FY 28 to meet its obligations.
- The Water Fund will require approximately $230,000 more revenue annually to meet its obligations.

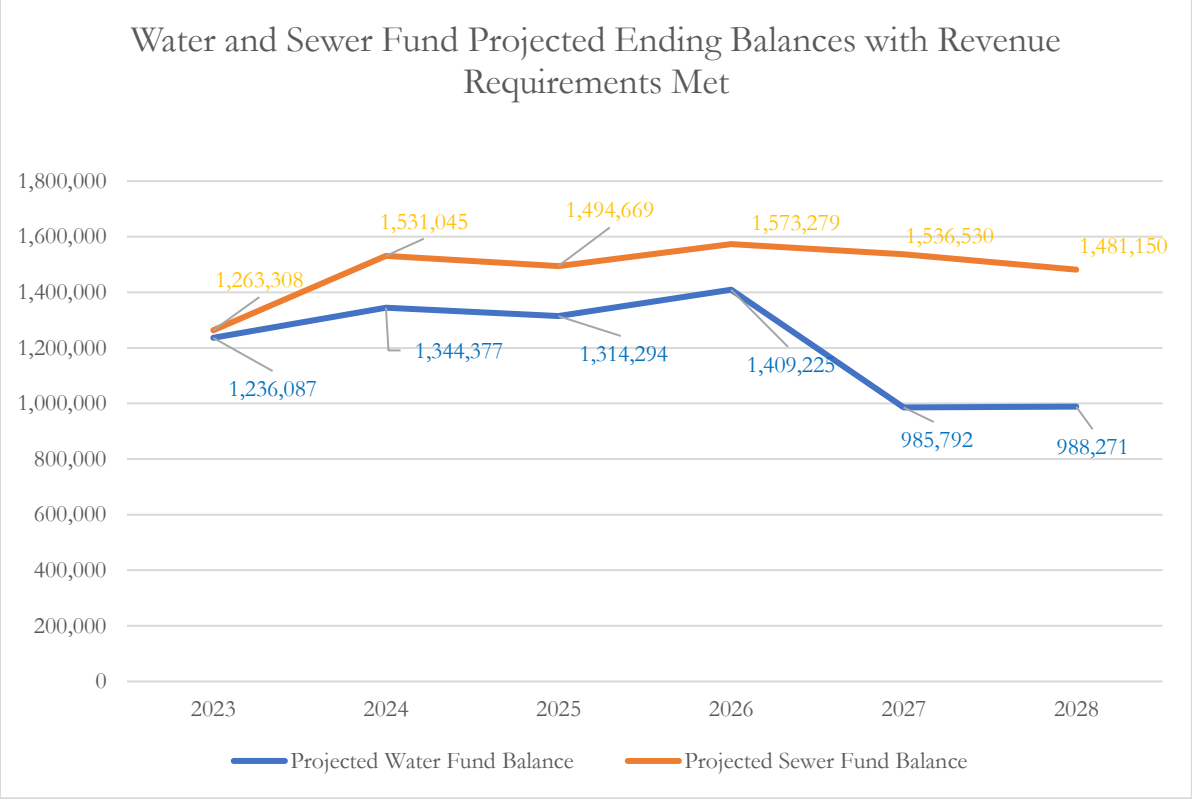


Figure 4. This graphic shows a stabilized Sewer Fund with $450,000 more revenue in FY 24 and FY 25 and $525,000 more in FY26-FY28. The graphic shows a mostly stabilized Water Fund with $230,000 annually. Both utility funds are stabilized and can undertake major, needed capital investments.

Thus, the additional revenue requirements include $450,000 to $500,000 annually in the Sewer Fund and $225,000 to $250,000 in the Water Fund. Both are achievable with relatively modest increases in charges.

Balancing the Enterprise Funds

The City of Cambridge has three primary levers it can adjust to avoid the funds' insolvency shown in Figure 3: impact fees, service charges, and rates. The City imposed impact fees in 2003 but suspended the collection of them in 2014. Previously, the City had impact fees for water, sewer, roads, public safety, and parks. Impact fees recognize that new customers who join the existing enterprises and public systems need to contribute extra because prior or current ratepayers built the water towers, sewer treatment plant, pumps and lifts, billing system, monitoring, etc. Impact fees need to have a rational nexus—a logical connection—between the charge imposed and the costs to the system. Impact fees are a common and accepted charge to have new growth outside of the urban core pay for its marginal costs to the existing enterprise systems.

Water

Staff is proposing to achieve a $230,000 annual increase in revenue through:

- A 10% increase in water rates for all customers no later than FY 2024 (starting July 1, 2023). This will generate a projected $178,750 more water revenue annually.
- Doubling the annual but fixed cost of unmetered fire lines used to supply sprinklers in newer buildings. This will generate a projected $18,360 more annually.
- Reimposing an $860 per dwelling unit water impact fee starting in FY 2024 (starting July 1, 2023). This will generate a projected $44,720 more annually assuming 50 new housing units.
- Combined, these revenue enhancements will generate $241,830 annually and thus slightly exceed the needed revenue requirements. Commissioners may wish to explore some phasing in of these charges or explore some other combination of charges and fees to meet or exceed the revenue requirements.

Sewer

Staff is proposing to achieve a $450,000 to $550,000 annual increase in revenue through:

- A 10% increase in sewer rates for all customers no later than FY 2024 (starting July 1, 2023). This will generate a projected $626,000 more annually.
- Reimposing an $1,780 per dwelling unit water impact fee starting in FY 2024 (starting July 1, 2023). This will generate a projected $89,000 more annually.
- Combined, these revenue enhancements will generate $715,000 annually and thus exceed revenue requirements. The Commissioners may wish to explore some phasing in of these charges or explore some other combination of charges and fees to meet or exceed the revenue requirements.
- Please note the City of Cambridge will be able to accelerate its needed sanitary sewer capital schedule with this additional revenue detailed above and take full advantage of the billions of additional funding coming to Maryland through the BIL. Having additional sewer funds above the modeled revenue requirements for the City to match grants would be critical to minimizing the impact to ratepayers for needed capital investments even beyond this *pro forma*. This point cannot be overstated; new revenue will leverage millions in federal funding.

If Council were to approve the various rates and fees detailed above, it would generate a total of $954,110 in additional water and sewer revenue annually.

Impact to Customers

When considering enhancements to revenue, it is crucial to examine how increases will impact customers. This analysis will examine the two ends of our customer base: those customers who use

the minimum water monthly (more likely to be low- or fixed-income customers) and our key accounts (our biggest companies which employ Cambridge residents).

Minimum Bill Customer
As mentioned above, about 60% of Cambridge accounts use 4,000 gallons or less of water each month and thus pay a minimum bill. The table below shows how these customers would be impacted by these rate increases discussed above on a monthly basis:

Charge	Current	Staff Proposal
Water	$ 8.69	$ 9.56
Sewer	$ 25.20	$ 28.68
Bay Restoration	$ 5.00	$ 5.00
Solid Waste	$ 14.25	$14.25
Total	**$53.14**	**$58.49**

Under this recommendation, the minimum monthly bill will go up $5.35, or $64.20 annually.

Key Accounts
The ten largest water and sewer users also employ hundreds of Cambridge and Dorchester County residents. The City needs to be mindful that these key accounts are vital to our community's economic wellbeing. The City should have policies that support our major employers and enable them to be competitive in their respective industries. The table below shows the total additional annual cost to our 10 key accounts if water and sewer rates were increased as recommended by staff.

Key Account	Additional Water Revenue	Additional Sewer Revenue	Fire Line	Total Additional Annual Cost
1	$ 5,672	$ 12,624	$ 300	$ 18,596
2	$ 12,487	$ 48,070	$ 120	$ 60,677
3	$ 36,196	$ 117,875	$ 420	$ 154,491
4	$ 2,367	$ 8,669	$ 120	$ 11,156
5	$ 1,494	$ 5,977	$ 60	$ 7,532
6	$ 1,711	$ 6,844	$ 60	$ 8,615
7	$ 2,175	$ 8,719	$ 0	$ 10,893
8	$ 1,058	$ 4,231	$ 240	$ 5,528
9	$ 1,522	$ 6,092	$ 120	$ 7,734
10	$ 1,932	$ 8,700	$ 60	$ 12,692
Total	**$ 66,614**	**$ 227,801**	**$ 1,500**	**$ 297,914**

Thus, the ten largest utility customers would be responsible for paying slightly more than 31% of the total additional revenue generated by these proposed increases. If we removed proposed impact fees from this analysis—charges these accounts would not have to pay—the ten key accounts would be responsible for more than 36% of the additional revenue based on their current consumption rates.

The table of key accounts shows that for most of our key account customers the additional utility charges would be modest on an annual basis. Key account 3 is a large industrial customer already paying $777,650 in water charges and almost $900,000 in sewer annually. Moreover, this particular key account is outside the city limits and were they to annex, they could cut their utility bill in half.

All of these key accounts—and all other Cambridge residents and businesses too—have endured inflation in fuel prices, food costs, and other expenses since 2013 and more sharply in the last year. Utility costs are part of any business or household budget and will increase from time to time like other goods and services. Even for our key accounts, the additional charges contemplated in this recommendation are reasonable, justified, and purposeful.

Another Benchmark

If the City increases rates as recommended, the typical cost for 1,000 gallons of water will become $9.56 in the City of Cambridge. Keep in mind this is the cost for the City to deliver 1,000 gallons to each home's faucet and collect 1,000 gallons of used water and then clean it. The cost will be ¢ .956 per gallon treated, delivered, collected, and cleaned. This is less than one penny per gallon. As of August 3rd, the price of a gallon of gasoline at Wawa in Cambridge was $3.95 and the price of a gallon of 2% milk at Simmons Central Market was $5.79.

Solid Waste

At several points in this paper, I have mentioned the City will be rebidding solid waste services very soon. In May, Council extended the contract with Chesapeake Waste through December 31st. I intend to work with Ina Holden to solicit bids in August for a three-to-five-year contract starting on January 1st. The bids will likely be due to the City in early to mid-September. Hopefully, Council will award a new contract in late September or October. The base bid for this process will be to keep solid waste exactly as it is today: twice a week curbside trash with no curbside recycling. But an alternative bid will be included to determine pricing to go to weekly trash service and add curbside recycling with wheeled carts for recycling. Because fuel and labor prices have gone up, staff expects all contractors proposing in response to our advertisement to price above the $14.25 we charge today. So, Council may want to factor in the likely need for a solid waste rate increase as we explore additional water and sewer rates.

Marina Fund

The City of Cambridge operates three enterprise funds, the third being the Marina Fund. The Marina Fund is generally solvent at present. However, long-term it has substantial capital investments needed to replace piers E, F, and H. Each pier replacement is estimated to be $1.0-1.2 million. The Maryland Department of Natural Resources offers grants, but any grant over $250,000 requires a 50% local government match. In other words, given the capital needs in the near term, raising the rates for slip rental seems necessary to ensure an adequate local match is available for MDNR grants in future years. No action is needed at this time, but staff expects to propose revenue enhancements in the fall to ensure the 2023 Marina rates provide resources for the long-term stability of the City's marina. An additional report should be expected in the next few months.

Final Note

Thanks go to Jane Dorman, George Hyde, Deborah Cooper, Ina Holden, Tiffany Geib, Ed Bramble, and Myra Ray-Howett for their contributions to this white paper. Responsibility for the final analysis and recommendation for a rate increase rests solely with the city manager.

Attachment: Water and Sewer Small Capital Improvement Program