THE CITY OF Kalamazoo

PUBLIC SERVICES DEPARTMENT
WASTEWATER DIVISION
1415 N. Harrison Street
Kalamazoo, MI 49007
Ph.269.337.8701
Fx.269.337-8535

January 31, 2024

Mr. Jeremy Rubio
Water Resources Division, Kalamazoo District Office
Michigan Department of Environmental Quality
7953 Adobe Road
Kalamazoo, MI 49009

RE: NPDES Permit No. MI0023299/Kalamazoo WWTP
Asset Management Annual Report

Dear Mr. Rubio:

This correspondence is being provided to update your office on the status of the City of Kalamazoo asset management program implementation. The City of Kalamazoo submitted an Asset Management Plan (AMP) in January 2017 to the Michigan Department of Environmental Quality (MDEQ) and it was approved. The AMP included a schedule for completing the NPDES permit asset management requirements.

1) a description of the staffing levels maintained during the year:

The Kalamazoo Water Reclamation Plant total staffing level at the end of 2023 was 85 fulltime equivalent positions. Staffing consisted of 23 operations staff, 17 maintenance staff, 16 collections system staff, 15 lab/IPP staff (who work in water and wastewater), 10 process control/electrician staff (who work in both water and wastewater), 4 administration/engineering staff.

2) a description of inspections and maintenance activities conducted and corrective actions taken during the year:

The City of Kalamazoo maintenance, operations, and process control staff perform routine preventative maintenance on plant and collection system equipment. They also perform demand maintenance activities when necessary. The City utilizes Proteus and Lucity Computerized Maintenance Management Systems (CMMS) to track assets and work orders in the Wastewater Treatment Plant and sanitary collection system. The complete list of Treatment Plant and sanitary collection system assets, demand work orders, preventative work orders, and corrective actions are housed in these databases and is available for review upon request. The City also contracts with a predictive maintenance company that performs vibration analysis on key critical pieces of

equipment every two months. Those vibration analysis reports are also available for review upon request.

3) expenditures for collection system maintenance activities, treatment works maintenance activities, corrective actions, and capital improvement during the previous year:

Expenditures for collection system maintenance were $2,782,522.37 for 2023. Expenditures for treatment works maintenance activities and corrective actions were $2,456,726.30 for 2023. Expenditures for process control maintenance and corrective actions were $1,164,659.30 for 2023. The Capital Improvement amended budget for 2023 was $28,621,042 for the wastewater system with $14,899,000 for the treatment works and $11,850,375 for the collection system, $116,667 for Sustainable Biosolids Management Alternatives, and $1,755,000 Graphic Packaging Service Realignment (project slated for 2024). The 2024 adopted Capital Improvement budget is $13,896,250 with $7,125,000 for treatment works and $6,271,250 for the collection system, $500,000 for Sustainable Biosolids Management Alternatives.

4) a summary of assets/areas identified for inspection/action (including capital improvement) in the upcoming year based on the five (5) core elements and the Business Risk Factors:

The 2023 City of Kalamazoo asset management activities included WWTP evaluation, sanitary system modeling/updates, continued collection system inspection, ratings and assignment of criticality of all sanitary collection system components, Capital Improvement Plan development, and Wastewater rate development.

Additional cleaning, CCTV, Vac-A-Tee cleanout installation, Lift Station Upgrades, roll-out implementation of the real-time decision support system for sanitary sewers to monitor levels and flows, and rating of pipes and manholes will be on-going. In 2023 Lining Rehabilitation projects included the trenchless rehabilitation of lateral sewers and submain sewers identified as a 3, 4, or 5. The manholes were also cementitious lined to form a complete linear asset rehabilitation. Additionally, in 2023 the Vac-A-Tee program continued to grow and was expanded into our partner communities. CWSRF funds were utilized to begin the upsize replacement of a critical interceptor sewer.

The real-time decision support system is achieving the goals of:

- Provide ability to strategically guide operations. Working in a resource constrained environment, the City will benefit from knowing where to deploy resources to make the largest impact.
- No explicit storage upstream of the WRP and so operating on diurnal cycle. Strong desire to stabilize the inflow.
- As the only WRP in Kalamazoo County (with 54 MGD capacity), there is a strong desire to know what the growth potential is for the region. Given resource constraints, need to know the total capacity of the system and WRP (currently and with optimization) to allow planning/engineering to work within future condition.
- I&I is greater than (some) anticipated. Strong desire to locate sources and eliminate

The City of Kalamazoo's 2024 asset management and capital activities will continue to focus on the CMOM approach to the sanitary collection system.

Sewer Trenchless Rehab Program
Sewer Main Root Control Program
Sewer Inspection Program
Sewer Cleaning Program
Continued Ransom Street Interceptor Upsize Replacement from 24" to 42".
Newton Ct Sewer main Upsize from 6" to 8".
Fellows Ct Sewer main Upsize from 6" to 8".
Reven Wright CT (Church to Burdick) Sewer Main Upsize from 6" to 8".
Westnedge (Pioneer- Crosstown) Sewer main Upsize from 8 to 10".
John Street Siphon Replacement.

The City of Kalamazoo made significant progress in 2023 with the installation of 10 new tertiary disc filters, this process will replace the tertiary sand filter process currently in service. Completion, commissioning, and startup are anticipated to occur in Q2 of 2024.

5) a maintenance budget and capital improvement budget for the upcoming year that take into account implementation of an effective Asset Management Program that meets the five (5) core elements:

The 2024 City of Kalamazoo adopted operations and maintenance budget includes $2,978,138 for collections system maintenance, $2,812,800 for treatment plant maintenance, and $1,591,903 for process control maintenance activities. The 2024 adopted Capital Improvement budget is $13,896,250 with $7,125,000 for treatment works and $6,271,250 for the collection system, $500,000 for Sustainable Biosolids Management Alternatives. These projects were identified in previous years. The City has completed the process of evaluating the condition of assets and criticality to the treatment system.

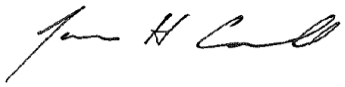
6) an updated asset inventory based on the original submission; and:

An updated list of asset inventory for the treatment works and collection system is available for review upon request.

7) an updated OM&R budget with an updated rate schedule that includes the amount of insufficient revenues, if any.:

The OM&R budget with updated rate schedule and revenue requirements have been updated to reflect additional capital and OM&R expenditures within the study period of 1 to 5 years. They can be found as attachments to the MiWaters submission for the Annual Asset Management report and is titled *2022 Kalamazoo Wastewater Rate Report, 2023 Kalamazoo Wastewater Rate Report, and 2024 Kalamazoo Wastewater Rate Report,.* In cooperation with revenue requirements an overall wastewater system revenue increase of approximately 14% for 2024 was enacted beginning Jan 1st, 2024.
.
If you have any questions regarding this compliance issue for our facility, or any other issues, please contact me at 269-337-8644 or cornellj@kalamazoocity.org.

Respectfully,



Jim Cornell
Wastewater Division Manager

Enclosure
cc: COK File
Jeremy Rubio, MDEQ
Terri Shattuck, MDEQ

Report on 2022 Wastewater Rates

December 2021

TFG
THE FOSTER GROUP

TFG

THE FOSTER GROUP

THE FOSTER GROUP, LLC
12719 WENONGA LANE
LEAWOOD, KS 66209

BART FOSTER, PRESIDENT
CELL: (913) 530-6240
BFOSTER@FOSTERGROUPLLC.COM

December 16, 2021

Mr. James Baker
Public Services Director
City of Kalamazoo
415 Stockbridge Avenue
Kalamazoo, Michigan 49001-2898

Dear Mr. Baker:

THE FOSTER GROUP is pleased to present our preliminary "Report on 2022 Wastewater Rates" for the City of Kalamazoo Department of Public Services. This report is designed to introduce our recommended wastewater rate schedules for 2022.

The proposed 2022 Rates have been calculated following traditional methodologies employed by the City for several years. However, as we have discussed I am recommending some subtle modifications designed to reflect my understanding of current conditions as the City embarks upon discussions with outside City customer representatives regarding potential new contractual agreements. The "Study Approach" section in this report summarizes those subtle modifications, which are designed to further accommodate a goal of rate stability.

We sincerely appreciate this opportunity to be of service to the City of Kalamazoo and the region it serves.

Very truly yours,

THE FOSTER GROUP

Bart Foster
President

Enclosures

Table of Contents

Background and Introduction

This report was prepared for the City of Kalamazoo, Michigan (the "City") to document analyses conducted to result in a schedule of proposed wastewater rates designed to become effective in January 2022 (the "2022 Wastewater Rates"). ***The 2022 Wastewater Rates have been developed following traditional Kalamazoo rate methodologies, with subtle changes to core approaches***.

The City of Kalamazoo owns and operates a wastewater utility (the "System") that provides wastewater collection, treatment, and disposal services to residents and businesses inside the City limits of Kalamazoo and to residents and businesses located in various townships, cities, and villages located outside the City limits. For purposes of establishing wastewater costs of service allocations and rates, customers are classified based on the level and type of service they receive. There are retail (full service) customers located both inside the City and outside the City. There are also wholesale (bulk service) customers ("Municipalities") that are served via wholesale contracts. In addition, contractual service is provided to two large industrial customers – Pfizer and Graphics Packaging. The contract industries, and certain retail industrial customer located both inside the City and outside the City, are monitored for the level of pollutants they contribute to the System and charged accordingly.

The City's wastewater system originated with the installation of the first sanitary sewer in 1881. Periodic expansion of the system continued, culminating with construction of the original wastewater treatment plant, which was placed in service in 1955. Service was subsequently extended on a contractual basis to industries and municipalities located outside the City limits, leading to construction of secondary treatment facilities and plant expansions, the first of which occurred in 1967.

The wastewater system was originally operated as a major division of the City's Department of Public Works. In 1982 the City reorganized certain of its departments and combined the administration of the system with the wastewater Supply System under the Department of Public Utilities. Wastewater treatment and disposal service is provided via the Kalamazoo Water Reclamation Plant ("KWRP").

Wastewater rates for the System have consistently been computed by applying the "Utility Basis" of ratemaking. This application of this approach differentiates service provided to inside City (owner) customers and outside City (non-owner) and recognizes different

capital cost structures for each. The System is operated as an enterprise fund of the City and is supported by revenues generated through rates and charges for wastewater service.

Over the years there have been various disputes regarding the establishment of those rates and charges. In 1987 certain of the Municipalities filed suit in Circuit Court alleging that the City had breached its contracts with the Townships. The Townships claims were primarily related to the wastewater rates being charged by the City. In order to resolve the differences between the parties, a settlement agreement (the "1988 Rate Settlement Agreement") was entered into on November 3, 1988. Among the settlement agreement provisions was the development of a Wastewater Advisory Board comprised of representatives of outside City retail and contract municipal customers, and a new wastewater rate study designed in part to reduce the amount of reserve fund balances held by the System. A comprehensive cost of service and rate design study was subsequently commissioned and conducted in 1990 and resulted in wastewater rates that were placed in effect in January 1991 (the "1991 Wastewater Rates" computed via the "1991 Methodology"). These rates represented an overall decrease of 7.5% from rate levels then currently in effect.

The 1991 Wastewater Rates remained in effect through 1998. During this period the City continually met with the Wastewater Advisory Board to discuss financial plans and results of the System. Revenues during this period fluctuated greatly due in large part to the varying levels of pollutant contributions from the contract industries[1]. Overall, revenues generated were positive compared to budgeted levels and reserve balances remained healthy.

As part of the City's efforts to assure the financial integrity of the System, the City developed a "Utility Financial Policy" in 1995. This policy addressed many of the issues that continued to be discussed with the Wastewater Advisory Board.

In 1997 the City of Portage, the largest customer in the Municipality customer class, filed suit in Circuit Court alleging that the wastewater rates that had been charged by the City of Kalamazoo to the City of Portage were unreasonable. The primary bases for Portage claims were related to the wastewater rates in effect prior to the 1991 Wastewater Rates. In order to resolve the differences between the parties, a second settlement agreement (the

[1] During this period the System served a third contract industry, Georgia Pacific. Georgia Pacific ceased being a System customer in 2000.

"1998 Rate Settlement Agreement") was entered into in May 1998. Among the 1998 Rate Settlement Agreement provisions were the establishment of four key elements regarding the establishment of wastewater rates:

1. A requirement that a portion of the then existing System reserve funds be recognized and credited against future revenue requirements allocated to, and serve to lower to future wastewater rates charged to, outside City customers[2];
    - This provision was designed to be implemented over 20 years.
2. A defined process for determining the rate of return to be included in rates charged to outside City customers;
3. A requirement to update wastewater rates not less than every two years;
4. A requirement to "true up" wastewater rates to outside City customers not less than every two years.
    - Effectively, this provision required rates to be retroactively recalculated based on actual financial results and that future outside City wastewater rates be increased or decreased accordingly to implement the true-up study results.

In effect, the 1998 Rate Settlement Agreement modified certain aspects of the 1991 Methodology, while not changing the core approach. The resulting "1999 Methodology" was utilized to compute wastewater rates for 1999, and to subsequently periodically modify wastewater rates through 2013.

Simultaneously throughout this period, true-up studies were being conducted, and the results implemented to modify wastewater rates to outside City customer classes. During the period from 2001 through 2010 significant reductions in wastewater contributions from contract industries (specifically Pfizer) occurred, and corresponding revenue shortfalls were realized. As a result, the true-up studies computed for 2001 through 2010 resulted in additional charges to the outside City customer classes totaling approximately $9.6 million. This amount was reflected in rate "surcharges" to those customers through 2012. True up studies for 2011 and 2012 resulted in minor (approximately $250,000) credits that were reflected as adjustments to wastewater rates charged in 2014.

In 2012 the System invested in and implemented a modified secondary treatment process. In accordance with the contractual agreement with Pfizer, the parties negotiated a "direct

[2] The Agreement stipulates that Portage was to receive $1 million of such amounts via credits.

participation" investment by Pfizer for a portion (approximately $4.85 million) of the approximate $7.5 million cost of the project. This development required a modification to the 1999 Methodology to recognize that Pfizer had essentially "pre-paid" the capital costs that would have otherwise been allocated to them associated with the project and investment. The 1999 Methodology was modified, again without altering the core approach. The resulting "2014 Methodology" was used to compute wastewater rates for 2014 (the "2014 Wastewater Rates").

The 2014 Wastewater Rates remained in place through 2017. During this period true up studies were computed for 2013 through 2016. The results of these studies indicated that the outside City customer classes were due a credit of approximately $3.15 million.

Wastewater rates were modified in 2018 to reflect the results of a cost of service study that applied the 2014 Methodology for 2018 through 2020. These rates were computed to "phase in" the results of the true-up studies for 2013 through 2016, and to incorporate the sunsetting of the "reserve credit adjustment" that reduced outside City customer class rates, as 2018 was the last of the 20 years for that provision of the 1998 Rate Settlement Agreement. At the end of 2018 the first (and arguably most prominent) aspect of the 1998 Rate Settlement Agreement – recognition and crediting of "excess" reserve balances, was fully implemented.

The 2019 Wastewater Rates were adjusted to implement the second year of the true-up implementation plan noted above. The 2020 Wastewater Rates completed the implementation plan, and resulted in full implementation of the credit related to the 2013 – 2016 true-ups.

The 2021 Wastewater Rates were adjusted in a manner that did not reflect a detailed cost of service study. Rather, all "gross" rates (prior to true-up credit) were uniformly increased by 10%. Since the "net" 2020 Wastewater Rates to outside City customers reflected the credit related to the 2013 - 2016 true-ups, the effective rate increase was greater than 10%. they were adjusted across the board. This decision was prompted by extraordinary volatility and uncertainty of wastewater contributions experienced during 2020, and by the status of the "agreements" between the City and the outside City customer groups at large. From our 2021 report dated January 18, 2021:

- It is our understanding that the City is scheduled to begin discussions regarding a potential new Wastewater Service Agreement with outside City customers. It is

possible that these discussions could impact existing methodologies on several fronts potentially including:

- *Understanding and reflecting differing service levels between wholesale and retail customer classes;*
- *The manner by which the True Up concept is implemented going forward;*
- *Other interpretative refinements of the 1988 and 1998 Rate Settlement Agreements.*

As of this writing, such discussions have not been formally initiated. In order to support such conversations, I am compelled to introduce subtle modifications to traditional Wastewater Rate Methodologies (subsequently referred to as the "Methodology") in preparing recommendations for the 2022 Wastewater Rates. Those recommendations are set forth herein.

Study Approach

The approach I've employed to determine the 2022 Wastewater Rates follow the fundamental methodologies discussed above. However there are three strategic modifications that are being introduced:

1. Interpretation of the 1998 Rate Settlement Agreement;
2. Conversion of Units of Service from BOD to COD;
3. Fixed Monthly Charges for Municipal and Monitored Customers

Each of these modifications is introduced below, and elaborated upon in introduction of the calculations where appropriate.

Interpretation of the 1998 Rate Settlement Agreement

Throughout this entire period, the tenets of the 1998 Rate Settlement Agreement (the "Agreement") have been applied in the computation of wastewater rates to ALL outside City customers and customer classes, even though it is our understanding that the only parties to the Agreement are the City of Kalamazoo and the City of Portage.

Now that the principal objective of the Agreement (recognizing / crediting contributions of "excess" reserve funds) and the results of the most recently completed True-Up have both been fully implemented, it is appropriate to revisit aspects of the Agreement for purposes of the 2022 Wastewater Rates.

I offer the following perspectives to support this approach:

- Portage (the sole signatory to the Agreement) has received the entire $1 million credit established by the Agreement. In fact, as noted above the credit was fully implemented with the 2018 Wastewater Rates and has not impacted rates charged in 2019, 2020, and 2021.
    - *As this was arguably the principal element of the Agreement, it could be argued that the other elements are no longer applicable.*
- True up adjustments have resulted in undesired volatility in wastewater rates to all customers, and the financial performance of the System;
- The notion of the True up concept ignores challenges such as:
    - *Alignment of prospective rate development and implementation in less than a full year;*
    - *Changes in accounting protocols and financial requirements;*
    - *Billing adjustments that impact reported dollars but not necessarily reported billed units;*
    - *Billing adjustments that adjust reported data for prior periods. For instance:*
        - The reported December 2017 data for Portage included a $658,000 revenue credit for prior periods going back to 2010, without any adjustment to volume. It is our understanding that the adjustment was related to flat rate "pass through" activity. I doubt the credit was balanced with a corresponding "charge back" to the flat rate customers.
- Continuing the true up concept through 2021 would likely result in significant charges to outside City Customers:
    - *Total estimated revenues for 2017 – 2021[3] were $4.5 million lower than budget while operating expenses were only $1.7 million lower, for a collective net negative variance of $2.8 million.*
    - *Outside City Customers provide over 70% of the revenue to the system.*
    - *Depending on review of specific capital and allocation adjustments, customers would likely collectively owe the System a significant amount to implement a true-up for those years.*
- The interest rate provisions at the time of the 1998 Rate Settlement Agreement do not accurately reflect today's market conditions.
    - *At the time the Agreement was established, the 30-year Treasury Bond rate (the index from which the Agreement establishes the allowable return on*

[3] 2021 figures are estimated based on 10 months of data.

*equity rate to be applied in the calculation of Portage's rates) was **higher** than the System's imbedded cost of debt, in some early years almost 1% **higher**. Today, the 30-year Treasury Bond is almost 1.7% **lower** than the System's imbedded cost of debt, and was over 2.0% **lower** as recently as 2020.*

With this perspective in mind, the approach taken by this study and documented in this report embraces the core principles of the Agreement, but adjusts the historical implementation approaches in certain elements. Specifically:

- The Utility Basis is still utilized to determine the 2022 Wastewater Rates, and the underlying revenue requirements continue to be established via the same approach that has been historically applied;
- I'm recommending that the True-Up be discontinued, and that the True-Up results implemented for 2013 – 2016 (which were fully recognized with the 2020 Wastewater Rates) be the last True-Up adjustments established by the Agreement;
- I've calculated a rate of return for rates to Outside City Customers that follows the same historical approach, but does not limit the return on equity to the amounts specified in the Agreement, but rather results in a "reasonable" rate of return.

Conversion of Units of Service from BOD to COD

The Methodology assigns costs of service to customer classes based on estimated contributed volumes and pollutant loadings for key treatment units of service. There are several industrial customers whose contributions of wastewater are monitored for three key metrics, and who are assigned costs based on their specific contributions. Non-monitored customers are assigned "domestic" levels of each of the three pollutant metrics for appropriate cost allocation.

One of the pollutant metrics in the Methodology is oxygen demand required in the treatment process. The Methodology has traditionally used measures of Biochemical Oxygen Demand ("BOD") to establish units of service for this element. Based on discussions with managers of the System, it is believed that "Chemical Oxygen Demand" is a more indicative and appropriate measure of the treatment required for those treatment processes. The calculations in this report utilize COD units of service instead of BOD.

Fixed Monthly Charges for Municipal and Monitored Customers

The traditional Kalamazoo Wastewater Rate structure collects the entire amount[4] of allocated revenue requirements from Municipal Customers and Monitored Industries via commodity charges applied to metered volume contributions and monitored pollutant contributions. Over the years this approach has resulted in significant revenue volatility from these customers, and instability of Wastewater Rates charged to them. Further, for reasons outlined below, I do not believe the existing approach results in an alignment with the wastewater costs charged to these customers and the revenue streams they utilize to pay the bill.

In 2020 and 2021, the System will report actual billings from the Municipalities that are almost $1 million (10%) lower than those planned for in rate design. Within the Monitored Industries, billings to Pfizer will be over $2.2 million (22.5%) lower than planned for that period.

The variance in the Municipalities is likely due in large part to varying levels of groundwater infiltrating into their individual collections systems, and then passing through the master wastewater meters to the System. Recently, the region has experienced higher than average rainfall and water levels, likely contributing to the lower billed wastewater volumes and revenue for these customers. Since these customers (generally) rely in large part on water sales to their retail customers for revenues from which to pay their wholesale wastewater bills, and since water sales volumes are generally lower during wetter conditions, it is likely that the Municipalities receive less revenue in high wastewater bills, and vice versa.

The variance for Pfizer (and other Monitored Industries) is more complicated and is tied to their varying production levels and business area focus. With limited exceptions I submit that the ultimate revenue stream from which these customers draw upon to pay their wholesale wastewater bills is also disconnected from the cadence of the bill itself.

I believe a fixed charge recovery system for these customer classes would provide stability and simplicity to both the System and the customers it serves. This report introduces such a charge structure for these customer classes.

[Remainder of page intentionally left blank]

[4] Other than a very nominal monthly billing charge.

Units of Service / Baseline Revenue

The first step in the evaluation process is to establish basic use of the System by each customer class, and the revenue that each customer class is projected to generate under the existing rate structure.

Table 1 presents baseline customer usage and revenue projections, including projected Water System customer accounts, water sales volumes and revenue under the existing water rate schedule. For purposes of the projected 2022 units, I've assumed a customer account inventory equivalent to that reported by the City's billing records as of October 2021. The estimated 2022 sales figures represent a two-year average of data reported in the same billing records for 2020 and 2021.[5] The estimated revenue figures result from applying the existing 2021 water rates to the various estimated billed units.

Using a two-year average to project for the coming year is a bit smaller sample set than I've applied in prior rate studies. The COVID environment has obviously impacted the level of utility service required by various businesses and residents during this period and I believe that the short-term averages are reasonable surrogates for forecast purposes.

Units of Service

The number of units of service required by each customer class provides a means for the proportionate distribution of costs previously allocated to respective cost categories. Table 2 summarizes of the development of units of service for the various customer classes, which have been determined in precisely the same manner as delineated in prior cost of service studies, and documented in prior reports – ***with the exception that COD is replacing BOD as a measure of Wastewater Strength and a unit of service***.

Wastewater Strength

The manner in which wastewater loadings are assigned to individual customers classes is identical to that established for the existing rates. The System has traditionally monitored certain industrial customers to determine their specific contributions of Biochemical Oxygen Demand (BOD) ***[now Chemical Oxygen Demand (COD)]***, Total Suspended Solids (TSS), and Ammonia (NH3) to the System, and to charge these customers in proportion to their total loadings. This approach originally was implemented through a

[5] Data for each customer class for the months of November and December 2021 have been assumed to be equivalent to November and December 2020 for purposes of this estimate.

"surcharge" program, which was replaced by application of "quantity/quality" rate structure in 1991, such structure remaining in place today. This approach is designed to equitably recover costs from all customers whose wastewater strengths significantly vary from the "domestic" strengths. The approach is most effective when applied to all customers for whom it is practical to monitor wastewater strengths. Currently the City monitors 14 industrial customer accounts (including contract industries Pfizer and Graphic Packaging) to determine wastewater strengths for billing purposes[6].

The System continually monitors contributions from each monitored industry and the System at large. COD strengths are (almost) always greater than BOD measurements, and can be illustrated by the ratio of relative loadings of COD compared to BOD strengths. The impact on rates and charges of switching from COD to BOD are directly in alignment with these relative ratios. A summary of the calculations of COD for individual monitored industries and the System at large summarized below.

		BOD Strength *mg/l*	COD / BOD Ratio *mg/l*	COD Strength *mg/l*
	System Total *	319	2.3	735
	"Domestic" Customers	239	2.1	495
	Monitored Customers	1,088	2.5	2,711
	Pfizer	515	3.4	1,730
	Graphic Packaging	2,415	1.7	4,193
	Inside City Monitored (a)	553	3.3	1,808
	Outside City Monitored (b)	2,800	2.8	7,855
(a)	Allnex USA	575	3.7	2,117
	Arvco	1,949	3.0	5,872
	Continental Linen	726	1.6	1,163
	Domestic Linen Supply	191	3.2	612
	Kal Metal Finishers	19	3.3	63
(b)	Kalsec	3,467	2.6	9,141
	Kalamazoo Brewing	957	3.5	3,332
	Green Bay Pkg	748	11.6	8,710
	Clean Earth Env	962	2.2	2,114
	Waste Mngt	144	17.4	2,505
	Zoetis	1,326	2.5	3,315
	MPI Research	698	2.3	1,605

* Adjusted to balance "Domestic" BOD to 239 mg/l

[6] To the extent that additional customers exist whose wastewater quality potentially varies significantly from "domestic" and/or whose quantity of contributed wastewater volume makes it practical, the quantity/quality approach should be applied to these customers.

Estimated wastewater pollutant loadings are shown for each customer class in Columns 6 through 8 of Table 2. The loadings indicated in the table for the monitored customers represent projected wastewater quality based on strengths indicated by the monitoring data. Wastewater strengths for all other customer classes are classified as "domestic", and all non-monitored customers are assigned a uniform "domestic" strength for each of these pollutants. For purposes of the 2022 Rates domestic strengths of ***495 mg/l for COD***, 259 mg/l for TSS, and 18.4 mg/l for NH3 have been assumed.

[Remainder of page intentionally left blank]

Revenue Requirements

The annual Revenue Requirements to be recovered from Wastewater Rates are summarized below, categorized in the same fashion as set forth in the City's new Water Service Agreement with outside City customers. Expressed on a "Cash Basis" the revenue requirements consist of:

- Direct Operation, Maintenance and Repair Costs;
- Administrative and Indirect Operating Costs;
- Debt Service Principal and Interest Requirements;
- Payment In Lieu Of Taxes ("PILOT");
- Revenue Financed Capital;
- Reserve Fund Deposits and Withdrawals;
- **Reduced** By: the sum of the Other Water System Revenues

Operation and Maintenance Expense

Direct annual operation and maintenance expenses of the System include costs related to payroll and benefits, chemicals, other supplies, power, natural gas, and other items. The System makes a payment to the general fund in support of administrative and other indirect support costs, based on the City's indirect cost allocation analyses. Additionally, the System's operating expenses include a reimbursement to the Water Fund for services it receives for common Water / Wastewater activities that are initially budgeted in Water.

The System makes two separate payments to finance costs related to "Other Post Employment Benefits" ("OPEB"). The first is related to the System's share of payments on bonds issued to finance a portion of the City's obligation on this matter. Funds generated by these bonds are held in a specific trust, outside the City's control. The agreement also requires annual deposits to that Trust, and the System's share of those annual deposits are also revenue requirements. The City's accounting practices treats these payments as operating expenses, and the City's bond counsel has opined that they are operating expenses for purposes of complying with the City's water revenue bond ordinances.

Consolidated Revenue Requirements

The 2022 Revenue Requirements to be recovered from the 2022 Rates are established via the recommended five-year financial forecast for the City's Water and Wastewater Utilities. A preliminary memorandum summarizing the forecast is included as an appendix to this report.

Table 3 presents revenue requirements (costs of service) to be recovered from the 2022 Rates. Lines 1 through 11 of the table summarizes the "cash basis" revenue requirements in line item detail that basically aligns with the categorization above.

The cash basis revenue requirements are converted into their utility basis counterparts on Lines 12 through 16. The operation and maintenance expense and payment in lieu of taxes elements are expressed at the cash basis values. Test Year 2022 depreciation expense is projected based on a detailed evaluation of the System's fixed asset records and capital improvement program, and is shown on Line 14[7]. This figure excludes depreciation expense associated with assets funded by federal and state grants and contributions in aid of construction. Deducting depreciation expense and payment in lieu of taxes from the total cash basis capital requirements leaves the balance (Line 15) that represents the System return on rate base.

The operation and maintenance expense and PILOT elements are expressed at the cash basis values. This figure excludes depreciation expense associated with assets funded by contributions in aid of construction. Deducting depreciation expense and PILOT from the total cash basis capital requirements leaves the balance (Line 15) that represents the System return on rate base. Separate rates of return are subsequently assigned to Inside City Customers and Outside City Customers, as described later in this report.

[Remainder of page intentionally left blank]

[7] Detailed development of Depreciation Expense and Rate Base is set forth in Tables 5 and 6.

Cost of Service Allocations

Allocation to Functional Cost Components

In order to assign costs of service to customer classes, the costs much first be allocated to functional cost components that align with measures of how customers use the System.

Customers are classified to reflect groups of customers with similar service requirements who can be served at similar cost. Each class represents a particular type of service requirement or load on the System in terms of customer related infiltration/inflow, volume related infiltration/inflow, wastewater flow, chemical oxygen demand (COD) strength, suspended solids (TSS) strength, ammonia (NH3) strength, and number of customers served.

As noted previously, the System customer classifications incorporated into this wastewater rate schedule are retail customers (further subclassified into residential, commercial, industrial, and industrial monitored categories), contract municipalities, contract industries, and dewatering. These customer classes are generally grouped based in a manner that presumes they exhibit similar types of system load characteristics. The System has both quarterly and monthly billed retail customers.

As a basis for allocating costs of service among customer classes, costs are first allocated to functional cost components, then allocated to cost categories, and subsequently distributed to customer classes. In this study there are four primary cost components: (1) flow, or volume costs, (2) wastewater strength costs, (3) customer costs, and (4) directly assigned costs.

Flow or volume costs are those that tend to vary directly with the total quantity of wastewater flow contributed plus those operation and maintenance expenses and capital costs related to system facilities which are sized on the basis of, or required because of, total wastewater flow.

Wastewater strength costs consist of operation and maintenance and capital costs related to system facilities, which are designed principally based on the projected strength concentrations of contributed wastewater flow. COD costs are those costs which are influenced in magnitude by the COD of the raw wastewater, and include costs related to aeration and disposal of COD related sludge. Suspended solids strength costs are those costs of wastewater treatment, which tend to vary according to the quantity of suspended

solids in the raw wastewater. Ammonia costs are those costs related to the conversion of ammonia present in the raw wastewater into nitrate during the secondary treatment process.

Customer costs comprise those costs associated with serving customers, irrespective of the amount of wastewater flow contributed by the customer. They include the costs such as customer service, billing, customer accounting, and meter reading expenses.

Directly assigned costs include costs associated with surveillance, monitoring and testing of high strength customers and costs associated with the Industrial Pretreatment Program.

Costs associated with certain processes and facilities are assigned to and recovered from only those customer classes that utilize those processes and facilities. For example, costs associated with *municipal collectors are pump stations* are assigned to and recovered from municipal retail and dewatering customers, but not from contract municipalities since it is assumed that these customers do not utilize the smaller collector sewers of the system. Costs associated with the *municipal interceptor system* are allocated to all customers (except for Graphic Packaging, who is basically directly connected to the KWRP) since all customers are assumed to benefit proportionately from these facilities. In addition, there is a need to establish a series of "common except Pfizer" cost functions to accommodate and recognize Pfizer's "direct participation" investment in certain KWRP facilities. The table below illustrates the methodology applied to assigning cost responsibility of individual processes and facilities to each customer class.

Customer Class	Common to All	Municipal Collection and Pump Station	Municipal Interceptor	Common Except Pfizer
Inside City Retail	X	X	X	X
Outside City Retail	X	X	X	X
Contract Industries				
Pfizer	X	*NA*	X	*NA*
Graphic Packaging	X	*NA*	*NA*	X
Municipalities	X	*NA*	X	X
Dewatering				
Inside City	X	X	X	X
Outside City	X	X	X	X

Each element of cost is allocated to functional cost components on the basis of the parameter or parameters having the most significant influence on the magnitude of that element of cost. Capital costs are considered on a utility basis, that is, in terms of PILOT, depreciation, and return on rate base. The return on rate base element is related to an allocation of the depreciated original cost of the wastewater system less depreciated grants. Depreciation expense and operation and maintenance expense items are allocated directly to appropriate cost components.

The specific costs of treatment at the KWRP are assigned to functional cost components as illustrated below. The operating expenses are allocated based on the functional basis that reflects the cost drivers of operating the facilities on a day to day basis. The capital revenue requirements are allocated based on the design basis that reflects the capacity requirements established to size the facilities when the were constructed.

Component	Volume	BOD	SS	NH3
Operating Expenses				
Primary Treatment	45%	0%	55%	0%
Secondary Treatment	5%	70%	5%	20%
Solids Handling and Removal	11%	35%	50%	4%
Tertiary Treatment	90%	0%	8%	3%
Capital Revenue Requirements				
Primary Treatment	100%	0%	0%	0%
Secondary Treatment	74%	20%	1%	5%
Solids Handling and Removal	3%	39%	54%	4%
Tertiary Treatment	100%	0%	0%	0%

Allocation of Operation and Maintenance Expense

Projected test year 2022 operation and maintenance expense is allocated to the functional cost components in Table 4. The allocation follows the approach and allocation factors outlined above. Costs of the System's Industrial Services Section and certain laboratory costs are assigned to the Industrial Surveillance and Industrial Pretreatment Program cost components. These costs are then reallocated to the three pollutant cost components to be recovered from these rate elements, as illustrated on Lines 15 and 16 of Table 4.

The net operation and maintenance expense to be recovered for wastewater service is derived by deducting funds available from other sources from the total test year expense.

Net test year operation and maintenance expense of $23,653,800 from Table 3 is shown allocated to cost components on Line 17 of Table 4.

Allocation of Net Plant Investment, Rate Base, and Depreciation Expense

Under the Utility Basis, the allocation of capital related costs to the various customer classes is based on the City's estimated investment in wastewater system facilities. A summary of the projected Test Year 2022 capital asset values is presented in Table 5.

A detailed review of the System's fixed asset portfolio as of 12/31/20 served as the starting point for these projections. The calculated Test Year 2022 rate base and depreciation expense amounts reflect the addition of projected capital investments from the CIP, and deduction of projected depreciation expense in 2021 and 2022.

The table also identifies the estimated amount of each figure that was funded via a contribution in aid of construction (CIAC), including federal and state grants. The difference between the total amount and the CIAC portion is deemed to be "Local" and serves as the asset value for purposes of allocating costs of service to customers.

The allocation of estimated plant investment serving wastewater customers is defined as the "rate base" under the Utility Basis for Test Year 2022 is shown in Table 6. This investment represents the projected original cost less depreciation of property, plant and equipment assets, as shown on Table 5. Total rate base on which the System is entitled to earn a return is the sum of net plant in service plus a working capital allowance of 90 days and inventory.

The allocation of rate base to the functional cost components follows the approach and allocation factors outlined above. Table 6 also indicates allocation of Test Year 2022 PILOT to cost components, shown on Line 26.

The allocation of Test Year 2022 depreciation expense (as established in Table 5) to functional cost components follows the same approach, and is illustrated in Table 7.

The total cost responsibility of each class of service may be established by developing unit costs of service for each cost function. These "prices" may then be used to assign costs to customer classes in correlation with the level of service that each class is projected to purchase from the System, as determined by their respective volume, strength, and other units of service.

Cost of Service Allocations

Costs of service are allocated to the customer classes by application of unit costs of service to respective service requirements. Unit costs of service are based upon the total costs previously allocated to functional components and the total number of applicable units of service. Dividing the costs allocated to functional cost components by the respective total units of service requirements develops unit costs of operation and maintenance expense, payment in lieu of taxes, depreciation, and return on rate base.

Rate of Return

The Methodology has traditionally established the rate of return for non-owner customers via a "debt/equity" approach. In fact this approach is specifically called for in the Agreement. This method applies separate rates of return to the debt and equity portions of the System's capital structure and determines a weighted average. This approach is continued for the 2022 Wastewater Rates, as illustrated in Table 8, and serves as the basis of the rate of return on allocated rate base to charge outside City customers.

Line 1 of Table 8 indicates the estimated capital structure of System for Test Year 2022. For purposes of this analysis, the difference between total rate base established in Table 6 and the total outstanding debt has been used as a proxy for the estimated owner's equity value. The estimated long-term debt figure reflects the projected outstanding balance at the end of the test year. As indicated on Line 2 of Table 8, approximately 42 percent of the capital structure is related to equity with the remaining 58 percent allocated to long-term debt.

The Agreement established that the owner's equity rate of return should be equal to the June 30, 2020 interest rate on 30-year treasury bonds plus 300 basis points (3 percent). As noted in the Study Approach, I do not believe that aspect of the Agreement remains an appropriate guideline for determining a fair return on the value of facilities devoted to serving the outside City, non-owner customers of the System. For purposes of the 2022 Wastewater Rates I've assumed a return on equity of 8.00%, which is approximately 590 basis points higher than the 30-year treasury bond rate. This amount is shown on Line 3 of the table. The rate of return applied to the long-term debt portion of the capital structure is equivalent to the imbedded average cost of carrying that debt. Applying the capital structure percentages to the appropriate rates of return results in a rate of return applicable to rate base allocated outside City customers of 5.56 percent, as indicated on Line 5 of Table 8.

I note that the resulting outside City rate of return of 5.56% from this approach is less than 0.5% higher than the figure used to determine the existing Wastewater Rates, and less than the 5.70% rate of return that is uniformly applied to inside City and outside City Water customers (by agreement).

Unit Costs of Service

Unit costs of service are established in Table 9. The total units of service from Table 2 are indicated on Line 3. Total operation and maintenance expense, payment in lieu of taxes, depreciation expense, and rate base are shown allocated to functional cost component as taken from Tables 4, 6, and 7. On Lines 10 and 11 the rate base element is allocated to inside City and outside City customers based on the individual units of service for each functional cost component. On Line 16 return on rate base for outside City customers is determined by applying the 5.56 percent rate of return from Table 8 to the allocated outside City rate base shown on Line 11. This results in total return on rate base allocable to outside City customers of $2.58 million. In Table 3 a total system return requirement of $1.24 million was established. Therefore the return to be recovered from inside City customers (the difference between the two previous figures) is actually a ***credit*** of $1.34 million. Dividing this figure by the rate based assigned to inside City customers on Line 10 results in an effective rate of return of negative 3.7 percent for these customers. The overall projected System rate of return for Test Year 2022 is approximately negative 1.5 percent, as shown in Table 3.

Unit costs are determined for each revenue requirement element and indicated in Table 9. The total unit costs of service for each cost component for inside and outside City customers are shown on Lines 20 and 21 of the table.

Distribution of Costs of Service to Customer Classes

The customer class responsibility for service is obtained by applying the unit costs of service to the number of units for which the customer class is responsible. This process is illustrated in Table 10, in which the unit costs of service from Table 9 are applied to the customer class units of service from Table 2. Individual elements are summed for each customer class to result in the total allocated Test Year 2022 cost of service indicated in Column 1.

Adequacy of Existing Rates to Meet Cost of Service

Presented in Table 11 is a comparison of the allocated Test Year 2022 cost of service and revenue under existing rates by individual customer class and for the System in total. The

total allocated cost of service from Table 10 is shown in Column 1. Column 2 presents the projected revenue under the existing (2021) rate structure for each customer class, originally shown in Table 1. Column 3 compares these values, and indicates the adequacy of existing rates to recover the allocated cost of service for all customer classes. As indicated on Line 25 of the table, the existing rates in total need to be increased by 12.0 percent to recover allocated Test Year 2022 costs of service.

Impact Analysis

As noted in Table 11, the allocated cost of service for inside City customers indicates a need for rates to these customer classes to be increased by approximately 20 percent, while the approximate increase in rates to outside City customers is about 8.5 percent. This difference is a result of the Utility Basis application of capital revenue requirements, and how that approach impacts "owner" inside City customers and "non-owner" outside City customers.

In recent years the capital investment needs of the System have materially increased, and resulted a larger relative debt to equity ratio than was traditionally reflected in Wastewater Rates. In addition, as noted in the forecast included in an appendix to this report, the proposed 2022 Wastewater Rates are designed to reverse recent financial performance that produced less than planned results and to enhance the net financial position of the System. This strategy results in an increase in the "cash basis" capital revenue requirements of debt service and revenue financed capital that outpace their "utility basis" counterparts of deprecation expense and rate base. Since the rates to outside City customers are determined via the utility basis, the 2022 Wastewater Rates result in a lower than average increase for those customer classes. Conversely, since the rates to inside City must meet the cash needs of the System (net of the amounts provided by outside City customers) the 2022 Wastewater Rates result in a higher than average increase for those customer classes.

[Remainder of page intentionally left blank]

Rate Design

The Test Year 2022 cost of service allocations establish a basis for design of the 2022 Rates. The proposed rate schedule for 2022 aligns with the existing schedule for the retail customers of the System. ***However, as noted in the Study Approach, I am recommending a modified fixed charge structure for the Municipalities and the contract industries, with potential application to the other monitored industries.***

Fixed Monthly Service Charges

Table 12 illustrates the calculation of proposed 2022 fixed monthly wastewater charges for each of the Municipalities and the contract industries. It also presents fixed monthly wastewater charges for the other monitored industries in the inside City and outside City retail customer classes. ***The fixed monthly charges are simply equal to the total allocated revenue requirement from Table 11 divided by 12. The 2022 Rates are designed to result in equal monthly charges to each of the customers irrespective of monthly contributions of wastewater during the year. The suggested approach still requires careful monitoring of wastewater contributions to the system, via existing metering and sampling efforts, but does not utilize that information for monthly billing. Rather, the data is collected to utilize in units of service in subsequent years. So data collected during 2022 would be utilized to compute a new "rolling average" of wastewater contributions for 2023 and beyond, and would be used to calculate future fixed monthly charges.***

An example of how this works for Portage and Pfizer is illustrated below, which compares the current approach with the recommended new approach.

Portage

	Volume	Bills	Total
Current Approach			
Allocated Revenue Requirement - $	3,955,200	100	3,955,300
Projected Contributions - units	5,430,300	12	
Unit Rate - $/unit	0.728	*7.77*	
Recommended New Approach - Fixed Monthly Charge:			***$329,600***

Pfizer

	Volume	COD	TSS	NH3	Total
Current Approach					
Allocated Revenue Requirement - $	1,109,800	1,768,800	1,742,500	116,800	4,737,900
Projected Contributions - units	3,628,800	6,277,100	2,023,300	34,900	
Unit Rate - $/unit	0.307	0.282	0.861	3.346	
Recommended New Approach - Fixed Monthly Charge:					***$394,800***

Similar comparisons can be prepared for other Municipalities and monitored industries. Table 12 also presented proposed fixed monthly charges for the other customers in the retail customer classes. I recommend that the City strongly consider applying the fixed monthly charge approach for these customers as well. To the extent that it is not practical for certain of these individual industrial customers, we've included commodity quality / quantity charges in Table 14.

Service Charges for Retail Customer Classes

Table 13 illustrates the calculation of the monthly and quarterly service charges for retail customers classes. The service charge is designed to recover allocated customer costs associated with meter reading and billing expense and a portion of the costs associated with assigned infiltration/inflow. The service charges vary by meter size to recognize that more infiltration/inflow costs are assigned to and recovered from customers receiving water service through larger meters.

Commodity Charges for Retail Customer Classes

Table 14 illustrates the calculation of commodity rates and quantity / quality rates for monitored customers that would be billed via existing approaches, and not by the proposed fixed monthly charges presented in Table 12. The commodity charges are the same for each customer class within the inside City and outside City retail classes, and are designed to recover all costs assigned to the total customer class that is not recovered via the service charges introduced in Table 13. These costs include:

- The "volume" related allocated cost of service, including the portion of the costs associated with assigned infiltration/inflow that is not collected via service charges;
- Contributed wastewater and strength related costs in relation to "domestic" strength wastes.

A similar modification is made to compute the quantity charges for the monitored customers. The quality (pollutant) charges for these customers are simply the unit cost of service (per kg) computed in Table 10.

Table 15 presents a comparison of the existing and proposed rate schedules for each component of the rate schedule. ***Note that the proposed COD unit rates are not compared to any existing unit rate, due to the conversion from BOD to COD introduced for the 2022 Rates.***

Test Year 2022 Typical Bills

Typical bills shown in Table 16 indicate the impact of implementing the 2022 Rates "on various customers of the Utility. The different relative results for inside City customer classes and outside City customer are generally consistent with the Test Year 2022 cost of service results.

[Remainder of page intentionally left blank]

Report Tables

Table 1
Wastewater Utility

Baseline Units of Service and Revenue Projections
Test Year 2022

Line No.		(1) Estimated Accounts	(2) Estimated Volume cu mtr	(3) Estimated Monitored Pollutant Loadings COD kg	(4) TSS kg	(5) NH3 kg	(6) Estimated Revenue $
	Inside City Retail						
1	Residential	17,168	2,937,100	*(a)*	*(a)*	*(a)*	2,479,000
2	Commercial	2,663	4,129,400	*(a)*	*(a)*	*(a)*	2,753,400
3	Industrial	107	959,600	*(a)*	*(a)*	*(a)*	591,600
4	Industrial Monitored	5	650,100	1,175,600	94,500	1,100	416,600
5	Total	19,943	8,676,200	1,175,600	94,500	1,100	6,240,600
	Outside City Retail						
6	Residential	13,290	2,724,300	*(a)*	*(a)*	*(a)*	3,703,600
7	Commercial	1,646	2,787,400	*(a)*	*(a)*	*(a)*	3,114,600
8	Industrial	27	175,600	*(a)*	*(a)*	*(a)*	185,500
9	Industrial Monitored	7	443,700	3,485,400	610,300	21,200	1,705,700
10	Total	14,970	6,131,000	3,485,400	610,300	21,200	8,709,400
	Contract						
11	Pfizer	1	3,628,800	6,277,100	2,023,300	34,900	4,013,600
12	Graphic Packaging	1	1,257,600	5,273,300	177,700	700	1,854,400
13	Total	2	4,886,400	11,550,400	2,201,000	35,600	5,868,000
	Municipalities						
14	Portage	1	5,430,300	*(a)*	*(a)*	*(a)*	3,752,400
15	Galesburg	1	123,000	*(a)*	*(a)*	*(a)*	102,700
16	Vicksburg	1	345,800	*(a)*	*(a)*	*(a)*	239,000
17	Gull Lake	1	1,128,800	*(a)*	*(a)*	*(a)*	780,100
18	Augusta	1	82,300	*(a)*	*(a)*	*(a)*	57,000
19	Mattawan	1	458,300	*(a)*	*(a)*	*(a)*	316,800
20	South County	1	135,400	*(a)*	*(a)*	*(a)*	93,700
21	Total	7	7,703,900	*(a)*	*(a)*	*(a)*	5,341,700
	Dewatering						
22	Inside City	3	16,300	*(a)*	*(a)*	*(a)*	9,900
23	Outside City	1	24,400	*(a)*	*(a)*	*(a)*	24,800
24	Total	4	40,700	*(a)*	*(a)*	*(a)*	34,700
25	TOTAL	34,926	27,438,200	16,211,400	2,905,800	57,900	26,194,400
26	*Inside City Subtotal*	*19,947*	*9,950,100*	*6,448,900*	*272,200*	*1,800*	*8,104,900*
27	*Outside City Subtotal*	*14,979*	*17,488,100*	*9,762,500*	*2,633,600*	*56,100*	*18,089,500*

(a) Loadings not monitored, but asigned via application of "domestic strength" assumptions.

Table 2
Wastewater Utility

Customer Class Units of Service
Test Year 2022

Line No.		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
			Infiltration & Inflow				Strength			
		Contributed Volume	Interceptor Related	Customer Related	Volume Related	Total Treated Volume	COD	Suspended Solids	NH3	Number of Bills
		cu mtr	cu mtr	cu mtr	cu mtr	cu mtr	kg	kg	kg	
	Inside City									
1	Residential	2,937,100	513,000	1,183,700	238,300	4,872,100	1,453,900	760,700	53,700	69,256
2	Commercial	4,129,400	721,300	463,900	335,000	5,649,600	2,044,100	1,069,500	75,600	25,276
3	Industrial	959,600	167,600	40,200	77,900	1,245,300	475,000	248,500	17,600	1,244
4	Industrial Monitored	650,100	113,600	2,000	52,700	818,400	1,175,600	94,500	1,100	60
5	Total	8,676,200	1,515,500	1,689,800	703,900	12,585,400	5,148,600	2,173,200	148,000	95,836
	Outside City									
6	Residential	2,724,300	475,900	1,014,500	221,000	4,435,700	1,348,500	705,600	49,900	53,904
7	Commercial	2,787,400	486,900	303,800	226,200	3,804,300	1,379,800	721,900	51,000	17,696
8	Industrial	175,600	30,700	9,300	14,200	229,800	86,900	45,500	3,200	308
9	Industrial Monitored	443,700	77,500	2,500	36,000	559,700	3,485,400	610,300	21,200	84
10	Total	6,131,000	1,071,000	1,330,100	497,400	9,029,500	6,300,600	2,083,300	125,300	71,992
	Contract									
11	Pfizer	3,628,800	633,900	1,400	294,400	4,558,500	6,277,100	2,023,300	34,900	12
12	Graphic Packaging	1,257,600	0	0	0	1,257,600	5,273,300	177,700	700	12
13	Total	4,886,400	633,900	1,400	294,400	5,816,100	11,550,400	2,201,000	35,600	24
	Municipalities									
14	Portage	5,430,300	948,500	0	0	6,378,800	2,688,000	1,406,400	99,400	12
15	Galesburg	123,000	21,500	37,200	10,000	191,700	60,900	31,900	2,300	4
16	Vicksburg	345,800	60,400	0	0	406,200	171,200	89,600	6,300	12
17	Gull Lake	1,128,800	197,200	0	0	1,326,000	558,800	292,400	20,700	12
18	Augusta	82,300	14,400	0	0	96,700	40,700	21,300	1,500	12
19	Mattawan	458,300	80,100	0	0	538,400	226,900	118,700	8,400	12
20	South County	135,400	23,700	0	0	159,100	67,000	35,100	2,500	12
21	Total	7,703,900	1,345,800	37,200	10,000	9,096,900	3,813,500	1,995,400	141,100	76
	Dewatering									
22	Inside City	16,300	2,800	4,100	1,300	24,500	8,100	4,200	300	36
23	Outside City	24,400	4,300	1,400	2,000	32,100	12,100	6,300	400	12
24	Total	40,700	7,100	5,500	3,300	56,600	20,200	10,500	700	48
25	TOTAL	27,438,200	4,573,300	3,064,000	1,509,000	36,584,500	26,833,300	8,463,400	450,700	167,976
26	*Inside City Subtotal*	*9,950,100*	*1,518,300*	*1,693,900*	*705,200*	*13,867,500*	*10,430,000*	*2,355,100*	*149,000*	*95,884*
27	*Outside City Subtotal*	*17,488,100*	*3,055,000*	*1,370,100*	*803,800*	*22,717,000*	*16,403,300*	*6,108,300*	*301,700*	*72,092*

Table 3
Wastewater Utility
Cost of Service to be Recovered from Rates
Test Year 2022

Line No.		(1) O&M Expense $	(2) Capital Costs $	(3) Total $
	Revenue Requirements			
1	Operation and Maintenance Expense	22,944,300		22,944,300
2	OPEB Debt Service and Contribution	877,000		877,000
3	Debt Service		3,265,500	3,265,500
4	Payment in Lieu of Taxes		779,800	779,800
5	Revenue Financed Capital & Reserves		1,540,900	1,540,900
6	Contribution to Operating Reserves		471,900	471,900
7	Total Revenue Requirements	23,821,300	6,058,100	29,879,400
	Less Other Income Sources			
8	Interest Income	(79,800)	(374,300)	(454,100)
9	Other Income	(87,700)		(87,700)
10	Total Other Sources	(167,500)	(374,300)	(541,800)
11	Total Cost of Service to be Recovered From Rates	23,653,800	5,683,800	29,337,600
	Total Cost of Service on a Utility Basis			
12	Operation and Maintenance Expense	23,653,800		23,653,800
13	Payment in Lieu of Taxes		779,800	779,800
14	Depreciation Recovered		3,661,800	3,661,800
15	Return on Rate Base		1,242,200	1,242,200
16	Total Cost of Service to be Recovered from Rates	23,653,800	5,683,800	29,337,600
	System Rate of Return Calculation			
17	Return on Rate Base *(from Line 15)*		*1,242,200*	
18	Rate Base *(from Table 6)*		*82,165,600*	
19	Rate of Return *(18) / (17)*		*1.51%*	

Table 4
Wastewater Utility

Allocation of Operation and Maintenance Expense to Functional Cost Components
Test Year 2022

Line No.	Item	(1) Total	(2) Common to All: Volume	(3) Common to All: COD	(4) Common to All: Suspended Solids	(5) Common to All: NH3	(6) Customer	(7) Municipal Collection And Pump Station	(8) Municipal Interceptor	(9) Industrial Surveillance	(10) Industrial Pretreatment Program
		$	$	$	$	$	$	$	$	$	$
1	Administrative	2,924,200	459,600	803,700	801,900	159,800	208,800	441,400	49,000	0	0
2	Customer Service	1,128,700					1,128,700				
3	Municipal Collection	2,651,400						2,386,300	265,100		
	Treatment Process										
4	Primary	719,000	323,500	0	395,500	0					
5	Secondary	2,480,600	124,100	1,736,400	124,000	496,100					
6	Solids Handling	6,298,200	692,800	2,204,400	3,149,100	251,900					
7	Tertiary Treatment	867,700	780,900	0	65,100	21,700					
8	General Plant	1,041,500	193,000	396,000	375,200	77,300					
9	Plant Maintenance	1,662,800	563,300	404,200	601,300	94,000					
10	Other	2,541,300	646,100	420,100	391,500	112,200	0	0	0	728,800	242,600
11	General Wastewater	628,900	98,800	172,900	172,500	34,400	44,900	94,900	10,500	0	0
12	TOTAL	22,944,300	3,882,100	6,137,700	6,076,100	1,247,400	1,382,400	2,922,600	324,600	728,800	242,600
13	OPEB O&M Expense	877,000	137,900	241,000	240,500	47,900	62,600	132,400	14,700	0	0
14	less: Other Income Credit	(167,500)	(26,300)	(46,000)	(45,900)	(9,200)	(12,000)	(25,300)	(2,800)	0	0
15	IPP Cost Recovery	0		113,200	107,300	22,100					(242,600)
16	ISS Cost Recovery	0		340,200	322,200	66,400				(728,800)	
17	Net Allocated Total	23,653,800	3,993,700	6,786,100	6,700,200	1,374,600	1,433,000	3,029,700	336,500	0	0
18	*Direct Treatment*	10,365,500	1,921,300	3,940,800	3,733,700	769,700					
19	*Indirect Treatment Allocation*		18.5%	38.0%	36.0%	7.4%					
20	*Direct*	15,808,400	2,484,600	4,345,000	4,335,000	863,700	1,128,700	2,386,300	265,100	0	0
21	*Indirect Allocation*		15.7%	27.5%	27.4%	5.5%	7.1%	15.1%	1.7%		

Table 5
Wastewater Utility

Development of Capital Asset Values for Cost of Service
Test Year 2022

Line No.		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
		Original Cost			Accumulated Depreciation			Original Cost Less Depreciation			Annual Depreciation Expense		
			Funding			Funding			Funding			Funding	
		Total	CIAC	Local	Total	CIAC	Local	Total	CIAC	Local	Total	CIAC	Local
		$	$	$	$	$	$	$	$	$	$	$	$
	COLLECTION SYSTEM												
1	Lift Stations	2,784,300	110,000	2,674,300	1,418,600	110,000	1,308,600	1,365,700	0	1,365,700	80,800	0	80,800
2	Sanitary Sewer Connection	4,174,000	0	4,174,000	1,651,500	0	1,651,500	2,522,500	0	2,522,500	84,900	0	84,900
	Sewer Collectors												
3	Municipal Interceptor	18,915,800	8,521,300	10,394,500	10,703,000	7,293,300	3,409,700	8,212,800	1,228,000	6,984,800	383,900	194,000	189,900
4	All Other	40,920,600	1,340,800	39,579,800	27,420,800	1,340,800	26,080,000	13,499,800	0	13,499,800	766,500	0	766,500
5	Total Collection System Investment	66,794,700	9,972,100	56,822,600	41,193,900	8,744,100	32,449,800	25,600,800	1,228,000	24,372,800	1,316,100	194,000	1,122,100
	TREATMENT												
6	Preliminary and Primary Treatment	8,971,300	2,210,400	6,760,900	6,524,600	1,812,100	4,712,500	2,446,700	398,300	2,048,400	294,100	33,500	260,600
	Secondary Treatment												
7	Aeration	7,668,700	5,030,300	2,638,400	6,331,300	4,008,900	2,322,400	1,337,400	1,021,400	316,000	140,200	98,700	41,500
8	Secondary Pumping/Clarif	21,665,300	6,897,900	14,767,400	12,159,700	6,022,900	6,136,800	9,505,600	875,000	8,630,600	406,700	90,400	316,300
9	Secondary Treatment 2013	7,500,300	1,250,000	6,250,300	4,658,700	776,400	3,882,300	2,841,600	473,600	2,368,000	490,400	81,700	408,700
10	Carbon Regeneration	6,882,400	6,019,400	863,000	5,294,800	4,600,400	694,400	1,587,600	1,419,000	168,600	126,100	117,100	9,000
11	Tertiary Filters	27,817,700	14,000,700	13,817,000	17,848,800	11,582,400	6,266,400	9,968,900	2,418,300	7,550,600	527,400	241,700	285,700
	Sludge Treatment												
12	Primary Sludge Thickeners	74,900	14,800	60,100	63,600	14,800	48,800	11,300	0	11,300	1,300	0	1,300
13	Primary Sludge Pumping	5,404,000	2,504,500	2,899,500	4,436,900	2,247,800	2,189,100	967,100	256,700	710,400	114,700	29,400	85,300
14	Incinerator	64,400	0	64,400	57,900	0	57,900	6,500	0	6,500	5,400	0	5,400
15	Spent Carbon Thickeners	12,200	5,300	6,900	12,200	5,300	6,900	0	0	0	0	0	0
16	Solids Handling Process	15,341,200	2,061,500	13,279,700	10,856,300	1,692,500	9,163,800	4,484,900	369,000	4,115,900	193,200	37,800	155,400
17	Septic Facility	530,100	0	530,100	437,900	0	437,900	92,200	0	92,200	4,000	0	4,000
18	WWTP General	32,090,200	10,652,300	21,437,900	21,583,100	8,144,200	13,438,900	10,507,100	2,508,100	7,999,000	967,700	204,300	763,400
19	Net Treatment	134,022,700	50,647,100	83,375,600	90,265,800	40,907,700	49,358,100	43,756,900	9,739,400	34,017,500	3,271,200	934,600	2,336,600
20	Subtotal	200,817,400	60,619,200	140,198,200	131,459,700	49,651,800	81,807,900	69,357,700	10,967,400	58,390,300	4,587,300	1,128,600	3,458,700
21	Total Wastewater General	30,776,400	4,827,000	25,949,400	12,381,700	4,035,500	8,346,200	18,394,700	791,500	17,603,200	285,800	82,700	203,100
22	TOTAL	231,593,800	65,446,200	166,147,600	143,841,400	53,687,300	90,154,100	87,752,400	11,758,900	75,993,500	4,873,100	1,211,300	3,661,800

Table 6
Wastewater Utility

Allocation of Rate Base to Functional Cost Components
Test Year 2022

Line No.	Book Value Investment - $	(1) Total	(2) Common to All Volume	(3) Common to All COD	(4) Common to All Suspended Solids	(5) Common to All NH3	(6) Customer	(7) Municipal Collection And Pump Station	(8) Municipal Interceptor	(9) Common Except Pfizer Volume	(10) Common Except Pfizer COD	(11) Common Except Pfizer Suspended Solids	(12) Common Except Pfizer NH3
	COLLECTION SYSTEM												
1	Lift Stations	1,365,700						1,365,700					
2	Sanitary Sewer Connection	2,522,500						2,522,500					
	Sewer Collectors												
3	Municipal Interceptor	6,984,800							6,984,800				
4	All Other	13,499,800						13,499,800					
5	Total Collection System Inves	24,372,800	0	0	0	0	0	17,388,000	6,984,800	0	0	0	0
	TREATMENT												
6	Preliminary and Primary Treat	2,048,400	2,048,400	0	0	0							
	Secondary Treatment												
7	Aeration	316,000	233,800	63,200	3,200	15,800							
8	Secondary Pumping/Clarif	8,630,600	6,386,700	1,726,100	86,300	431,500							
9	Secondary Treatment 2013	2,368,000								1,752,300	473,600	23,700	118,400
10	Carbon Regeneration	168,600	124,800	33,700	1,700	8,400							
11	Tertiary & Outfall	7,550,600	7,550,600	0	0	0							
	Sludge Treatment												
12	Primary Sludge Thickeners	11,300	300	4,400	6,100	500							
13	Primary Sludge Pumping	710,400	21,300	277,100	383,600	28,400							
14	Incinerator	6,500	200	2,500	3,500	300							
15	Spent Carbon Thickeners	0	0	0	0	0							
16	Solids Handling Process	4,115,900	123,500	1,605,200	2,222,600	164,600							
17	Septage Facility	92,200	92,200	0	0	0							
18	WWTP General	7,999,000	*5,825,800*	*1,141,300*	*832,200*	*199,700*							
19	Net Treatment	34,017,500	22,407,600	4,853,500	3,539,200	849,200	0	0	0	1,752,300	473,600	23,700	118,400
20	Subtotal	58,390,300	22,407,600	4,853,500	3,539,200	849,200	0	17,388,000	6,984,800	1,752,300	473,600	23,700	118,400
21	Wastewater General	17,603,200	*6,619,700*	*1,296,800*	*945,600*	*226,900*	*0*	*6,074,200*	*2,440,000*	*0*	*0*	*0*	*0*
22	Net Plant Investment	75,993,500	29,027,300	6,150,300	4,484,800	1,076,100	0	23,462,200	9,424,800	1,752,300	473,600	23,700	118,400
23	Working Capital	5,955,300	*2,239,500*	*438,700*	*319,900*	*76,800*	*0*	*2,054,900*	*825,500*	*0*	*0*	*0*	*0*
24	Inventories	216,800	*81,500*	*16,000*	*11,600*	*2,800*	*0*	*74,800*	*30,100*	*0*	*0*	*0*	*0*
25	Rate Base	82,165,600	31,348,300	6,605,000	4,816,300	1,155,700	0	25,591,900	10,280,400	1,752,300	473,600	23,700	118,400
26	Payment in Lieu of Taxes	779,800	*567,900*	*111,300*	*81,100*	*19,500*							
27	*WWTP Allocation Factors*		*63.7%*	*14.3%*	*10.4%*	*2.5%*							
28	*General Allocation Factors*		*32.9%*	*7.4%*	*5.4%*	*1.3%*	*0.0%*	*34.5%*	*13.9%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*

Table 7
Wastewater Utility

Allocation of Depreciation Expense to Functional Cost Components
Test Year 2022

Line No.	Annual Local Depreciation Expense - $	(1) Total	(2) Common to All: Volume	(3) Common to All: COD	(4) Common to All: Suspended Solids	(5) Common to All: NH3	(6) Customer	(7) Municipal Collection And Pump Station	(8) Municipal Interceptor	(9) Common Except Pfizer: Volume	(10) Common Except Pfizer: COD	(11) Common Except Pfizer: Suspended Solids	(12) Common Except Pfizer: NH3
	COLLECTION SYSTEM												
1	Lift Stations	80,800						80,800					
2	Sanitary Sewer Connection	84,900						84,900					
	Sewer Collectors												
3	Municipal Interceptor	189,900							189,900				
4	All Other	766,500						766,500					
5	Total Collection System Investment	1,122,100	0	0	0	0	0	932,200	189,900	0	0	0	0
	TREATMENT												
6	Preliminary and Primary Treatment	260,600	260,600	0	0	0							
	Secondary Treatment												
7	Aeration	41,500	30,700	8,300	400	2,100							
8	Secondary Pumping/Clarif	316,300	234,000	63,300	3,200	15,800							
9	Secondary Treatment 2013	408,700								302,500	81,700	4,100	20,400
10	Carbon Regeneration	9,000	6,600	1,800	100	500							
11	Tertiary & Outfall	285,700	285,700	0	0	0							
	Sludge Treatment												
12	Primary Sludge Thickeners	1,300	0	500	700	100							
13	Primary Sludge Pumping	85,300	2,500	33,300	46,100	3,400							
14	Incinerator	5,400	200	2,100	2,900	200							
15	Spent Carbon Thickeners	0	0	0	0	0							
16	Solids Handling Process	155,400	4,700	60,600	83,900	6,200							
17	Septage Facility	4,000	4,000	0	0	0							
18	WWTP General	763,400	*543,400*	*111,400*	*90,000*	*18,600*							
19	Net Treatment	2,336,600	1,372,400	281,300	227,300	46,900	0	0	0	302,500	81,700	4,100	20,400
20	Subtotal	3,458,700	1,372,400	281,300	227,300	46,900	0	932,200	189,900	302,500	81,700	4,100	20,400
21	Wastewater General	203,100	*73,600*	*15,100*	*12,200*	*2,500*	*0*	*82,800*	*16,900*	*0*	*0*	*0*	*0*
22	TOTAL	3,661,800	1,446,000	296,400	239,500	49,400	0	1,015,000	206,800	302,500	81,700	4,100	20,400
23	*WWTP Allocation Factors*		*71.2%*	*14.6%*	*11.8%*	*2.4%*							
24	*General Allocation Factors*		*36.3%*	*7.4%*	*6.0%*	*1.2%*	*0.0%*	*40.8%*	*8.3%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*

Table 8
Wastewater Utility

Rate of Return on Rate Base
Test Year 2022

Line No.	Description	(1) Owner's Equity $	(2) Long Term Debt $	(3) Total $
1	Capital Structure	34,854,200	47,311,400	82,165,600
2	Capital Structure Allocation	42.42%	57.58%	100.00%
	Rates of Return			
3	Return on Equity	**8.00%**		
4	Imbedded Cost of Debt		3.76%	
		*(Ln 2 * Ln 3)*	*(Ln 2 * Ln 4)*	
5	Outside City Rate of Return	3.39%	2.17%	**5.56%**

Table 9
Wastewater Utility

Unit Costs of Service
Test Year 2022

Line No.	Description	(1) Total	(2) Common to All: Volume	(3) Common to All: COD	(4) Common to All: Suspended Solids	(5) Common to All: NH3	(6) Common to All: Customer	(7) Municipal Collection And Pump Station	(8) Municipal Interceptor	(9) Common Except Pfizer: Volume	(10) Common Except Pfizer: COD	(11) Common Except Pfizer: Suspended Solids	(12) Common Except Pfizer: NH3
	Total Units of Service												
1	Inside City		13,867,500	10,430,000	2,355,100	149,000	95,884	12,609,900	12,609,900	13,867,500	10,430,000	2,355,100	149,000
2	Outside City		22,717,000	16,403,300	6,108,300	301,700	72,092	9,061,600	22,717,000	18,158,500	10,126,200	4,085,000	266,800
3	Total System		36,584,500	26,833,300	8,463,400	450,700	167,976	21,671,500	35,326,900	32,026,000	20,556,200	6,440,100	415,800
	Units		*cu mtr*	*kg*	*kg*	*kg*	*Bills*	*cu mtr*	*cu mtr*	*direct*	*cu mtr*	*kg*	*kg*
4	Net Operating Expense	23,653,800	3,993,700	6,786,100	6,700,200	1,374,600	1,433,000	3,029,700	336,500	0	0	0	0
5	Unit Cost, $/Unit		0.1092	0.2529	0.7917	3.0499	8.5310	0.1398	0.0095	0.0000	0.0000	0.0000	0.0000
6	Payment in Lieu of Taxes	779,800	567,900	111,300	81,100	19,500	0	0	0	0	0	0	0
7	Unit Cost, $/Unit		0.0155	0.0041	0.0096	0.0433	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	Depreciation Expense	3,661,800	1,446,000	296,400	239,500	49,400	0	1,015,000	206,800	302,500	81,700	4,100	20,400
9	Unit Cost, $/Unit		0.0395	0.0110	0.0283	0.1096	0.0000	0.0468	0.0059	0.0094	0.0040	0.0006	0.0491
	Rate Base												
10	Inside City	35,783,100	11,882,700	2,567,300	1,340,200	382,100	0	14,891,000	3,669,600	758,800	240,300	8,700	42,400
11	Outside City	46,382,500	19,465,600	4,037,700	3,476,100	773,600	0	10,700,900	6,610,800	993,500	233,300	15,000	76,000
12	Total	82,165,600	31,348,300	6,605,000	4,816,300	1,155,700	0	25,591,900	10,280,400	1,752,300	473,600	23,700	118,400
	Return on Rate Base												
	Inside City @ -3.74%	*-3.74%*											
13	Total Cost - $	(1,337,300)	(444,100)	(95,900)	(50,100)	(14,300)	0	(556,500)	(137,100)	(28,400)	(9,000)	(300)	(1,600)
14	Inside City Units		13,867,500	10,430,000	2,355,100	149,000	95,884	12,609,900	12,609,900	13,867,500	10,430,000	2,355,100	149,000
15	Unit Cost - $/unit		-0.0320	-0.0092	-0.0213	-0.0960	0.0000	-0.0441	-0.0109	-0.0020	-0.0009	-0.0001	-0.0107
	Outside City @ 5.56%												
16	Total Cost - $	2,579,500	1,082,500	224,600	193,300	43,000	0	595,100	367,700	55,300	13,000	800	4,200
17	Outside City Units		22,717,000	16,403,300	6,108,300	301,700	72,092	9,061,600	22,717,000	18,158,500	10,126,200	4,085,000	266,800
18	Unit Cost - $/unit		0.0477	0.0137	0.0316	0.1425	0.0000	0.0657	0.0162	0.0030	0.0013	0.0002	0.0157
	Total Unit Cost of Service												
19	Total Cost - $	29,337,600	6,646,000	7,322,500	7,164,000	1,472,200	1,433,000	4,083,300	773,900	329,400	85,700	4,600	23,000
	Unit Cost - $/unit												
20	Inside City		0.1322	0.2589	0.8083	3.1068	8.5310	0.1425	0.0045	0.0074	0.0031	0.0005	0.0383
21	Outside City		0.2119	0.2818	0.8612	3.3453	8.5310	0.2523	0.0316	0.0125	0.0053	0.0008	0.0648

Table 10
Wastewater Utility

Allocation of Cost of Service to Customer Classes
Test Year 2022

Line No.	Description	(1) Total	(2) Common to All Volume	(3) Common to All BOD	(4) Common to All Suspended Solids	(5) Common to All NH3	(6) Common to All Customer	(7) Municipal Collection And Pump Station	(8) Municipal Interceptor	(9) Common Except Pfizer Volume	(10) Common Except Pfizer BOD	(11) Common Except Pfizer Suspended Solids	(12) Common Except Pfizer NH3
		$	$	$	$	$	$	$	$	$	$	$	$
1	Total Cost of Service	29,337,600	6,646,000	7,322,500	7,164,000	1,472,200	1,433,000	4,083,300	773,900	329,400	85,700	4,600	23,000
	Unit Costs of Service												
2	Inside City		0.1322	0.2589	0.8083	3.1068	8.5310	0.1425	0.0045	0.0074	0.0031	0.0005	0.0383
3	Outside City		0.2119	0.2818	0.8612	3.3453	8.5310	0.2523	0.0316	0.0125	0.0053	0.0008	0.0648
	Inside City Retail												
4	Residential	3,152,200	644,000	376,400	614,900	166,800	590,800	694,300	22,000	36,000	4,500	400	2,100
5	Commercial	3,473,200	746,800	529,200	864,500	234,900	215,600	805,100	25,500	41,800	6,400	500	2,900
6	Industrial	748,400	164,600	123,000	200,900	54,700	10,600	177,500	5,600	9,200	1,500	100	700
7	Industrial Monitored	623,000	108,200	304,400	76,400	3,400	500	116,600	3,700	6,100	3,700	0	0
8	Total	7,996,800	1,663,600	1,333,000	1,756,700	459,800	817,500	1,793,500	56,800	93,100	16,100	1,000	5,700
	Outside City Retail												
9	Residential	3,879,800	939,800	380,000	607,700	166,900	459,900	1,119,200	140,000	55,400	7,100	600	3,200
10	Commercial	3,276,800	806,000	388,800	621,700	170,600	151,000	959,900	120,100	47,500	7,300	600	3,300
11	Industrial	194,600	48,700	24,500	39,200	10,700	2,600	58,000	7,300	2,900	500	0	200
12	Industrial Monitored	1,884,000	118,600	982,100	525,600	70,900	700	141,200	17,700	7,000	18,300	500	1,400
13	Total	9,235,200	1,913,100	1,775,400	1,794,200	419,100	614,200	2,278,300	285,100	112,800	33,200	1,700	8,100
	Contract Industries												
14	Pfizer	4,737,900	965,800	1,768,800	1,742,500	116,800	100		143,900				
15	Graphic Packaging	1,703,100	166,200	1,365,200	143,600	2,200	100			9,300	16,400	100	0
16	Total	6,441,000	1,132,000	3,134,000	1,886,100	119,000	200	0	143,900	9,300	16,400	100	0
	Municipalities												
17	Portage	3,955,300	1,351,400	757,400	1,211,200	332,500	100		201,300	79,700	14,100	1,200	6,400
18	Galesburg	101,900	40,600	17,200	27,500	7,700	0		6,100	2,400	300	0	100
19	Vicksburg	252,000	86,100	48,200	77,200	21,100	100		12,800	5,100	900	100	400
20	Gull Lake	822,400	280,900	157,500	251,800	69,200	100		41,900	16,600	2,900	200	1,300
21	Augusta	60,000	20,500	11,500	18,300	5,000	100		3,100	1,200	200	0	100
22	Mattawan	333,900	114,100	63,900	102,200	28,100	100		17,000	6,700	1,200	100	500
23	South County	98,900	33,700	18,900	30,200	8,400	100		5,000	2,000	400	0	200
24	Total	5,624,400	1,927,300	1,074,600	1,718,400	472,000	600	0	287,200	113,700	20,000	1,600	9,000
	Dewatering												
25	Inside City	13,700	3,200	2,100	3,400	900	300	3,500	100	200	0	0	0
26	Outside City	26,600	6,800	3,400	5,400	1,300	100	8,100	1,000	400	100	0	0
27	Total	40,300	10,000	5,500	8,800	2,200	400	11,600	1,100	600	100	0	0
28	GRAND TOTAL	29,337,700	6,646,000	7,322,500	7,164,200	1,472,100	1,432,900	4,083,400	774,100	329,500	85,800	4,400	22,800
29	*Inside City Subtotal*	*9,713,600*	*1,833,000*	*2,700,300*	*1,903,700*	*462,900*	*817,900*	*1,797,000*	*56,900*	*102,600*	*32,500*	*1,100*	*5,700*
30	*Outside City Subtotal*	*19,624,100*	*4,813,000*	*4,622,200*	*5,260,500*	*1,009,200*	*615,000*	*2,286,400*	*717,200*	*226,900*	*53,300*	*3,300*	*17,100*

Table 11
Wastewater Utility

Cost of Service Allocated to Customer Class
Test Year 2022

Line No.		(1) Allocated Cost of Service	(2) Revenue Existing Rates	(3) Variance	(4) % Variance
	Inside City Retail				
1	Residential	3,152,200	2,479,000	673,200	27.2%
2	Commercial	3,473,200	2,753,400	719,800	26.1%
3	Industrial	748,400	591,600	156,800	26.5%
4	Industrial Monitored	623,000	416,600	206,400	49.5%
5	Total	7,996,800	6,240,600	1,756,200	28.1%
	Outside City Retail				
6	Residential	3,879,800	3,703,600	176,200	4.8%
7	Commercial	3,276,800	3,114,600	162,200	5.2%
8	Industrial	194,600	185,500	9,100	4.9%
9	Industrial Monitored	1,884,000	1,705,700	178,300	10.5%
10	Total	9,235,200	8,709,400	525,800	6.0%
	Contract Industries				
11	Pfizer	4,737,900	4,013,600	724,300	18.0%
12	Graphic Packaging	1,703,100	1,854,400	(151,300)	-8.2%
13	Total	6,441,000	5,868,000	573,000	9.8%
	Municipalities				
14	Portage	3,955,300	3,752,400	202,900	5.4%
15	Galesburg	101,900	102,700	(800)	-0.8%
16	Vicksburg	252,000	239,000	13,000	5.4%
17	Gull Lake	822,400	780,100	42,300	5.4%
18	Augusta	60,000	57,000	3,000	5.3%
19	Mattawan	333,900	316,800	17,100	5.4%
20	South County	98,900	93,700	5,200	5.5%
21	Total	5,624,400	5,341,700	282,700	5.3%
	Dewatering				
22	Inside City	13,700	9,900	3,800	38.4%
23	Outside City	26,600	24,800	1,800	7.3%
24	Total	40,300	34,700	5,600	16.1%
25	TOTAL	29,337,700	26,194,400	3,143,300	12.0%
26	*Inside City Subtotal*	*9,713,600*	*8,104,900*	*1,608,700*	*19.8%*
27	*Outside City Subtotal*	*19,624,100*	*18,089,500*	*1,534,600*	*8.5%*

Table 12
Wastewater Utility

Calculation of Fixed Monthly Wastewater Charges
Test Year 2022

Line No.		(1) Allocated Cost of Service	(2) Fixed Monthly Charge
	Municipalities		
1	Portage	3,955,300	329,600
2	Galesburg	101,900	8,500
3	Vicksburg	252,000	21,000
4	Gull Lake	822,400	68,500
5	Augusta	60,000	5,000
6	Mattawan	333,900	27,800
7	South County	98,900	8,200
	Contract Industries		
	Pfizer	4,737,900	394,800
8	Graphic Packaging	1,703,100	141,900
	Other Monitored Industries		
9	Inside City (a)	623,000	51,900
10	Outside City (b)	1,884,000	157,000
	(a) Inside City Industries		
11	*Allnex USA*	*474,200*	*39,500*
12	*Arvco*	*19,900*	*1,700*
13	*Continental Linen*	*90,600*	*7,600*
14	*Domestic Linen Supply*	*23,900*	*2,000*
15	*Kal Metal Finishers*	*14,200*	*1,200*
	(b) Outside City Industries		
16	*Kalsec*	*805,200*	*67,100*
17	*Kalamazoo Brewing*	*525,700*	*43,800*
18	*Green Bay Pkg*	*77,000*	*6,400*
19	*Clean Earth Env*	*39,600*	*3,300*
20	*Waste Mngt*	*34,000*	*2,800*
21	*Zoetis*	*281,600*	*23,500*
22	*MPI Research*	*121,000*	*10,100*

Table 13
Wastewater Utility
Calculation of Wastewater Service Charges
Test Year 2022

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
			Inside City Retail				Outside City Retail			
			Common to All	Municipal Collection and Pump Station	Municipal Interceptor	Total	Common to All	Municipal Collection and Pump Station	Municipal Interceptor	Total
1	Volume Unit Cost - $/cu mtr		0.1396	0.1425	0.0045		0.2244	0.2523	0.0316	
	Connection Related I/I volume - cu mtr									
2	Inside City		1,689,800	1,689,800	1,689,800					
3	Outside City						1,330,100	1,330,100	1,330,100	
4	Allocated I/I costs to be recovered in Service Charge		235,900	240,800	7,600	484,300	298,400	335,600	42,000	676,000
5	Equivalent Connections					25,901				20,390
6	Infiltration/Inflow Unit Cost recovered in Service Charge					18.70				33.15
7	Service Charge Schedule									

		Inside City Retail				Outside City Retail			
				Inside City Service Charge				Outside City Service Charge	
Meter Size	Equivalent Connection Factor	Infiltration /Inflow Unit Cost	Unit Billing Cost	Monthly Bill	Quarterly Bill	Infiltration /Inflow Unit Cost	Unit Billing Cost	Monthly Bill	Quarterly Bill
inches		$/yr	$/bill	$/bill	$/bill	$/yr	$/bill	$/bill	$/bill
5/8	1.0	18.70	8.53	10.09	13.21	33.15	8.53	11.29	16.82
3/4	1.1	20.57	8.53	10.25	13.67	36.47	8.53	11.57	17.65
1	1.4	26.18	8.53	10.71	15.08	46.42	8.53	12.40	20.14
1 1/2	1.8	33.66	8.53	11.34	16.95	59.68	8.53	13.50	23.45
2	2.9	54.22	8.53	13.05	22.09	96.15	8.53	16.54	32.57
3	11.0	205.68	8.53	25.67	59.95	364.69	8.53	38.92	99.70
4	14.0	261.77	8.53	30.35	73.97	464.15	8.53	47.21	124.57
6	21.0	392.66	8.53	41.25	106.70	696.23	8.53	66.55	182.59

Table 14
Wastewater Utility

Calculation of Wastewater Commodity Rates
Test Year 2022

Line No.		(1) Inside City Retail	(2) Outside City Retail	(3) Dewatering Inside City	(4) Dewatering Outside City
	VOLUME UNIT COSTS				
1	Treatment Volume - $/cu mtr	0.1396	0.2244	0.1396	0.2244
2	Municipal Collection & PS - $/cu mtr	0.1425	0.2523	0.1425	0.2523
3	Municipal Interceptor - $/cu mtr	0.0045	0.0316	0.0045	0.0316
4	Direct Costs				
5	Subtotal - $/cu mtr	0.2866	0.5082	0.2866	0.5082
6	Volume Including Volume Related I/I	10,895,600	7,699,400	20,400	30,700
7	Billable Volume	8,676,200	6,131,000	16,300	24,400
8	Markup to Recover Volume Related I/I	25.58%	25.58%	25.15%	25.82%
9	Total - $/cu mtr	0.3599	0.6382	0.3587	0.6395
	COD UNIT COST				
9	Treatment - $/kg	0.2620	0.2870	0.2620	0.2870
10	Non-Monitored Strength - mg/l	495	495	495	495
11	Total - $/cu mtr	0.1297	0.1421	0.1297	0.1421
	SUSPENDED SOLIDS UNIT COST				
12	Treatment - $/kg	0.8088	0.8620	0.8088	0.8620
13	Non-Monitored Strength - mg/l	259	259	259	259
14	Total - $/cu mtr	0.2095	0.2233	0.2095	0.2233
	NH3 UNIT COST				
15	Treatment - $/kg	3.1451	3.4101	3.1451	3.4101
16	Non-Monitored Strength - mg/l	18.3	18.3	18.3	18.3
17	Total - $/cu mtr	0.0576	0.0624	0.0576	0.0624
	RECOVERY OF INFILTRATION				
18	Customer Related I/I				
19	Billable Volume				
20	Unit Cost - $/cu mtr				
	TOTAL UNIT COST				
21	Regular Strength Customers - $/cu mtr	**0.757**	**1.066**	**0.755**	**1.067**
22	Galesburg				
	Monitored Customers				
23	Volume - $/cu mtr	**0.360**	**0.638**	**0.359**	**0.639**
24	BOD - $/kg BOD	**0.262**	**0.287**	**0.262**	**0.287**
25	SS - $/kg SS	**0.809**	**0.862**	**0.809**	**0.862**
26	NH3 - $/kg NH3	**3.145**	**3.410**	**3.145**	**3.410**

Table 15
Wastewater Utility

Comparison of Existing and Proposed Wastewater Rates
Test Year 2022

SERVICE CHARGES

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Meter	Existing Rates		Proposed Rates		Variance		% Variance	
Size	Inside City	Outside City	Inside City	Outside City	Inside City	Outside City	Inside City	Outside City
inches	$/bill	$/bill	$/bill	$/bill	$/bill	$/bill		
Quarterly								
5/8	10.35	15.77	13.21	16.82	2.86	1.05	27.63%	6.66%
3/4	10.75	16.72	13.67	17.65	2.92	0.93	27.16%	5.56%
1	11.96	19.56	15.08	20.14	3.12	0.58	26.09%	2.97%
1 1/2	13.56	23.34	16.95	23.45	3.39	0.11	25.00%	0.47%
2	18.00	33.75	22.09	32.57	4.09	-1.18	22.72%	-3.50%
3	50.58	110.33	59.95	99.70	9.37	-10.63	18.53%	-9.63%
4	62.66	138.70	73.97	124.57	11.31	-14.13	18.05%	-10.19%
6	90.82	204.89	106.70	182.59	15.88	-22.30	17.49%	-10.88%
Flat Rate	61.17	102.74	77.78	107.63	16.61	4.89	27.15%	4.76%

Meter	Existing Rates		Proposed Rates		Variance		% Variance	
Size	Inside City	Outside City	Inside City	Outside City	Inside City	Outside City	Inside City	Outside City
inches	$/bill	$/bill	$/bill	$/bill	$/bill	$/bill		
Monthly								
5/8	7.67	9.47	10.09	11.29	2.42	1.82	31.55%	19.22%
3/4	7.80	9.79	10.25	11.57	2.45	1.78	31.41%	18.18%
1	8.20	10.74	10.71	12.40	2.51	1.66	30.61%	15.46%
1 1/2	8.73	12.00	11.34	13.50	2.61	1.50	29.90%	12.50%
2	10.21	15.47	13.05	16.54	2.84	1.07	27.82%	6.92%
3	21.08	41.00	25.67	38.92	4.59	-2.08	21.77%	-5.07%
4	25.10	50.45	30.35	47.21	5.25	-3.24	20.92%	-6.42%
6	34.49	72.51	41.25	66.55	6.76	-5.96	19.60%	-8.22%
Municipalities		6.33		*Fixed Monthly Charge*				
Dewatering		6.33		7.85		1.52		24.01%

COMMODITY CHARGES

	Existing Rates		Proposed Rates		Variance		% Variance	
	Inside City	Outside City	Inside City	Outside City	Inside City	Outside City	Inside City	Outside City
	$/cu mtr	$/cu mtr	$/cu mtr	$/cu mtr	$/cu mtr	$/cu mtr		
Residential	0.598	1.013	0.757	1.066	0.159	0.053	26.59%	5.23%
Commercial	0.598	1.013	0.757	1.066	0.159	0.053	26.59%	5.23%
Industrial	0.598	1.013	0.757	1.066	0.159	0.053	26.59%	5.23%
Municipalities								
All Other		0.691		*Fixed Monthly Charge*				
Galesburg		0.835		*Fixed Monthly Charge*				
Dewatering	0.598	1.013	0.757	1.066	0.159	0.053	26.59%	5.23%

Table 15 *(continued)*
Wastewater Utility

Comparison of Existing and Proposed Wastewater Rates
Test Year 2022

QUANTITY / QUALITY CHARGES

	Commodity Charge				
	Existing	Proposed	Variance	% Variance	
Monitored Customers	$/cu mtr				
Pfizer	0.240	*Fixed Monthly Charge*			
Graphic Packaging	0.074	*Fixed Monthly Charge*			
Dewatering					
Inside City	0.238	0.359	0.121	50.84%	
Outside City	0.560	0.639	0.079	14.11%	
Industrial - Inside City	0.238	*0.359*	0.121	50.84%	*Fixed Monthly Charge Available and Recommended*
Industrial - Outside City	0.560	*0.639*	0.079	14.11%	*Fixed Monthly Charge Available and Recommended*

	COD Charges				
	Existing	Proposed	Variance	% Variance	
Monitored Customers	$/kg	$/kg	$/kg		
Pfizer	*NA - BOD chg*	*Fixed Monthly Charge*			
Graphic Packaging	*NA - BOD chg*	*Fixed Monthly Charge*			
Dewatering					
Inside City	*NA - BOD chg*	0.262			
Outside City	*NA - BOD chg*	0.287			
Industrial - Inside City	*NA - BOD chg*	*0.262*			*Fixed Monthly Charge Available and Recommended*
Industrial - Outside City	*NA - BOD chg*	*0.287*			*Fixed Monthly Charge Available and Recommended*

	TSS Charges				
	Existing	Proposed	Variance	% Variance	
Monitored Customers	$/kg	$/kg	$/kg		
Pfizer	0.875	*Fixed Monthly Charge*			
Graphic Packaging	0.689	*Fixed Monthly Charge*			
Dewatering					
Inside City	0.689	0.809	0.120	17.42%	
Outside City	0.876	0.862	-0.014	-1.60%	
Industrial - Inside City	0.689	*0.809*	0.120	17.42%	*Fixed Monthly Charge Available and Recommended*
Industrial - Outside City	0.876	*0.862*	-0.014	-1.60%	*Fixed Monthly Charge Available and Recommended*

	NH3 Charges				
	Existing	Proposed	Variance	% Variance	
Monitored Customers	$/kg	$/kg	$/kg		
Pfizer	3.361	*Fixed Monthly Charge*			
Graphic Packaging	2.885	*Fixed Monthly Charge*			
Dewatering					
Inside City	2.885	3.145	0.260	9.01%	
Outside City	3.431	3.410	-0.021	-0.61%	
Industrial - Inside City	2.885	*3.145*	0.260	9.01%	*Fixed Monthly Charge Available and Recommended*
Industrial - Outside City	3.431	*3.410*	-0.021	-0.61%	*Fixed Monthly Charge Available and Recommended*

Table 16
Wastewater Utility

Comparison of "Typical" Wastewater Bills Under Existing and Proposed Rates
Test Year 2022

	(1)	(2)	(3)	(4)	(5)	(6)
Customer Class	Meter Size	Water Use cu mtr	Bill Under Existing Rates $	Bill Under Proposed Rates $	Increase (Decrease) $	Percent Increase (Decrease) %
INSIDE CITY - QUARTERLY						
Residential	5/8"-3/4"	0	10.35	13.21	2.86	27.6%
Residential	5/8"-3/4"	51.3	41.03	52.04	11.01	26.8%
Residential	1"	100	71.76	90.78	19.02	26.5%
Residential	1"	300	191.36	242.18	50.82	26.6%
Commercial	1"	750	460.46	582.83	122.37	26.6%
Commercial	2"	2,250	1,363.50	1,725.34	361.84	26.5%
INSIDE CITY - MONTHLY						
Residential	1"	100	68.00	86.41	18.41	27.1%
Residential	2"	200	129.81	164.45	34.64	26.7%
Commercial	2"	500	309.21	391.55	82.34	26.6%
Industrial	4"	3,000	1,819.10	2,301.35	482.25	26.5%
Industrial	6"	20,000	11,994.49	15,181.25	3,186.76	26.6%
OUTSIDE CITY - QUARTERLY						
Residential	5/8"-3/4"	0	15.77	16.82	1.05	6.7%
Residential	5/8"-3/4"	51.3	67.74	71.51	3.77	5.6%
Residential	1"	100	120.86	126.74	5.88	4.9%
Multi-Family	1"	300	323.46	339.94	16.48	5.1%
Commercial	1"	750	779.31	819.64	40.33	5.2%
Commercial	2"	2,250	2,313.00	2,431.07	118.07	5.1%
OUTSIDE CITY - MONTHLY						
Residential	1"	100	112.04	119.00	6.96	6.2%
Residential	2"	200	218.07	229.74	11.67	5.4%
Commercial	2"	500	521.97	549.54	27.57	5.3%
Industrial	4"	3,000	3,089.45	3,245.21	155.76	5.0%
Industrial	6"	20,000	20,332.51	21,386.55	1,054.04	5.2%

Appendix A
Financial Forecast Summary

TFG

THE FOSTER GROUP

The Foster Group, LLC
12719 Wenonga Lane
Leawood, KS 66209

Bart Foster, President
Cell: (913) 530-6240
bfoster@fostergroupllc.com

MEMORANDUM

Preliminary Five-Year Financial Forecast December 1, 2021

To: James Baker

From: Bart Foster

The intent of this memorandum is to introduce the preliminary five-year financial forecast for the City's Water and Wastewater Utilities, developed in support of the 2022 budget and the proposed 2022 Water and Wastewater Rates. The discussion herein and the accompanying exhibits presents my efforts to establish a sound financial plan for the Water and Wastewater Utilities covering a five-year study period for both ongoing operations and planned capital improvements. The specific revenue requirements identified for 2022 in this plan will become the cost of service from which to establish recommended 2022 Water and Wastewater Rates.

The five-year forecasts actually encompass a six-year period from 2021 through 2026, in order to reflect a "starting point" that reflects the audited financial positions of the utilities as of the end of 2020. In reviewing these projections, stakeholders should take note that:

- The first year (2021) is estimated, based on a review of 2021 budgeted, year to date actual, and estimated activity.
- The second year (2022) is proposed, and supported by the City's preliminary 2022 Budget Request. As noted above, it becomes the basis for proposed 2022 Water and Wastewater Rates, which are introduced under separate cover.
- The final four years (2023 through 2026) are forecasted, and do not reflect any proposals for consideration or action.

The efforts undertaken to prepare these forecasts are consistent with the analyses that I have utilized to prepared similar forecasts for the City in prior years, and are designed to support the City's preparations for potential upcoming capital financing transactions. The capital improvement programs for the Water and Wastewater Utilities require significant new financing – particularly for the Water System. These financing challenges are exacerbated by pressures on operating budgets, which continue to experience price increases related, in part, to supply chain issues. However, these forecasts are also being prepared in an era where new subsidized external financing sources may become available to municipal infrastructure needs. The availability of those financing sources is difficult to precisely know at this time, and will continue to evolve over the weeks, months, and years to come. As such, I emphasize that the forecasts presented herein should be considered "***Preliminary***". I encourage stakeholders to

review these forecasts with that understanding in mind. In addition, any formally published forecasts we produce always carry this caveat:

> *In conducting our studies and formulating our projections and opinions contained herein, we reviewed the books, records, agreements, capital improvement programs and other information produced by the City as we deemed necessary. While we consider such books, records, and other documents to be reliable, we have not verified the accuracy of these documents. The projections set forth herein are intended as "forward-looking statements". Actual results may differ materially from those projected, as influenced by conditions, events, and circumstances that may actually occur.*

Having said all that, let's review the first look at the forecasts. First, an introduction of the core executive summary assumptions and approaches I've incorporated into the forecast analysis.

1. For purposes of "baseline" sales and revenue levels, I've assumed a constant forecast of billed units equivalent to the average over the past two years for every customer class and every service. The COVID environment obviously impacted the level of utility service required by various businesses and residents during this period and I believe that the short-term averages are reasonable surrogates for forecast purposes.
2. The requested operating budget and capital improvements are assumed to be financed at 100% of the requested level.
3. Operating expenses (as expressed on a "Revenue Requirements" basis) of the utilities technically include two separate payments to finance costs related to "Other Post Employment Benefits" (OPEB). The first is related to each fund's share of payments on bonds issued to finance a portion of the City's obligation on this matter. Funds generated by these bonds are held in a specific trust, outside the City's control. The agreement also requires annual deposits to that Trust. The City's accounting practices treats these payments as operating expenses, and the City's bond counsel has opined that they are operating expenses for purposes of complying with the City's revenue bond ordinances.
4. Payment in lieu of taxes ("PILOT") is reported as an operating expense on the City's accrual basis financial reports, but from the Revenue Requirements basis it is treated as a non-operating expense subordinate to debt service in the City's revenue bond ordinances. The Water PILOT amount is frozen at $300,000 annually consistent with the new Water Service Agreement with the Township Customers.
5. I've identified capital financing sources based on input from the City as follows:
    - ✓ *Where water projects are designated as Drinking Water Revolving Fund (DWRF) eligible, I've assumed debt service based on the draw down schedules for those specific projects and loans;*

- ✓ *Projects designed to result in short lived assets are restricted to "pay go" funding from existing reserve balances and future revenues;*
- ✓ *All other projects are deemed "debt eligible" and are forecasted to be financed by a strategic combination of debt and revenues in a manner that aligns with the Utility Financial Policy, as outlined below.*

These forecasts have been developed within the framework of the City's Utility Financial Policy, and designed to accommodate overall revenue stability. The original Utility Financial Policy was developed in 1995 to establish guiding principles when developing financial plans for the City's Water and Wastewater Utilities. The goals of the original Utility Financial Policy included:

1. Maintain a Reasonable Level of Reserves;
2. Maintain the Net Worth of Both Systems;
3. Uphold Obligations to Bond Holders;
4. Keep Level of Debt and Debt to Equity Ratios Reasonable;
5. Keep Rates at a Level Comparable to Other Michigan Utilities

The Utility Financial Policy established guiding principles designed to meet these goals, which included:

1. Establish and maintain operating and capital reserve funds within a designated range;
2. Achieve annual debt service coverage ratios of 140%;
3. Protect owner's equity by providing revenue financing for the current capital improvement and reserve requirements that is at least equal to annual depreciation expense, less the principal payment portion of debt service.

The Utility Financial Policy seeks to achieve each of these principles, while acknowledging that circumstances may dictate that each may not be attained in every year. The key to sound financial planning and long-term utility financial health is achieving the appropriate balance of the three, while striving to realize all of them over the long-term. In past years financial forecasts have embraced each of the principles, and actual financial activity for the utilities have largely produced results that met the planning goals. However, in recent years revenue shortfalls (particularly for the Wastewater Utility), an enhanced level of capital investment requirements (particularly for the Water Utility), and a principal planning focus on reserve balances have resulted less favorable results, and an erosion of the "owner's equity" goal. At the end of 2020 both the Water and Wastewater Utility reported a negative "Net Unrestricted Position."

The preliminary forecasts are designed to reverse recent financial performance that produced less than planned results and to enhance the net financial position of the Water and Wastewater Utilities.

The forecasted financial results resulting from my application of the approach and assumptions highlighted above are summarized in the attached exhibits, and briefly introduced below. The exhibit page number references are consistent between the separate Water (W) and Wastewater (WW) page numbers.

1. Forecasted CIP Financing Plan
    - *Illustrates forecasted plan resulting from application of CIP financing strategy noted above. Note that the forecast anticipates the issuance of new money revenue bond transactions to occur in early 2022 for both the Water and Wastewater Utilities. The size and nature of these transactions are subject to change, and could be impacted by availability of additional State Revolving Fund Loans and related external financing sources. Also note the relatively larger need for forecasted additional Water bond sales compared to Wastewater due to the relatively larger Water CIP requirements. The annual capital investment requirements for the Water System equates to basically two years of revenue, which is a remarkably high metric. The comparable Wastewater metric is approximately 6 months of annual revenue, which is still robust while not as challenging as Water.*
2. Forecasted CIP Financing Plan Table
    - *Same as 1, in tabular form to support additional review.*
3. Revenue Requirement Financing Plan
    - *Graphical depiction of the "business plan" for the Water and Wastewater Utilities. As noted the Water forecast assumes annual "system" rate increases of 15% in 2022 and 2023, and 7.5% annually for 2024 through 2026. The comparable figures for the Wastewater Utility are 12% in 2022 and 2023, and 5% annually for 2024 through 2026. These are NOT intended to reflect rate adjustments applicable to ALL customer classes. The impacts of specific rate adjustments are subject to the cost of service and rate studies presented in other reports.*
4. Requirement Financing Plan Table
    - *Same as 3, in tabular form to support additional review.*
5. Forecasted Fund Balance Summary
    - *Illustrates "non-restricted" liquidity balances and debt service. The fund balance minimums in these schedules reflect 90 days of budgeted Operating Expenses for an Operating (or "Working Capital") Reserve and an Emergency Capital Reserve equal to 15% of budgeted Operating Expenses*[1].
    - *Note that the existing unrestricted reserve balances are lower than the planned minimum levels for both the Water and Wastewater Utilities.*
    - *Debt service coverage provided by net revenues is relatively stable for Water and materially increasing for Wastewater.*
6. Forecasted Fund Balance Table

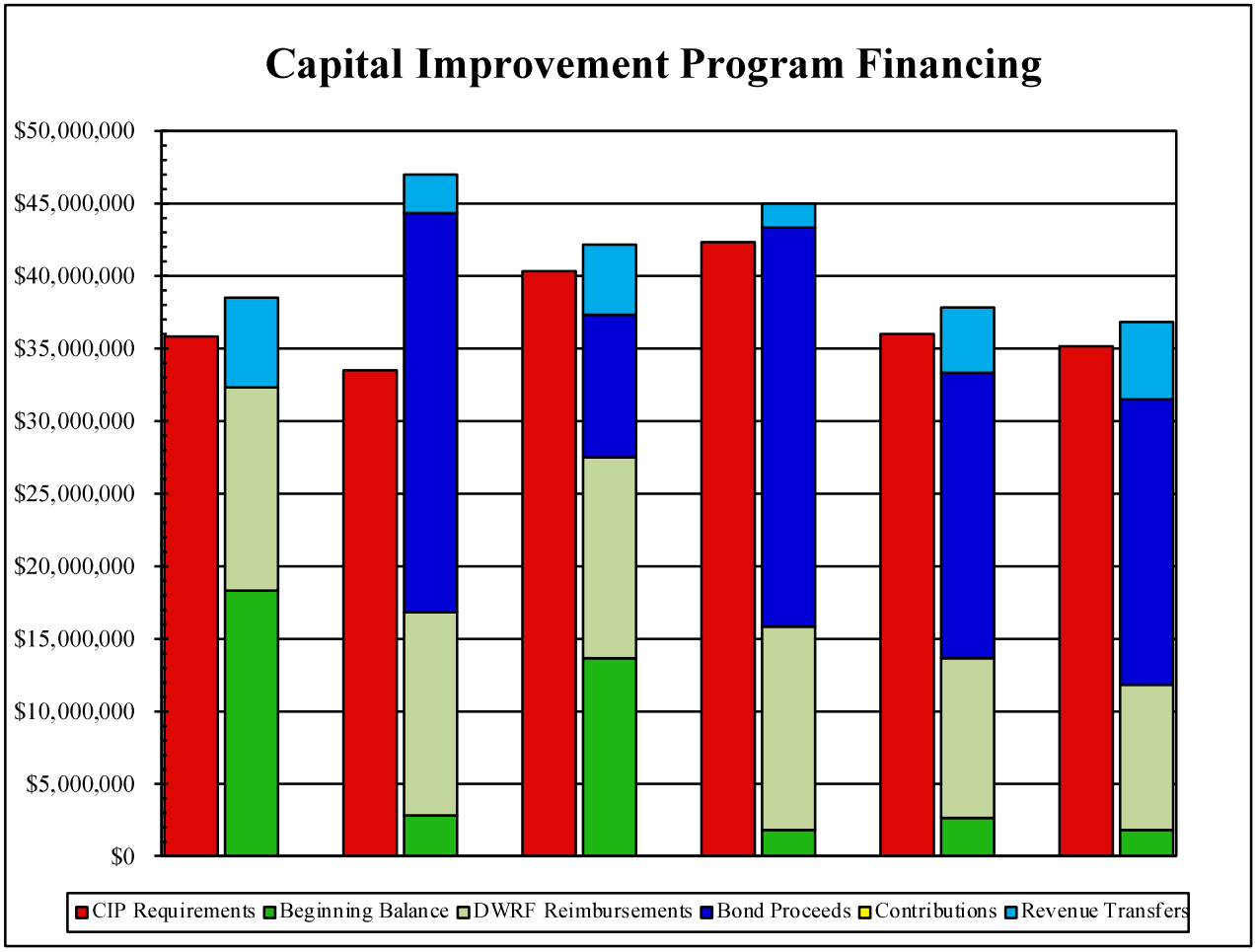
[1] The target for the Emergency Capital Reserve is technically the larger of this metric and annual depreciation expense. I've interpreted only the O&M based metric as being applicable given uncertainty of the applicability of depreciation on contributed assets.

- *Same as 5, in tabular form to support additional review.*

7. Forecasted Net Position Balances
    - *Illustrates the forecasted reported "Net Position" to be reported on the GAAP (accrual) basis financial statements of the Water and Wastewater Utilities. Note that the forecast envisions the unrestricted net position for the Water Utility to "get out of the red" during 2022 and grow thereafter. The Wastewater Utility Net Position is more challenged in the forecast.*
    - *Also note that this forecast is primarily focused on the "cash basis" results and how those results impact accrual basis Net Position. There are other accounting standards that impact "non-cash" adjustments to reported Net Position, including accounting for pensions, OPEB, and other long-term liabilities.*

I am hopeful that this executive summary presentation provides a platform for discussion of financial planning policies and assumptions as the development of the 2022 Water and Wastewater Rates. I am prepared to present this material at the UPC meeting scheduled for December 9 and to discuss this matter at your convenience.

Water Utility Financial Plan Summary



	2021	2022	2023	2024	2025	2026
CIP Req't	35,773,000	33,453,000	40,374,000	42,386,000	36,003,700	35,099,000
Sources						
Beg Balance	18,257,400	2,748,000	13,553,000	1,768,000	2,660,000	1,789,000
DWRF Reimb	14,000,000	14,000,000	14,000,000	14,000,000	10,999,700	10,000,000
Bond Sale	0	28,000,000	10,000,000	28,000,000	20,000,000	20,000,000
less: Issue Exp	0	(490,000)	(220,000)	(490,000)	(370,000)	(370,000)
Revs / Op Funds	6,263,600	2,748,000	4,809,000	1,768,000	4,503,000	5,469,000
CIAC	0	0	0	0	0	0
Total Sources	38,521,000	47,006,000	42,142,000	45,046,000	37,792,700	36,888,000
End Balance	2,748,000	13,553,000	1,768,000	2,660,000	1,789,000	1,789,000

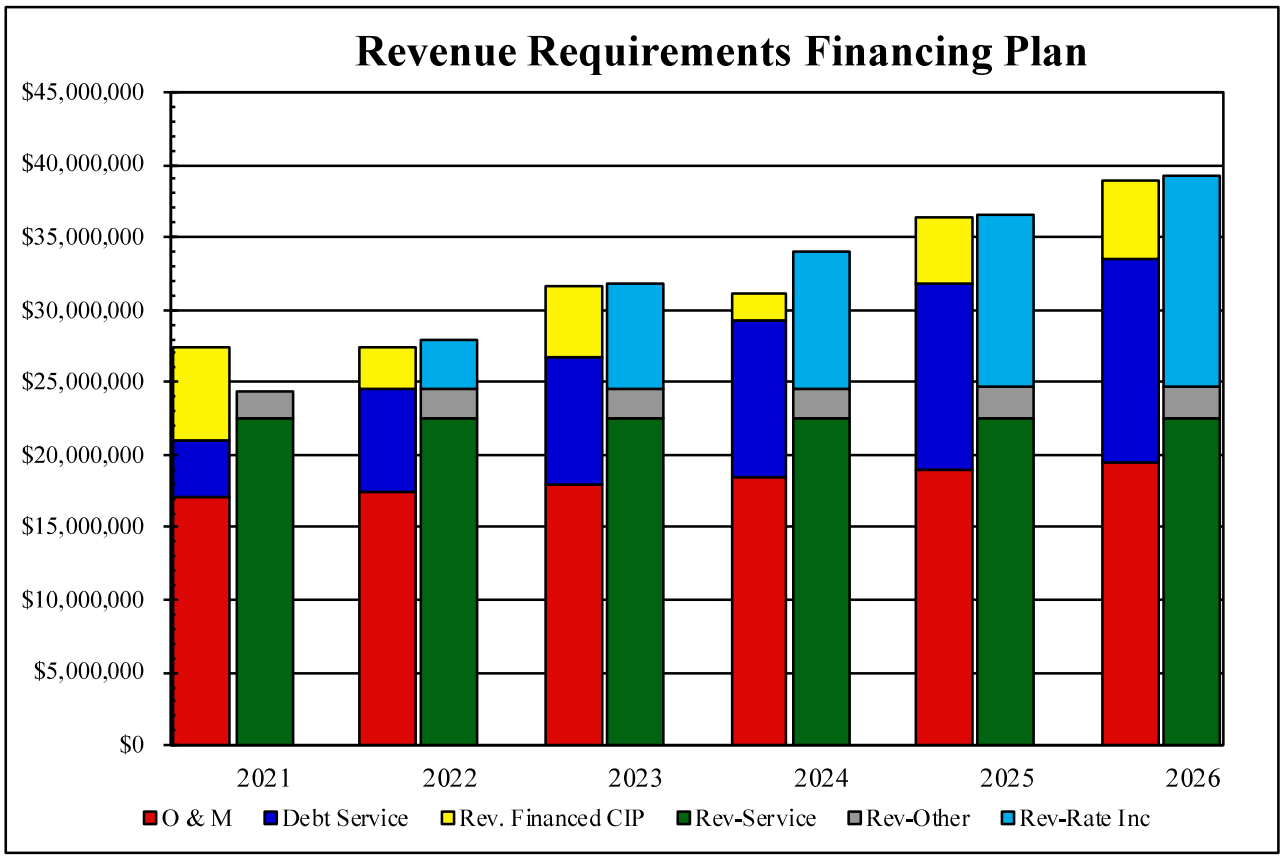
Water Utility

Estimated and Projected Capital Improvement Program Flow of Funds

Forecast Period 2022-2026

Line No.		*0* Estimated 2021 $	(1) Projected 2022 $	(2) 2023 $	(3) 2024 $	(4) 2025 $	(5) 2026 $
	CIP Financing Requirements						
1	Water Pumping	5,195,000	8,675,000	7,675,000	2,875,000	8,255,000	3,300,000
2	Elevated Storage Tank	2,500,000	0	450,000	6,000,000	0	0
3	Transmission Mains	10,188,200	4,900,000	11,250,000	11,650,000	2,230,000	7,300,000
4	Distribution Mains	10,022,900	300,000	380,000	700,000	2,415,000	4,350,000
5	Service Connections	3,328,900	14,000,000	14,000,000	14,000,000	10,999,700	10,000,000
6	Water Metering Devices	0	0	0	0	0	0
7	Hydrants	150,000	150,000	150,000	150,000	150,000	150,000
8	Subtotal	31,385,000	28,025,000	33,905,000	35,375,000	24,049,700	25,100,000
9	Water General	4,388,000	5,428,000	6,469,000	7,011,000	11,954,000	9,999,000
10	**Total Requirements**	35,773,000	33,453,000	40,374,000	42,386,000	36,003,700	35,099,000
	CIP Financing Sources						
11	Beginning Balance	18,257,400	2,748,000	13,553,000	1,768,000	2,660,000	1,789,000
12	Operating Fund Transfers	6,263,600	2,748,000	4,809,000	1,768,000	4,503,000	5,469,000
13	Contributions in Aid of Constructio	0	0	0	0	0	0
14	DWRF Reimbursements	14,000,000	14,000,000	14,000,000	14,000,000	10,999,700	10,000,000
15	Projected Bond Issues	0	28,000,000	10,000,000	28,000,000	20,000,000	20,000,000
16	less: Issuance Expenses	0	(490,000)	(220,000)	(490,000)	(370,000)	(370,000)
17	Net Bond Proceeds	0	27,510,000	9,780,000	27,510,000	19,630,000	19,630,000
18	**Total Sources**	38,521,000	47,006,000	42,142,000	45,046,000	37,792,700	36,888,000
19	Ending Balance	2,748,000	13,553,000	1,768,000	2,660,000	1,789,000	1,789,000

Water Utility Financial Plan Summary



	2021	2022	2023	2024	2025	2026	
Revenue							
Rates	22,433,100	22,557,800	22,557,800	22,557,800	22,557,800	22,557,800	
Rate Increases		***15.00%***	***15.00%***	***7.50%***	***7.50%***	***7.50%***	64.3%
Rate Increases	0	3,383,700	7,274,900	9,512,400	11,917,700	14,503,400	
Other	1,942,900	1,905,600	1,953,600	2,015,900	2,099,700	2,167,100	
Total Revenue	24,376,000	27,847,100	31,786,300	34,086,100	36,575,200	39,228,300	
Revenue Req'ts							
O&M *	17,020,000	17,520,100	17,985,000	18,462,500	18,952,900	19,456,500	
Debt Service	3,923,900	7,028,200	8,695,900	10,773,700	12,774,600	13,983,800	
Rev. Fin. CIP **	6,448,100	2,871,500	4,878,800	1,839,600	4,576,500	5,544,600	
Total Rev Req'ts	27,392,000	27,419,800	31,559,700	31,075,800	36,304,000	38,984,900	
Balance - Rsrvs	(3,016,000)	427,300	226,600	3,010,300	271,200	243,400	
DS Covg	203%	151%	162%	148%	140%	143%	

** Includes OPEB Debt Service and Contributions and PILOT* *** Includes Emerg Capital Reserve Deposits*

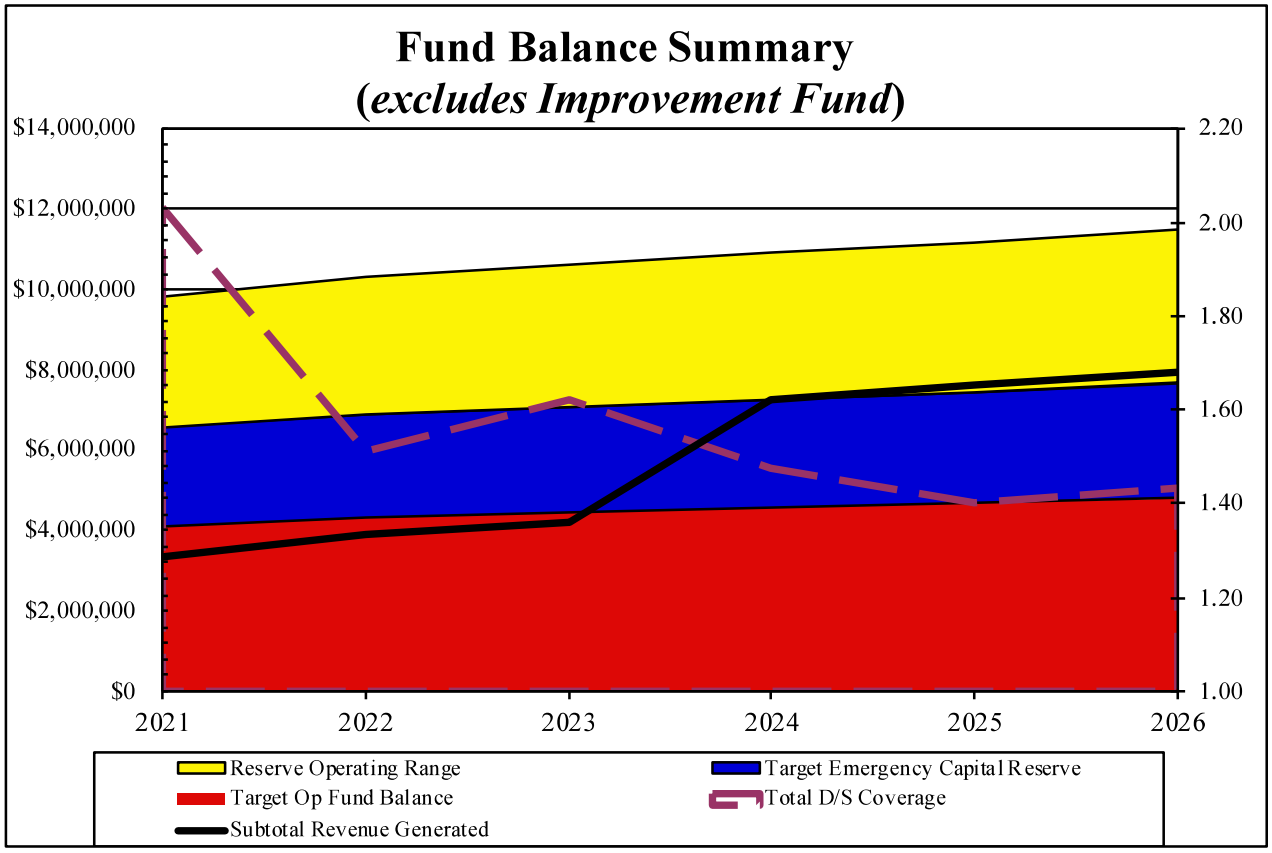
Water Utility

Estimated and Projected Revenue Requirements Financing Plan

Forecast Period 2022-2026

Line No.		0 Estimated 2021 $	(1) Projected 2022 $	(2) 2023 $	(3) 2024 $	(4) 2025 $	(5) 2026 $
	Revenue						
	Operating Revenue						
1	Revenue @ Existing Rates	22,433,100	22,557,800	22,557,800	22,557,800	22,557,800	22,557,800
	Projected Rate Increases						
2	2022 Rate Increase 15.0%		3,383,700	3,383,700	3,383,700	3,383,700	3,383,700
3	2023 Rate Increase 15.0%			3,891,200	3,891,200	3,891,200	3,891,200
4	2024 Rate Increase 7.5%				2,237,500	2,237,500	2,237,500
5	2025 Rate Increase 7.5%					2,405,300	2,405,300
6	2026 Rate Increase 7.5%						2,585,700
7	Total Rate Revenue	22,433,100	25,941,500	29,832,700	32,070,200	34,475,500	37,061,200
8	Other	1,810,500	1,787,200	1,840,800	1,896,000	1,952,900	2,011,500
	Non-Operating Revenue						
	Interest Income						
9	Operating Fund	50,000	32,400	35,800	38,000	58,300	61,400
10	Other Funds	77,400	81,000	71,800	76,500	82,900	88,400
11	Other	5,000	5,000	5,200	5,400	5,600	5,800
12	**Total Revenue**	24,376,000	27,847,100	31,786,300	34,086,100	36,575,200	39,228,300
	Revenue Requirements						
13	Operation and Maintenance	16,396,900	17,220,100	17,685,000	18,162,500	18,652,900	19,156,500
14	Payment In Lieu of Taxes	623,100	300,000	300,000	300,000	300,000	300,000
	Debt Service						
15	Existing Revenue Bonds	3,856,100	3,850,800	3,850,500	3,851,500	3,859,000	3,844,400
16	Proposed Bonds	0	1,717,400	2,077,400	3,338,700	4,768,100	5,994,800
17	DWRF Loans	67,800	1,460,000	2,768,000	3,583,500	4,147,500	4,144,600
18	Total Debt Service	3,923,900	7,028,200	8,695,900	10,773,700	12,774,600	13,983,800
	Transfers to the Improvement Fund						
19	Revenue Designated CIP	1,738,000	2,748,000	1,758,000	1,768,000	1,778,000	1,789,000
20	Other Major CIP	4,525,600	0	3,051,000	0	2,725,000	3,680,000
21	Total Revenue Funded Improvements	6,263,600	2,748,000	4,809,000	1,768,000	4,503,000	5,469,000
22	Req'd Transfer to Emerg Cap Fund	184,500	123,500	69,800	71,600	73,500	75,600
23	Total Revenue Requirements	27,392,000	27,419,800	31,559,700	31,075,800	36,304,000	38,984,900
24	Annual Balance/(Deficit)	(3,016,000)	427,300	226,600	3,010,300	271,200	243,400
25	Rate Covenant DS Coverage	203%	151%	162%	148%	140%	144%
26	Beginning Balance	3,900,000	884,000	1,311,300	1,537,900	4,548,200	4,819,400
27	Net Operations	(3,016,000)	427,300	226,600	3,010,300	271,200	243,400
28	Cumulative Operating Reserve Balance	884,000	1,311,300	1,537,900	4,548,200	4,819,400	5,062,800
29	*Minimum Target Balance*	*4,099,200*	*4,305,000*	*4,421,300*	*4,540,600*	*4,663,200*	*4,789,100*

Water Utility Financial Plan Summary



	2021	2022	2023	2024	2025	2026
Fund Balance Mins						
Operating Reserve	4,099,200	4,305,000	4,421,300	4,540,600	4,663,200	4,789,100
Emerg Cap Reserve	2,459,500	2,583,000	2,652,800	2,724,400	2,797,900	2,873,500
Subtotal	6,558,700	6,888,000	7,074,100	7,265,000	7,461,100	7,662,600
Range Max	9,838,050	10,332,000	10,611,150	10,897,500	11,191,650	11,493,900
Projections						
Operating Reserve	884,000	1,311,300	1,537,900	4,548,200	4,819,400	5,062,800
Emerg Cap Reserve	2,459,500	2,583,000	2,652,800	2,724,400	2,797,900	2,873,500
Subtotal	3,343,500	3,894,300	4,190,700	7,272,600	7,617,300	7,936,300
Debt Svc Coverage	203%	151%	162%	148%	140%	143%
Rate Increase	***0.00%***	***15.00%***	***15.00%***	***7.50%***	***7.50%***	***7.50%*** *64.3%*

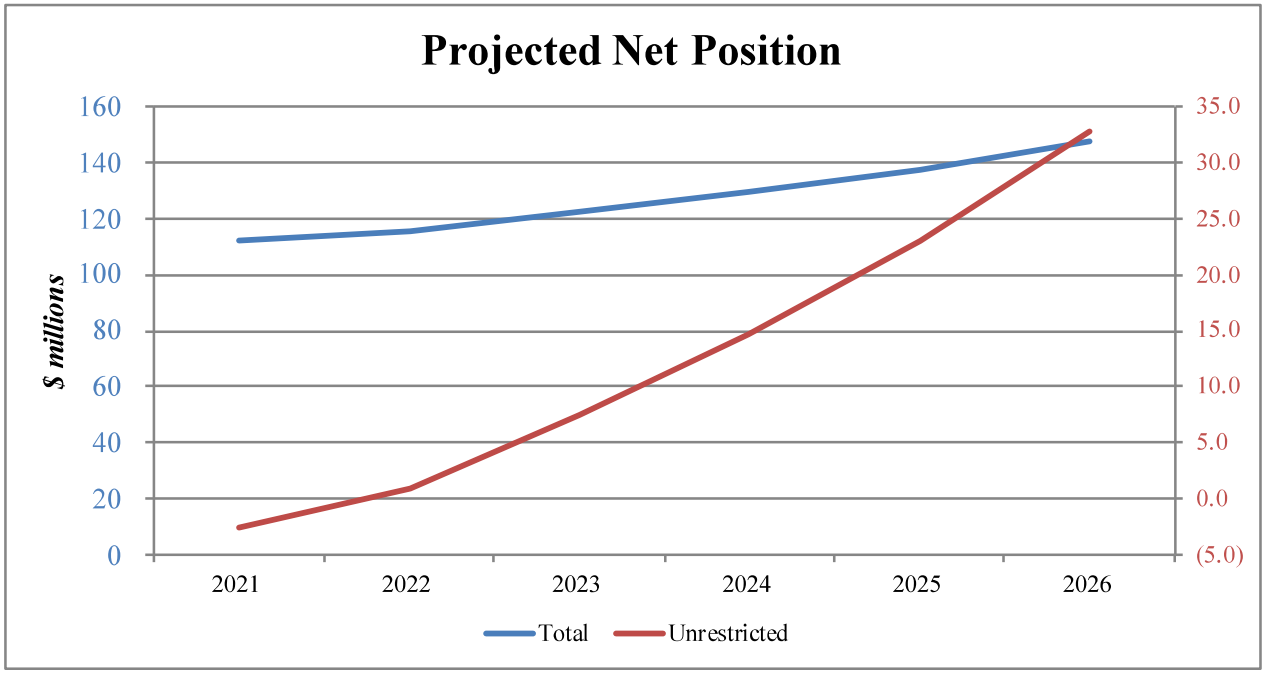
Water Utility

Estimated and Projected Fund Balances Under Projected Rates *(Excludes Bond Reserve Account)*

Forecast Period 2022-2026

Line No.		*0* Estimated 2021 $	(1) Projected 2022 $	(2) 2023 $	(3) 2024 $	(4) 2025 $	(5) 2026 $
	Improvement Fund						
1	Beginning Balance	18,257,400	2,748,000	13,553,000	1,768,000	2,660,000	1,789,000
	Deposits						
2	Net Transfers & CIA	6,263,600	2,748,000	4,809,000	1,768,000	4,503,000	5,469,000
3	Bond Proceeds	0	27,510,000	9,780,000	27,510,000	19,630,000	19,630,000
4	DWRF Reimbursements	14,000,000	14,000,000	14,000,000	14,000,000	10,999,700	10,000,000
	Withdrawals						
5	Capital Expenditures	(35,773,000)	(33,453,000)	(40,374,000)	(42,386,000)	(36,003,700)	(35,099,000)
6	Ending Balance	2,748,000	13,553,000	1,768,000	2,660,000	1,789,000	1,789,000
	Operating Reserve Fund *(a)*						
7	Beginning Balance	3,900,000	884,000	1,311,300	1,537,900	4,548,200	4,819,400
8	Net Operations	(3,016,000)	427,300	226,600	3,010,300	271,200	243,400
9	Ending Balance	884,000	1,311,300	1,537,900	4,548,200	4,819,400	5,062,800
	Emergency Capital Reserve Fund *(a)*						
10	Beginning Balance	2,275,000	2,459,500	2,583,000	2,652,800	2,724,400	2,797,900
	Deposits						
11	Net Transfers	184,500	123,500	69,800	71,600	73,500	75,600
	Withdrawals						
12	Transfer to Imp. Fund	0	0	0	0	0	0
13	Ending Balance	2,459,500	2,583,000	2,652,800	2,724,400	2,797,900	2,873,500
14	**Total Ending Balance**	6,091,500	17,447,300	5,958,700	9,932,600	9,406,300	9,725,300
15	*(a) Subtotal "Reserves"*	*3,343,500*	*3,894,300*	*4,190,700*	*7,272,600*	*7,617,300*	*7,936,300*

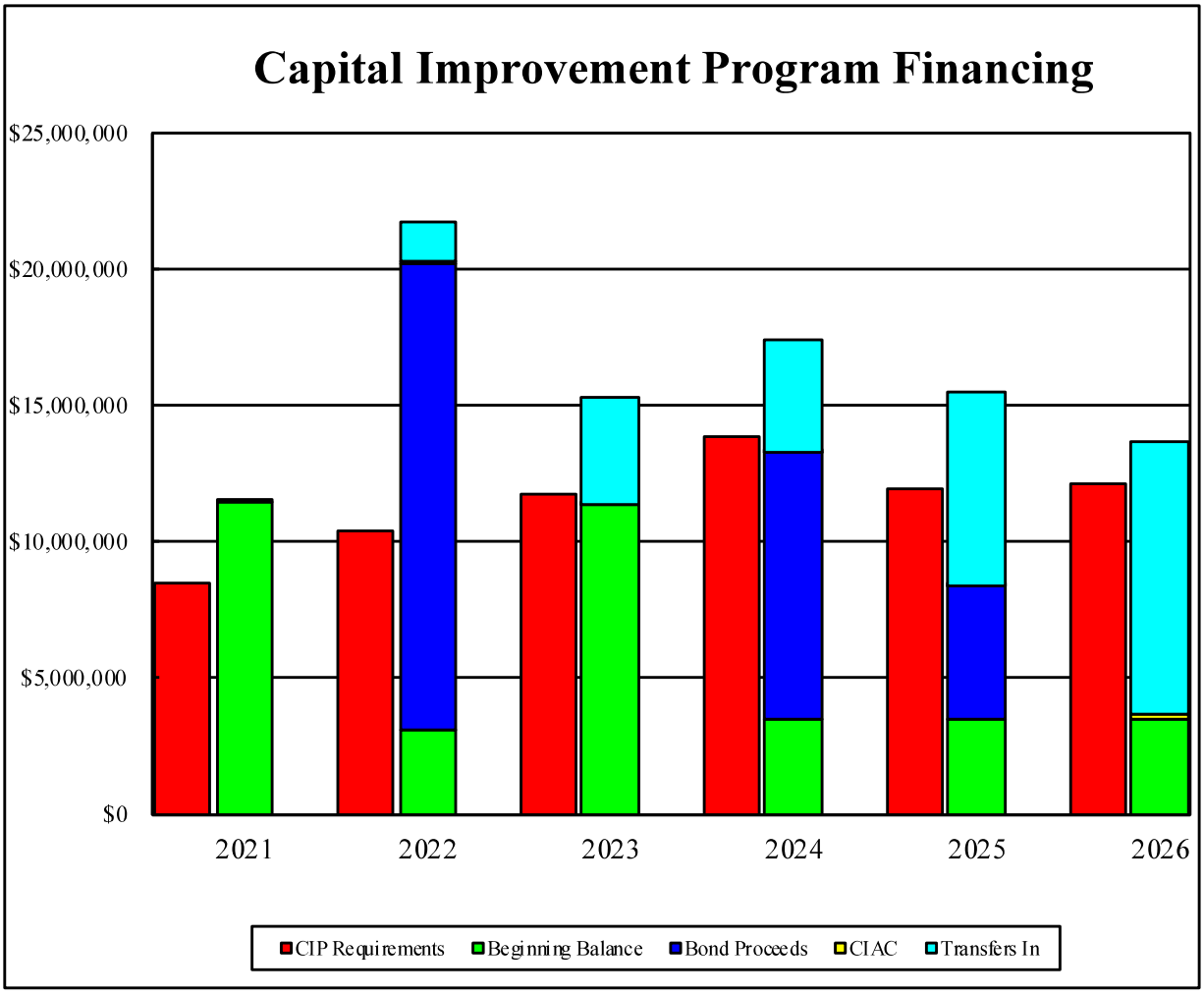
Water Utility Financial Plan Summary



	2021	2022	2023	2024	2025	2026
Net Revenues (a)	7,908,000	10,879,000	14,353,300	16,175,600	18,174,300	20,323,800
CIAC	0	0	0	0	0	0
less: Depr Expense	(3,341,400)	(3,607,300)	(3,518,400)	(3,656,500)	(3,747,000)	(3,795,200)
less: Int Expense	(2,323,900)	(3,819,000)	(4,187,800)	(5,385,700)	(6,095,400)	(6,724,700)
Prxy Chg Net Pos	2,242,700	3,452,700	6,647,100	7,133,400	8,331,900	9,803,900
Begin Net Position	109,950,100	112,192,800	115,645,500	122,292,600	129,426,000	137,757,900
End Net Position	112,192,800	115,645,500	122,292,600	129,426,000	137,757,900	147,561,800
Unrestricted Net Position						
Beginning	(4,822,600)	(2,579,900)	872,800	7,519,900	14,653,300	22,985,200
Change	2,242,700	3,452,700	6,647,100	7,133,400	8,331,900	9,803,900
Ending	(2,579,900)	872,800	7,519,900	14,653,300	22,985,200	32,789,100

(a) Revenues less O&M & PILOT

Wastewater Utility Financial Plan Summary



	2021	2022	2023	2024	2025	2026
CIP Req't	8,467,500	10,405,000	11,780,000	13,905,000	11,980,000	12,130,000
Sources						
Beg Balance	11,504,100	3,066,600	11,359,100	3,500,000	3,500,000	3,500,000
Bond Sale	0	17,500,000	0	10,000,000	5,000,000	0
less: Issue Exp	0	(332,500)	0	(220,000)	(145,000)	0
Revs / Op Funds	0	1,500,000	3,890,900	4,095,000	7,095,000	9,950,000
CIAC	30,000	30,000	30,000	30,000	30,000	180,000
Total Sources	11,534,100	21,764,100	15,280,000	17,405,000	15,480,000	13,630,000
End Balance	3,066,600	11,359,100	3,500,000	3,500,000	3,500,000	1,500,000

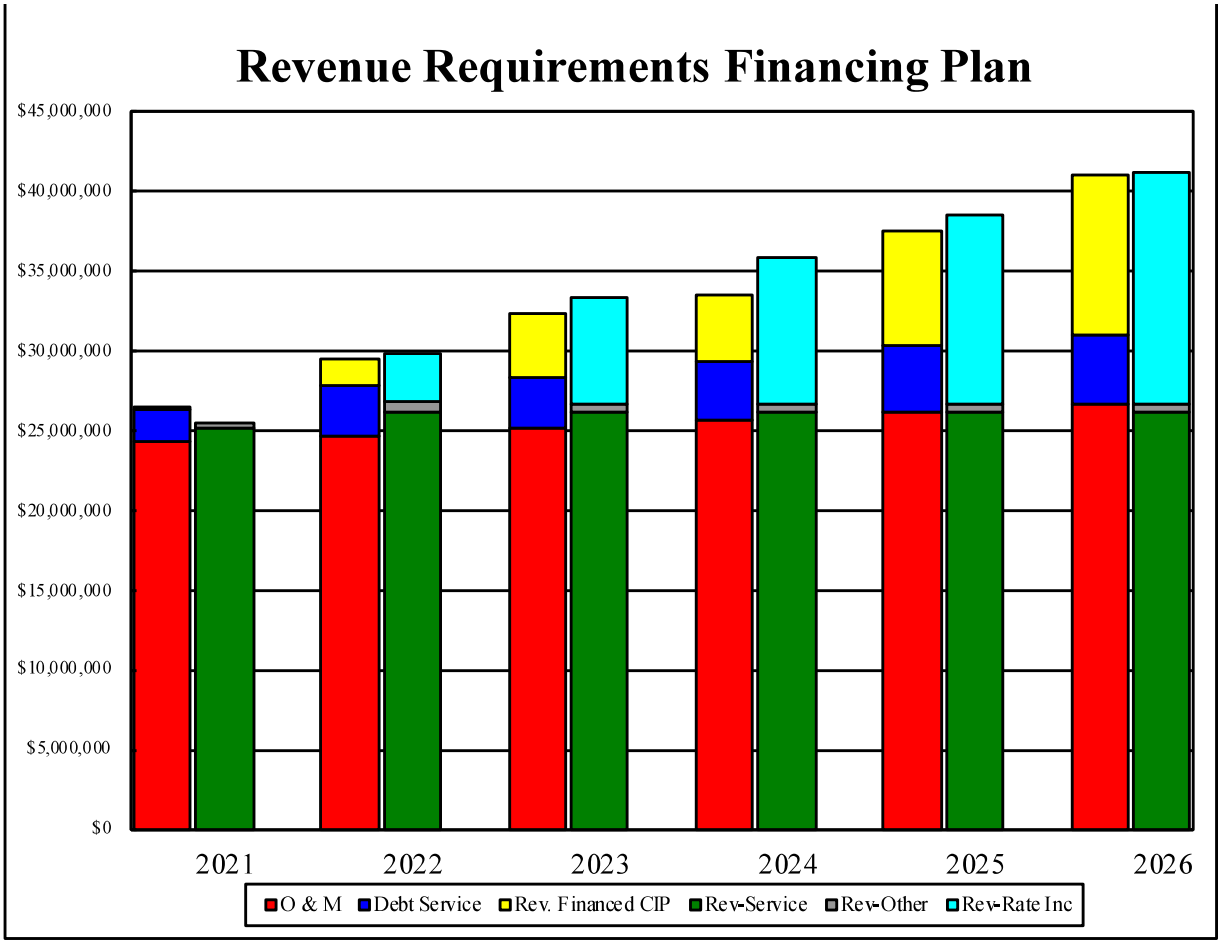
Wastewater Utility

Estimated and Projected Capital Improvement Program Flow of Funds

Forecast Period 2022-2026

Line No.		*0* Estimated 2021 $	(1) Projected 2022 $	(2) 2023 $	(3) 2024 $	(4) 2025 $	(5) 2026 $
	CIP Financing Requirements						
1	Collection System	1,725,000	4,400,000	4,300,000	2,500,000	4,300,000	2,500,000
	Treatment:						
2	Prelim and Primary Trtmnt	0	0	75,000	250,000	75,000	250,000
3	Secondary Treatment	0	5,250,000	5,250,000	3,950,000	5,250,000	3,950,000
4	Tertiary Treatment	6,500,000	0	0	100,000	0	100,000
5	Sludge Treatment	0	0	900,000	900,000	900,000	900,000
6	WWTP General	150,000	350,000	1,600,000	2,750,000	1,600,000	2,750,000
7	Subtotal Treatment	6,650,000	5,600,000	7,825,000	7,950,000	7,825,000	7,950,000
8	Subtotal Specific	8,375,000	10,000,000	12,125,000	10,450,000	12,125,000	10,450,000
9	Total Wastewater General	92,500	405,000	(345,000)	3,455,000	(145,000)	1,680,000
10	**Total Requirements**	8,467,500	10,405,000	11,780,000	13,905,000	11,980,000	12,130,000
	CIP Financing Sources						
11	Beginning Balance	11,504,100	3,066,600	11,359,100	3,500,000	3,500,000	3,500,000
12	Operating Fund Transfers	0	1,500,000	3,890,900	4,095,000	7,095,000	9,950,000
13	Projected Bond Issues	0	17,500,000	0	10,000,000	5,000,000	0
14	less: Issuance Expenses	0	(332,500)	0	(220,000)	(145,000)	0
15	Net Bond Proceeds	0	17,167,500	0	9,780,000	4,855,000	0
16	Contributions in Aid of Construc	30,000	30,000	30,000	30,000	30,000	180,000
17	Transfer from Emergency Capital I	0	0	0	0	0	0
18	**Total Sources**	11,534,100	21,764,100	15,280,000	17,405,000	15,480,000	13,630,000
19	Ending Balance	3,066,600	11,359,100	3,500,000	3,500,000	3,500,000	1,500,000

Wastewater Utility Financial Plan Summary



	2021	2022	2023	2024	2025	2026	
Revenue							
Rates	25,147,600	26,194,500	26,194,500	26,194,500	26,194,500	26,194,500	
Rate Increases	***0.00%***	***12.00%***	***12.00%***	***7.50%***	***7.50%***	***7.50%***	55.8%
Rate Increases	0	3,143,300	6,663,800	9,128,200	11,777,400	14,625,300	
Other	398,800	541,800	456,700	497,400	468,000	419,100	
Total Revenue	25,546,400	29,879,600	33,315,000	35,820,100	38,439,900	41,238,900	
Revenue Req'ts							
O&M *	24,296,200	24,601,200	25,101,000	25,611,100	26,131,600	26,662,800	
Debt Service	2,096,500	3,265,500	3,259,800	3,707,000	4,161,300	4,275,500	
Rev. Fin. CIP **	107,300	1,540,900	3,962,400	4,167,900	7,169,300	10,025,900	
Total Rev Req'ts	26,500,000	29,407,600	32,323,200	33,486,000	37,462,200	40,964,200	
Balance - Rsrvs	(953,600)	472,000	991,800	2,334,100	977,700	274,700	
DS Covg	95%	186%	277%	298%	316%	361%	

** Includes OPEB Debt Service and Contributions and PILOT* *** Includes Emerg Capital Reserve Deposits*

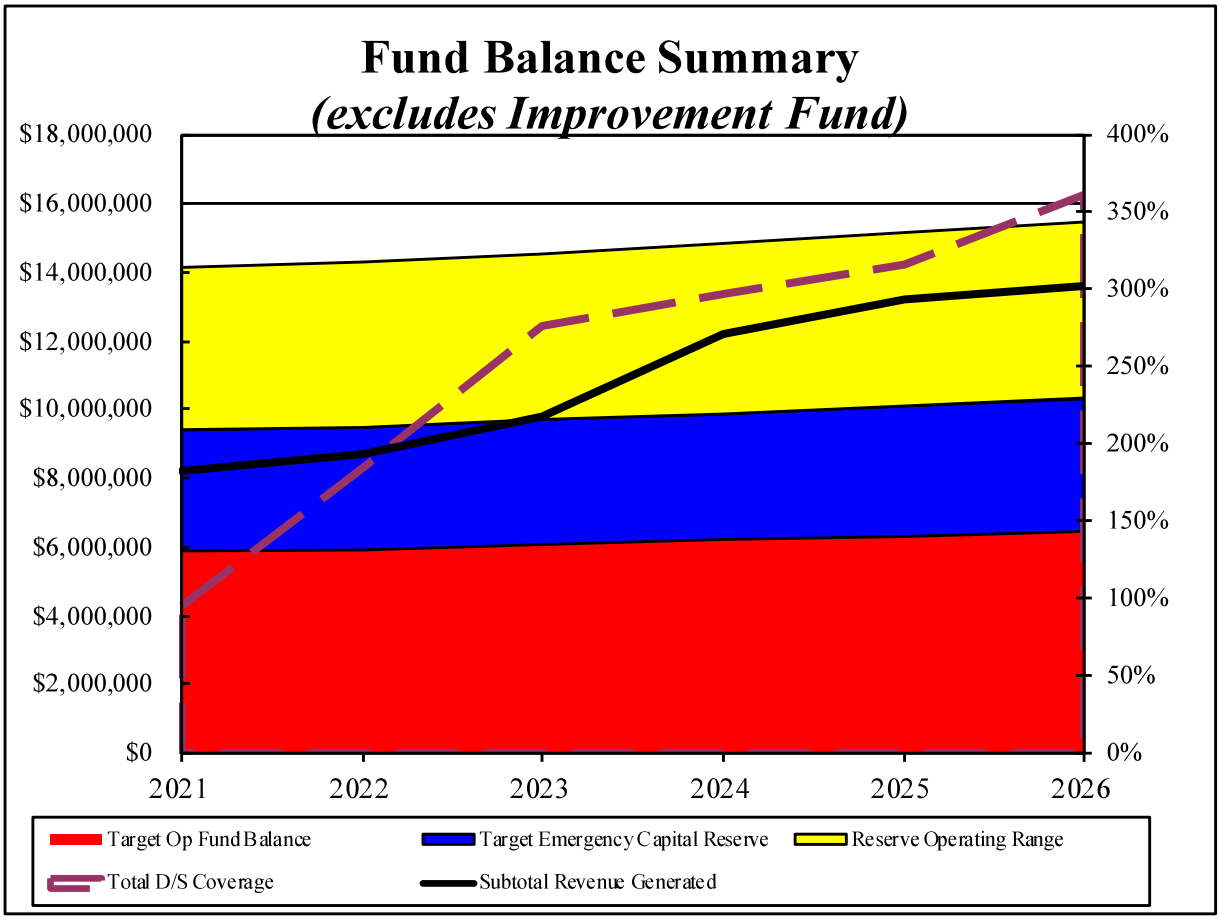
Wastewater Utility

Estimated and Projected Revenue Requirements Financing Plan

Forecast Period 2022-2026

Line No.		*0* Estimated 2021 $	(1) Projected 2022 $	(2) 2023 $	(3) 2024 $	(4) 2025 $	(5) 2026 $
	Revenue						
	Operating Revenue						
1	Revenue @ Existing Rates	25,147,600	26,194,500	26,194,500	26,194,500	26,194,500	26,194,500
	Projected Rate Increases						
2	2022 Rate Increase 12.0%		3,143,300	3,143,300	3,143,300	3,143,300	3,143,300
3	2023 Rate Increase 12.0%			3,520,500	3,520,500	3,520,500	3,520,500
4	2024 Rate Increase 7.5%				2,464,400	2,464,400	2,464,400
5	2025 Rate Increase 7.5%					2,649,200	2,649,200
6	2026 Rate Increase 7.5%						2,847,900
7	Total Rate Revenue	25,147,600	29,337,800	32,858,300	35,322,700	37,971,900	40,819,800
8	Other	73,700	87,700	126,600	126,600	128,500	130,400
	Non-Operating Revenue						
	Interest Income						
9	Operating Fund	86,500	79,800	84,200	108,900	133,600	142,900
10	Other Funds	205,600	341,300	212,900	228,900	172,900	112,800
11	Other	33,000	33,000	33,000	33,000	33,000	33,000
12	**Total Revenue**	25,546,400	29,879,600	33,315,000	35,820,100	38,439,900	41,238,900
	Revenue Requirements						
13	Operation and Maintenance	23,548,900	23,821,400	24,297,800	24,783,800	25,279,500	25,785,100
14	Payment In Lieu of Taxes	747,300	779,800	803,200	827,300	852,100	877,700
	Debt Service						
15	Existing Revenue Bonds	2,096,500	2,085,300	2,079,600	2,076,800	2,081,700	2,083,700
16	Proposed Bonds	0	1,180,200	1,180,200	1,630,200	2,079,600	2,191,800
17	Total Debt Service	2,096,500	3,265,500	3,259,800	3,707,000	4,161,300	4,275,500
	Transfers to the Improvement Fund						
18	Revenue Designated CIP	0	1,500,000	3,500,000	3,500,000	3,500,000	3,500,000
19	Other Major CIP	0	0	390,900	595,000	3,595,000	6,450,000
20	Total Revenue Funded Improvements	0	1,500,000	3,890,900	4,095,000	7,095,000	9,950,000
21	Req'd Transfer to Emerg Cap Fund	107,300	40,900	71,500	72,900	74,300	75,900
22	Total Revenue Requirements	26,500,000	29,407,600	32,323,200	33,486,000	37,462,200	40,964,200
23	Annual Balance/(Deficit)	(953,600)	472,000	991,800	2,334,100	977,700	274,700
24	Rate Covenant Debt Svc Coverage	95%	186%	277%	298%	316%	361%
25	Beginning Balance	5,640,000	4,686,400	5,158,400	6,150,200	8,484,300	9,462,000
26	Net Operations	(953,600)	472,000	991,800	2,334,100	977,700	274,700
27	Operating Reserve Balance	4,686,400	5,158,400	6,150,200	8,484,300	9,462,000	9,736,700

Wastewater Utility Financial Plan Summary



	2021	2022	2023	2024	2025	2026	
Fund Balance Mins							
Operating Reserve	5,887,200	5,955,400	6,074,500	6,196,000	6,319,900	6,446,300	
Emerg Cap Reserve	3,532,300	3,573,200	3,644,700	3,717,600	3,791,900	3,867,800	
Subtotal	9,419,500	9,528,600	9,719,200	9,913,600	10,111,800	10,314,100	
Range Max	14,129,300	14,292,900	14,578,800	14,870,400	15,167,700	15,471,200	
Projections							
Operating Reserve	4,686,400	5,158,400	6,150,200	8,484,300	9,462,000	9,736,700	
Emerg Cap Reserve	3,532,300	3,573,200	3,644,700	3,717,600	3,791,900	3,867,800	
Subtotal	8,218,700	8,731,600	9,794,900	12,201,900	13,253,900	13,604,500	
Debt Svc Coverage	95%	186%	277%	298%	316%	361%	
Rate Increase	***0.00%***	***12.00%***	***12.00%***	***7.50%***	***7.50%***	***7.50%***	*55.8%*
		512,900	1,063,300	2,407,000	1,052,000	350,600	

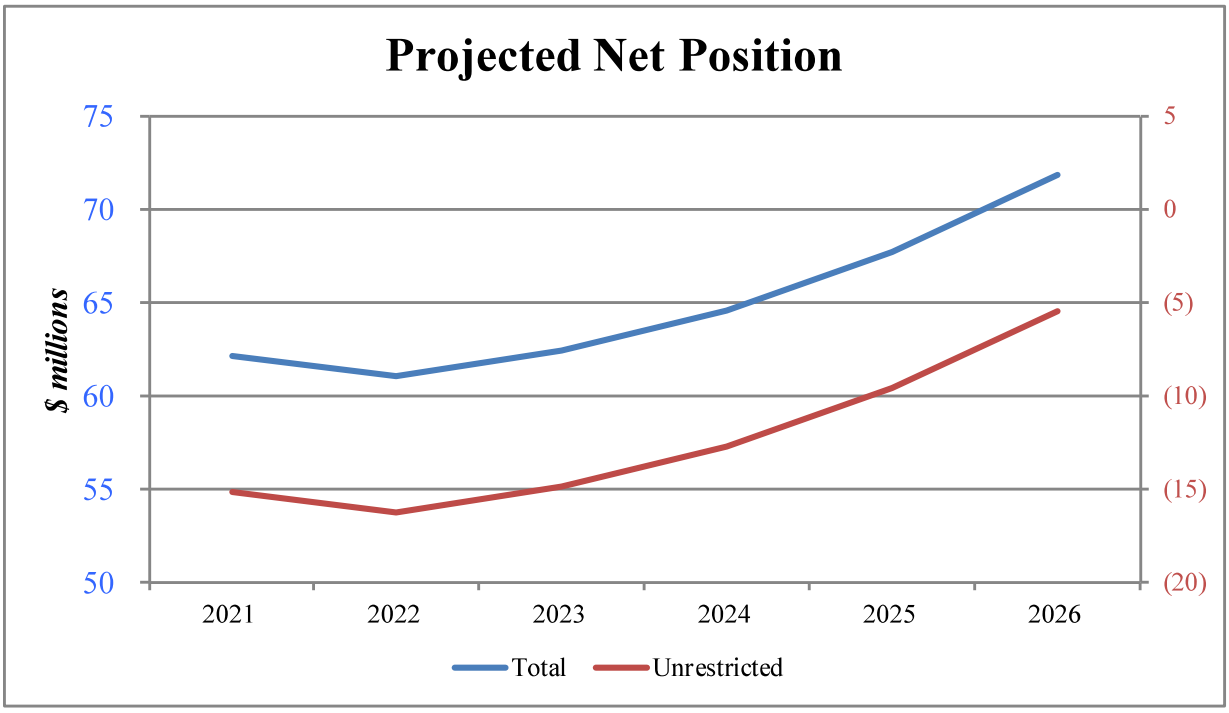
Wastewater Utility

Estimated and Projected Fund Balances Under Projected Rates *(Excludes Bond Reserve Account)*

Forecast Period 2022-2026

Line No.		*0* Estimated 2021 $	(1) Projected 2022 $	(2) 2023 $	(3) 2024 $	(4) 2025 $	(5) 2026 $
	Improvement Fund						
1	Beginning Balance	11,504,100	3,066,600	11,359,100	3,500,000	3,500,000	3,500,000
	Deposits						
2	Net Transfers & CIA	30,000	1,530,000	3,920,900	4,125,000	7,125,000	10,130,000
3	Bond Proceeds	0	17,167,500	0	9,780,000	4,855,000	0
	Withdrawals						
4	Capital Expenditures	(8,467,500)	(10,405,000)	(11,780,000)	(13,905,000)	(11,980,000)	(12,130,000)
5	Ending Balance	3,066,600	11,359,100	3,500,000	3,500,000	3,500,000	1,500,000
	Operating Reserve Fund *(a)*						
6	Beginning Balance	5,640,000	4,686,400	5,158,400	6,150,200	8,484,300	9,462,000
	Deposits						
7	Net Operations	(953,600)	472,000	991,800	2,334,100	977,700	274,700
8	True-Up Recovery	0	0	0	0	0	0
9	Ending Balance	4,686,400	5,158,400	6,150,200	8,484,300	9,462,000	9,736,700
	Emergency Capital Reserve Fund *(a)*						
10	Beginning Balance	3,425,000	3,532,300	3,573,200	3,644,700	3,717,600	3,791,900
	Deposits						
11	Net Transfers	107,300	40,900	71,500	72,900	74,300	75,900
	Withdrawals						
12	Transfer to Imp. Fund	0	0	0	0	0	0
13	Ending Balance	3,532,300	3,573,200	3,644,700	3,717,600	3,791,900	3,867,800
14	**Total Ending Balance**	11,285,300	20,090,700	13,294,900	15,701,900	16,753,900	15,104,500
15	*(a) Subtotal "Reserves"*	*8,218,700*	*8,731,600*	*9,794,900*	*12,201,900*	*13,253,900*	*13,604,500*

Wastewater Utility Financial Plan Summary



	2021	2022	2023	2024	2025	2026
Net Revenues (a)	1,852,200	5,880,400	8,816,000	10,811,000	12,910,300	15,178,100
CIAC	30,000	30,000	30,000	30,000	30,000	180,000
less: Depr Expense	(4,580,100)	(4,840,700)	(5,353,400)	(6,158,000)	(7,256,700)	(8,629,300)
less: Int Expense	(1,421,500)	(2,162,800)	(2,099,400)	(2,483,200)	(2,638,800)	(2,555,500)
Prxy Chg Net Pos	(4,119,400)	(1,093,100)	1,393,200	2,199,800	3,044,800	4,173,300
Begin Net Position	66,267,900	62,148,500	61,055,400	62,448,600	64,648,400	67,693,200
End Net Position	62,148,500	61,055,400	62,448,600	64,648,400	67,693,200	71,866,500
Unrestricted Net Position						
Beginning	(11,042,100)	(15,161,500)	(16,254,600)	(14,861,400)	(12,661,600)	(9,616,800)
Change	(4,119,400)	(1,093,100)	1,393,200	2,199,800	3,044,800	4,173,300
Ending	(15,161,500)	(16,254,600)	(14,861,400)	(12,661,600)	(9,616,800)	(5,443,500)

(a) Revenues less O&M & PILOT

TFG
THE FOSTER GROUP

THE FOSTER GROUP, LLC
12719 WENONGA LANE
LEAWOOD, KS 66209

BART FOSTER, PRESIDENT
CELL: (913) 530-6240
BFOSTER@FOSTERGROUPLLC.COM

MEMORANDUM

Kalamazoo Water and Wastewater Rates
Proposed Rate Adjustments

August 23, 2022

To: James Baker

From: Bart Foster

The intent of this this memorandum is to introduce proposed Water and Wastewater Rates for the City to place in effect for 2023. The proposed Wastewater Rates have been developed presuming an effective date of October 1, 2022. The proposed Water Rates have been developed presuming an effective date of January 1, 2023.

Executive Summary

The financial performance of the City's Water and Wastewater Utilities has been materially impacted by supply chain, inflationary and related pressures that are being experienced world-wide. The financial health of the Water and (particularly) Wastewater Funds are being negatively impacted by these developments, to the extent that significant immediate actions are prudent. I am recommending that the City implement 20% increases in all Water and Wastewater Rates consistent with the schedule introduced above.

The consequences of not taking the action suggested above include short term financial performance that produces metrics well below desired objectives, particularly for the Wastewater Fund. The recommended October 1, 2022 effective date for the Wastewater rate increase is designed to result in positive impacts in reported 2022 financial performance.

Specifically, it is my recommendation to uniformly increase ALL utility rates by 20%, regardless of customer class or location. The urgency of the situation does not allow for detailed cost of service and rate studies, and the 2023 budget and capital improvement programs are not yet available to support such studies. Further, with the equalization of City and Township Water Rates in 2022 the import of detailed cost of service studies on an annual basis is diminished. ***It is my understanding that the Utility Policy Committee has endorsed this recommendation regarding 2023 Water Rates***. Finally, there are ongoing developments regarding Wastewater Rate methodologies (including contract discussions and modifications regarding measuring treatment operations) that merit delaying any Wastewater cost of service study until next year. The intent of this recommendation is to not further adjust any Water or Wastewater Rates until 2024, and to have all future rate adjustments become effective as close to January 1 of the budget year in question.

The balance of this memorandum, and other materials provided under separate cover, are designed to provide additional information and support regarding the recommendations.

Background

The City's 2022 Water and Wastewater Rates were adopted in February 2022 and became effective in early March. Those rates were originally set forth in "Rate Reports" that were prepared and published in December 2021[1]. The Rate Reports contained financial forecasts for each Fund through 2026, and identified (at the time) proposed rate adjustments for 2022, and forecasted additional rate adjustments for 2023 through 2026. The forecasts in the rate reports sprung off the City's 2022 budget, and intelligence regarding "known" financial plans and realities as of November 2021. The original rate adjustment "plan of record" set forth in those reports is summarized below.

Kalamazoo Utility Rate Adjustment Forecast as of 12/1/2021

	Water Rate Adjustment		***Wastewater*** Rate Adjustment		
	Annual	Cumulative	Annual	Cumulative	
2022	15.0%	*15.0%*	12.0%	*12.0%*	*Approved Feb 2022*
2023	15.0%	*32.3%*	12.0%	*25.4%*	*Forecasted*
2024	7.5%	*42.2%*	7.5%	*34.8%*	*Forecasted*
2025	7.5%	*52.8%*	7.5%	*45.0%*	*Forecasted*
2026	7.5%	*64.3%*	7.5%	*55.8%*	*Forecasted*

While the financial forecasts summarized above dealt with different objectives and realities for the Water and Wastewater Funds, in general they reflected a need to address continued enhancement of the level of capital investment required for both systems, and a need to ensure that reserve fund balances in each Fund were sufficient to meet City policies on liquidity levels. As noted in the original report . . .

> " . . . *in recent years revenue shortfalls (particularly for the Wastewater Utility), an enhanced level of capital investment requirements (particularly for the Water Utility), and a principal planning focus on reserve balances have resulted less favorable results, and an erosion of the "owner's equity" goal. At the end of 2020 both the Water and Wastewater Utility reported a negative "Net Unrestricted Position."*
>
> *The preliminary forecasts are designed to reverse recent financial performance that produced less than planned results and to enhance the net financial position of the Water and Wastewater Utilities.*"

Subsequent to adoption of the 2022 budget for both Funds, and the approval of the 2022 Water and Wastewater Rates, the financial performance of both funds have been materially impacted by supply chain, inflationary and related pressures that are being experienced world-wide. I'll not exhaustively document those here, but in general it has been reported that the 2022 annual operating budgets for the Water and Wastewater Funds need to be amended upward by approximately $1 million (~6%) and $4.3 million (~ 18%), respectively. Additional pressures on future operating budgets starting in 2023 will undoubtedly be realized as well. The capital improvement projects for both systems have experienced similar cost increases, and in some

[1] The forecasts were contained in a memorandum report dated December 1, 2021 which is included as an appendix to each Rate Report. Stakeholders are encouraged to review that appendix for more background on this topic.

instances have resulted in the City's decision to re-evaluate certain major projects. Further, interest rates continue to increase steadily, and utility rates will continue to be pressured to pay higher costs of borrowing to finance capital improvements. At this stage it does not appear that there is any relief to recently experienced higher prices and cost levels, and that they may continue throughout the five-year forecast period contemplated by the financial plans set forth in the December 2021 Rate Reports.

I have been asked to prepare preliminary updated forecasts, and to provide recommended rate adjustments for 2023 – to be implemented as soon as possible. The objective of such recommendations is to stabilize the financial outlook for the utilities.

Summary Findings and Recommendations

I recommend the City implement "across the board" rate increases of 20% for both the Water and Wastewater Systems. As noted herein the objective of these extraordinary adjustments is to address recently experienced higher cost levels, and to ensure financial results that produce acceptable metrics for both Systems. The analysis set forth in this memorandum assumes that the proposed action would be effective on October 1, 2022 for the Wastewater System (to provide enhanced levels of revenue for the last three months of 2022) and on January 1, 2023 for the Water System. Importantly, these actions will also set a higher baseline revenue benchmark for both Systems as financial plans and potential rate adjustments are considered for 2024 and beyond. See below for an updated forecast summary.

Kalamazoo Utility Rate Adjustment Forecast as of 8/23/2022

	Water Rate Adjustment		***Wastewater*** Rate Adjustment		
	Annual	Cumulative	Annual	Cumulative	
2022	15.0%	*15.0%*	12.0%	*12.0%*	*Approved Feb 2022*
2023	**20.0%**	*38.0%*	**20.0%**	*34.4%*	*Proposed Jan 2023 / Oct 2022*
2024	12.0%	*54.6%*	10.0%	*47.8%*	*Forecasted*
2025	12.0%	*73.1%*	10.0%	*62.6%*	*Forecasted*
2026	12.0%	*93.9%*	10.0%	*78.9%*	*Forecasted*

Note that preliminary updated forecast summarized above anticipates that the immediate rate adjustments for 2023 would be the only adjustments until January 1, 2024. However the forecasted rate adjustments for the remainder of the planning period are higher for both systems than those forecasted in the December 2021 baseline plan. More details on the updated forecasts are presented in the remainder of this memorandum. It is important to note that the forecasted rate adjustments beyond 2023 do **not** reflect proposed action at this time. Rather they are initial forecasts. This version of the "Proposed Forecast" should be considered preliminary – as the intent is to update is to formally update these financial plans when information on the 2023 budget and the updated CIP becomes available to support the overall financial plan for 2023 and beyond.

The consequences of not taking the action suggested above include short term financial performance that produces metrics well below desired objectives, particularly for the

Wastewater Fund. In order to illustrate the updated outlook, I've established three forecast scenarios:

1. The original "Baseline Forecast" prepared in support of the 2022 budget and rates;
2. The "Current Estimate" based on recent developments;
3. A "Proposed Forecast" that would result from the recommended rate increases.

Each of these scenarios evaluates the adequacy of existing and proposed Water and Wastewater Rates to meet the financial obligations in a sustainable manner. There are several means to evaluate the "sustainability" of utility financial performance. The City has an approved Utility Financial Policy that serves as a guide for key metrics to evaluate. The forecast update focusses in large part on three key metrics that are linked to that policy, as set forth below.

1. Debt service coverage, measured against targets established by legal covenants to bondholders, the Utility Financial Policy, and sustainability targets from the investment community;
2. Liquidity measures ("days cash"), keying off targeted reserve balances – also established by the Utility Financial Policy;
3. The "equity" in the Systems as measured by adjusted, unrestricted net position. The notion of maintaining It is also referenced in the Utility Financial Policy.

See exhibits below for an executive summary of the forecasted metrics for each system under each scenario.

Wastewater Forecast - Key Ratios
Executive Summary Comparison

	2022	2023	2024	2025	2026
Debt Service Coverage Ratio Targets					
Rate Covenant	*1.20*	*1.20*	*1.20*	*1.20*	*1.20*
Utility Financial Policy Min	*1.40*	*1.40*	*1.40*	*1.40*	*1.40*
Sustainability Target	*1.75*	*1.75*	*1.75*	*1.75*	*1.75*
Debt Service Coverage Ratio Projections					
Baseline Forecast for 2022 Rates	*1.86*	*2.77*	*2.81*	*3.08*	*3.61*
Current Estimate	*1.15*	*1.17*	*1.29*	*1.22*	*1.12*
Proposed Forecast	*1.74*	*2.01*	*2.22*	*2.30*	*2.26*
Target Days Cash Ratio	*169*	*170*	*171*	*172*	*173*
Days Cash Ratio Projections					
Baseline Forecast for 2022 Rates	*183*	*177*	*178*	*179*	*180*
Current Estimate	*134*	*120*	*124*	*127*	*125*
Proposed Forecast	*153*	*168*	*175*	*175*	*175*
Unrestricted Net Position - $ millions					
Baseline Forecast for 2022 Rates	*$0.14*	*$1.85*	*$4.63*	*$8.53*	*$13.71*
Current Estimate	*($2.72)*	*($6.14)*	*($9.24)*	*($12.69)*	*($17.37)*
Proposed Forecast	*($1.20)*	*($1.26)*	*$0.06*	*$2.59*	*$5.75*

Water Forecast - Key Ratios
Executive Summary Comparison

	2022	2023	2024	2025	2026
Debt Service Coverage Ratio Targets					
Rate Covenant	*1.20*	*1.20*	*1.20*	*1.20*	*1.20*
Utility Financial Policy Minimum	*1.40*	*1.40*	*1.40*	*1.40*	*1.40*
Sustainability Target	*1.75*	*1.75*	*1.75*	*1.75*	*1.75*
Debt Service Coverage Ratio Projections					
Baseline Forecast for 2022 Rates	1.51	1.62	1.47	*1.37*	*1.34*
Current Estimate	1.47	*1.23*	*1.17*	*1.08*	*1.04*
Proposed Forecast	1.47	1.46	1.48	1.49	1.57
Target Days Cash Ratio	*179*	*180*	*181*	*182*	*183*
Days Cash Ratio Projections					
Baseline Forecast for 2022 Rates	*139*	*185*	*185*	*187*	*188*
Current Estimate	*214*	*184*	*180*	*160*	*160*
Proposed Forecast	*214*	*184*	*184*	*185*	*186*
Unrestricted Net Position - $ millions					
Baseline Forecast for 2022 Rates	*$24.56*	*$29.18*	*$33.00*	*$35.74*	*$36.95*
Current Estimate	*$23.38*	*$24.79*	*$25.68*	*$25.13*	*$22.65*
Proposed Forecast	*$23.38*	*$27.17*	*$31.65*	*$36.80*	*$42.51*

As noted above, the forecasted short-term metrics funder the "Current Estimate" Scenario for the Wastewater Fund are particularly concerning. Absent taking the recommended action the projected debt service coverage for 2022 will likely fall below the both the 1.20 Rate Covenant and the minimum 1.40 target established by the Utility Financial Policy. The liquidity balance may fall well below the 180 days cash target. Perhaps most importantly, this initial analysis indicates a possibility that the Wastewater Fund will report a net deficit position at the end of 2022 – even if additional revenues are realized. The implications for the Water Fund are similar, although the significant financial pressures would emerge in 2023 and beyond.

The Proposed Forecast scenario has been prepared to mitigate the recent financial pressures and to produce metrics that are more in line with the Baseline Forecast established via the 2022 budget and rates. The balance of this discussion provides more detail on my preliminary analysis. Again, these preliminary updated forecasts are based on existing budgets and Capital Improvement Programs. The intent is to formally update these forecasted financial plans when information on the 2023 budget and the updated CIP becomes available to support the overall financial plan for 2023 and beyond.

[Remainder of page intentionally left blank]

Analysis

In addition to further detail on the operating expense impacts summarized above, I have obtained and reviewed:

- Preliminary year-end financial statements and related support documents for 2021;
- Updated information on year-to-date 2022 billed revenues to Water and Wastewater customers and customer classes;
- Detailed information on results of the 2022 Water and Wastewater bond transactions, including proceeds provided, pricing results, and impacts on debt service compared with what was projected in the original Rate Reports;
- Additional financial information based on discussions with City staff.

All of this information provides additional intelligence with which to preliminarily update the forecasts contained in the 2022 Rate Reports. I offer the following findings and observations based on my initial review. These findings are presented in a strategic order designed to support the cadence of my analysis and approach.

- Operating Expenses:
    - As noted above, recently experienced operating expense levels are materially higher than budgeted for both Systems. I've assumed that the adjusted figures introduced above (annual increases of $1 million for Water and $4.3 million for Wastewater) establish a new baseline for spending, in current dollars. The forecasted operating expenses throughout the period are assumed to exhibit the same relative growth over the baseline levels that was established via the original forecast. ***The higher level of operating expenses is driving the need for immediate action on rate levels for both systems. Developments in some of the other topics listed below actually serve to mitigate the magnitude of the proposed adjustments.***
    - For perspective, simply attempting to address the higher O&M levels would require an annualized increase of almost 4% for the Water System and 15% for the Wastewater System. Attempting to meet these higher cost levels with a rate increase that will only be in effect for 3 months would quadruple both of those factors.
    - Based on conversations with City staff, initial 2023 budget preparations have identified the need for enhanced personnel levels, further pressuring operating expense needs.
    - The updated forecast will need to reflect new realities in inflationary impacts on future operating expenses.

- Capital Improvement Plan Requirements:

  - Individual CIP projects are experiencing dramatic cost increases as well. However some projects have been deferred or are experiencing delays, in part due to supply chain issues, etc. For purposes of this initial forecast update I've assumed no change in the overall level of capital improvements for both systems.
  - However the Wastewater CIP for 2022 was finalized after the "Baseline Forecast" Scenario was prepared in December 2021, and the "Current Estimate" indicates much higher levels of CIP requirements.

- Beginning Fund Balances as of 1/1/2022:
  - Actual fund balances available as of the beginning of the current year are moderately higher than assumed for the original forecast. This additional liquidity assists in meeting the forecast challenges, and lowers the proposed adjustments moderately.

- Revenues:
  - Based on a review of 6 months of current billing data, Wastewater billings to the monitored industries are running ahead of the target established for the 2022 Wastewater Rates. The positive variance is about $600,000 year-to-date, or just under 7%. A significant contributor to this positive variance is Graphic Packaging. Based on conversations with staff it is anticipated that this higher level of contributions will continue for the foreseeable future. I've assumed continuation of this positive variance for the rest of the year (a total annual increase of $1 million), and throughout the forecast period, which further mitigates the Wastewater rate challenge.
  - Billings to other Wastewater customer classes appear to be tracking close to original projections, and no adjustment is warranted.
  - Billings to certain Water customer classes exceed the level assumed in the original forecast. While this performance merits additional review, I've preliminarily assumed a $300,000 annual increase in baseline Water revenues.
  - I suspect that the investment earnings included in the original forecast are likely overly conservative given recent interest rate developments. I've not made any adjustments for 2022, but my updated assumptions for 2023 and beyond will basically double the forecasted earnings, which partially offsets the need for rate revenue in those years.

- Bonding Requirements / Debt Service:
  - The City took advantage of the low interest rate environment to secure more proceeds to finance capital improvements with the 2022 Revenue Bond

transactions than were included in the original forecasts. The Water System proceeds were over $4 million greater than anticipated, and the Wastewater System proceeds were over $8 million greater.

- The original forecasts were (intentionally) conservatively high with respect to projected debt service in 2022 for the recently issued transactions, as we assumed a full year of principal and interest amortization.
- Despite securing more proceeds than originally planned, the actual debt service for 2022 will be lower than planned in the original forecast by approximately $1.7 million for Water and $700,000 for Wastewater.
- However, the same inflationary pressures impacting operating expenses are impacting the costs of capital improvement projects, and the costs of borrowing to finance those improvements.
- Further, preliminary updated CIP estimates for the Wastewater Utility are materially higher than those included in the "Baseline Forecast."
- I've assumed 3.5% annual increases in the amounts included in the existing CIPs starting in 2024, and have increased the assumed interest rate for future borrowings to 5%.
- As a result of these changed assumptions, the "Current Estimate" scenario requires significant additional issuance of debt (and related debt service increases) to finance capital improvements.
- The "Proposed Forecast" would mitigate the projected debt levels, as additional rate revenue allows for more of the CIPs to be funded via "pay-go" monies.

Detailed Forecast Exhibits

As noted above, I have prepared updated financial forecasts for the Water and Wastewater Utilities. The forecasts are summarized in the attached exhibits, which follow the same basic format I've utilized in prior analyses, and which largely are reflected in the "Baseline Forecast" exhibits from December 2021. However I've modified / added certain exhibits to further illustrate the forecasts. The exhibit page number references are consistent between the separate Water (W) and Wastewater (WW) page numbers.

Once again, this version of the "Proposed Forecast" should be considered preliminary – as the intent is to update is to formally update these financial plans when information on the 2023 budget and the updated CIP becomes available to support the overall financial plan for 2023 and beyond. Also, as with any formally published forecasts – this caveat:

> *In conducting our studies and formulating our projections and opinions contained herein, we reviewed the books, records, agreements, capital improvement programs and other information produced by the City as we deemed necessary. While we consider such books, records, and other documents to be reliable, we have not verified the accuracy of these documents. The projections set forth herein are intended as*

"forward-looking statements". Actual results may differ materially from those projected, as influenced by conditions, events, and circumstances that may actually occur.

Herewith a brief introduction of the exhibits.

1. Capital Improvement Program Financing
    - *Illustrates forecasted plan resulting from application of this CIP financing strategy:*
        - Where water projects are designated as Drinking Water Revolving Fund (DWRF) eligible, I've assumed debt service based on the draw down schedules for those specific projects and loans;
        - Projects designed to result in short lived assets are restricted to "pay go" funding from existing reserve balances and future revenues;
        - All other projects are deemed "debt eligible" and are forecasted to be financed by a strategic combination of debt and revenues in a manner that aligns with the Utility Financial Policy objectives regarding debt service coverage ratios, reserve fund balances, and net worth measurements.
    - *Note that the forecast anticipates the issuance of new money revenue bond transactions to occur in every year for both the Water and Wastewater Utilities. The size and nature of these transactions are subject to change, and could be impacted by availability of additional State Revolving Fund Loans and related external financing sources. Also note the relatively larger need for forecasted additional Water bond sales compared to Wastewater due to the relatively larger Water CIP requirements. The annual capital investment requirements for the Water System equates to almost 1 ½ years of revenue, which is a remarkably high metric. The comparable Wastewater metric is approximately 8 ½ months of annual revenue, which is still robust while not as challenging as Water.*
2. Revenue Requirements Financing Plan
    - *Graphical depiction of the "business plan" for the Water and Wastewater Utilities. The proposed 20% "system" rate increase for 2023 is shown in 2022 for Wastewater, assuming the October 1, 2022 effective date, but only provides three months of increased revenue in 2022. The forecasted annual "system" rate increases shown for 2024 through 2027 are consistent with those presented earlier. These are not necessarily intended to reflect rate adjustments applicable to ALL customer classes. The impacts of specific future rate adjustments are subject to the cost of service and rate studies presented in other reports.*
3. Debt Service Coverage Ratios
    - *Presents the debt service coverage targets, and the forecasted ratios under the three scenarios presented earlier in this discussion.*
    - *Under the Proposed Forecast scenario:*

        - The Water metrics struggle. While they are higher than the Utility Financial Policy minimum in all years, and begin to rise starting in 2026, they fail to reach the Sustainability Target.
        - The Wastewater metrics are healthy – debt service coverage is not the primary concern for Wastewater
4. Fund Balance Summary – Days Cash Ratio
    - *Illustrates "non-restricted" liquidity balances, and the forecasted metrics for each scenario.*
    - *The Proposed Forecast scenario for both systems is designed to provide liquidity that is in line with the Utility Financial Policy targets.*
    - *Note the dramatically low metrics in the "Current Estimate" scenario for both Systems.*
5. Projected Net Position
    - *Presents the "GAAP Basis" view of the forecasts, focusing on the projected reported net position for the systems. Both "Total" and "Adjusted Unrestricted" depictions of Net Positions are shown.*
    - *The "Adjusted Unrestricted" metric is the primary concern, as low reported figures could trigger forced action plans.*
        - This metric is not a concern in the "Proposed Forecast" Scenario for Water.
        - The negative position for the Wastewater System in the "Baseline Forecast" and "Current Estimate" scenarios are concerning and drive the need for accelerated action on Wastewater Rates. Even under the "Proposed Forecast" Scenario the Wastewater metric is not forecasted to be "in the black" until 2024 and the growth is still slow.

Again, I reiterate the fluidity of changing financial conditions and the preliminary nature of this forecast update. This analysis is based on review of interim 2022 financial data available as of the beginning of June, and in cases represents review of updated data through the month of July. Having said that, I firmly believe that this analysis provides an interim road map for future financial decisions, and supports the recommended actions regarding Water and Wastewater Rates for 2023.

The proposed schedule of Water and Wastewater Rates for 2023 is attached as an exhibit to this memorandum report.

I am prepared to discuss this material at your convenience.

Proposed 2023 Water and Wastewater Rates

Water Utility

Comparison of Existing and Proposed Water Rates
Proposed Rates Designed to be Effective January 1, 2023

Line No.		(1) Existing $/unit	(2) Proposed $/unit	(3) Variance $/unit	(4) % Variance
	Commodity Charges - $/cu mtr				
	City Customers				
1	Single Family	0.734	0.881	0.147	20.0%
2	Multi Family	0.540	0.648	0.108	20.0%
3	Commercial	0.612	0.734	0.122	19.9%
4	Seasonal	1.193	1.432	0.239	20.0%
	Township Customers				
5	Single Family	0.734	0.881	0.147	20.0%
6	Multi-Family	0.540	0.648	0.108	20.0%
7	Commercial	0.612	0.734	0.122	19.9%
8	Seasonal	1.193	1.432	0.239	20.0%
	Fire Protection Detector Checks				
9	City Customers	0.612	0.734	0.122	19.9%
10	Township Customers	0.612	0.734	0.122	19.9%

Water Utility

Comparison of Existing and Proposed Water Rates
Proposed Rates Designed to be Effective January 1, 2023

Line No.		(1) Existing $/unit	(2) Proposed $/unit	(3) Variance $/unit	(4) % Variance
	Meter Service Charges - $/bill				
	City Customers - Quarterly				
11	5/8"-3/4"	44.47	53.36	8.89	20.0%
12	1"	59.71	71.65	11.94	20.0%
13	1-1/2"	74.95	89.94	14.99	20.0%
14	2"	116.86	140.23	23.37	20.0%
15	3"	425.52	510.62	85.10	20.0%
16	4"	539.83	647.80	107.97	20.0%
17	6"	806.57	967.88	161.31	20.0%
18	8"	1,111.41	1,333.69	222.28	20.0%
	City Customers - Monthly				
19	5/8"-3/4"	19.06	22.87	3.81	20.0%
20	1"	24.14	28.97	4.83	20.0%
21	1-1/2"	29.22	35.06	5.84	20.0%
22	2"	43.19	51.83	8.64	20.0%
23	3"	146.08	175.30	29.22	20.0%
24	4"	184.18	221.02	36.84	20.0%
25	6"	273.10	327.72	54.62	20.0%
26	8"	374.71	449.65	74.94	20.0%
	Township Customers - Quarterly				
27	5/8"-3/4"	44.47	53.36	8.89	20.0%
28	1"	59.71	71.65	11.94	20.0%
29	1-1/2"	74.95	89.94	14.99	20.0%
30	2"	116.86	140.23	23.37	20.0%
31	3"	425.52	510.62	85.10	20.0%
32	4"	539.83	647.80	107.97	20.0%
33	6"	806.57	967.88	161.31	20.0%
34	8"	1,111.41	1,333.69	222.28	20.0%
	Township Customers - Monthly				
35	5/8"-3/4"	19.06	22.87	3.81	20.0%
36	1"	24.14	28.97	4.83	20.0%
37	1-1/2"	29.22	35.06	5.84	20.0%
38	2"	43.19	51.83	8.64	20.0%
39	3"	146.08	175.30	29.22	20.0%
40	4"	184.18	221.02	36.84	20.0%
41	6"	273.10	327.72	54.62	20.0%
42	8"	374.71	449.65	74.94	20.0%

Water Utility

Comparison of Existing and Proposed Water Rates
Proposed Rates Designed to be Effective January 1, 2023

Line No.		(1) Existing $/unit	(2) Proposed $/unit	(3) Variance $/unit	(4) % Variance
	Fire Protection				
	Quarterly Detector Checks - Service Charges - $/bill				
43	City Customers				
44	4"	82.81	99.37	16.56	20.0%
45	6"	126.49	151.79	25.30	20.0%
46	8"	210.51	252.61	42.10	20.0%
47	10"	507.56	609.07	101.51	20.0%
	Township Customers				
48	4"	82.81	99.37	16.56	20.0%
49	6"	126.49	151.79	25.30	20.0%
50	8"	210.51	252.61	42.10	20.0%
51	10"	507.56	609.07	101.51	20.0%
	Monthly Detector Checks - Service Charges - $/bill				
52	City Customers				
53	4"	45.20	54.24	9.04	20.0%
54	6"	59.76	71.71	11.95	20.0%
55	8"	87.77	105.32	17.55	20.0%
56	10"	186.79	224.15	37.36	20.0%
	Township Customers				
57	4"	45.20	54.24	9.04	20.0%
58	6"	59.76	71.71	11.95	20.0%
59	8"	87.77	105.32	17.55	20.0%
60	10"	186.79	224.15	37.36	20.0%
	Fire Hydrants - $/hydrant/year				
61	Public	0.00	0.00	0.00	NA
62	Private	40.00	40.00	0.00	0.0%

Wastewater Utility

Comparison of Existing and Proposed Wastewater Rates
Proposed Rates Designed to be Effective October 1, 2022

						User Charge Summary					
						Existing Rates			Proposed Rates		
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Line No.		Existing $/unit	Proposed $/unit	Variance $/unit	% Variance	OM&R $/unit	Capital $/unit	Total $/unit	OM&R $/unit	Capital $/unit	Total $/unit
	Fixed Monthly Charges - $/month										
	Municipal Wholesale Customers										
1	Portage	329,600	395,500	65,900	20.0%	237,800	91,800	329,600	285,400	110,100	395,500
2	Galesburg	8,500	10,200	1,700	20.0%	5,900	2,600	8,500	7,100	3,100	10,200
3	Vicksburg	21,000	25,200	4,200	20.0%	15,100	5,900	21,000	18,100	7,100	25,200
4	Gull Lake	68,400	82,100	13,700	20.0%	49,500	18,900	68,400	59,400	22,700	82,100
5	Augusta	5,000	6,000	1,000	20.0%	3,600	1,400	5,000	4,300	1,700	6,000
6	Mattawan	27,800	33,400	5,600	20.1%	20,100	7,700	27,800	24,100	9,300	33,400
7	South County	8,200	9,800	1,600	19.5%	5,900	2,300	8,200	7,100	2,700	9,800
	Monitored Industrial Customers *										
8	Allnex	39,500	47,400	7,900	20.0%	37,300	2,200	39,500	44,800	2,600	47,400
9	Arvco	1,700	2,000	300	17.6%	1,600	100	1,700	1,900	100	2,000
10	Kalsec	67,100	80,500	13,400	20.0%	55,100	12,000	67,100	66,100	14,400	80,500
	Commodity Charges - $/cu mtr										
11	Inside City Retail Customers	0.757	0.908	0.151	19.9%	0.653	0.104	0.757	0.784	0.124	0.908
12	Outside City Retail Customers	1.066	1.279	0.213	20.0%	0.653	0.413	1.066	0.784	0.495	1.279
13	*Portage SW Interceptor*	*0.828*	*0.994*	*0.166*	*20.0%*	*0.575*	*0.253*	*0.828*	*0.690*	*0.304*	*0.994*
14	*Charleston Township Municipal*	*0.728*	*0.874*	*0.146*	*20.1%*	*0.525*	*0.203*	*0.728*	*0.630*	*0.244*	*0.874*
	Meter Service Charges - $/bill										
	Inside City Customers - Quarterly										
15	5/8"	13.21	15.85	2.64	20.0%	12.75	0.46	13.21	15.30	0.55	15.85
15	3/4"	13.67	16.40	2.73	20.0%	13.17	0.50	13.67	15.80	0.60	16.40
16	1"	15.08	18.10	3.02	20.0%	14.43	0.65	15.08	17.32	0.78	18.10
17	1-1/2"	16.95	20.34	3.39	20.0%	16.12	0.83	16.95	19.34	1.00	20.34
18	2"	22.09	26.51	4.42	20.0%	20.76	1.33	22.09	24.91	1.60	26.51
19	3"	59.95	71.94	11.99	20.0%	54.91	5.04	59.95	65.89	6.05	71.94
20	4"	73.97	88.76	14.79	20.0%	67.56	6.41	73.97	81.07	7.69	88.76
21	6"	106.70	128.04	21.34	20.0%	97.07	9.63	106.70	116.48	11.56	128.04
22	Flat Rate	77.78	93.34	15.56	20.0%	69.13	8.65	77.78	82.96	10.38	93.34

Wastewater Utility

Comparison of Existing and Proposed Wastewater Rates
Proposed Rates Designed to be Effective October 1, 2022

						User Charge Summary					
						Existing Rates			Proposed Rates		
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Line No.		Existing $/unit	Proposed $/unit	Variance $/unit	% Variance	OM&R $/unit	Capital $/unit	Total $/unit	OM&R $/unit	Capital $/unit	Total $/unit
	Inside City Customers - Monthly										
23	5/8"-3/4"	10.09	12.11	2.02	20.0%	9.94	0.15	10.09	11.93	0.18	12.11
24	1"	10.25	12.30	2.05	20.0%	10.08	0.17	10.25	12.10	0.20	12.30
25	1-1/2"	10.71	12.85	2.14	20.0%	10.50	0.21	10.71	12.60	0.25	12.85
26	2"	11.34	13.61	2.27	20.0%	11.06	0.28	11.34	13.27	0.34	13.61
27	3"	13.05	15.66	2.61	20.0%	12.61	0.44	13.05	15.13	0.53	15.66
28	4"	25.67	30.80	5.13	20.0%	23.99	1.68	25.67	28.79	2.01	30.80
29	6"	30.35	36.42	6.07	20.0%	28.21	2.14	30.35	33.85	2.57	36.42
30	8"	41.25	49.50	8.25	20.0%	38.04	3.21	41.25	45.65	3.85	49.50
	Outside City Customers - Quarterly										
31	5/8"	16.82	20.18	3.36	20.0%	12.75	4.07	16.82	15.30	4.88	20.18
32	3/4"	17.65	21.18	3.53	20.0%	13.17	4.48	17.65	15.80	5.38	21.18
33	1"	20.14	24.17	4.03	20.0%	14.43	5.71	20.14	17.32	6.85	24.17
34	1-1/2"	23.45	28.14	4.69	20.0%	16.12	7.33	23.45	19.34	8.80	28.14
35	2"	32.57	39.08	6.51	20.0%	20.76	11.81	32.57	24.91	14.17	39.08
36	3"	99.70	119.64	19.94	20.0%	54.91	44.79	99.70	65.89	53.75	119.64
37	4"	124.57	149.48	24.91	20.0%	67.56	57.01	124.57	81.07	68.41	149.48
38	6"	182.59	219.11	36.52	20.0%	97.07	85.52	182.59	116.48	102.63	219.11
38	Flat Rate	107.63	129.16	21.53	20.0%	69.13	38.50	107.63	82.96	46.20	129.16
	Outside City Customers - Monthly										
39	5/8"-3/4"	11.29	13.55	2.26	20.0%	9.94	1.35	11.29	11.93	1.62	13.55
40	1"	11.57	13.88	2.31	20.0%	10.08	1.49	11.57	12.10	1.78	13.88
41	1-1/2"	12.40	14.88	2.48	20.0%	10.50	1.90	12.40	12.60	2.28	14.88
42	2"	13.50	16.20	2.70	20.0%	11.06	2.44	13.50	13.27	2.93	16.20
43	3"	16.54	19.85	3.31	20.0%	12.61	3.93	16.54	15.13	4.72	19.85
44	4"	38.92	46.70	7.78	20.0%	23.99	14.93	38.92	28.79	17.91	46.70
45	6"	47.21	56.65	9.44	20.0%	28.20	19.01	47.21	33.84	22.81	56.65
46	8"	66.55	79.86	13.31	20.0%	38.04	28.51	66.55	45.65	34.21	79.86
47	Dewatering Customers	7.85	9.42	1.57	20.0%	7.85	0.00	7.85	9.42	0.00	9.42

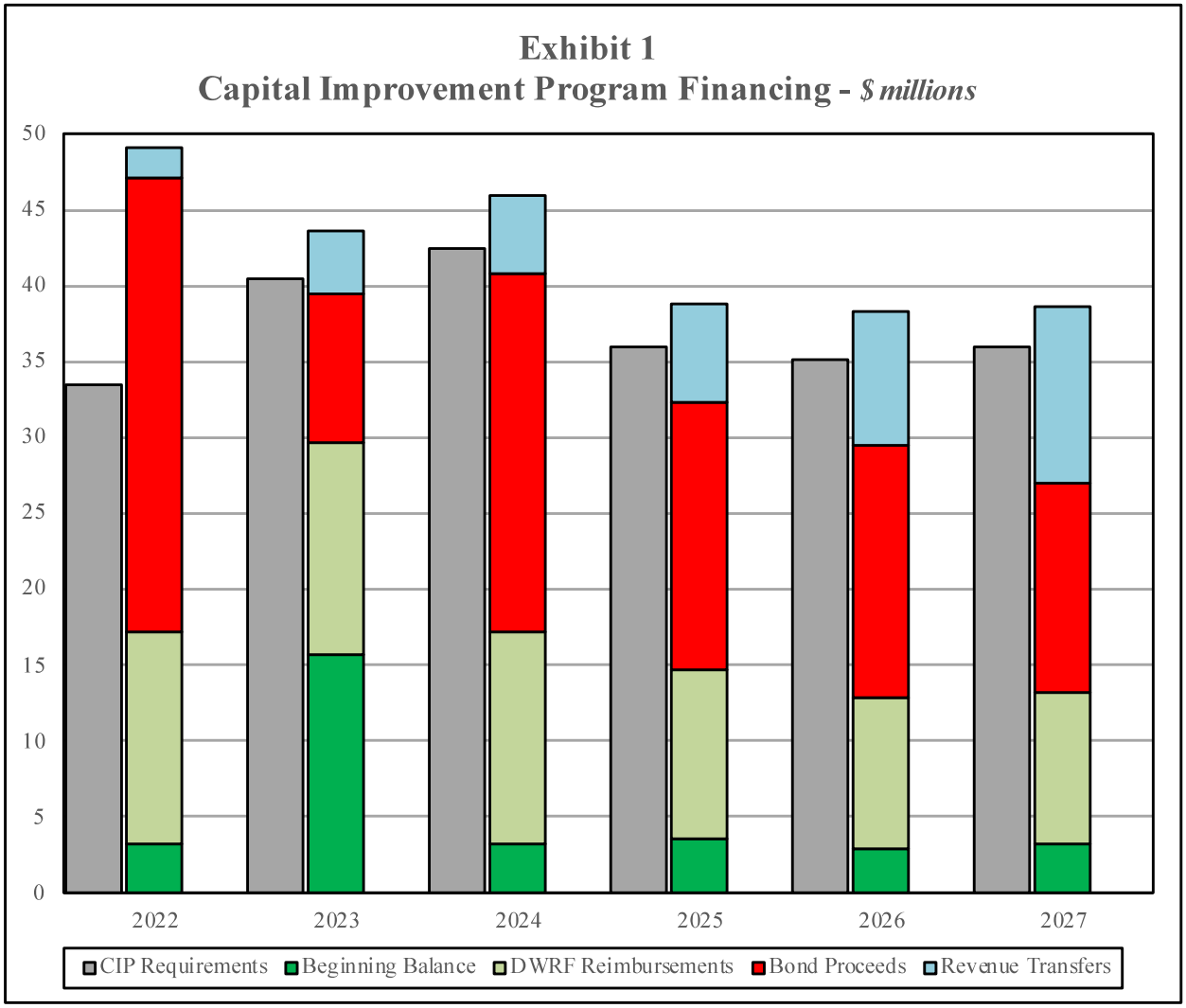
Wastewater Utility

Comparison of Existing and Proposed Wastewater Rates
Proposed Rates Designed to be Effective October 1, 2022

						User Charge Summary					
						Existing Rates			Proposed Rates		
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Line No.		Existing $/unit	Proposed $/unit	Variance $/unit	% Variance	OM&R $/unit	Capital $/unit	Total $/unit	OM&R $/unit	Capital $/unit	Total $/unit
	Quantity / Quality Charges										
	Commodity Charges - $/cu mtr										
48	Pfizer	0.306	0.367	0.061	19.9%	0.325	(0.019)	0.306	0.390	(0.023)	0.367
49	Graphic Packaging	0.140	0.168	0.028	20.0%	0.325	(0.185)	0.140	0.390	(0.222)	0.168
50	Inside City Industrial	0.359	0.431	0.072	20.1%	0.325	0.034	0.359	0.390	0.041	0.431
51	Outside City Industrial	0.639	0.767	0.128	20.0%	0.325	0.314	0.639	0.390	0.377	0.767
	COD Charges - $/kg										
52	Pfizer	0.282	0.338	0.056	19.9%	0.254	0.028	0.282	0.305	0.033	0.338
53	Graphic Packaging	0.262	0.314	0.052	19.8%	0.254	0.008	0.262	0.305	0.009	0.314
54	Inside City Industrial	0.262	0.314	0.052	19.8%	0.254	0.008	0.262	0.305	0.009	0.314
55	Outside City Industrial	0.287	0.344	0.057	19.9%	0.254	0.033	0.287	0.305	0.039	0.344
	TSS Charges - $/kg										
56	Pfizer	0.861	1.033	0.172	20.0%	0.820	0.041	0.861	0.984	0.049	1.033
57	Graphic Packaging	0.809	0.971	0.162	20.0%	0.820	(0.011)	0.809	0.984	(0.013)	0.971
58	Inside City Industrial	0.809	0.971	0.162	20.0%	0.820	(0.011)	0.809	0.984	(0.013)	0.971
59	Outside City Industrial	0.862	1.034	0.172	20.0%	0.820	0.042	0.862	0.984	0.050	1.034
	NH3 Charges - $/kg										
60	Pfizer	3.347	4.016	0.669	20.0%	3.006	0.341	3.347	3.607	0.409	4.016
61	Graphic Packaging	3.143	3.772	0.629	20.0%	3.006	0.137	3.143	3.607	0.165	3.772
62	Inside City Industrial	3.145	3.774	0.629	20.0%	3.006	0.139	3.145	3.607	0.167	3.774
63	Outside City Industrial	3.410	4.092	0.682	20.0%	3.006	0.404	3.410	3.607	0.485	4.092

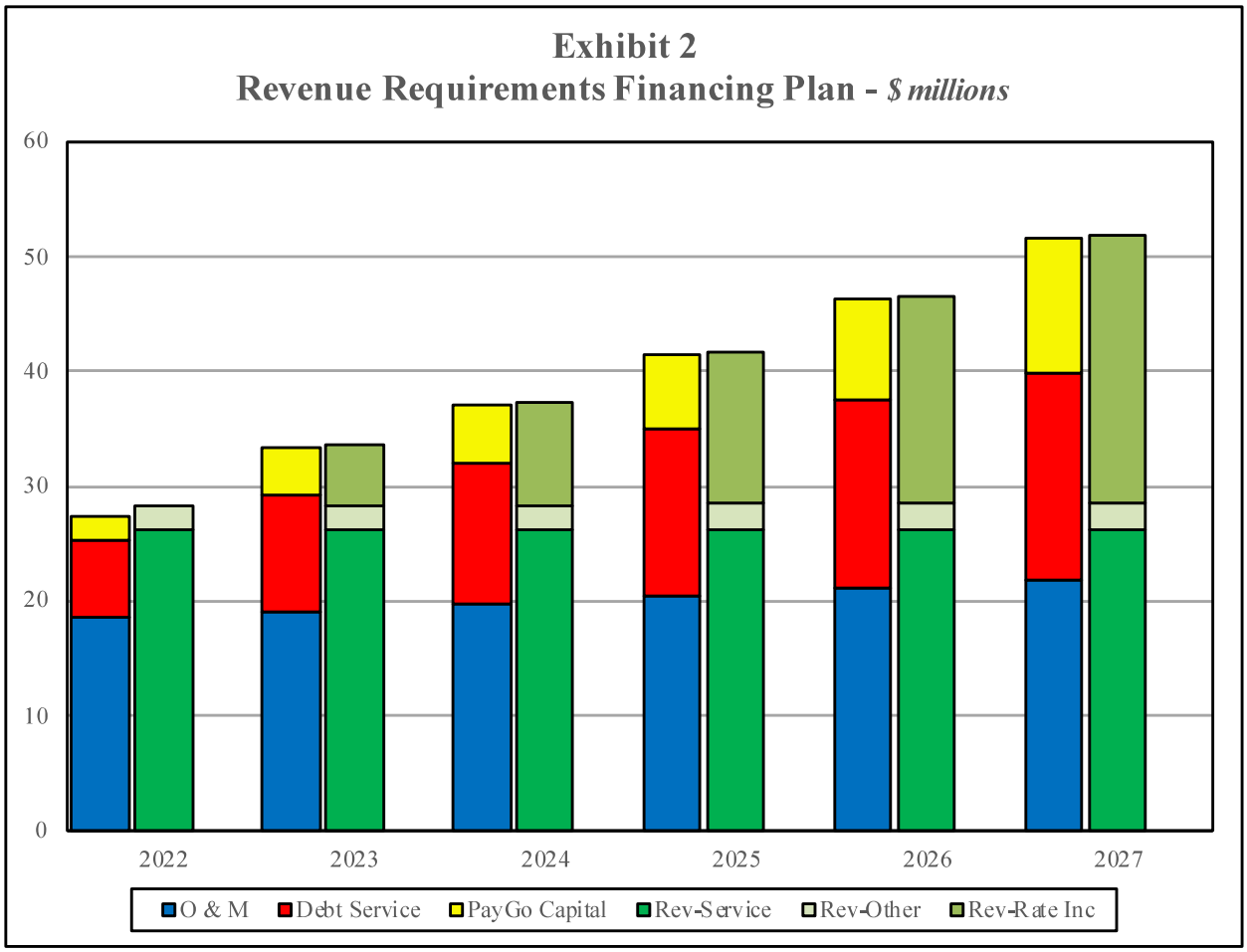
Forecast Exhibits

Water Utility Financial Plan Summary



	2022	2023	2024	2025	2026	2027
CIP Req't	33.5	40.4	42.4	36.0	35.1	35.9
Sources						
Beg Balance	3.2	15.7	3.2	3.6	2.8	3.2
DWRF Reimb	14.0	14.0	14.0	11.0	10.0	10.0
Bond Sale	29.5	10.0	24.0	18.0	17.0	14.0
less: Issue Exp	0.4	(0.2)	(0.4)	(0.3)	(0.3)	(0.3)
Revenue Transfers	2.0	4.1	5.2	6.5	8.8	11.7
CIAC	0.0	0.0	0.0	0.0	0.0	0.0
Total Sources	49.2	43.6	46.0	38.8	38.3	38.6
End Balance	15.7	3.2	3.6	2.8	3.2	2.7

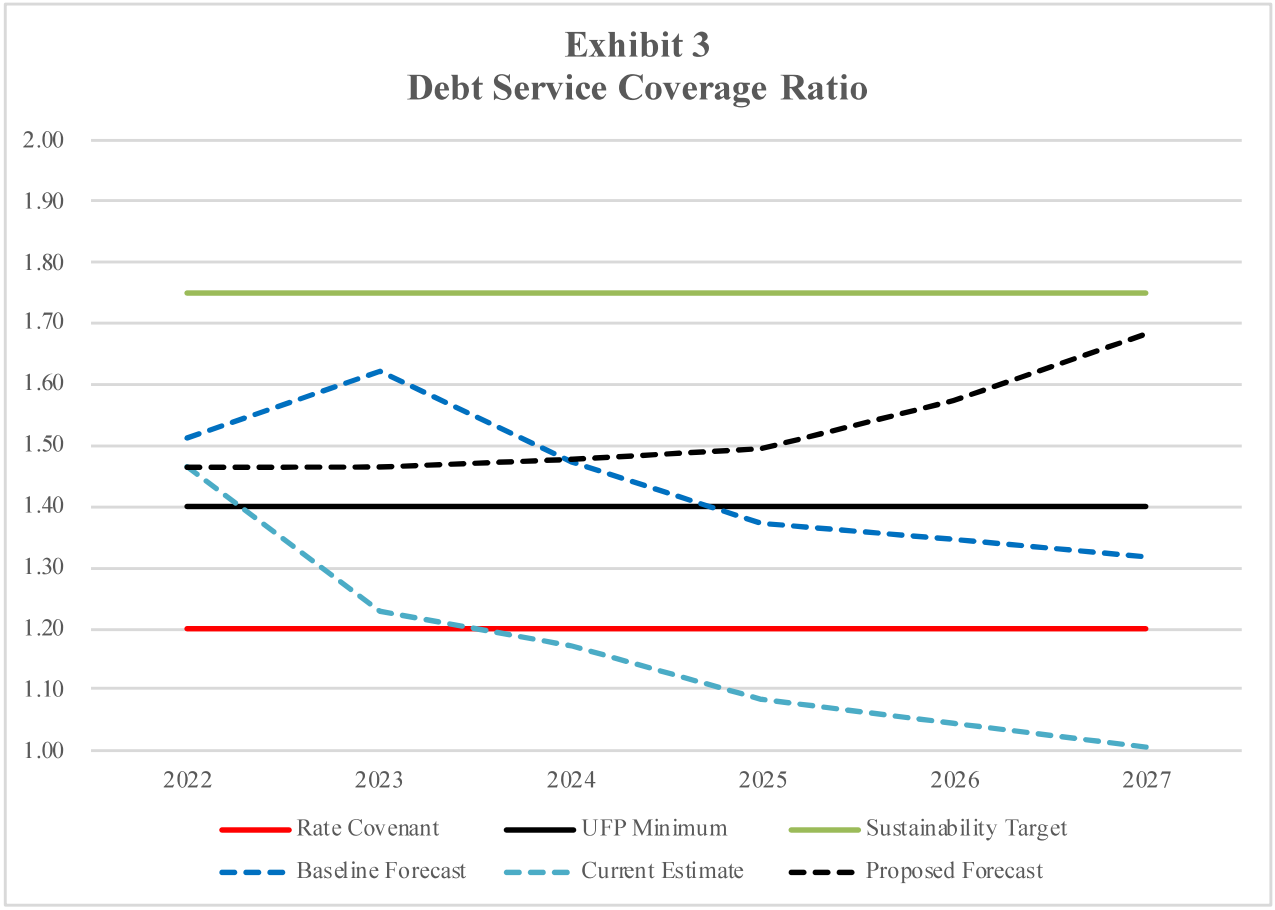
Water Utility Financial Plan Summary



	2022	2023	2024	2025	2026	2027	
Revenue							
Rates	26.3	26.3	26.3	26.3	26.3	26.3	
Rate Increases	***0.0%***	***20.0%***	***12.0%***	***12.0%***	***12.0%***	***12.0%***	88.8%
Rate Increases	0.0	5.3	9.0	13.3	18.0	23.3	
Other	2.0	2.1	2.1	2.2	2.3	2.4	
Total Revenue	28.2	33.6	37.4	41.8	46.6	52.0	
Revenue Req'ts							
O&M *	18.5	19.2	19.8	20.5	21.2	21.9	
Debt Service	6.8	10.0	12.1	14.4	16.3	18.0	
Pay Go Capital	2.0	4.1	5.2	6.5	8.8	11.7	
Total Rev Req'ts	27.4	33.3	37.1	41.5	46.3	51.7	
Balance - Reserves	0.8	0.3	0.3	0.3	0.3	0.3	
DS Covg	1.47	1.46	1.48	1.49	1.57	1.68	

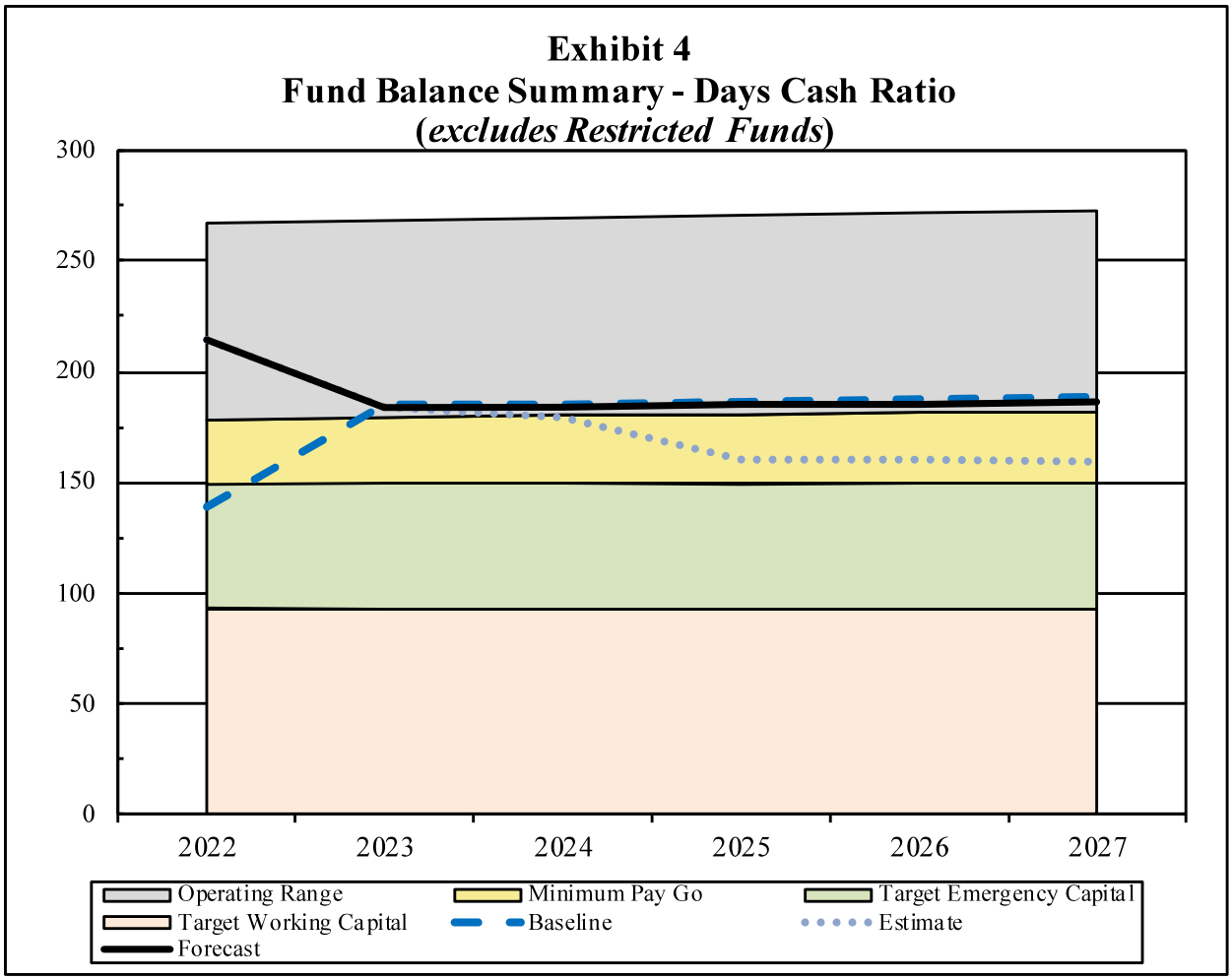
** Includes OPEB Debt Service and Contributions and PILOT*

Water Utility Financial Plan Summary



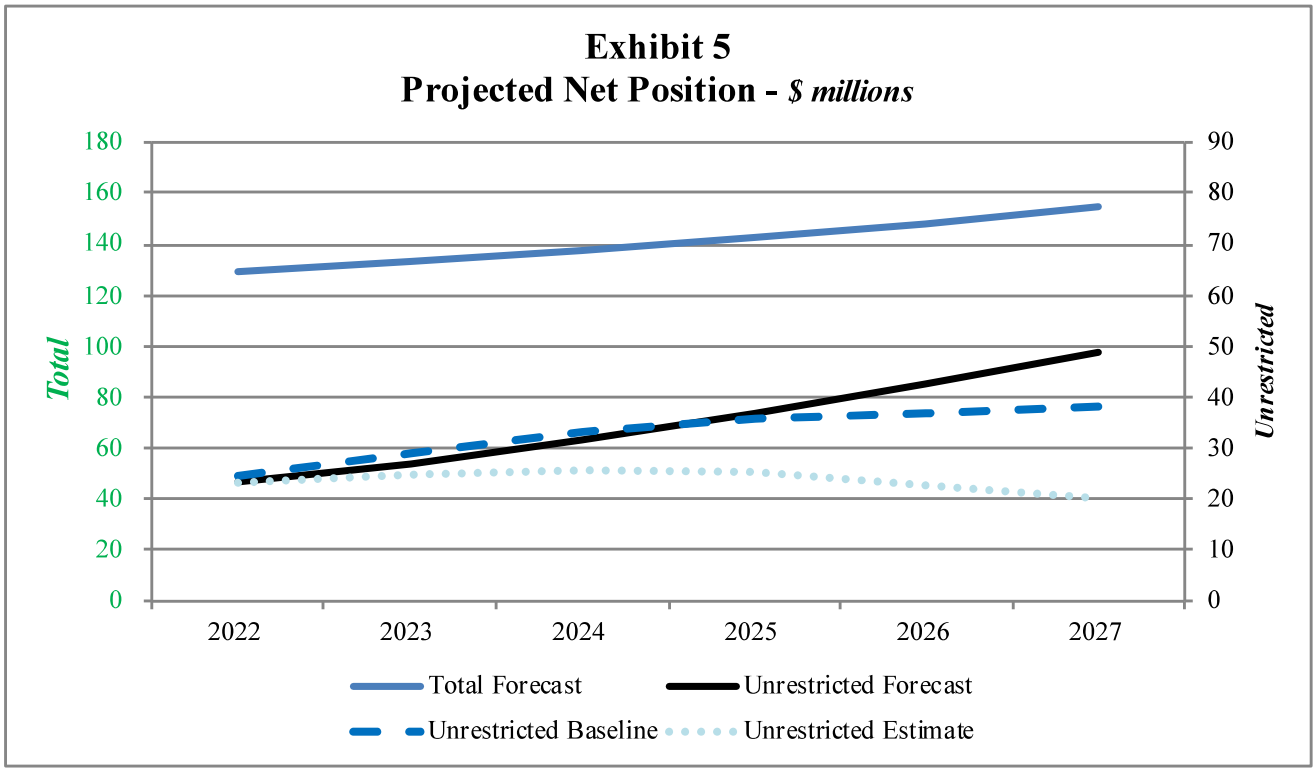
	2022	2023	2024	2025	2026	2027
Rate Covenant	1.20	1.20	1.20	1.20	1.20	1.20
UFP Minimum	1.40	1.40	1.40	1.40	1.40	1.40
Sustainability Target	1.75	1.75	1.75	1.75	1.75	1.75
Baseline Forecast	1.51	1.62	1.47	***1.37***	***1.34***	***1.32***
Current Estimate	1.47	***1.23***	***1.17***	***1.08***	***1.04***	***1.01***
Proposed Forecast	1.47	1.46	1.48	1.49	1.57	1.68

Water Utility Financial Plan Summary



	2022	2023	2024	2025	2026	2027
	$ millions	*$ millions*	*$ millions*	*$ millions*	*$ millions*	*$ millions*
Fund Balance Targets						
Working Capital	4.8	5.0	5.1	5.3	5.5	5.7
Emergency Capital	2.9	3.0	3.1	3.2	3.3	3.4
Min. Pay Go Fund	1.5	1.6	1.7	1.8	1.9	2.0
Target Unrestricted	9.2	9.5	9.9	10.3	10.7	11.1
Days Cash Ratio	***178***	***179***	***180***	***181***	***181***	***182***
Range Max *@150%*	13.7	14.3	14.9	15.4	16.0	16.6
Days Cash	***267***	***269***	***270***	***271***	***272***	***273***
Projections						
Working Capital	4.8	5.0	5.1	5.3	5.5	5.7
Emergency Capital	2.9	3.0	3.1	3.2	3.3	3.4
Pay Go Fund	3.2	1.7	1.8	1.9	2.0	2.1
Total Unrestricted	10.9	9.6	10.0	10.4	10.8	11.2
Days Cash Ratio	***214***	***184***	***184***	***185***	***186***	***186***

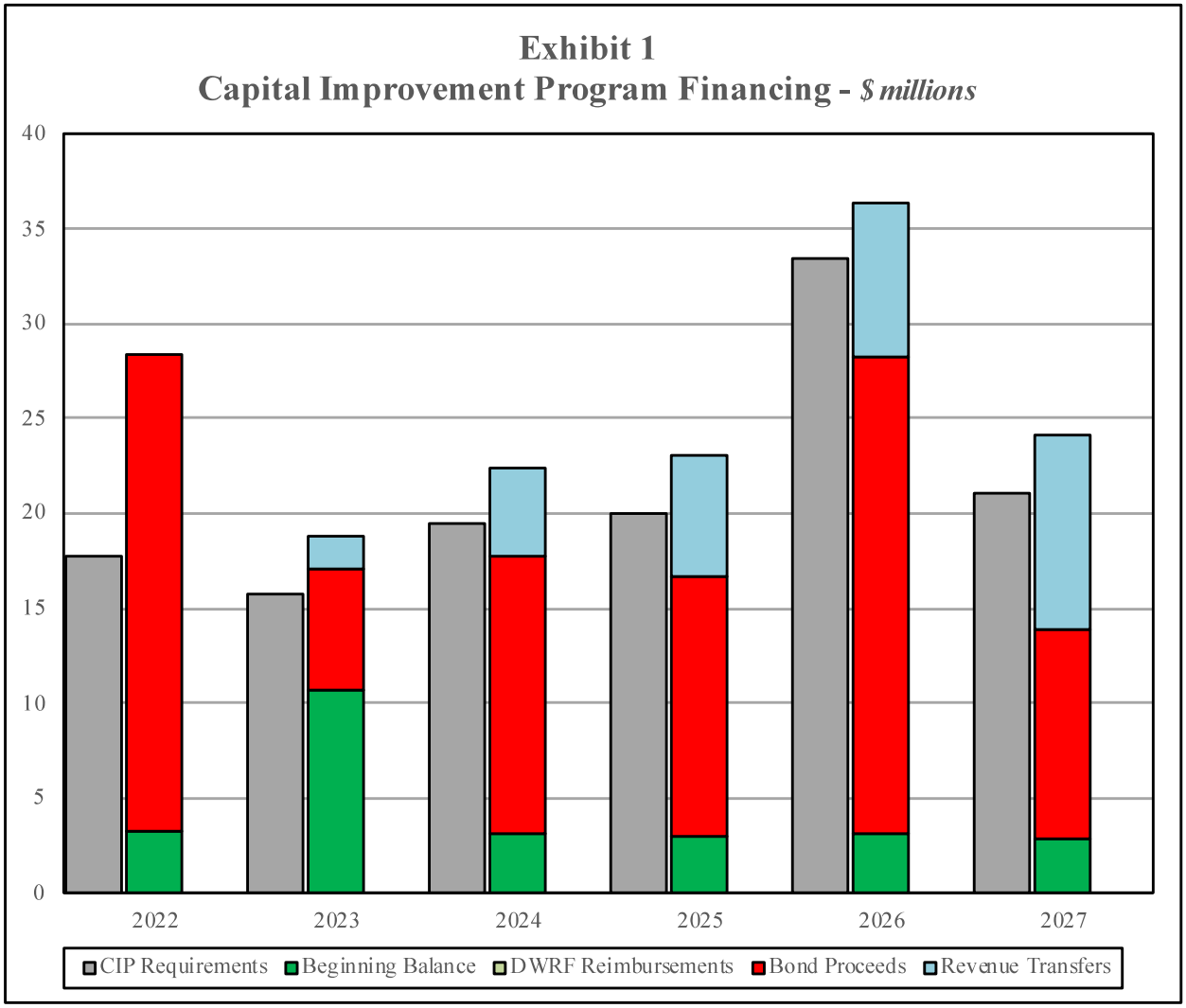
Water Utility Financial Plan Summary



	2022	2023	2024	2025	2026	2027
	$ millions	*$ millions*	*$ millions*	*$ millions*	*$ millions*	*$ millions*
Revenues	28.2	33.6	37.4	41.8	46.6	52.0
CIAC	(18.0)	(18.6)	(19.3)	(19.9)	(20.7)	(21.4)
Operating Exp (a)	0.0	0.0	0.0	0.0	0.0	0.0
less: Depr Expense	(4.7)	(5.5)	(7.1)	(9.5)	(12.4)	(16.0)
less: Interest Exp (b)	(4.4)	(5.7)	(6.6)	(7.2)	(7.8)	(8.2)
Prxy Chg Net Pos	1.2	3.8	4.5	5.2	5.7	6.3
Begin Net Position	128.1	129.3	133.0	137.5	142.7	148.4
End Net Position	129.3	133.0	137.5	142.7	148.4	154.7
Adjusted Unrestricted Net Position						
Beginning	22.2	23.4	27.2	31.7	36.8	42.5
Change	1.2	3.8	4.5	5.2	5.7	6.3
Ending	23.4	27.2	31.7	36.8	42.5	48.8

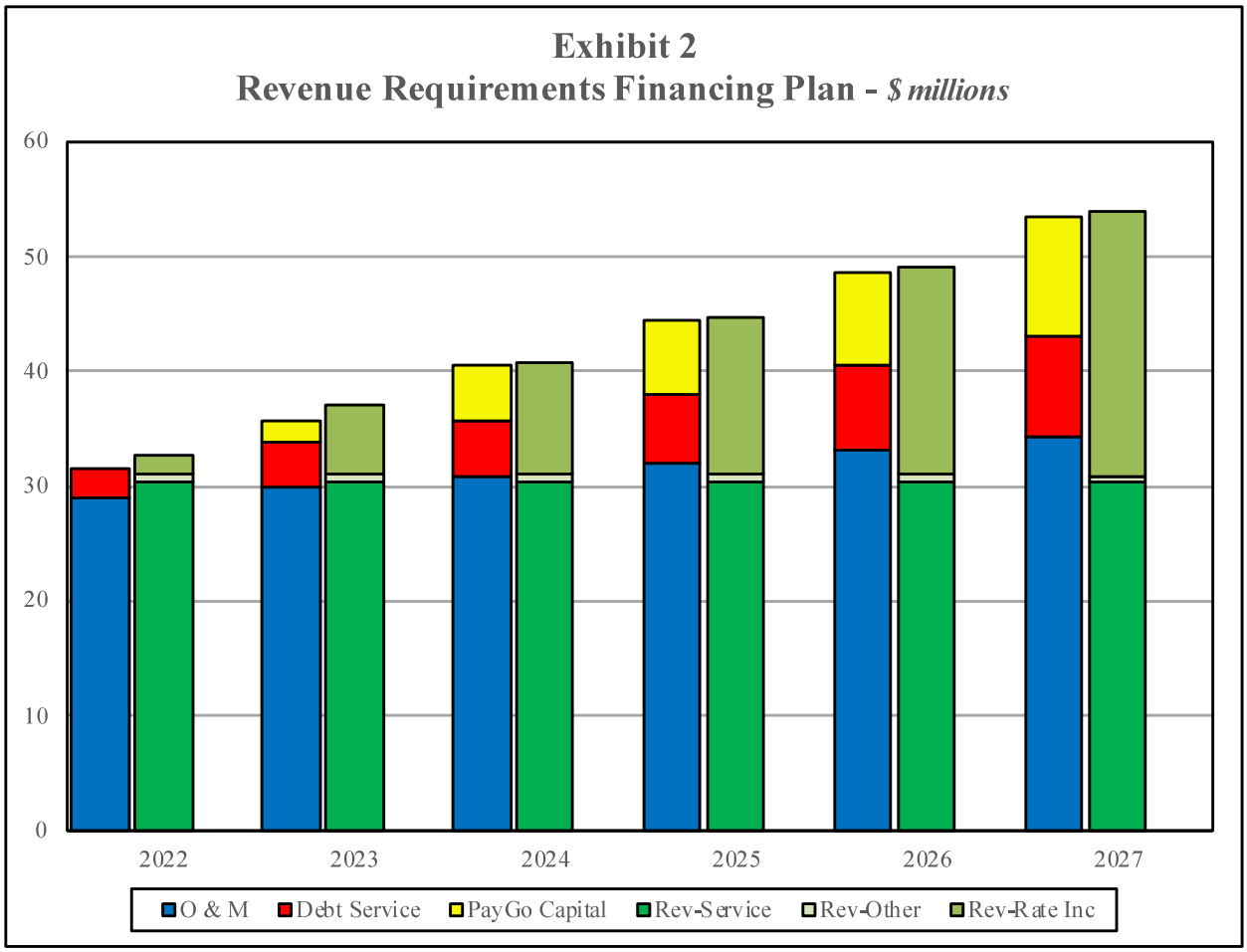
(a) Includes PILOT, excludes OPEB debt service
(b) Includes OPEB Bond interest

Wastewater Utility Financial Plan Summary



	2022	2023	2024	2025	2026	2027
CIP Req't	17.7	15.7	19.5	20.0	33.5	21.0
Sources						
Beg Balance	3.2	10.7	3.1	3.0	3.2	2.9
DWRF Reimb	0.0	0.0	0.0	0.0	0.0	0.0
Bond Sale	27.6	7.0	16.0	15.0	27.5	12.0
less: Issue Exp	(2.4)	(0.6)	(1.4)	(1.3)	(2.4)	(1.0)
Revenue Transfers	0.0	1.7	4.7	6.4	8.0	10.3
CIAC	0.0	0.0	0.0	0.0	0.0	0.0
Total Sources	28.4	18.8	22.4	23.1	36.3	24.1
End Balance	10.7	3.1	3.0	3.2	2.9	3.1

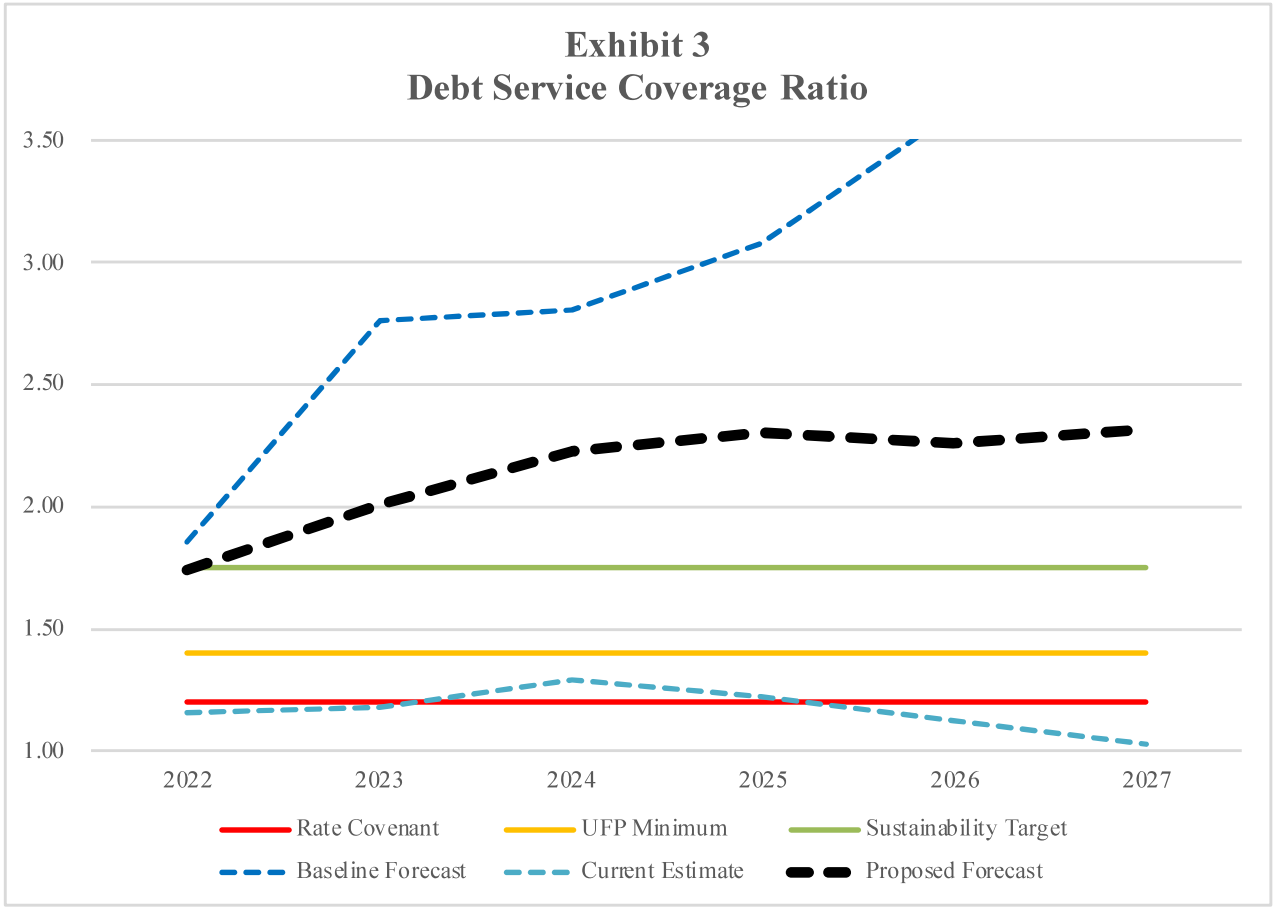
Wastewater Utility Financial Plan Summary



	2022	2023	2024	2025	2026	2027	
Revenue							
Rates	30.3	30.3	30.3	30.3	30.3	30.3	
Rate Increases	***20.0%***	***0.0%***	***10.0%***	***10.0%***	***10.0%***	***10.0%***	75.7%
Rate Increases	1.5	6.1	9.7	13.7	18.1	23.0	
Other	0.8	0.8	0.8	0.8	0.7	0.6	
Total Revenue	32.6	37.2	40.9	44.8	49.1	53.9	
Revenue Req'ts							
O&M *	28.9	29.9	31.0	32.0	33.1	34.3	
Debt Service	2.6	4.0	4.8	5.9	7.5	8.8	
Pay Go Capital	0.0	1.7	4.7	6.4	8.0	10.3	
Total Rev Req'ts	31.5	35.6	40.4	44.4	48.7	53.4	
Balance - Reserves	1.1	1.6	0.4	0.4	0.5	0.5	
DS Covg	1.74	2.01	2.22	2.30	2.26	2.32	

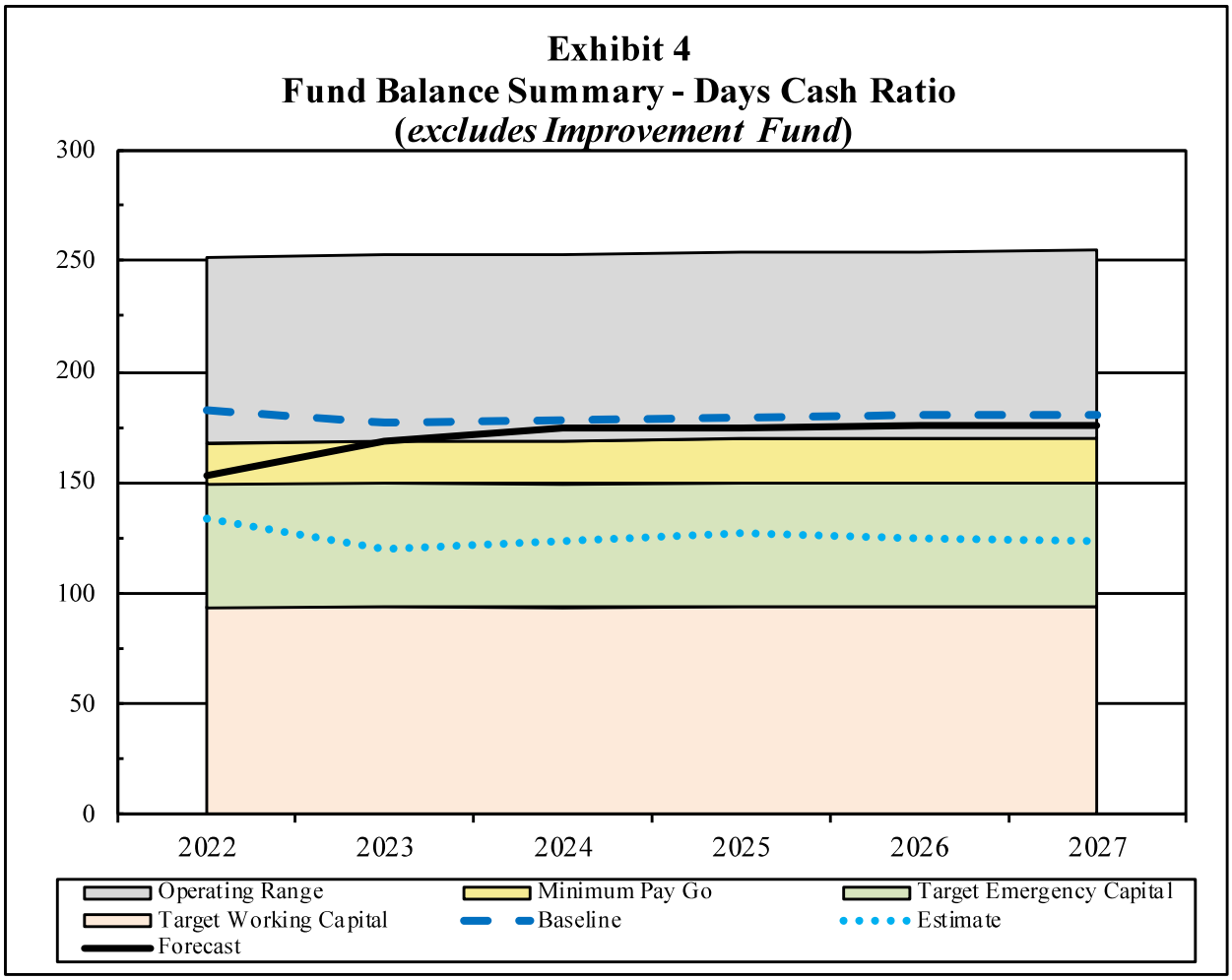
** Includes OPEB Debt Service and Contributions and PILOT*

Wastewater Utility Financial Plan Summary



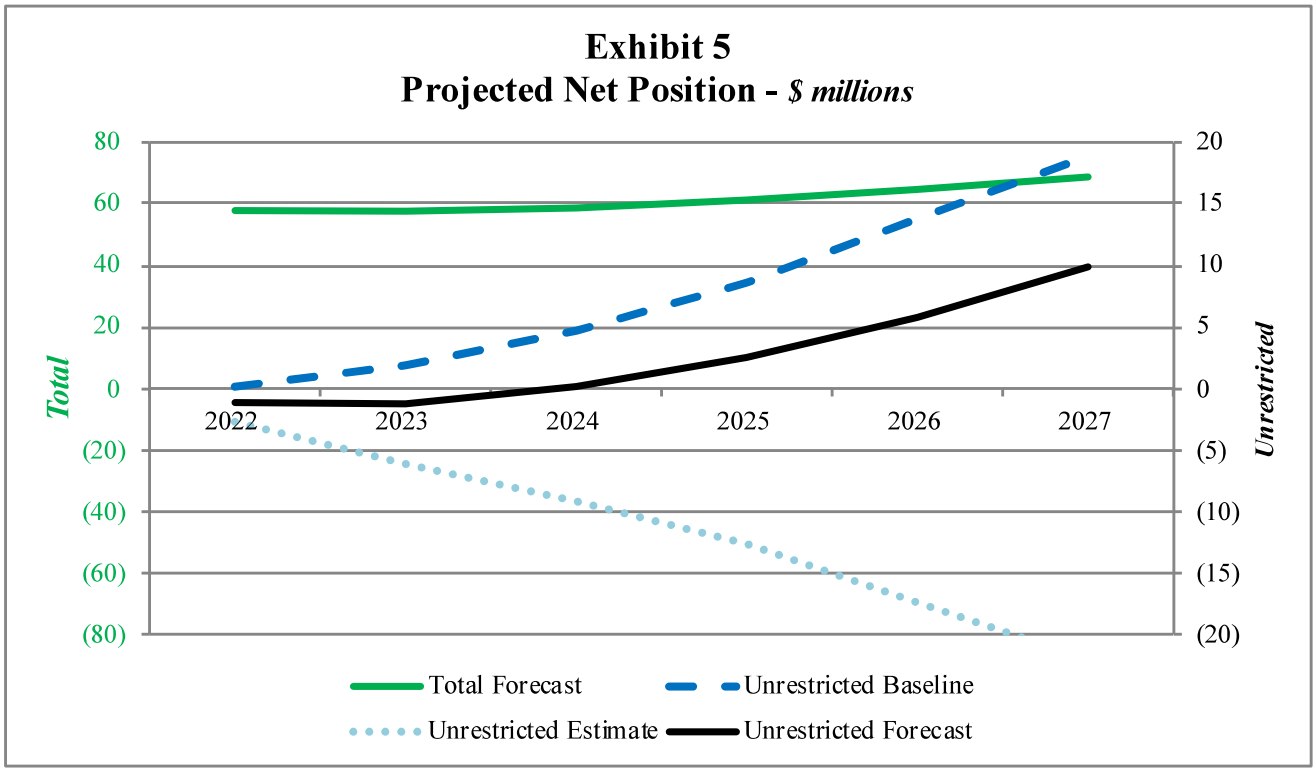
	2022	2023	2024	2025	2026	2027
Rate Covenant	1.20	1.20	1.20	1.20	1.20	1.20
UFP Minimum	1.40	1.40	1.40	1.40	1.40	1.40
Sustainability Target	1.75	1.75	1.75	1.75	1.75	1.75
Baseline Forecast	***1.86***	***2.77***	***2.81***	***3.08***	***3.61***	***4.15***
Current Estimate	***1.15***	***1.17***	***1.29***	***1.22***	***1.12***	***1.03***
Proposed Forecast	1.74	***2.01***	***2.22***	***2.30***	***2.26***	***2.32***

Wastewater Utility Financial Plan Summary



	2022	2023	2024	2025	2026	2027
	$ millions	*$ millions*	*$ millions*	*$ millions*	*$ millions*	*$ millions*
Fund Balance Targets						
Working Capital	7.5	7.7	8.0	8.3	8.6	8.9
Emergency Capital	4.5	4.6	4.8	5.0	5.1	5.3
Min. Pay Go Fund	1.5	1.6	1.7	1.8	1.9	2.0
Target Unrestricted	13.5	14.0	14.5	15.1	15.6	16.2
Days Cash Ratio	***168***	***168***	***169***	***169***	***170***	***170***
Range Max *@150%*	20.2	21.0	21.8	22.6	23.4	24.3
Days Cash	***251***	***252***	***253***	***254***	***254***	***255***
Projections						
Working Capital	7.3	7.7	8.0	8.3	8.6	8.9
Emergency Capital	3.5	4.6	4.8	5.0	5.1	5.3
Pay Go Fund	1.1	1.2	1.8	1.9	2.0	2.1
Total Unrestricted	11.9	13.6	14.6	15.2	15.7	16.3
Days Cash Ratio	***153***	***168***	***175***	***175***	***175***	***176***

Wastewater Utility Financial Plan Summary



	2022	2023	2024	2025	2026	2027
	$ millions	*$ millions*	*$ millions*	*$ millions*	*$ millions*	*$ millions*
Revenues	32.6	37.2	40.9	44.8	49.1	53.9
CIAC	(28.3)	(29.3)	(30.3)	(31.4)	(32.5)	(33.7)
Operating Exp (a)	0.0	0.0	0.0	0.0	0.0	0.0
less: Depr Expense	(4.8)	(5.2)	(6.0)	(7.1)	(8.8)	(11.0)
less: Interest Exp (b)	(1.9)	(2.7)	(3.3)	(3.8)	(4.7)	(5.1)
Prxy Chg Net Pos	(2.3)	(0.1)	1.3	2.5	3.2	4.1
Begin Net Position	60.0	57.6	57.5	58.9	61.4	64.6
End Net Position	57.6	57.5	58.9	61.4	64.6	68.7
Adjusted Unrestricted Net Position						
Beginning	1.1	(1.2)	(1.3)	0.1	2.6	5.7
Change	(2.3)	(0.1)	1.3	2.5	3.2	4.1
Ending	(1.2)	(1.3)	0.1	2.6	5.7	9.9

(a) Includes PILOT, excludes OPEB debt service
(b) Includes OPEB Bond interest

TFG
THE FOSTER GROUP

THE FOSTER GROUP, LLC
12719 WENONGA LANE
LEAWOOD, KS 66209

BART FOSTER, PRESIDENT
CELL: (913) 530-6240
BFOSTER@FOSTERGROUPLLC.COM

MEMORANDUM

Proposed 2024 Kalamazoo Wastewater Rates November 29, 2023

To: James Baker

From: Bart Foster

The intent of this this memorandum is to introduce proposed Wastewater Rates for 2024. The recommendations presented herein have been developed in coordination with City staff and stakeholder representatives.

The format and content of this memorandum report is largely consistent with a report I submitted in August 2022 recommending uniform 20% increases in all Water and Wastewater Rates to be charged during 2023. Those recommendations were approved by the City Commission and are the utility rates that remain in effect today. I encourage stakeholders to review that report and the material contained therein. Many of the circumstances prevalent at the time remain pertinent today, particularly the negative impacts of world-wide inflationary pressures on the financial health of the City's Wastewater Fund. *I note that this memorandum report is limited to Wastewater Rates – my consultation to the City on Water Rate matters is limited to strategic review as the development of such rates has transitioned to other parties effective with the 2024 Water Rates.*

One of the specific financial challenges facing the Wastewater Utility is continuing increases in the costs related to disposing of solids removed from wastewater during the treatment process. Currently these solids are hauled and disposed of in landfills. These hauling and landfill costs have increased dramatically in recent years, and the significant upward arch is forecasted to continue. The City has begun exploration of alternative solids disposal methods, some of which might require significant infrastructure investments. Alternative financial forecasts are in various stages of development to evaluate the best path forward. I'll not address those forecasts in this report, but rather focus on the short-term recommendations for 2024 designed to support pursuit of any alternative.

I am recommending that the City *uniformly* increase all Wastewater Rates by 12% effective January 1, 2024. This rate increase is designed to support a budget and financial plan that results in forecasted 2024 debt service coverage ratio of 1.40 – the minimum requirement in the City's Utility Financial Policy[1]. The effect of this recommendation is illustrated in the summarized 2024 financial plan below.

[1] It is my understanding that the proposed 2024 *Water Rates* reflect the same fundamental premise.

Wastewater Utility

Executive Summary 2024 Budgeted Financial Plan

Line No.		2024 Budget $	
	Revenues		
1	Revenue from Existing Rates	37,870,600	
2	Proposed Rate Adjustment	***12.0%***	
3	Rate Increase Revenue	4,544,500	
4	Total Revenues from Rates	42,415,100	
5	Misc. & Non-Operating Revenue	635,500	
6	Total Revenue	43,050,600	
	Revenue Requirements		
7	Operating Expenses	35,637,900	
8	Net Revenue *(6) - (7)*	7,412,700	
9	Debt Service	5,294,800	*(a)*
10	Debt Service Coverage *(8)/(9)*	***1.40***	*(b)*
11	Revenues after Debt Service *(8) - (9)*	2,117,900	
12	Applied to: PILOT	789,300	
13	Applied to: Working Capital / CIP *(11) - (12)*	1,328,600	
14	Total Revenue Requirements	43,050,600	

(a) Outstanding Bonds only - does not anticipate additional bond sale in 2024
(b) Utility Financial Policy Minimum =1.40

I reiterate that this proposal includes a uniform increase to ALL Wastewater Rates regardless of customer class or location. The 2022 Wastewater Rates were the last rates that reflected a detailed cost of service study[2]. As noted above, the 2023 Wastewater Rates were increased uniformly "across the board" – in large part because discussions were underway between the City and representatives of outside City customer classes regarding a potential new service contract. Those contract negotiations continue today, and it is my understanding that the City will continue to adjust rates uniformly until there is closure to that process.

While Wastewater Rates are proposed to be increased 12% "across the board" the concept of the SHAREs introduced with the 2022 Wastewater Rates requires a more strategic application to the Municipality customers and those Monitored Industrial customers that have opted into the SHAREs program. Those customers are charged fixed monthly amounts throughout the year, based on their flow and pollutant contributions for a recent historical period. For instance, the 2022 monthly charges for the Municipality customers were based on historical flow contributions during 2020 and 2021. In effect the unit costs of wastewater collection, treatment, and disposal are charged to these customers based on there demonstrated historical contributions by this approach. The SHAREs program was introduced to both improve system revenue stability and align wastewater billings to "wholesale" customers with the mechanisms

[2] I encourage stakeholders to review that report for further context on the City's Wastewater Rates.

they use to recover such costs from their retail customer classes. For instance, variances in contributed volumes from Municipalities are likely due in large part to varying levels of groundwater infiltrating into their individual collection systems, and then passing through the master wastewater meters to the System. Since these customers (generally) rely in large part on water sales to their retail customers for revenues from which to pay their wholesale wastewater bills, and since water sales volumes are generally lower during wetter conditions, it is likely that the Municipalities receive less revenue in times of high wastewater bills, and vice versa. Again, the core objectives of the SHAREs program were to better align that business reality while stabilizing revenue to the Wastewater System.

In order to accurately and fairly apply the 12% "across the board" rate increase via the SHAREs program, it is necessary to also update the historical data upon which the fixed monthly charges are computed. I have done so in the proposed rates presented herein, which utilize a 24-month data period encompassing November 2021 - October 2023. As a result, customers in the SHAREs program will not see a direct 12% adjustment to their proposed fixed monthly charge. Rather, the charge will reflect a 12% increase in the unit cost of providing service, adjusted to reflect the new historical average of their contributed wastewater units of service.

These nuanced calculations are demonstrated in the attached Table 1 for the Municipality customer class and for those Monitored Industrial customers that have opted into the SHAREs program. The first section of each part of the table illustrates that the underlying unit costs of service are being increased by the uniform 12%. The subsequent section shows the impact of changing the historical data set for the contributed units to which those unit costs are applied, and the resulting overall change in fixed monthly charge – which will vary from the 12% figure. Column 5 of the table is designed to represent the consolidated effect of changing the historical data set and the unit prices. Note that the overall calculated variances approximate 12% - this measure will not precisely match the 12% due to rounding, etc.

The overall proposed schedule of 2024 Wastewater Rates is presented in the attached Table 2. For all rate elements other than the SHAREs fixed monthly charges, the proposed rates simply reflect a uniform 12% increase over the existing charges. We have assisted the City in preparing a proposed Wastewater Rate Ordinance, and the material in that Ordinance matches the proposed rates in Table 2.

In closing, I believe that the proposed rate action summarized herein places the City's Wastewater Utility on strong footing to address future strategic planning challenges as it considers the best path forward regarding solids handling alternatives. I also believe it efficiently sets the table for potential future changes in rate methodologies that are being contemplated via the contract negotiation process.

I look forward to participating in discussions on those topics and I am prepared to discuss this material at your convenience.

Table 1

Wastewater Utility
Demonstrated Calculation of Fixed Monthly SHAREs Charges for 2024

Line No.		(1) Existing SHAREs	(2) Proposed SHAREs	(3) Variance $/unit	(4) % Variance	(5) *Consolidated Effect (a)*
	Municipal Wholesale Customers					
	Unit "Rate" - $/cu mtr					
1	Portage	0.874	0.979	0.105	12.0%	
2	Galesburg	0.994	1.113	0.119	12.0%	
3	Vicksburg	0.874	0.979	0.105	12.0%	
4	Gull Lake	0.874	0.979	0.105	12.0%	
5	Augusta	0.874	0.979	0.105	12.0%	
6	Mattawan	0.874	0.979	0.105	12.0%	
7	South County	0.874	0.979	0.105	12.0%	
8	Charleston	0.874	0.979	0.105	12.0%	
9	Portage SW Interceptor	0.994	1.113	0.119	12.0%	
	Annual Volume Estimate - cu mtr					
1	Portage	5,430,300	5,017,300	(413,000)	-7.6%	
2	Galesburg	123,000	106,300	(16,700)	-13.6%	
3	Vicksburg	345,800	320,600	(25,200)	-7.3%	
4	Gull Lake	1,128,800	959,500	(169,300)	-15.0%	
5	Augusta	82,300	69,100	(13,200)	-16.0%	
6	Mattawan	458,300	405,100	(53,200)	-11.6%	
7	South County	135,400	110,300	(25,100)	-18.5%	
8	Charleston	35,200	35,700	500	1.4%	
9	Portage SW Interceptor	477,000	486,500	9,500	2.0%	
	Fixed Monthly Charge - $/mo					
1	Portage	395,500	409,300	13,800	3.5%	*11.1%*
2	Galesburg	10,200	9,900	(300)	-2.9%	*10.6%*
3	Vicksburg	25,200	26,200	1,000	4.0%	*11.3%*
4	Gull Lake	82,200	78,300	(3,900)	-4.7%	*10.3%*
5	Augusta	6,000	5,600	(400)	-6.7%	*9.4%*
6	Mattawan	33,400	33,000	(400)	-1.2%	*10.4%*
7	South County	9,900	9,000	(900)	-9.1%	*9.4%*
8	Charleston	2,600	2,900	300	11.5%	*10.1%*
9	Portage SW Interceptor	39,500	45,100	5,600	14.2%	*12.2%*

(a) Represents consolidate impact of uniform changes in unit price and variable changes in contributed units

Table 1

Wastewater Utility
Demonstrated Calculation of Fixed Monthly SHAREs Charges for 2024

Line No.		(1) Existing SHAREs	(2) Proposed SHAREs	(3) Variance $/unit	(4) % Variance	(5) *Consolidated Effect (a)*
	Monitored Industries					
	Pfizer					
	Unit Rate					
1	Volume - $/cu mtr	0.367	0.411	0.044	12.0%	
2	COD - $/kg	0.338	0.379	0.041	12.1%	
3	TSS - $/kg	1.033	1.157	0.124	12.0%	
4	NH3 - $/kg	4.016	4.498	0.482	12.0%	
5	Dewatering - $/cu mtr	0.767	0.859	0.092	12.0%	
	Annual Units					
1	Volume - cu mtr	3,420,500	3,342,200	(78,300)	-2.3%	
2	COD - kg	5,160,400	5,083,700	(76,700)	-1.5%	
3	TSS - kg	1,654,600	1,706,600	52,000	3.1%	
4	NH3 - kg	32,500	37,500	5,000	15.4%	
5	Dewatering - cu mtr	21,200	23,700	2,500	11.8%	
	Fixed Monthly Charge - $/mo					
1	Volume	104,600	114,400	9,800	9.4%	*11.7%*
2	COS	145,400	160,600	15,200	10.5%	*11.9%*
3	TSS	142,400	164,500	22,100	15.5%	*12.4%*
4	NH3	10,900	14,100	3,200	29.4%	*14.0%*
5	Dewatering	1,400	1,700	300	21.4%	*9.6%*
	TOTAL	**404,600**	**455,300**	**50,700**	**12.5%**	
	Allnex					
	Unit Rate					
1	Volume - $/cu mtr	0.431	0.483	0.052	12.1%	
2	COD - $/kg	0.314	0.352	0.038	12.1%	
3	TSS - $/kg	0.971	1.088	0.117	12.0%	
4	NH3 - $/kg	3.772	4.225	0.453	12.0%	
	Annual Units					
1	Volume - cu mtr	454,800	422,800	(32,000)	-7.0%	
2	COD - kg	1,430,200	1,009,300	(420,900)	-29.4%	
3	TSS - kg	34,700	42,600	7,900	22.8%	
4	NH3 - kg	500	400	(100)	-20.0%	
	Fixed Monthly Charge - $/mo					
1	Volume	16,300	17,000	700	4.3%	*11.3%*
2	COS	37,400	29,600	(7,800)	-20.9%	*8.6%*
3	TSS	2,800	3,900	1,100	39.3%	*16.5%*
4	NH3	200	100	(100)	-50.0%	*-30.0%*
	TOTAL	**56,700**	**50,600**	**(6,100)**	**-10.8%**	

Table 1

Wastewater Utility
Demonstrated Calculation of Fixed Monthly SHAREs Charges for 2024

Line No.		(1) Existing SHAREs	(2) Proposed SHAREs	(3) Variance $/unit	(4) % Variance	(5) *Consolidated Effect (a)*
	Kalsec					
	Unit Rate					
1	Volume - $/cu mtr	0.767	0.859	0.092	12.0%	
2	COD - $/kg	0.344	0.385	0.041	11.9%	
3	TSS - $/kg	1.034	1.158	0.124	12.0%	
4	NH3 - $/kg	4.092	4.583	0.491	12.0%	
	Annual Units					
1	Volume - cu mtr	255,000	261,300	6,300	2.5%	
2	COD - kg	2,352,000	2,043,500	(308,500)	-13.1%	
3	TSS - kg	180,500	162,400	(18,100)	-10.0%	
4	NH3 - kg	600	500	(100)	-16.7%	
	Fixed Monthly Charge - $/mo					
1	Volume	16,300	18,600	2,300	14.1%	*11.6%*
2	COS	67,400	65,600	(1,800)	-2.7%	*10.4%*
3	TSS	15,600	15,700	100	0.6%	*10.7%*
4	NH3	200	200	0	0.0%	*16.7%*
	TOTAL	**99,500**	**100,100**	**600**	**0.6%**	
	Arvco					
	Unit Rate					
1	Volume - $/cu mtr	0.431	0.483	0.052	12.1%	
2	COD - $/kg	0.314	0.352	0.038	12.1%	
3	TSS - $/kg	0.971	1.088	0.117	12.0%	
4	NH3 - $/kg	3.772	4.225	0.453	12.0%	
	Annual Units					
1	Volume - cu mtr	4,000	4,600	600	15.0%	
2	COD - kg	31,400	46,000	14,600	46.5%	
3	TSS - kg	18,000	27,700	9,700	53.9%	
4	NH3 - kg	100	300	200	200.0%	
	Fixed Monthly Charge - $/mo					
1	Volume	100	300	200	200.0%	*185.0%*
2	COS	800	1,300	500	62.5%	*16.0%*
3	TSS	1,500	2,500	1,000	66.7%	*12.8%*
4	NH3	0	100	100		
	TOTAL	**2,400**	**4,200**	**1,800**	**75.0%**	

(a) Represents consolidate impact of uniform changes in unit price and variable changes in contributed units

Table 2 - Wastewater Utility

Comparison of Existing and Proposed Wastewater Rates
Designed to be Effective January 1, 2024

Line No.		(1) Existing $/unit	(2) Proposed $/unit	(3) Variance $/unit	(4) % Variance
	Fixed Monthly Charges - $/month				
	Municipal Wholesale Customers				
1	Portage	395,500	409,300	13,800	3.5%
2	Galesburg	10,200	9,900	(300)	-2.9%
3	Vicksburg	25,200	26,200	1,000	4.0%
4	Gull Lake	82,100	78,300	(3,800)	-4.6%
5	Augusta	6,000	5,600	(400)	-6.7%
6	Mattawan	33,400	33,100	(300)	-0.9%
7	South County	9,800	9,000	(800)	-8.2%
8	Charleston	*NA*	2,900		
9	Portage SW Interceptor	*NA*	45,100		
	Contract Industrial Customers *				
10	*Pfizer*	**404,600**	**455,300**	50,700	12.5%
11	*Graphic Packaging*	*170,300*	*411,900*	*241,600*	*141.9%*
	Monitored Industrial Customers *				
12	Allnex USA	**56,700**	**50,600**	(6,100)	-10.8%
13	Arvco	**2,400**	**4,200**	1,800	75.0%
14	*Continental Linen*	*6,800*	*4,000*	*(2,800)*	*-41.2%*
15	*Domestic Linen Supply*	*2,400*	*3,200*	*800*	*33.3%*
16	*Kal Metal Finishers*	*1,600*	*1,400*	*(200)*	*-12.5%*
17	Kalsec	**99,400**	**100,100**	700	0.7%
18	*Kalamazoo Brewing*	*67,400*	*77,000*	*9,600*	*14.2%*
19	*Green Bay Pkg*	*6,300*	*7,000*	*700*	*11.1%*
20	*Clean Earth Env*	*6,800*	*7,100*	*300*	*4.4%*
21	*Waste Mngt*	*1,400*	*1,200*	*(200)*	*-14.3%*
22	*Zoetis*	*19,400*	*14,400*	*(5,000)*	*-25.8%*
23	*MPI Research*	*9,300*	*8,500*	*(800)*	*-8.6%*
	Commodity Charges - $/cu mtr				
24	Inside City Retail Customers	0.908	1.017	0.109	12.0%
25	Outside City Retail Customers	1.279	1.432	0.153	12.0%
26	*Portage SW Interceptor*	*0.994*	*NA*		
27	*Charleston Township Municipal*	*0.874*	*NA*		

Table 2 - Wastewater Utility

Comparison of Existing and Proposed Wastewater Rates
Designed to be Effective January 1, 2024

Line No.		(1) Existing $/unit	(2) Proposed $/unit	(3) Variance $/unit	(4) % Variance
	Meter Service Charges - $/bill				
	Inside City Customers - Quarterly				
28	5/8"	15.85	17.75	1.90	12.0%
28	3/4"	16.40	18.37	1.97	12.0%
29	1"	18.10	20.27	2.17	12.0%
30	1-1/2"	20.34	22.78	2.44	12.0%
31	2"	26.51	29.69	3.18	12.0%
32	3"	71.94	80.57	8.63	12.0%
33	4"	88.76	99.41	10.65	12.0%
34	6"	128.04	143.40	15.36	12.0%
35	Flat Rate	93.34	104.54	11.20	12.0%
	Inside City Customers - Monthly				
36	5/8"	12.11	13.56	1.45	12.0%
37	3/4"	12.30	13.78	1.48	12.0%
38	1"	12.85	14.39	1.54	12.0%
39	1-1/2"	13.61	15.24	1.63	12.0%
40	2"	15.66	17.54	1.88	12.0%
41	3"	30.80	34.50	3.70	12.0%
42	4"	36.42	40.79	4.37	12.0%
43	6"	49.50	55.44	5.94	12.0%
	Outside City Customers - Quarterly				
44	5/8"	20.18	22.60	2.42	12.0%
45	3/4"	21.18	23.72	2.54	12.0%
46	1"	24.17	27.07	2.90	12.0%
47	1-1/2"	28.14	31.52	3.38	12.0%
48	2"	39.08	43.77	4.69	12.0%
49	3"	119.64	134.00	14.36	12.0%
50	4"	149.48	167.42	17.94	12.0%
51	6"	219.11	245.40	26.29	12.0%
51	Flat Rate	129.16	144.66	15.50	12.0%
	Outside City Customers - Monthly				
52	5/8"	13.55	15.18	1.63	12.0%
53	3/4"	13.88	15.55	1.67	12.0%
54	1"	14.88	16.67	1.79	12.0%
55	1-1/2"	16.20	18.14	1.94	12.0%
56	2"	19.85	22.23	2.38	12.0%
57	3"	46.70	52.30	5.60	12.0%
58	4"	56.65	63.45	6.80	12.0%
59	6"	79.86	89.44	9.58	12.0%
60	Dewatering Customers	9.42	10.55	1.13	12.0%

Table 2 - Wastewater Utility

Comparison of Existing and Proposed Wastewater Rates
Designed to be Effective January 1, 2024

Line No.		(1) Existing $/unit	(2) Proposed $/unit	(3) Variance $/unit	(4) % Variance
	Quantity / Quality Charges				
	Commodity Charges - $/cu mtr				
61	Graphic Packaging	0.168	0.188	0.020	11.9%
62	Inside City Industrial	0.431	0.483	0.052	12.1%
63	Outside City Industrial	0.767	0.859	0.092	12.0%
	COD Charges - $/kg				
64	Graphic Packaging	0.314	0.352	0.038	12.1%
65	Inside City Industrial	0.314	0.352	0.038	12.1%
66	Outside City Industrial	0.344	0.385	0.041	11.9%
	TSS Charges - $/kg				
67	Graphic Packaging	0.971	1.088	0.117	12.0%
68	Inside City Industrial	0.971	1.088	0.117	12.0%
69	Outside City Industrial	1.034	1.158	0.124	12.0%
	NH3 Charges - $/kg				
70	Graphic Packaging	3.772	4.225	0.453	12.0%
71	Inside City Industrial	3.772	*4.225*	0.453	12.0%
72	Outside City Industrial	4.092	4.583	0.491	12.0%