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MEMORANDUM

FY 2022 Cost of Service Study and Service
Charge Recommendations

December 30, 2020
Finalized March 31, 2021

To: Sue McCormick, Nickie Bateson

From: Bart Foster

This memorandum has been prepared to introduce the exhibits summarizing the final cost of service allocations and final approved Water and Sewer Service Charges for FY 2022. These service charges support the resolution passed by the Great Lakes Water Authority (“GLWA”) Board at their meeting on March 24, 2021.

Background

The originally proposed FY 2022 service charges were set forth in the initial version of this memorandum report, dated December 30, 2020. Those charges were initially presented to Member Partners at a “roll out” meeting on January 7, 2021. Subsequently, the original version of this document was updated on January 12, 2021 to present very minor modifications to the originally proposed FY 2022 Water Charges. The original version of the proposed Water Charges did not fully implement the intended methodology regarding “meter related” units of service for 17 Member Partners who had experienced recent changes in meter technology. The January 12, 2021 version identified the adjustments necessary to fully embrace the intended methodology, which required that proposed water service charge adjustments vary slightly from the results of the cost of service study. The overall variance was approximately \$50,000 compared to annual revenues of over \$340 million.

The proposed charges were further discussed at the final “roll out” meeting on January 21, 2021. GLWA formally issued notification of the proposed charges to Member Partners on January 22, 2021 – at which point the formal Board review process was launched. During the review process, modifications to the contract status of two Water Member Partners (the cities of Northville and Grosse Pointe Park) were being considered. The resulting contract changes impact the respective Exhibit B max day and peak hour demands for each of these Member Partners. While preparing the final budget schedules for the public hearing, in anticipation of the \$50,000 variance noted above, and the potential impacts of the contract modifications, the Water operations and maintenance (“O&M”) budget was reduced by \$163,500. The Sewer O&M budget was increased by \$3,100 to accommodate rounding impacts of the proposed Sewer Charges.

A public hearing on the proposed Water and Sewer service charges for FY 2022 was initiated on February 24, 2021 and continued through March 24, 2021. The Board and the Audit Committee continued their review of the proposed budget and charges during this time.

As noted above, at their March 24, 2021 meeting the Board took formal action to finalize the FY 2022 and FY 2023 Biennial Budget and the FY 2022 Water and Sewer Charges. The Board's actions require that the originally proposed FY 2022 O&M budget (combined Water and Sewer in total) be reduced by \$3.2 million, and that the originally proposed FY 2022 Water and Sewer Charges be reduced by that same amount. At the same meeting, the Board approved a new model Water service contract with Grosse Pointe Park, and an amendment to Exhibit B of the model Water service contract with Northville.

Given the developments during the review process, we believe it is appropriate to fully reconstruct the original Cost of Service Study in order to produce the final FY 2022 Water and Sewer Service Charges. Doing so allows GLWA to:

- Actively treat the cities of Northville and Grosse Pointe Park as “Mod” Water Member Partners, and have their charges directly computed based on proportional cost of service allocations rather than as abnormal “outside the model” adjustments;
- Formally undo the adjustment to Water charges introduced in the January 12, 2021 version of this memorandum report to make the “do what we said we were doing” adjustment relative to distance and elevation for the meter inventory;
- Still result in lower than originally proposed Water and Sewer charges for ALL Member Partners, but in a manner that more closely aligns with the final cost model - which would moderately lessen potential future volatility;

The intent of this “final” document is to set forth the calculations of the FY 2022 Water and Sewer service charges designed to align with the final cost of service study. Large portions of this document are unchanged from the December 30, 2020 version, and many of the tables contain the original date. ***We have attempted to highlight the meaningful changes herein.***

Introduction

This is the sixth cost of service and service charge study prepared for GLWA. This study only addresses the wholesale service costs of service (revenue requirements) that are GLWA's direct responsibility, although where appropriate reference is made to certain retail elements that are solely allocable to the City of Detroit, and which are a part of the comprehensive presentation of the overall GLWA financial plan as dictated by the “Agreements” that GLWA must follow in its budget representations. The “Agreements” include the GLWA Master Bond Ordinance, Trust Indenture, the Lease(s), the Services Agreements with the City of Detroit, and the 2018 Memorandum of Understanding that establishes implementation plans for the other core aspect of the Agreements.

The material presented herein employs a similar presentation and format to that included in studies from prior years. The FY 2022 Water charges reflect application of a simplified, uniform approach to charge adjustments for Member Partners whose demands did not change for FY 2022. While the overall core Sewer charge methodology remains the same, the FY 2022 Sewer charges are the

first to reflect an updated approach to establish SHAREs, which was endorsed by the Board in November 2020.

The overall strategy for the FY 2022 Financial Plan and Service Charges has been communicated via the GLWA Customer Outreach Program and briefings to the GLWA Board of Directors in both full meetings and the committee structure. Materials delineating this strategy, and the implementation of it, are disclosed at glwater.org, and we encourage interested stakeholders to review that material, all of which is intended to be incorporated by reference to this concluding report. We have also included key documents as appendices to this report.

Assumptions

The analysis and calculations supporting these recommendations reflect some key assumptions introduced and summarized below. We elaborate on these (and other) assumptions as appropriate in the introduction of specific tables and calculations that follows this introduction.

1. The FY 2022 BUDGET depicted herein represents the final approved budget developed by GLWA. The final BUDGET reflects a \$3.2 million reduction in the originally proposed O&M budget, of which \$1.4 million is reduced from the Water System budget and \$1.8 million from the Sewer System budget. Also, the final version of the BUDGET includes minor adjustments to the budgeted contributions to the Water Residential Assistance Program (“WRAP”) to align with the definition established by the Agreements¹. The final BUDGET will be formally reflected in the “FY 2022 & FY 2023 Biennial Budget and Five-Year Plan” document to be published in April 2021².
 - *As further explained herein, the FY 2022 BUDGET included in these calculations reflects a **0.7%** budgetary increase for Water and a **2.3%** budgetary **decrease** for Sewer compared to the originally approved FY 2021 BUDGET. This is LESS THAN the full implementation of the 4% Revenue Requirement Increase set forth the Agreements.*
 - *It is our understanding that the final FY 2022 BUDGET may include minor modifications to reflect coordination with the DWSD Budget for the Local Systems. These potential modifications will not impact calculations of GLWA wholesale service charges.*

¹ The WRAP contribution is defined to be “a common-to-all charge equal to 0.5% of the base budgeted operating Revenues.” Including such amount in the BUDGET for purposes of computing service charges inherently creates a circular calculation challenge and complicates its determination. The final BUDGET reflects minor adjustments to ensure that the intent of the Agreements is followed. The minor adjustments to the budgeted Water and Sewer WRAP contribution amounts are offset with corresponding minor adjustments to non-operating revenue.

² *The original, December 2020 version of the financial forecast is included as Appendix B to this memorandum report. The forecast has not been updated to reflect the modifications set forth in this document. It is our understanding that the forecast will be updated in the coming months to reflect the final BUDGET modifications and any additional updated information.*

2. The Capital Financing Plan reflects the preliminary updated plan presented to the Audit Committee on December 18, 2020.
 - *The capital revenue requirements (debt service, revenue financed capital, etc.) included in this analysis are identical to the original budget request from December.*
 - *The GLWA financial policy includes a capital spend rate assumption. Capital financing plans are designed to generate capital funding sources equal to an amount of the total Capital Improvement Programs (“CIPs”) with what can realistically be spent due to limitations beyond GLWA’s control and/or delayed for non-budgetary reasons.*
 - *For purposes of the FY 2022 BUDGET, the spend rate assumption is 75%.*
3. These calculations reflect preliminary projections regarding DWSD Budget decisions as they relate to the items below. While these items do not directly impact the allocation of Wholesale Service Charges, they are important components to the overall FY 2022 BUDGET and financial plan, as dictated by the Agreements.
 - *O&M Budget for Local Facilities;*
 - *Capital Improvement Program Financing Requirements for Local Facilities;*
 - *Application of \$50 million Lease Payment;*
 - *Recovery of existing budget shortfalls from the Local System.*
4. Application of suburban wholesale bad debt expense provisions in Sewer Service Agreement(s)
 - *The FY 2022 Sewer charges do not contain any amounts to recover prospective nor true-up amounts related to Highland Park bad debt expense. This matter is discussed at length in the appendix to this document.*
5. Finally, the overall charge adjustment strategies reflect “System Charge Adjustments” to meet wholesale revenue requirements of:
 - *A **1.5%** increase for Water;*
 - *A **0.6%** decrease for Sewer, which is designed to implement a commitment to no overall increase in the revenues from charges related to SHARES to Member Partners.*

Calculations Summary

These calculations follow the same cost allocation strategies, practices, and protocols that have been applied in these calculations without any major modifications from cost of service calculations for prior years. It is important to note that the existing FY 2021 Water and Sewer service charges were determined via “across the board” Wholesale Charge Adjustments (applied to the FY 2020 service charges) to all Member Partners. The FY 2020 service charges were the last charges determined via a detailed cost of service study.

As previously introduced, the FY 2022 service charge calculations continue a simplified, uniform approach to Water charges and are the first to reflect an updated core methodology to establish Sewer SHARES. While the new SHARES approach simplifies the overall calculations, the core calculation approach remains for each system. Costs are allocated to “cost pools” that align with characteristics that define each Member Partner’s use of the System(s). In many instances, the allocation of specific revenue requirement elements to cost pools reflects the same allocation assumptions as those applied in the development of the current service charges, although specific operating programs as reflected in the budget request for FY 2022 do impact the cost pool allocations. Also, the FY 2022 Cost of Service Study continues to reflect results of the independent GLWA capital asset inventory and valuation project. We have utilized information provided by that project, including updates reflecting activity through FY 2020, to allocate capital revenue requirements to Cost Pools.

A detailed discussion with accompanying material that delineates the specific process we have taken to allocate the FY 2022 BUDGET to cost pools as part of the FY 2022 Cost of Service and Charges Study is included as Appendix A to this memorandum report.

The exhibits to this memorandum contain executive summary material on:

- The determination of the FY 2022 BUDGET;
- The allocation of FY 2022 BUDGET to cost pools;
- The allocation of these costs to individual Member Partners;
- Wholesale service charge schedules for each Member Partner;
- Allocated FY 2022 BUDGET to the Detroit Customer class.

A brief introduction of each of the exhibits follows in this memorandum. We have also prepared individual service charge calculation sheets for each wholesale Member Partner. The individual calculation sheets setting forth the originally proposed charges were distributed to Member Partners in January 2021. It is our understanding that the final, approved calculation sheets will be formally issued concurrent with this report, and that this memorandum will be published to support the calculation of the approved charges.

In some instances the tables included in this final version of the report are identical to the original December 30, 2020 version of the report. The data and calculations for these tables have not been changed, and they still carry the “Preliminary” footer. Updated tables reflecting final calculations carry a “Final” footer.

We are prepared to present this material and discuss this matter at your convenience.

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Water Service Charge Calculation Tables:

1. Establishes the “Units of Service” for each Member Partner, and establishes the FY 2022 Water charge adjustment strategy for “Mod” and “No Mod” Member Partners. Table 1 is actually 4 distinct tables, starting from basic data input (from contracts, etc.) that define characteristics regarding each Member Partner’s use of the System.
 - The annual sales volumes in Column 1 of Table 1a continue to reflect a uniform forecasting approach. For FY 2022 the projected volume was determined by averaging annual sales for each Member Partner over the most recent 36 months from October 2017 through September 2020. Sales data for “base” months (October through March) were reduced by 5% to reflect demographic reduction in potable water use based on recent trends being experienced worldwide. Sales data for “peak” months (April through September) were not adjusted. Peak monthly data for the three-year averaging period reflect for one very low demand year and two relatively average demand years.
 - The max day and peak hour demand figures in Table 1a reflect figures from Exhibit B of the contract for the 83 master meter Member Partners served under the model contract. Max day and peak hour demands for most of these Member Partners are unchanged from FY 2020 and FY 2021 due to the Contract Alignment Process (“CAP”).
 - *In this final report, Grosse Pointe Park is now served via a model contract.*
 - Demand figures for 7 of the master metered Member Partners have been updated to reflect “out of cycle” adjustments to their demands. *These Member Partners are highlighted in yellow in the cost of service exhibits and become members of the “Mod” Customer Class.*
 - *In this final report, Grosse Pointe Park and Northville are treated as members of the “Mod” Customer Class for purposes of the FY 2022 charges.*
 - St. Clair County-Greenwood is served under a unique, older contract with variable demand charges. Their max day and peak hour demands have been adjusted based on data from the summer of 2020. *St. Clair County-Greenwood also becomes a member of the “Mod” Customer Class.*
 - Dearborn, Highland Park, and Detroit are not served by master meters. Their units of service continue to be established via the phase 2 Units of Service (“UoS”) Study protocols initially established for the FY 2020 charges. *These Member Partners are also part of the “Mod” Customer Class. They are highlighted in orange in the cost of service exhibits.*
 - As a result of the above specific demand changes, there are **11** “Mod” Member Partners.

- ***The remaining 77 Member Partners are treated as members of the “No Mod” Customer Class. The charge strategy applies a uniform charge adjustment for these Member Partners.*** Their information is not “highlighted” in the cost of service exhibits.
 - Tables 1b and 1c then combine these basic characteristics into consolidated units of service that align with Cost Pools for each Member Partner.
 - Table 1d groups the No Mod Member Partners into a single Customer Class for purposes of conducting the FY 2022 Cost of Service Study. The Mod Member Partners continue to be treated individually.
2. Illustrates the calculation of proforma FY 2022 revenues under the existing³ FY 2021 service charge schedule.
- Separates the proforma revenue projections into amounts related to:
 - “Common to All” (CTA) revenue requirements;
 - Implementation of the Detroit Ownership Adjustment;
 - Implementation of the KWA Debt Service Credit;
 - Adjustment to recover Highland Park bad debt expense
 - This is necessary to implement the charge adjustment strategy presented in Tables 6 and 7.
3. Presents an executive summary of the comprehensive Water Supply System BUDGET for FY 2022 compared to the originally approved FY 2021 BUDGET. The total revenue requirement is summarized on the first three lines of the table in summary format⁴. Of note:
- The total BUDGET increase is **\$2.4** million, or **0.7%**, as shown on Line 4 of the table.
 - The budgeted investment earnings and miscellaneous revenue for FY 2022 reflect a decrease of \$3.6 million as a result of historically low interest rates.
 - Proforma wholesale Water revenues under existing charges reflect a moderate (\$0.9 million) increase compared to originally forecasted FY 2021 amounts.
 - As a result, the “System Charge Adjustment” required from charges to Member Partners is **1.5%**, designed to generate **\$5.2** million more revenue than the existing charges.
 - ***The Cost of Service Study calculations delineated herein allocate responsibility for the “Revenue Requirement from Charges” totaling \$342.8 million as shown on Line 7 of Column 2 of the table.***

³ The FY 2021 service charges were deferred from the original implementation date of July 1, 2020 and became effective January 1, 2021.

⁴ Note that this table presents information for both the Water and Sewer systems.

○ *Charges will have to be further adjusted to cover the projected Highland Park debt expense shown on Line 8, and to produce overall projected billed revenues of \$344.0 as shown on Line 9.*

4. Allocates the FY 2022 BUDGET from Table 3 to the Cost Pools necessary to assign costs to Member Partners and Customer classes. As noted earlier, the approach taken to prepare these allocations does not reflect any major methodology changes from prior studies. ***The detailed allocations are set forth in Appendix A to this memorandum report.*** There are a few items of note:

- The operating expense budget reflects the detailed review of specific cost elements. In general, compared to the prior cost of service study the total operating expense budget for FY 2022 reflects material increases in commodity and max day Cost Pools and a more moderate increase in peak hour Cost Pools.
 - *This is principally related to increases in chemical expenses and contractual services at the water treatment plants.*
 - *The reductions in the O&M Expense budget are highlighted in footnote (a) on Lines 16 through 18. A review of specific budget adjustments indicates that approximately \$1 million of the reductions are related to Transmission Main programs, which are allocated to the Peak Hour Distance Cost Pool. The remaining budget adjustments are proportionally allocated to all cost pools based on the original cost of service study set forth in Appendix A.*
- The capital revenue requirements reflect the detailed review of the fixed asset data that resulted from the capital asset inventory and valuation project. In general the result of this aspect of the study has a similar impact as the budget review of the operating expenses: a moderate increase in capital revenue requirements allocated to max day cost pools and a corresponding decrease in peak hour Cost Pools.
- *The final, minor adjustment to the budgeted WRAP contribution is illustrated in footnote (b) on Lines 20 to 22, and is balanced by an identical adjustment to revenues from non-charge sources in order to not impact the overall revenue requirements from charges.*

5. Calculates and allocates detailed SHARES for each Member Partner within the Mod Customer Class, and for the No Mod Customer Class at large, for each common-to-all (“CTA”) Cost Pool, based on the units of service information from Table 1d. Then applies the CTA SHARES Cost Pool totals from Table 4 to allocate the CTA BUDGET to each “Mod” Member Partner and the No Mod Customer Class.

- Each Member Partner’s SHARE of each Cost Pool is simply their individual units of service divided by the total for all Member Partners for that Cost Pool.

6. Conducts the same calculation for the Suburban Only Cost Pool (the Non Master Metered Member Partners are excluded from this Cost Pool) and:
 - Consolidates the overall, comprehensive CTA revenue requirement to be recovered. *See Column 4.*
 - Compares this amount to the proforma CTA revenue under existing charges from Table 2. *See Column 5.*
 - Calculates the charge adjustment required in Columns 6 and 7. ***The highlighted 2.18% for the No Mod Customer Class becomes the “uniform CTA charge adjustment” to be applied to each member of the class.***
7. Applies the CTA charge adjustments from Table 6 to the proforma CTA revenue under existing charges from Table 2 to determine FY 2022 CTA revenue requirement responsibility for each Member Partner. ***The adjustment for all “No Mod” Member Partners is the uniform 2.18% calculated in Table 6.*** Then applies the adjustments necessary to reflect three special circumstances:
 - The “Detroit capital ownership adjustment” of \$20.7 million annually, which is established in the Agreements must be recognized. This amount is reduced from Detroit and allocated to all other Member Partners proportionally based on their relative CTA wholesale revenue requirements. *See Column 5.*
 - Similarly, the contractual credit to Flint related to KWA debt service must be recognized. Flint’s share of KWA debt service for FY 2022 is estimated to be \$6,652,800. This adjustment is accomplished similar to the Detroit adjustment. It is reduced from Flint’s allocated revenue requirement and allocated to all other Member Partners (including Detroit) in proportion to the allocation of CTA wholesale revenue requirements. *See Column 7. Note: while every Member Partner is allocated revenue requirements as a portion of the KWA credit as part of the contractual agreement between GLWA and Flint, it is important to recognize that each Member Partner is a “net beneficiary” of the agreement. All Member Partners receive lower revenue requirement allocation than they would absent the agreement, since the Water System experiences ~ \$4.7 million in annual revenues from Flint, which would not have been experienced without the agreement. The incremental costs of serving Flint under the agreement are not material, and incremental investments that may have been necessary to ensure water quality in the northern GLWA service area had the arrangement not been made are avoided.*
 - Finally, we make an adjustment to reflect the fact that Highland Park is not currently making any payments of wholesale water bills. While GLWA continues to pursue legal opportunities to remedy this performance, the FY 2022 BUDGET does not assume any collections. As such, we re-allocate the entirety of Highland Park’s revenue requirement to all other Member Partners (including Detroit) in

proportion to the allocation of wholesale revenue requirements. Note the we still include the entire amount in Highland Park's revenue requirement for charges, which has the result of increasing the "Revenue Requirements for Charges" by \$1.224 million. *See Column 9.*

- ***The total Detroit BUDGET allocation becomes the figure approved by the GLWA Board. The calculations herein do not produce specific charge proposals for the Detroit retail class.***

8. Calculates the unadjusted wholesale service charge structure for each Member Partner.

- The first four columns repeat the calculation of proforma revenues from Table 2.
- Column 5 presents the total adjusted revenue requirement from Table 7.
- Columns 6 and 7 indicate the charge adjustment necessary to meet allocated revenue requirements. The percentage charge adjustment figures in Column 7 for the No Mod Member Partners are uniformly 2.07%, with minor rounding variances. Note that this is lower than the "CTA revenue requirement" adjustment of 2.18% as the Detroit Ownership and KWA Debt Service Adjustments are fixed, and not subject to indexed increases.
 - ***Note that the pertinent percentage adjustment figures in Column 7 for Flint and Detroit are most appropriately reviewed on a "gross" basis at the bottom of the table, as their specific, fixed contractual adjustments result in recovery of less than the CTA revenue requirements allocated to them.***
- The FY 2022 Water service charges are calculated in Columns 8 through 11. The service charge structure represents the same approach as the existing charge structure, which was originally implemented for the FY 2016 Service Charge Schedule. The fixed monthly charge for each Member Partner is designed to recover precisely 60% of the BUDGET allocated to that Member Partner. Each Member Partner's commodity charge is designed to recover the remaining 40% of the revenue requirements allocated to them.
- Column 12 calculates projected revenue under the service charge schedule and Column 13 illustrates that the charges recover the adjusted, allocated cost of service.

Sewer Service Charge Calculation Tables:

1. Presents the FY 2022 SHAREs for each Member Partner. These SHAREs reflect the FY 2022 Sewer units of service endorsed by the Board, which are scheduled to remain in effect through FY 2024. ***Appendix C sets forth detailed SHARE calculations, originally presented in November 2020.***

2. Illustrates the calculation of proforma FY 2022 revenues under the existing⁵ FY 2021 service charge schedule.
 - Separates the proforma revenue projections into amounts related to:
 - “Common to All” (CTA) revenue requirements;
 - Implementation of the Detroit Ownership Adjustment;
 - Recognition of OMID specific revenue requirements;
 - Adjustment to recover Highland Park bad debt expense.
 - The FY 2021 CTA revenue requirements shown in Column 6 reflect the estimated portion of existing revenue related to unadjusted, common to all revenue requirements. They were computed in development of the FY 2022 SHARES.
 - *As shown in Columns 8 and 9, the FY 2021 Sewer charges were established based on an assumption that prospective bad debt expense from Highland Park (which becomes a revenue requirement for Suburban Wholesale Member Partners) would be equal to the projected bad debt true-up “credit” amount. As such the existing charges do not contain any amounts related to Highland Park bad debt expense.*
3. Presents an executive summary of the comprehensive Sewage Disposal System BUDGET for FY 2022 compared to the originally approved FY 2021 BUDGET. The total revenue requirement is summarized on the first three lines of the table in summary format⁶. Of note:
 - The total BUDGET **decrease** is **\$11.3** million, or **2.3%**, as shown on Line 4 of the table.
 - The budgeted investment earnings and miscellaneous revenue for FY 2022 reflect a decrease of \$4.2 million as a result of historically low interest rates.
 - Proforma wholesale Sewer revenues under existing charges reflect a material decrease compared to FY 2021, which included the second and final year of recognition of the capital contribution from the Oakland Macomb Interceptor Drain District (“OMID”). This revenue recognition of ~ \$5.9 million is no longer available, and must be met from other Sewer charges.
 - As a result, the “System Charge Adjustment” required from charges is a **0.6% decrease**. The slight decrease is primarily related to modified industrial surcharges, as . . .
 - *As noted earlier, the FY 2022 Sewer BUDGET has been established to meet an objective of no overall increase in the revenues from charges related to SHARES to Member Partners. After consideration of the final BUDGET reductions the*

⁵ The FY 2021 service charges were deferred from the original implementation date and are scheduled to become effective January 1, 2021.

⁶ Note that this table presents information for both the Water and Sewer systems.

revenues from SHARES actually reflect a 0.4% decrease compared to existing charges.

- The Cost of Service Study calculations delineated herein allocate responsibility for the “Revenue Requirement from Charges” totaling **\$474.0** million as shown on Line 7 of Column 6 of the table.
 - The FY 2022 Sewer Service Charges continue the “holiday” of Highland Park bad debt expense recovery, similar to the approach in the existing charges. This is discussed in detail in Appendix D to this memorandum report.
4. Allocates the FY 2022 BUDGET from Table 3 to the Cost Pools necessary to assign costs to Member Partners and Customer classes. The Cost Pools are similar to those from prior studies, although simplified to match the new core methodology embraced by the FY 2022 SHARES, which eliminate “strength of flow” as a unit of service for Member Partners. As noted in Columns 5 through 9, it is still necessary to establish the various WRRF Cost Pools in order to evaluate industrial surcharges. The “common” cost pools prior to reflecting those reflecting revenues from those surcharges are summarized in Columns 10 through 14. ***The detailed allocations are set forth in Appendix A to this memorandum report.*** There are a few items of note:
- The OMID Contractual Cost Pool no longer contains any amounts related to the capital contribution.
 - In general there are not material changes to other Cost Pools.
 - The capital revenue requirements reflect the detailed review of the fixed asset data that resulted from the capital asset inventory and valuation project.
 - ***The reductions in the O&M Expense budget are highlighted in footnote (a) on Lines 17 through 19. A review of specific budget adjustments indicates that it is appropriate to allocate the entirety of the budget reductions proportionally to all cost pools based on the original cost of service study set forth in Appendix A.***
 - ***The final, minor adjustment to the budgeted WRAP contribution is illustrated in footnote (b) on Lines 21 to 23, and is balanced by an identical adjustment to revenues from non-charge sources in order to not impact the overall revenue requirements from charges.***
5. Presents the calculation of FY 2022 Industrial Surcharges. Starting with the original Rate Simplification Initiative in FY 2015, over the past several years these surcharge rates have been adjusted “across the board” consistent with overall GLWA revenue requirement adjustments and with other charge adjustments. This was in part due to the ongoing changes in “strength of flow” opinions regarding SHARE calculations for Member Partners, and uncertainty regarding whether changes in the definition of “domestic” strength should be considered. With the elimination of strength of flow for SHARE consideration for FY 2022, it is appropriate to review industrial surcharges more thoroughly.

- The WRRF “pollutant” Cost Pool revenue requirements from Table 4 are shown on Lines 1 through 3.
 - Dividing these revenue requirements by the total estimated influent loadings at the WRRF (Line 6) yields the unit cost per pound for each pollutant, which become the FY 2022 industrial surcharges. (Line 8).
 - Applying the estimated surcharge loadings to these surcharge rates indicate the total projected surcharge revenues at the bottom of the table.
 - *The FY 2022 industrial surcharge rates represent material reductions from the existing rates. This is a direct result of cumulative operating expense reductions at the WRRF during GLWA’s existence, and an increase in reported pollutant loadings at the WRRF.*
6. Establishes the FY 2022 CTA Revenue Requirements to be recovered from SHARES
- The surcharge revenues computed in Table 5 are reduced from the “common” WRRF Cost Pool revenue requirements to result in the figures in Columns 5 through 8.
 - *The \$458.6 million figure in Column 8 becomes the amount to recover via SHARES and is \$1.7 million lower than the figure from Column 6 in Table 2.*
7. Applies the SHARES from Table 2 to the total CTA SHARE revenue requirement from Table 6 to allocate the FY 2022 CTA Revenue Requirements to individual Member Partners. Also allocates adjustments to the originally allocated Cost of Service, which include:
- Recognition of the “Detroit capital ownership adjustment” identified in the Agreements. *See Column 3.* This amount is reduced from Detroit and allocated to all other Member Partners.
 - *The assignment of cost responsibility to Suburban Wholesale Member Partners for this amount follows traditional approaches applied by DWSD and GLWA, and utilizes total contributed flow volume as the allocator. With the advent of the FY 2022 SHARES, in our opinion it is appropriate to use total SHARES to proportionally assign cost responsibility for this item. Doing so would more accurately implement the concept and would create alignment between the Water and Sewer methodologies. In order to adhere to the original goals and objectives established with the FY 2022 SHARES we have NOT made this change for the FY 2022 Sewer Charges but recommend that it occur with the FY 2023 Sewer Charges.*
 - Recognition of the OMID specific contractual amounts.
 - As noted earlier, the FY 2022 Sewer service charges do not include any amounts related to Highland Park bad debt expense.

- The total revenue requirement to be recovered from “net” charges is shown in Column 9. ***The figure for Detroit becomes the figure approved by the GLWA Board. The calculations herein do not produce specific charge proposals for the Detroit retail class.***
8. Calculates the FY 2022 Sewer Service Charges.
 - The charges for Member Partners continue to consist entirely of fixed monthly charges are simply the amounts from Table 7 divided by 12. Table 8 illustrates the CTA and adjusted portion of the charge, but the total figures in Column 8 are the charges approved by the Board.
 9. Compares the existing FY 2021 and the approved FY 2022 Wholesale Sewer Service Charges.
 - As shown on Line 21, the total charges to be applied via SHARES ***reflect a minor reduction of 0.4%*** compared to the existing charges.
 - Changes to individual Member Partner charges are consistent with, ***and uniformly 0.4% lower than***, those “CTA adjustments” indicated in materials developed in support of the FY 2022 SHARES and originally presented in November 2020.
 - As noted in that material, there are minor variations associated with the adjustment calculations presented herein.
 10. Presents the FY 2020 “Industrial Specific” charges – the Industrial Waste Control service charges and the pollutant surcharges.

Table 1a
Water Supply System
FY 2022 Units of Service Data

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Units of Service Input Data									
	<u>Volume</u>	<u>Max Day</u>	<u>Peak Hour</u>	<u>Distance</u>	<u>Elevation</u>	<u>Eq Mtrs</u>	<u>Avg Day Use</u>	<u>Dist x Sales</u>	<u>Allo NRW</u>	<u>Avg Day Prod</u>
	<i>mcf</i>	<i>mgd</i>	<i>mgd</i>	<i>miles</i>	<i>feet</i>	<i>5/8" proxies</i>	<i>mcf/day</i>	<i>mcf</i>	<i>mcf/day</i>	<i>mcf/day</i>
							<i>(1) / 365</i>	<i>(1) * (4)</i>	<i>~ (8)</i>	<i>(7) + (9)</i>
1 Allen Park	129,300	5.70	7.90	21.0	602	928	354.2	2,715,300	44.4	398.6
2 Almont Village	9,500	0.40	0.44	37.9	802	115	26.0	360,100	5.8	31.8
3 Ash Township	42,400	1.44	2.19	29.9	635	160	116.2	1,267,800	20.8	137.0
4 Belleville	13,600	0.50	0.75	32.5	676	115	37.3	442,000	7.1	44.4
5 Berlin Township	26,600	1.20	1.90	34.6	598	211	72.9	920,400	15.0	87.9
6 Brownstown Township	137,500	6.80	11.00	28.5	601	523	376.7	3,918,800	64.1	440.8
7 Bruce Twp	2,180	0.526	0.875	32.8	767	115	6.0	71,500	1.1	7.1
8 Canton Township	349,500	22.50	23.50	32.2	742	1,770	957.5	11,253,900	183.9	1,141.4
9 Center Line	31,200	1.13	1.60	18.4	623	155	85.5	574,100	9.3	94.8
10 Chesterfield Township	171,900	8.75	12.00	28.3	617	725	471.0	4,864,800	79.4	550.4
11 Clinton Township	403,100	19.70	22.90	22.8	607	1,218	1,104.4	9,190,700	150.1	1,254.5
12 Commerce Township	102,000	6.54	7.58	31.4	967	520	279.5	3,202,800	52.3	331.8
13 Dearborn	596,300	25.23	34.95	20.1	597	0	1,633.7	11,985,600	195.9	1,829.6
14 Dearborn Heights	197,400	8.00	12.00	22.4	624	617	540.8	4,421,800	72.4	613.2
15 Eastpointe	104,000	3.70	5.50	18.1	612	1,013	284.9	1,882,400	30.7	315.6
16 Ecorse	141,800	3.80	4.40	20.1	591	285	388.5	2,850,200	46.6	435.1
17 Farmington	44,600	2.25	2.45	27.1	765	315	122.2	1,208,700	19.7	141.9
18 Farmington Hills	352,600	20.00	21.30	27.4	784	2,754	966.0	9,661,200	157.8	1,123.8
19 Ferndale	69,800	2.80	3.10	18.2	643	568	191.2	1,270,400	20.9	212.1
20 Flat Rock	57,200	2.63	3.83	30.1	601	235	156.7	1,721,700	28.2	184.9
21 Flint	478,700	14.50	14.50	52.0	866	3,600	1,311.5	24,892,400	406.9	1,718.4
22 Fraser	59,100	2.77	4.28	21.0	617	296	161.9	1,241,100	20.3	182.2
23 Garden City	80,900	3.30	5.21	25.0	638	491	221.6	2,022,500	33.2	254.8
24 Gibraltar	16,300	0.65	0.86	30.9	588	176	44.7	503,700	8.2	52.9
25 Grosse Ile Township	38,300	2.01	3.51	27.0	584	400	104.9	1,034,100	17.0	121.9
26 Grosse Pt. Park	55,600	3.23	5.31	18.0	583	291	152.3	1,000,800	16.5	168.8
27 Grosse Pt. Shores	20,200	1.43	2.67	18.9	587	283	55.3	381,800	6.3	61.6
28 Grosse Pt. Woods	72,200	3.36	4.29	18.9	587	461	197.8	1,364,600	22.2	220.0
29 Hamtramck	62,200	1.77	2.74	16.7	633	658	170.4	1,038,700	17.0	187.4
30 Harper Woods	47,600	2.09	2.99	18.4	598	357	130.4	875,800	14.3	144.7
31 Harrison Township	94,400	3.70	4.75	24.0	587	440	258.6	2,265,600	37.0	295.6
32 Hazel Park	50,500	1.70	2.44	18.1	639	538	138.4	914,100	15.0	153.4
33 Highland Park	105,700	3.34	3.41	17.3	639	0	289.6	1,828,600	29.9	319.5
34 Huron Township	60,300	3.10	3.91	29.9	635	278	165.2	1,803,000	29.6	194.8
35 Imlay City	45,700	2.22	2.35	45.9	908	155	125.2	2,097,600	34.3	159.5

Table 1a
Water Supply System
FY 2022 Units of Service Data

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
	Units of Service Input Data										
	<u>Volume</u>	<u>Max Day</u>	<u>Peak Hour</u>	<u>Distance</u>	<u>Elevation</u>	<u>Eq Mtrs</u>	<u>Avg Day Use</u>	<u>Dist x Sales</u>	<u>Allo NRW</u>	<u>Avg Day Prod</u>	
	<i>mcf</i>	<i>mgd</i>	<i>mgd</i>	<i>miles</i>	<i>feet</i>	<i>5/8" proxies</i>	<i>mcf/day</i>	<i>mcf</i>	<i>mcf/day</i>	<i>mcf/day</i>	
							<i>(1) / 365</i>	<i>(1) * (4)</i>	<i>~ (8)</i>	<i>(7) + (9)</i>	
36	Imlay Twp	160	0.012	0.024	42.7	825	80	0.4	6,800	0.0	0.4
37	Inkster	93,600	2.44	3.34	24.4	638	443	256.4	2,283,800	37.3	293.7
38	Keego Harbor	9,900	0.45	0.67	29.1	934	123	27.1	288,100	4.7	31.8
39	Lapeer	52,100	1.72	2.50	49.1	850	400	142.7	2,558,100	42.0	184.7
40	Lenox Township	14,900	0.51	0.70	30.5	619	400	40.8	454,500	7.4	48.2
41	Lincoln Park	160,200	5.50	7.00	20.4	594	813	438.9	3,268,100	53.4	492.3
42	Livonia	480,300	23.00	33.00	26.2	687	2,386	1,315.9	12,583,900	205.7	1,521.6
43	Macomb Township	329,800	24.60	41.70	26.8	622	1,015	903.6	8,838,600	144.3	1,047.9
44	Madison Heights	106,600	4.75	6.50	19.4	629	755	292.1	2,068,000	33.7	325.8
45	Mayfield Twp	790	0.04	0.07	48.3	839	155	2.2	38,200	0.5	2.7
46	Melvindale	42,600	1.50	2.10	19.9	594	525	116.7	847,700	14.0	130.7
47	New Haven, Village of	25,500	0.79	1.10	29.8	613	80	69.9	759,900	12.3	82.2
48	N O C W A	897,900	45.10	49.10	27.7	895	5,173	2,460.0	24,871,800	406.3	2,866.3
49	Northville	31,000	1.55	1.65	31.1	836	211	84.9	964,100	15.6	100.5
50	Northville Township	140,800	10.00	13.80	30.5	855	521	385.8	4,294,400	70.1	455.9
51	Novi	292,400	17.00	19.00	31.4	936	1,836	801.1	9,181,400	150.1	951.2
52	Oak Park	97,000	3.90	3.90	19.7	669	285	265.8	1,910,900	31.2	297.0
53	Oakland Co. Drain Comm.	9,700	0.184	0.184	20.4	617	115	26.6	197,900	3.3	29.9
54	Plymouth	44,100	1.81	2.62	30.8	750	203	120.8	1,358,300	22.2	143.0
55	Plymouth Township	161,900	10.00	10.00	31.3	793	315	443.6	5,067,500	82.7	526.3
56	Redford Township	160,500	7.20	10.00	22.6	638	1,271	439.7	3,627,300	59.2	498.9
57	River Rouge	37,900	1.78	2.26	19.4	585	431	103.8	735,300	12.1	115.9
58	Riverview	48,500	1.68	2.67	25.3	594	130	132.9	1,227,100	20.0	152.9
59	Rockwood	9,900	0.56	0.72	32.7	592	88	27.1	323,700	5.2	32.3
60	Romeo	6,000	0.42	0.60	32.2	789	155	16.4	193,200	3.3	19.7
61	Romulus	218,500	8.92	11.00	27.3	651	919	598.6	5,965,100	97.6	696.2
62	Roseville	189,900	6.39	9.06	19.0	620	885	520.3	3,608,100	58.9	579.2
63	Royal Oak Township	11,000	0.473	0.649	19.2	665	146	30.1	211,200	3.6	33.7
64	S O C W A	1,254,800	60.50	60.50	22.2	732	4,998	3,437.8	27,856,600	455.1	3,892.9
65	Shelby Township	404,100	24.79	45.44	26.4	694	1,246	1,107.1	10,668,200	174.3	1,281.4
66	South Rockwood	4,700	0.176	0.297	33.4	586	88	12.9	157,000	2.4	15.3
67	Southgate	114,500	5.00	7.00	23.7	601	361	313.7	2,713,700	44.4	358.1
68	St. Clair County-Burchville Twp	7,800	0.48	0.68	47.2	620	105	21.4	368,200	6.0	27.4
69	St. Clair County-Greenwood	20,600	1.75	1.75	45.4	774	413	56.4	935,200	15.4	71.8
70	St. Clair Shores	190,200	7.50	10.00	20.2	594	1,239	521.1	3,842,000	62.7	583.8
71	Sterling Heights	577,900	33.00	52.50	22.3	632	3,175	1,583.3	12,887,200	210.7	1,794.0

Table 1a
Water Supply System
FY 2022 Units of Service Data

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Units of Service Input Data									
	<u>Volume</u>	<u>Max Day</u>	<u>Peak Hour</u>	<u>Distance</u>	<u>Elevation</u>	<u>Eq Mtrs</u>	<u>Avg Day Use</u>	<u>Dist x Sales</u>	<u>Allo NRW</u>	<u>Avg Day Prod</u>
	<i>mcf</i>	<i>mgd</i>	<i>mgd</i>	<i>miles</i>	<i>feet</i>	<i>5/8" proxies</i>	<i>mcf/day</i>	<i>mcf</i>	<i>mcf/day</i>	<i>mcf/day</i>
							<i>(1) / 365</i>	<i>(1) * (4)</i>	<i>~ (8)</i>	<i>(7) + (9)</i>
72 Sumpter Township	29,500	1.08	1.67	32.9	663	155	80.8	970,600	15.9	96.7
73 Sylvan Lake	6,400	0.35	0.55	29.1	938	80	17.5	186,200	3.0	20.5
74 Taylor	262,600	11.20	14.00	23.5	616	1,078	719.5	6,171,100	100.8	820.3
75 Trenton	87,100	3.30	4.92	25.8	596	1,185	238.6	2,247,200	36.7	275.3
76 Troy	473,500	27.00	40.00	24.2	756	2,548	1,297.3	11,458,700	187.1	1,484.4
77 Utica	24,700	1.20	1.75	24.4	660	155	67.7	602,700	9.8	77.5
78 Van Buren Township	132,400	6.90	8.17	32.5	676	1,090	362.7	4,303,000	70.5	433.2
79 Walled Lake	30,700	1.16	1.67	31.7	959	115	84.1	973,200	15.9	100.0
80 Warren	628,200	27.00	35.00	18.4	623	1,509	1,721.1	11,558,900	188.8	1,909.9
81 Washington Township	78,700	5.40	5.40	29.6	754	278	215.6	2,329,500	38.1	253.7
82 Wayne	104,100	8.28	8.28	25.9	646	600	285.2	2,696,200	44.1	329.3
83 West Bloomfield Township	266,800	15.50	26.00	28.7	912	1,960	731.0	7,657,200	125.2	856.2
84 Westland	328,100	12.50	17.50	26.0	653	1,925	898.9	8,530,600	139.5	1,038.4
85 Wixom	74,900	4.33	5.10	33.9	944	155	205.2	2,539,100	41.4	246.6
86 Woodhaven	57,700	3.24	5.12	28.5	596	195	158.1	1,644,500	26.8	184.9
87 Ypsilanti Comm Util Auth	485,300	21.00	21.00	35.8	726	1,880	1,329.6	17,373,700	283.8	1,613.4
88 Subtotal Wholesale	13,588,930	657.67	853.60			67,158	37,229.8	355,452,100	5,808.3	43,038.1
89 Detroit	4,186,400	115.05	136.09	16.8	629		11,469.6	70,331,500	1,148.7	12,618.3
90 Grand Total	17,775,330	772.72	989.70			67,158	48,699.4	425,783,600	6,957.0	55,656.4
91 Modified Demands	705,580	39.69	65.17	8		3,257	1,933.0	18,029,900	294.4	2,227.4
92 Non-Master Metered	4,888,400	143.61	174.46	3		0	13,392.9	84,145,700	1,374.5	14,767.4
93 No Mods	12,181,350	589.42	750.07	77		63,901	33,373.5	323,608,000	5,288.1	38,661.6
94 Total	17,775,330	772.72	989.70	88		67,158	48,699.4	425,783,600	6,957.0	55,656.4

Table 1b
Water Supply System
Detailed FY 2022 Units of Service

	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	Units of Service Detail								
	<u>Max Day</u>	<u>Peak Hour</u>	<u>PH Incr</u>	<u>PH Dist</u>	<u>Elev Factor</u>	<u>Comm DE</u>	<u>MD DE</u>	<u>PH DE</u>	<u>PHI DE</u>
	<i>mcf/day</i>	<i>mcf/day</i>	<i>mcf/day</i>	<i>mcf/day</i>	<i>miles *</i>	<i>mcf/day</i>	<i>mcf/day</i>	<i>mcf/day</i>	<i>mcf/day</i>
	<i>(2)*133.68 + (9)</i>	<i>(3)*133.68 + (9)</i>	<i>(12) - (11)</i>	<i>(12) * (4)</i>	<i>[(5)-610] / 10.56</i>	<i>(10) * (15)</i>	<i>(11) * (15)</i>	<i>(12) * (15)</i>	<i>(13) * (15)</i>
1 Allen Park	806.4	1,100.5	294.1	23,110.0	21.0	8,370.6	16,934.0	23,110.0	6,176.0
2 Almont Village	59.3	64.6	5.3	2,449.1	56.1	1,784.0	3,325.2	3,625.2	300.0
3 Ash Township	213.3	313.6	100.3	9,375.5	32.3	4,425.1	6,889.6	10,128.0	3,238.4
4 Belleville	73.9	107.4	33.4	3,489.2	38.8	1,722.7	2,868.9	4,165.6	1,296.7
5 Berlin Township	175.4	269.0	93.6	9,307.2	34.6	3,041.3	6,069.4	9,307.2	3,237.7
6 Brownstown Township	973.1	1,534.6	561.5	43,735.7	28.5	12,562.8	27,734.1	43,735.7	16,001.6
7 Bruce Twp	71.4	118.1	46.7	3,872.7	47.7	338.7	3,406.5	5,632.0	2,225.4
8 Canton Township	3,191.7	3,325.4	133.7	107,077.6	44.7	51,020.6	142,669.5	148,645.1	5,975.5
9 Center Line	160.4	223.2	62.8	4,106.7	19.6	1,858.1	3,143.0	4,374.5	1,231.5
10 Chesterfield Township	1,249.1	1,683.6	434.5	47,644.9	29.0	15,961.6	36,224.0	48,823.4	12,599.4
11 Clinton Township	2,783.6	3,211.4	427.8	73,219.6	22.8	28,602.6	63,466.2	73,219.6	9,753.3
12 Commerce Township	926.6	1,065.6	139.0	33,459.8	65.2	21,633.4	60,412.4	69,477.0	9,064.6
13 Dearborn	3,568.4	4,868.2	1,299.8	97,850.4	20.1	36,775.0	71,724.2	97,850.4	26,126.2
14 Dearborn Heights	1,141.8	1,676.6	534.7	37,555.1	23.7	14,532.8	27,061.7	39,734.6	12,672.9
15 Eastpointe	525.3	765.9	240.6	13,863.6	18.3	5,775.5	9,613.3	14,016.8	4,403.4
16 Ecorse	554.6	634.8	80.2	12,759.4	20.1	8,745.5	11,147.2	12,759.4	1,612.2
17 Farmington	320.5	347.2	26.7	9,409.6	41.8	5,931.4	13,396.1	14,513.7	1,117.6
18 Farmington Hills	2,831.4	3,005.2	173.8	82,342.4	43.9	49,334.8	124,298.9	131,928.1	7,629.1
19 Ferndale	395.2	435.3	40.1	7,922.6	21.3	4,517.7	8,417.9	9,272.1	854.2
20 Flat Rock	379.8	540.2	160.4	16,259.9	30.1	5,565.5	11,431.4	16,259.9	4,828.5
21 Flint	2,345.3	2,345.3	0.0	121,953.9	76.2	130,942.1	178,709.4	178,709.4	0.0
22 Fraser	390.6	592.5	201.9	12,441.5	21.7	3,953.7	8,475.9	12,856.2	4,380.3
23 Garden City	474.3	729.7	255.3	18,241.9	27.7	7,058.0	13,139.4	20,212.0	7,072.6
24 Gibraltar	95.1	123.2	28.1	3,805.8	30.9	1,634.6	2,938.4	3,805.8	867.5
25 Grosse Ile Township	285.7	486.2	200.5	13,127.9	27.0	3,291.3	7,713.8	13,127.9	5,414.1
26 Grosse Pt. Park	448.3	726.3	278.1	13,074.2	18.0	3,038.4	8,069.2	13,074.2	5,005.0
27 Grosse Pt. Shores	197.5	363.2	165.8	6,865.0	18.9	1,164.2	3,732.1	6,865.0	3,132.9
28 Grosse Pt. Woods	471.4	595.7	124.3	11,258.5	18.9	4,158.0	8,908.8	11,258.5	2,349.7
29 Hamtramck	253.6	383.3	129.7	6,400.9	18.9	3,541.9	4,793.3	7,244.1	2,450.8
30 Harper Woods	293.7	414.0	120.3	7,617.7	18.4	2,662.5	5,403.9	7,617.7	2,213.7
31 Harrison Township	531.6	672.0	140.4	16,127.6	24.0	7,094.4	12,758.8	16,127.6	3,368.7
32 Hazel Park	242.3	341.2	98.9	6,175.4	20.8	3,190.7	5,038.9	7,096.6	2,057.6
33 Highland Park	475.7	486.0	10.2	8,407.0	20.0	6,390.0	9,514.7	9,719.1	204.3
34 Huron Township	444.0	552.3	108.3	16,513.5	32.3	6,292.0	14,341.5	17,839.0	3,497.5
35 Imlay City	331.1	348.4	17.4	15,993.8	74.1	11,819.0	24,532.3	25,820.1	1,287.7

Table 1b
Water Supply System
Detailed FY 2022 Units of Service

	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	Units of Service Detail								
	<u>Max Day</u>	<u>Peak Hour</u>	<u>PH Incr</u>	<u>PH Dist</u>	<u>Elev Factor</u>	<u>Comm DE</u>	<u>MD DE</u>	<u>PH DE</u>	<u>PHI DE</u>
	<i>mcf/day</i>	<i>mcf/day</i>	<i>mcf/day</i>	<i>mcf/day</i>	<i>miles *</i>	<i>mcf/day</i>	<i>mcf/day</i>	<i>mcf/day</i>	<i>mcf/day</i>
	(2)*133.68 + (9)	(3)*133.68 + (9)	(12) - (11)	(12) * (4)	[(5)-610] / 10.56	(10) * (15)	(11) * (15)	(12) * (15)	(13) * (15)
36 Imlay Twp	1.6	3.2	1.6	137.0	63.1	25.2	101.2	202.4	101.2
37 Inkster	363.5	483.8	120.3	11,804.5	27.1	7,959.3	9,850.3	13,110.8	3,260.5
38 Keego Harbor	64.9	94.4	29.5	2,747.0	59.8	1,901.6	3,878.4	5,645.1	1,766.7
39 Lapeer	271.9	376.2	104.3	18,471.5	71.8	13,261.5	19,524.6	27,011.3	7,486.6
40 Lenox Township	75.6	101.5	25.9	3,096.1	31.4	1,513.5	2,373.1	3,187.4	814.3
41 Lincoln Park	788.6	989.2	200.5	20,178.9	20.4	10,042.9	16,088.3	20,178.9	4,090.6
42 Livonia	3,280.4	4,617.2	1,336.8	120,969.5	33.5	50,973.6	109,891.8	154,674.8	44,783.0
43 Macomb Township	3,432.8	5,718.8	2,285.9	153,263.3	27.9	29,236.4	95,776.3	159,553.9	63,777.7
44 Madison Heights	668.7	902.6	233.9	17,510.9	21.2	6,907.0	14,176.1	19,135.6	4,959.5
45 Mayfield Twp	5.8	9.9	4.0	476.1	70.0	189.0	409.3	690.0	280.7
46 Melvindale	214.5	294.7	80.2	5,865.1	19.9	2,600.9	4,269.0	5,865.1	1,596.1
47 New Haven, Village of	117.2	159.3	42.1	4,748.6	30.1	2,474.2	3,528.9	4,796.4	1,267.5
48 N O C W A	6,435.3	6,970.0	534.7	193,069.4	54.7	156,786.6	352,010.5	381,259.8	29,249.3
49 Northville	222.8	236.2	13.4	7,345.0	52.5	5,276.3	11,697.3	12,399.1	701.8
50 Northville Township	1,406.9	1,914.9	508.0	58,404.2	53.7	24,481.8	75,550.8	102,829.7	27,278.9
51 Novi	2,422.7	2,690.0	267.4	84,467.0	62.3	59,259.8	150,932.3	167,588.9	16,656.6
52 Oak Park	552.6	552.6	0.0	10,885.3	25.3	7,514.1	13,979.6	13,979.6	0.0
53 Oakland Co. Drain Comm.	27.9	27.9	0.0	569.1	21.1	630.9	588.6	588.6	0.0
54 Plymouth	264.2	372.4	108.3	11,471.2	44.1	6,306.3	11,649.5	16,424.7	4,775.2
55 Plymouth Township	1,419.5	1,419.5	0.0	44,430.5	48.6	25,578.2	68,988.0	68,988.0	0.0
56 Redford Township	1,021.7	1,396.0	374.3	31,549.7	25.3	12,622.2	25,849.0	35,318.9	9,469.9
57 River Rouge	250.1	314.2	64.2	6,095.8	19.4	2,248.5	4,851.0	6,095.8	1,244.8
58 Riverview	244.6	376.9	132.3	9,536.3	25.3	3,868.4	6,188.0	9,536.3	3,348.3
59 Rockwood	80.1	100.8	20.7	3,295.6	32.7	1,056.2	2,618.0	3,295.6	677.6
60 Romeo	59.4	83.5	24.1	2,689.0	49.2	969.2	2,924.7	4,108.6	1,183.9
61 Romulus	1,290.0	1,568.1	278.1	42,808.7	31.2	21,721.4	40,249.0	48,924.3	8,675.3
62 Roseville	913.1	1,270.0	356.9	24,130.9	19.9	11,526.1	18,171.1	25,273.9	7,102.8
63 Royal Oak Township	66.8	90.4	23.5	1,734.9	24.4	822.3	1,630.7	2,204.8	574.1
64 S O C W A	8,542.8	8,542.8	0.0	189,649.6	33.8	131,580.0	288,745.7	288,745.7	0.0
65 Shelby Township	3,488.2	6,248.7	2,760.5	164,966.8	34.4	44,080.2	119,995.5	214,956.8	94,961.3
66 South Rockwood	25.9	42.1	16.2	1,406.2	33.4	511.0	866.0	1,406.2	540.3
67 Southgate	712.8	980.2	267.4	23,229.9	23.7	8,487.0	16,893.4	23,229.9	6,336.5
68 St. Clair County-Burtchville Twp	69.9	96.9	27.0	4,573.8	48.1	1,317.9	3,362.2	4,661.0	1,298.9
69 St. Clair County-Greenwood	249.3	249.3	0.0	11,320.1	60.9	4,372.6	15,184.9	15,184.9	0.0
70 St. Clair Shores	1,065.3	1,399.5	334.2	28,270.0	20.2	11,792.8	21,519.1	28,270.0	6,750.9
71 Sterling Heights	4,622.2	7,228.9	2,606.8	161,205.1	24.4	43,773.6	112,780.7	176,385.9	63,605.2

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Table 1b
Water Supply System
Detailed FY 2022 Units of Service

	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	Units of Service Detail								
	<u>Max Day</u>	<u>Peak Hour</u>	<u>PH Incr</u>	<u>PH Dist</u>	<u>Elev Factor</u>	<u>Comm DE</u>	<u>MD DE</u>	<u>PH DE</u>	<u>PHI DE</u>
	<i>mcf/day</i>	<i>mcf/day</i>	<i>mcf/day</i>	<i>mcf/day</i>	<i>miles *</i>	<i>mcf/day</i>	<i>mcf/day</i>	<i>mcf/day</i>	<i>mcf/day</i>
	<i>(2)*133.68 + (9)</i>	<i>(3)*133.68 + (9)</i>	<i>(12) - (11)</i>	<i>(12) * (4)</i>	<i>[(5)-610] / 10.56</i>	<i>(10) * (15)</i>	<i>(11) * (15)</i>	<i>(12) * (15)</i>	<i>(13) * (15)</i>
72 Sumpter Township	160.3	239.1	78.9	7,867.9	37.9	3,664.9	6,074.4	9,063.7	2,989.2
73 Sylvan Lake	50.1	76.5	26.5	2,226.9	60.2	1,234.1	3,013.3	4,606.8	1,593.4
74 Taylor	1,598.0	1,972.3	374.3	46,349.7	24.1	19,769.2	38,512.3	47,533.1	9,020.8
75 Trenton	477.8	694.4	216.6	17,915.7	25.8	7,102.7	12,328.4	17,915.7	5,587.3
76 Troy	3,796.5	5,534.3	1,737.8	133,930.6	38.0	56,407.2	144,266.0	210,304.2	66,038.2
77 Utica	170.2	243.7	73.5	5,947.3	29.1	2,255.3	4,953.3	7,092.9	2,139.6
78 Van Buren Township	992.9	1,162.7	169.8	37,786.8	38.8	16,808.2	38,524.4	45,111.6	6,587.2
79 Walled Lake	171.0	239.1	68.2	7,580.9	64.7	6,470.0	11,061.7	15,472.8	4,411.1
80 Warren	3,798.2	4,867.6	1,069.4	89,564.2	19.6	37,434.0	74,444.2	95,405.3	20,961.1
81 Washington Township	760.0	760.0	0.0	22,495.3	43.2	10,959.8	32,830.9	32,830.9	0.0
82 Wayne	1,151.0	1,151.0	0.0	29,810.3	29.3	9,648.5	33,723.6	33,723.6	0.0
83 West Bloomfield Township	2,197.2	3,600.9	1,403.6	103,345.7	57.3	49,060.3	125,902.3	206,331.2	80,428.9
84 Westland	1,810.5	2,478.9	668.4	64,451.6	30.1	31,255.8	54,496.3	74,615.2	20,118.9
85 Wixom	620.2	723.2	102.9	24,515.5	65.5	16,152.3	40,625.5	47,367.7	6,742.2
86 Woodhaven	459.9	711.2	251.3	20,270.5	28.5	5,269.7	13,107.9	20,270.5	7,162.6
87 Ypsilanti Comm Util Auth	3,091.1	3,091.1	0.0	110,661.1	46.8	75,507.1	144,663.1	144,663.1	0.0
88 Subtotal Wholesale	93,725.8	119,918.2	26,192.4	3,117,908.0		1,541,398.1	3,383,924.4	4,209,968.5	826,043.1
89 Detroit	16,528.3	19,341.8	2,813.5	324,941.6	18.6	234,700.4	307,425.9	359,756.8	52,330.9
90 Grand Total	110,254.1	139,260.0	29,005.9	3,442,849.6		1,776,098.5	3,691,350.3	4,569,725.3	878,374.0
91 Modified Demands	5,600.3	9,005.7	3,405.4	232,713.5		70,832.8	183,549.9	293,429.5	109,879.4
92 Non-Master Metered	20,572.4	24,695.9	4,123.5	431,199.0		277,865.4	388,664.8	467,326.3	78,661.4
93 No Mods	84,081.4	105,558.4	21,477.0	2,778,937.1		1,427,400.3	3,119,135.6	3,808,969.5	689,833.2
94 Total	110,254.1	139,260.0	29,005.9	3,442,849.6		1,776,098.5	3,691,350.3	4,569,725.3	878,374.0

Table 1c
Water Supply System
Consolidated FY 2022 Units of Service

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
		Consolidated Units of Service									
	Sales	Common-to-All								Suburban Only	
	Volume	Commod	Max Day	PH Incr	PH Dist	Comm DE	MD DE	PH DE	PHI DE	Mtrs	
	Mcf	Mcf/day	Mcf/day	Mcf/day	Mcf-miles/day	Mcf-miles/day	Mcf-miles/day	Mcf-miles/day	Mcf-miles/day	eq 5/8" mtrs	
1	Allen Park	129,300	398.6	806.4	294.1	23,110.0	8,370.6	16,934.0	23,110.0	6,176.0	928
2	Almont Village	9,500	31.8	59.3	5.3	2,449.1	1,784.0	3,325.2	3,625.2	300.0	115
3	Ash Township	42,400	137.0	213.3	100.3	9,375.5	4,425.1	6,889.6	10,128.0	3,238.4	160
4	Belleville	13,600	44.4	73.9	33.4	3,489.2	1,722.7	2,868.9	4,165.6	1,296.7	115
5	Berlin Township	26,600	87.9	175.4	93.6	9,307.2	3,041.3	6,069.4	9,307.2	3,237.7	211
6	Brownstown Township	137,500	440.8	973.1	561.5	43,735.7	12,562.8	27,734.1	43,735.7	16,001.6	523
7	Bruce Twp	2,180	7.1	71.4	46.7	3,872.7	338.7	3,406.5	5,632.0	2,225.4	115
8	Canton Township	349,500	1,141.4	3,191.7	133.7	107,077.6	51,020.6	142,669.5	148,645.1	5,975.5	1,770
9	Center Line	31,200	94.8	160.4	62.8	4,106.7	1,858.1	3,143.0	4,374.5	1,231.5	155
10	Chesterfield Township	171,900	550.4	1,249.1	434.5	47,644.9	15,961.6	36,224.0	48,823.4	12,599.4	725
11	Clinton Township	403,100	1,254.5	2,783.6	427.8	73,219.6	28,602.6	63,466.2	73,219.6	9,753.3	1,218
12	Commerce Township	102,000	331.8	926.6	139.0	33,459.8	21,633.4	60,412.4	69,477.0	9,064.6	520
13	Dearborn	596,300	1,829.6	3,568.4	1,299.8	97,850.4	36,775.0	71,724.2	97,850.4	26,126.2	0
14	Dearborn Heights	197,400	613.2	1,141.8	534.7	37,555.1	14,532.8	27,061.7	39,734.6	12,672.9	617
15	Eastpointe	104,000	315.6	525.3	240.6	13,863.6	5,775.5	9,613.3	14,016.8	4,403.4	1,013
16	Ecorse	141,800	435.1	554.6	80.2	12,759.4	8,745.5	11,147.2	12,759.4	1,612.2	285
17	Farmington	44,600	141.9	320.5	26.7	9,409.6	5,931.4	13,396.1	14,513.7	1,117.6	315
18	Farmington Hills	352,600	1,123.8	2,831.4	173.8	82,342.4	49,334.8	124,298.9	131,928.1	7,629.1	2,754
19	Ferndale	69,800	212.1	395.2	40.1	7,922.6	4,517.7	8,417.9	9,272.1	854.2	568
20	Flat Rock	57,200	184.9	379.8	160.4	16,259.9	5,565.5	11,431.4	16,259.9	4,828.5	235
21	Flint	478,700	1,718.4	2,345.3	0.0	121,953.9	130,942.1	178,709.4	178,709.4	0.0	3,600
22	Fraser	59,100	182.2	390.6	201.9	12,441.5	3,953.7	8,475.9	12,856.2	4,380.3	296
23	Garden City	80,900	254.8	474.3	255.3	18,241.9	7,058.0	13,139.4	20,212.0	7,072.6	491
24	Gibraltar	16,300	52.9	95.1	28.1	3,805.8	1,634.6	2,938.4	3,805.8	867.5	176
25	Grosse Ile Township	38,300	121.9	285.7	200.5	13,127.9	3,291.3	7,713.8	13,127.9	5,414.1	400
26	Grosse Pt. Park	55,600	168.8	448.3	278.1	13,074.2	3,038.4	8,069.2	13,074.2	5,005.0	291
27	Grosse Pt. Shores	20,200	61.6	197.5	165.8	6,865.0	1,164.2	3,732.1	6,865.0	3,132.9	283
28	Grosse Pt. Woods	72,200	220.0	471.4	124.3	11,258.5	4,158.0	8,908.8	11,258.5	2,349.7	461
29	Hamtramck	62,200	187.4	253.6	129.7	6,400.9	3,541.9	4,793.3	7,244.1	2,450.8	658
30	Harper Woods	47,600	144.7	293.7	120.3	7,617.7	2,662.5	5,403.9	7,617.7	2,213.7	357
31	Harrison Township	94,400	295.6	531.6	140.4	16,127.6	7,094.4	12,758.8	16,127.6	3,368.7	440
32	Hazel Park	50,500	153.4	242.3	98.9	6,175.4	3,190.7	5,038.9	7,096.6	2,057.6	538
33	Highland Park	105,700	319.5	475.7	10.2	8,407.0	6,390.0	9,514.7	9,719.1	204.3	0
34	Huron Township	60,300	194.8	444.0	108.3	16,513.5	6,292.0	14,341.5	17,839.0	3,497.5	278
35	Imlay City	45,700	159.5	331.1	17.4	15,993.8	11,819.0	24,532.3	25,820.1	1,287.7	155

Table 1c
Water Supply System
Consolidated FY 2022 Units of Service

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
		Consolidated Units of Service									
	Sales	Common-to-All								Suburban Only	
	<u>Volume</u>	<u>Commod</u>	<u>Max Day</u>	<u>PH Incr</u>	<u>PH Dist</u>	<u>Comm DE</u>	<u>MD DE</u>	<u>PH DE</u>	<u>PHI DE</u>	<u>Mtrs</u>	
	<i>Mcf</i>	<i>Mcf/day</i>	<i>Mcf/day</i>	<i>Mcf/day</i>	<i>Mcf-miles/day</i>	<i>Mcf-miles/day</i>	<i>Mcf-miles/day</i>	<i>Mcf-miles/day</i>	<i>Mcf-miles/day</i>	<i>eq 5/8" mtrs</i>	
36	Imlay Twp	160	0.4	1.6	1.6	137.0	25.2	101.2	202.4	101.2	80
37	Inkster	93,600	293.7	363.5	120.3	11,804.5	7,959.3	9,850.3	13,110.8	3,260.5	443
38	Keego Harbor	9,900	31.8	64.9	29.5	2,747.0	1,901.6	3,878.4	5,645.1	1,766.7	123
39	Lapeer	52,100	184.7	271.9	104.3	18,471.5	13,261.5	19,524.6	27,011.3	7,486.6	400
40	Lenox Township	14,900	48.2	75.6	25.9	3,096.1	1,513.5	2,373.1	3,187.4	814.3	400
41	Lincoln Park	160,200	492.3	788.6	200.5	20,178.9	10,042.9	16,088.3	20,178.9	4,090.6	813
42	Livonia	480,300	1,521.6	3,280.4	1,336.8	120,969.5	50,973.6	109,891.8	154,674.8	44,783.0	2,386
43	Macomb Township	329,800	1,047.9	3,432.8	2,285.9	153,263.3	29,236.4	95,776.3	159,553.9	63,777.7	1,015
44	Madison Heights	106,600	325.8	668.7	233.9	17,510.9	6,907.0	14,176.1	19,135.6	4,959.5	755
45	Mayfield Twp	790	2.7	5.8	4.0	476.1	189.0	409.3	690.0	280.7	155
46	Melvindale	42,600	130.7	214.5	80.2	5,865.1	2,600.9	4,269.0	5,865.1	1,596.1	525
47	New Haven, Village of	25,500	82.2	117.2	42.1	4,748.6	2,474.2	3,528.9	4,796.4	1,267.5	80
48	N O C W A	897,900	2,866.3	6,435.3	534.7	193,069.4	156,786.6	352,010.5	381,259.8	29,249.3	5,173
49	Northville	31,000	100.5	222.8	13.4	7,345.0	5,276.3	11,697.3	12,399.1	701.8	211
50	Northville Township	140,800	455.9	1,406.9	508.0	58,404.2	24,481.8	75,550.8	102,829.7	27,278.9	521
51	Novi	292,400	951.2	2,422.7	267.4	84,467.0	59,259.8	150,932.3	167,588.9	16,656.6	1,836
52	Oak Park	97,000	297.0	552.6	0.0	10,885.3	7,514.1	13,979.6	13,979.6	0.0	285
53	Oakland Co. Drain Comm.	9,700	29.9	27.9	0.0	569.1	630.9	588.6	588.6	0.0	115
54	Plymouth	44,100	143.0	264.2	108.3	11,471.2	6,306.3	11,649.5	16,424.7	4,775.2	203
55	Plymouth Township	161,900	526.3	1,419.5	0.0	44,430.5	25,578.2	68,988.0	68,988.0	0.0	315
56	Redford Township	160,500	498.9	1,021.7	374.3	31,549.7	12,622.2	25,849.0	35,318.9	9,469.9	1,271
57	River Rouge	37,900	115.9	250.1	64.2	6,095.8	2,248.5	4,851.0	6,095.8	1,244.8	431
58	Riverview	48,500	152.9	244.6	132.3	9,536.3	3,868.4	6,188.0	9,536.3	3,348.3	130
59	Rockwood	9,900	32.3	80.1	20.7	3,295.6	1,056.2	2,618.0	3,295.6	677.6	88
60	Romeo	6,000	19.7	59.4	24.1	2,689.0	969.2	2,924.7	4,108.6	1,183.9	155
61	Romulus	218,500	696.2	1,290.0	278.1	42,808.7	21,721.4	40,249.0	48,924.3	8,675.3	919
62	Roseville	189,900	579.2	913.1	356.9	24,130.9	11,526.1	18,171.1	25,273.9	7,102.8	885
63	Royal Oak Township	11,000	33.7	66.8	23.5	1,734.9	822.3	1,630.7	2,204.8	574.1	146
64	S O C W A	1,254,800	3,892.9	8,542.8	0.0	189,649.6	131,580.0	288,745.7	288,745.7	0.0	4,998
65	Shelby Township	404,100	1,281.4	3,488.2	2,760.5	164,966.8	44,080.2	119,995.5	214,956.8	94,961.3	1,246
66	South Rockwood	4,700	15.3	25.9	16.2	1,406.2	511.0	866.0	1,406.2	540.3	88
67	Southgate	114,500	358.1	712.8	267.4	23,229.9	8,487.0	16,893.4	23,229.9	6,336.5	361
68	St. Clair County-Burtchville Twp	7,800	27.4	69.9	27.0	4,573.8	1,317.9	3,362.2	4,661.0	1,298.9	105
69	St. Clair County-Greenwood	20,600	71.8	249.3	0.0	11,320.1	4,372.6	15,184.9	15,184.9	0.0	413
70	St. Clair Shores	190,200	583.8	1,065.3	334.2	28,270.0	11,792.8	21,519.1	28,270.0	6,750.9	1,239
71	Sterling Heights	577,900	1,794.0	4,622.2	2,606.8	161,205.1	43,773.6	112,780.7	176,385.9	63,605.2	3,175

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Table 1c
Water Supply System
Consolidated FY 2022 Units of Service

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
		Consolidated Units of Service									
	Sales	Common-to-All									Suburban Only
	Volume	Commod	Max Day	PH Incr	PH Dist	Comm DE	MD DE	PH DE	PHI DE	Mtrs	
	Mcf	Mcf/day	Mcf/day	Mcf/day	Mcf-miles/day	Mcf-miles/day	Mcf-miles/day	Mcf-miles/day	Mcf-miles/day	eq 5/8" mtrs	
72	Sumpter Township	29,500	96.7	160.3	78.9	7,867.9	3,664.9	6,074.4	9,063.7	2,989.2	155
73	Sylvan Lake	6,400	20.5	50.1	26.5	2,226.9	1,234.1	3,013.3	4,606.8	1,593.4	80
74	Taylor	262,600	820.3	1,598.0	374.3	46,349.7	19,769.2	38,512.3	47,533.1	9,020.8	1,078
75	Trenton	87,100	275.3	477.8	216.6	17,915.7	7,102.7	12,328.4	17,915.7	5,587.3	1,185
76	Troy	473,500	1,484.4	3,796.5	1,737.8	133,930.6	56,407.2	144,266.0	210,304.2	66,038.2	2,548
77	Utica	24,700	77.5	170.2	73.5	5,947.3	2,255.3	4,953.3	7,092.9	2,139.6	155
78	Van Buren Township	132,400	433.2	992.9	169.8	37,786.8	16,808.2	38,524.4	45,111.6	6,587.2	1,090
79	Walled Lake	30,700	100.0	171.0	68.2	7,580.9	6,470.0	11,061.7	15,472.8	4,411.1	115
80	Warren	628,200	1,909.9	3,798.2	1,069.4	89,564.2	37,434.0	74,444.2	95,405.3	20,961.1	1,509
81	Washington Township	78,700	253.7	760.0	0.0	22,495.3	10,959.8	32,830.9	32,830.9	0.0	278
82	Wayne	104,100	329.3	1,151.0	0.0	29,810.3	9,648.5	33,723.6	33,723.6	0.0	600
83	West Bloomfield Township	266,800	856.2	2,197.2	1,403.6	103,345.7	49,060.3	125,902.3	206,331.2	80,428.9	1,960
84	Westland	328,100	1,038.4	1,810.5	668.4	64,451.6	31,255.8	54,496.3	74,615.2	20,118.9	1,925
85	Wixom	74,900	246.6	620.2	102.9	24,515.5	16,152.3	40,625.5	47,367.7	6,742.2	155
86	Woodhaven	57,700	184.9	459.9	251.3	20,270.5	5,269.7	13,107.9	20,270.5	7,162.6	195
87	Ypsilanti Comm Util Auth	485,300	1,613.4	3,091.1	0.0	110,661.1	75,507.1	144,663.1	144,663.1	0.0	1,880
88	Total Suburban	13,588,930	43,038.1	93,725.8	26,192.4	3,117,908.0	1,541,398.1	3,383,924.4	4,209,968.5	826,043.1	67,158
89	Detroit	4,186,400	12,618.3	16,528.3	2,813.5	324,941.6	234,700.4	307,425.9	359,756.8	52,330.9	0
90	Grand Total	17,775,330	55,656.4	110,254.1	29,005.9	3,442,849.6	1,776,098.5	3,691,350.3	4,569,725.3	878,374.0	67,158
91	Modified Demands	705,580	2,227.4	5,600.3	3,405.4	232,713.5	70,832.8	183,549.9	293,429.5	109,879.4	3,257
92	Non-Master Metered	4,888,400	14,767.4	20,572.4	4,123.5	431,199.0	277,865.4	388,664.8	467,326.3	78,661.4	0
93	No Mods	12,181,350	38,661.6	84,081.4	21,477.0	2,778,937.1	1,427,400.3	3,119,135.6	3,808,969.5	689,833.2	63,901
94	Total	17,775,330	55,656.4	110,254.1	29,005.9	3,442,849.6	1,776,098.5	3,691,350.3	4,569,725.3	878,374.0	67,158

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Table 1d
Water Supply System
Consolidated FY 2022 Units of Service Summary for "Mod" and "No Mod" Member Partners

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
		Consolidated Units of Service									
	Sales	Common-to-All								Suburban Only	
	<u>Volume</u>	<u>Commod</u>	<u>Max Day</u>	<u>PH Incr</u>	<u>PH Dist</u>	<u>Comm DE</u>	<u>MD DE</u>	<u>PH DE</u>	<u>PHI DE</u>	<u>Mtrs</u>	
	<i>Mcf</i>	<i>Mcf/day</i>	<i>Mcf/day</i>	<i>Mcf/day</i>	<i>Mcf-miles/day</i>	<i>Mcf-miles/day</i>	<i>Mcf-miles/day</i>	<i>Mcf-miles/day</i>	<i>Mcf-miles/day</i>	<i>eq 5/8" mtrs</i>	
	<u>"Mod" Member Partners</u>										
1	Bruce Twp	2,180	7.1	71.4	46.7	3,872.7	338.7	3,406.5	5,632.0	2,225.4	115
2	Dearborn	596,300	1,829.6	3,568.4	1,299.8	97,850.4	36,775.0	71,724.2	97,850.4	26,126.2	0
3	Grosse Pt. Park	55,600	168.8	448.3	278.1	13,074.2	3,038.4	8,069.2	13,074.2	5,005.0	291
4	Grosse Pt. Woods	72,200	220.0	471.4	124.3	11,258.5	4,158.0	8,908.8	11,258.5	2,349.7	461
5	Harrison Township	94,400	295.6	531.6	140.4	16,127.6	7,094.4	12,758.8	16,127.6	3,368.7	440
6	Highland Park	105,700	319.5	475.7	10.2	8,407.0	6,390.0	9,514.7	9,719.1	204.3	0
7	New Haven, Village of	25,500	82.2	117.2	42.1	4,748.6	2,474.2	3,528.9	4,796.4	1,267.5	80
8	Northville	31,000	100.5	222.8	13.4	7,345.0	5,276.3	11,697.3	12,399.1	701.8	211
9	Shelby Township	404,100	1,281.4	3,488.2	2,760.5	164,966.8	44,080.2	119,995.5	214,956.8	94,961.3	1,246
10	St. Clair County-Greenwood	20,600	71.8	249.3	0.0	11,320.1	4,372.6	15,184.9	15,184.9	0.0	413
10	Subtotal Suburban "Mods"	1,407,580	4,376.5	9,644.4	4,715.4	338,970.9	113,997.8	264,788.8	400,999.0	136,209.9	3,257
77	"No Mod" Suburban	12,181,350	38,661.6	84,081.4	21,477.0	2,778,937.1	1,427,400.3	3,119,135.6	3,808,969.5	689,833.2	63,901
87	Total Suburban	13,588,930	43,038.1	93,725.8	26,192.4	3,117,908.0	1,541,398.1	3,383,924.4	4,209,968.5	826,043.1	67,158
1	Detroit	4,186,400	12,618.3	16,528.3	2,813.5	324,941.6	234,700.4	307,425.9	359,756.8	52,330.9	0
88	Grand Total	17,775,330	55,656.4	110,254.1	29,005.9	3,442,849.6	1,776,098.5	3,691,350.3	4,569,725.3	878,374.0	67,158

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Table 2
Water Supply System
Determination of FY 2022 Proforma Revenue Under Existing Charges

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	FY 2022 Proforma Revenue							
	Sales Volume	Existing Charges Fixed Mo	Commodity \$/Mcf	Gross Revenue Exist Charges \$	CTA Revenue Exist Charges \$	Ownership Benefit Adjustment \$	KWA Debt Service Credit \$	Highland Park Bad Debt Expense \$
	Mcf	\$/mo		(1)*(3) + (2)*12	(4)-(6)-(7)-(8)	Allocated Prorata Based on Prior COS		
1 Allen Park	129,300	122,400	7.80	2,477,300	2,265,100	158,700	45,400	8,100
2 Almont Village	9,500	12,200	10.52	246,300	225,200	15,800	4,500	800
3 Ash Township	42,400	42,400	8.28	859,900	786,000	55,100	16,000	2,800
4 Belleville	13,600	16,000	9.77	324,900	297,100	20,800	5,900	1,100
5 Berlin Township	26,600	37,400	11.41	752,300	687,800	48,200	13,900	2,400
6 Brownstown Township	137,500	187,400	10.82	3,736,600	3,415,200	239,300	69,700	12,400
7 Bruce Twp	2,180	15,900	68.40	339,900	310,900	21,700	6,200	1,100
8 Canton Township	349,500	527,600	12.17	10,584,600	9,674,500	678,000	197,100	35,000
9 Center Line	31,200	23,900	6.23	481,200	440,000	30,800	8,800	1,600
10 Chesterfield Township	171,900	217,600	10.33	4,386,900	4,009,800	281,000	81,600	14,500
11 Clinton Township	403,100	390,100	7.79	7,821,300	7,148,700	501,000	145,700	25,900
12 Commerce Township	102,000	183,400	14.50	3,679,800	3,363,400	235,700	68,600	12,100
13 Dearborn	596,300	539,900	7.24	10,796,000	9,865,300	691,400	203,200	36,100
14 Dearborn Heights	197,400	189,200	7.70	3,790,400	3,464,500	242,800	70,600	12,500
15 Eastpointe	104,000	80,600	6.15	1,606,800	1,469,600	103,000	29,000	5,200
16 Ecorse	141,800	78,800	4.31	1,556,800	1,422,900	99,800	29,000	5,100
17 Farmington	44,600	52,300	9.24	1,039,700	950,400	66,700	19,200	3,400
18 Farmington Hills	352,600	460,900	10.20	9,127,300	8,344,100	584,800	168,500	29,900
19 Ferndale	69,800	52,300	6.19	1,059,700	969,200	67,900	19,200	3,400
20 Flat Rock	57,200	70,500	9.18	1,371,100	1,253,300	87,800	25,500	4,500
21 Flint	478,700	572,300	8.76	11,061,000	10,302,000	722,300	(6,652,800)	37,000
22 Fraser	59,100	63,200	8.51	1,261,300	1,152,900	80,800	23,400	4,200
23 Garden City	80,900	87,900	8.30	1,726,300	1,578,200	110,600	31,900	5,600
24 Gibraltar	16,300	17,300	8.33	343,400	314,100	22,000	6,200	1,100
25 Grosse Ile Township	38,300	57,300	11.65	1,133,800	1,036,600	72,600	20,900	3,700
26 Grosse Pt. Park	55,600	76,700	11.04	1,534,200	1,402,300	98,300	28,500	5,100
27 Grosse Pt. Shores	20,200	33,900	13.60	681,500	623,000	43,700	12,500	2,300
28 Grosse Pt. Woods	72,200	73,700	9.13	1,543,600	1,411,100	98,900	28,500	5,100
29 Hamtramck	62,200	40,900	5.39	826,100	755,700	53,000	14,800	2,600
30 Harper Woods	47,600	42,500	6.76	831,800	760,600	53,300	15,200	2,700
31 Harrison Township	94,400	79,100	6.82	1,593,000	1,456,200	102,100	29,400	5,300
32 Hazel Park	50,500	38,200	5.98	760,400	695,500	48,800	13,700	2,400
33 Highland Park	105,700	60,300	4.61	1,210,900	1,110,800	77,800	22,300	0
34 Huron Township	60,300	76,000	10.09	1,520,400	1,389,800	97,400	28,200	5,000
35 Imlay City	45,700	74,600	13.52	1,513,100	1,382,900	96,900	28,200	5,100

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Table 2
Water Supply System
Determination of FY 2022 Proforma Revenue Under Existing Charges

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
	FY 2022 Proforma Revenue								
	Sales Volume	Existing Charges Fixed Mo	Commodity Commodity	Gross Revenue Exist Charges	CTA Revenue Exist Charges	Ownership Benefit Adjustment	KWA Debt Service Credit	Highland Park Bad Debt Expense	
	Mcf	\$/mo	\$/Mcf	\$ (1)*(3) + (2)*12	\$ (4)-(6)-(7)-(8)	\$ Allocated Prorata Based on Prior COS	\$	\$	
36	Imlay Twp	160	800	39.44	15,900	14,700	1,000	200	0
37	Inkster	93,600	63,800	5.45	1,275,700	1,166,400	81,700	23,400	4,200
38	Keego Harbor	9,900	15,500	12.35	308,300	281,800	19,800	5,700	1,000
39	Lapeer	52,100	80,300	11.84	1,580,500	1,444,700	101,300	29,300	5,200
40	Lenox Township	14,900	15,300	8.21	305,900	280,200	19,600	5,200	900
41	Lincoln Park	160,200	115,900	6.12	2,371,200	2,167,900	152,000	43,600	7,700
42	Livonia	480,300	594,800	9.92	11,902,200	10,879,400	762,400	221,100	39,300
43	Macomb Township	329,800	653,000	16.03	13,122,700	11,992,900	840,500	245,700	43,600
44	Madison Heights	106,600	99,400	6.82	1,919,800	1,755,400	123,000	35,200	6,200
45	Mayfield Twp	790	2,500	23.10	48,200	44,300	3,100	700	100
46	Melvindale	42,600	33,600	6.23	668,600	611,600	42,900	12,000	2,100
47	New Haven, Village of	25,500	20,500	6.74	417,900	382,000	26,700	7,800	1,400
48	N O C W A	897,900	1,143,600	10.22	22,899,700	20,932,600	1,467,000	424,700	75,400
49	Northville	31,000	46,100	11.72	916,500	837,800	58,700	17,000	3,000
50	Northville Township	140,800	290,100	16.95	5,867,800	5,362,700	375,800	109,800	19,500
51	Novi	292,400	468,800	12.69	9,336,200	8,533,800	598,100	173,500	30,800
52	Oak Park	97,000	71,700	6.03	1,445,300	1,321,000	92,600	26,900	4,800
53	Oakland Co. Drain Comm.	9,700	4,300	3.29	83,500	76,500	5,400	1,400	200
54	Plymouth	44,100	55,500	10.24	1,117,600	1,021,600	71,600	20,800	3,600
55	Plymouth Township	161,900	229,900	11.31	4,589,900	4,194,700	293,900	86,000	15,300
56	Redford Township	160,500	165,300	8.04	3,274,000	2,993,400	209,800	60,100	10,700
57	River Rouge	37,900	34,800	7.54	703,400	643,300	45,100	12,800	2,200
58	Riverview	48,500	45,000	7.82	919,300	840,200	58,900	17,200	3,000
59	Rockwood	9,900	14,400	11.56	287,200	262,600	18,400	5,300	900
60	Romeo	6,000	13,000	18.18	265,100	242,600	16,900	4,800	800
61	Romulus	218,500	216,400	8.23	4,395,100	4,017,500	281,600	81,500	14,500
62	Roseville	189,900	138,700	5.91	2,786,700	2,547,700	178,600	51,300	9,100
63	Royal Oak Township	11,000	10,500	7.15	204,700	187,200	13,100	3,700	700
64	S O C W A	1,254,800	1,192,900	7.58	23,826,200	21,779,000	1,526,300	442,400	78,500
65	Shelby Township	404,100	724,600	15.15	14,817,300	13,541,700	949,000	277,300	49,300
66	South Rockwood	4,700	6,000	9.92	118,600	108,400	7,600	2,200	400
67	Southgate	114,500	114,600	7.90	2,279,800	2,083,900	146,000	42,400	7,500
68	St. Clair County-Burtchville Twp	7,800	16,800	18.67	347,200	317,400	22,200	6,400	1,200
69	St. Clair County-Greenwood	20,600	36,000	12.83	696,300	637,200	44,600	12,300	2,200
70	St. Clair Shores	190,200	158,300	6.68	3,170,100	2,898,600	203,100	58,100	10,300
71	Sterling Heights	577,900	785,000	10.99	15,771,100	14,415,800	1,010,300	293,000	52,000

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Table 2
Water Supply System
Determination of FY 2022 Proforma Revenue Under Existing Charges

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
	FY 2022 Proforma Revenue								
	Sales Volume	Existing Charges Fixed Mo	Commodity \$/Mcf	Gross Revenue Exist Charges	CTA Revenue Exist Charges	Ownership Benefit Adjustment	KWA Debt Service Credit	Highland Park Bad Debt Expense	
	Mcf	\$/mo	\$/Mcf	\$	\$	\$	\$	\$	
				(1)*(3) + (2)*12	(4)-(6)-(7)-(8)	Allocated Prorata Based on Prior COS			
72	Sumpter Township	29,500	34,500	9.64	698,400	638,300	44,800	13,000	2,300
73	Sylvan Lake	6,400	12,100	15.11	241,900	221,100	15,500	4,500	800
74	Taylor	262,600	241,400	7.24	4,798,000	4,385,800	307,400	89,000	15,800
75	Trenton	87,100	86,700	8.10	1,745,900	1,597,000	111,900	31,400	5,600
76	Troy	473,500	700,800	12.14	14,157,900	12,941,000	906,900	263,300	46,700
77	Utica	24,700	29,800	9.34	588,300	537,800	37,700	10,900	1,900
78	Van Buren Township	132,400	177,200	11.14	3,601,300	3,292,400	230,700	66,400	11,800
79	Walled Lake	30,700	41,700	10.64	827,000	755,800	52,900	15,500	2,800
80	Warren	628,200	530,000	6.89	10,688,300	9,769,000	684,600	199,300	35,400
81	Washington Township	78,700	116,900	12.49	2,385,800	2,180,600	152,800	44,500	7,900
82	Wayne	104,100	159,500	13.38	3,306,900	3,022,700	211,800	61,400	11,000
83	West Bloomfield Township	266,800	538,000	16.29	10,802,200	9,873,700	691,900	200,900	35,700
84	Westland	328,100	321,700	7.80	6,419,600	5,869,000	411,200	118,400	21,000
85	Wixom	74,900	127,600	13.73	2,559,600	2,339,200	163,900	48,000	8,500
86	Woodhaven	57,700	86,700	11.91	1,727,600	1,579,000	110,600	32,300	5,700
87	Ypsilanti Comm Util Auth	485,300	540,900	8.76	10,742,000	9,818,600	688,000	199,900	35,500
88	Total Suburban	13,588,930	183,200	9.53	322,925,800	295,374,200	20,700,000	(862,000)	1,061,100
89	Detroit	4,186,400	1,879,600		43,255,400	42,245,500	(20,700,000)	861,700	149,400
90	GRAND TOTAL	17,775,330			366,181,200	337,619,700	0	(300)	1,210,500
91	less: Bad Debt Expense								
92	Net Wholesale Revenue								
	<u>(a) Flint / Detroit Adjustment Impacts</u>								
93	Flint Gross	478,700	572,300	8.76	11,061,000	10,302,000	722,300	(6,652,800)	36,700
94	less: KWA Debt Svc Credit		(554,400)		(6,652,800)	0	0	0	0
95	Flint Net		17,900		4,408,200	10,302,000	722,300	(6,652,800)	36,700
96	Detroit Gross				43,255,400	42,245,500	(20,700,000)	861,700	148,200
97	less: Ownership Adj Credit				(20,700,000)	0	0	0	0
98	Detroit Net				22,555,400	42,245,500	(20,700,000)	861,700	148,200
99	Modified Demands - Mods	618,980	949,800		19,408,000	17,739,100	1,243,000	361,500	64,400
100	Non-Master Metered - Mods	4,888,400	2,479,800		55,262,300	53,221,600	(19,930,800)	1,087,200	185,500
101	No Mods	12,267,950	14,567,900		291,510,900	266,659,000	18,687,800	(1,449,000)	960,600
102	Total	17,775,330	17,997,500		366,181,200	337,619,700	0	(300)	1,210,500
103	Total Mods (99) + (100)	5,507,380	3,429,600		74,670,300	70,960,700	(18,687,800)	1,448,700	249,900

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Table 3
Executive Summary of FY 2022 BUDGET Comparison (\$ millions)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Water System				Sewer System				Total GLWA			
<u>Annual BUDGET</u>	<u>FY 2021(a)</u>	<u>FY 2022</u>	<u>Change</u>	<u>%Change</u>	<u>FY 2021(a)</u>	<u>FY 2022</u>	<u>Change</u>	<u>%Change</u>	<u>FY 2021(a)</u>	<u>FY 2022</u>	<u>Change</u>	<u>%Change</u>
1 Operation and Maintenance Expense	137.1	143.9	6.8	5.0%	184.9	181.3	(3.6)	-2.0%	322.1	325.2	3.2	1.0%
2 Master Bond Ordinance Commitments	179.7	172.0	(7.7)	-4.3%	262.1	259.5	(2.6)	-1.0%	441.8	431.5	(10.3)	-2.3%
3 Deposit to I&E (and other reserve) Funds	24.8	28.1	3.3	13.1%	39.7	34.6	(5.1)	-12.8%	64.5	62.7	(1.8)	-2.8%
4 TOTAL BUDGET	341.6	344.0	2.4	0.7%	486.8	475.4	(11.3)	-2.3%	828.4	819.5	(8.9)	-1.1%
<u>less: "Non Customer" Revenue</u>												
5 Investment Earnings & Miscellaneous	(4.8)	(1.2)	3.6	-74.7%	(5.6)	(1.4)	4.2	-74.5%	(10.4)	(2.6)	7.8	-74.6%
6 Subtotal Revenue Requirement "Offsets"	(4.8)	(1.2)	3.6	-74.7%	(5.6)	(1.4)	4.2	-74.5%	(10.4)	(2.6)	7.8	-74.6%
7 Preliminary Revenue Req't from Charges	336.8	342.8	6.0	1.8%	481.2	474.0	(7.2)	-1.5%	818.0	816.8	(1.2)	-0.1%
8 plus: Expected "System" Bad Debt	1.2	1.2	0.0	4.1%	1.3	0.0	(1.3)	-100.0%	2.5	1.2	(1.2)	-50.4%
9 Revenue Required from Charges	338.0	344.0	6.0	1.8%	482.5	474.0	(8.5)	-1.8%	820.4	818.0	(2.4)	-0.3%
10 Proforma Billed Revenue - Existing Charges	338.0	338.8	0.9	0.3%	482.5	476.9	(5.5)	-1.1%	820.4	815.8	(4.7)	-0.6%
11 Charge Revenue Adjustment Needed		5.2				(2.9)				2.3		
12 % Charge Revenue Adjustment Needed		1.5%				-0.6%				0.3%		
<u>Charge Adjustment Illustration</u>												
<u>Proforma Revenue - Existing Charges</u>												
13 Revenue from Charges	338.0	338.8	0.9	-0.3%	482.5	476.9	(5.5)	1.2%	820.4	815.8	(4.7)	0.6%
14 Investment Earnings & Miscellaneous	4.8	1.2	(3.6)	1.1%	5.6	1.4	(4.2)	0.9%	10.4	2.6	(7.8)	1.0%
15 Expected Bad Debt Expense	(1.2)	(1.2)	(0.0)	0.0%	(1.3)	0.0	1.3	-0.3%	(2.5)	(1.2)	1.2	-0.2%
16 Net Proforma Revenue Comparison	341.6	338.8	(2.8)		486.8	478.4	(8.4)		828.4	817.2	(11.2)	
17 Adjustment to Address Revenue Variance (Lns 13,14)				0.8%				1.8%				1.4%
18 Adjustment to Address BUDGET Variance (Line 4)				0.7%				-2.3%				-1.1%
19 Average System Charge Adjustment				1.5%				-0.6%				0.3%

(a) As originally approved in March 2020. The originally adopted FY 2021 Budget did not reflect anticipated debt service savings projected by the bond refinancing, nor the increase in the deposit to the I&E Fund. However that expectation was understood as part of the budget approval process, and was accomplished via the First Quarter FY 2021 Budget Amendment once the 2020 transactions closed in May and June.

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Table 4
Water Supply System
Allocation of FY 2022 GLWA Wholesale Service Revenue Requirements to Cost Pools

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Cost Pools									
	Amount to	Common-to-All								Sub Only
	Allocate	Commod	Max Day	PH Incr	PH Dist	Comm DE	MD DE	PH DE	PHI DE	Mtrs
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
<u>Revenue Requirement Elements</u>										
1 Regional System O&M Expense (a)	143,933,800	8,284,100	70,839,800	1,813,300	18,114,000	16,330,400	10,762,100	8,165,200	8,165,200	1,459,700
2 Pension Obligation - Operating Portion	6,048,000	0	3,454,000	98,100	1,033,700	407,000	569,300	203,500	203,500	78,900
3 Debt Service	135,481,000	0	56,389,400	3,773,600	48,515,600	0	0	24,867,100	0	1,935,300
4 Non-Operating Portion of Pension Obligation	6,268,300	0	3,580,000	101,600	1,071,300	421,800	590,000	210,900	210,900	81,800
5 Transfer to WRAP Fund (b)	1,705,500	44,200	778,200	35,000	420,200	91,500	63,600	205,900	45,800	21,100
6 Lease Payment to Detroit Local System	22,500,000	582,800	10,268,100	462,100	5,543,300	1,207,200	838,700	2,715,800	603,600	278,400
7 Transfer to GLWA Regional I&E Account	28,093,900	0	11,693,200	782,500	10,060,400	0	0	5,156,500	0	401,300
8 Total Gross Revenue Requirements	344,030,500	8,911,100	157,002,700	7,066,200	84,758,500	18,457,900	12,823,700	41,524,900	9,229,000	4,256,500
9 less: Investment Earnings & Misc. Revenue (b)	(1,224,500)	(31,700)	(558,900)	(25,200)	(301,700)	(65,700)	(45,600)	(147,800)	(32,800)	(15,100)
10 Revenue Requirements from Charges	342,806,000	8,879,400	156,443,800	7,041,000	84,456,800	18,392,200	12,778,100	41,377,100	9,196,200	4,241,400
<u>Summary - Revenues Required from Charges</u>										
11 Net Operating Expenses	149,981,800	8,284,100	74,293,800	1,911,400	19,147,700	16,737,400	11,331,400	8,368,700	8,368,700	1,538,600
12 Net Capital Requirements	192,824,200	595,300	82,150,000	5,129,600	65,309,100	1,654,800	1,446,700	33,008,400	827,500	2,702,800
13 Total	342,806,000	8,879,400	156,443,800	7,041,000	84,456,800	18,392,200	12,778,100	41,377,100	9,196,200	4,241,400
14 Relative Cost Pool Distribution		2.6%	45.6%	2.1%	24.6%	5.4%	3.7%	12.1%	2.7%	1.2%
<u>(a) O&M Budget Adjustments</u>										
15 Original O&M Budget Request	145,497,300	8,316,300	71,115,400	1,820,300	19,188,300	16,393,900	10,803,900	8,196,900	8,196,900	1,465,400
Budget Reductions										
16 Specific Based on Budget Review	(1,000,000)				(1,000,000)					
17 General to All Cost Pools	(563,500)	(32,200)	(275,600)	(7,000)	(74,300)	(63,500)	(41,800)	(31,700)	(31,700)	(5,700)
18 Allocated Budget Reductions	(1,563,500)	(32,200)	(275,600)	(7,000)	(1,074,300)	(63,500)	(41,800)	(31,700)	(31,700)	(5,700)
19 Adjusted O&M Budget	143,933,800	8,284,100	70,839,800	1,813,300	18,114,000	16,330,400	10,762,100	8,165,200	8,165,200	1,459,700
<u>(b) WRAP and Non-Charge Revenue Adjustments</u>										
20 Original WRAP Budget	1,702,000									
21 Revenue Req't from Charges w/o WRAP	341,104,000									
22 Adjusted WRAP Amount @ 0.05%	1,705,500									
23 Adjustment to WRAP & Non-Charge Revenue	3,500									
24 Original Non Charge Revenue Budget	1,221,000									
25 Adjusted Non Charge Revenue Budget	1,224,500									

Table 5
Water Supply System
Calculation and Application of FY 2022 Wholesale Service SHARES - Common To All (CTA) Cost Pools

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
						Specific Cost Pools								
		Summary by Major Category					Maximum Day	Peak Hour	Peak Hour	Commodity Distance-	Max Day Distance-	Peak Hour Distance-	Peak Hr Incr Distance-	
CTA SHARES		Total	Commodity	Max Day	Peak Hour	Demand	Commodity	Usage	Increment	Distance	Elevation	Elevation	Elevation	Elevation
1	Bruce Twp	0.088%	0.017%	0.067%	0.127%	0.094%	0.013%	0.065%	0.161%	0.112%	0.019%	0.092%	0.123%	0.253%
2	Dearborn	2.912%	2.467%	3.139%	2.728%	2.951%	3.287%	3.236%	4.481%	2.842%	2.071%	1.943%	2.141%	2.974%
3	Grosse Pt. Park	0.378%	0.214%	0.392%	0.393%	0.393%	0.303%	0.407%	0.959%	0.380%	0.171%	0.219%	0.286%	0.570%
4	Grosse Pt. Woods	0.358%	0.287%	0.413%	0.305%	0.364%	0.395%	0.428%	0.429%	0.327%	0.234%	0.241%	0.246%	0.268%
5	Harrison Township	0.452%	0.443%	0.472%	0.430%	0.453%	0.531%	0.482%	0.484%	0.468%	0.399%	0.346%	0.353%	0.384%
6	Highland Park	0.332%	0.430%	0.418%	0.210%	0.323%	0.574%	0.431%	0.035%	0.244%	0.360%	0.258%	0.213%	0.023%
7	New Haven, Village of	0.118%	0.142%	0.106%	0.129%	0.116%	0.148%	0.106%	0.145%	0.138%	0.139%	0.096%	0.105%	0.144%
8	Northville	0.216%	0.259%	0.211%	0.213%	0.212%	0.181%	0.202%	0.046%	0.213%	0.297%	0.317%	0.271%	0.080%
9	Shelby Township	4.042%	2.423%	3.170%	5.390%	4.183%	2.302%	3.164%	9.517%	4.792%	2.482%	3.251%	4.704%	10.811%
10	St. Clair County-Greenwood	0.259%	0.208%	0.240%	0.292%	0.264%	0.129%	0.226%	0.000%	0.329%	0.246%	0.411%	0.332%	0.000%
10	Subtotal Suburban "Mods"	9.155%	6.889%	8.628%	10.218%	9.354%	7.863%	8.747%	16.257%	9.846%	6.418%	7.173%	8.775%	15.507%
77	"No Mod" Suburban	78.611%	76.818%	76.883%	81.012%	78.768%	69.465%	76.261%	74.044%	80.716%	80.367%	84.498%	83.352%	78.535%
87	Total Suburban	87.766%	83.707%	85.512%	91.230%	88.122%	77.328%	85.009%	90.300%	90.562%	86.786%	91.672%	92.127%	94.042%
1	Detroit	12.234%	16.294%	14.488%	8.770%	11.878%	22.672%	14.991%	9.700%	9.438%	13.214%	8.328%	7.873%	5.958%
88	Grand Total	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%
BUDGET TO ALLOCATE		338,564,600	27,271,600	169,221,900	142,071,100	311,293,000	8,879,400	156,443,800	7,041,000	84,456,800	18,392,200	12,778,100	41,377,100	9,196,200
ALLOCATED CTA BUDGET														
1	Bruce Twp	298,300	4,600	113,100	180,600	293,700	1,100	101,300	11,300	95,000	3,500	11,800	51,000	23,300
2	Dearborn	9,859,700	672,700	5,311,600	3,875,400	9,187,000	291,900	5,063,300	315,500	2,400,400	380,800	248,300	886,000	273,500
3	Grosse Pt. Park	1,281,400	58,400	664,000	559,000	1,223,000	26,900	636,100	67,500	320,700	31,500	27,900	118,400	52,400
4	Grosse Pt. Woods	1,210,700	78,200	699,600	432,900	1,132,500	35,100	668,800	30,200	276,200	43,100	30,800	101,900	24,600
5	Harrison Township	1,530,200	120,700	798,500	611,000	1,409,500	47,200	754,300	34,100	395,600	73,500	44,200	146,000	35,300
6	Highland Park	1,123,900	117,200	707,900	298,800	1,006,700	51,000	675,000	2,500	206,200	66,200	32,900	88,000	2,100
7	New Haven, Village of	400,700	38,700	178,600	183,400	362,000	13,100	166,400	10,200	116,500	25,600	12,200	43,400	13,300
8	Northville	730,200	70,600	356,600	303,000	659,600	16,000	316,100	3,200	180,200	54,600	40,500	112,300	7,300
9	Shelby Township	13,683,400	660,900	5,365,000	7,657,500	13,022,500	204,400	4,949,600	670,100	4,046,800	456,500	415,400	1,946,400	994,200
10	St. Clair County-Greenwood	878,400	56,800	406,400	415,200	821,600	11,500	353,800	0	277,700	45,300	52,600	137,500	0
10	Subtotal Suburban "Mods"	30,997,000	1,878,700	14,601,400	14,516,900	29,118,300	698,200	13,684,800	1,144,600	8,315,300	1,180,500	916,600	3,630,900	1,426,100
77	"No Mod" Suburban	266,147,800	20,949,400	130,103,700	115,094,700	245,198,400	6,168,100	119,306,400	5,213,400	68,170,300	14,781,300	10,797,300	34,488,700	7,222,300
87	Total Suburban	297,144,700	22,828,100	144,705,100	129,611,500	274,316,600	6,866,300	132,991,200	6,358,000	76,485,600	15,961,800	11,713,900	38,119,600	8,648,300
1	Detroit	41,419,900	4,443,500	24,516,800	12,459,600	36,976,400	2,013,100	23,452,600	683,000	7,971,200	2,430,400	1,064,200	3,257,500	547,900
88	Grand Total	338,564,600	27,271,600	169,221,900	142,071,100	311,293,000	8,879,400	156,443,800	7,041,000	84,456,800	18,392,200	12,778,100	41,377,100	9,196,200

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Table 6
Water Supply System
Calculation and Application of FY 2022 Suburban Only SHAREs
and Determination of CTA Revenue Requirement Adjustments

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Suburban Only Master Meter Allocation		Allocated CTA	Allocated Comprehensive	Proforma CTA	Adjustment	% Adjustment
	<u>SHARE</u>	<u>Rev Req't</u>	<u>Rev Req't</u>	<u>Rev Req't</u>	<u>Revenue</u>	<u>Required</u>	<u>Required</u>
		4,241,400	Table 5 + (2)	(2) + (3)	Table 2	(4) - (5)	(6) / (5)
1 Bruce Twp	0.171%	7,300	298,300	305,600	310,900	(5,300)	-1.70%
2 Dearborn	0.000%	0	9,859,700	9,859,700	9,865,300	(5,600)	-0.06%
3 Grosse Pt. Park	0.433%	18,400	1,281,400	1,299,800	1,402,300	(102,500)	-7.31%
4 Grosse Pt. Woods	0.686%	29,100	1,210,700	1,239,800	1,411,100	(171,300)	-12.14%
5 Harrison Township	0.655%	27,800	1,530,200	1,558,000	1,456,200	101,800	6.99%
6 Highland Park	0.000%	0	1,123,900	1,123,900	1,110,800	13,100	1.18%
7 New Haven, Village of	0.119%	5,100	400,700	405,800	382,000	23,800	6.23%
8 Northville	0.314%	13,300	730,200	743,500	837,800	(94,300)	-11.26%
9 Shelby Township	1.855%	78,700	13,683,400	13,762,100	13,541,700	220,400	1.63%
10 St. Clair County-Greenwood	0.615%	26,100	878,400	904,500	637,200	267,300	41.95%
10 Subtotal Suburban "Mods"	4.852%	205,800	30,996,900	31,202,700	30,955,300	247,400	0.80%
77 "No Mod" Suburban	95.148%	4,035,600	266,147,800	270,183,400	264,418,900	5,764,500	2.18%
87 Total Suburban	100.000%	4,241,400	297,144,700	301,386,100	295,374,200	6,011,900	2.04%
1 Detroit	NA	NA	41,419,900	41,419,900	42,245,500	(825,600)	-1.95%
88 Grand Total	100.000%	4,241,400	338,564,600	342,806,000	337,619,700	5,186,300	1.54%
11 Total Mods	4.852%	205,800	72,416,800	72,622,600	73,200,800	(578,200)	-0.79%

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Table 7
Water Supply System
Allocation of FY 2022 Revenue Requirements and Adjustments to Member Partners

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Proforma CTA Revenue	Indexed Adjustment	CTA Rev Req't Adjustment	Allocated CTA Rev Req't	Detroit Ownership Adjustment		Flint KWA Debt Svc Adj		HP Bad Debt Adjustment	
	\$	%	\$	\$	Apply Adjustment	Adjusted Rev Req't	Apply Adjustment	Adjusted Rev Req't	Apply Adjustment	Charge Rev Req't
	Table 2	Table 6	(1) * (2)	(1) + (3)	\$	\$	\$	\$	\$	\$
					20,700,000	(4) + (5)	6,652,800	(6) + (7)	1,223,600	(8) + (9)
1 Allen Park	2,265,100	2.18%	49,400	2,314,500	159,000	2,473,500	46,300	2,519,800	8,300	2,528,100
2 Almont Village	225,200	2.18%	4,900	230,100	15,800	245,900	4,600	250,500	800	251,300
3 Ash Township	786,000	2.18%	17,100	803,100	55,200	858,300	16,100	874,400	2,900	877,300
4 Belleville	297,100	2.18%	6,500	303,600	20,900	324,500	6,100	330,600	1,100	331,700
5 Berlin Township	687,800	2.18%	15,000	702,800	48,300	751,100	14,100	765,200	2,500	767,700
6 Brownstown Township	3,415,200	2.18%	74,500	3,489,700	239,700	3,729,400	69,900	3,799,300	12,500	3,811,800
7 Bruce Twp	310,900	-1.70%	(5,300)	305,600	21,000	326,600	6,100	332,700	1,100	333,800
8 Canton Township	9,674,500	2.18%	210,900	9,885,400	679,000	10,564,400	197,900	10,762,300	35,400	10,797,700
9 Center Line	440,000	2.18%	9,600	449,600	30,900	480,500	9,000	489,500	1,600	491,100
10 Chesterfield Township	4,009,800	2.18%	87,400	4,097,200	281,400	4,378,600	82,000	4,460,600	14,700	4,475,300
11 Clinton Township	7,148,700	2.18%	155,800	7,304,500	501,700	7,806,200	146,200	7,952,400	26,200	7,978,600
12 Commerce Township	3,363,400	2.18%	73,300	3,436,700	236,000	3,672,700	68,800	3,741,500	12,300	3,753,800
13 Dearborn	9,865,300	-0.06%	(5,600)	9,859,700	677,200	10,536,900	197,400	10,734,300	35,300	10,769,600
14 Dearborn Heights	3,464,500	2.18%	75,500	3,540,000	243,100	3,783,100	70,900	3,854,000	12,700	3,866,700
15 Eastpointe	1,469,600	2.18%	32,000	1,501,600	103,100	1,604,700	30,100	1,634,800	5,400	1,640,200
16 Ecorse	1,422,900	2.18%	31,000	1,453,900	99,900	1,553,800	29,100	1,582,900	5,200	1,588,100
17 Farmington	950,400	2.18%	20,700	971,100	66,700	1,037,800	19,400	1,057,200	3,500	1,060,700
18 Farmington Hills	8,344,100	2.18%	181,900	8,526,000	585,600	9,111,600	170,700	9,282,300	30,500	9,312,800
19 Ferndale	969,200	2.18%	21,100	990,300	68,000	1,058,300	19,800	1,078,100	3,500	1,081,600
20 Flat Rock	1,253,300	2.18%	27,300	1,280,600	88,000	1,368,600	25,600	1,394,200	4,600	1,398,800
21 Flint	10,302,000	2.18%	224,600	10,526,600	723,000	11,249,600	(6,652,800)	4,596,800	37,700	4,634,500
22 Fraser	1,152,900	2.18%	25,100	1,178,000	80,900	1,258,900	23,600	1,282,500	4,200	1,286,700
23 Garden City	1,578,200	2.18%	34,400	1,612,600	110,800	1,723,400	32,300	1,755,700	5,800	1,761,500
24 Gibraltar	314,100	2.18%	6,800	320,900	22,000	342,900	6,400	349,300	1,100	350,400
25 Grosse Ile Township	1,036,600	2.18%	22,600	1,059,200	72,700	1,131,900	21,200	1,153,100	3,800	1,156,900
26 Grosse Pt. Park	1,402,300	-7.31%	(102,500)	1,299,800	89,300	1,389,100	26,000	1,415,100	4,700	1,419,800
27 Grosse Pt. Shores	623,000	2.18%	13,600	636,600	43,700	680,300	12,700	693,000	2,300	695,300
28 Grosse Pt. Woods	1,411,100	-12.14%	(171,300)	1,239,800	85,200	1,325,000	24,800	1,349,800	4,400	1,354,200
29 Hamtramck	755,700	2.18%	16,500	772,200	53,000	825,200	15,500	840,700	2,800	843,500
30 Harper Woods	760,600	2.18%	16,600	777,200	53,400	830,600	15,600	846,200	2,800	849,000
31 Harrison Township	1,456,200	6.99%	101,800	1,558,000	107,000	1,665,000	31,200	1,696,200	5,600	1,701,800
32 Hazel Park	695,500	2.18%	15,200	710,700	48,800	759,500	14,200	773,700	2,500	776,200
33 Highland Park	1,110,800	1.18%	13,100	1,123,900	77,200	1,201,100	22,500	1,223,600	0	1,223,600
34 Huron Township	1,389,800	2.18%	30,300	1,420,100	97,500	1,517,600	28,400	1,546,000	5,100	1,551,100
35 Imlay City	1,382,900	2.18%	30,100	1,413,000	97,000	1,510,000	28,300	1,538,300	5,100	1,543,400

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Table 7
Water Supply System
Allocation of FY 2022 Revenue Requirements and Adjustments to Member Partners

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Proforma CTA <u>Revenue</u>	Indexed <u>Adjustment</u>	CTA Rev Req't <u>Adjustment</u>	Allocated CTA <u>Rev Req't</u>	<u>Detroit Ownership Adjustment</u>		<u>Flint KWA Debt Svc Adj</u>		<u>HP Bad Debt Adjustment</u>	
	<u>\$</u>	<u>%</u>	<u>\$</u>	<u>\$</u>	<u>Apply</u> <u>Adjustment</u>	<u>Adjusted</u> <u>Rev Req't</u>	<u>Apply</u> <u>Adjustment</u>	<u>Adjusted</u> <u>Rev Req't</u>	<u>Apply</u> <u>Adjustment</u>	<u>Charge</u> <u>Rev Req't</u>
	<i>Table 2</i>	<i>Table 6</i>	<i>(1) * (2)</i>	<i>(1) + (3)</i>	<u>\$</u>	<u>\$</u>	<u>\$</u>	<u>\$</u>	<u>\$</u>	<u>\$</u>
					20,700,000	(4) + (5)	6,652,800	(6) + (7)	1,223,600	(8) + (9)
36	Imlay Twp	14,700	2.18%	300	15,000	1,000	16,000	300	16,300	100
37	Inkster	1,166,400	2.18%	25,400	1,191,800	81,900	1,273,700	23,900	1,297,600	4,300
38	Keego Harbor	281,800	2.18%	6,100	287,900	19,800	307,700	5,800	313,500	1,000
39	Lapeer	1,444,700	2.18%	31,500	1,476,200	101,400	1,577,600	29,600	1,607,200	5,300
40	Lenox Township	280,200	2.18%	6,100	286,300	19,700	306,000	5,700	311,700	1,000
41	Lincoln Park	2,167,900	2.18%	47,300	2,215,200	152,100	2,367,300	44,400	2,411,700	7,900
42	Livonia	10,879,400	2.18%	237,200	11,116,600	763,500	11,880,100	222,600	12,102,700	39,800
43	Macomb Township	11,992,900	2.18%	261,500	12,254,400	841,700	13,096,100	245,400	13,341,500	43,900
44	Madison Heights	1,755,400	2.18%	38,300	1,793,700	123,200	1,916,900	35,900	1,952,800	6,400
45	Mayfield Twp	44,300	2.18%	1,000	45,300	3,100	48,400	900	49,300	200
46	Melvindale	611,600	2.18%	13,300	624,900	42,900	667,800	12,500	680,300	2,200
47	New Haven, Village of	382,000	6.23%	23,800	405,800	27,900	433,700	8,100	441,800	1,500
48	N O C W A	20,932,600	2.18%	456,300	21,388,900	1,469,000	22,857,900	428,200	23,286,100	76,600
49	Northville	837,800	-11.26%	(94,300)	743,500	51,100	794,600	14,900	809,500	2,700
50	Northville Township	5,362,700	2.18%	116,900	5,479,600	376,400	5,856,000	109,700	5,965,700	19,600
51	Novi	8,533,800	2.18%	186,000	8,719,800	598,900	9,318,700	174,600	9,493,300	31,200
52	Oak Park	1,321,000	2.18%	28,800	1,349,800	92,700	1,442,500	27,000	1,469,500	4,800
53	Oakland Co. Drain Comm.	76,500	2.18%	1,700	78,200	5,400	83,600	1,600	85,200	300
54	Plymouth	1,021,600	2.18%	22,300	1,043,900	71,700	1,115,600	20,900	1,136,500	3,700
55	Plymouth Township	4,194,700	2.18%	91,400	4,286,100	294,400	4,580,500	85,800	4,666,300	15,300
56	Redford Township	2,993,400	2.18%	65,300	3,058,700	210,100	3,268,800	61,200	3,330,000	11,000
57	River Rouge	643,300	2.18%	14,000	657,300	45,100	702,400	13,200	715,600	2,400
58	Riverview	840,200	2.18%	18,300	858,500	59,000	917,500	17,200	934,700	3,100
59	Rockwood	262,600	2.18%	5,700	268,300	18,400	286,700	5,400	292,100	1,000
60	Romeo	242,600	2.18%	5,300	247,900	17,000	264,900	5,000	269,900	900
61	Romulus	4,017,500	2.18%	87,600	4,105,100	281,900	4,387,000	82,200	4,469,200	14,700
62	Roseville	2,547,700	2.18%	55,500	2,603,200	178,800	2,782,000	52,100	2,834,100	9,300
63	Royal Oak Township	187,200	2.18%	4,100	191,300	13,100	204,400	3,800	208,200	700
64	S O C W A	21,779,000	2.18%	474,800	22,253,800	1,528,500	23,782,300	445,600	24,227,900	79,700
65	Shelby Township	13,541,700	1.63%	220,400	13,762,100	945,200	14,707,300	275,500	14,982,800	49,300
66	South Rockwood	108,400	2.18%	2,400	110,800	7,600	118,400	2,200	120,600	400
67	Southgate	2,083,900	2.18%	45,400	2,129,300	146,200	2,275,500	42,600	2,318,100	7,600
68	St. Clair County-Burtchville Twp	317,400	2.18%	6,900	324,300	22,300	346,600	6,500	353,100	1,200
69	St. Clair County-Greenwood	637,200	41.95%	267,300	904,500	62,100	966,600	18,100	984,700	3,200
70	St. Clair Shores	2,898,600	2.18%	63,200	2,961,800	203,400	3,165,200	59,300	3,224,500	10,600
71	Sterling Heights	14,415,800	2.18%	314,300	14,730,100	1,011,700	15,741,800	294,900	16,036,700	52,800

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THE FOSTER GROUP

Table 7
Water Supply System
Allocation of FY 2022 Revenue Requirements and Adjustments to Member Partners

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Proforma CTA Revenue	Indexed Adjustment	CTA Rev Req't Adjustment	Allocated CTA Rev Req't	Detroit Ownership Adjustment		Flint KWA Debt Svc Adj		HP Bad Debt Adjustment	
	\$	%	\$	\$	Apply Adjustment	Adjusted Rev Req't	Apply Adjustment	Adjusted Rev Req't	Apply Adjustment	Charge Rev Req't
	Table 2	Table 6	(1) * (2)	(1) + (3)	\$	\$	\$	\$	\$	\$
					20,700,000	(4) + (5)	6,652,800	(6) + (7)	1,223,600	(8) + (9)
72 Sumpter Township	638,300	2.18%	13,900	652,200	44,800	697,000	13,100	710,100	2,300	712,400
73 Sylvan Lake	221,100	2.18%	4,800	225,900	15,500	241,400	4,500	245,900	800	246,700
74 Taylor	4,385,800	2.18%	95,600	4,481,400	307,800	4,789,200	89,700	4,878,900	16,000	4,894,900
75 Trenton	1,597,000	2.18%	34,800	1,631,800	112,100	1,743,900	32,700	1,776,600	5,800	1,782,400
76 Troy	12,941,000	2.18%	282,100	13,223,100	908,200	14,131,300	264,700	14,396,000	47,400	14,443,400
77 Utica	537,800	2.18%	11,700	549,500	37,700	587,200	11,000	598,200	2,000	600,200
78 Van Buren Township	3,292,400	2.18%	71,800	3,364,200	231,100	3,595,300	67,400	3,662,700	12,000	3,674,700
79 Walled Lake	755,800	2.18%	16,500	772,300	53,000	825,300	15,500	840,800	2,800	843,600
80 Warren	9,769,000	2.18%	213,000	9,982,000	685,600	10,667,600	199,900	10,867,500	35,700	10,903,200
81 Washington Township	2,180,600	2.18%	47,500	2,228,100	153,000	2,381,100	44,600	2,425,700	8,000	2,433,700
82 Wayne	3,022,700	2.18%	65,900	3,088,600	212,100	3,300,700	61,800	3,362,500	11,100	3,373,600
83 West Bloomfield Township	9,873,700	2.18%	215,300	10,089,000	692,900	10,781,900	202,000	10,983,900	36,100	11,020,000
84 Westland	5,869,000	2.18%	127,900	5,996,900	411,900	6,408,800	120,100	6,528,900	21,500	6,550,400
85 Wixom	2,339,200	2.18%	51,000	2,390,200	164,200	2,554,400	47,900	2,602,300	8,600	2,610,900
86 Woodhaven	1,579,000	2.18%	34,400	1,613,400	110,800	1,724,200	32,300	1,756,500	5,800	1,762,300
87 Ypsilanti Comm Util Auth	9,818,600	2.18%	214,100	10,032,700	689,100	10,721,800	200,900	10,922,700	35,900	10,958,600
88 Total Suburban	295,374,200	2.04%	6,011,600	301,385,800	20,700,000	322,085,800	(829,300)	321,256,500	1,075,500	322,332,000
89 Detroit	42,245,500	-1.95%	(825,600)	41,419,900	(20,700,000)	20,719,900	829,300	21,549,200	148,100	21,697,300
90 GRAND TOTAL	337,619,700	1.54%	5,186,000	342,805,700	0	342,805,700	0	342,805,700	1,223,600	344,029,300
91 less: Bad Debt Expense										(1,223,600)
92 Net Wholesale Revenue				342,805,700	0	342,805,700	0	342,805,700	1,223,600	342,805,700
93 Modified Demands	19,979,200	1.20%	239,900	20,219,100	1,388,800	21,607,900	404,700	22,012,600	72,500	22,085,100
94 Non-Master Metered	53,221,600	-1.54%	(818,100)	52,403,500	(19,945,600)	32,457,900	1,049,200	33,507,100	183,400	33,690,500
95 No Mods	264,418,900	2.18%	5,764,200	270,183,100	18,556,800	288,739,900	(1,453,900)	287,286,000	967,700	288,253,700
96 Total	337,619,700	1.54%	5,186,000	342,805,700	0	342,805,700	0	342,805,700	1,223,600	344,029,300
97 Total Mods (93) + (94)	73,200,800	-0.79%	(578,200)	72,622,600	(18,556,800)	54,065,800	1,453,900	55,519,700	255,900	55,775,600

Table 8
Water Supply System
Calculation of FY 2022 Wholesale Water Service Charge Schedule

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)		
		Sales	Existing Charges		Proforma	Allocated	Charge	% Charge	60%		Recover Via:		Proposed Charges		Projected	Revenue
		Volume	Fixed Mo	Commodity	Exist Charges	Revenue Req't	Adjustment	Adjustment	Fixed Mo	Commodity	Fixed Mo	Commodity	Revenue	Recovery		
		Mcf	\$/mo	\$/Mcf	\$	\$	\$		\$	\$	\$/mo	\$/Mcf	\$			
					Table 2	Table 7	(5) - (4)	(6) / (4)	60% of (5)	(5) - (8)*12	(8) / 12 mos	(9) / (1)	'2*(10)+(1)*(11,	(12) / (5)		
1	Allen Park	129,300	122,400	7.80	2,477,300	2,528,100	50,800	2.05%	1,516,900	1,011,300	126,400	7.82	2,527,900	100.0%		
2	Almont Village	9,500	12,200	10.52	246,300	251,300	5,000	2.03%	150,800	100,100	12,600	10.54	251,300	100.0%		
3	Ash Township	42,400	42,400	8.28	859,900	877,300	17,400	2.02%	526,400	350,500	43,900	8.27	877,400	100.0%		
4	Belleville	13,600	16,000	9.77	324,900	331,700	6,800	2.09%	199,000	132,500	16,600	9.74	331,700	100.0%		
5	Berlin Township	26,600	37,400	11.41	752,300	767,700	15,400	2.05%	460,600	306,900	38,400	11.54	767,800	100.0%		
6	Brownstown Township	137,500	187,400	10.82	3,736,600	3,811,800	75,200	2.01%	2,287,100	1,524,600	190,600	11.09	3,812,100	100.0%		
7	Bruce Twp	2,180	15,900	68.40	339,900	333,800	(6,100)	-1.79%	200,300	133,400	16,700	61.19	333,800	100.0%		
8	Canton Township	349,500	527,600	12.17	10,584,600	10,797,700	213,100	2.01%	6,478,600	4,318,900	539,900	12.36	10,798,600	100.0%		
9	Center Line	31,200	23,900	6.23	481,200	491,100	9,900	2.06%	294,700	195,900	24,600	6.28	491,100	100.0%		
10	Chesterfield Township	171,900	217,600	10.33	4,386,900	4,475,300	88,400	2.02%	2,685,200	1,789,700	223,800	10.41	4,475,100	100.0%		
11	Clinton Township	403,100	390,100	7.79	7,821,300	7,978,600	157,300	2.01%	4,787,200	3,191,800	398,900	7.92	7,979,400	100.0%		
12	Commerce Township	102,000	183,400	14.50	3,679,800	3,753,800	74,000	2.01%	2,252,300	1,501,400	187,700	14.72	3,753,800	100.0%		
13	Dearborn	596,300	539,900	7.24	10,796,000	10,769,600	(26,400)	-0.24%	6,461,800	4,307,600	538,500	7.22	10,767,300	100.0%		
14	Dearborn Heights	197,400	189,200	7.70	3,790,400	3,866,700	76,300	2.01%	2,320,000	1,547,100	193,300	7.84	3,867,200	100.0%		
15	Eastpointe	104,000	80,600	6.15	1,606,800	1,640,200	33,400	2.08%	984,100	656,200	82,000	6.31	1,640,200	100.0%		
16	Ecorse	141,800	78,800	4.31	1,556,800	1,588,100	31,300	2.01%	952,900	635,300	79,400	4.48	1,588,100	100.0%		
17	Farmington	44,600	52,300	9.24	1,039,700	1,060,700	21,000	2.02%	636,400	424,700	53,000	9.52	1,060,600	100.0%		
18	Farmington Hills	352,600	460,900	10.20	9,127,300	9,312,800	185,500	2.03%	5,587,700	3,725,600	465,600	10.57	9,314,200	100.0%		
19	Ferndale	69,800	52,300	6.19	1,059,700	1,081,600	21,900	2.07%	649,000	432,400	54,100	6.19	1,081,300	100.0%		
20	Flat Rock	57,200	70,500	9.18	1,371,100	1,398,800	27,700	2.02%	839,300	560,000	69,900	9.79	1,398,800	100.0%		
21	Flint (a)	478,700	17,900	8.76	4,408,500	4,634,500	226,000	5.13%	119,600	4,514,500	10,000	9.43	4,634,100	100.0%		
22	Fraser	59,100	63,200	8.51	1,261,300	1,286,700	25,400	2.01%	772,000	515,100	64,300	8.72	1,287,000	100.0%		
23	Garden City	80,900	87,900	8.30	1,726,300	1,761,500	35,200	2.04%	1,056,900	704,300	88,100	8.71	1,761,800	100.0%		
24	Gibraltar	16,300	17,300	8.33	343,400	350,400	7,000	2.04%	210,200	140,400	17,500	8.61	350,300	100.0%		
25	Grosse Ile Township	38,300	57,300	11.65	1,133,800	1,156,900	23,100	2.04%	694,100	463,300	57,800	12.10	1,157,000	100.0%		
26	Grosse Pt. Park	55,600	76,700	11.04	1,534,200	1,419,800	(114,400)	-7.46%	851,900	567,800	71,000	10.21	1,419,700	100.0%		
27	Grosse Pt. Shores	20,200	33,900	13.60	681,500	695,300	13,800	2.02%	417,200	277,700	34,800	13.75	695,400	100.0%		
28	Grosse Pt. Woods	72,200	73,700	9.13	1,543,600	1,354,200	(189,400)	-12.27%	812,500	541,800	67,700	7.50	1,353,900	100.0%		
29	Hamtramck	62,200	40,900	5.39	826,100	843,500	17,400	2.11%	506,100	337,100	42,200	5.42	843,500	100.0%		
30	Harper Woods	47,600	42,500	6.76	831,800	849,000	17,200	2.07%	509,400	339,000	42,500	7.12	848,900	100.0%		
31	Harrison Township	94,400	79,100	6.82	1,593,000	1,701,800	108,800	6.83%	1,021,100	680,600	85,100	7.21	1,701,800	100.0%		
32	Hazel Park	50,500	38,200	5.98	760,400	776,200	15,800	2.08%	465,700	310,600	38,800	6.15	776,200	100.0%		
33	Highland Park	105,700	60,300	4.61	1,210,900	1,223,600	12,700	1.05%	734,200	489,200	61,200	4.63	1,223,800	100.0%		
34	Huron Township	60,300	76,000	10.09	1,520,400	1,551,100	30,700	2.02%	930,700	619,900	77,600	10.28	1,551,100	100.0%		
35	Imlay City	45,700	74,600	13.52	1,513,100	1,543,400	30,300	2.00%	926,000	617,000	77,200	13.50	1,543,400	100.0%		

Table 8
Water Supply System
Calculation of FY 2022 Wholesale Water Service Charge Schedule

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	
		Sales	Existing Charges		Proforma	Allocated	Charge	% Charge	60%	Recover Via:		Proposed Charges		Projected	Revenue
		Volume	Fixed Mo	Commodity	Revenue	Revenue Req't	Adjustment	Adjustment	Fixed Mo	Commodity	Fixed Mo	Commodity	Revenue	Recovery	
		Mcf	\$/mo	\$/Mcf	\$	\$	\$		\$	\$	\$/mo	\$/Mcf	\$		
					Table 2	Table 7	(5) - (4)	(6) / (4)	60% of (5)	(5) - (8)*12	(8) / 12 mos	(9) / (1)	'12*(10)+(1)*(11,	(12) / (5)	
36	Imlay Twp	160	800	39.44	15,900	16,400	500	3.14%	9,800	6,800	800	42.50	16,400	100.0%	
37	Inkster	93,600	63,800	5.45	1,275,700	1,301,900	26,200	2.05%	781,100	520,700	65,100	5.56	1,301,600	100.0%	
38	Keego Harbor	9,900	15,500	12.35	308,300	314,500	6,200	2.01%	188,700	126,100	15,700	12.74	314,500	100.0%	
39	Lapeer	52,100	80,300	11.84	1,580,500	1,612,500	32,000	2.02%	967,500	645,300	80,600	12.39	1,612,700	100.0%	
40	Lenox Township	14,900	15,300	8.21	305,900	312,700	6,800	2.22%	187,600	125,500	15,600	8.42	312,700	100.0%	
41	Lincoln Park	160,200	115,900	6.12	2,371,200	2,419,600	48,400	2.04%	1,451,800	967,600	121,000	6.04	2,419,600	100.0%	
42	Livonia	480,300	594,800	9.92	11,902,200	12,142,500	240,300	2.02%	7,285,500	4,857,300	607,100	10.11	12,141,000	100.0%	
43	Macomb Township	329,800	653,000	16.03	13,122,700	13,385,400	262,700	2.00%	8,031,200	5,353,800	669,300	16.23	13,384,300	100.0%	
44	Madison Heights	106,600	99,400	6.82	1,919,800	1,959,200	39,400	2.05%	1,175,500	783,200	98,000	7.35	1,959,500	100.0%	
45	Mayfield Twp	790	2,500	23.10	48,200	49,500	1,300	2.70%	29,700	19,500	2,500	24.68	49,500	100.0%	
46	Melvindale	42,600	33,600	6.23	668,600	682,500	13,900	2.08%	409,500	273,300	34,100	6.42	682,700	100.0%	
47	New Haven, Village of	25,500	20,500	6.74	417,900	443,300	25,400	6.08%	266,000	176,900	22,200	6.94	443,400	100.0%	
48	N O C W A	897,900	1,143,600	10.22	22,899,700	23,362,700	463,000	2.02%	14,017,600	9,345,500	1,168,100	10.41	23,364,300	100.0%	
49	Northville	31,000	46,100	11.72	916,500	812,200	(104,300)	-11.38%	487,300	325,000	40,600	10.48	812,100	100.0%	
50	Northville Township	140,800	290,100	16.95	5,867,800	5,985,300	117,500	2.00%	3,591,200	2,393,700	299,300	17.00	5,985,200	100.0%	
51	Novi	292,400	468,800	12.69	9,336,200	9,524,500	188,300	2.02%	5,714,700	3,810,100	476,200	13.03	9,524,400	100.0%	
52	Oak Park	97,000	71,700	6.03	1,445,300	1,474,300	29,000	2.01%	884,600	589,900	73,700	6.08	1,474,200	100.0%	
53	Oakland Co. Drain Comm.	9,700	4,300	3.29	83,500	85,500	2,000	2.40%	51,300	33,900	4,300	3.49	85,500	100.0%	
54	Plymouth	44,100	55,500	10.24	1,117,600	1,140,200	22,600	2.02%	684,100	456,200	57,000	10.34	1,140,000	100.0%	
55	Plymouth Township	161,900	229,900	11.31	4,589,900	4,681,600	91,700	2.00%	2,809,000	1,872,400	234,100	11.57	4,682,400	100.0%	
56	Redford Township	160,500	165,300	8.04	3,274,000	3,341,000	67,000	2.05%	2,004,600	1,335,800	167,100	8.32	3,340,600	100.0%	
57	River Rouge	37,900	34,800	7.54	703,400	718,000	14,600	2.08%	430,800	287,200	35,900	7.58	718,100	100.0%	
58	Riverview	48,500	45,000	7.82	919,300	937,800	18,500	2.01%	562,700	375,000	46,900	7.73	937,700	100.0%	
59	Rockwood	9,900	14,400	11.56	287,200	293,100	5,900	2.05%	175,900	116,700	14,700	11.79	293,100	100.0%	
60	Romeo	6,000	13,000	18.18	265,100	270,800	5,700	2.15%	162,500	108,800	13,500	18.13	270,800	100.0%	
61	Romulus	218,500	216,400	8.23	4,395,100	4,483,900	88,800	2.02%	2,690,300	1,793,500	224,200	8.21	4,484,300	100.0%	
62	Roseville	189,900	138,700	5.91	2,786,700	2,843,400	56,700	2.03%	1,706,000	1,137,000	142,200	5.99	2,843,900	100.0%	
63	Royal Oak Township	11,000	10,500	7.15	204,700	208,900	4,200	2.05%	125,300	84,100	10,400	7.65	209,000	100.0%	
64	S O C W A	1,254,800	1,192,900	7.58	23,826,200	24,307,600	481,400	2.02%	14,584,600	9,722,800	1,215,400	7.75	24,309,500	100.0%	
65	Shelby Township	404,100	724,600	15.15	14,817,300	15,032,100	214,800	1.45%	9,019,300	6,012,900	751,600	14.88	15,032,200	100.0%	
66	South Rockwood	4,700	6,000	9.92	118,600	121,000	2,400	2.02%	72,600	47,800	6,100	10.17	121,000	100.0%	
67	Southgate	114,500	114,600	7.90	2,279,800	2,325,700	45,900	2.01%	1,395,400	930,100	116,300	8.12	2,325,300	100.0%	
68	St. Clair County-Burtchville Twp	7,800	16,800	18.67	347,200	354,300	7,100	2.04%	212,600	141,900	17,700	18.19	354,300	100.0%	
69	St. Clair County-Greenwood	20,600	36,000	12.83	696,300	987,900	291,600	41.88%	592,700	395,100	49,400	19.18	987,900	100.0%	
70	St. Clair Shores	190,200	158,300	6.68	3,170,100	3,235,100	65,000	2.05%	1,941,100	1,293,500	161,800	6.80	3,235,000	100.0%	
71	Sterling Heights	577,900	785,000	10.99	15,771,100	16,089,500	318,400	2.02%	9,653,700	6,435,500	804,500	11.14	16,091,800	100.0%	

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Table 8
Water Supply System
Calculation of FY 2022 Wholesale Water Service Charge Schedule

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	Sales Volume	Existing Charges		Proforma Revenue	Allocated	Charge	% Charge	60%	Recover Via:		Proposed Charges		Projected Revenue
	<i>Mcf</i>	Fixed Mo	Commodity	Exist Charges	Revenue Req't	Adjustment	Adjustment	Fixed Mo	Commodity	Fixed Mo	Commodity	Revenue	Recovery
		<i>\$/mo</i>	<i>\$/Mcf</i>	<i>\$</i>	<i>\$</i>	<i>\$</i>		<i>\$</i>	<i>\$</i>	<i>\$/mo</i>	<i>\$/Mcf</i>	<i>\$</i>	
				<i>Table 2</i>	<i>Table 7</i>	<i>(5) - (4)</i>	<i>(6) / (4)</i>	<i>60% of (5)</i>	<i>(5) - (8)*12</i>	<i>(8) / 12 mos</i>	<i>(9) / (1)</i>	<i>'12*(10)+(1)*(11)</i>	<i>(12) / (5)</i>
72	Sumpter Township	29,500	34,500	9.64	698,400	712,400	14,000	2.00%	427,400	285,200	35,600	9.67	712,500
73	Sylvan Lake	6,400	12,100	15.11	241,900	246,700	4,800	1.98%	148,000	99,100	12,300	15.48	246,700
74	Taylor	262,600	241,400	7.24	4,798,000	4,894,900	96,900	2.02%	2,936,900	1,958,500	244,700	7.46	4,895,400
75	Trenton	87,100	86,700	8.10	1,745,900	1,782,400	36,500	2.09%	1,069,400	713,200	89,100	8.19	1,782,500
76	Troy	473,500	700,800	12.14	14,157,900	14,443,400	285,500	2.02%	8,666,000	5,777,000	722,200	12.20	14,443,100
77	Utica	24,700	29,800	9.34	588,300	600,200	11,900	2.02%	360,100	240,200	30,000	9.72	600,100
78	Van Buren Township	132,400	177,200	11.14	3,601,300	3,674,700	73,400	2.04%	2,204,800	1,470,300	183,700	11.10	3,674,000
79	Walled Lake	30,700	41,700	10.64	827,000	843,600	16,600	2.01%	506,200	337,200	42,200	10.98	843,500
80	Warren	628,200	530,000	6.89	10,688,300	10,903,200	214,900	2.01%	6,541,900	4,360,800	545,200	6.94	10,902,100
81	Washington Township	78,700	116,900	12.49	2,385,800	2,433,700	47,900	2.01%	1,460,200	973,300	121,700	12.37	2,433,900
82	Wayne	104,100	159,500	13.38	3,306,900	3,373,600	66,700	2.02%	2,024,200	1,349,200	168,700	12.96	3,373,500
83	West Bloomfield Township	266,800	538,000	16.29	10,802,200	11,020,000	217,800	2.02%	6,612,000	4,408,000	551,000	16.52	11,019,500
84	Westland	328,100	321,700	7.80	6,419,600	6,550,400	130,800	2.04%	3,930,200	2,620,400	327,500	7.99	6,551,500
85	Wixom	74,900	127,600	13.73	2,559,600	2,610,900	51,300	2.00%	1,566,500	1,044,900	130,500	13.95	2,610,900
86	Woodhaven	57,700	86,700	11.91	1,727,600	1,762,300	34,700	2.01%	1,057,400	705,100	88,100	12.22	1,762,300
87	Ypsilanti Comm Util Auth	485,300	540,900	8.76	10,742,000	10,958,600	216,600	2.02%	6,575,200	4,383,800	547,900	9.03	10,957,100
88	Total Suburban	13,588,930	15,563,500	9.53	316,273,300	322,332,000	6,058,700	1.92%	190,738,100	131,590,800	15,895,100	9.68	322,334,700
89	Detroit (a)	4,186,400	1,879,600		22,555,400	21,697,300	(858,100)	-3.80%	21,697,300		1,808,100		21,697,300
90	GRAND TOTAL	17,775,330			338,828,700	344,029,300	5,200,600	1.53%	212,435,400	131,590,800			344,032,000
91	less: Bad Debt Expense				(1,210,900)	(1,223,600)	(12,700)						(1,223,800)
92	Net Wholesale Revenue				337,617,800	342,805,700	5,187,900	1.54%					342,808,200
(a) Flint / Detroit Adjustment Impacts													
93	Flint Gross	478,700	572,300	8.76	11,061,000	11,287,300	226,300	2.05%	6,772,400	4,514,500	564,400	9.43	11,286,900
94	less: KWA Debt Svc Credit		(554,400)		(6,652,800)	(6,652,800)	0	0.00%	(6,652,800)	0	(554,400)		(6,652,800)
95	Flint Net for Line 21		17,900	8.76	4,408,200	4,634,500	226,300	5.13%	119,600	4,514,500	10,000	9.43	4,634,100
96	Detroit Gross		3,604,600		43,255,400	42,397,300	(858,100)	-1.98%	(43,255,400)	(86,510,800)	3,533,100		42,397,300
97	less: Ownership Adj Credit		(1,725,000)		(20,700,000)	(20,700,000)	0	0.00%	20,700,000	41,400,000	(1,725,000)		(20,700,000)
98	Detroit Net for Line 89		1,879,600		22,555,400	21,697,300	(858,100)	-3.80%	(22,555,400)	(45,110,800)	1,808,100		21,697,300
99	Modified Demands	705,580			21,858,700	22,085,100	226,400	1.04%					22,084,800
100	Non-Master Metered	4,888,400			34,562,300	33,690,500	(871,800)	-2.52%					33,688,400
101	No Mods	12,181,350			282,407,700	288,253,700	5,846,000	2.07%					288,258,800
102	Total	17,775,330			338,828,700	344,029,300	5,200,600	1.53%					344,032,000
103	Total Mods (99) + (100)	5,593,980			56,421,000	55,775,600	(645,400)	-1.1%					55,773,200

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Table 1
Sewage Disposal System
FY 2022 SHARES

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Existing SHARES						
	CTA Treat / Collection Cost Pool	CSO Facility Cost Pool	Suburban Only Cost Pool	"All in" SHARE	Proposed "All in" SHARE	Change in SHARE	
	(a)			(b)	(c)	Variance	% Variance
1 OMID	16.436%	2.651%	22.182%	14.660%	14.589%	-0.071%	-0.5%
2 Rouge Valley	12.893%	2.956%	20.347%	11.682%	11.804%	0.122%	1.0%
3 Oakland GWK	10.735%	2.256%	18.625%	9.735%	9.788%	0.053%	0.5%
4 Evergreen Farmington	8.378%	1.485%	12.719%	7.521%	7.639%	0.118%	1.6%
5 SE Macomb San Dist	5.910%	1.174%	10.020%	5.345%	5.291%	-0.054%	-1.0%
6 Dearborn	4.518%	1.631%	8.048%	4.194%	4.284%	0.090%	2.1%
7 Grosse Pointe Farms	0.596%	0.504%	1.075%	0.593%	0.580%	-0.013%	-2.2%
8 Grosse Pointe Park	0.435%	0.062%	0.746%	0.390%	0.402%	0.012%	3.1%
9 Melvindale	0.367%	0.074%	0.568%	0.331%	0.332%	0.001%	0.3%
10 Farmington	0.275%	0.052%	0.445%	0.248%	0.253%	0.005%	2.0%
11 Center Line	0.247%	0.055%	0.368%	0.223%	0.220%	-0.003%	-1.3%
12 Allen Park	0.206%	0.031%	0.316%	0.184%	0.179%	-0.005%	-2.7%
13 Highland Park	1.065%	2.065%	2.165%	1.222%	1.144%	-0.078%	-6.4%
14 Hamtramck	0.717%	1.595%	1.764%	0.857%	0.853%	-0.004%	-0.5%
15 Grosse Pointe	0.180%	0.228%	0.417%	0.1920%	0.190%	-0.002%	-1.0%
16 Harper Woods	0.051%	0.013%	0.112%	0.047%	0.046%	-0.001%	-2.1%
17 Redford Township	0.045%	0.133%	0.073%	0.057%	0.057%	0.000%	0.0%
18 Wayne County #3	0.007%	0.035%	0.011%	0.011%	0.011%	0.000%	0.0%
19 Subtotal Suburban Wholesale	63.058%	17.000%	100.000%	57.492%	57.662%	0.170%	0.3%
20 Detroit Customers	36.942%	83.000%	0.000%	42.508%	42.338%	-0.170%	-0.4%
21 Total	100.000%	100.000%	100.000%	100.000%	100.000%	0.000%	0.0%

(a) The existing published **SHAREs** reflected proportional allocation factors for revenue requirements excluding CSO and Suburban only costs.

(b) The effect of the prior methodology established "All in" **SHAREs** after recognizing the CSO and Suburban only cost pools.

(c) The proposed methodology establishes effective "All in" **SHAREs**, inclusive of all cost pools.

Table 2
Sewage Disposal System
Determination of FY 2022 Proforma Revenue Under Existing Charges

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Existing Fixed Monthly Charges				Proforma Revenue - Existing Charges					
	FY 2021 <u>Rev Req'ts</u>	Bad Debt <u>Projected</u>	Bad Debt <u>True-Up</u>	<u>Total</u>	FY 2021 <u>Rev Req'ts</u>	CTA FY 2021 <u>Rev Req'ts</u>	Specifics/ <u>Adjustments</u>	Bad Debt <u>Projected</u>	Bad Debt <u>True-Up</u>	<u>Total</u>
	<i>(1) * 12</i>				<i>FY 2022 SHARES</i>		<i>(5) - (6)</i>	<i>(2) * (12)</i>	<i>(3) * (12)</i>	
<u>Suburban Wholesale</u>										
1 OMID Common *	5,726,500	27,700	(27,700)	5,726,500	68,718,000	67,494,300	1,223,700	332,900	(332,900)	68,718,000
2 Rouge Valley	4,575,900	22,200	(22,200)	4,575,900	54,910,800	53,788,500	1,122,300	266,200	(266,200)	54,910,800
3 Oakland GWK	3,821,000	18,500	(18,500)	3,821,000	45,852,000	44,824,600	1,027,400	222,300	(222,300)	45,852,000
4 Evergreen Farmington	2,944,100	14,300	(14,300)	2,944,100	35,329,200	34,627,700	701,500	171,300	(171,300)	35,329,200
5 SE Macomb San Dist	2,097,000	10,200	(10,200)	2,097,000	25,164,000	24,611,300	552,700	122,000	(122,000)	25,164,000
6 Dearborn	1,646,200	8,000	(8,000)	1,646,200	19,754,400	19,310,400	444,000	95,800	(95,800)	19,754,400
7 Grosse Pointe Farms	232,300	1,100	(1,100)	232,300	2,787,600	2,728,300	59,300	13,500	(13,500)	2,787,600
8 Grosse Pointe Park	153,000	700	(700)	153,000	1,836,000	1,794,900	41,100	8,900	(8,900)	1,836,000
9 Melvindale	129,600	600	(600)	129,600	1,555,200	1,523,900	31,300	7,500	(7,500)	1,555,200
10 Farmington	97,200	500	(500)	97,200	1,166,400	1,141,900	24,500	5,700	(5,700)	1,166,400
11 Center Line	87,300	400	(400)	87,300	1,047,600	1,027,300	20,300	5,100	(5,100)	1,047,600
12 Allen Park	72,200	400	(400)	72,200	866,400	849,000	17,400	4,200	(4,200)	866,400
13 Highland Park	478,900	2,300	(2,300)	478,900	5,746,800	5,627,400	119,400	27,900	(27,900)	5,746,800
14 Hamtramck	337,000	1,600	(1,600)	337,000	4,044,000	3,946,700	97,300	19,600	(19,600)	4,044,000
15 Grosse Pointe	75,400	400	(400)	75,400	904,800	881,800	23,000	4,400	(4,400)	904,800
16 Harper Woods	18,500	100	(100)	18,500	222,000	215,800	6,200	1,100	(1,100)	222,000
17 Redford Township	22,300	100	(100)	22,300	267,600	263,600	4,000	1,300	(1,300)	267,600
18 Wayne County #3	4,300	0	0	4,300	51,600	51,000	600	300	(300)	51,600
19 Subtotal Suburban Wholesale	22,518,700	109,100	(109,100)	22,518,700	270,224,400	264,708,400	5,516,000	1,310,000	(1,310,000)	270,224,400
20 Detroit Customers	15,842,700			15,842,700	190,112,100	195,628,100	(5,516,000)			190,112,100
21 SUBTOTAL	38,361,400	109,100	(109,100)	38,361,400	460,336,500	460,336,500	0	1,310,000	(1,310,000)	460,336,500
22 OMID Direct *	176,800			176,800	2,121,900		2,121,900		0	2,121,900
23 Total Wholesale	38,538,200	109,100	(109,100)	38,538,200	462,458,400	460,336,500	2,121,900	1,310,000	(1,310,000)	462,458,400
24 OMID Total *	5,903,300	27,700	(27,700)	5,903,300	70,839,900	67,494,300	3,345,600	332,900	(332,900)	70,839,900
<u>Industrial Specific Charges</u>										
25 Industrial Waste Control	732,200			732,200	8,786,100		8,786,100			8,786,100
26 Industrial Surcharges	474,300			474,300	5,691,500		5,691,500			5,691,500
27 Subtotal	1,206,500	0	0	1,206,500	14,477,600	0	14,477,600	0	0	14,477,600
28 Total	39,744,700	109,100	(109,100)	39,744,700	476,936,000	460,336,500	16,599,500	1,310,000	(1,310,000)	476,936,000

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Table 3
Executive Summary of FY 2022 BUDGET Comparison (\$ millions)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Water System				Sewer System				Total GLWA			
<u>Annual BUDGET</u>	<u>FY 2021(a)</u>	<u>FY 2022</u>	<u>Change</u>	<u>%Change</u>	<u>FY 2021(a)</u>	<u>FY 2022</u>	<u>Change</u>	<u>%Change</u>	<u>FY 2021(a)</u>	<u>FY 2022</u>	<u>Change</u>	<u>%Change</u>
1 Operation and Maintenance Expense	137.1	143.9	6.8	5.0%	184.9	181.3	(3.6)	-2.0%	322.1	325.2	3.2	1.0%
2 Master Bond Ordinance Commitments	179.7	172.0	(7.7)	-4.3%	262.1	259.5	(2.6)	-1.0%	441.8	431.5	(10.3)	-2.3%
3 Deposit to I&E (and other reserve) Funds	24.8	28.1	3.3	13.1%	39.7	34.6	(5.1)	-12.8%	64.5	62.7	(1.8)	-2.8%
4 TOTAL BUDGET	341.6	344.0	2.4	0.7%	486.8	475.4	(11.3)	-2.3%	828.4	819.5	(8.9)	-1.1%
<u>less: "Non Customer" Revenue</u>												
5 Investment Earnings & Miscellaneous	(4.8)	(1.2)	3.6	-74.7%	(5.6)	(1.4)	4.2	-74.5%	(10.4)	(2.6)	7.8	-74.6%
6 Subtotal Revenue Requirement "Offsets"	(4.8)	(1.2)	3.6	-74.7%	(5.6)	(1.4)	4.2	-74.5%	(10.4)	(2.6)	7.8	-74.6%
7 Preliminary Revenue Req't from Charges	336.8	342.8	6.0	1.8%	481.2	474.0	(7.2)	-1.5%	818.0	816.8	(1.2)	-0.1%
8 plus: Expected "System" Bad Debt	1.2	1.2	0.0	4.1%	1.3	0.0	(1.3)	-100.0%	2.5	1.2	(1.2)	-50.4%
9 Revenue Required from Charges	338.0	344.0	6.0	1.8%	482.5	474.0	(8.5)	-1.8%	820.4	818.0	(2.4)	-0.3%
10 Proforma Billed Revenue - Existing Charges	338.0	338.8	0.9	0.3%	482.5	476.9	(5.5)	-1.1%	820.4	815.8	(4.7)	-0.6%
11 Charge Revenue Adjustment Needed		5.2				(2.9)				2.3		
12 % Charge Revenue Adjustment Needed		1.5%				-0.6%				0.3%		
<u>Charge Adjustment Illustration</u>												
<u>Proforma Revenue - Existing Charges</u>												
13 Revenue from Charges	338.0	338.8	0.9	-0.3%	482.5	476.9	(5.5)	1.2%	820.4	815.8	(4.7)	0.6%
14 Investment Earnings & Miscellaneous	4.8	1.2	(3.6)	1.1%	5.6	1.4	(4.2)	0.9%	10.4	2.6	(7.8)	1.0%
15 Expected Bad Debt Expense	(1.2)	(1.2)	(0.0)	0.0%	(1.3)	0.0	1.3	-0.3%	(2.5)	(1.2)	1.2	-0.2%
16 Net Proforma Revenue Comparison	341.6	338.8	(2.8)		486.8	478.4	(8.4)		828.4	817.2	(11.2)	
17 Adjustment to Address Revenue Variance (Lns 13,14)				0.8%				1.8%				1.4%
18 Adjustment to Address BUDGET Variance (Line 4)				0.7%				-2.3%				-1.1%
19 Average System Charge Adjustment				1.5%				-0.6%				0.3%

(a) As originally approved in March 2020. The originally adopted FY 2021 Budget did not reflect anticipated debt service savings projected by the bond refinancing, nor the increase in the deposit to the I&E Fund. However that expectation was understood as part of the budget approval process, and was accomplished via the First Quarter FY 2021 Budget Amendment once the 2020 transactions closed in May and June.

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Table 4
Sewage Disposal System
Allocation of FY 2022 GLWA Wholesale Service Revenue Requirements to Cost Pools

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	Cost Pool Allocation												
	Allocated FY 2022	less: OMID Contractual	Remaining Balance	Industrial Waste Control	WRRF Treatment Separated for Purposes of Surcharge Calculations					"Common" prior to Surcharge			
					Flow	BOD	TSS	PHOS	FOG	WRRF Treatment	Conveyance	CSO Facilities	"Common" TOTAL
<u>Revenue Requirement Elements</u>													
1 Regional System O&M Expense (a)	181,299,800	1,568,500	179,731,300	7,171,800	12,700,800	30,488,800	67,724,500	16,290,600	1,304,500	128,509,200	27,283,700	16,766,600	172,559,500
2 Pension Obligation - Operating Portion	10,824,000	189,400	10,634,600	499,200	389,300	1,593,600	4,073,300	889,000	85,200	7,030,400	1,938,100	1,166,900	10,135,400
3 Debt Service	207,209,500	0	207,209,500	237,900	66,858,600	20,723,700	30,181,400	5,986,700	1,121,600	124,872,000	47,245,700	34,853,900	206,971,600
4 Non-Operating Portion of Pension Obligation	11,620,700	203,400	11,417,300	535,900	417,900	1,710,900	4,373,100	954,400	91,500	7,547,800	2,080,700	1,252,900	10,881,400
5 Transfer to WRAP Fund (b)	2,358,300	10,700	2,347,600	44,900	484,400	306,800	589,500	132,900	14,800	1,528,400	457,500	316,800	2,302,700
6 Lease Payment to Detroit Local I&E	27,500,000	181,500	27,318,500	522,500	5,637,000	3,570,500	6,859,900	1,547,000	171,800	17,786,200	5,323,200	3,686,600	26,796,000
7 Transfer to GLWA Regional I&E Account	34,616,900	0	34,616,900	39,800	11,169,600	3,462,200	5,042,200	1,000,200	187,400	20,861,600	7,893,000	5,822,500	34,577,100
8 Total Gross Revenue Requirements	475,429,200	2,153,500	473,275,700	9,052,000	97,657,600	61,856,500	118,843,900	26,800,800	2,976,800	308,135,600	92,221,900	63,866,200	464,223,700
9 less: Investment Earnings & Misc. Revenue (b)	(1,423,500)	0	(1,423,500)	(27,200)	(293,700)	(186,000)	(357,500)	(80,600)	(9,000)	(926,800)	(277,400)	(192,100)	(1,396,300)
10 Revenue Requirements from Charges	474,005,700	2,153,500	471,852,200	9,024,800	97,363,900	61,670,500	118,486,400	26,720,200	2,967,800	307,208,800	91,944,500	63,674,100	462,827,400
<u>Summary - Revenues Required from Charges</u>													
11 Net Operating Expenses	192,123,800	1,757,900	190,365,900	7,671,000	13,090,100	32,082,400	71,797,800	17,179,600	1,389,700	135,539,600	29,221,800	17,933,500	182,694,900
12 Net Capital Requirements	281,881,900	395,600	281,486,300	1,353,800	84,273,800	29,588,100	46,688,600	9,540,600	1,578,100	171,669,200	62,722,700	45,740,600	280,132,500
13 Total	474,005,700	2,153,500	471,852,200	9,024,800	97,363,900	61,670,500	118,486,400	26,720,200	2,967,800	307,208,800	91,944,500	63,674,100	462,827,400
14 Cost Pool Allocation Factor - All Costs				1.9%	20.6%	13.1%	25.1%	5.7%	0.6%		19.5%	13.5%	
15 Cost Pool Allocation Factor - "Common" Costs										66.4%	19.9%	13.8%	
<u>(a) O&M Budget Adjustments</u>													
16 Original O&M Budget Request	183,096,700	1,568,500	181,528,200	7,243,500	12,827,800	30,793,600	68,401,600	16,453,500	1,317,500	129,794,000	27,556,500	16,934,200	174,284,700
Budget Reductions													
17 Specific Based on Budget Review	0												
18 General to All Cost Pools	(1,796,900)	0	(1,796,900)	(71,700)	(127,000)	(304,800)	(677,100)	(162,900)	(13,000)	(1,284,800)	(272,800)	(167,600)	(1,725,200)
19 Allocated Budget Reductions	(1,796,900)	0	(1,796,900)	(71,700)	(127,000)	(304,800)	(677,100)	(162,900)	(13,000)	(1,284,800)	(272,800)	(167,600)	(1,725,200)
20 Adjusted O&M Budget	181,299,800	1,568,500	179,731,300	7,171,800	12,700,800	30,488,800	67,724,500	16,290,600	1,304,500	128,509,200	27,283,700	16,766,600	172,559,500
<u>(b) WRAP and Non-Charge Revenue Adjustments</u>													
21 Original WRAP Budget	2,345,600												
22 Revenue Req't from Charges w/o WRAP	471,660,100												
23 Adjusted WRAP Amount @ 0.05%	2,358,300												
24 Adjustment to WRAP & Non-Charge Revenue	12,700												
25 Original Non Charge Revenue Budget	1,410,800												
26 Adjusted Non Charge Revenue Budget	1,423,500												

Table 5
Sewage Disposal System
Calculation of FY 2022 GLWA Pollutant Surcharge Rates

	(1)	(2)	(3)	(4)	(5)
	WRRF Treatment Pollutant Cost Pools <i>(from Table 4)</i>				
	<u>BOD</u>	<u>TSS</u>	<u>PHOS</u>	<u>FOG</u>	<u>Total</u>
1 Net Operating Expenses	32,082,400	71,797,800	17,179,600	1,389,700	122,449,500
2 Net Capital Requirements	29,588,100	46,688,600	9,540,600	1,578,100	87,395,400
3 Total	61,670,500	118,486,400	26,720,200	2,967,800	209,844,900
<u>Loadings Analysis</u>					
4 Flow Reported @ WRRF - Mcf					28,495,300
5 Average Influent Strength Reported @ WRRF - mg/l	100.0	140.0	2.36	15.0	
6 Total Pollutant Loadings - lbs $(4) * (5) * 0.0624$	177,810,700	248,934,900	4,196,300	26,671,600	457,613,500
7 Unit Cost - \$/lb. $(3) / (6)$	0.347	0.476	6.368	0.111	
8 Existing Surcharge Rate - \$/lb	0.491	0.499	7.354	0.473	
9 Unit Rate Change - % $[(7) - (8)] / (8)$	-29.3%	-4.6%	-13.4%	-76.5%	
10 Surchargeable Loadings - lbs	8,198,800	2,004,600	50,300	625,200	10,878,900
11 Total Surcharge Revenue - Existing $(10) * (8)$	4,025,600	1,000,300	369,900	295,700	5,691,500
12 Total Surcharge Revenue - Proposed $(10) * (7)$	2,845,000	954,200	320,300	69,400	4,188,900
13 Relative Surcharge / Total $(10) / (6)$	4.6%	0.8%	1.2%	2.3%	2.4%

Table 6
Sewage Disposal System
Summarized FY 2022 Wholesale Service Revenue Requirement Allocation to Cost Pools and Customer Classes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Total <u>Rev Req't</u>	OMID <u>Specific</u>	Industrial <u>Waste Control</u>	Industrial <u>Surcharges</u>	<u>"Common" Allocable on SHAREs</u>				TOTAL
	\$	\$	\$	\$	<u>WRRF Treatment</u>	<u>Conveyance</u>	<u>CSO Facilities</u>	<u>"Common" TOTAL</u>	\$
	<i>Table 4</i>	<i>Table 4</i>	<i>Table 4</i>	<i>Table 5</i>	<i>Table 4 - (4)</i>	<i>Table 4</i>	<i>Table 4</i>	<i>(5) + (6) + (7)</i>	
<u>BUDGET Elements</u>									
1 Net Operating Expenses	192,123,800	1,757,900	7,671,000	2,296,600	133,243,000	29,221,800	17,933,500	180,398,300	192,123,800
2 Net Capital Requirements	281,881,900	395,600	1,353,800	1,892,300	169,776,900	62,722,700	45,740,600	278,240,200	281,881,900
3 Net to Recover from Charges	474,005,700	2,153,500	9,024,800	4,188,900	303,019,900	91,944,500	63,674,100	458,638,500	474,005,700

Table 7
Sewage Disposal System
Allocation of FY 2022 Revenue Requirements and Adjustments to Member Partners

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	FY 2022 <u>SHARE</u>	Allocated <u>CTA Rev Req't</u>	Detroit Capital Ownership <u>Adjustment</u>	Adjusted Allocated <u>BUDGET</u>	OMID <u>Specific</u>	Total Wholesale <u>Rev Req'ts</u>	<u>Additional Allocated Elements</u>		Total Amount for <u>"Net" Charges</u>
		458,638,500	5,516,000				0	0	
	Table 1	Table 6		(2) + (3)	Table 4	(4) + (5)			(6) + (7) + (8)
<u>Suburban Wholesale</u>									
1 OMID	14.589%	66,910,800	1,395,500	68,306,300	2,153,500	70,459,800	0	0	70,459,800
2 Rouge Valley	11.804%	54,137,700	1,129,200	55,266,900		55,266,900	0	0	55,266,900
3 Oakland GWK	9.788%	44,891,500	936,300	45,827,800		45,827,800	0	0	45,827,800
4 Evergreen Farmington	7.639%	35,035,400	730,800	35,766,200		35,766,200	0	0	35,766,200
5 SE Macomb San Dist	5.291%	24,266,600	506,100	24,772,700		24,772,700	0	0	24,772,700
6 Dearborn	4.284%	19,648,100	409,800	20,057,900		20,057,900	0	0	20,057,900
7 Grosse Pointe Farms	0.580%	2,660,100	55,500	2,715,600		2,715,600	0	0	2,715,600
8 Grosse Pointe Park	0.402%	1,843,700	38,500	1,882,200		1,882,200	0	0	1,882,200
9 Melvindale	0.332%	1,522,700	31,800	1,554,500		1,554,500	0	0	1,554,500
10 Farmington	0.253%	1,160,400	24,200	1,184,600		1,184,600	0	0	1,184,600
11 Center Line	0.220%	1,009,000	21,000	1,030,000		1,030,000	0	0	1,030,000
12 Allen Park	0.179%	821,000	17,100	838,100		838,100	0	0	838,100
13 Highland Park	1.144%	5,246,800	109,400	5,356,200		5,356,200	0	0	5,356,200
14 Hamtramck	0.853%	3,912,200	81,600	3,993,800		3,993,800	0	0	3,993,800
15 Grosse Pointe	0.190%	871,400	18,200	889,600		889,600	0	0	889,600
16 Harper Woods	0.046%	211,000	4,400	215,400		215,400	0	0	215,400
17 Redford Township	0.057%	261,400	5,500	266,900		266,900	0	0	266,900
18 Wayne County #3	0.011%	50,500	1,100	51,600		51,600	0	0	51,600
19 Subtotal Suburban Wholesale	57.662%	264,460,300	5,516,000	269,976,300	2,153,500	272,129,800	0	0	272,129,800
20 Detroit Customers	42.338%	194,178,200	(5,516,000)	188,662,200		188,662,200			188,662,200
21 Total	100.00%	458,638,500	0	458,638,500	2,153,500	460,792,000	0	0	460,792,000

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Table 8
Sewage Disposal System
Calculation of FY 2022 Wholesale Sewer Service Charge Schedule - Fixed Monthly Charges

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Allocated	Detroit Capital	Adjusted	OMID	Total	Additional Allocated Elements		Total
	<u>CTA Rev Req't</u>	<u>Ownership</u>	<u>Allocated</u>	<u>Specific</u>	<u>Wholesale</u>	<u>Bad Debt</u>	<u>Bad Debt</u>	<u>Amount for</u>
	\$	\$	\$	\$	\$	<u>Projected</u>	<u>True-Up</u>	<u>"Net" Charges</u>
						\$	\$	\$
<u>Metered Customers</u>								
1 OMID	5,575,900	116,300	5,692,200	179,500	5,871,700	0	0	5,871,700
2 Rouge Valley	4,511,500	94,100	4,605,600	0	4,605,600	0	0	4,605,600
3 Oakland GWK	3,741,000	78,000	3,819,000	0	3,819,000	0	0	3,819,000
4 Evergreen Farmington	2,919,600	60,900	2,980,500	0	2,980,500	0	0	2,980,500
5 SE Macomb San Dist	2,022,200	42,200	2,064,400	0	2,064,400	0	0	2,064,400
6 Dearborn	1,637,300	34,200	1,671,500	0	1,671,500	0	0	1,671,500
7 Grosse Pointe Farms	221,700	4,600	226,300	0	226,300	0	0	226,300
8 Grosse Pointe Park	153,600	3,300	156,900	0	156,900	0	0	156,900
9 Melvindale	126,900	2,600	129,500	0	129,500	0	0	129,500
10 Farmington	96,700	2,000	98,700	0	98,700	0	0	98,700
11 Center Line	84,100	1,700	85,800	0	85,800	0	0	85,800
12 Allen Park	68,400	1,400	69,800	0	69,800	0	0	69,800
13 Highland Park	437,200	9,200	446,400	0	446,400	0	0	446,400
14 Hamtramck	326,000	6,800	332,800	0	332,800	0	0	332,800
15 Grosse Pointe	72,600	1,500	74,100	0	74,100	0	0	74,100
16 Harper Woods	17,600	400	18,000	0	18,000	0	0	18,000
17 Redford Township	21,800	400	22,200	0	22,200	0	0	22,200
18 Wayne County #3	4,200	100	4,300	0	4,300	0	0	4,300
19 Subtotal Suburban Wholesale	22,038,300	459,700	22,498,000	179,500	22,677,500	0	0	22,677,500
20 Detroit Customers	16,181,500	(459,700)	15,721,900	0	15,721,900	0	0	15,721,900
21 Total	38,219,800	0	38,219,900	179,500	38,399,400	0	0	38,399,400

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Table 9
Sewage Disposal System
Comparison of Existing and New Wholesale Service Charges

	(1)	(2)	(3)	(4)
	Existing FY 2021 <u>Charges</u> \$/mo	Approved FY 2022 <u>Charges</u> \$/mo	Charge <u>Adjustment</u> \$/mo	% Charge <u>Adjustment</u>
<u>Suburban Wholesale</u>				
1 OMID Common *	5,726,500	5,692,200	(34,300)	-0.6%
2 Rouge Valley	4,575,900	4,605,600	29,700	0.6%
3 Oakland GWK	3,821,000	3,819,000	(2,000)	-0.1%
4 Evergreen Farmington	2,944,100	2,980,500	36,400	1.2%
5 SE Macomb San Dist	2,097,000	2,064,400	(32,600)	-1.6%
6 Dearborn	1,646,200	1,671,500	25,300	1.5%
7 Grosse Pointe Farms	232,300	226,300	(6,000)	-2.6%
8 Grosse Pointe Park	153,000	156,900	3,900	2.5%
9 Melvindale	129,600	129,500	(100)	-0.1%
10 Farmington	97,200	98,700	1,500	1.5%
11 Center Line	87,300	85,800	(1,500)	-1.7%
12 Allen Park	72,200	69,800	(2,400)	-3.3%
13 Highland Park	478,900	446,400	(32,500)	-6.8%
14 Hamtramck	337,000	332,800	(4,200)	-1.2%
15 Grosse Pointe	75,400	74,100	(1,300)	-1.7%
16 Harper Woods	18,500	18,000	(500)	-2.7%
17 Redford Township	22,300	22,200	(100)	-0.4%
18 Wayne County #3	4,300	4,300	0	0.0%
19 Subtotal Suburban Wholesale	22,518,700	22,498,000	(20,700)	-0.1%
20 Detroit Customers	15,842,700	15,721,900	(120,800)	-0.8%
21 Subtotal SHAREs	38,361,400	38,219,900	(141,500)	-0.4%
22 OMID Direct *	176,800	179,500	2,700	1.5%
23 Total Wholesale	38,538,200	38,399,400	(138,800)	-0.4%
24 <i>OMID Total *</i>	<i>5,903,300</i>	<i>5,871,700</i>	<i>(31,600)</i>	<i>-0.5%</i>

Table 10
Sewage Disposal System
FY 2022 Industrial Specific Charges

Industrial Waste Control Charges	
Revenue Req't - \$ <i>from Table 5</i>	9,024,800
Eq Mtrs	212,224
Unit Cost - \$/eq mtr	3.54

Industrial Surcharges <i>from Table 6</i>		
Revenue	Estimated	Unit
<u>Req't</u>	<u>Loadings</u>	<u>Rate</u>
\$	lbs	\$/lb

<u>Meter Size</u>	<u>Equivalency Ratio</u>	<u>Unit Rate</u>
5/8	1.0	3.54
3/4	1.5	5.31
1	2.5	8.85
1-1/2	5.5	19.47
2	8.0	28.32
3	14.5	51.33
4	20.0	70.80
6	30.0	106.20
8	50.0	177.00
10	70.0	247.80
12	80.0	283.20
14	100.0	354.00
16	120.0	424.80
18	140.0	495.60
20	160.0	566.40
24	180.0	637.20
30	200.0	708.00
36	220.0	778.80
48	240.0	849.60

BOD	61,670,500	177,810,700	0.347
SS	118,486,400	248,934,900	0.476
PHOS	26,720,200	4,196,300	6.368
FOG	2,967,800	26,671,600	0.111

Appendices

- A. December 30, 2020 memorandum: “FY 2022 Cost of Service and Charges Study - Detailed Cost Allocation Schedules”
- B. December 17, 2020 memorandum: “GLWA Financial Forecast Update”
- C. November 16, 2020 memorandum: “FY 2022 SHARE Calculations”
- D. January 11, 2021 memorandum: “Highland Park Bad Debt Expense Review”

Additional appendices may be added to this report to address the results of ongoing review of the budget and charge proposals.

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MEMORANDUM

FY 2022 Cost of Service and Charges Study
Detailed Cost Allocation Schedules

December 30, 2020

To: Nicolette Bateson

From: Bart Foster

The attached exhibits are intended to delineate the process we've taken to allocate the FY 2022 BUDGET to cost pools as part of the FY 2022 Cost of Service and Charges Study. This material illustrates the detailed, step by step approach we applied to get to the final cost pool allocation, which is summarized as "Table 4" in our cost of service memorandum report submitted under separate cover.

The schedules in this package have been annotated to indicate the process followed to allocate costs to cost pools. We believe that the annotation provides a "road map" for interested parties to follow the allocation logic, and we'll not elaborate in this introduction.

For the FY 2022 Cost of Service Study, significant review efforts have been applied towards continuing to refine and understand the manner by which budgeted operating expenses of the Centralized Services group have been assigned to Water and Sewer, and to individual Cost Pools within each system. This group includes major planning and asset management activities, some of which are discretely related to one utility or the other. For instance, the budget request for the Systems Analytics cost center includes several contracts to support sewer collection system modelling and wastewater metering analyses. These costs are appropriately directly assigned to the Sewer Fund. Similarly, the budget request for the Asset Management cost center includes specific contracts to address the Linear System Integrity Program, which is largely focused on Water transmission mains. The costs of those specific contracts are directly assigned to the appropriate fund and Cost Pool in these calculations.

The FY 2022 Cost of Service Study allocates costs to cost pools based on a detailed review of each of the major cost centers within the Centralized Services group, and we have assigned discrete activities directly to Water and Sewer budget responsibilities based on our review. These results are summarized at the bottom of page A-11 of the exhibits. All other "general" Centralized Services budgeted costs have been assigned 50% to Water and 50% to Sewer¹.

¹ With the exception of the System Control Center budgeted costs, which are assigned 55% to Water and 45% to Sewer as noted on exhibit page A-11. This allocation is based on discussions with System Control Center managers.

All Administrative Services budgeted costs have also been assigned 50% to Water and 50% to Sewer, with the exception of a subtle adjustment in the Logistics and Materials cost center, reflecting a new “Sewer only” facility within that budget.

As noted in the exhibits, we have allocated specific operating costs to cost pools in part based on judgment and experience applied to the historical cost information in prior reports. In general, we embraced the concepts established with the Sewer Rate Simplification Initiative and sought to maintain the general allocation assumptions that could be supported by existing data.

Subsequent phases of the Cost Allocation Project, and the accompanying review of the overall Cost Allocation Methodology Projects, are intended to refine allocation of specific functional costs to “Cost Pools” that align the GLWA revenue requirements with measures of services to Member Partners.

We have also incorporated updated information from the GLWA capital asset inventory and valuation project, in order to establish the “fixed asset profile” by various functions. This updated information has been utilized to allocate capital revenue requirements to Cost Pools, as illustrated herein.

The approach summarized above results in an allocation of the FY 2022 BUDGET² to individual Cost Pools, as shown on exhibit pages A-28 and A-29. These figures are incorporated into the formal Cost of Service Study. The changes noted above have impacts on the relative cost pool allocations, and on subsequent Member Partner cost of service allocations and charges. These impacts are discussed in the Cost of Service Study report.

We are prepared to discuss this matter at your convenience.

² BUDGET refers to overall revenue requirement.

Water Operations Group Functional Allocation Matrix - FY 2022 Budget

Goal is to allocate specific budget items within the Group that align with Cost Pools used to allocate costs to Member Partners.

The first step in the process is to assign these items to specific Functional Categories, as illustrated below - first for the Water Plants, then for the supporting Divisions.

The FY 2022 allocation factors are based on historical data and judgement. They are unchanged from the FY 2020 Cost of Service Study.

Estimated allocation factors based on judgement and experience applied to historical information

STEP 1 - ALLOCATION FACTORS	Water System Functional Categories								
	Water Treatment Plant Functional Categories				Water Delivery Facilities				
	Source of Supply	Low Lift Pumps	Purification	High Lift Pumps	Reservoirs	Booster Stations	Transmission Mains	Master Meters	General
Part 1 - Water Treatment Plants									
<u>Personnel Costs</u>									
9.3.1 Water Works Park	6.0%	9.0%	70.0%	15.0%					0.0%
9.3.2 Lake Huron Water Plant	6.0%	9.0%	70.0%	15.0%					0.0%
9.3.3 Springwells Water Plant	6.0%	9.0%	70.0%	15.0%					0.0%
9.3.4 Northeast Water Plant	6.0%	9.0%	70.0%	15.0%					0.0%
9.3.5 Southwest Water Plant	6.0%	9.0%	70.0%	15.0%					0.0%
Total WTPs	6.0%	9.0%	70.0%	15.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<u>Contractual Services</u>									
9.3.1 Water Works Park	6.0%	9.0%	70.0%	15.0%					0.0%
9.3.2 Lake Huron Water Plant	6.0%	9.0%	70.0%	15.0%					0.0%
9.3.3 Springwells Water Plant	6.0%	9.0%	70.0%	15.0%					0.0%
9.3.4 Northeast Water Plant	6.0%	9.0%	70.0%	15.0%					0.0%
9.3.5 Southwest Water Plant	6.0%	9.0%	70.0%	15.0%					0.0%
Total WTPs	2.5%	20.0%	25.0%	52.5%	0.0%	0.0%	0.0%	0.0%	0.0%
<u>Electricity</u>									
9.3.1 Water Works Park	2.5%	20.0%	25.0%	52.5%					0.0%
9.3.2 Lake Huron Water Plant	2.5%	20.0%	25.0%	52.5%					0.0%
9.3.3 Springwells Water Plant	2.5%	20.0%	25.0%	52.5%					0.0%
9.3.4 Northeast Water Plant	2.5%	20.0%	25.0%	52.5%					0.0%
9.3.5 Southwest Water Plant	2.5%	20.0%	25.0%	52.5%					0.0%
Total WTPs	2.5%	20.0%	25.0%	52.5%	0.0%	0.0%	0.0%	0.0%	0.0%
<u>Chemicals</u>									
9.3.1 Water Works Park	0.0%	0.0%	100.0%	0.0%					0.0%
9.3.2 Lake Huron Water Plant	0.0%	0.0%	100.0%	0.0%					0.0%
9.3.3 Springwells Water Plant	0.0%	0.0%	100.0%	0.0%					0.0%
9.3.4 Northeast Water Plant	0.0%	0.0%	100.0%	0.0%					0.0%
9.3.5 Southwest Water Plant	0.0%	0.0%	100.0%	0.0%					0.0%
Total WTPs	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<u>Other Utilities</u>									
9.3.1 Water Works Park	6.0%	9.0%	70.0%	15.0%					0.0%
9.3.2 Lake Huron Water Plant	6.0%	9.0%	70.0%	15.0%					0.0%
9.3.3 Springwells Water Plant	6.0%	9.0%	70.0%	15.0%					0.0%
9.3.4 Northeast Water Plant	6.0%	9.0%	70.0%	15.0%					0.0%
9.3.5 Southwest Water Plant	6.0%	9.0%	70.0%	15.0%					0.0%
Total WTPs	6.0%	9.0%	70.0%	15.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Water Operations Group Functional Allocation Matrix - FY 2022 Budget

Goal is to allocate specific budget items within the Group that align with Cost Pools used to allocate costs to Member Partners.

The first step in the process is to assign these items to specific Functional Categories, as illustrated below - first for the Water Plants, then for the supporting Divisions.

The FY 2022 allocation factors are based on historical data and judgement. They are unchanged from the FY 2020 Cost of Service Study.

STEP 1 - ALLOCATION FACTORS	Water System Functional Categories								
	Water Treatment Plant Functional Categories				Water Delivery Facilities				
	Source of Supply	Low Lift Pumps	Purification	High Lift Pumps	Reservoirs	Booster Stations	Transmission Mains	Master Meters	General
Other									
9.3.1 Water Works Park	6.0%	9.0%	70.0%	15.0%					0.0%
9.3.2 Lake Huron Water Plant	6.0%	9.0%	70.0%	15.0%					0.0%
9.3.3 Springwells Water Plant	6.0%	9.0%	70.0%	15.0%					0.0%
9.3.4 Northeast Water Plant	6.0%	9.0%	70.0%	15.0%					0.0%
9.3.5 Southwest Water Plant	6.0%	9.0%	70.0%	15.0%					0.0%
Total WTPs	6.0%	9.0%	70.0%	15.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TOTAL WTP Budget									
9.3.1 Water Works Park	4.4%	10.3%	63.7%	21.6%					0.0%
9.3.2 Lake Huron Water Plant	3.6%	13.8%	49.6%	32.9%					0.0%
9.3.3 Springwells Water Plant	4.4%	10.1%	64.4%	21.1%					0.0%
9.3.4 Northeast Water Plant	4.2%	10.6%	62.5%	22.6%					0.0%
9.3.5 Southwest Water Plant	5.1%	9.8%	66.3%	18.8%					0.0%
Total WTPs	4.3%	11.0%	60.9%	23.7%	0.0%	0.0%	0.0%	0.0%	0.0%
Part 2 - Booster Stations									
Personnel Costs						100.0%			0.0%
Contractual Services						100.0%			0.0%
Electricity						100.0%			0.0%
Chemicals						100.0%			0.0%
Other Utilities						100.0%			0.0%
Other						100.0%			0.0%
Total Booster Station Costs	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%
Part 3 - Support Services									
9.1 Chief Operating Officer Water Operations & P	5.4%	8.2%	65.8%	12.5%	0.8%	6.5%	0.8%	0.0%	0.0%
9.2.1 Water Director	10.0%	10.0%	70.0%	10.0%					0.0%
9.2.2 Water Quality			100.0%					0.0%	0.0%
9.5.1 Water Engineering	5.0%	15.0%	20.0%	15.0%	15.0%	15.0%	15.0%	0.0%	0.0%
9.7.1 Water Operations Unallocated Reserve	5.4%	8.2%	65.8%	12.5%	0.8%	6.5%	0.8%	0.0%	0.0%
Total Support Costs	5.1%	7.7%	67.6%	9.4%	2.7%	4.9%	2.7%	0.0%	0.0%
TOTAL GROUP	3.8%	9.1%	52.9%	18.7%	0.3%	15.0%	0.3%	0.0%	0.0%
Indirect Allocation Factors (Non Commodity)	5.4%	8.2%	65.8%	12.5%	0.8%	6.5%	0.8%	0.0%	0.0%

Aligns with FY 2022 Budget Request as of 12/18/2020. Subsequent modifications may occur.

Water Operations Group Functional Allocation Matrix - FY 2022 Budget

Goal is to allocate specific budget items within the Group that align with Cost Pools used to allocate costs to Member Partners.

The first step in the process is to assign these items to specific Functional Categories, as illustrated below - first for the Water Plants, then for the supporting Divisions.

The FY 2022 allocation factors are based on historical data and judgement. They are unchanged from the FY 2020 Cost of Service Study.

STEP 2 - ALLOCATION OF BUDGET		Water System Functional Categories								
		Water Treatment Plant Functional Categories				Water Delivery Facilities				
		Source of Supply	Low Lift Pumps	Purification	High Lift Pumps	Reservoirs	Booster Stations	Transmission Mains	Master Meters	General
Part 1 - Water Treatment Plants										
Personnel Costs										
9.3.1 Water Works Park	3,245,500	194,700	292,100	2,271,900	486,800	0	0	0	0	0
9.3.2 Lake Huron Water Plant	2,625,600	157,500	236,300	1,838,000	393,800	0	0	0	0	0
9.3.3 Springwells Water Plant	3,150,600	189,000	283,600	2,205,400	472,600	0	0	0	0	0
9.3.4 Northeast Water Plant	2,740,600	164,400	246,700	1,918,400	411,100	0	0	0	0	0
9.3.5 Southwest Water Plant	2,846,700	170,800	256,200	1,992,700	427,000	0	0	0	0	0
Total WTPs	14,609,000	876,400	1,314,900	10,226,400	2,191,300	0	0	0	0	0
Contractual Services										
9.3.1 Water Works Park	1,671,900	100,300	150,500	1,170,300	250,800	0	0	0	0	0
9.3.2 Lake Huron Water Plant	1,339,900	80,400	120,600	937,900	201,000	0	0	0	0	0
9.3.3 Springwells Water Plant	4,726,200	283,600	425,400	3,308,300	708,900	0	0	0	0	0
9.3.4 Northeast Water Plant	3,078,100	184,700	277,000	2,154,700	461,700	0	0	0	0	0
9.3.5 Southwest Water Plant	3,782,700	227,000	340,400	2,647,900	567,400	0	0	0	0	0
Total WTPs	14,598,800	876,000	1,313,900	10,219,100	2,189,800	0	0	0	0	0
Electricity										
9.3.1 Water Works Park	2,050,000	51,200	410,000	512,500	1,076,300	0	0	0	0	0
9.3.2 Lake Huron Water Plant	6,500,000	162,500	1,300,000	1,625,000	3,412,500	0	0	0	0	0
9.3.3 Springwells Water Plant	3,000,000	75,000	600,000	750,000	1,575,000	0	0	0	0	0
9.3.4 Northeast Water Plant	2,800,000	70,000	560,000	700,000	1,470,000	0	0	0	0	0
9.3.5 Southwest Water Plant	1,270,000	31,800	254,000	317,400	666,800	0	0	0	0	0
Total WTPs	15,620,000	390,500	3,124,000	3,904,900	8,200,600	0	0	0	0	0
Chemicals										
9.3.1 Water Works Park	1,165,700	0	0	1,165,700	0	0	0	0	0	0
9.3.2 Lake Huron Water Plant	1,200,300	0	0	1,200,300	0	0	0	0	0	0
9.3.3 Springwells Water Plant	1,981,000	0	0	1,981,000	0	0	0	0	0	0
9.3.4 Northeast Water Plant	1,518,500	0	0	1,518,500	0	0	0	0	0	0
9.3.5 Southwest Water Plant	693,600	0	0	693,600	0	0	0	0	0	0
Total WTPs	6,559,100	0	0	6,559,100	0	0	0	0	0	0
Other Utilities										
9.3.1 Water Works Park	265,000	15,900	23,800	185,600	39,700	0	0	0	0	0
9.3.2 Lake Huron Water Plant	251,000	15,100	22,600	175,600	37,700	0	0	0	0	0
9.3.3 Springwells Water Plant	280,300	16,800	25,200	196,300	42,000	0	0	0	0	0
9.3.4 Northeast Water Plant	285,100	17,100	25,700	199,500	42,800	0	0	0	0	0
9.3.5 Southwest Water Plant	490,500	29,400	44,100	343,400	73,600	0	0	0	0	0
Total WTPs	1,571,900	94,300	141,400	1,100,400	235,800	0	0	0	0	0

Water Operations Group Functional Allocation Matrix - FY 2022 Budget

Goal is to allocate specific budget items within the Group that align with Cost Pools used to allocate costs to Member Partners.

The first step in the process is to assign these items to specific Functional Categories, as illustrated below - first for the Water Plants, then for the supporting Divisions.

The FY 2022 allocation factors are based on historical data and judgement. They are unchanged from the FY 2020 Cost of Service Study.

STEP 2 - ALLOCATION OF BUDGET		Water System Functional Categories								
		Water Treatment Plant Functional Categories					Water Delivery Facilities			
		Source of Supply	Low Lift Pumps	Purification	High Lift Pumps	Reservoirs	Booster Stations	Transmission Mains	Master Meters	General
Other										
9.3.1 Water Works Park	655,000	39,300	59,000	458,400	98,300	0	0	0	0	0
9.3.2 Lake Huron Water Plant	677,200	40,600	60,900	474,100	101,600	0	0	0	0	0
9.3.3 Springwells Water Plant	478,400	28,700	43,100	334,800	71,800	0	0	0	0	0
9.3.4 Northeast Water Plant	364,100	21,800	32,800	254,900	54,600	0	0	0	0	0
9.3.5 Southwest Water Plant	724,400	43,500	65,200	507,000	108,700	0	0	0	0	0
Total WTPs	2,899,100	173,900	261,000	2,029,200	435,000	0	0	0	0	0
TOTAL WTP Budget										
9.3.1 Water Works Park	9,053,100	401,400	935,400	5,764,400	1,951,900	0	0	0	0	0
9.3.2 Lake Huron Water Plant	12,594,000	456,100	1,740,400	6,250,900	4,146,600	0	0	0	0	0
9.3.3 Springwells Water Plant	13,616,500	593,100	1,377,300	8,775,800	2,870,300	0	0	0	0	0
9.3.4 Northeast Water Plant	10,786,400	458,000	1,142,200	6,746,000	2,440,200	0	0	0	0	0
9.3.5 Southwest Water Plant	9,807,900	502,500	959,900	6,502,000	1,843,500	0	0	0	0	0
Total WTPs	55,857,900	2,411,100	6,155,200	34,039,100	13,252,500	0	0	0	0	0
Part 2 - Booster Stations										
Personnel Costs	0	0	0	0	0	0	0	0	0	0
Contractual Services	10,000	0	0	0	0	0	10,000	0	0	0
Electricity	9,401,000	0	0	0	0	0	9,401,000	0	0	0
Chemicals	0	0	0	0	0	0	0	0	0	0
Other Utilities	76,900	0	0	0	0	0	76,900	0	0	0
Other	1,348,200	0	0	0	0	0	1,348,200	0	0	0
Total Booster Station Costs	10,836,100	0	0	0	0	0	10,836,100	0	0	0
Part 3 - Support Services										
9.1 Chief Operating Officer Water	486,100	26,300	39,700	319,700	61,000	4,000	31,400	4,000	0	0
9.2.1 Water Director	1,800,700	180,100	180,100	1,260,400	180,100	0	0	0	0	0
9.2.2 Water Quality	1,964,500	0	0	1,964,500	0	0	0	0	0	0
9.5.1 Water / Field Engineering	1,308,200	65,400	196,200	261,800	196,200	196,200	196,200	196,200	0	0
9.7.1 Water Operations Unallocat	2,723,000	147,500	222,100	1,791,400	341,700	22,300	175,700	22,300	0	0
Total Support Costs	8,282,500	419,300	638,100	5,597,800	779,000	222,500	403,300	222,500	0	0
TOTAL GROUP	74,976,500	2,830,400	6,793,300	39,636,900	14,031,500	222,500	11,239,400	222,500	0	0
Indirect Allocation Factors	23,929,700	1,295,800	1,952,200	15,742,300	3,002,600	196,200	1,544,400	196,200	0	0

Wastewater Operations Group Functional Allocation Matrix - FY 2022 Budget

Goal is to allocate specific budget items within the Group that align with Cost Pools used to allocate costs to Member Partners.

The first step in the process is to assign these items to specific Functional Categories, as illustrated below - first for the WRRF, then for the supporting Divisions.

The FY 2022 allocation factors are based on historical data and judgement. They are unchanged from the FY 2020 and FY 2021 Cost of Service Studies.

Estimated allocation factors based on judgement and experience applied to historical information

1 - ALLOCATION FACTORS**Part 1 - Water Reuse & Reclamation Facility****Personnel Costs**

8.2.1 Wastewater Operations	7.5%	4.0%	8.0%	16.0%	12.0%	10.0%	37.50%				5.0%	
8.2.2 Wastewater Process Control	7.5%	4.0%	8.0%	16.0%	12.0%	25.0%	25.0%				2.5%	
8.2.4 Wastewater Primary Process	10.0%	15.0%	75.0%	0.0%	0.0%	0.0%	0.0%				0.0%	
8.2.4 Wastewater Secondary Process	0.0%	0.0%	0.0%	50.0%	50.0%	0.0%	0.0%				0.0%	
8.2.5 Wastewater Dewatering Process	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%				0.0%	
8.2.6 Wastewater Incineration Process	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%				0.0%	
8.2.7 Biosolids Dryer Facility and Hauling Contracts	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%				0.0%	
Total WRRF	3.4%	3.9%	17.4%	12.7%	12.0%	21.5%	28.4%	0.0%	0.0%	0.0%	0.6%	0.0%

Contractual Services

8.2.1 Wastewater Operations	7.5%	4.0%	8.0%	16.0%	12.0%	10.0%	37.50%				5.0%	
8.2.2 Wastewater Process Control	7.5%	4.0%	8.0%	16.0%	12.0%	25.0%	25.0%				2.5%	
8.2.4 Wastewater Primary Process	10.0%	15.0%	75.0%	0.0%	0.0%	0.0%	0.0%				0.0%	
8.2.4 Wastewater Secondary Process	0.0%	0.0%	0.0%	50.0%	50.0%	0.0%	0.0%				0.0%	
8.2.5 Wastewater Dewatering Process	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%				0.0%	
8.2.6 Wastewater Incineration Process	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%				0.0%	
8.2.7 Biosolids Dryer Facility and Hauling Contracts	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%				0.0%	
Total WRRF	22.6%	9.0%	4.5%	18.1%	10.8%	22.6%	12.3%	0.0%	0.0%	0.0%	0.0%	0.0%

Electricity

8.2.1 Wastewater Operations	25.0%	10.0%	5.0%	20.0%	12.0%	25.0%	3.00%				0.0%	
8.2.2 Wastewater Process Control	7.5%	4.0%	8.0%	16.0%	12.0%	25.0%	25.0%				2.5%	
8.2.4 Wastewater Primary Process	10.0%	15.0%	75.0%	0.0%	0.0%	0.0%	0.0%				0.0%	
8.2.4 Wastewater Secondary Process	0.0%	0.0%	0.0%	50.0%	50.0%	0.0%	0.0%				0.0%	
8.2.5 Wastewater Dewatering Process	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%				0.0%	
8.2.6 Wastewater Incineration Process	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%				0.0%	
8.2.7 Biosolids Dryer Facility and Hauling Contracts	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%				0.0%	
Total WRRF	22.6%	9.0%	4.5%	18.1%	10.8%	22.6%	12.3%	0.0%	0.0%	0.0%	0.0%	0.0%

Chemicals

8.2.1 Wastewater Operations	0.0%	0.0%	40.0%	10.0%	40.0%	0.0%	10.0%				0.0%	
8.2.2 Wastewater Process Control	7.5%	4.0%	8.0%	16.0%	12.0%	25.0%	25.0%				0.0%	
8.2.4 Wastewater Primary Process	10.0%	15.0%	75.0%	0.0%	0.0%	0.0%	0.0%				0.0%	
8.2.4 Wastewater Secondary Process	0.0%	0.0%	0.0%	50.0%	50.0%	0.0%	0.0%				0.0%	
8.2.5 Wastewater Dewatering Process	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%				0.0%	
8.2.6 Wastewater Incineration Process	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%				0.0%	
8.2.7 Biosolids Dryer Facility and Hauling Contracts	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%				0.0%	
Total WRRF	2.6%	4.0%	19.8%	30.0%	30.1%	12.9%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%

Wastewater Operations Group Functional Allocation Matrix - FY 2022 Budget

Goal is to allocate specific budget items within the Group that align with Cost Pools used to allocate costs to Member Partners.

The first step in the process is to assign these items to specific Functional Categories, as illustrated below - first for the WRRF, then for the supporting Divisions.

The FY 2022 allocation factors are based on historical data and judgement. They are unchanged from the FY 2020 and FY 2021 Cost of Service Studies.

1 - ALLOCATION FACTORS**Other Utilities**

8.2.1 Wastewater Operations	5.0%	5.0%	5.0%	20.0%	5.0%	5.0%	55.00%				0.0%	
8.2.2 Wastewater Process Control	7.5%	4.0%	8.0%	16.0%	12.0%	25.0%	25.00%				2.5%	
8.2.4 Wastewater Primary Process	10.0%	15.0%	75.0%	0.0%	0.0%	0.0%	0.00%				0.0%	
8.2.4 Wastewater Secondary Process	0.0%	0.0%	0.0%	50.0%	50.0%	0.0%	0.00%				0.0%	
8.2.5 Wastewater Dewatering Process	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.00%				0.0%	
8.2.6 Wastewater Incineration Process	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.00%				0.0%	
8.2.7 Biosolids Dryer Facility and Hauling Contracts	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.00%				0.0%	

Total WRRF

Other

8.2.1 Wastewater Operations	7.5%	4.0%	8.0%	16.0%	12.0%	10.0%	37.50%				5.0%	
8.2.2 Wastewater Process Control	7.5%	4.0%	8.0%	16.0%	12.0%	25.0%	25.00%				2.5%	
8.2.4 Wastewater Primary Process	10.0%	15.0%	75.0%	0.0%	0.0%	0.0%	0.00%				0.0%	
8.2.4 Wastewater Secondary Process	0.0%	0.0%	0.0%	50.0%	50.0%	0.0%	0.00%				0.0%	
8.2.5 Wastewater Dewatering Process	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.00%				0.0%	
8.2.6 Wastewater Incineration Process	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.00%				0.0%	
8.2.7 Biosolids Dryer Facility and Hauling Contracts	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.00%				0.0%	

Total WRRF

TOTAL WRRF Budget

8.2.1 Wastewater Operations	15.2%	7.1%	5.8%	18.9%	10.2%	15.9%	25.5%	0.0%	0.0%	0.0%	1.4%	0.0%
8.2.2 Wastewater Process Control	7.5%	4.0%	8.0%	16.0%	12.0%	25.0%	25.0%	0.0%	0.0%	0.0%	2.5%	0.0%
8.2.4 Wastewater Primary Process	10.0%	15.0%	75.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
8.2.4 Wastewater Secondary Process	0.0%	0.0%	0.0%	50.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
8.2.5 Wastewater Dewatering Process	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
8.2.6 Wastewater Incineration Process	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
8.2.7 Biosolids Dryer Facility and Hauling Contracts	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total WRRF	5.8%	3.8%	10.0%	12.9%	10.2%	14.2%	42.6%	0.0%	0.0%	0.0%	0.5%	0.0%

Part 2 - Lift Stations

Personnel Costs								100.0%				
Contractual Services								100.0%				
Electricity								100.0%				
Chemicals								100.0%				
Other Utilities								100.0%				
Other								100.0%				
Total Lift Stations Costs	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%

Wastewater System Functional Categories												
WRRF Functional Categories							Wastewater Collection Facilities					
Primary Pumping	Rack & Grit	Primary Treatment	Aeration	Secondary Treatment	Dewatering	Sludge Disposal	Lift Stations	CSO Facilities	Interceptors	Industrial Waste Control	Master Meters	
5.0%	5.0%	5.0%	20.0%	5.0%	5.0%	55.00%					0.0%	
7.5%	4.0%	8.0%	16.0%	12.0%	25.0%	25.00%					2.5%	
10.0%	15.0%	75.0%	0.0%	0.0%	0.0%	0.00%					0.0%	
0.0%	0.0%	0.0%	50.0%	50.0%	0.0%	0.00%					0.0%	
0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.00%					0.0%	
0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.00%					0.0%	
0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.00%					0.0%	
3.4%	3.4%	3.4%	13.8%	3.4%	3.4%	69.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
7.5%	4.0%	8.0%	16.0%	12.0%	10.0%	37.50%					5.0%	
7.5%	4.0%	8.0%	16.0%	12.0%	25.0%	25.00%					2.5%	
10.0%	15.0%	75.0%	0.0%	0.0%	0.0%	0.00%					0.0%	
0.0%	0.0%	0.0%	50.0%	50.0%	0.0%	0.00%					0.0%	
0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.00%					0.0%	
0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.00%					0.0%	
0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.00%					0.0%	
4.7%	3.6%	12.2%	13.2%	11.3%	20.6%	32.3%	0.0%	0.0%	0.0%	2.1%	0.0%	
15.2%	7.1%	5.8%	18.9%	10.2%	15.9%	25.5%	0.0%	0.0%	0.0%	1.4%	0.0%	
7.5%	4.0%	8.0%	16.0%	12.0%	25.0%	25.0%	0.0%	0.0%	0.0%	2.5%	0.0%	
10.0%	15.0%	75.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
0.0%	0.0%	0.0%	50.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
5.8%	3.8%	10.0%	12.9%	10.2%	14.2%	42.6%	0.0%	0.0%	0.0%	0.5%	0.0%	
								100.0%				
								100.0%				
								100.0%				
								100.0%				
								100.0%				
								100.0%				
0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	

Wastewater Operations Group Functional Allocation Matrix - FY 2022 Budget

Goal is to allocate specific budget items within the Group that align with Cost Pools used to allocate costs to Member Partners.

The first step in the process is to assign these items to specific Functional Categories, as illustrated below - first for the WRRF, then for the supporting Divisions.

The FY 2022 allocation factors are based on historical data and judgement. They are unchanged from the FY 2020 and FY 2021 Cost of Service Studies.

1 - ALLOCATION FACTORS**Part 3 - CSO Facilities**

Personnel Costs
Contractual Services
Electricity
Chemicals
Other Utilities
Other

Total CSO Costs

Part 4 - Industrial Waste Control

Personnel Costs
Contractual Services
Electricity
Chemicals
Other Utilities
Other

Total IWC Costs

Part 5 - Support Services

8.1 Chief Operating Officer Wastewater
8.2.8 Wastewater Fire Damage
8.5 Wastewater Engineering
8.61 Analytical Laboratory
8.7 O&M Unallocated Reserve

Total Support Costs

TOTAL GROUP

Indirect Allocation Factors (*Personnel*)

Wastewater System Functional Categories											
WRRF Functional Categories							Wastewater Collection Facilities				
Primary Pumping	Rack & Grit	Primary Treatment	Aeration	Secondary Treatment	Dewatering	Sludge Disposal	Lift Stations	CSO Facilities	Interceptors	Industrial Waste Control	Master Meters
								100.0%			
								100.0%			
								100.0%			
								100.0%			
								100.0%			
0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%
										100.0%	
										100.0%	
										100.0%	
										100.0%	
										100.0%	
0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%
2.7%	3.1%	13.8%	10.0%	9.5%	17.0%	22.5%	0.0%	12.6%	0.0%	8.8%	0.0%
5.0%		10.0%	15.0%	10.0%	15.0%	20.0%	15.0%	5.0%		5.0%	
		15.0%	15.0%	15.0%		15.0%				40.0%	
2.7%	3.1%	13.8%	10.0%	9.5%	17.0%	22.5%	0.0%	12.6%	0.0%	8.8%	0.0%
3.2%	1.0%	12.3%	13.4%	10.9%	12.6%	19.8%	7.0%	6.5%	0.0%	13.4%	0.0%
4.5%	2.8%	8.9%	11.2%	8.9%	11.9%	32.6%	3.6%	10.7%	0.0%	4.8%	0.0%
2.7%	3.1%	13.8%	10.0%	9.5%	17.0%	22.5%	0.0%	12.6%	0.0%	8.8%	0.0%

Aligns with FY 2022 Budget Request as of 12/18/2020. Subsequent modifications may occur.

Wastewater Operations Group Functional Allocation Matrix - FY 2022 Budget

Goal is to allocate specific budget items within the Group that align with Cost Pools used to allocate costs to Member Partners.
The first step in the process is to assign these items to specific Functional Categories, as illustrated below - first for the WRRF, then for the supporting Divisions.
The FY 2022 allocation factors are based on historical data and judgement. They are unchanged from the FY 2020 and FY 2021 Cost of Service Studies.

2 - FUNCTIONAL O&M ALLOCATION

Personnel Costs

		WRRF Functional Categories							Wastewater Collection Facilities				
		Primary Pumping	Rack & Grit	Primary Treatment	Aeration	Secondary Treatment	Dewatering	Sludge Disposal	Lift Stations	CSO Facilities	Interceptors	Industrial Waste Control	Master Meters
8.2.1 Wastewater Operations	1,158,900	86,900	46,400	92,700	185,400	139,100	115,900	434,600	0	0	0	57,900	0
8.2.2 Wastewater Process Control	2,242,200	168,200	89,700	179,100	358,800	269,100	560,600	560,600	0	0	0	56,100	0
8.2.4 Wastewater Primary Process	4,316,500	431,700	647,500	3,237,300	0	0	0	0	0	0	0	0	0
8.2.4 Wastewater Secondary Process	4,027,700	0	0	(100)	2,013,900	2,013,900	0	0	0	0	0	0	0
8.2.5 Wastewater Dewatering Process	3,651,400	0	0	0	0	0	3,651,400	0	0	0	0	0	0
8.2.6 Wastewater Incineration Process	3,955,300	0	0	0	0	0	0	3,955,300	0	0	0	0	0
8.2.7 Biosolids Dryer Facility and Hauling Co	770,300	0	0	0	0	0	0	770,300	0	0	0	0	0
Total WRRF	20,122,300	686,800	783,600	3,509,000	2,558,100	2,422,100	4,327,900	5,720,800	0	0	0	114,000	0

Contractual Services

8.2.1 Wastewater Operations	550,000	41,200	22,000	44,100	88,000	66,000	55,000	206,200	0	0	0	27,500	0
8.2.2 Wastewater Process Control	1,068,300	80,100	42,700	85,500	170,900	128,200	267,100	267,100	0	0	0	26,700	0
8.2.4 Wastewater Primary Process	431,000	43,100	64,700	323,200	0	0	0	0	0	0	0	0	0
8.2.4 Wastewater Secondary Process	194,000	0	0	0	97,000	97,000	0	0	0	0	0	0	0
8.2.5 Wastewater Dewatering Process	92,000	0	0	0	0	0	92,000	0	0	0	0	0	0
8.2.6 Wastewater Incineration Process	327,368	0	0	0	0	0	0	327,400	0	0	0	0	0
8.2.7 Biosolids Dryer Facility and Hauling Co	15,837,000	0	0	0	0	0	0	15,837,000	0	0	0	0	0
Total WRRF	18,499,668	164,400	129,400	452,800	355,900	291,200	414,100	16,637,700	0	0	0	54,200	0

Electricity

8.2.1 Wastewater Operations	10,543,000	2,635,800	1,054,300	527,000	2,108,600	1,265,200	2,635,800	316,300	0	0	0	0	0
8.2.2 Wastewater Process Control	0	0	0	0	0	0	0	0	0	0	0	0	0
8.2.4 Wastewater Primary Process	0	0	0	0	0	0	0	0	0	0	0	0	0
8.2.4 Wastewater Secondary Process	0	0	0	0	0	0	0	0	0	0	0	0	0
8.2.5 Wastewater Dewatering Process	0	0	0	0	0	0	0	0	0	0	0	0	0
8.2.6 Wastewater Incineration Process	0	0	0	0	0	0	0	0	0	0	0	0	0
8.2.7 Biosolids Dryer Facility and Hauling Co	1,120,000	0	0	0	0	0	0	1,120,000	0	0	0	0	0
Total WRRF	11,663,000	2,635,800	1,054,300	527,000	2,108,600	1,265,200	2,635,800	1,436,300	0	0	0	0	0

Chemicals

8.2.1 Wastewater Operations	5,000	0	0	2,000	500	2,000	0	500	0	0	0	0	0
8.2.2 Wastewater Process Control	0	0	0	0	0	0	0	0	0	0	0	0	0
8.2.4 Wastewater Primary Process	2,107,200	210,700	316,100	1,580,400	0	0	0	0	0	0	0	0	0
8.2.4 Wastewater Secondary Process	4,801,700	0	0	(100)	2,400,900	2,400,900	0	0	0	0	0	0	0
8.2.5 Wastewater Dewatering Process	1,033,600	0	0	0	0	0	1,033,600	0	0	0	0	0	0
8.2.6 Wastewater Incineration Process	45,000	0	0	0	0	0	0	45,000	0	0	0	0	0
8.2.7 Biosolids Dryer Facility and Hauling Co	0	0	0	0	0	0	0	0	0	0	0	0	0
Total WRRF	7,992,500	210,700	316,100	1,582,300	2,401,400	2,402,900	1,033,600	45,500	0	0	0	0	0

Wastewater Operations Group Functional Allocation Matrix - FY 2022 Budget

Goal is to allocate specific budget items within the Group that align with Cost Pools used to allocate costs to Member Partners.

The first step in the process is to assign these items to specific Functional Categories, as illustrated below - first for the WRRF, then for the supporting Divisions.

The FY 2022 allocation factors are based on historical data and judgement. They are unchanged from the FY 2020 and FY 2021 Cost of Service Studies.

2 - FUNCTIONAL O&M ALLOCATION		Wastewater System Functional Categories											
		WRRF Functional Categories							Wastewater Collection Facilities				
		Primary Pumping	Rack & Grit	Primary Treatment	Aeration	Secondary Treatment	Dewatering	Sludge Disposal	Lift Stations	CSO Facilities	Interceptors	Industrial Waste Control	Master Meters
Other Utilities													
8.2.1 Wastewater Operations	5,588,593	279,400	279,400	279,600	1,117,700	279,400	279,400	3,073,700	0	0	0	0	0
8.2.2 Wastewater Process Control	0	0	0	0	0	0	0	0	0	0	0	0	0
8.2.4 Wastewater Primary Process	0	0	0	0	0	0	0	0	0	0	0	0	0
8.2.4 Wastewater Secondary Process	0	0	0	0	0	0	0	0	0	0	0	0	0
8.2.5 Wastewater Dewatering Process	0	0	0	0	0	0	0	0	0	0	0	0	0
8.2.6 Wastewater Incineration Process	0	0	0	0	0	0	0	0	0	0	0	0	0
8.2.7 Biosolids Dryer Facility and Hauling Co	2,530,400	0	0	0	0	0	0	2,530,400	0	0	0	0	0
Total WRRF	8,118,993	279,400	279,400	279,600	1,117,700	279,400	279,400	5,604,100	0	0	0	0	0
Other													
8.2.1 Wastewater Operations	4,281,107	321,100	171,200	342,500	685,000	513,700	428,100	1,605,400	0	0	0	214,100	0
8.2.2 Wastewater Process Control	1,230,200	92,300	49,200	98,300	196,800	147,600	307,600	307,600	0	0	0	30,800	0
8.2.4 Wastewater Primary Process	1,300,000	130,000	195,000	975,000	0	0	0	0	0	0	0	0	0
8.2.4 Wastewater Secondary Process	1,315,000	0	0	0	657,500	657,500	0	0	0	0	0	0	0
8.2.5 Wastewater Dewatering Process	1,660,000	0	0	0	0	0	1,660,000	0	0	0	0	0	0
8.2.6 Wastewater Incineration Process	1,846,132	0	0	0	0	0	0	1,846,100	0	0	0	0	0
8.2.7 Biosolids Dryer Facility and Hauling Co	(0)	0	0	0	0	0	0	0	0	0	0	0	0
Total WRRF	11,632,439	543,400	415,400	1,415,800	1,539,300	1,318,800	2,395,700	3,759,100	0	0	0	244,900	0
TOTAL WRRF Budget													
8.2.1 Wastewater Operations	22,126,600	3,364,400	1,573,300	1,287,900	4,185,200	2,265,400	3,514,200	5,636,700	0	0	0	299,500	0
8.2.2 Wastewater Process Control	4,540,700	340,600	181,600	362,900	726,500	544,900	1,135,300	1,135,300	0	0	0	113,600	0
8.2.4 Wastewater Primary Process	8,154,700	815,500	1,223,300	6,115,900	0	0	0	0	0	0	0	0	0
8.2.4 Wastewater Secondary Process	10,338,400	0	0	(200)	5,169,300	5,169,300	0	0	0	0	0	0	0
8.2.5 Wastewater Dewatering Process	6,437,000	0	0	0	0	0	6,437,000	0	0	0	0	0	0
8.2.6 Wastewater Incineration Process	6,173,800	0	0	0	0	0	0	6,173,800	0	0	0	0	0
8.2.7 Biosolids Dryer Facility and Hauling Co	20,257,700	0	0	0	0	0	0	20,257,700	0	0	0	0	0
Total WRRF	78,028,900	4,520,500	2,978,200	7,766,500	10,081,000	7,979,600	11,086,500	33,203,500	0	0	0	413,100	0
Part 2 - Lift Stations													
Personnel Costs	0	0	0	0	0	0	0	0	0	0	0	0	0
Contractual Services	28,200	0	0	0	0	0	0	0	28,200	0	0	0	0
Electricity	2,137,000	0	0	0	0	0	0	0	2,137,000	0	0	0	0
Chemicals	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Utilities	100,500	0	0	0	0	0	0	0	100,500	0	0	0	0
Other	501,700	0	0	0	0	0	0	0	501,700	0	0	0	0
Total Lift Stations Costs	2,767,400	0	0	0	0	0	0	0	2,767,400	0	0	0	0

Wastewater Operations Group Functional Allocation Matrix - FY 2022 Budget

Goal is to allocate specific budget items within the Group that align with Cost Pools used to allocate costs to Member Partners.

The first step in the process is to assign these items to specific Functional Categories, as illustrated below - first for the WRRF, then for the supporting Divisions.

The FY 2022 allocation factors are based on historical data and judgement. They are unchanged from the FY 2020 and FY 2021 Cost of Service Studies.

2 - FUNCTIONAL O&M ALLOCATION		Wastewater System Functional Categories											
		WRRF Functional Categories						Wastewater Collection Facilities					
		Primary Pumping	Rack & Grit	Primary Treatment	Aeration	Secondary Treatment	Dewatering	Sludge Disposal	Lift Stations	CSO Facilities	Interceptors	Industrial Waste Control	Master Meters
Part 3 - CSO Facilities													
Personnel Costs	3,199,500	0	0	0	0	0	0	0	0	3,199,500	0	0	0
Contractual Services	1,821,520	0	0	0	0	0	0	0	0	1,821,500	0	0	0
Electricity	955,400	0	0	0	0	0	0	0	0	955,400	0	0	0
Chemicals	1,258,000	0	0	0	0	0	0	0	0	1,258,000	0	0	0
Other Utilities	1,170,900	0	0	0	0	0	0	0	0	1,170,900	0	0	0
Other	2,517,380	0	0	0	0	0	0	0	0	2,517,400	0	0	0
Total CSO Costs	10,922,700	0	0	0	0	0	0	0	0	10,922,700	0	0	0
Part 4 - Industrial Waste Control													
Personnel Costs	2,133,000	0	0	0	0	0	0	0	0	0	0	2,133,000	0
Contractual Services	117,000	0	0	0	0	0	0	0	0	0	0	117,000	0
Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0
Chemicals	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Utilities	0	0	0	0	0	0	0	0	0	0	0	0	0
Other	148,300	0	0	0	0	0	0	0	0	0	0	148,300	0
Total IWC Costs	2,398,300	0	0	0	0	0	0	0	0	0	0	2,398,300	0
Part 5 - Support Services													
8.1 Chief Operating Officer Wastewater	2,833,200	76,400	87,200	390,600	284,700	269,600	481,700	636,700	0	356,100	0	250,100	0
8.2.8 Wastewater Fire Damage	0	0	0	0	0	0	0	0	0	0	0	0	0
8.5 Wastewater Engineering	9,032,500	451,600	0	903,300	1,354,900	903,300	1,354,900	1,806,500	1,354,900	451,600	0	451,600	0
8.61 Analytical Laboratory	3,971,200	0	0	595,700	595,700	595,700	0	595,700	0	0	0	1,588,500	0
8.7 O&M Unallocated Reserve	3,654,800	98,600	112,500	503,800	367,300	347,800	621,400	821,400	0	459,400	0	322,600	0
Total Support Costs	19,491,700	626,600	199,700	2,393,400	2,602,600	2,116,400	2,458,000	3,860,300	1,354,900	1,267,100	0	2,612,800	0
TOTAL GROUP	113,609,000	5,147,100	3,177,900	10,159,900	12,683,600	10,096,000	13,544,500	37,063,800	4,122,300	12,189,800	0	5,424,200	0
Indirect Allocation Factors (Personnel)	25,454,800	686,800	783,600	3,509,000	2,558,100	2,422,100	4,327,900	5,720,800	0	3,199,500	0	2,247,000	0

Centralized Services Group Functional Allocation Matrix - FY 2022 Budget

Goal is to allocate specific budget items within the Group that align with Cost Pools used to allocate costs to Member Partners.

The first step in the process is to establish direct cost pool allocation factors, then to recognize specific project / program allocations reflected in the FY 2022 Budget.

The FY 2022 allocation factors are based on historical data and judgement. They are unchanged from the FY 2020 and FY 2021 Cost of Service Studies.

Estimated allocation factors based on judgement and experience applied to historical information

	Cost Pool Allocation Factors												
Part 1 - General Cost Pool Allocation Factors	Water System Functional Categories						Wastewater System Functional Categories						
	Water Plants	Reservoirs	Booster Stations	Transmission Mains	Master Meters	General	WRRF	Lift Stations	CSO Facilities	Interceptors	Industrial Waste Control	Master Meters	General
Centralized Services													
4.1 Chief Planning Officer						50.00%							50.00%
4.2 System Planning	30.0%		10.00%	10.00%		0.00%	35.0%	5.00%	5.00%	5.00%			0.00%
4.3 System Analytics	30.0%		10.00%	10.00%		0.00%	35.0%	5.00%	5.00%	5.00%			0.00%
4.4 Asset Management & Capital Planning	30.0%		10.00%	10.00%		0.00%	35.0%	5.00%	5.00%	5.00%			0.00%
4.5 Energy Management	30.0%		20.00%			0.00%	45.00%	5.00%					0.00%
5.3 Field Service Operations		5.00%	10.00%	30.00%	5.00%	0.00%	0.0%	15.00%		35.00%			0.00%
5.4 Facility Operations	40.00%		10.00%			0.00%	50.0%						0.00%
5.5 Fleet Operations						50.00%							50.00%
7.1 Systems Control	5.0%	5.0%	35.0%	5.0%	5.0%	0.00%	0.0%	35.0%	0.0%	10.0%	0.0%		0.00%
6. Information Technology						50.00%							50.00%
10.1 Security						50.00%	50.00%						0.00%
11.1 HAZMAT						0.00%	100.00%						0.00%
12.1 Centralized Services Unallocated Reserve						50.00%							50.00%
Part 2 - Recognize Specific Project Allocations	Water System Functional Categories						Wastewater System Functional Categories						
Total Budget	Water Plants	Reservoirs	Booster Stations	Transmission Mains	Master Meters	General	WRRF	Lift Stations	CSO Facilities	Interceptors	Industrial Waste Control	Master Meters	General
Centralized Services													
4.1 Chief Planning Officer	292,000												
4.2 System Planning	4,828,500												
4.3 System Analytics	5,859,600					1,150,000					1,515,000		
4.4 Asset Management & Capital Planning	5,329,100			3,428,400							100,000		
4.5 Energy Management	3,197,100												
5.3 Field Service Operations	17,726,100			4,366,700							4,918,400		
5.4 Facility Operations	7,188,200												
5.5 Fleet Operations	2,687,900												
7.1 Systems Control	12,302,900		1,050,000					1,050,000		273,000			
6. Information Technology	38,343,600												
10.1 Security	4,321,400												
11.1 HAZMAT	1,665,800												
12.1 Centralized Services Unallocated Reserve	1,463,000												
Total Centralized Services Specific	105,205,200	0	0	1,050,000	7,795,100	0	1,150,000	1,050,000	0	6,806,400	0	0	0
Relative Cost Pool Allocation		0.0%	0.0%	5.9%	43.7%	0.0%	0.0%	5.9%	0.0%	38.1%	0.0%	0.0%	0.0%

Reflects analysis of specific contracts and programs in the FY 2022 GLWA Budget Request

Centralized Services Group Functional Allocation Matrix - FY 2022 Budget

Goal is to allocate specific budget items within the Group that align with Cost Pools used to allocate costs to Member Partners.

The first step in the process is to establish direct cost pool allocation factors, then to recognize specific project / program allocations reflected in the FY 2022 Budget.

The FY 2022 allocation factors are based on historical data and judgement. They are unchanged from the FY 2020 and FY 2021 Cost of Service Studies.

		Cost Pool Allocation Factors												
Part 3 - Allocation of Non-Specific Budget		Water System Functional Categories						Wastewater System Functional Categories						
Non Specific	Budget	Water Plants	Reservoirs	Booster Stations	Transmission Mains	Master Meters	General	WRRF	Lift Stations	CSO Facilities	Interceptors	Industrial Waste Control	Master Meters	General
Centralized Services														
4.1 Chief Planning Officer	292,000	0	0	0	0	0	146,000	0	0	0	0	0	0	146,000
4.2 System Planning	4,828,500	1,448,600	0	482,900	482,900	0	0	1,690,000	241,400	241,400	241,400	0	0	0
4.3 System Analytics	3,194,600	958,400	0	319,500	319,500	0	0	1,118,100	159,700	159,700	159,700	0	0	0
4.4 Asset Management & Capital Planning	1,800,700	540,200	0	180,100	180,100	0	0	630,200	90,000	90,000	90,000	0	0	0
4.5 Energy Management	3,197,100	959,100	0	639,400	0	0	0	1,438,700	159,900	0	0	0	0	0
5.3 Field Service Operations	8,441,000	0	422,100	844,100	2,532,300	422,100	0	0	1,266,200	0	2,954,400	0	0	0
5.4 Facility Operations	7,188,200	2,875,300	0	718,800	0	0	0	3,594,100	0	0	0	0	0	0
5.5 Fleet Operations	2,687,900	0	0	0	0	0	1,344,000	0	0	0	0	0	0	1,344,000
7.1 Systems Control	9,929,900	496,500	496,500	3,475,500	496,500	496,500	0	0	3,475,500	0	993,000	0	0	0
6. Information Technology	38,343,600	0	0	0	0	0	19,171,800	0	0	0	0	0	0	19,171,800
10.1 Security	4,321,400	0	0	0	0	0	2,160,700	2,160,700	0	0	0	0	0	0
11.1 HAZMAT	1,665,800	0	0	0	0	0	0	1,665,800	0	0	0	0	0	0
12.1 Centralized Services Unallocated Reserve	1,463,000	0	0	0	0	0	731,500	0	0	0	0	0	0	731,500
Total Centralized Services Non-Specific	87,353,700	7,278,100	918,600	6,660,300	4,011,300	918,600	23,554,000	12,297,600	5,392,700	491,100	4,438,500	0	0	21,393,300
Relative Cost Pool Allocation		8.3%	1.1%	7.6%	4.6%	1.1%	27.0%	14.1%	6.2%	0.6%	5.1%	0.0%	0.0%	24.5%
Part 4 - Consolidated Centralized Services Budget		Water System Functional Categories						Wastewater System Functional Categories						
Consolidated	Budget	Water Plants	Reservoirs	Booster Stations	Transmission Mains	Master Meters	General	WRRF	Lift Stations	CSO Facilities	Interceptors	Industrial Waste Control	Master Meters	General
Centralized Services														
4.1 Chief Planning Officer	292,000	0	0	0	0	0	146,000	0	0	0	0	0	0	146,000
4.2 System Planning	4,828,500	1,448,600	0	482,900	482,900	0	0	1,690,000	241,400	241,400	241,400	0	0	0
4.3 System Analytics	5,859,600	958,400	0	319,500	319,500	0	1,150,000	1,118,100	159,700	159,700	1,674,700	0	0	0
4.4 Asset Management & Capital Planning	5,329,100	540,200	0	180,100	3,608,500	0	0	630,200	90,000	90,000	190,000	0	0	0
4.5 Energy Management	3,197,100	959,100	0	639,400	0	0	0	1,438,700	159,900	0	0	0	0	0
5.3 Field Service Operations	17,726,100	0	422,100	844,100	6,899,000	422,100	0	0	1,266,200	0	7,872,800	0	0	0
5.4 Facility Operations	7,188,200	2,875,300	0	718,800	0	0	0	3,594,100	0	0	0	0	0	0
5.5 Fleet Operations	2,687,900	0	0	0	0	0	1,344,000	0	0	0	0	0	0	1,344,000
7.1 Systems Control	12,302,900	496,500	496,500	4,525,500	496,500	496,500	0	0	4,525,500	0	1,266,000	0	0	0
6. Information Technology	38,343,600	0	0	0	0	0	19,171,800	0	0	0	0	0	0	19,171,800
10.1 Security	4,321,400	0	0	0	0	0	2,160,700	2,160,700	0	0	0	0	0	0
11.1 HAZMAT	1,665,800	0	0	0	0	0	0	1,665,800	0	0	0	0	0	0
12.1 Centralized Services Unallocated Reserve	1,463,000	0	0	0	0	0	731,500	0	0	0	0	0	0	731,500
Total Centralized Services Consolidated	105,205,200	7,278,100	918,600	7,710,300	11,806,400	918,600	24,704,000	12,297,600	6,442,700	491,100	11,244,900	0	0	21,393,300
Relative Cost Pool Allocation		6.9%	0.9%	7.3%	11.2%	0.9%	23.5%	11.7%	6.1%	0.5%	10.7%	0.0%	0.0%	20.3%
Indirect Allocation Factors		13.6%	1.7%	14.5%	22.1%	1.7%		23.7%	12.4%	0.9%	21.7%	0.0%	0.0%	
Allocated Indirect	0	14,813,300	425,500	3,571,200	5,468,500	425,500	(24,704,000)	13,895,500	2,657,300	202,600	4,637,900	0	0	(21,393,300)
Reallocated Total	105,205,600	22,091,400	1,344,100	11,281,500	17,274,900	1,344,100	0	26,193,100	9,100,000	693,700	15,882,800	0	0	0
		21.0%	1.3%	10.7%	16.4%	1.3%	0.0%	24.9%	8.6%	0.7%	15.1%	0.0%	0.0%	0.0%

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Aligns with FY 2022 Budget Request as of 12/18/2020. Subsequent modifications may occur.

Aligns with FY 2022 Budget Request as of 12/18/2020. Subsequent modifications may occur.

Administrative Services Group Functional Allocation Matrix - FY 2022 Budget

Goal is to allocate specific budget items within the Group that align with Cost Pools used to allocate costs to Member P. For purposes of the FY 2022 Budget, these costs are equally allocated between Water and Sewer, and subsequently allocated as overhead amounts to other Cost Pools.

		Part 1 - Water / Sewer Allocation			
		Allocation Factor		Allocated Budget	
		<u>Water</u>	<u>Sewer</u>	<u>Water</u>	<u>Sewer</u>
Part 1 - Water / Sewer Allocation					
<u>Administrative and Other Services</u>					
1.1 Board of Directors	169,900	50.0%	50.0%	85,000	84,900
1.2 Chief Executive Officer	657,200	50.0%	50.0%	328,600	328,600
1.3 Public Affairs	1,525,700	50.0%	50.0%	762,900	762,800
2.1 Chief Administrative Officer	1,160,800	50.0%	50.0%	580,400	580,400
2.2 General Counsel	3,308,000	50.0%	50.0%	1,654,000	1,654,000
2.3 Organizational Development	4,724,200	50.0%	50.0%	2,362,100	2,362,100
2.4 Risk Management and Safety	1,857,500	50.0%	50.0%	928,800	928,700
2.5 Risk Management Insurance Fund	3,600,000	50.0%	50.0%	1,800,000	1,800,000
3.1 Chief Financial Officer	1,131,200	50.0%	50.0%	565,600	565,600
3.2 Finance	4,855,700	50.0%	50.0%	2,427,900	2,427,800
3.3 Treasury	1,368,000	50.0%	50.0%	684,000	684,000
3.4 Public Finance	1,066,400	50.0%	50.0%	533,200	533,200
3.5 Procurement	3,426,900	50.0%	50.0%	1,713,500	1,713,400
3.6 Internal Audit & Lease Administration	755,000	50.0%	50.0%	377,500	377,500
3.7 Transformation	1,713,400	50.0%	50.0%	856,700	856,700
3.8 Logistics and Materials	2,569,800	41.6%	58.4%	1,068,900	1,500,900
13.1 Administrative Services O&M Unallocate	913,600	50.0%	50.0%	456,800	456,800
Total Administrative Services	34,803,300	49.4%	50.6%	17,185,900	17,617,400

Consolidated Allocation of Water Operating Costs to Cost Pools - FY 2022 Budget

Goal is to allocate specific budget items within the Group that align with Cost Pools used to allocate costs to Member Partners.

Based on the assignment to Groups, Functional Category allocation factors can be applied to allocate to Cost Pools

The FY 2022 Allocation Factors are based on historical data and judgement. The upcoming Water Cost Allocation Methodology Project will review these factors.

Step 1 - Summarize Group Expenses

from Page A-4

Water Operations Group

Water Operations Group

Total

Power

Chemicals

Other Utilities

Subtotal w/o Commodities

WTP Allocation Factors

Centralized Services

Original Allocation
Allocation of Water Plant General
Allocated Subtotal
Treat Water General Centralized as A&G
"Direct" Centralized Services

Subtotal "Direct" Total
Subtotal "Direct" w/o Commodities
Indirect Overhead Allocation Factors

Administrative Services

Group Budget
Centralized A&G
Total A&G to Allocate
Allocation of A&G
Allocated Total

ALLOCATED GRAND TOTAL

Step 2 - Develop Allocation Factors

Based on Prior Simplified Assumptions

[illegible]

Traditional allocation factors developed to support Model Water Contract cost allocation methodology

Consolidated Allocation of Water Operating Costs to Cost Pools - FY 2022 Budget

Goal is to allocate specific budget items within the Group that align with Cost Pools used to allocate costs to Member Partners.

Based on the assignment to Groups, Functional Category allocation factors can be applied to allocate to Cost Pools

The FY 2022 Allocation Factors are based on historical data and judgement. The upcoming Water Cost Allocation Methodology Project will review these factors.

Step 3 - Apply Allocation Factors

Step 3 - Apply Allocation Factors		Cost Pool Allocation										Grand Total
		Common-to-All								Sub Only	Det Only	
		Commod	Max Day	PH Incr	PH Dist	Comm DE	MD DE	PH DE	PHI DE			
										Mtrs	Direct	
<u>All Operating Costs</u>												
Source of Supply Power	390,500	195,300	195,300	0	0	0	0	0	0	0	0	390,600
Source of Supply Other	4,524,600	0	4,524,600	0	0	0	0	0	0	0	0	4,524,600
Low Lift Pumps Power	3,124,000	1,562,000	1,562,000	0	0	0	0	0	0	0	0	3,124,000
Low Lift Pumps Other	6,805,000	0	6,805,000	0	0	0	0	0	0	0	0	6,805,000
Purification Chemicals	6,559,100	6,559,100	0	0	0	0	0	0	0	0	0	6,559,100
Purification Other	58,029,100	0	58,029,100	0	0	0	0	0	0	0	0	58,029,100
High Lift Pumps Power	8,200,600	0	0	0	0	4,100,300	0	2,050,200	2,050,200	0	0	8,200,700
High Lift Pumps Other	10,804,000	0	0	0	0	0	10,804,000	0	0	0	0	10,804,000
Reservoirs	1,820,300	0	0	1,820,300	0	0	0	0	0	0	0	1,820,300
Booster Stations	24,587,300	0	0	0	0	12,293,700	0	6,146,800	6,146,800	0	0	24,587,300
Transmission Mains	19,188,500	0	0	0	19,188,500	0	0	0	0	0	0	19,188,500
Suburban Meters	1,465,400	0	0	0	0	0	0	0	0	1,465,400	0	1,465,400
Total	145,498,400	8,316,400	71,116,000	1,820,300	19,188,500	16,394,000	10,804,000	8,197,000	8,197,000	1,465,400	0	145,498,600
Cost Pool Allocation Factor - All Costs		5.7%	48.9%	1.3%	13.2%	11.3%	7.4%	5.6%	5.6%	1.0%	0.0%	
<u>Non-Commodity Costs</u>												
Source of Supply Power		0	0	0	0	0	0	0	0	0	0	0
Source of Supply Other	2,777,300	0	2,777,300	0	0	0	0	0	0	0	0	2,777,300
Low Lift Pumps Power		0	0	0	0	0	0	0	0	0	0	0
Low Lift Pumps Other	4,177,300	0	4,177,300	0	0	0	0	0	0	0	0	4,177,300
Purification Chemicals		0	0	0	0	0	0	0	0	0	0	0
Purification Other	33,239,600	0	33,239,600	0	0	0	0	0	0	0	0	33,239,600
High Lift Pumps Power		0	0	0	0	0	0	0	0	0	0	0
High Lift Pumps Other	6,625,000	0	0	0	0	0	6,625,000	0	0	0	0	6,625,000
Reservoirs	1,141,100	0	0	1,141,100	0	0	0	0	0	0	0	1,141,100
Booster Stations	9,471,800	0	0	0	0	4,735,900	0	2,368,000	2,368,000	0	0	9,471,900
Transmission Mains	12,028,900	0	0	0	12,028,900	0	0	0	0	0	0	12,028,900
Suburban Meters	918,600	0	0	0	0	0	0	0	0	918,600	0	918,600
Total	70,379,600	0	40,194,200	1,141,100	12,028,900	4,735,900	6,625,000	2,368,000	2,368,000	918,600	0	70,379,700
Cost Pool Allocation Factor - Non Commodity Costs		0.0%	57.1%	1.6%	17.1%	6.7%	9.4%	3.4%	3.4%	1.3%	0.0%	

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Consolidated Allocation of Wastewater Operating Costs to Cost Pools - FY 2022 Budget

Goal is to allocate specific budget items within the Group that align with Cost Pools used to allocate costs to Member Partners.
 Based on the assignment to Groups, Functional Category allocation factors can be applied to allocate to Cost Pools
 The FY 2022 WRRF allocation factors are only necessary to establish pollutant surcharges, as the FY 2022 SHARES methodology simplifies the allocation process for Member Partner SHARES.

Step 3 - Apply Allocation Factors

	Cost Pool Allocation												
	Total System	OMID Contractual	Remaining Balance	Industrial Waste Control	WRRF Treatment					"Common" prior to Surchage			
					Separated for Purposes of Surchage Calculations					WRRF Treatment	Conveyance	CSO Facilities	"Common" TOTAL
					Flow	BOD	TSS	PHOS	FOG				
<u>All Operating Costs</u>													
Primary Pumping	6,342,900		6,342,900	0	6,342,900	0	0	0	0	6,342,900	0	0	6,342,900
Rack & Grit	4,082,000		4,082,000	0	4,082,000	0	0	0	0	4,082,000	0	0	4,082,000
Primary Chemical Addition	1,582,300		1,582,300	0	0	0	0	1,582,300	0	1,582,300	0	0	1,582,300
Primary Sedimentation	13,174,900		13,174,900	0	0	0	9,222,400	2,635,000	1,317,500	13,174,900	0	0	13,174,900
Aeration	16,857,900		16,857,900	0	0	16,857,900	0	0	0	16,857,900	0	0	16,857,900
Secondary Clarification	11,330,500		11,330,500	0	0	2,832,600	7,364,800	1,133,100	0	11,330,500	0	0	11,330,500
Chlorination	2,402,900		2,402,900	0	2,402,900	0	0	0	0	2,402,900	0	0	2,402,900
Dewatering	19,221,400		19,221,400	0	0	2,883,200	13,455,000	2,883,200	0	19,221,400	0	0	19,221,400
Sludge Treatment	54,798,800		54,798,800	0	0	8,219,800	38,359,200	8,219,800	0	54,798,800	0	0	54,798,800
Process Water & Outfall	0		0	0	0	0	0	0	0	0	0	0	0
Lift Stations	14,108,500	1,568,500	12,540,000	0	0	0	0	0	0	0	12,540,000	0	12,540,000
CSO Facilities	16,934,100		16,934,100	0	0	0	0	0	0	0	0	16,934,100	16,934,100
Interceptors	15,016,400		15,016,400	0	0	0	0	0	0	0	15,016,400	0	15,016,400
Industrial Waste Control	7,243,500		7,243,500	7,243,500	0	0	0	0	0	0	0	0	0
Suburban Meters	0		0	0	0	0	0	0	0	0	0	0	0
Total	183,096,100	1,568,500	181,527,600	7,243,500	12,827,800	30,793,500	68,401,400	16,453,400	1,317,500	129,793,600	27,556,400	16,934,100	174,284,100
Cost Pool Allocation Factor - All Costs				4.0%	7.1%	17.0%	37.7%	9.1%	0.7%	71.5%	15.2%	9.3%	
Cost Pool Allocation Factor - "Common" Costs										74.5%	15.8%	9.7%	
<u>Non-Commodity Costs</u>													
Primary Pumping	2,409,000		2,409,000	0	2,409,000	0	0	0	0	2,409,000	0	0	2,409,000
Rack & Grit	1,821,300		1,821,300	0	1,821,300	0	0	0	0	1,821,300	0	0	1,821,300
Primary Chemical Addition	0		0	0	0	0	0	0	0	0	0	0	0
Primary Sedimentation	9,261,900		9,261,900	0	0	0	6,483,300	1,852,400	926,200	9,261,900	0	0	9,261,900
Aeration	8,409,600		8,409,600	0	0	8,409,600	0	0	0	8,409,600	0	0	8,409,600
Secondary Clarification	7,328,100		7,328,100	0	0	1,832,000	4,763,300	732,800	0	7,328,100	0	0	7,328,100
Chlorination	0		0	0	0	0	0	0	0	0	0	0	0
Dewatering	11,436,700		11,436,700	0	0	1,715,500	8,005,700	1,715,500	0	11,436,700	0	0	11,436,700
Sludge Treatment	35,729,300		35,729,300	0	0	5,359,400	25,010,500	5,359,400	0	35,729,300	0	0	35,729,300
Process Water & Outfall	0		0	0	0	0	0	0	0	0	0	0	0
Lift Stations	10,565,000	750,000	9,815,000	0	0	0	0	0	0	0	9,815,000	0	9,815,000
CSO Facilities	12,680,900		12,680,900	0	0	0	0	0	0	0	0	12,680,900	12,680,900
Interceptors	11,244,900		11,244,900	0	0	0	0	0	0	0	11,244,900	0	11,244,900
Industrial Waste Control	5,424,200		5,424,200	5,424,200	0	0	0	0	0	0	0	0	0
Suburban Meters	0		0	0	0	0	0	0	0	0	0	0	0
Total	116,310,900	750,000	115,560,900	5,424,200	4,230,300	17,316,500	44,262,800	9,660,100	926,200	76,395,900	21,059,900	12,680,900	110,136,700
Cost Pool Allocation Factor - Non Commodity Costs				4.7%	3.7%	15.0%	38.3%	8.4%	0.8%	66.1%	18.2%	11.0%	

Allocation of Water Capital Revenue Requirements to Cost Pools - FY 2022 Budget

Goal is to use recent GLWA asset inventory and valuation analysis to establish allocation of capital revenue requirements (debt service, etc) to Cost Pools and Member Partners.

First step: Evaluate data from recent capital asset inventory and valuation study, as reported by GLWA

Then: Utilize this information to establish functional allocation of capital revenue requirements.

Final: Allocate capital revenue requirements to Cost Pools based on existing methodology matrices.

Direct from GLWA
Capital Asset Records

Step 1 - Interpret Fixed Asset Data

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Reported Asset Value by Function - 6/30/20 (Includes CWIP)				Reallocate General Items				Reallocated Total - 6/30/20			
	Acquisition Cost	Accumulated Depreciation	Net Book Value	Annual Depr Expense	Acquisition Cost	Accumulated Depreciation	Net Book Value	Annual Depr Expense	Acquisition Cost	Accumulated Depreciation	Net Book Value	Annual Depr Expense
1 Source of Supply	61,438,500	13,044,800	48,393,700	2,309,000	27,928,300	6,680,800	21,247,500	958,200	89,366,800	19,725,600	69,641,200	3,267,200
2 Low Lift Pumping	70,392,600	33,414,100	36,978,500	4,594,200	31,998,600	17,112,900	14,885,700	1,906,700	102,391,200	50,527,000	51,864,200	6,500,900
3 Purification	549,311,700	131,160,900	418,150,800	29,739,500	249,702,100	67,173,600	182,528,500	12,342,300	799,013,800	198,334,500	600,679,300	42,081,800
4 High Lift Pumping	97,044,200	40,830,500	56,213,700	5,428,400	44,113,700	20,911,200	23,202,500	2,252,800	141,157,900	61,741,700	79,416,200	7,681,200
5 Reservoirs	74,254,500	14,411,900	59,842,600	2,620,200	1,143,200	179,400	963,800	24,100	75,397,700	14,591,300	60,806,400	2,644,300
6 Water Booster Stations	294,140,000	107,318,800	186,821,200	18,260,900	4,528,500	1,335,800	3,192,700	167,700	298,668,500	108,654,600	190,013,900	18,428,600
7 Transmission Mains	873,838,100	164,715,000	709,123,100	37,701,900	13,453,300	2,050,200	11,403,100	346,300	887,291,400	166,765,200	720,526,200	38,048,200
8 Wholesale Master Meters	39,999,200	4,414,800	35,584,400	1,018,600	615,800	55,000	560,800	9,400	40,615,000	4,469,800	36,145,200	1,028,000
9 Subtotal	2,060,418,800	509,310,800	1,551,108,000	101,672,700	373,483,500	115,498,900	257,984,600	18,007,500	2,433,902,300	624,809,700	1,809,092,600	119,680,200
10 Water Treatment General	336,580,100	107,817,400	228,762,700	16,918,100	(336,580,100)	(107,817,400)	(228,762,700)	(16,918,100)	0	0	0	0
11 Water General	36,903,300	7,681,500	29,221,800	1,089,400	(36,903,300)	(7,681,500)	(29,221,800)	(1,089,400)	0	0	0	0
12 Total	2,433,902,200	624,809,700	1,809,092,500	119,680,200	100	0	100	0	2,433,902,300	624,809,700	1,809,092,600	119,680,200

Step 2 - Identify Capital Rev Req't

	6/30/30 Asset Values				Capital Rev Req't Allocation		
	Acquisition Cost	Accumulated Depreciation	Net Book Value	Annual Depr Expense	Annual Depr Expense	Return on Rate Base	Total Capital Rev Req't
					~ (4)	rel (3)	
					68%	4.52%	
1 Source of Supply	89,366,800	19,725,600	69,641,200	3,267,200	2,232,700	3,148,400	5,381,100
2 Low Lift Pumping	102,391,200	50,527,000	51,864,200	6,500,900	4,442,600	2,344,700	6,787,300
3 Purification	799,013,800	198,334,500	600,679,300	42,081,800	28,758,000	27,156,200	55,914,200
4 High Lift Pumping	141,157,900	61,741,700	79,416,200	7,681,200	5,249,200	3,590,300	8,839,500
5 Reservoirs	75,397,700	14,591,300	60,806,400	2,644,300	1,807,100	2,749,000	4,556,100
6 Water Booster Stations	298,668,500	108,654,600	190,013,900	18,428,600	12,593,800	8,590,400	21,184,200
7 Transmission Mains	887,291,400	166,765,200	720,526,200	38,048,200	26,001,500	32,574,400	58,575,900
8 Wholesale Master Meters	40,615,000	4,469,800	36,145,200	1,028,000	702,500	1,634,100	2,336,600
9 Total	2,433,902,300	624,809,700	1,809,092,600	119,680,200	81,787,400	81,787,500	163,574,900
10 Debt Service	135,481,000						
11 Xfer to GLWA Regional I&E Account	28,093,900						
12 Total Capital Rev Req't	163,574,900				81,787,400	81,787,500	163,574,900
13 Relative "Utility Basis" Components					50.0%	50.0%	

Adjustment to approximate "pre valuation" depreciation expense

Effective Utility Basis Rate of Return

In effect, approximately half of the capital revenue requirement is allocated to Cost Pools based on Depreciation Expense and the other half based on Net Book Value of the acquired assets

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Allocation of Water Capital Revenue Requirements to Cost Pools - FY 2022 Budget

Goal is to use recent GLWA asset inventory and valuation analysis to establish allocation of capital revenue requirements (debt service, etc) to Cost Pools and Member Partners.

First step: Evaluate data from recent capital asset inventory and valuation study, as reported by GLWA

Then: Utilize this information to establish functional allocation of capital revenue requirements.

Final: Allocate capital revenue requirements to Cost Pools based on existing methodology matrices.

Step 3 - Allocate to Cost Pools			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
			Total Capital		Cost Pools					
			<u>Rev Req't</u>	<u>Cost Pool Allocation</u>	Common-to-All					Sub Only
					<u>Commod</u>	<u>Max Day</u>	<u>PH Incr</u>	<u>PH Dist</u>	<u>PH DE</u>	<u>Mtrs</u>
1	Source of Supply		5,381,100	Max Day		5,381,100				
2	Low Lift Pumping		6,787,300	Max Day		6,787,300				
3	Purification		55,914,200	Max Day		55,914,200				
4	High Lift Pumping		8,839,500	Peak Hour Distance/Elevation					8,839,500	
5	Reservoirs		4,556,100	Peak Hour Increment			4,556,100			
6	Water Booster Stations		21,184,200	Peak Hour Distance/Elevation					21,184,200	
7	Transmission Mains		58,575,900	Peak Hour Distance				58,575,900		
8	Wholesale Master Meters		2,336,600	Suburban Meters						2,336,600
9	Total		163,574,900		0	68,082,600	4,556,100	58,575,900	30,023,700	2,336,600
10	Capital Revenue Req't Allocation Factor				0.0%	41.6%	2.8%	35.8%	18.4%	1.4%

Traditional allocation approach developed to support model water contract cost allocation methodology

Allocation of Wastewater Capital Revenue Requirements to Cost Pools - FY 2022 Budget

Direct from GLWA
Capital Asset Records

Goal is to use recent GLWA asset inventory and valuation analysis to establish allocation of capital revenue requirements (debt service, etc) to Cost Pools and Member Partners.

First step: Evaluate data from recent capital asset inventory and valuation study, as reported by GLWA

Then: Utilize this information to establish functional allocation of capital revenue requirements.

Final: Allocate capital revenue requirements to Cost Pools based on existing methodology matrices.

Step 1 - Interpret Fixed Asset Data

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Reported Asset Value by Function - 6/30/20 (Includes CWIP)				Allocate WRRF General				Reallocated Subtotal			
	Acquisition Cost	Accumulated Depreciation	Net Book Value	Annual Depr Expense	Acquisition Cost	Accumulated Depreciation	Net Book Value	Annual Depr Expense	Acquisition Cost	Accumulated Depreciation	Net Book Value	Annual Depr Expense
1 Primary Pumping	134,461,000	36,091,400	98,378,000	7,864,100	21,336,500	5,378,300	15,803,200	1,410,800	155,797,500	41,469,700	114,181,200	9,274,900
2 Rack & Grit	84,496,400	15,210,000	69,286,500	2,111,600	13,408,000	2,266,600	11,130,000	378,800	97,904,400	17,476,600	80,416,500	2,490,400
3 Primary Chemical Addition	0	0	0	0	0	0	0	0	0	0	0	0
4 Primary Sedimentation	247,714,800	50,841,000	196,873,800	14,092,100	39,307,800	7,576,200	31,625,300	2,528,100	287,022,600	58,417,200	228,499,100	16,620,200
5 Aeration	129,276,800	24,760,800	104,516,000	6,062,100	20,513,900	3,689,800	16,789,200	1,087,500	149,790,700	28,450,600	121,305,200	7,149,600
6 Secondary Clarification	175,549,200	46,989,900	129,923,900	12,630,800	27,856,500	7,002,300	20,870,600	2,265,900	203,405,700	53,992,200	150,794,500	14,896,700
7 Chlorination	0	0	0	0	0	0	0	0	0	0	0	0
8 Dewatering	124,572,300	38,682,500	85,907,300	8,504,200	19,767,400	5,764,400	13,799,900	1,525,600	144,339,700	44,446,900	99,707,200	10,029,800
9 Sludge Treatment	368,671,400	92,285,200	276,392,300	15,969,600	58,501,400	13,752,100	44,398,900	2,864,900	427,172,800	106,037,300	320,791,200	18,834,500
10 Process Water & Outfall	227,151,700	34,580,300	192,572,000	8,323,900	36,044,800	5,153,000	30,934,100	1,493,300	263,196,500	39,733,300	223,506,100	9,817,200
11 Lift Stations	329,232,500	49,055,900	280,174,500	11,414,700					329,232,500	49,055,900	280,174,500	11,414,700
12 CSO Facilities	571,982,000	65,202,200	505,332,000	18,209,100					571,982,000	65,202,200	505,332,000	18,209,100
13 Interceptors	420,936,400	26,617,100	393,774,300	7,720,800					420,936,400	26,617,100	393,774,300	7,720,800
14 Industrial Waste Control	2,783,400	34,000	2,749,400	159,800					2,783,400	34,000	2,749,400	159,800
15 Suburban Meters	61,472,400	12,093,600	49,378,800	3,606,200					61,472,400	12,093,600	49,378,800	3,606,200
16 Subtotal	2,878,300,300	492,443,900	2,385,258,800	116,669,000	236,736,300	50,582,700	185,351,200	13,554,900	3,115,036,600	543,026,600	2,570,610,000	130,223,900
17 WRRF General	236,736,300	50,582,700	185,351,200	13,554,900	(236,736,300)	(50,582,700)	(185,351,200)	(13,554,900)	0	0	0	0
18 Wastewater General	138,555,500	75,248,500	63,187,000	5,778,500					138,555,500	75,248,500	63,187,000	5,778,500
19 Total	3,253,592,100	618,275,100	2,633,797,000	136,002,400	0	0	0	0	3,253,592,100	618,275,100	2,633,797,000	136,002,400

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Allocation of Wastewater Capital Revenue Requirements to Cost Pools - FY 2019 Budget

Goal is to use recent GLWA asset inventory and valuation analysis to establish allocation of capital revenue requirements.

First step: Evaluate data from recent capital asset inventory and valuation study.

Then: Utilize this information to establish functional allocation of capital revenue requirements.

Final: Allocate capital revenue requirements to Cost Pools based on existing methodology matrices.

Step 1 - Interpret Fixed Asset Data		(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
		Allocate WW General				Reallocated Total - 6/30/18			
		Acquisition Cost	Accumulated Depreciation	Net Book Value	Annual Depr Expense	Acquisition Cost	Accumulated Depreciation	Net Book Value	Annual Depr Expense
1	Primary Pumping	6,929,800	5,746,600	2,806,600	411,600	162,727,300	47,216,300	116,987,800	9,686,500
2	Rack & Grit	4,354,700	2,421,800	1,976,700	110,500	102,259,100	19,898,400	82,393,200	2,600,900
3	Primary Chemical Addition	0	0	0	0	0	0	0	0
4	Primary Sedimentation	12,766,600	8,095,000	5,616,600	737,500	299,789,200	66,512,200	234,115,700	17,357,700
5	Aeration	6,662,600	3,942,500	2,981,700	317,300	156,453,300	32,393,100	124,286,900	7,466,900
6	Secondary Clarification	9,047,400	7,481,800	3,706,600	661,000	212,453,100	61,474,000	154,501,100	15,557,700
7	Chlorination	0	0	0	0	0	0	0	0
8	Dewatering	6,420,200	6,159,100	2,450,900	445,100	150,759,900	50,606,000	102,158,100	10,474,900
9	Sludge Treatment	19,000,500	14,693,800	7,885,200	835,800	446,173,300	120,731,100	328,676,400	19,670,300
10	Process Water & Outfall	11,706,900	5,505,900	5,493,900	435,600	274,903,400	45,239,200	229,000,000	10,252,800
11	Lift Stations	14,644,100	6,797,800	6,886,800	506,500	343,876,600	55,853,700	287,061,300	11,921,200
12	CSO Facilities	25,441,500	9,035,200	12,421,300	808,000	597,423,500	74,237,400	517,753,300	19,017,100
13	Interceptors	18,723,100	3,688,400	9,679,200	342,600	439,659,500	30,305,500	403,453,500	8,063,400
14	Industrial Waste Control	123,800	4,700	67,600	7,100	2,907,200	38,700	2,817,000	166,900
15	Suburban Meters	2,734,300	1,675,800	1,213,800	160,000	64,206,700	13,769,400	50,592,600	3,766,200
16	Subtotal	138,555,500	75,248,400	63,186,900	5,778,600	3,253,592,100	618,275,000	2,633,796,900	136,002,500
17	WWRF General					0	0	0	0
18	Wastewater General	(138,555,500)	(75,248,500)	(63,187,000)	(5,778,500)	0	0	0	0
19	Total	0	(100)	(100)	100	3,253,592,100	618,275,000	2,633,796,900	136,002,500

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Allocation of Wastewater Capital Revenue Requirements to Cost Pools - FY 2022 Budget

Goal is to use recent GLWA asset inventory and valuation analysis to establish allocation of capital revenue requirements to Cost Pools and Member Partners.

First step: Evaluate data from recent capital asset inventory and valuation study, as reported by GLWA

Then: Utilize this information to establish functional allocation of capital revenue requirements.

Final: Allocate capital revenue requirements to Cost Pools based on existing methodology matrices.

Step 2 - Identify Capital Rev Req't		(1)	(2)	(3)	(4)	(5)	(6)	(7)
		6/30/19 Asset Values				Capital Rev Req't Allocation		
		Acquisition Cost	Accumulated Depreciation	Net Book Value	Annual Depr Expense	Annual Depr Expense	Return on Rate Base	Total Capital Rev Req't
						~ (4)	~ rel (3)	
						89%	4.59%	
1	Primary Pumping	162,727,300	47,216,300	116,987,800	9,686,500	8,611,800	5,370,700	13,982,500
2	Rack & Grit	102,259,100	19,898,400	82,393,200	2,600,900	2,312,300	3,782,500	6,094,800
3	Primary Chemical Addition	0	0	0	0	0	0	0
4	Primary Sedimentation	299,789,200	66,512,200	234,115,700	17,357,700	15,431,900	10,747,900	26,179,800
5	Aeration	156,453,300	32,393,100	124,286,900	7,466,900	6,638,500	5,705,800	12,344,300
6	Secondary Clarification	212,453,100	61,474,000	154,501,100	15,557,700	13,831,600	7,092,900	20,924,500
7	Chlorination	0	0	0	0	0	0	0
8	Dewatering	150,759,900	50,606,000	102,158,100	10,474,900	9,312,700	4,689,900	14,002,600
9	Sludge Treatment	446,173,300	120,731,100	328,676,400	19,670,300	17,487,900	15,089,000	32,576,900
10	Process Water & Outfall	274,903,400	45,239,200	229,000,000	10,252,800	9,115,300	10,513,000	19,628,300
11	Lift Stations	343,876,600	55,853,700	287,061,300	11,921,200	10,598,600	13,178,500	23,777,100
12	CSO Facilities	597,423,500	74,237,400	517,753,300	19,017,100	16,907,200	23,769,200	40,676,400
13	Interceptors	439,659,500	30,305,500	403,453,500	8,063,400	7,168,800	18,521,900	25,690,700
14	Industrial Waste Control	2,907,200	38,700	2,817,000	166,900	148,400	129,300	277,700
15	Suburban Meters	64,206,700	13,769,400	50,592,600	3,766,200	3,348,300	2,322,600	5,670,900
16	Total	3,253,592,100	618,275,000	2,633,796,900	136,002,500	120,913,300	120,913,200	241,826,500
<u>Capital Revenue Requirement</u>								
17	Debt Service	207,209,500						
18	Xfer to GLWA Regional I&E Account	34,616,900						
19	Total Capital Rev Req't	241,826,400				120,913,300	120,913,100	241,826,400
20	Relative "Utility Basis" Components					50.0%	50.0%	

Adjustment to approximate "pre valuation" depreciation expense

Effective Utility Basis Rate of Return

In effect, approximately half of the capital revenue requirement is allocated to Cost Pools based on Depreciation Expense and the other half based on Net Book Value of the acquired assets

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PRELIMINARY

12/30/20

Allocation of Wastewater Capital Revenue Requirements to Cost Pools - FY 2022 Budget

Goal is to use recent GLWA asset inventory and valuation analysis to establish allocation of capital revenue requirements (debt service, etc) to Cost Pools and Member Partners.

First step: Evaluate data from recent capital asset inventory and valuation study.

Then: Utilize this information to establish functional allocation of capital revenue requirements.

Final: Allocate capital revenue requirements to Cost Pools based on existing methodology matrices.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Step 3 - Allocate to Cost Pools		Capital Revenue Requirement Allocation Factors					Cost Pool Allocation									
Total Capital Rev Req't		WRRF Treatment					Industrial Waste Control	WRRF Treatment <i>Separated for Purposes of Surcharge Calculations</i>					"Common" prior to Surcharge			
		Flow	BOD	TSS	PHOS	FOG		Flow	BOD	TSS	PHOS	FOG	WRRF Treatment	Conveyance	CSO Facilities	"Common" TOTAL
1	Primary Pumping	13,982,500	100%					13,982,500	0	0	0	0	13,982,500			13,982,500
2	Rack & Grit	6,094,800	100%					6,094,800	0	0	0	0	6,094,800			6,094,800
3	Primary Chemical Addition	0			100%			0	0	0	0	0	0			0
4	Primary Sedimentation	26,179,800	85%		10%	5%		22,252,800	0	2,618,000	0	1,309,000	26,179,800			26,179,800
5	Aeration	12,344,300	20%	80%				2,468,900	9,875,400	0	0	0	12,344,300			12,344,300
6	Secondary Clarification	20,924,500	65%	35%				13,600,900	7,323,600	0	0	0	20,924,500			20,924,500
7	Chlorination	0	100%					0	0	0	0	0	0			0
8	Dewatering	14,002,600		15%	70%	15%		0	2,100,400	9,801,800	2,100,400	0	14,002,600			14,002,600
9	Sludge Treatment	32,576,900		15%	70%	15%		0	4,886,500	22,803,800	4,886,500	0	32,576,800			32,576,800
10	Process Water & Outfall	19,628,300	100%					19,628,300	0	0	0	0	19,628,300			19,628,300
11	Lift Stations	23,777,100												23,777,100		23,777,100
12	CSO Facilities	40,676,400													40,676,400	40,676,400
13	Interceptors	25,690,700												25,690,700		25,690,700
14	Industrial Waste Control	277,700					277,700									0
15	Suburban Meters	5,670,900												5,670,900		5,670,900
16	OMID Facilities	0												0		0
17	Total	241,826,500					277,700	78,028,200	24,185,900	35,223,600	6,986,900	1,309,000	145,733,600	55,138,700	40,676,400	241,548,700
18	Cost Pool Allocation Factor - All Costs						0.1%	32.3%	10.0%	14.6%	2.9%	0.5%	60.3%	22.8%	16.8%	
19	Cost Pool Allocation Factor - "Common" Costs												60.3%	22.8%	16.8%	

Traditional allocation factors developed in the late 1970s
as part of the original Rate Settlement Agreements

O&M factors from page A-15

Consolidated Water Revenue Requirement Allocated to Cost Pools

Goal is to use allocation factors resulting from detailed review to allocate the final 2022 BUDGET figures for the FY 2022 Charges

Allocation Factors from Detailed Review

Capital factors from page A-19

O&M Expense - Total
O&M Expense - Non-Commodity
Capital Revenue Requirements

Cost Pool Allocation										
Common-to-All									Sub Only	Det Only
Commod	Max Day	PH Incr	PH Dist	Comm DE	MD DE	PH DE	PHI DE	Mtrs	Direct	
1	5.7%	48.9%	1.3%	13.2%	11.3%	7.4%	5.6%	5.6%	1.0%	0.0%
2	0.0%	57.1%	1.6%	17.1%	6.7%	9.4%	3.4%	3.4%	1.3%	0.0%
3	0.0%	41.6%	2.8%	35.8%	0.0%	0.0%	18.4%	0.0%	1.4%	0.0%

Apply Allocation Factors to BUDGET

Apply Allocation Factors to BUDGET			Cost Pool Allocation										Allocated TOTAL	
BUDGET Elements	Budget to Allocate	Allocation Basis	Common-to-All								Sub Only	Det Only		
			Commod	Max Day	PH Incr	PH Dist	Comm DE	MD DE	PH DE	PHI DE	Mtrs	Direct		
1	Regional System O&M Expense	145,497,300	1	8,316,300	71,115,400	1,820,300	19,188,300	16,393,900	10,803,900	8,196,900	8,196,900	1,465,400	0	145,497,300
2	Pension Obligation - Operating Portion	6,048,000	2	0	3,454,000	98,100	1,033,700	407,000	569,300	203,500	203,500	78,900	0	6,048,000
3	Debt Service	135,481,000	3	0	56,389,500	3,773,600	48,515,600	0	0	24,867,100	0	1,935,300	0	135,481,100
4	Non-Operating Portion of Pension Oblig	6,268,300	2	0	3,579,900	101,600	1,071,300	421,800	590,000	210,900	210,900	81,800	0	6,268,200
5	Transfer to WRAP Fund	1,702,000	4	44,000	774,400	34,800	423,000	91,200	63,400	204,600	45,600	21,000	0	1,702,000
	Transfer to Extra. Repair and Repl. Fund	0	3	0	0	0	0	0	0	0	0	0	0	0
6	Lease Payment - Transfer to Detroit Local I&E	22,500,000	4	582,200	10,237,500	460,400	5,591,500	1,205,700	837,500	2,704,800	602,900	277,400	0	22,499,900
7	Transfer to GLWA Regional I&E Account	28,093,900	3	0	11,693,200	782,500	10,060,400	0	0	5,156,500	0	401,300	0	28,093,900
	Operating Reserves	0	1	0	0	0	0	0	0	0	0	0	0	0
8	Total Gross BUDGET	345,590,500		8,942,500	157,243,900	7,071,300	85,883,800	18,519,600	12,864,100	41,544,300	9,259,800	4,261,100	0	345,590,400
9	less: Revenue from Non-Contract Cust	0	4	0	0	0	0	0	0	0	0	0	0	0
10	less: Non-Operating Revenue	(1,221,000)	4	(31,600)	(555,600)	(25,000)	(303,400)	(65,400)	(45,400)	(146,800)	(32,700)	(15,100)	0	(1,221,000)
11	Net BUDGET Req'd from Charges	344,369,500		8,910,900	156,688,300	7,046,300	85,580,400	18,454,200	12,818,700	41,397,500	9,227,100	4,246,000	0	344,369,400
12	Subtotal Direct Elements			8,316,300	146,232,000	6,576,100	79,869,300	17,222,700	11,963,200	38,634,900	8,611,300	3,962,700	0	321,388,500
13	Allocation Factors for Indirect Elements		4	2.6%	45.5%	2.0%	24.9%	5.4%	3.7%	12.0%	2.7%	1.2%	0.0%	

THIS IS WATER TABLE 4 IN THE FY 2022 COST
OF SERVICE STUDY MEMORANDUM

O&M factors from page A-17

Consolidated Sewer Revenue Requirement Allocated to Cost Pools

Goal is to use allocation factors resulting from detailed review to allocate the final 2022 BUDGET figures for the FY 2022 Charges

Allocation Factors from Detailed Review

Capital factors from page A-23

O&M Expense - Total
O&M Expense - Non-Commodity
Capital Revenue Requirements

1
2
3

Apply Allocation Factors to BUDGET

	Budget to Allocate	OMID Contractual	Remaining Balance	Allocation Basis	Cost Pool Allocation									
					Industrial Waste Control	WRRF Treatment Separated for Purposes of Surcharge Calculations					"Common" prior to Surcharge			
						Flow	BOD	TSS	PHOS	FOG	WRRF Treatment	Conveyance	CSO Facilities	"Common" TOTAL
BUDGET Elements														
1 Regional System O&M Expense	183,096,700	1,568,500	181,528,200	1	7,243,500	12,827,800	30,793,600	68,401,600	16,453,500	1,317,500	129,794,000	27,556,500	16,934,200	174,284,700
2 Pension Obligation - Operating Portion	10,824,000	189,400	10,634,600	2	499,200	389,300	1,593,600	4,073,300	889,000	85,200	7,030,400	1,938,100	1,167,000	10,135,500
3 Debt Service	207,209,500	0	207,209,500	3	237,900	66,858,600	20,723,700	30,181,400	5,986,700	1,121,600	124,872,000	47,245,700	34,853,700	206,971,400
4 Non-Operating Portion of Pension Oblig	11,620,700	203,400	11,417,300	2	535,900	417,900	1,710,900	4,373,100	954,400	91,500	7,547,800	2,080,700	1,252,900	10,881,400
5 Transfer to WRAP Fund	2,345,600	10,700	2,334,900	4	44,900	480,500	305,500	587,500	132,500	14,700	1,520,800	454,600	314,700	2,290,100
6 Lease Payment - Transfer to Detroit Local I&E	27,500,000	181,500	27,318,500	4	524,800	5,622,100	3,574,800	6,873,800	1,550,800	171,900	17,793,300	5,318,500	3,681,900	26,793,700
7 Transfer to GLWA Regional I&E Account	34,616,900	0	34,616,900	3	39,800	11,169,600	3,462,200	5,042,200	1,000,200	187,400	20,861,600	7,893,000	5,822,700	34,577,300
8 Total Gross BUDGET	477,213,400	2,153,500	475,059,900		9,126,000	97,765,800	62,164,300	119,532,900	26,967,100	2,989,800	309,419,900	92,487,100	64,027,100	465,934,100
9 less: Non-Operating Revenue	(1,410,800)	0	(1,410,800)	4	(27,100)	(290,300)	(184,600)	(355,000)	(80,100)	(8,900)	(918,900)	(274,700)	(190,100)	(1,383,700)
10 Net BUDGET Req'd from Charges	475,802,600	2,153,500	473,649,100		9,098,900	97,475,500	61,979,700	119,177,900	26,887,000	2,980,900	308,501,000	92,212,400	63,837,000	464,550,400
11 Subtotal Direct Elements					8,556,300	91,663,200	58,284,000	112,071,600	25,283,800	2,803,200	290,105,800	86,714,000	60,030,500	436,850,300
12 Allocation Factors for Indirect Elements				4	1.921%	20.580%	13.086%	25.162%	5.677%	0.629%	65.133%	19.469%	13.478%	

THIS IS SEWER TABLE 4 IN THE FY 2022 COST OF SERVICE STUDY MEMORANDUM

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MEMORANDUM

GLWA Financial Forecast Update

December 17, 2020

To: Nicolette Bateson

From: Bart Foster

This memorandum is intended to introduce updated long-term financial plan forecasts for the GLWA Regional System Water and Sewer funds, prepared in coordination with development of the Fiscal Year 2022 budget and charges. These PRELIMINARY updated projections reflect forecasted financial results for a ten-year¹ projection period (*Fiscal Year 2021 through Fiscal Year 2031*) for GLWA's capital and operating requirements. Separate exhibits are designed to summarize forecasts for both the Water Fund and the Sewer Fund. These forecast summaries are presented in similar format to prior published work products we have prepared in various forums, which largely focused on revenue requirements (reflected as either "budget" or "cash" basis) in a manner that aligns with requirements of the GLWA Master Bond Ordinances (MBO's). We are in the process of updating the forecast exhibits that illustrate projected "GAAP basis" results. Those exhibits will be presented in subsequent documents.

This version of the forecast report is entirely focused on projected financial results for the GLWA Regional System. We are in the process of incorporating preliminary budget and forecast information for the DWSD Local System into the comprehensive forecast. Those exhibits will also be presented in subsequent documents.

Executive Summary Takeaways

- This forecast introduces recommended overall ***System Charge Adjustments*** of a 2.0% increase for Water and a 0.2% decrease for Sewer.
 - *The Water adjustment is proposed to increase the average charge to Member Partners by 2.0% is the product of:*
 - 1.2% to address a \$3.95 million revenue requirement increase;
 - 1.0% to address a \$3.61 million decrease in budgeted non-operating revenue;

¹ Actually 11 years, including estimated results for the current year.

- -0.2% (reduction) to reflect a \$0.8 million increase in budgeted water sales under existing charges
 - *The 0.2% Sewer decrease has been established to result in no increase in charges paid via the recently proposed SHAREs and is the product of:*
 - 0.9% to address a \$4.18 million decrease in budgeted non-operating revenue
 - 0.9% to address a negative budgeted revenue variance totaling \$4.23 million, which is made up of:
 - the \$5.96 million decrease in charge revenue associated with of the revenue related to the OMID contribution, offset by:
 - a moderate \$0.44 million increase in baseline billings to industrial specific customers, and:
 - the decision to not include any bad debt expense related to Highland Park in the FY 2022 charges to suburban wholesale Member Partners
 - -2.0% (reduction) to decrease the overall revenue requirement by \$9.54 million in order to balance the revenue requirement and meet the objective of no System Charge adjustment for SHAREs Member Partners
 - *These proposed adjustments will be more fully documented in the coming weeks, as the FY 2022 Charges are formally presented.*
- Despite the lower FY 2022 charge adjustments (compared to the 2nd year of the existing biennial budget) the budgeted FY 2022 amounts available for the I&E Funds are approximately \$30 million for each System.
- The Water CIP creates relatively more financing pressure on the forecast than does the Sewer CIP. As a result the Water System forecast contains continuation of significant debt financing, while mostly “pay go” capital financing is forecasted for the Sewer System towards the end of the ten year period.
 - *This fundamental difference in the Water and Sewer Forecasts is highlighted throughout this memorandum and in the accompanying exhibits.*

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Forecast Introduction and Exhibits

The efforts undertaken to prepare these forecasts are consistent with the analyses that we utilize to prepare financial feasibility report(s) that we have provided to GLWA in support of financial transactions. However, the efforts to date have not been as rigorous as those designed to support a public offering of debt, and should be considered “**Preliminary**”. We encourage stakeholders to review these forecasts with that understanding in mind. In addition, our formally published forecasts 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 Authority 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 our first look at the updated forecasts. First, an introduction of the core executive summary assumptions we’ve incorporated into the baseline analysis.

1. FY 2021 estimated activity is consistent with the formally amended budget, with additional minor estimates to reflect ongoing review.
2. FY 2022 through FY 2026 O&M is consistent with the preliminary budget prepared by GLWA.
 - *FY 2022 increase of 2.0% in total (combined Water and Sewer) compared to originally approved FY 2021 budget*
 - *Water increase is 6.1%, Sewer is a decrease of 1.0% - this reflects diligent review of the FY 2022 budget preparation and individual budget programs*
3. Future O&M growth = 2%
4. CIP’s reflects current versions presented to Member Partners on November 10.
5. CIP Expenditure Level reflects a 75% Spend Rate Assumption for entire forecast period.
6. Investment earnings rate = 0.33% for FY 2022, gradually increasing to 1.00% by FY 2026 and 1.50% thereafter (*consistent with estimates provided by PFM*)
7. Capital financing forecast policy:
 - *Fund all Major CIP expenditures via Construction Fund, which is sourced by:*
 - SRF loans
 - Transfers from I&E
 - Bond Proceeds
 - Investment Earnings on Bond Proceeds
 - *CIP funding source priority:*
 - Apply “confirmed” SRF resources to specific projects;

- Identify short lived CIP projects that should be financed by I&E (*currently estimated at 10% of total CIP*)
 - Spend existing I&E Funds until they reach policy minimum (*\$90 million*);
 - Do not rely on annual deposits to I&E to finance CIP until subsequent year(s);
 - Issue debt to finance remainder of annual capital requirements;
 - Plan biennial bond sales in amounts that result in zero “carryover” at end of 2nd year²
8. FY 2022 System Charge adjustments = **2.0% increase** for Water and a **0.2% decrease** for Sewer.
- *Consistent with our understanding of pending charge proposals scheduled to be presented next month*
 - *After recognition of baseline revenue variances, results in overall total FY 2022 revenue requirement adjustments of:*
 - 1.2% **increase** for Water
 - 2.0% **decrease** for Sewer
9. “Top Line” increase in annual revenue requirements = 3% starting in FY 2023.
10. Total GLWA / DWSD “Legacy Pension Obligation” annual payments reduce from \$45.4 million to \$9.0 million starting in FY 2024, and all amounts are treated as a non-operating expense after FY 2023.

The forecasted financial results resulting from our application of these assumptions are summarized in the attached exhibits, and briefly introduced below. The exhibit page number references are consistent between the separate Water (W) and Sewer (S) page numbers.

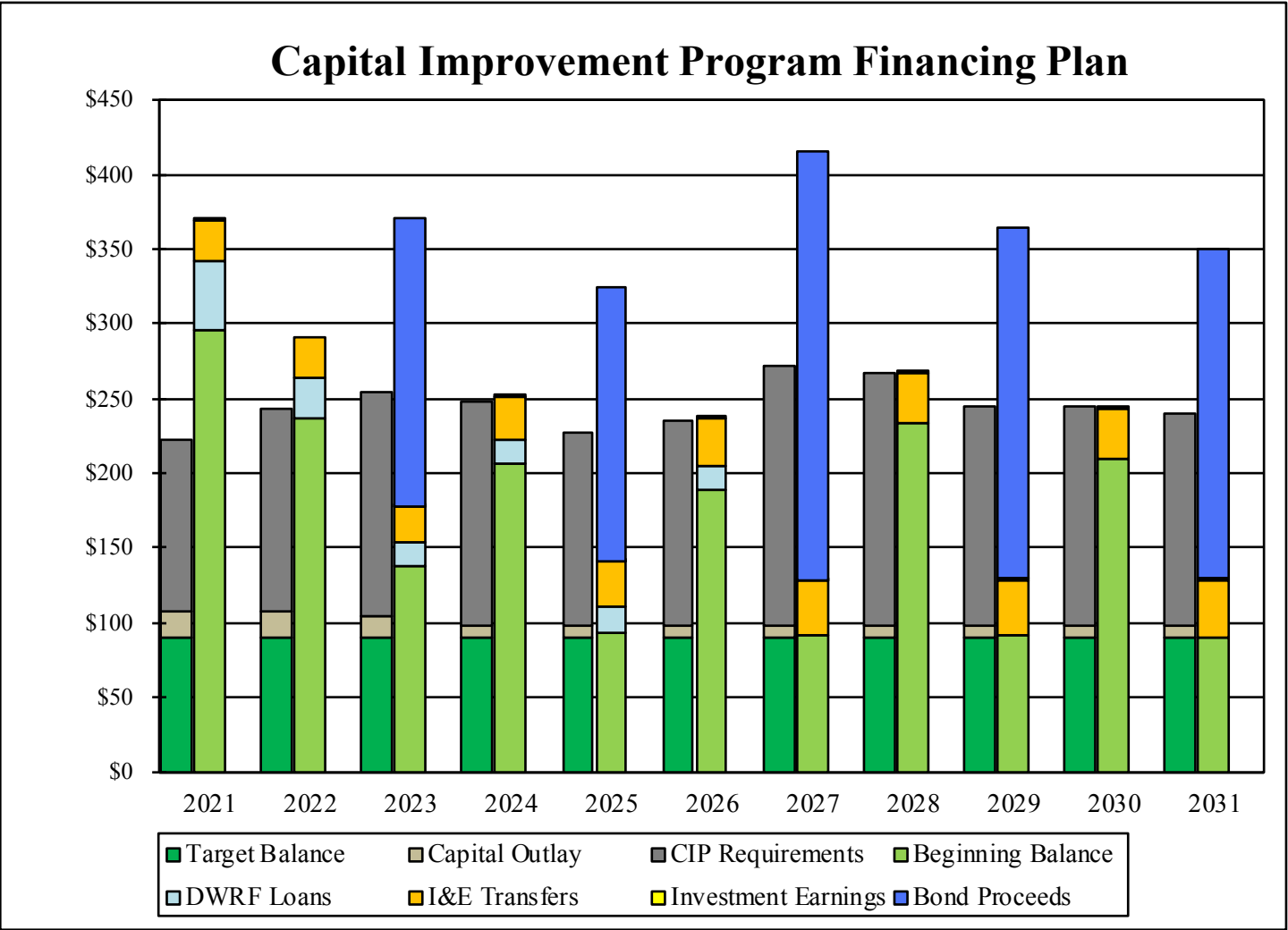
1. Forecasted CIP Financing Plan
 - Illustrates forecasted plan resulting from application of CIP financing policy noted above. Note that the forecast anticipates the next “new money Regional System” bond transactions to occur in FY 2023 for both the Water and Sewer Systems. These are subject to change, and could be impacted by availability of additional SRF loans, DWSD Local System needs, and/or refinancing opportunities. Also note the relatively larger need for forecasted additional Water bond sales compared to Sewer due to the relatively larger Water CIP requirements. The Sewer forecast anticipates being able to “pay go” all CIP Financing starting in FY 2028.
2. Forecasted CIP Financing Plan Table
 - Same as 1, in tabular form consistent with published Feasibility Reports.
3. Forecasted Application of CIP Funding Sources
 - Illustrates growing utilization of I&E monies to finance annual capital improvements, particularly for Sewer. The Water picture is “muddled” because of the early year spend down of existing balances while the Sewer picture is

² In prior forecasts a \$50 million annual carryover minimum in Bond Funds was projected. This has been removed to facilitate compliance reporting and to recognize the \$90 million I&E balances.

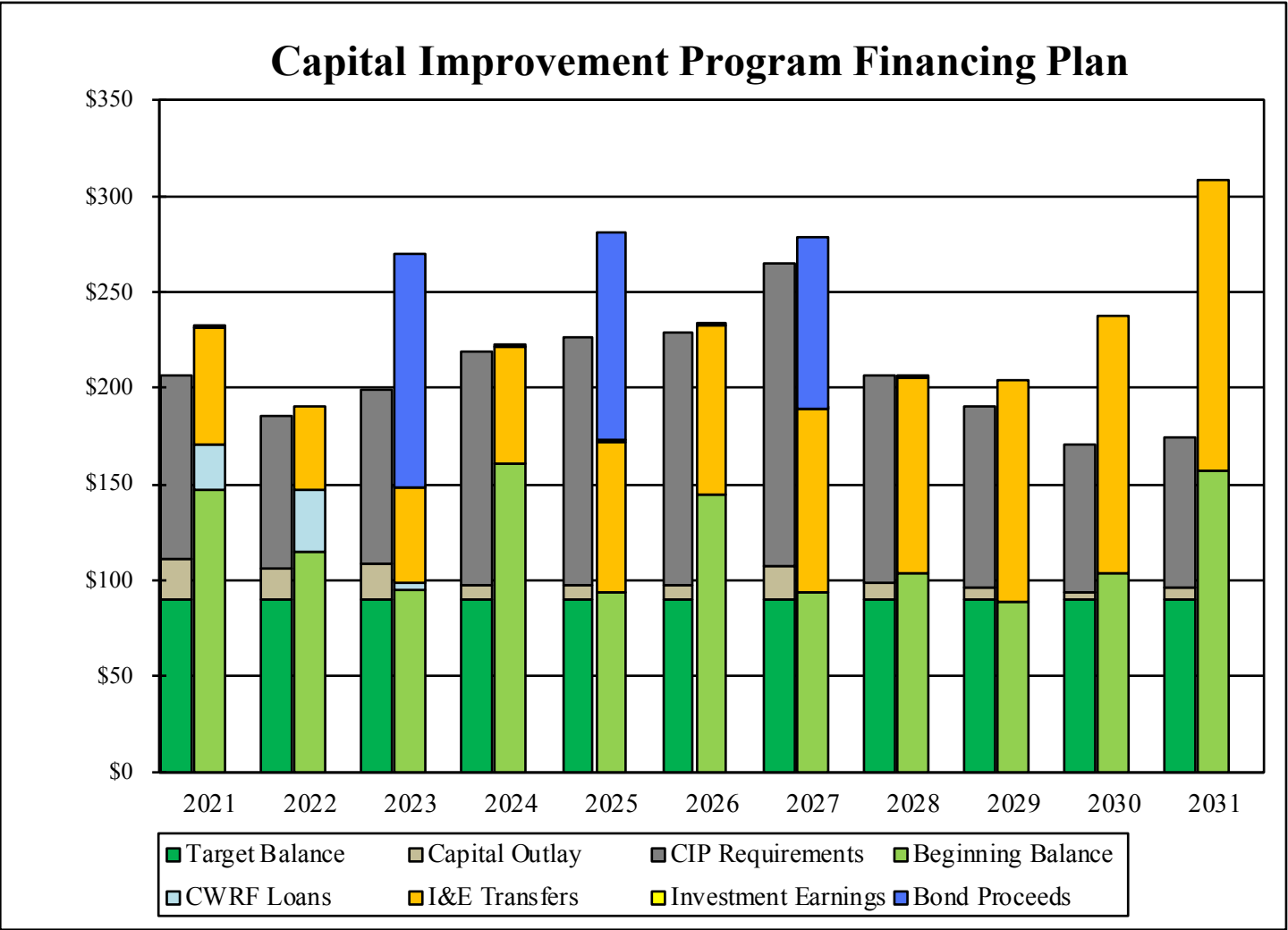
more evident of steady growth – sufficient to fully fund the CIP and exceed the \$90 million policy minimum by the end of the forecast period.

4. Revenue Requirement Financing Plan
 - Graphical depiction of the “business plan” for the FY 2022 Budget / Charge adjustments of 2% for Water and the moderate reduction for Sewer, then following the 3% top line / 2% O&M growth rate assumption for the balance of the forecast period. Note the relatively stable transfers to Water I&E compared to the rapid growth in the Sewer amounts.
5. Wholesale System Revenue Requirement Financing Plan Table
 - Same as 4, in tabular form consistent with published Feasibility Reports.
6. Forecasted Fund Balance Summary
 - Illustrates “non-restricted” liquidity balances and debt service coverage (as computed for the Regional System portion)
 - Shows forecasted reduction of existing I&E balances to policy minimums for both systems, with Sewer increasing towards the end of the forecast period.
 - * *Note that if full “pay go” status of the Sewer CIP is achieved it would be appropriate to reduce the top line revenue growth assumption in the forecast.*
 - Debt service coverage provided by Regional System net revenues is relatively stable for Water and materially increasing for Sewer.
7. Projected Cash and Investment Balances – Wholesale System Table
 - Same as 6, in tabular form consistent with published Feasibility Reports.
 - Documents forecasted “Days Cash on Hand” metric
8. Relative Revenue Requirement Distribution
 - Illustrates “where each \$ of revenue goes” with respect to revenue requirements. Again, note the reduction in debt service, and corresponding increase in I&E bottom line transfers for Sewer, while the Water bottom line contribution is fairly constant as the relative debt service portion increases.
9. I&E Flow of Funds Forecast
 - Illustrates draw down of existing balances to fund CIP requirements, maintenance of the \$90 million policy minimums, and the growth in annual transfers from revenues, particularly for Sewer.
10. Schedule 1 – Revenue Requirements Budget Summary
 - Budget summary schedule version of Revenue Requirement Financing Plan. Illustrates the “anatomy of a charge increase” calculation introduced in the Executive Summary to this memorandum.
11. Schedule 5 – Capital Financing Budget Summary
 - Budget summary schedule version of Capital Financing Plan. Illustrates the flow of funds concept for the Construction Fund.

We are hopeful that this executive summary presentation provides a platform for discussion of financial planning policies and assumptions as the development of the FY 2022 Budget and related forecast proceeds. We are prepared to present this material at the Audit Committee meeting scheduled for December 18 and to discuss this matter further at your convenience.



	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
<u>Requirements</u>											
Target Balance	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0
Capital Outlay	17.9	17.0	14.1	8.8	8.6	8.5	7.9	7.5	7.9	7.4	7.6
CIP Requirement	114.6	136.6	150.6	149.4	128.2	136.8	174.6	170.2	147.1	147.7	142.8
Total	222.5	243.6	254.6	248.1	226.8	235.3	272.5	267.6	245.0	245.0	240.4
<u>Sources</u>											
Beginning Balance	296.0	237.5	138.1	206.2	93.7	188.5	92.3	233.3	91.2	209.3	90.3
DWRf Loans	45.4	26.1	16.6	16.6	16.6	15.8	0.0	0.0	0.0	0.0	0.0
I&E Transfers	28.5	28.1	23.3	28.4	31.3	32.4	35.7	33.4	37.2	34.2	38.9
Investment Earnings	0.1	0.0	0.2	0.7	0.4	1.0	1.1	2.1	0.9	1.8	0.8
Bond Proceeds	0.0	0.0	192.7	0.0	183.3	0.0	286.7	0.0	235.0	0.0	220.9
Total Sources	369.9	291.7	370.9	251.9	325.3	237.6	415.8	268.8	364.3	245.3	350.9
End Balance	237.5	138.1	206.2	93.7	188.5	92.3	233.3	91.2	209.3	90.3	200.4



	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
<u>Requirements</u>											
Target Balance	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0
Capital Outlay	20.5	16.0	18.2	8.0	7.1	7.6	16.7	9.2	5.7	4.2	5.9
CIP Requirement	95.8	79.3	91.5	121.0	129.7	131.9	158.0	107.4	95.1	76.2	78.0
Total	206.3	185.3	199.7	219.0	226.8	229.5	264.7	206.6	190.7	170.4	173.9
<u>Sources</u>											
Beginning Balance	147.1	114.7	94.7	160.4	93.3	144.0	93.7	104.0	89.2	103.3	156.7
CWRf Loans	23.6	32.0	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I&E Transfers	60.2	43.3	48.9	61.4	79.2	88.7	95.4	101.5	114.8	133.9	150.9
Investment Earnings	0.1	0.0	0.1	0.4	0.2	0.5	0.4	0.2	0.0	0.0	0.0
Bond Proceeds	0.0	0.0	122.2	0.0	108.1	0.0	89.3	0.0	0.0	0.0	0.0
Total Sources	231.0	190.0	270.1	222.2	280.8	233.1	278.7	205.8	204.0	237.2	307.7
End Balance	114.7	94.7	160.4	93.3	144.0	93.7	104.0	89.2	103.3	156.7	223.8

Water Table 4
GLWA Wholesale System Capital Improvement Program Financing Plan (\$ millions)

Line No.		Fiscal Year Ended June 30,											
		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Total
Financing Requirements													
1	Budgeted Capital Outlay	17.9	17.0	14.1	8.8	8.6	8.5	7.9	7.5	7.9	7.4	7.6	113.0
2	Major Capital Improvement Program (a)	114.6	136.6	150.6	149.4	128.2	136.8	174.6	170.2	147.1	147.7	142.8	1,598.5
3	Total Financing Requirements	132.5	153.6	164.6	158.1	136.8	145.3	182.5	177.6	155.0	155.0	150.4	1,711.6
Financing Sources													
Construction Fund													
4	Beginning Balance (b)	-	-	-	-	-	-	-	-	-	-	-	(g)
5	State Drinking Water Revolving Fund Loans	74.4	45.8	16.6	16.6	16.6	15.8	-	-	-	-	-	185.8
6	Less: Transfer to DWSD Constr. Fund	(29.0)	(19.7)	-	-	-	-	-	-	-	-	-	(48.7)
7	Net State DWRF Financing for Authority	45.4	26.1	16.6	16.6	16.6	15.8	-	-	-	-	-	137.1
8	Transfers from Water Constr. Bond Fund (Line 20)	19.0	0.0	76.7	113.2	88.9	97.2	146.8	144.3	117.8	120.8	111.5	1,036.2
9	Transfers from Water I&E Fund (Line 26)	50.1	110.5	57.3	19.6	22.7	23.8	27.8	25.9	29.3	26.8	31.3	425.2
10	Total Construction Fund Sources	114.6	136.6	150.6	149.4	128.2	136.8	174.6	170.2	147.1	147.7	142.8	1,598.5
11	Uses - Major CIP Expenditures (Line 2)	114.6	136.6	150.6	149.4	128.2	136.8	174.6	170.2	147.1	147.7	142.8	1,598.5
12	Ending Balance	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(h)
Subsidiary Capital Financing Funds													
Construction Bond Fund													
13	Beginning Balance (b)	19.0	-	-	116.2	3.7	98.5	2.3	143.3	1.2	119.3	0.3	19.0 (g)
Bond Proceeds													
14	Water System Revenue Bonds (c)	-	-	205.0	-	195.0	-	305.0	-	250.0	-	235.0	1,190.0
15	Less: Transfer to DWSD Const. Fund (e)	-	-	-	-	-	-	-	-	-	-	-	0.0
16	Less: Issuance Expenses (f)	-	-	(12.3)	-	(11.7)	-	(18.3)	-	(15.0)	-	(14.1)	(71.4)
17	Net Bond Proceeds Available	-	-	192.7	-	183.3	-	286.7	-	235.0	-	220.9	1,118.6
18	Investment Income	0.1	0.0	0.2	0.7	0.4	1.0	1.1	2.1	0.9	1.8	0.8	9.1
19	Total Constr. Bond Fund Sources	19.0	0.0	192.9	116.9	187.4	99.4	290.1	145.5	237.1	121.1	222.0	1,146.6
20	Less: Transfer to GLWA Constr. Fund	(19.0)	0.0	(76.7)	(113.2)	(88.9)	(97.2)	(146.8)	(144.3)	(117.8)	(120.8)	(111.5)	(1,036.2)
21	Ending Balance	0.0	0.0	116.2	3.7	98.5	2.3	143.3	1.2	119.3	0.3	110.4	110.4 (h)
GLWA Regional System Improvement and Extension Account													
22	Beginning Balance (b)	277.0	237.5	138.1	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	277.0 (g)
23	Transfers from Water Receiving Fund	28.5	28.1	23.3	28.4	31.3	32.4	35.7	33.4	37.2	34.2	38.9	351.3
24	Total I&E Fund Sources	305.5	265.6	161.4	118.4	121.3	122.4	125.7	123.4	127.2	124.2	128.9	628.3
25	Less: Capital Outlay (Line 1)	(17.9)	(17.0)	(14.1)	(8.8)	(8.6)	(8.5)	(7.9)	(7.5)	(7.9)	(7.4)	(7.6)	(113.0)
26	Less: Transfer to GLWA Constr. Fund	(50.1)	(110.5)	(57.3)	(19.6)	(22.7)	(23.8)	(27.8)	(25.9)	(29.3)	(26.8)	(31.3)	(425.2)
27	Ending Balance	237.5	138.1	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0 (h)

(a) From Table 1.

(b) Estimated balance available June 30, 2020 (applies only to Fiscal Year 2021).

(c) Par value for future bonds.

(d) Reserved

(e) Includes amounts to provide funding to the DWSD CIP.

(f) Assumes amounts will be required from bond proceeds to fund debt service reserve fund.

(g) Total column reflects estimated balance available June 30, 2020.

(h) Total column reflects estimated balance available June 30, 2031.

Sewer Table 4
GLWA Wholesale System Capital Improvement Program Financing Plan (\$ millions)

Line No.		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Total
Fiscal Year Ended June 30,													
Financing Requirements													
1	Budgeted Capital Outlay	20.5	16.0	18.2	8.0	7.1	7.6	16.7	9.2	5.7	4.2	5.9	119.1
2	Major Capital Improvement Program (a)	95.8	79.3	91.5	121.0	129.7	131.9	158.0	107.4	95.1	76.2	78.0	1,163.8
3	Total Financing Requirements	116.3	95.3	109.7	129.0	136.8	139.5	174.7	116.6	100.7	80.4	83.9	1,282.9
Financing Sources													
Construction Fund													
4	Beginning Balance (b)	-	-	-	-	-	-	-	-	-	-	-	(g)
5	State Clean Water Revolving Fund Loans	32.6	40.5	4.1	-	-	-	-	-	-	-	-	77.2
6	Less: Transfer to DWSD Constr. Fund	(9.0)	(8.5)	-	-	-	-	-	-	-	-	-	(17.5)
7	Net State DWRF Financing for Authority	23.6	32.0	4.1	-	-	-	-	-	-	-	-	59.7
8	Transfers from Sewer Constr. Bond Fund (Line 2)	21.2	-	51.9	67.5	57.7	50.8	79.3	14.2	-	-	-	342.7
9	Transfers from Sewer I&E Fund (Line 27)	51.0	47.3	35.4	53.4	72.1	81.0	78.6	93.2	95.1	76.2	78.0	761.4
10	Total Construction Fund Sources	95.8	79.3	91.5	121.0	129.7	131.9	158.0	107.4	95.1	76.2	78.0	1,163.8
11	Uses - Major CIP Expenditures (Line 2)	95.8	79.3	91.5	121.0	129.7	131.9	158.0	107.4	95.1	76.2	78.0	1,163.8
12	Ending Balance	-	-	-	-	-	-	-	-	-	-	-	(h)
Subsidiary Capital Financing Funds													
Construction Bond Funds													
13	Beginning Balance (b)	21.1	-	-	70.4	3.3	54.0	3.7	14.0	-	-	-	166.5 (g)
Bond Proceeds													
14	Sewer System Revenue Bonds (c)	-	-	130.0	-	115.0	-	95.0	-	-	-	-	340.0
15	Less: Transfer to DWSD Const. Fund (e)	-	-	-	-	-	-	-	-	-	-	-	-
16	Less: Issuance Expenses (f)	-	-	(7.8)	-	(6.9)	-	(5.7)	-	-	-	-	(20.4)
17	Net Bond Proceeds Available	-	-	122.2	-	108.1	-	89.3	-	-	-	-	319.6
18	Investment Income	0.1	-	0.1	0.4	0.2	0.5	0.4	0.2	-	-	-	2.0
19	Total Constr. Bond Fund Sources	21.2	-	122.3	70.8	111.6	54.5	93.4	14.2	-	-	-	488.1
20	Less: Transfer to GLWA Constr. Fund	(21.2)	-	(51.9)	(67.5)	(57.7)	(50.8)	(79.3)	(14.2)	-	-	-	(342.7)
21	Ending Balance	-	-	70.4	3.3	54.0	3.7	14.0	-	-	-	-	145.4 (h)
GLWA Regional System Improvement and Extension Account													
22	Beginning Balance (b)	126.0	114.7	94.7	90.0	90.0	90.0	90.0	90.0	89.2	103.3	156.7	1,134.6 (g)
23	Transfers from Sewer Receiving Fund	40.9	34.6	48.9	61.4	79.2	88.7	95.4	101.5	114.8	133.9	150.9	950.3
24	Other Sources - DWSD Loan Receivable Pmts	19.3	8.7	-	-	-	-	-	-	-	-	-	28.0
25	Total I&E Fund Sources	186.2	158.0	143.6	151.4	169.2	178.7	185.4	191.5	204.0	237.2	307.7	2,112.8
26	Less: Capital Outlay (Line 1)	(20.5)	(16.0)	(18.2)	(8.0)	(7.1)	(7.6)	(16.7)	(9.2)	(5.7)	(4.2)	(5.9)	(119.1)
27	Less: Transfer to GLWA Constr. Fund	(51.0)	(47.3)	(35.4)	(53.4)	(72.1)	(81.0)	(78.6)	(93.2)	(95.1)	(76.2)	(78.0)	(761.4) (h)
28	Ending Balance	114.7	94.7	90.0	90.0	90.0	90.0	90.0	89.2	103.3	156.7	223.8	1,232.4

(a) From Table 1.

(b) Estimated balance available June 30, 2020 (applies only to Fiscal Year 2021).

(c) Par value for future bonds.

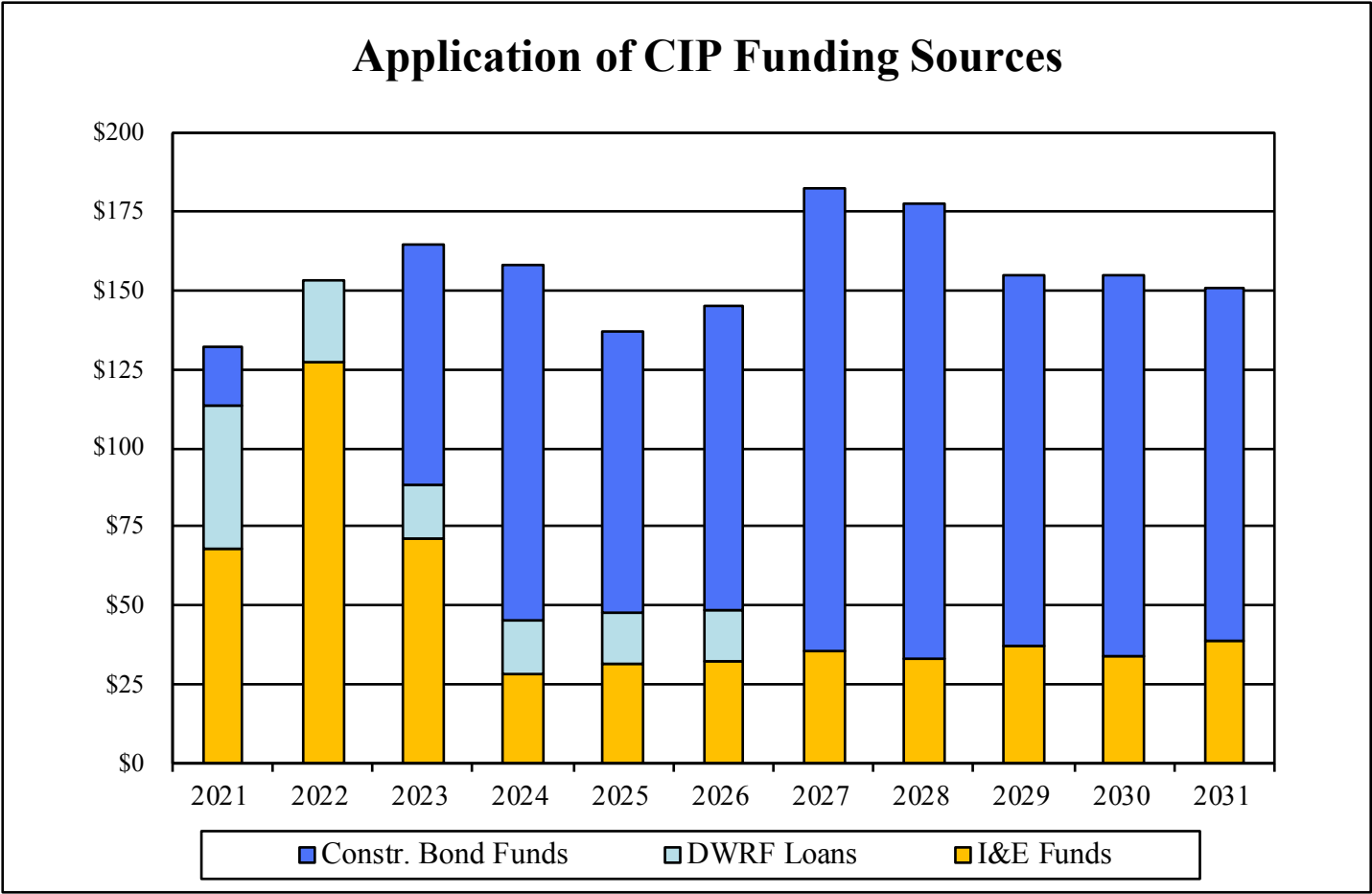
(d) Reserved

(e) Includes amounts to provide funding to the DWSD CIP.

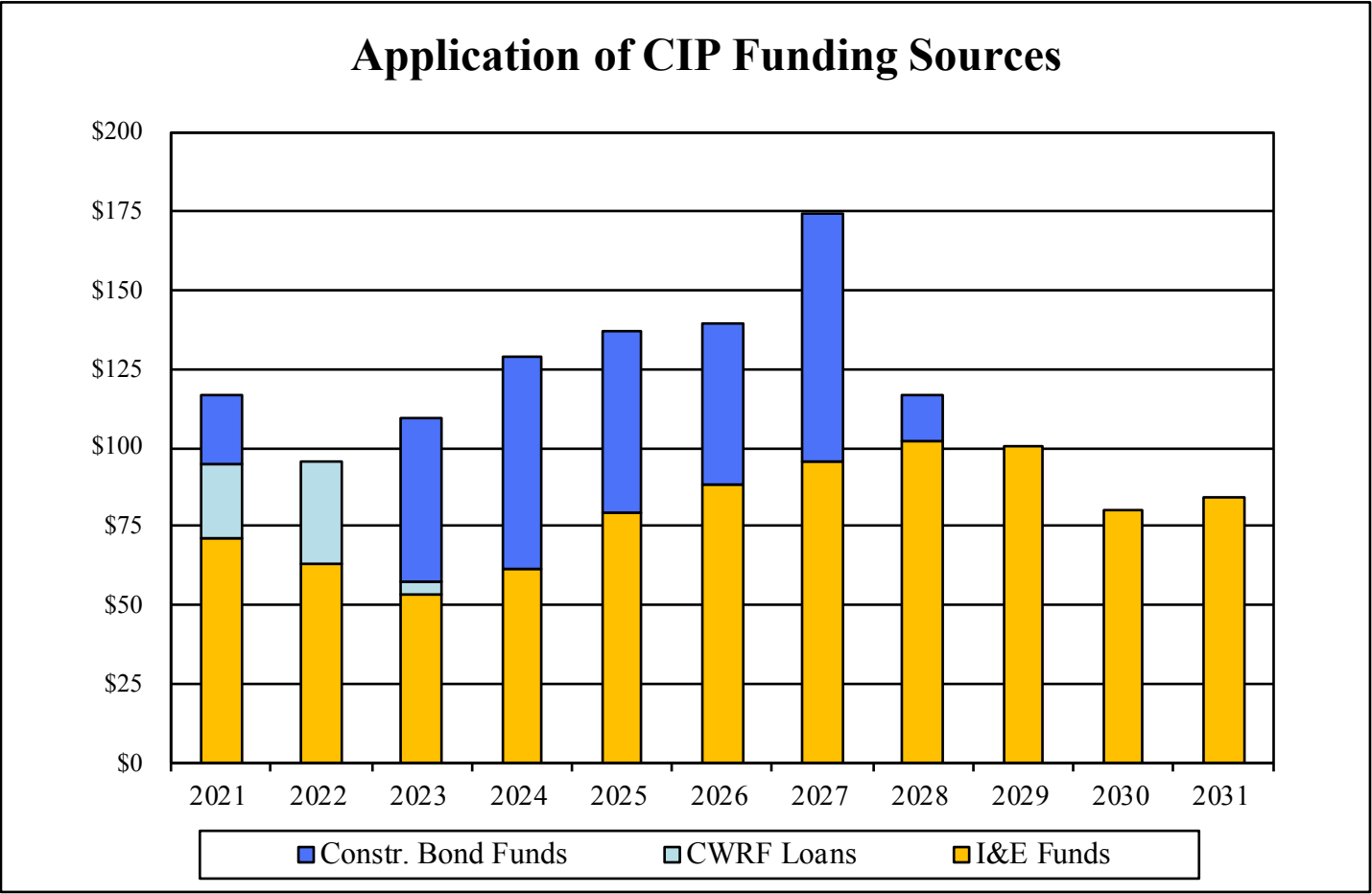
(f) Assumes amounts will be required from bond proceeds to fund debt service reserve fund.

(g) Total column reflects estimated balance available June 30, 2020.

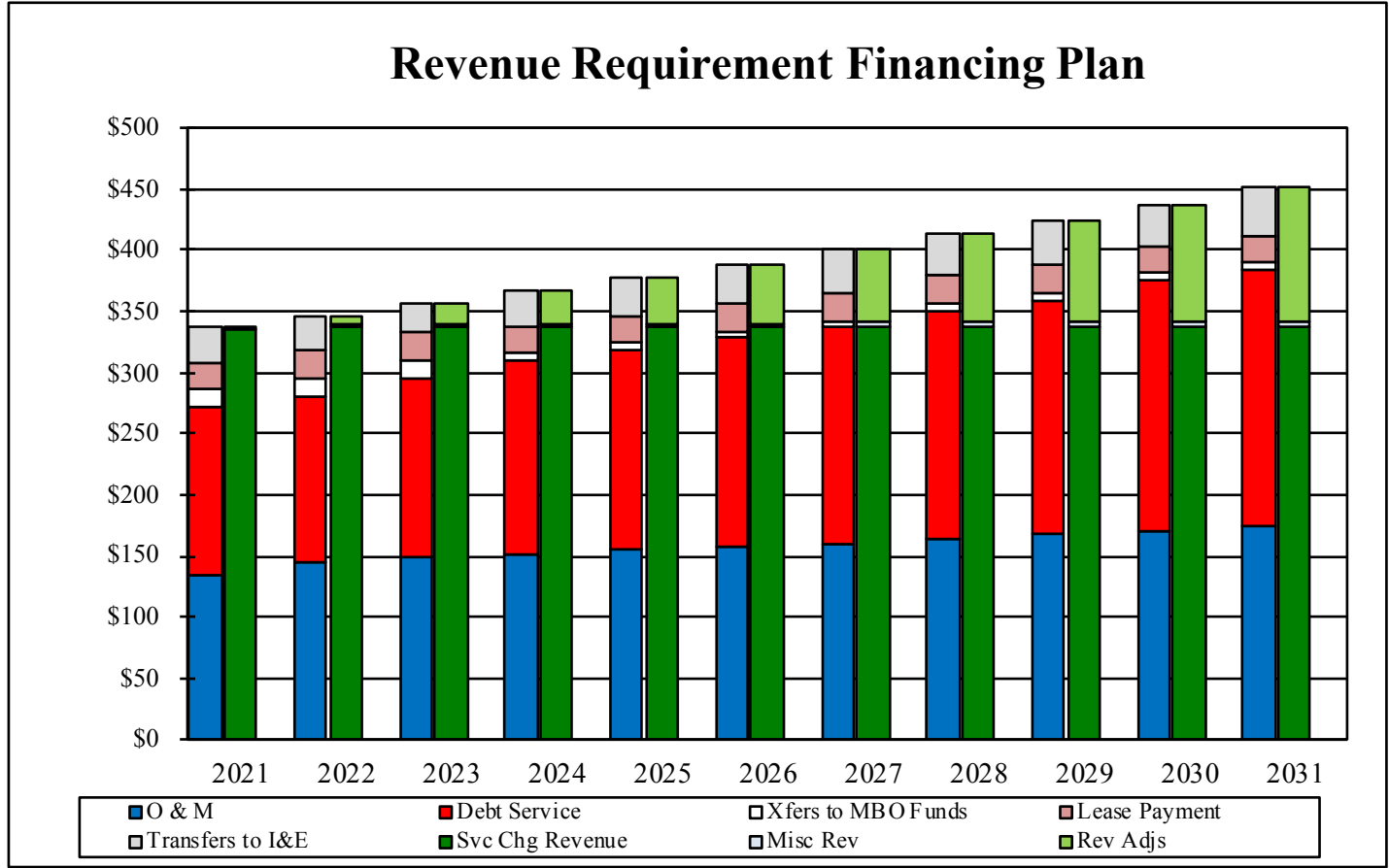
(h) Total column reflects estimated balance available June 30, 2031.



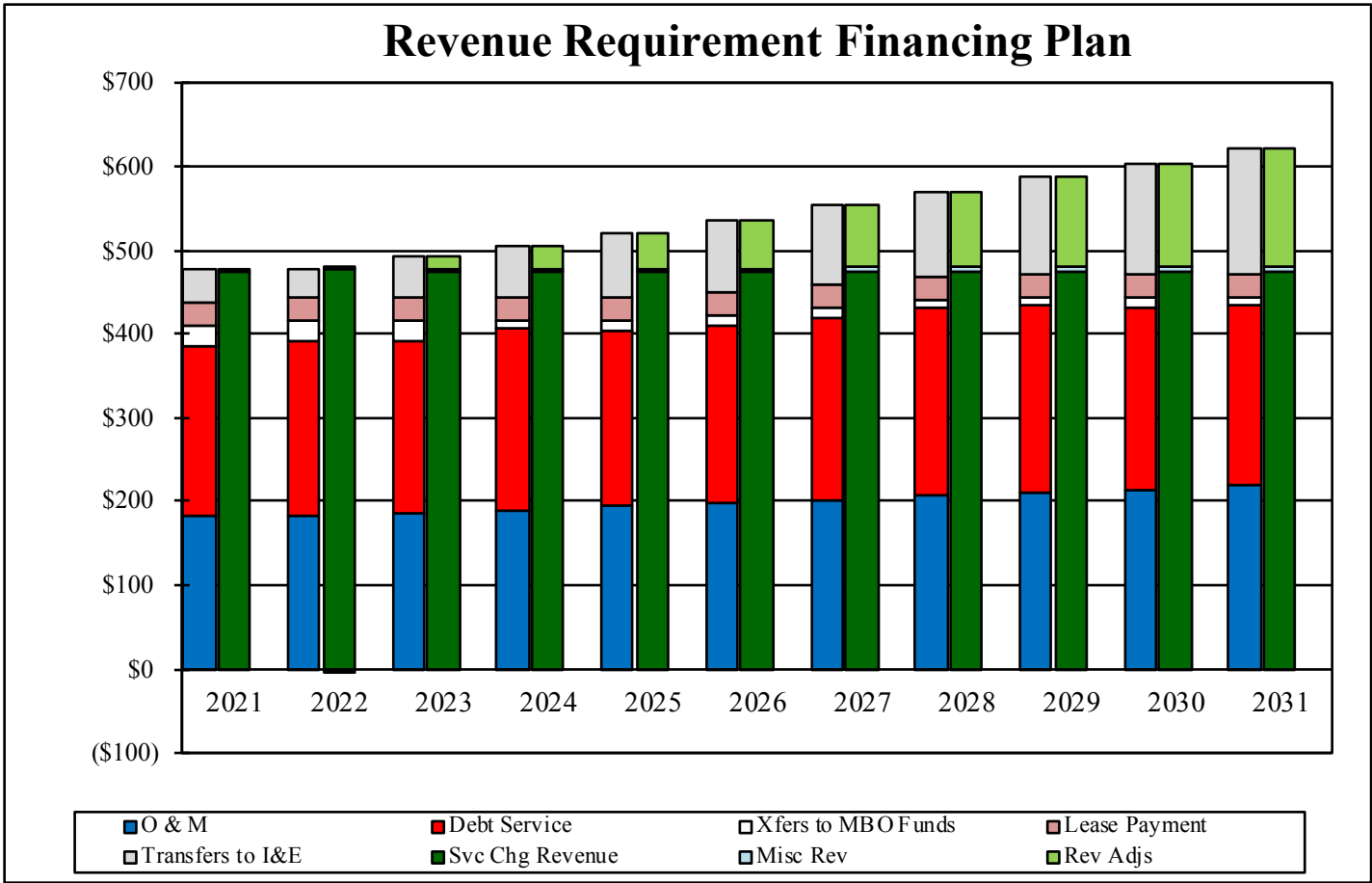
	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>2029</u>	<u>2030</u>	<u>2031</u>
I&E Funds	68.0	127.5	71.4	28.4	31.3	32.4	35.7	33.4	37.2	34.2	38.9
DWRP Loans	45.4	26.1	16.6	16.6	16.6	15.8	0.0	0.0	0.0	0.0	0.0
Constr. Bond Funds	19.0	0.0	76.7	113.2	88.9	97.2	146.8	144.3	117.8	120.8	111.5
I&E % of Total	51%	83%	43%	18%	23%	22%	20%	19%	24%	22%	26%



	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>2029</u>	<u>2030</u>	<u>2031</u>
I&E Funds	71.5	63.3	53.6	61.4	79.2	88.7	95.4	102.3	100.7	80.4	83.9
CWRF Loans	23.6	32.0	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Constr. Bond Funds	21.2	0.0	51.9	67.5	57.7	50.8	79.3	14.2	0.0	0.0	0.0
I&E % of Total	61%	66%	49%	48%	58%	64%	55%	88%	100%	100%	100%



	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
REVENUE											
Svc. Chg. Revenue	335.1	337.6	337.6	337.6	337.6	337.6	337.6	337.6	337.6	337.6	337.6
Charge Adjustments		2.0%	3.0%	2.9%	2.9%	2.8%	2.7%	3.0%	3.0%	3.0%	3.0%
Revenue from Adjs		6.8	17.1	27.5	38.2	48.9	59.4	71.3	83.7	96.4	109.5
Other	1.5	1.2	1.2	1.5	1.8	2.5	3.6	3.7	3.7	3.8	3.8
Total Revenue	336.5	345.6	356.0	366.6	377.6	389.0	400.6	412.7	425.0	437.8	450.9
BUDGET											
O&M Expense	134.1	145.5	149.5	151.6	154.8	157.5	160.7	163.9	167.1	170.5	173.9
Debt Service	137.4	135.5	146.5	158.9	163.0	170.5	175.8	187.0	192.3	204.6	209.6
Xfers to MBO Funds	14.0	14.0	14.1	5.2	6.1	6.1	6.0	5.9	5.9	6.0	6.0
Lease Payment	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Transfers to I&E	28.5	28.1	23.3	28.4	31.3	32.4	35.7	33.4	37.2	34.2	38.9
Total BUDGET	336.5	345.6	356.0	366.6	377.6	389.0	400.6	412.7	425.0	437.8	450.9
Balance	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(0.0)



	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
REVENUE											
Svc. Chg. Revenue	475.9	476.9	475.6	475.6	475.6	475.6	475.6	475.6	475.6	475.6	475.6
Charge Adjustments		-0.2%	3.2%	2.9%	3.0%	2.9%	2.8%	3.0%	3.0%	3.0%	2.9%
Revenue from Adjs		(1.1)	14.3	28.6	43.5	58.4	73.2	89.8	106.9	124.2	141.6
Other	1.4	1.4	1.6	2.0	2.3	3.1	4.4	4.4	4.4	4.7	5.4
Total Revenue	477.4	477.2	491.5	506.3	521.5	537.1	553.2	569.8	586.9	604.5	622.6
BUDGET											
O&M Expense	182.3	183.1	185.6	190.3	194.1	198.3	202.3	206.3	210.4	214.6	218.9
Debt Service	201.8	207.2	204.6	218.0	209.9	211.8	217.6	224.2	223.8	218.1	214.9
Xfers to MBO Funds	24.9	24.8	24.9	9.0	10.8	10.8	10.5	10.3	10.3	10.3	10.4
Lease Payment	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5
Transfers to I&E	40.9	34.6	48.9	61.4	79.2	88.7	95.4	101.5	114.8	133.9	150.9
Total BUDGET	477.4	477.2	491.5	506.3	521.5	537.1	553.2	569.8	586.9	604.5	622.7
Balance	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)

Water Table 5a
Wholesale System Revenue Requirement Financing Plan (\$ millions)

Line No.	Item	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Revenue (a)												
1	Operating Revenue Under Existing Charges	335.1	337.6	337.6	337.6	337.6	337.6	337.6	337.6	337.6	337.6	337.6
<u>Projected Revenue from Adjustments</u>												
2	FY 2022: 2.0%		6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
3	FY 2023: 3.0%			10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4
4	FY 2024: 2.9%				10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4
5	FY 2025: 2.9%					10.7	10.7	10.7	10.7	10.7	10.7	10.7
6	FY 2026: 2.8%						10.7	10.7	10.7	10.7	10.7	10.7
7	FY 2027: 2.7%							10.5	10.5	10.5	10.5	10.5
8	FY 2028: 3.0%								11.9	11.9	11.9	11.9
9	FY 2029: 3.0%									12.4	12.4	12.4
10	FY 2030: 3.0%										12.7	12.7
11	FY 2031: 3.0%											13.1
12	Total Projected Revenue from Water Charges	335.1	344.4	354.7	365.1	375.8	386.5	397.0	409.0	421.3	434.0	447.1
13	Other Revenue	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
14	Non-Operating Revenue	1.3	1.0	1.0	1.3	1.6	2.3	3.4	3.5	3.5	3.6	3.6
15	Total Revenue Available	336.5	345.6	356.0	366.6	377.6	389.0	400.6	412.7	425.0	437.8	450.9
Revenue Requirements												
16	Transfer to GLWA Regional O&M Account	134.1	145.5	149.5	151.6	154.8	157.5	160.7	163.9	167.1	170.5	173.9
18	Total O&M Expense	140.2	151.5	155.6	151.6	154.8	157.5	160.7	163.9	167.1	170.5	173.9
19	Debt Service Allocation - Regional System	137.4	135.5	146.5	158.9	163.0	170.5	175.8	187.0	192.3	204.6	209.6
20	Non-Operating Portion of Pension Obligation	5.4	5.4	5.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
21	B & C Note Non-Operating Payments	0.9	0.9	0.9	0.9	1.7	1.6	1.4	1.3	1.3	1.2	1.2
22	Transfer to Pension Obligation Payment Fund	6.3	6.3	6.3	3.4	4.2	4.1	4.0	3.8	3.8	3.8	3.7
23	Transfer to WRAP Fund	1.7	1.7	1.8	1.8	1.9	1.9	2.0	2.1	2.1	2.2	2.3
24	Lease Payment to DWSD Local System	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
25	Transfer to GLWA Regional I&E Account	28.5	28.1	23.3	28.4	31.3	32.4	35.7	33.4	37.2	34.2	38.9
26	Total Revenue Requirements	336.5	345.6	356.0	366.6	377.6	389.0	400.6	412.7	425.0	437.8	450.9
27	Indicated Balance (Deficiency)	-	-	-	-	-	-	-	-	-	-	-
28	Projected Debt Service Coverage Ratio (Regional)	1.43	1.43	1.37	1.35	1.37	1.36	1.37	1.33	1.34	1.31	1.32
29	<i>Net Revenues (15) - (18)</i>	196.3	194.0	200.4	215.0	222.9	231.5	240.0	248.8	257.9	267.3	277.0
30	<i>Revenues Remaining after Debt Service (29)-(19)</i>	58.9	58.6	53.8	56.1	59.8	60.9	64.2	61.7	65.6	62.7	67.4
31	<i>Applied to MBO Reserve Funds (22,23)</i>	(7.9)	(8.0)	(8.0)	(5.2)	(6.1)	(6.1)	(6.0)	(5.9)	(5.9)	(6.0)	(6.0)
32	<i>Applied as Lease Payment to DWSD (24)</i>	(22.5)	(22.5)	(22.5)	(22.5)	(22.5)	(22.5)	(22.5)	(22.5)	(22.5)	(22.5)	(22.5)
33	<i>Available for I&E Fund (29) - (30,31,32)</i>	28.5	28.1	23.3	28.4	31.3	32.4	35.7	33.4	37.2	34.2	38.9

(a) From Table 3. Based on application of FY 2021 charges for 2021 through 2031.

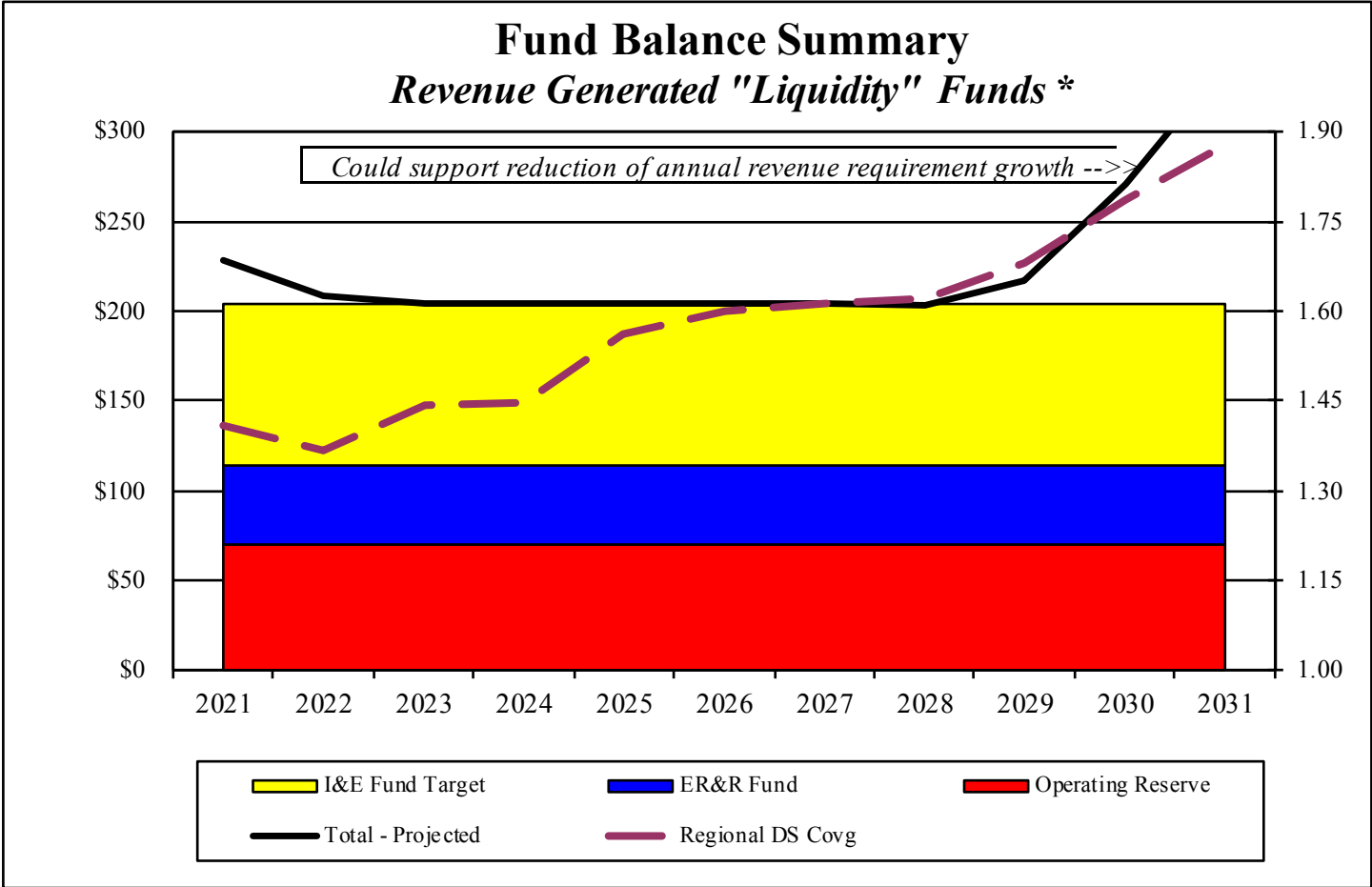
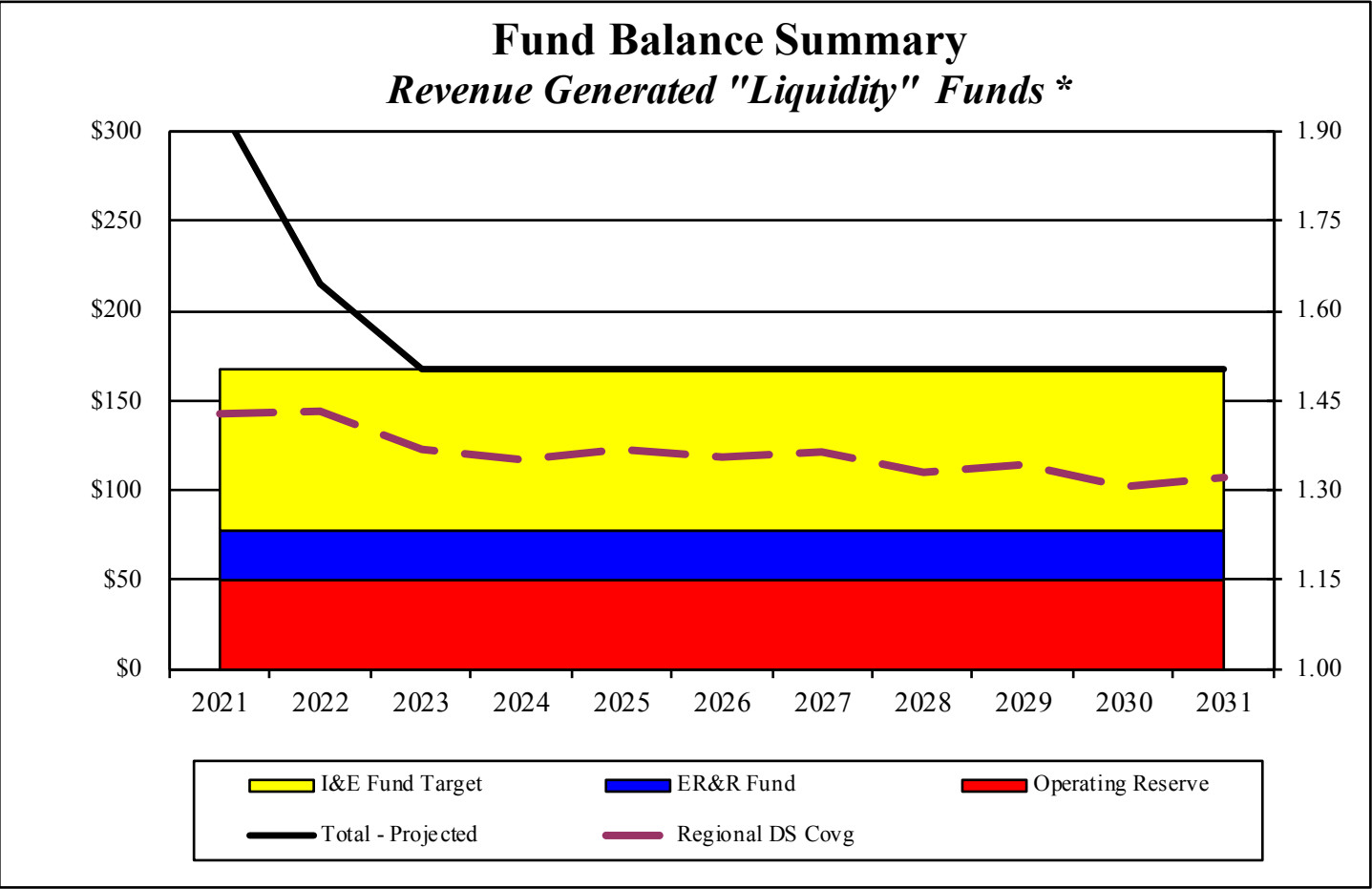
Sewer Table 5a
Wholesale System Revenue Requirement Financing Plan (\$ millions)

Line No.	Item	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Revenue (a)												
1	Operating Revenue Under Existing Charges	475.9	476.9	475.6	475.6	475.6	475.6	475.6	475.6	475.6	475.6	475.6
<u>Projected Revenue from Adjustments</u>												
2	FY 2022: -0.2%		(1.1)	(1.1)	(1.1)	(1.1)	(1.1)	(1.1)	(1.1)	(1.1)	(1.1)	(1.1)
3	FY 2023: 3.2%			15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4
4	FY 2024: 2.9%				14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3
5	FY 2025: 3.0%					14.9	14.9	14.9	14.9	14.9	14.9	14.9
6	FY 2026: 2.9%						14.9	14.9	14.9	14.9	14.9	14.9
7	FY 2027: 2.8%							14.8	14.8	14.8	14.8	14.8
8	FY 2028: 3.0%								16.6	16.6	16.6	16.6
9	FY 2029: 3.0%									17.1	17.1	17.1
10	FY 2030: 3.0%										17.3	17.3
11	FY 2031: 2.9%											17.4
12	Total Operating Revenue	475.9	475.8	489.9	504.2	519.1	534.0	548.8	565.5	582.5	599.8	617.2
13	Other Revenue	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
14	Non-Operating Revenue	1.0	1.0	1.2	1.6	1.9	2.7	4.0	4.0	4.0	4.3	5.0
15	Total Revenue Available	477.4	477.2	491.5	506.3	521.5	537.1	553.2	569.8	586.9	604.5	622.6
Revenue Requirements												
16	Transfer to GLWA Regional O&M Account	182.3	183.1	185.6	190.3	194.1	198.3	202.3	206.3	210.4	214.6	218.9
17	Transfer to GLWA Pension O&M Account	10.8	10.8	10.8	-	-	-	-	-	-	-	-
18	Total O&M Expense	193.1	193.9	196.4	190.3	194.1	198.3	202.3	206.3	210.4	214.6	218.9
19	Debt Service Allocation - Regional System	201.8	207.2	204.6	218.0	209.9	211.8	217.6	224.2	223.8	218.1	214.9
20	Non-Operating Portion of Pension Obligation	9.7	9.7	9.7	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
21	B & C Note Non-Operating Payments	2.0	2.0	2.0	2.0	3.7	3.6	3.3	2.9	2.9	2.8	2.7
22	Transfer to Pension Obligation Payment Fund	11.6	11.6	11.6	6.5	8.2	8.2	7.8	7.4	7.4	7.3	7.2
23	Transfer to WRAP Fund	2.4	2.3	2.5	2.5	2.6	2.7	2.8	2.8	2.9	3.0	3.1
24	Lease Payment to DWSD Local System	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5
25	Transfer to GLWA Regional I&E Account	40.9	34.6	48.9	61.4	79.2	88.7	95.4	101.5	114.8	133.9	150.9
26	Total Revenue Requirements	477.4	477.2	491.5	506.3	521.5	537.1	553.2	569.8	586.9	604.5	622.7
27	Indicated Balance (Deficiency)	-	-	-	-	-	-	-	-	-	-	-
28	Projected Debt Service Coverage Ratio (Regional)	1.41	1.37	1.44	1.45	1.56	1.60	1.61	1.62	1.68	1.79	1.88
29	<i>Net Revenues (15) - (18)</i>	284.2	283.3	295.1	315.9	327.4	338.8	351.0	363.5	376.5	389.9	403.7
30	<i>Revenues Remaining after Debt Service (29)-(19)</i>	82.4	76.1	90.5	97.9	117.5	127.0	133.4	139.3	152.6	171.7	188.8
31	<i>Applied to MBO Reserve Funds (22,23)</i>	(14.0)	(14.0)	(14.1)	(9.0)	(10.8)	(10.8)	(10.5)	(10.3)	(10.3)	(10.3)	(10.4)
32	<i>Applied as Lease Payment to DWSD (24)</i>	(27.5)	(27.5)	(27.5)	(27.5)	(27.5)	(27.5)	(27.5)	(27.5)	(27.5)	(27.5)	(27.5)
33	<i>Available for I&E Fund (29) - (30,31,32)</i>	40.9	34.6	48.9	61.4	79.2	88.7	95.4	101.5	114.8	133.9	150.9

(a) From Table 3. Based on application of FY 2021 charges for 2021 through 2031.

GLWA Water Supply System Financial Plan Summary (\$ millions)

GLWA Sewage Disposal System Financial Plan Summary (\$ millions)



	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Fund Balance Minimums											
Operating Reserve	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
ER&R Fund	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5
I&E Fund Target	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0
Total - Minimums	167.5	167.5	167.5	167.5	167.5	167.5	167.5	167.5	167.5	167.5	167.5
Projections											
Operating Reserve	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
ER&R Fund	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5
I&E Fund	237.5	138.1	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0
Total - Projected	315.0	215.6	167.5	167.5	167.5	167.5	167.5	167.5	167.5	167.5	167.5
Projected > Minimum	147.5	48.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Regional DS Covg	1.43	1.43	1.37	1.35	1.37	1.36	1.37	1.33	1.34	1.31	1.32

* Revenue Generated Funds only. Excludes Debt Service Reserve & Construction Funds (Bond Generated) & "Pass Thru" Funds such as Debt Service Payment Funds, WRAP, etc.

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Fund Balance Minimums											
Operating Reserve	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
ER&R Fund	44.0	44.0	44.0	44.0	44.0	44.0	44.0	44.0	44.0	44.0	44.0
I&E Fund Target	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0
Total - Minimums	204.0	204.0	204.0	204.0	204.0	204.0	204.0	204.0	204.0	204.0	204.0
Projections											
Operating Reserve	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
ER&R Fund	44.0	44.0	44.0	44.0	44.0	44.0	44.0	44.0	44.0	44.0	44.0
I&E Fund	114.7	94.7	90.0	90.0	90.0	90.0	90.0	89.2	103.3	156.7	223.8
Total - Projected	228.7	208.7	204.0	204.0	204.0	204.0	204.0	203.2	217.3	270.7	337.8
Projected > Minimum	24.7	4.7	0.0	0.0	0.0	0.0	0.0	(0.8)	13.3	66.7	133.8
Regional DS Covg	1.41	1.37	1.44	1.45	1.56	1.60	1.61	1.62	1.68	1.79	1.88

* Revenue Generated Funds only. Excludes Debt Service Reserve & Construction Funds (Bond Generated) & "Pass Thru" Funds such as Debt Service Payment Funds, WRAP, etc.

Water Table 6

Projected Cash and Investment Fund Balances - Wholesale System (\$ millions) (a)

Line No.	Fiscal Year Ended June 30,										
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
<u>Operating Fund</u>											
1	Beginning Balance	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
2	Deposit from Operations	-	-	-	-	-	-	-	-	-	-
3	Ending Balance	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
<u>Budget Stabilization Fund (a)</u>											
4	Beginning Balance	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
5	Deposits / (Withdrawals)	-	-	-	-	-	-	-	-	-	-
6	Ending Balance	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
<u>ER&R Fund (a)</u>											
7	Beginning Balance	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5
8	Transfers In	-	-	-	-	-	-	-	-	-	-
9	Ending Balance	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5
<u>I&E Fund (b)</u>											
10	Beginning Balance	277.0	237.5	138.1	90.0	90.0	90.0	90.0	90.0	90.0	90.0
11	Budgeted Capital Outlay	(17.9)	(17.0)	(14.1)	(8.8)	(8.6)	(8.5)	(7.9)	(7.5)	(7.4)	(7.6)
12	Transfer to Construction Fund	(50.1)	(110.5)	(57.3)	(19.6)	(22.7)	(23.8)	(27.8)	(25.9)	(26.8)	(31.3)
13	Subtotal prior to Revenue Transfer	209.0	110.0	66.7	61.6	58.7	57.6	54.3	56.6	55.8	51.1
14	Deposits from Revenues (b)	28.5	28.1	23.3	28.4	31.3	32.4	35.7	33.4	37.2	38.9
15	Ending Balance	237.5	138.1	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0
<u>Total Revenue Generated Funds (c)</u>											
16	Beginning Balance	356.5	317.0	217.6	169.5	169.5	169.5	169.5	169.5	169.5	169.5
17	Net Sources and Uses	(39.6)	(99.4)	(48.1)	-	-	-	-	-	-	-
18	Ending Balance	317.0	217.6	169.5	169.5	169.5	169.5	169.5	169.5	169.5	169.5
19	Days Cash on Hand (d)	857	541	409	403	395	388	381	373	366	352
<u>Other Funds</u>											
20	Bond Reserve (excludes Surety)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
21	Construction Bond Fund	-	-	116.2	3.7	98.5	2.3	143.3	1.2	119.3	0.3
22	Construction Fund	-	-	-	-	-	-	-	-	-	-
23	Total Funds	321.5	222.1	290.2	177.7	272.5	176.3	317.3	175.2	293.3	284.4
24	Subtotal w/o Construction Funds	321.5	222.1	174.0	174.0	174.0	174.0	174.0	174.0	174.0	174.0

(a) Technically includes "Combined System" amounts held by GLWA.

(b) Only includes GLWA Regional I&E Account. Does not include Lease Payment transferred to DWSD Local I&E Account.

(c) Excludes MBO Funds that are funded and assumed to be fully expended each year, such as the Bond Interest and Redemption Funds, the Pension Obligation Payment Fund, and the WRAP Fund.

(d) Excludes Budget Stabilization Fund amounts from Line 6.

Sewer Table 6

Projected Cash and Investment Fund Balances - Wholesale System (\$ millions) (a)

Line No.	Fiscal Year Ended June 30,										
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
<u>Operating Fund</u>											
1	Beginning Balance	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
2	Deposit from Operations	-	-	-	-	-	-	-	-	-	-
3	Ending Balance	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
<u>Budget Stabilization Fund (a)</u>											
4	Beginning Balance	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
5	Deposits / (Withdrawals)	-	-	-	-	-	-	-	-	-	-
6	Ending Balance	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
<u>ER&R Fund (a)</u>											
7	Beginning Balance	44.0	44.0	44.0	44.0	44.0	44.0	44.0	44.0	44.0	44.0
8	Transfers In	-	-	-	-	-	-	-	-	-	-
9	Ending Balance	44.0	44.0	44.0	44.0	44.0	44.0	44.0	44.0	44.0	44.0
<u>I&E Fund (b)</u>											
10	Beginning Balance	126.0	114.7	94.7	90.0	90.0	90.0	90.0	89.2	103.3	156.7
11	Budgeted Capital Outlay	(20.5)	(16.0)	(18.2)	(8.0)	(7.1)	(7.6)	(16.7)	(9.2)	(5.7)	(5.9)
12	Transfer to Construction Fund	(51.0)	(47.3)	(35.4)	(53.4)	(72.1)	(81.0)	(78.6)	(93.2)	(95.1)	(78.0)
13	Subtotal prior to Revenue Transfer	54.5	51.4	41.1	28.6	10.8	1.3	(5.4)	(12.3)	(11.5)	22.8
14	Deposits from Revenues (b)	40.9	34.6	48.9	61.4	79.2	88.7	95.4	101.5	114.8	133.9
15	Other Deposits (c)	19.3	8.7	-	-	-	-	-	-	-	-
16	Ending Balance	114.7	94.7	90.0	90.0	90.0	90.0	90.0	89.2	103.3	223.8
<u>Total Revenue Generated Funds (c)</u>											
17	Beginning Balance	245.0	233.7	213.7	209.0	209.0	209.0	209.0	209.0	208.2	275.7
18	Net Sources and Uses	(30.6)	(28.7)	(4.7)	-	-	-	-	(0.8)	14.1	67.1
19	Ending Balance	214.4	205.0	209.0	209.0	209.0	209.0	209.0	208.2	222.3	342.8
20	Days Cash on Hand (e)	419	399	401	391	384	376	368	359	377	563
<u>Other Funds</u>											
21	Bond Reserve (excludes Surety)	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3
22	Construction Bond Fund	-	-	70.4	3.3	54.0	3.7	14.0	-	-	-
23	Construction Fund	-	-	-	-	-	-	-	-	-	-
24	Total Funds	653.8	623.9	700.8	623.7	666.9	608.4	611.4	587.9	619.4	926.3
25	Subtotal w/o Construction Funds	653.8	623.9	630.4	620.5	612.9	604.8	597.4	587.9	619.4	926.3

(a) Technically includes "Combined System" amounts held by GLWA.

(b) Only includes GLWA Regional I&E Account. Does not include Lease Payment transferred to DWSD Local I&E Account.

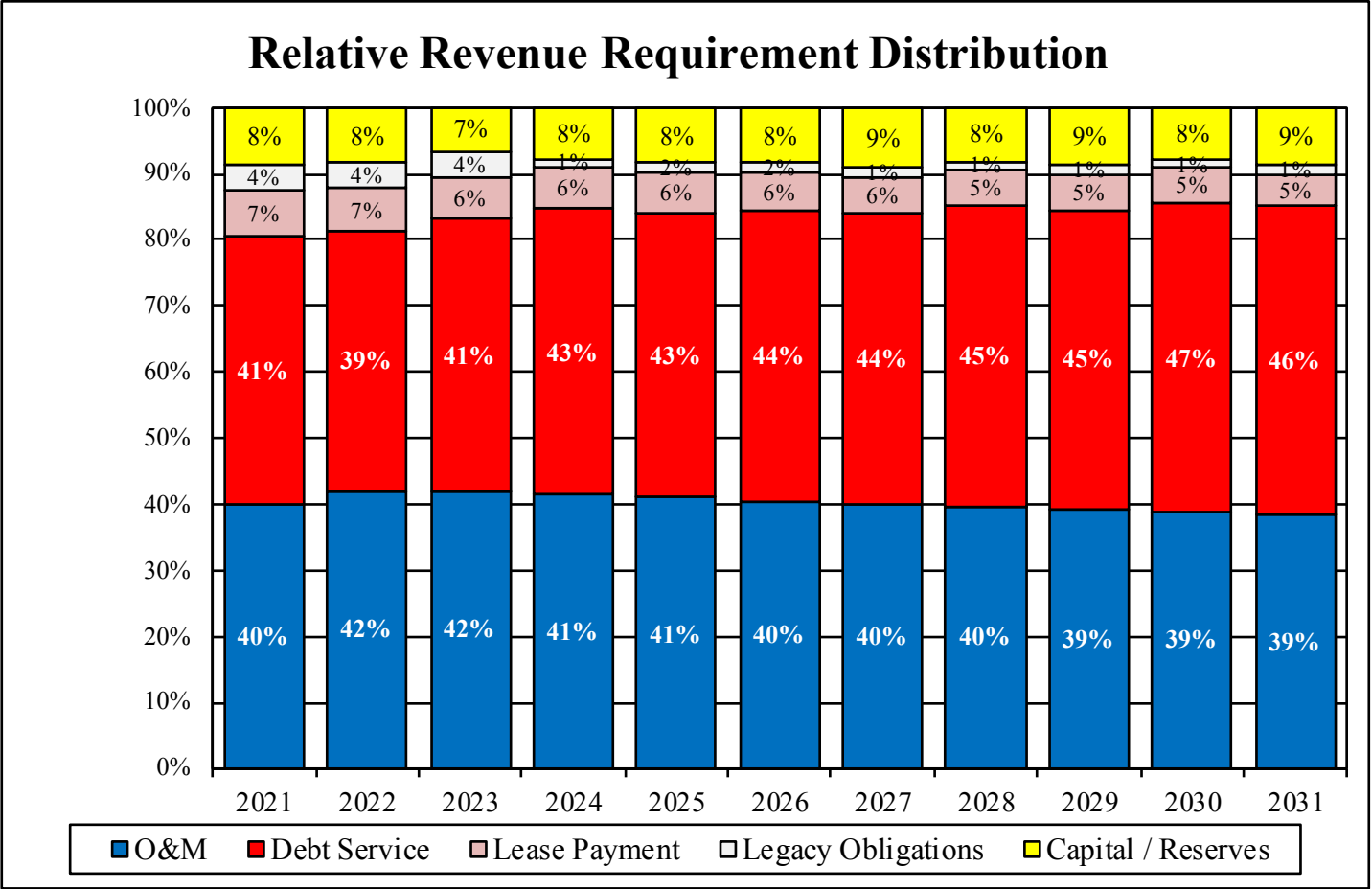
(c) Repayment of DWSD loan receivable.

(d) Excludes MBO Funds that are funded and assumed to be fully expended each year, such as the Bond Interest and Redemption Funds, the Pension Obligation Payment Fund, and the WRAP Fund.

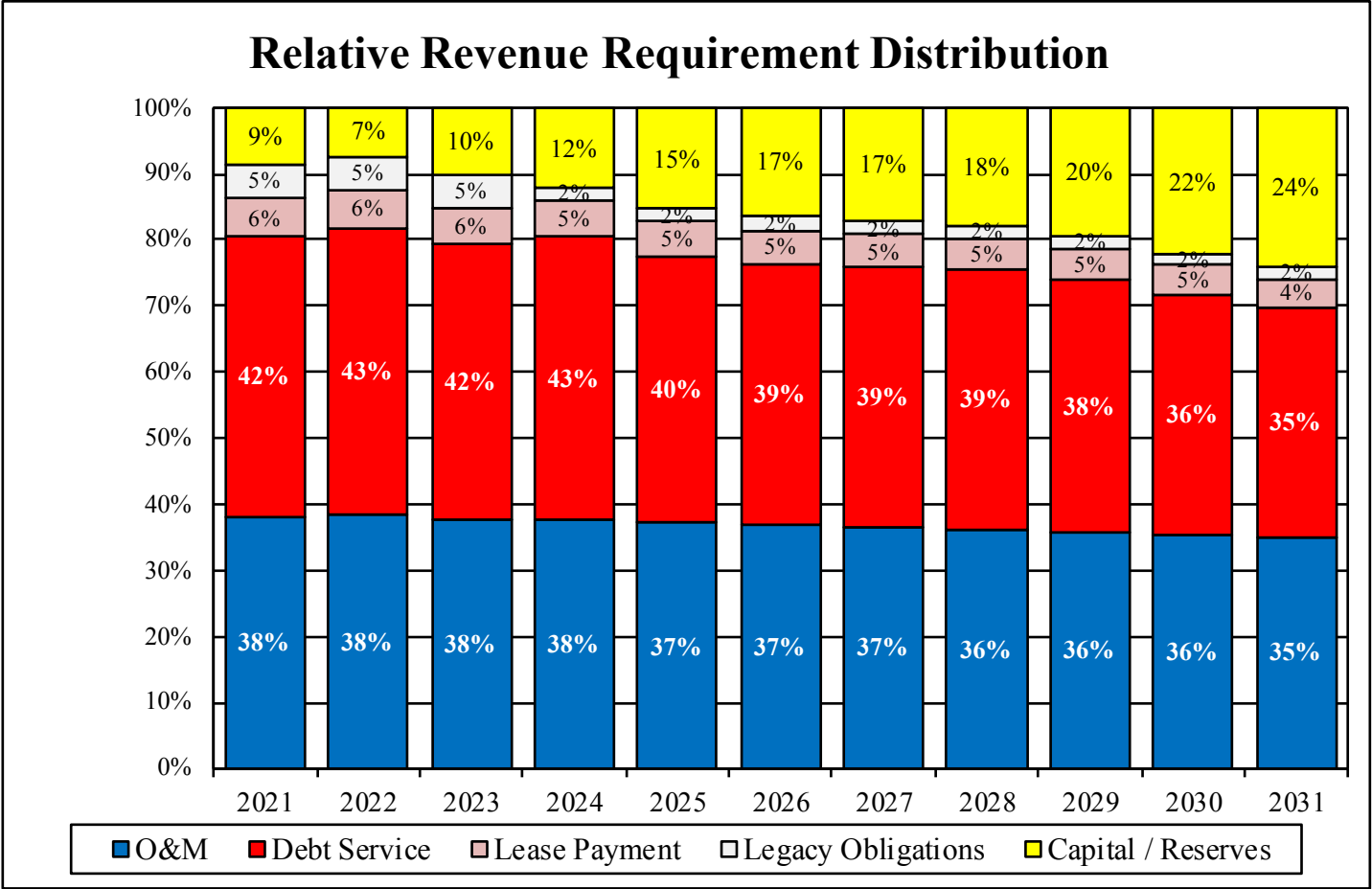
(e) Excludes Budget Stabilization Fund amounts from Line 6.

GLWA Water Supply System Financial Plan Summary (\$ millions)

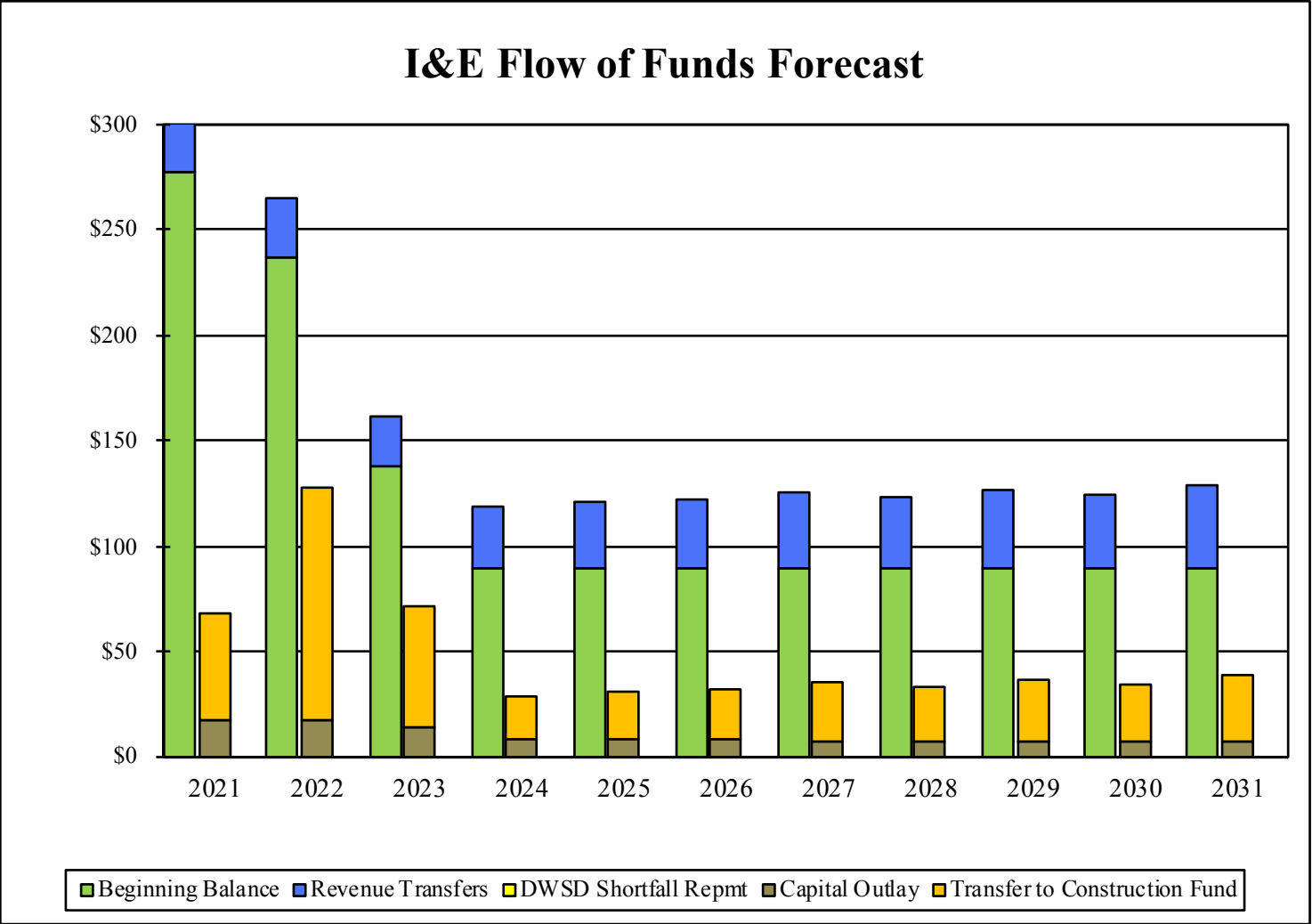
GLWA Sewage Disposal System Financial Plan Summary (\$ millions)



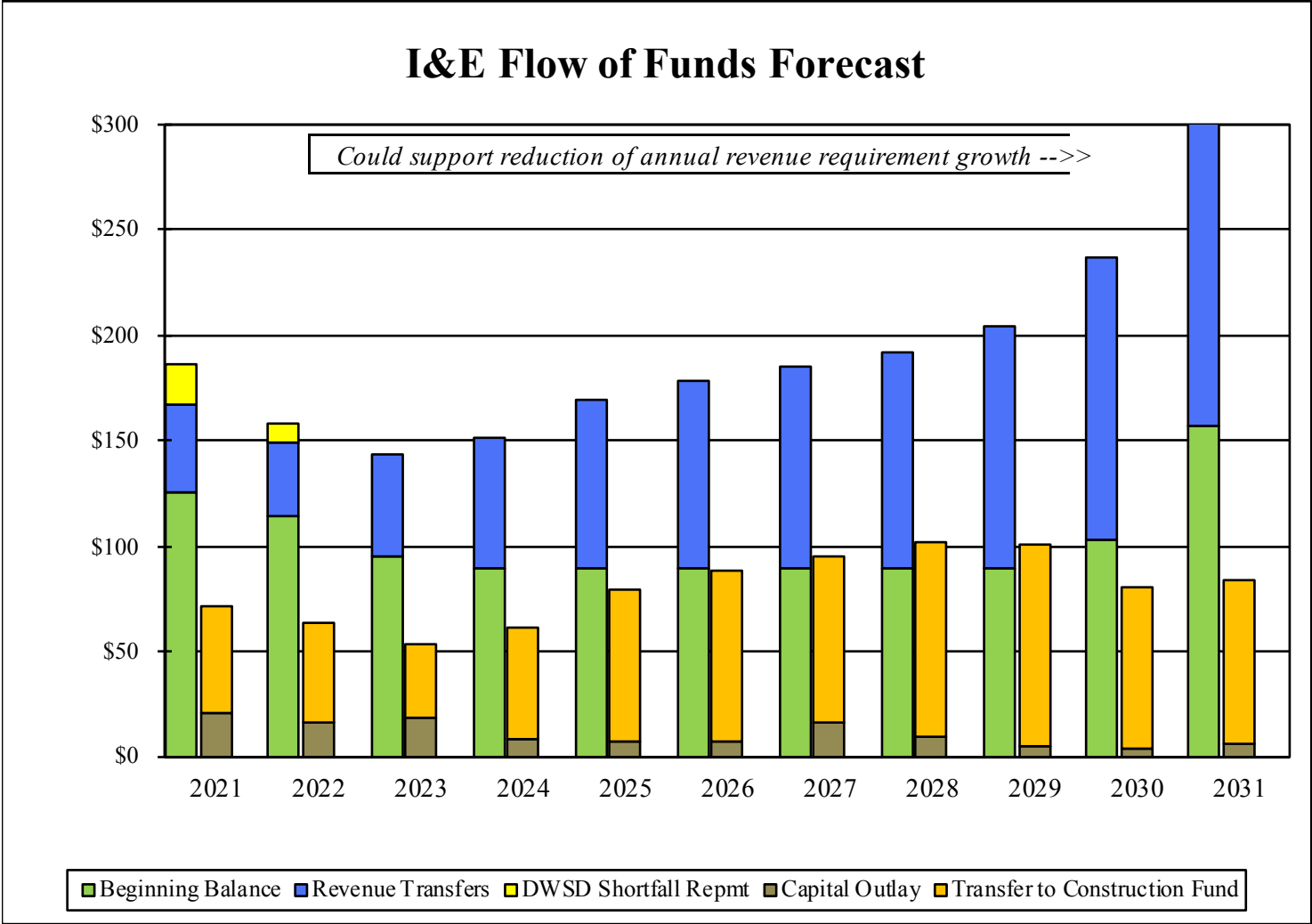
	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>2029</u>	<u>2030</u>	<u>2031</u>
O&M	134.1	145.5	149.5	151.6	154.8	157.5	160.7	163.9	167.1	170.5	173.9
Debt Service	137.4	135.5	146.5	158.9	163.0	170.5	175.8	187.0	192.3	204.6	209.6
Lease Payment	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Legacy Obligations	14.0	14.0	14.1	5.2	6.1	6.1	6.0	5.9	5.9	6.0	6.0
Capital / Reserves	28.5	28.1	23.3	28.4	31.3	32.4	35.7	33.4	37.2	34.2	38.9
Total	336.5	345.6	356.0	366.6	377.6	389.0	400.6	412.7	425.0	437.8	450.9



	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>2029</u>	<u>2030</u>	<u>2031</u>
O&M	182.3	183.1	185.6	190.3	194.1	198.3	202.3	206.3	210.4	214.6	218.9
Debt Service	201.8	207.2	204.6	218.0	209.9	211.8	217.6	224.2	223.8	218.1	214.9
Lease Payment	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5
Legacy Obligations	24.9	24.8	24.9	9.0	10.8	10.8	10.5	10.3	10.3	10.3	10.4
Capital / Reserves	40.9	34.6	48.9	61.4	79.2	88.7	95.4	101.5	114.8	133.9	150.9
Total	477.4	477.2	491.5	506.3	521.5	537.1	553.2	569.8	586.9	604.5	622.7



	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Beginning Balance	277.0	237.5	138.1	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0
Capital Outlay	(17.9)	(17.0)	(14.1)	(8.8)	(8.6)	(8.5)	(7.9)	(7.5)	(7.9)	(7.4)	(7.6)
Transfer to Constr	(50.1)	(110.5)	(57.3)	(19.6)	(22.7)	(23.8)	(27.8)	(25.9)	(29.3)	(26.8)	(31.3)
Initial Balance	209.0	110.0	66.7	61.6	58.7	57.6	54.3	56.6	52.8	55.8	51.1
Revenue Transfers	28.5	28.1	23.3	28.4	31.3	32.4	35.7	33.4	37.2	34.2	38.9
DWSD Shortfall Repmt	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Beginning Balance	126.0	114.7	94.7	90.0	90.0	90.0	90.0	90.0	89.2	103.3	156.7
Capital Outlay	(20.5)	(16.0)	(18.2)	(8.0)	(7.1)	(7.6)	(16.7)	(9.2)	(5.7)	(4.2)	(5.9)
Transfer to Constr	(51.0)	(47.3)	(35.4)	(53.4)	(72.1)	(81.0)	(78.6)	(93.2)	(95.1)	(76.2)	(78.0)
Initial Balance	54.5	51.4	41.1	28.6	10.8	1.3	(5.4)	(12.3)	(11.5)	22.8	72.9
Revenue Transfers	40.9	34.6	48.9	61.4	79.2	88.7	95.4	101.5	114.8	133.9	150.9
DWSD Shortfall Repmt	19.3	8.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Schedule 1A - Water System Revenue Requirements Budget

		Current Year (a)		Biennial Budget						Forecast		
		FY 2021 Adopted	FY 2021 Estimated	FY 2022 Requested	FY 2022 \$ Change	FY 2022 % Change	FY 2023 Requested	FY 2023 \$ Change	FY 2023 % Change	FY 2024 Forecast	FY 2025 Forecast	FY 2026 Forecast
Water System Revenue Requirements												
Revenues												
1	Revenues from Charges	\$ 336,807,600	\$ 335,060,200	\$ 344,369,900	\$ 7,562,300	2.2%	\$354,735,100	\$ 10,365,200	3.0%	\$365,140,600	\$375,821,200	\$386,492,500
2	Other Operating Revenue	-	175,000	175,000	175,000	NA	175,000	-	0.0%	175,000	175,000	175,000
3	Non-Operating Revenue	4,834,400	1,276,400	1,046,000	(3,788,400)	-78.4%	1,048,500	2,500	0.2%	1,322,000	1,640,500	2,298,100
4	Total Revenues	341,642,000	336,511,600	345,590,900	3,948,900	1.2%	355,958,600	10,367,700	3.0%	366,637,600	377,636,700	388,965,600
Revenue Requirements												
5	Operations & Maintenance (O&M) Expense	\$137,127,300	\$134,127,300	\$145,497,300	\$8,370,000	6.1%	\$149,545,300	\$4,048,000	2.8%	\$151,643,700	\$154,753,000	\$157,501,200
6	O&M Legacy Pension Allocation	6,048,000	6,048,000	6,048,000	-	0.0%	6,048,000	-	0.0%	-	-	-
7	Debt Service Allocation	143,189,900	137,436,100	135,481,000	(7,708,900)	-5.4%	146,520,400	11,039,400	8.1%	158,907,300	163,033,800	170,520,200
8	Accelerated Legacy Pension Allocation	6,268,300	6,268,300	6,268,300	-	0.0%	6,268,300	-	0.0%	3,395,500	4,173,300	4,142,200
9	Water Residential Assistance Program	1,669,400	1,669,400	1,702,000	32,600	2.0%	1,779,800	77,800	4.6%	1,833,200	1,888,200	1,944,800
10	Lease Payment to Local System I&E Account (b)	22,500,000	22,500,000	22,500,000	-	0.0%	22,500,000	-	0.0%	22,500,000	22,500,000	22,500,000
11	Improvement & Extension Fund Allocation	23,962,500	28,462,600	28,093,900	4,131,400	17.2%	23,296,400	(4,797,500)	-17.1%	28,357,400	31,287,900	32,356,700
12	Operating Reserve Deposit	876,600	-	-	(876,600)	-100.0%	-	-	NA	-	-	-
13	Extraordinary Repair & Replacement Deposit	-	-	-	-	NA	-	-	NA	-	-	-
14	Annual Revenue Requirements	\$ 341,642,000	\$ 336,511,700	\$ 345,590,500	\$ 3,948,500	1.2%	\$355,958,200	\$ 10,367,700	3.0%	\$366,637,100	\$377,636,200	\$388,965,100
15	Change in Annual Revenue Requirement				3,948,500	1.2%		10,367,700	3.0%	3.0%	3.0%	3.0%
16	Change Attributable to Non-Charge Revenue (FY 2022 reduction in investment earnings see lines 2&3)				3,613,400	1.1%		(2,500)	0.0%	-0.1%	-0.1%	-0.2%
17	Change Attributable to Sales Revenue (FY 2022 attributable to increased projected Water Sales)				(809,700)	-0.2%		-	0.0%	0.0%	0.0%	0.0%
18	Charge Adjustment (Based on System Charge Adjustment of 2.0%)				6,752,200	2.0%		10,365,200	3.0%	2.9%	2.9%	2.8%

(a) The originally adopted FY 2021 Budget did not reflect anticipated debt service savings projected by the bond refinancing, nor the increase in the deposit to the I&E Fund. However that expectation was understood as part of the budget approval process, and was accomplished via the First Quarter FY 2021 Budget Amendment once the May 2020 transaction closed.

Schedule 1B - Sewer System Revenue Requirements Budget

Sewer System Revenue Requirements	Current Year (a)		Biennial Budget						Forecast		
	FY 2021 Adopted	FY 2021 Estimated	FY 2022 Requested	FY 2022 \$ Change	FY 2022 % Change	FY 2023 Requested	FY 2023 \$ Change	FY 2023 % Change	FY 2024 Forecast	FY 2025 Forecast	FY 2026 Forecast
Revenues											
1 Revenues from Charges	\$ 481,162,100	\$ 475,904,100	\$ 475,802,800	\$ (5,359,300)	-1.1%	\$ 489,928,100	\$ 14,125,300	3.0%	\$ 504,239,700	\$ 519,116,500	\$ 534,044,000
2 Other Operating Revenue	-	400,000	400,000	400,000	NA	400,000	-	0.0%	400,000	400,000	400,000
3 Non-Operating Revenue	5,589,200	1,045,900	1,010,800	(4,578,400)	-81.9%	1,201,900	191,100	18.9%	1,636,200	1,947,800	2,664,200
4 Total Revenues	486,751,300	477,350,000	477,213,600	(9,537,700)	-2.0%	491,530,000	14,316,400	3.0%	506,275,900	521,464,300	537,108,200
Revenue Requirements											
5 Operations & Maintenance (O&M) Expense	\$ 184,946,100	\$ 182,296,000	\$ 183,096,700	\$ (1,849,400)	-1.0%	\$ 185,619,000	\$ 2,522,300	1.4%	\$ 190,339,700	\$ 194,068,500	\$ 198,295,100
6 O&M Legacy Pension Allocation	10,824,000	10,824,000	10,824,000	-	0.0%	10,824,000	-	0.0%	-	-	-
7 Debt Service Allocation	209,739,900	201,780,500	207,209,500	(2,530,400)	-1.2%	204,566,500	(2,643,000)	-1.3%	218,008,000	209,894,000	211,809,200
8 Accelerated Legacy Pension Allocation	11,620,700	11,620,700	11,620,700	-	0.0%	11,620,700	-	0.0%	6,479,300	8,228,800	8,158,800
9 Water Residential Assistance Program	2,415,100	2,415,100	2,345,600	(69,500)	-2.9%	2,457,600	112,000	4.8%	2,531,400	2,607,300	2,685,500
10 Lease Payment to Local System I&E Account (b)	27,500,000	27,500,000	27,500,000	-	0.0%	27,500,000	-	0.0%	27,500,000	27,500,000	27,500,000
11 Improvement & Extension Fund Allocation	39,705,500	40,913,900	34,616,900	(5,088,600)	-12.8%	48,942,000	14,325,100	41.4%	61,417,300	79,165,400	88,659,300
12 Operating Reserve Deposit	-	-	-	-	NA	-	-	NA	-	-	-
13 Extraordinary Repair & Replacement Deposit	-	-	-	-	NA	-	-	NA	-	-	-
15 Annual Budgeted Revenue Requirements	\$ 486,751,300	\$ 477,350,200	\$ 477,213,400	\$ (9,537,900)	-2.0%	\$ 491,529,800	\$ 14,316,400	3.0%	\$ 506,275,700	\$ 521,464,000	\$ 537,107,900
16 <i>Change in Annual Revenue Requirement</i>				(9,537,900)	-2.0%		14,316,400	3.0%	3.0%	3.0%	3.0%
17 <i>Change Attributable to Non-Charge Revenue (FY 2022 reduction in investment earnings see lines 2&3)</i>				4,178,400	0.9%		(191,100)	0.0%	-0.1%	-0.1%	-0.1%
18 <i>Change Attributable to Sales Revenue (FY 2022 attributable to elimination of one time OMID Charge)</i>				<u>4,226,100</u>	<u>0.9%</u>		<u>-</u>	<u>0.0%</u>	<u>0.0%</u>	<u>0.0%</u>	<u>0.0%</u>
19 Charge Adjustment (Based on no change in overall charges to "SHAREs" Member Partners)				(1,133,400)	-0.2%		14,125,300	3.0%	2.9%	2.9%	2.9%

(a) The originally adopted FY 2021 Budget did not reflect anticipated debt service savings projected by the bond refinancing, nor the increase in the deposit to the I&E Fund. However that expectation was understood as part of the budget approval process, and was accomplished via the First Quarter FY 2021 Budget Amendment once the June 2020 transaction closed.

Schedule 5A - Water Capital Financing Plan
Water Construction Fund

	Current Year	Biennial Budget		Forecast		
Inflows & Outflows	FY 2021 Estimated	FY 2022 Requested	FY 2023 Forecast	FY 2024 Forecast	FY 2025 Forecast	FY 2026 Forecast
Water Construction Fund						
Initial <i>Transfer / Assignment</i> of Bond Proceeds	\$18,960,300					
Transfers of Bond Proceeds	-	-	76,468,400	112,518,000	88,551,400	96,191,400
Transfer of Bond Fund Earnings on Investments	62,600	-	202,300	674,100	356,700	984,600
Contributions In Aid of Construction	-	-	-	-	-	-
Grant Revenues (DWRF Loans)	45,397,000	26,100,000	16,600,000	16,600,000	16,600,000	15,810,000
Transfers from I&E Fund	50,139,100	110,481,000	57,280,300	19,597,900	22,705,900	23,837,000
Project Expenditures	(114,559,000)	(136,581,000)	(150,551,000)	(149,390,000)	(128,214,000)	(136,823,000)
Increase (Decrease) in Construction Funds	-	\$0	\$0	\$0	\$0	\$0
Beginning Year Balance	-	-	-	-	-	-
Projected Ending Balance	\$0	\$0	\$0	\$0	\$0	\$0

Water Improvement & Extension Fund

	Current Year	Biennial Budget		Forecast		
Inflows & Outflows	FY 2021 Estimated	FY 2022 Requested	FY 2023 Forecast	FY 2024 Forecast	FY 2025 Forecast	FY 2026 Forecast
Water Improvement & Extension Fund						
Water System Revenue Transfers	\$28,462,600	\$28,093,900	\$23,296,400	\$28,357,400	\$31,287,900	\$32,356,700
Receipt of DWSD Shortfall Loan	-	-	-	-	-	-
Grant Revenues	-	-	-	-	-	-
Earnings on Investments, Net	-	-	-	-	-	-
Budgeted Capital Outlay	(17,892,000)	(17,006,600)	(14,078,600)	(8,759,500)	(8,582,000)	(8,519,700)
Minimum Transfer to Construction Fund	(11,455,900)	(13,658,100)	(15,055,100)	(14,939,000)	(12,821,400)	(13,682,300)
Additional Transfer to Construction Fund	(38,683,200)	(96,822,900)	(42,225,200)	(4,658,900)	(9,884,500)	(10,154,700)
Increase (Decrease) in I&E Reserves	(\$39,568,500)	(\$99,393,700)	(\$48,062,500)	\$0	\$0	\$0
Beginning Year Balance	277,024,700	237,456,200	138,062,500	90,000,000	90,000,000	90,000,000
Projected Ending Balance	\$237,456,200	\$138,062,500	\$90,000,000	\$90,000,000	\$90,000,000	\$90,000,000

Water Construction Bond Fund

	Current Year	Biennial Budget		Forecast		
Inflows & Outflows	FY 2021 Estimated	FY 2022 Requested	FY 2023 Forecast	FY 2024 Forecast	FY 2025 Forecast	FY 2026 Forecast
Water Construction Bond Fund						
Bond Proceeds, Net	-	-	192,700,000	-	183,300,000	-
Earnings on Investments, Net	62,600	-	202,300	674,100	356,700	984,600
Transfer / Assignment to Construction Fund	(19,022,900)	-	(76,670,700)	(113,192,100)	(88,908,100)	(97,176,000)
Increase (Decrease) in Construction <u>Bond</u> Funds	(\$18,960,300)	\$0	\$116,231,600	(\$112,518,000)	\$94,748,600	(\$96,191,400)
Beginning Year Balance	18,960,300	-	-	116,231,600	3,713,600	98,462,200
Projected Ending Balance	\$0	\$0	\$116,231,600	\$3,713,600	\$98,462,200	\$2,270,800

Schedule 5B - Sewer Capital Financing Plan
Sewer Construction Fund

	Current Year	Biennial Budget		Forecast		
Inflows & Outflows	FY 2021 Estimated	FY 2022 Requested	FY 2023 Forecast	FY 2024 Forecast	FY 2025 Forecast	FY 2026 Forecast
Sewer Construction Fund						
Initial <i>Transfer / Assignment</i> of Bond Proceeds	\$21,137,700					
Transfers of Bond Proceeds	-	-	122,200,000	-	108,100,000	-
Transfer of Bond Fund Earnings on Investments	69,800	-	128,300	408,400	218,300	539,500
Contributions In Aid of Construction	-	-	-	-	-	-
Grant Revenues (CWRF Loans)	23,586,000	31,992,000	4,122,000	-	-	-
Transfers from I&E Fund	51,020,500	47,321,000	35,422,000	53,437,400	72,055,300	81,027,400
Project Expenditures	(95,814,000)	(79,313,000)	(91,456,000)	(120,972,000)	(129,713,000)	(131,850,000)
Increase (Decrease) in Construction Funds	-	\$0	\$70,416,300	(\$67,126,200)	\$50,660,600	(\$50,283,100)
Beginning Year Balance	-	-	-	70,416,300	3,290,100	53,950,700
Projected Ending Balance	\$0	\$0	\$70,416,300	\$3,290,100	\$53,950,700	\$3,667,600

Sewer Improvement & Extension Fund

	Current Year	Biennial Budget		Forecast		
Inflows & Outflows	FY 2021 Estimated	FY 2022 Requested	FY 2023 Forecast	FY 2024 Forecast	FY 2025 Forecast	FY 2026 Forecast
Sewer Improvement & Extension Fund						
Sewer System Revenue Transfers	\$40,913,900	\$34,616,900	\$48,942,000	\$61,417,300	\$79,165,400	\$88,659,300
Receipt of DWSD Shortfall Loan	19,288,300	8,705,000	-	-	-	-
Grant Revenues	-	-	-	-	-	-
Earnings on Investments, Net	-	-	-	-	-	-
Budgeted Capital Outlay	(20,521,300)	(15,965,100)	(18,211,900)	(7,979,900)	(7,110,100)	(7,631,900)
Minimum Transfer to Construction Fund	(9,581,400)	(7,931,300)	(9,145,600)	(12,097,200)	(12,971,300)	(13,185,000)
Additional Transfer to Construction Fund	(41,439,100)	(39,389,700)	(26,276,400)	(41,340,200)	(59,084,000)	(67,842,400)
Increase (Decrease) in I&E Reserves	(\$11,339,600)	(\$19,964,200)	(\$4,691,900)	\$0	\$0	\$0
Beginning Year Balance	125,995,700	114,656,100	94,691,900	90,000,000	90,000,000	90,000,000
Projected Ending Balance	\$114,656,100	\$94,691,900	\$90,000,000	\$90,000,000	\$90,000,000	\$90,000,000

Sewer Construction Bond Fund

	Current Year	Biennial Budget		Forecast		
Inflows & Outflows	FY 2021 Estimated	FY 2022 Requested	FY 2023 Forecast	FY 2024 Forecast	FY 2025 Forecast	FY 2026 Forecast
Sewer Construction Bond Fund						
Bond Proceeds, Net	\$0	\$0	\$122,200,000	\$0	\$108,100,000	\$0
Earnings on Investments, Net	69,800	-	128,300	408,400	218,300	539,500
Transfer / Assignment to Construction Fund	(21,207,500)	-	(122,328,300)	(408,400)	(108,318,300)	(539,500)
Increase (Decrease) in Construction <u>Bond</u> Funds	(\$21,137,700)	\$0	\$0	\$0	\$0	\$0
Beginning Year Balance	21,137,700	-	-	-	-	-
Projected Ending Balance	\$0	\$0	\$0	\$0	\$0	\$0

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MEMORANDUM

FY 2022 SHAREs Calculations

November 16, 2020

To: Sue McCormick

From: Bart Foster

This memorandum has been prepared to formally document the development of the FY 2022 SHAREs for purposes of computing GLWA wholesale sewer charges. It is intended to serve as the initial “***Tri-Annual SHAREs Report***” prepared to support documentation of the GLWA wholesale sewer charge methodology. The ***Tri-Annual SHAREs Reports*** are designed to illustrate the overall application of the GLWA Sewer ***Charges Methodology*** to compute individual Member Partner SHAREs to be held constant for three consecutive fiscal years. The ***Charges Methodology*** is documented elsewhere, as is the application of the FY 2022 SHAREs to calculate the proposed FY 2022 Sewer Charges.

This topic has been introduced with several previous documents prepared during the development of the FY 2022 SHAREs, each of which presents pertinent information in varying levels of detail. All of those documents are available on the GLWA website. The intent of this document is to set forth the specific, final calculations in a format that aligns with the ***Charges Methodology*** document. This document carries a date of November 16, 2020, which aligns with the date that the FY 2022 SHAREs were formally submitted to the GLWA Board for consideration. The Board endorsed the FY 2022 SHAREs at their meeting on November 25, 2020.

This document aims to set forth the detailed SHARE calculations with the assistance of the attached tables and limited discussion. We note that the terms shown in ***Bold Italics*** in this introduction are intended to serve as defined terms addressed in the ***Charges Methodology*** and related documents pertaining to the GLWA Sewer Charges.

FY 2022 SHAREs Calculations Tables

1. Illustrates application of the ***Charges Methodology*** regarding cost pools and units of service “allocators” to the **FY 2021** Cost of Service Study results, which are used to populate the Core Methodology assumptions, and to assign the total revenue requirement to cost pools and units of service allocators. For purposes of SHARE

calculations the *Allocator Factors* are simplified by rounding the nearest 0.5%. The figures shown on Line 8 become the key to establishing SHARES.

2. Presents historical results of the annual flow balances for the Member Partners served by master meters (the *M Member Partners*) for FYs 2013 through 2019, which represents the seven-year data period stipulate by the *Charges Methodology* for purposes of the FY 2022 SHARES. The flow volume data is reflected in millions of gallons per day (mgd) as provided by the annual flow balance reports. Specific adjustments have been made to certain historical data to reflect prior SHARE modifications, most notably OMID's diversion of flow to the Pontiac treatment facility¹. Table 3 presents total contributed volume as well as Sanitary and Non-Sanitary contributions. The seven-year averages shown in Column 8 become the relative flow volumes used to compute the FY 2022 SHARES.
3. Presents similar historical data for the *D+ Member Partners*, although limited to Sanitary contributions only. The flow balance protocol utilized for the SHARE calculations does not contain sufficient verifiable data to isolate Non-Sanitary flow volumes for individual *D+ Member Partners*, nor was any analysis available to identify which *D+ Member Partners* should receive reductions related to the Regional flow assumptions. A few notes:
 - Grosse Pointe is being considered a *D+ Member Partner* for purposes of the FY 2022 SHARES. The flow balance data contains only one year (FY 2019) of metered data for Grosse Pointe and it was deemed appropriate to keep that Member Partner in the class for which the most data existed.
 - Highland Park's sanitary flow estimate for purposes of SHARE calculations was based solely on the three most recent years (instead of seven) in order to honor new verified data.
 - Sanitary flow volumes reported as Water Treatment Backwash in flow balance reports are treated as Regional flow for purposes of SHARES
4. Provides a summary of total contributed volume by flow type, deducts volumes contributed from *M Member Partners*, and displays the balance as being assignable to either the *D+ Member Partners* or the Regional System.
5. Separates the "non-master metered" flow volumes into D+ (Local) and Regional components for purposes of SHARE calculations. The *Charges Methodology* assumes

¹ Other minor modifications were made to historical data for Dearborn and Rouge Valley.

that 50% of such non-sanitary volumes should be assigned as Regional, and the other 50% as the Local responsibility of the **D+ Member Partners**. The table also assigns Dearborn's portion of the D+ flow (from the unmetered northeast district) to the majority of Dearborn (which is metered) in order to facilitate SHARE calculations.

6. Serves as a summary of units of service for **M Member Partners** and the **D+ Member Partners** at large, in a format that aligns with the **Charges Methodology**. Flow volumes are summarized from Tables 2 and 5. The table also presents the historical CSO "83/17" cost allocation units of service, which are set forth in legal agreements. The bottom portion of the table shows the individual *Shares* of each unit of service.
7. Illustrates application of the **Charges Methodology** to compute the FY 2022 SHAREs for each **M Member Partner** and for the **D+ Member Partners** at large. Each Member Partner's relative share of each unit (from Table 6) is shown on Lines 2 through 16 and multiplied by the relative allocator factors on Line 1 to produce the weighted unit allocation factors shown on Lines 17 through 31. The sum of the individual unit allocations produces the FY 2022 SHARE for each Member Partner presented in Column 4.
8. Performs the same calculation for the **D+ Member Partners**. As previously noted, the flow balance protocol lacks the ability to specifically allocate responsibility for D+ non-sanitary volumes, including those volumes treated as "common" and those remaining volumes assigned to the **D+ Member Partners**. Therefore, the relative volume unit shares shown in Columns 1 and 2 for these Member Partners are based on historical analyses from prior flow balance and cost of service analyses. The calculation of SHAREs follows the same approach as that for the **M Member Partners**. Each **D+ Member Partner**'s relative share of each unit is multiplied by the relative allocator factors on Line 1 to produce the weighted unit allocation factors shown on Lines 10 through 17. The sum of the individual unit allocations produces the FY 2022 SHARE for each Member Partner presented in Column 4.
9. Summarizes the proposed FY 2022 SHAREs from Tables 8 and 9 into a consolidated summary for each Member Partner. These are the proposed SHAREs for the first **SHARE Period** envisioned by the **Charges Methodology**.

Table 1
Revenue Requirement Allocation to Cost Pools
Application of Core Methodology Assumptions

	(1)	(2)	(3)	(4)
<u>Cost Pool</u>	<u>Allocators</u>			
	<u>Total Contr</u>	<u>Sanitary</u>	<u>CSO</u>	
	<u>Volume</u>	<u>Volume</u>		
1 WRRF Cost Pool	50%	50%		
2 Conveyance Cost Pool	100%			
3 CSO Cost Pool			100%	

	<u>FY 2021</u>	<u>Allocator Calculation</u>		
	<u>Revenue</u>	<u>Total Contr</u>	<u>Sanitary</u>	
	<u>Requirement</u>	<u>Volume</u>	<u>Volume</u>	<u>CSO</u>
4 WRRF Cost Pool	302,705,900	151,353,000	151,353,000	
5 Conveyance Cost Pool	95,992,900	95,992,900	0	0
6 CSO Cost Pool	61,507,400	0	0	61,507,400
7 Total	460,206,200	247,345,900	151,353,000	61,507,400
8 Simplified Allocator Factors (a)		54.0%	32.5%	13.5%

(a) Rounded to nearest 0.5%

Table 2
Flow Volume Data from Annual Flow Balances: FY 2013 - 2019 (mgd)

Master Metered Member Partners

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>Average</u>
<u>Total Contributed Volume</u>								
1 OMID	60.519	60.829	60.781	60.899	63.053	64.909	63.483	62.068
2 Rouge Valley	53.198	61.323	57.774	54.795	62.032	56.939	65.223	58.755
3 Oakland GWK	49.439	52.317	54.128	50.963	58.605	54.885	61.558	54.556
4 Evergreen Farmington	33.619	35.325	37.054	34.791	37.673	37.230	39.474	36.452
5 SE Macomb San Dist	26.231	28.909	27.672	28.877	30.144	29.642	32.750	29.175
6 Dearborn	19.532	22.349	20.883	20.456	26.248	23.789	24.396	22.522
7 Grosse Pointe Farms	3.012	3.048	2.891	2.983	3.296	3.320	3.452	3.143
8 Grosse Pointe Park	1.848	2.010	2.185	2.237	2.395	2.625	2.822	2.303
9 Melvindale	1.474	1.717	1.553	1.521	1.622	1.682	1.869	1.634
10 Farmington	1.122	1.233	1.343	1.195	1.304	1.407	1.548	1.308
11 Center Line	1.042	1.057	0.976	0.983	1.141	1.047	1.128	1.053
12 Allen Park	0.727	0.895	0.939	0.932	0.888	1.000	0.895	0.897
13 Total	251.764	271.013	268.179	260.631	288.402	278.477	298.598	273.866
<u>Sanitary Volume</u>								
1 OMID	44.885	45.985	44.591	43.363	42.658	42.959	42.627	43.867
2 Rouge Valley	29.265	31.883	29.317	28.341	28.199	29.043	28.535	29.226
3 Oakland GWK	20.833	21.523	21.173	19.373	20.093	20.525	20.317	20.548
Evergreen Farmington	20.530	21.224	20.891	19.127	19.851	20.296	20.103	20.289
5 SE Macomb San Dist	11.348	12.228	12.183	11.096	10.519	11.149	10.956	11.354
6 Dearborn	7.904	8.001	8.312	8.124	7.795	7.937	7.362	7.919
7 Grosse Pointe Farms	1.163	1.366	0.950	0.871	0.783	0.839	0.893	0.981
8 Grosse Pointe Park	0.805	0.911	0.906	0.785	0.863	0.868	0.651	0.827
9 Melvindale	0.861	0.840	0.940	0.790	0.857	0.828	0.779	0.842
10 Farmington	0.636	0.646	0.577	0.616	0.587	0.587	0.572	0.603
11 Center Line	0.582	0.627	0.576	0.557	0.539	0.556	0.553	0.570
12 Allen Park	0.459	0.518	0.497	0.443	0.388	0.406	0.436	0.449
13 Total	139.273	145.753	140.912	133.488	133.132	135.992	133.784	137.476
<u>Non-Sanitary Volume</u>								
1 OMID	15.634	14.845	16.190	17.536	20.395	21.951	20.856	18.201
2 Rouge Valley	23.933	29.440	28.457	26.454	33.833	27.896	36.688	29.529
3 Oakland GWK	28.606	30.794	32.955	31.590	38.512	34.360	41.241	34.008
0 Evergreen Farmington	13.088	14.102	16.163	15.664	17.822	16.934	19.372	16.164
5 SE Macomb San Dist	14.883	16.681	15.489	17.780	19.625	18.493	21.794	17.821
6 Dearborn	11.628	14.348	12.571	12.332	18.452	15.852	17.034	14.602
7 Grosse Pointe Farms	1.849	1.682	1.941	2.112	2.513	2.481	2.559	2.163
8 Grosse Pointe Park	1.043	1.099	1.279	1.452	1.531	1.758	2.171	1.476
9 Melvindale	0.613	0.877	0.614	0.731	0.765	0.854	1.090	0.792
10 Farmington	0.486	0.587	0.766	0.579	0.717	0.820	0.976	0.705
11 Center Line	0.460	0.430	0.400	0.425	0.603	0.492	0.575	0.483
12 Allen Park	0.268	0.377	0.442	0.490	0.501	0.594	0.459	0.447
13 Total	112.491	125.260	127.267	127.144	155.270	142.484	164.814	136.390

Table 3
Flow Volume Data from Annual Flow Balances: FY 2013 - 2019 (mgd)
Sanitary Volume from D+ Member Partners

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>Average</u>
<u>Sanitary Volume</u>								
1 Dearborn N.E.	0.474	0.469	0.471	0.454	0.361	0.362	0.349	0.420
2 Grosse Pointe *	0.256	0.459	0.411	0.564	0.421	0.420	0.430	0.423
3 Hamtramck	1.050	1.170	1.113	1.056	1.037	1.120	1.135	1.097
4 Harper Woods	0.104	0.116	0.111	0.104	0.105	0.105	0.084	0.104
5 Highland Park (a)	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	0.622	0.571	0.591	0.594
6 Redford Township	0.031	0.031	0.091	0.091	0.091	0.091	0.091	0.074
7 Wayne County #3	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
8 Detroit	56.373	55.148	52.554	49.666	48.543	55.806	54.829	53.274
9 Total	<u>58.294</u>	<u>57.398</u>	<u>54.757</u>	<u>51.941</u>	<u>51.185</u>	<u>58.482</u>	<u>57.515</u>	55.993
10 Water Trtmt Plant Backwash (b)	8.014	8.846	8.155	7.473	7.580	8.089	8.708	8.124
11 Total	<u>66.308</u>	<u>66.245</u>	<u>62.912</u>	<u>59.414</u>	<u>58.765</u>	<u>66.571</u>	<u>66.223</u>	64.116
12 Adjustment (c)	<u>0.783</u>	<u>0.701</u>	<u>0.625</u>	<u>0.633</u>	<u>0.000</u>	<u>0.000</u>	<u>0.000</u>	0.052
13 Total	<u>67.091</u>	<u>66.945</u>	<u>63.538</u>	<u>60.047</u>	<u>58.765</u>	<u>66.571</u>	<u>66.223</u>	64.169

(a) Highland Park's sanitary contributions based on a three-year average.

(b) Water Treatment Plant Backwash is considered a Regional flow volume.

(c) Necessary to reflect prior Highland Park sanitary estimates and other minor adjustments from FY 2018 SHARE analysis.

Table 4
Flow Volume Data from Annual Flow Balances: FY 2013 - 2019 (mgd)

		Total System							
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	Average
Total Contributed Volume									
1	Total Reported @ WRRF	603.353	639.334	611.987	580.371	658.043	620.835	670.076	626.286
2	Total Reported Overflow	21.149	36.292	37.377	17.617	27.668	35.777	26.577	28.922
3	Total Contributed Volume	624.502	675.626	649.364	597.988	685.711	656.612	696.654	655.208
4	Sanitary Volume	206.364	212.699	204.449	193.535	191.897	202.564	200.007	201.645
5	Non-Sanitary Volume (3) - (4)	418.138	462.927	444.915	404.453	493.814	454.049	496.647	453.563
Master Metered Member Partners									
6	Sanitary Volume (Table 2)	139.273	145.753	140.912	133.488	133.132	135.992	133.784	137.476
7	Non-Sanitary Volume (Table 2)	112.491	125.260	127.267		155.270	142.484	164.814	136.390
8	Total Contributed Volume	251.764	271.013	268.179	133.488	288.402	278.477	298.598	273.866
Balance from D+ and Regional									
9	Sanitary Volume (4) - (6)	67.091	66.945	63.538	60.047	58.765	66.571	66.223	64.169
10	Non-Sanitary Volume (5) - (7)	305.647	337.667	317.648	404.453	338.545	311.564	331.833	317.173
11	Total Contributed Volume	372.738	404.613	381.186	464.500	397.309	378.136	398.056	381.342

Table 5
Determination and Allocation of D+ Flow Volumes (mgd)
Total System

	(1)	(2)	(3)	(4)	(5)	(6)
	<u>7-Year Average</u>	<u>Regional Flow Assumption</u>	<u>Amount</u>	Flow for <i>D+ Member Partners</i> <i>(1) - (3)</i>	<u>Dearborn Volume</u> <i>(b)</i>	Remaining <i>D+ Member Partners</i> <i>(1) - (3)</i>
<u>Total D+ and Regional Flow</u>						
1 Sanitary Volume	64.169	<i>(a)</i>	8.176	55.993	0.420	55.573
2 Non-Sanitary Volume	317.173	50%	158.587	158.587	1.145	157.442
3 Total Contributed Volume	381.342		166.762	214.580	1.565	213.014

(a) Water Treatment Plant Backwash

(b) Flows for the portion of Dearborn in D+ are assigned to the main Dearborn master metered account.

Table 6
Consolidated Units of Service Summary
Based on 7-Year Average Flow Contributions from FY 2013 through FY 2019

	(1)	(2)	(3)
	Contributed Volume - mgd		
	<u>Total</u>	<u>Sanitary</u>	<u>CSO</u>
			(a)
<u>Member Partner Units</u>			
1 OMID	62.068	43.867	2.651%
2 Rouge Valley	58.755	29.226	2.956%
3 Oakland GWK	54.556	20.548	2.256%
4 Evergreen Farmington	36.452	20.289	1.485%
5 SE Macomb San Dist	29.175	11.354	1.174%
6 Dearborn * (w/ D+ allo)	24.087	8.339	1.631%
7 Grosse Pointe Farms	3.143	0.981	0.504%
8 Grosse Pointe Park	2.303	0.827	0.062%
9 Melvindale	1.634	0.842	0.074%
10 Farmington	1.308	0.603	0.052%
11 Center Line	1.053	0.570	0.056%
12 Allen Park	0.897	0.449	0.031%
13 M Member Partner Subtotal	275.431	137.896	12.931%
14 D+ Member Partners * (w/o Dbn allo)	213.014	55.573	87.069%
Total	488.446	193.469	100.000%
<u>Member Partner Shares of Each Unit</u>			
1 OMID	12.707%	22.674%	2.651%
2 Rouge Valley	12.029%	15.106%	2.956%
3 Oakland GWK	11.169%	10.621%	2.256%
4 Evergreen Farmington	7.463%	10.488%	1.485%
5 SE Macomb San Dist	5.973%	5.869%	1.174%
6 Dearborn * (w/ D+ allo)	4.931%	4.310%	1.631%
7 Grosse Pointe Farms	0.644%	0.506%	0.504%
8 Grosse Pointe Park	0.472%	0.428%	0.062%
9 Melvindale	0.334%	0.435%	0.074%
10 Farmington	0.268%	0.311%	0.052%
11 Center Line	0.216%	0.294%	0.056%
12 Allen Park	0.183%	0.232%	0.031%
13 M Member Partner Subtotal	56.389%	71.276%	12.931%
14 D+ Member Partners * (w/o Dbn allo)	43.611%	28.724%	87.069%
0 Total	100.000%	100.000%	100.000%

(a) Existing 83/17 allocation factors from legal agreements

Table 7
Determination of SHARES
Three-Year SHARE Period Beginning with FY 2022

	(1)	(2)	(3)	(4)
	<u>Contributed Avg Volume</u>	<u>Sanitary Volume</u>	<u>CSO</u>	
1 Allocator Factor (from Table 1)	54.0%	32.5%	13.5%	
<u>Individual Unit Shares (a)</u>				
2 OMID	12.707%	22.674%	2.651%	
3 Rouge Valley	12.029%	15.106%	2.956%	
4 Oakland GWK	11.169%	10.621%	2.256%	
5 Evergreen Farmington	7.463%	10.488%	1.485%	
6 SE Macomb San Dist	5.973%	5.869%	1.174%	
7 Dearborn * (w/ D+ allo)	4.931%	4.310%	1.631%	
8 Grosse Pointe Farms	0.644%	0.506%	0.504%	
9 Grosse Pointe Park	0.472%	0.428%	0.062%	
10 Melvindale	0.334%	0.435%	0.074%	
11 Farmington	0.268%	0.311%	0.052%	
12 Center Line	0.216%	0.294%	0.056%	
13 Allen Park	0.183%	0.232%	0.031%	
14 M Member Partner Subtotal	56.389%	71.276%	12.931%	
D+ Member Partners * (w/o Dbn allo)	43.611%	28.724%	87.069%	
15 Total	100.000%	100.000%	100.000%	
<u>Weighted Allocation (b)</u>				
	<u>Unit Shares x Allocator Factors</u>			<u>(1) + (2) + (3)</u>
16 OMID	6.862%	7.369%	0.358%	14.589%
17 Rouge Valley	6.495%	4.910%	0.399%	11.804%
18 Oakland GWK	6.031%	3.452%	0.305%	9.788%
19 Evergreen Farmington	4.031%	3.408%	0.200%	7.639%
20 SE Macomb San Dist	3.226%	1.907%	0.158%	5.291%
21 Dearborn * (w/ D+ allo)	2.663%	1.401%	0.220%	4.284%
22 Grosse Pointe Farms	0.347%	0.165%	0.068%	0.580%
23 Grosse Pointe Park	0.255%	0.139%	0.008%	0.402%
24 Melvindale	0.180%	0.142%	0.010%	0.332%
25 Farmington	0.145%	0.101%	0.007%	0.253%
26 Center Line	0.117%	0.096%	0.007%	0.220%
27 Allen Park	0.100%	0.075%	0.004%	0.179%
28 M Member Partner Subtotal	30.452%	23.165%	1.744%	55.361%
29 D+ Member Partners * (w/o Dbn allo)	23.550%	9.335%	11.754%	44.639%
30 Total	54.002%	32.500%	13.498%	100.000%

(a) From Table 7

(b) Individual Unit Shares * Allocator Factor on Line (1)

Table 8
Determination of SHAREs for D+ Member Partners
Three-Year SHARE Period Beginning with FY 2022

	(1)	(2)	(3)	(4)
	<u>Allocated Volume</u>	<u>Sanitary Volume</u>	<u>CSO</u>	
1 Allocator Factor (from Table 1)	54.0%	32.5%	13.5%	
<u>Individual Unit Shares (a)</u>				
2 Highland Park	1.148%	0.756%	2.065%	
3 Hamtramck	0.846%	0.557%	1.595%	
4 Grosse Pointe	0.210%	0.139%	0.228%	
5 Harper Woods	0.059%	0.039%	0.013%	
6 Redford Township	0.052%	0.034%	0.133%	
7 Wayne County #3	0.009%	0.006%	0.035%	
8 Detroit	41.287%	27.194%	83.000%	
9 D+ Member Partner Subtotal	43.611%	28.724%	87.069%	
<u>Weighted Allocation (b)</u>				
	<i>Unit Shares x Allocator Factors</i>			<i>(1) + (2) + (3)</i>
10 Highland Park	0.619%	0.246%	0.279%	1.144%
11 Hamtramck	0.457%	0.181%	0.215%	0.853%
12 Grosse Pointe	0.114%	0.045%	0.031%	0.190%
13 Harper Woods	0.031%	0.013%	0.002%	0.046%
Redford Township	0.028%	0.011%	0.018%	0.057%
14 Wayne County #3	0.004%	0.002%	0.005%	0.011%
15 Detroit	22.295%	8.838%	11.205%	42.338%
16 D+ Member Partner Subtotal	23.548%	9.336%	11.755%	44.639%

(a) Volume Shares allocated based on historical indices

(b) Individual Unit Shares * Allocator Factor on Line (1)

Table 9
Summary of Proposed FY 2022 SHAREs

(1)

Proposed

FY 2022

SHARE*from Tables 7 & 8***Member Partner Calculations**

1	OMID	14.589%
2	Rouge Valley	11.804%
3	Oakland GWK	9.788%
4	Evergreen Farmington	7.639%
5	SE Macomb San Dist	5.291%
6	Dearborn * (w/ D+ allo)	4.284%
7	Grosse Pointe Farms	0.580%
8	Grosse Pointe Park	0.402%
9	Melvindale	0.332%
10	Farmington	0.253%
11	Center Line	0.220%
12	Allen Park	0.179%
13	M Member Partner Subtotal	55.361%
14	Highland Park	1.144%
15	Hamtramck	0.853%
16	Grosse Pointe	0.190%
17	Harper Woods	0.046%
18	Redford Township	0.057%
19	Wayne County #3	0.011%
20	Detroit	42.338%
21	D+ Member Partner Subtotal	44.639%
22	Total	100.000%

(a) Excludes amount related to OMID specific cost pool

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MEMORANDUM

Highland Park Bad Debt Expense Review
 Executive Summary

January 11, 2021

To: Nicolette Bateson

From: Bart Foster

A brief update on Highland Park bad debt expense, and how it impacts charges to other GLWA Member Partners. More thorough discussion and analysis is documented elsewhere.

- The year-end working papers supporting the FY 2020 audit reveal an “allowance for doubtful accounts” for Highland Park totaling approximately \$44.9 million, and a resulting FY 2020 bad debt expense of approximately \$3.85 million, as summarized below. We note that the Sewer amount is approximately double the amount we anticipated when we commented on the plan for the FY 2021 Sewer charges.

Highland Park Bad Debt Amounts

	Allowance for Doubtful Accts		Change (a)
	<u>6/30/19</u>	<u>6/30/20</u>	
Sewer	31,940,744	34,584,627	2,643,883
Sewer Industrial Waste Control (b)	1,679,364	1,710,779	31,415
Water	<u>7,455,747</u>	<u>8,634,075</u>	<u>1,178,328</u>
Total (b)	41,075,855	44,929,481	3,853,626

(a) The change in the allowance is equivalent to the bad debt expense during the fiscal year, unless any accounts receivable were written off during the year.

(b) Estimated - prior balance includes a small amount not related to Highland Park.

The remainder of this document discusses Water and Sewer impacts separately.

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Water

- Starting with the FY 2017 Water service charges, we began effectively increasing charges to ALL Member Partners (including Detroit) by amounts equivalent to Highland Park's allocated revenue requirement.
- The FY 2020 Water bad debt expense for Highland Park was \$1.18 million, which was consistent with the amount we included in the FY 2020 charges.
- The proposed FY 2022 Water Charges include the entire revenue requirement allocated to Highland Park as a "bad debt revenue requirement" allocable to all Member Partners.

Sewer

- As shown in the table below, payment performance improved in FYs 2018 and 2019, but fell off during FY 2020. After averaging 33% from FY 2013 through FY 2017, the average collection rate in starting in FY 2018 has been 73%.

<u>Highland Park Sewer Payment History</u>	<u>Billings</u>	<u>Payments</u>	<u>Net</u>	<u>Balance</u>	<u>Collection Rate</u>
FY 2012				10,207,956	
FY 2013	4,987,635	2,206,211	2,781,424	12,989,380	44%
FY 2014	6,980,442	1,612,633	5,367,809	18,357,189	23%
FY 2015	5,553,123	1,444,623	4,108,500	22,465,689	26%
FY 2016	5,612,167	2,022,335	3,589,832	26,055,521	36%
FY 2017	5,802,000	2,309,186	3,492,814	29,548,335	40%
FY 2018	5,657,101	4,108,108	1,548,993	31,097,328	73%
FY 2019	5,617,100	5,241,583	375,517	31,472,845	93%
FY 2020	5,665,400	3,026,117	2,639,283	34,112,128	53%
FY 2021 (5 months)	2,362,500	1,783,080	579,420	34,691,548	75%
Cumulative	48,237,468	23,753,876	24,483,592		49%
FY 2013 - FY 2017	28,935,367	9,594,988	19,340,379		33%
FY 2018 - FY 2021 (5 months)	19,302,101	14,158,888	5,143,213		73%

- Through the end of FY 2019, (via a combination of *prospective* bad debt recovery and bad debt *true up* recovery) Member Partners had been charged approximately \$324,500 more than the actual bad debt incurred by Highland Park. We'll refer to that figure as the "**Cumulative Balance**" herein.
- We took this information into consideration when designing the FY 2021 Sewer Charges. When we designed the FY 2021 suburban wholesale Sewer charges we projected a bad debt *true-up* adjustment of \$985,500 for FY 2020, and used that projection to balance the *prospective* FY 2021 figure, thus resulting in NO bad debt related elements in the FY 2021 Charges. (The preliminary summary from that proposal from a year ago is shown below).

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	<u>FY 2020</u>	<u>FY 2021</u> (a)	<u>Change</u>
1 Allocated Revenue Requirement	5,620,600	5,828,600	208,000
2 Assumed Collection Rate	60%	77.5%	18%
3 Projected Bad Debt Expense	2,250,000	1,310,000	(940,000)
4 Bad Debt True Up Adjustment thru FY 2019	0	(324,500)	(324,500)
5 Subtotal Bad Debt Expense Revenue Req't	2,250,000	985,500	(1,264,500)
6 <i>Relative Impact on Wholesale Charges</i>	0.83%	0.35%	-0.48%
7 <u>Potential</u> FY 2020 Collection Rate (a)	77.5%		
8 <u>Potential</u> FY 2020 Bad Debt	1,266,000		
9 <u>Potential</u> FY 2020 Bad Debt True-Up (8) - (3)	(984,000)	(984,000)	
10 Potential FY 2021 Bad Debt Expense Revenue Req't		1,500	

(a) Preliminary, subject to change during final charge development.

- The strategy employed for the FY 2021 charges was designed to result in a Cumulative balance of ~ \$0 at the end of FY 2021.
- The FY 2020 Sewer bad debt expense for Highland Park was \$2.64 million. This figure:
 - is \$0.38 million higher than the \$2.26 million prospective amount included in FY 2020 Charges to suburban wholesale Customers;
 - is \$1.38 million higher than projected when we prepared the FY 2021 Charges
- The Cumulative Balance at the end of FY 2020 is \$58,600. This amount is technically due from suburban wholesale Customers via a surcharge to their allocated FY 2022 revenue requirements. However, there are further complexities related to this matter.

	<u>Bad Debt Prospective</u>	<u>Bad Debt True Up</u>	<u>Total Bad Debt Collected</u>	<u>Bad Debt Incurred</u>	<u>Cumulative Balance</u>
pre 2016				17,295,300	17,295,300
2016	5,569,200	0	5,569,200	2,975,200	14,701,300
2017	5,600,000	3,459,100	9,059,100	2,782,200	8,424,400
2018	4,390,000	2,810,600	7,200,600	2,100,800	3,324,600
2019	2,780,000	1,871,300	4,651,300	1,002,200	(324,500)
2020	<u>2,260,800</u>	<u>0</u>	<u>2,260,800</u>	<u>2,643,900</u>	58,600
Subtotal	20,600,000	8,141,000	28,741,000	28,799,600	58,600
2021 *	1,130,400		1,130,400		(1,071,800)
2021	1,310,000	(1,310,000)	0	1,440,000	368,200
<i>Estimated Balance @ 12/31/2020</i>					(351,800)

* via continuation of the FY 2020 Charges for the first 6 months

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- Subsequently, the Board deferred implementation of the FY 2021 Charges, leaving the FY 2020 Charges (and the ~ \$188,000 per month of bad debt related amounts that they contained) in effect for the first six months of FY 2020. As a result, suburban wholesale Member Partners will have been charged an additional \$1.13 million in bad debt related charges that would not have been collected had the FY 2021 Charges been implemented as originally scheduled.
- This amount will help offset bad debt expense incurred during FY 2021, particularly considering that none was included in the prospective charges.
 - *We estimate that the effective Cumulative Balance as of 12/31/2020 is approximately \$350,000 owed from the System to Member Partners.*
- Assuming a 75% collection rate during FY 2021, we forecast a Cumulative Balance of approximately \$368,000 (due from Member Partners to the System) at the end of FY 2021. We note that a collection rate of ~ 82% would result in a zero Cumulative Balance at that point.

Given the relatively small magnitude of the Cumulative Balance relative to the entirety of the bad debt amounts, we believe it is prudent to continue the effective “holiday” in recovery of bad debt expense amounts via charge to Suburban Wholesale Member Partners in the FY 2022 Sewer service charges. The proposed charges in our December 30, 2020 “FY 2020 Cost of Service Study and Service Charge Recommendations” report embrace this approach.

We are prepared to discuss this matter at your convenience.