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MEMORANDUM

FY 2020 Cost of Service Study and Service
Charge Recommendations

January 24, 2019

To: Sue McCormick, Nickie Bateson

From: Bart Foster

This memorandum has been prepared to introduce the exhibits summarizing the cost of service allocations and recommended proposed service charges for FY 2020. The materials presented herein summarize calculations that are subject to review, change and modification by the Great Lakes Water Authority (“GLWA”) Board. The proposed service charges were presented to Customers at a meeting on January 24, 2019, and GLWA is formally issuing notification of the proposed charges on January 25, 2019. A public hearing on the proposed water and sewer service charges for FY 2019 is scheduled for February 27, 2019.

This is the fourth 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 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 and this analysis does not reflect any changes in the core cost of service allocation methodologies employed in prior years.

The overall strategy for the FY 2020 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.

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 2020 BUDGET depicted herein represents the “budget request” as developed by GLWA, and as set forth in the “FY 2020-2021 Biennial Budget and Five-Year Plan” document published initially at the January 18, 2019 meeting of the GLWA Audit Committee.
 - *As further explained herein, the FY 2020 BUDGET included in these calculations reflects a 3.1% budgetary increase (for Water) and a 2.7% budgetary increase (for Sewer) compared to the FY 2019 BUDGET. This is LESS THAN the full implementation of the 4% Revenue Requirement Increase set forth the Lease(s).*
 - *It is our understanding that the final FY 2020 BUDGET may contain modifications to the current “budget request” version, as final review of specific items are completed, including coordination with the DWSD Budget for the Local Systems.*
 - *It is our further understanding that GLWA management has committed to delivering a final BUDGET that fits within the total “budget request” figures reflected in these calculations, and that these calculations reflect a reasonable depiction of the final BUDGET.*
2. The Capital Financing Plan reflects the last published formal plan.
 - *The capital revenue requirements (debt service, revenue financed capital, etc.) included in this analysis are identical to the budget request.*
 - *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”) CIP with what can realistically be spent due to limitations beyond GLWA’s control and/or delayed for non-budgetary reasons financing.*
 - *For purposes of the FY 2020 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 2020 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;*
 - *Calculation of Budget Stabilization Fund requirements.*
4. The proposed charges implement two potential policy changes envisioned by the proposed FY 2020 BUDGET, each of which is discussed in the report and the appendices.
 - *A proposed amendment to the OMID service agreement;*
 - *A modified account status for certain GLWA Sewer facilities.*
5. Application of bad debt expense true-up provision in Sewer Service Agreement(s)
 - *We’ve continued to apply a phased approach to the requirements set forth in the agreements. This matter is discussed at length in the appendix to this document.*

As previously introduced, the general cost allocation strategies, practices, and protocols have been applied in these calculations without any major modifications from cost of service calculations for prior years. Costs are allocated to “cost pools” that align with characteristics that define each Customer’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 (FY 2019) service charges, although specific operating programs as reflected in the budget request for FY 2020 do impact the cost pool allocations. Also, the FY 2020 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 to allocate capital revenue requirements to Cost Pools.

A detailed discussion with accompanying material that delineate the specific process we have taken to allocate the FY 2020 BUDGET to cost pools as part of the FY 2020 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 Proposed FY 2020 BUDGET;
- The allocation of Proposed FY 2020 BUDGET to cost pools;
- The proposed allocation of these costs to individual Customers;
- Proposed wholesale service charge schedules for each Customer;
- PRELIMINARY proposed allocated FY 2020 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 Customer. As noted earlier, these individual calculation sheets were distributed to Customers at a meeting on January 24, 2019, and GLWA is formally issuing notification of the proposed charges on January 25, 2019 for those that did not attend the meeting. We suggest publishing this memorandum to support ongoing review in advance of the public hearing scheduled for February 27, 2019. Additional material is being prepared to support that review.

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

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Water Service Charge Calculation Tables:

1. Presents and executive summary of the comprehensive Water Supply System BUDGET for FY 2020 compared to FY 2019. The total revenue requirement is summarized on the first three lines of the table in the format represented in the Executive Summary presented by GLWA in the initial presentation of the budget request¹. Of note:
 - The total BUDGET increase is \$10.3 million, or 3.1%, as shown on Line 4 of the table.
 - The budgeted investment earnings for FY 2020 reflect an increase of \$5.2 million as a result of GLWA’s more active investment strategies. The additional non-operating revenues are utilized to address a portion of the budget increase. As a result, and as a result of a slight positive sales revenue variance . . .
 - The additional revenues required to be met from charges to Customers is \$4.1 million, or 1.2% of the projected charge revenue generated via the existing charges. *See Lines 13 and 14.*
 - The emergence of a new “internal” GLWA Customer will produce \$1.4 million of revenue, meaning that charges to existing GLWA Customers will only increase 0.8%. *See Line 22 and Appendix C.*
 - ***The Cost of Service Study calculations delineated herein allocate responsibility for the “Revenue Requirement from Charges” totaling \$333.8 million on Line 7 of Column 2 of the table.***
 - *After recognizing the internal GLWA Customer revenue, the adjusted cost of service to be recovered from charges is \$331.2 million.*

2. Summarizes the preliminary Five Year Plan.
 - The table provides illustrations of projected:
 - *Capital Improvement Program financing plans;*
 - *Application of CIP financing sources;*
 - *Operational Financing Plan;*
 - *Fund Balance Summary*
 - The preliminary Five Year Plan assumes annual BUDGET increases of 4% for FY 2021, FY 2022, FY 2023 and FY 2024;
 - The forecast produces stable and rising debt service coverage ratios;
 - The Five Year Plan does not project any new debt issuances until FY 2021.
 - These preliminary projections do not recognize any potential savings that may emerge from refinancing transactions.

¹ *Note that this table presents information for both the Water and Sewer systems.*

3. Allocates the FY 2020 BUDGET from Table 1 to the Cost Pools necessary to assign costs to Customers 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 preliminary operating expense budget reflects the detailed review of specific cost elements. In general the total operating expense budget for FY 2020 reflects a material increase in peak hour related costs and corresponding decreases in commodity and max day Cost Pools.
 - *This increase is related to the enhanced budgetary focus on programs to ensure reliability of Transmission mains.*
 - 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 study has a similar impact as the budget review of the operating expenses: a moderate increase in capital revenue requirements allocated to peak hour cost pools and a corresponding decrease in max day Cost Pools.
4. Establishes the “Units of Service” for each Customer. Table 4 is actually 3 distinct tables, starting from basic data input (from contracts, etc.) that define basic Customer characteristics.
 - The annual sales volumes in Column 1 of Table 4a continue to reflect a uniform forecasting approach. For FY 2020 the projected volume was determined by averaging annual sales for each Customer over the most recent 36 months from October 2015 through September 2018. 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 moderately high demand year and two relatively average demand years.
 - The max day and peak hour demand figures in Table 4a reflect figures from Exhibit B of the contract for the 82 master meter Customers served under the model contract. Max day and peak hour demands for 49 of these Customers were modified for the FY 2020 Cost of Service Study through the Contract Alignment Process (“CAP”). *For a brief summary, see Appendix D.*
 - For the 3 master meter customers Customers served under older contract forms, max day and peak hour demands are determined via a uniform analytical approach. The recently observed max day and peak hour demands (on the coincidental GLWA max day / peak hour) for each Customer are indexed upward by 20%, to recognize that recent demand periods are not indicative of potential extreme demand periods.

- The units of service inputs for the three Customers indicated in bold, boxed type reflect the GLWA implementation plan of the recently completed “phase 2” of the Units of Service (“UoS”) Study² for Customers that are not served by master meters.
 - The GLWA implementation plan for purposes of the FY 2020 Cost of Service and Charges Study fully embraces the technical results of the UoS Study, but makes an adjustment to the max day and peak hour demands.
 - Since the UoS study scope was designed to determine “actual” peak demands (rather than “potential” peak demands) GLWA has applied “operational buffer” adjustment factors to the technical data. This approach:
 - *Increases max day and peak hour demands for Detroit by 10% - similar to the “operational buffer” used in discussions with master metered customers who participated in the CAP.*
 - *Increases the max day and peak hour demands for Dearborn and Highland Park by 20% - consistent with the manner that demands for other Customers under “old” contract formats are treated.*
 - In addition, Detroit’s units of service were adjusted to remove volumes and demands associated with a proposed change in account status for certain GLWA sewer facilities that are currently served as retail Customers of DWSD. *See Appendix C.*
 - Tables 4b and 4c then combine these basic characteristics into consolidated units that align with Cost Pools.
 - ***Appendix D provides commentary on the overall impacts of the adjustments to units of service discussed above.***
5. Summarizes the Cost Pool assigned BUDGET from Table 3 and allocates it to the Suburban Wholesale Customer Class and Detroit Customer Class at large based on the relative share of each Cost Pool as established by Table 4.
6. Further summarizes the general allocation from Table 5 and applies the adjustments necessary to reflect three special circumstances³:
- The “Detroit capital ownership adjustment” of \$20.7 million annually, which is established in the Agreements must be recognized. This amount is reduced from the Detroit Customer Class and allocated to all other Customers.
 - Similarly, the contractual credit to Flint related to KWA debt service must be recognized. Flint’s share of KWA debt service for FY 2020 is estimated to be

² The technical results of the UoS Study are documented elsewhere.

³ These adjustments are illustrated for all Customers in Table 10.

\$6,652,200. This adjustment is accomplished similar to the Detroit adjustment. It is reduced from Flint's allocated revenue requirement and allocated to all other Customers (including Detroit) in proportion to the allocation of wholesale revenue requirements. *Note: while every Customer is allocated a portion of the KWA credit as part of the contractual agreement between GLWA and Flint, it is important to recognize that each Customer is a "net beneficiary" of the agreement. All Customers receive lower revenue requirement allocation than they would absent the agreement, since the Water System experiences \$4.8 million 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, 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 2020 BUDGET does not assume any collections. As such, we re-allocate the entirety of Highland Park's revenue requirement to all other Customers (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 \$1.185 million.
 - *The total Detroit Customer Class BUDGET allocation becomes the proposed figure for the GLWA Authority Board to consider. The calculations herein do not produce specific charge proposals for the Detroit retail class.*
7. Illustrates detailed SHARES for each Customer for each common-to-all ("CTA") Cost Pool, based on the units of service information from Table 4.
 - Each Customer's SHARE of each Cost Pool is simply their individual units of service divided by the total for all Customers for that Cost Pool.
 8. Applies the CTA SHARES from Table 7 to the Cost Pool totals from Table 5 to allocate the CTA BUDGET to individual Customers.
 9. Illustrates detailed SHARES for each Customer for the Suburban Only Cost Pool. This cost pool is limited to costs related to the master meter program.

10. Illustrates the allocation of suburban only costs to Customers, summarizes the “unadjusted” BUDGET for each Customer, and indicates how each Customer is impacted by the adjustments introduced in Table 6.

11. Calculates the proposed wholesale service charge structure for each Customer. The proposed service charge structure for FY 2020 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 Customer is designed to recover precisely 60% of the BUDGET allocated to that Customer. Each Customer’s commodity charge is designed to recover the remaining 40% of the BUDGET allocated to them.

Sewer Service Charge Calculation Tables:

1. Presents and executive summary of the comprehensive Sewage Disposal System BUDGET for FY 2020 compared to FY 2019. The total revenue requirement is summarized on the first three lines of the table in the format represented in the Executive Summary presented by GLWA in the initial presentation of the budget request⁴. Of note:
 - The total BUDGET increase is \$12.7 million, or 2.7%, as shown on Line 4 of the table.
 - The budgeted investment earnings for FY 2020 reflect an increase of \$4.2 million as a result of GLWA’s more active investment strategies. The additional non-operating revenues are utilized to address a portion of the budget increase.
 - Additionally, the reduced expected bad debt expense associated with Highland Park results in a projected positive variance of approximately \$2.4 million. *See Lines 8, 10, and 17, and the detailed description in Appendix G.*
 - As a result, the additional revenues required to be met from charges to Customers is \$6.1 million, or 1.3% of the projected charge revenue generated via the existing charges. *See Lines 13 and 14.*
 - ***The Cost of Service Study calculations delineated herein allocate responsibility for the “Revenue Requirement from Charges” totaling \$474.1 million on Line 7 of Column 6 of the table.***

2. Summarizes the preliminary Five Year Plan.
 - The table provides illustrations of projected:
 - i. *Capital Improvement Program financing plans;*
 - ii. *Application of CIP financing sources;*

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

iii. Operational Financing Plan;

iv. Fund Balance Summary

- The preliminary Five Year Plan assumes annual BUDGET increases of 4% for FY 2021, FY 2022, FY 2023 and FY 2024;
 - The forecast produces stable and rising debt service coverage ratios;
 - The Five Year Plan anticipates the next bond sale will occur mid FY 2020, and the FY 2020 BUDGET includes six months of interest to support that projected debt issuance.
 - These preliminary projections do not recognize any potential savings that may emerge from refinancing transactions.
3. Allocates the FY 2020 BUDGET from Table 1 to the Cost Pools necessary to assign costs to Customers 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 proposed FY 2020 BUDGET and allocated costs of service assume that a proposed amendment to the service agreement with the Oakland Macomb Interceptor District (“OMID”) will be implemented. Under this proposed amendment, specific assignments of costs to this Customer specific cost pool will be fixed by contract. In Column 2, we illustrate the FY 2020 “contractual” revenue requirements, and subtract them from the total BUDGET by individual element. The “Remaining Balance” in Column 3 is then allocated to the other cost pools. See Appendix B.***
 - The preliminary operating expense budget reflects the detailed review of specific cost elements. This review indicates a decrease (compared to FY 2019) of approximately 7.5% in FY 2020 budgeted operating expenses allocable to the Industrial Waste Control (IWC) Cost Pool. 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 FY 2020 analysis does not produce material cost pool variances.
4. Presents the proposed SHARES for FY 2020. ***These SHARES are unchanged from FY 2019.***
5. Summarizes the Cost Pool assigned BUDGET from Table 3 and allocates it to the Suburban Wholesale Customer Class and Detroit Customer Class at large based on the relative share of each Cost Pool as subsequently established in Table 4.

6. Applies the SHAREs from Table 5 to the Cost Pool totals from Table 4 to allocate the FY 2020 BUDGET to individual Customers in Columns 1 through 5. Also allocates adjustments to the originally allocated Cost of Service, which include:
 - Recognition of the “Detroit capital ownership adjustment” identified in the Agreements. (Column 6). ***The total Detroit Customer Class BUDGET allocation in Column 7 becomes the proposed figure for the GLWA Authority Board to consider. The calculations herein do not produce specific charge proposals for the Detroit retail class.***
 - There are two additional adjustments to the Suburban Wholesale Customer class allocations, both related to bad debt expense associated with Highland Park. The FY 2020 Service Charge calculations assume that Highland Park will continue partial payments during FY 2020, and that collections will approximate 60 percent of total billings. The Service Agreement protocol calls for the remaining 40 percent (assumed to be “bad debt” expense from a suburban wholesale Customer) to be recovered from all suburban wholesale Customers, as indicated in Column 8. A similar adjustment is made in Column 9 to “true-up” projected and actual bad debt expense experienced in recent years – although the true up amount for FY 2020 is zero. ***Please see Appendix G for a more thorough explanation of this matter.***
7. Calculates the proposed wholesale service charge structure for each Customer. The service charge structure is entirely fixed monthly charges, so the service charges simply consist of the allocated annual BUDGET divided by 12. The table presents the service charges by individual Cost Pool, including the adjustments mentioned above.
8. Calculates the proposed FY 2020 “Industrial Specific” charges – the Industrial Waste Control service charges and the pollutant surcharges.

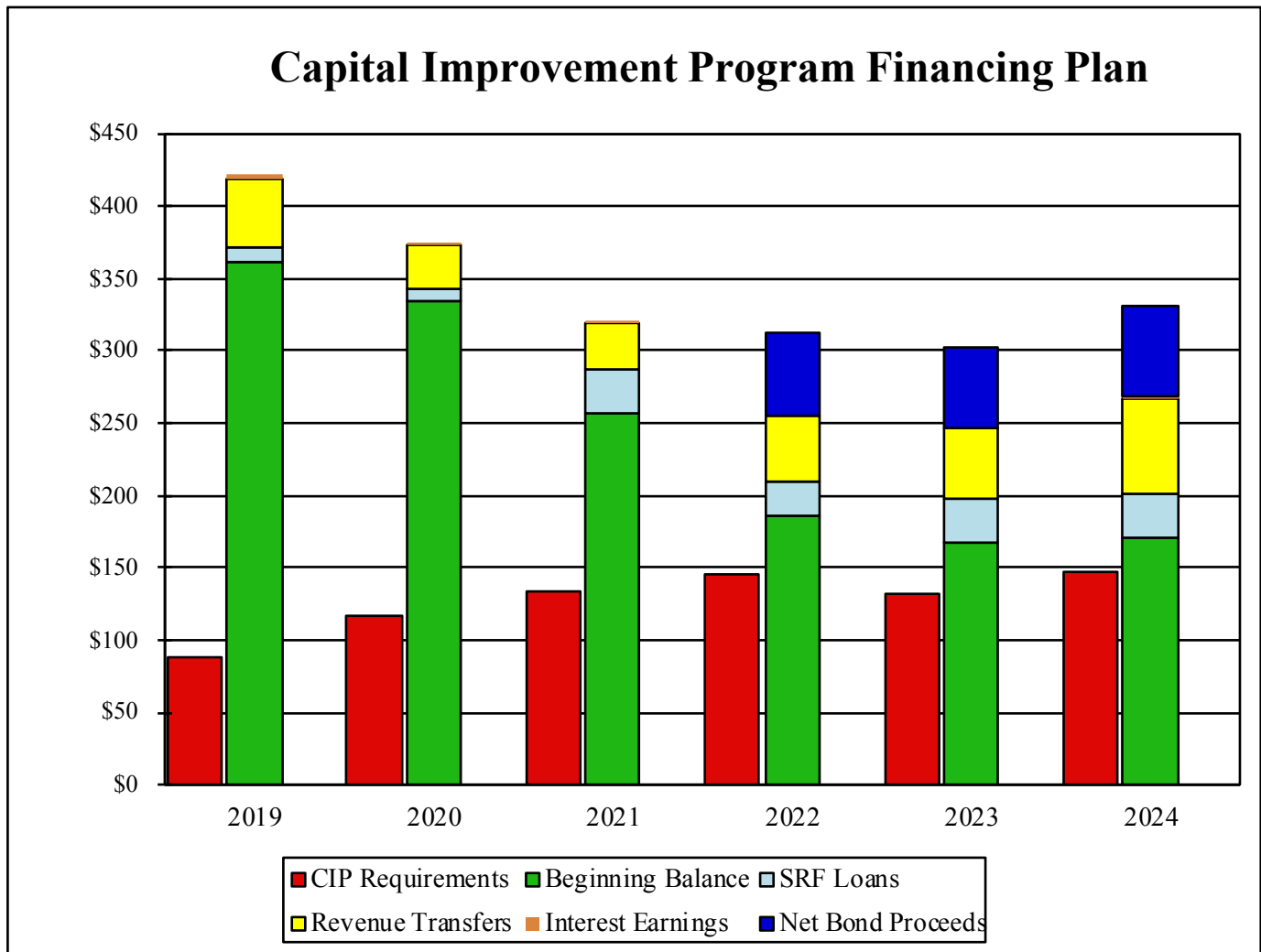
Table 1
Executive Summary of FY 2020 BUDGET Request Comparison (\$ millions)

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
|---|----------------|----------------|---------------|----------------|----------------|----------------|---------------|----------------|----------------|----------------|---------------|----------------|
| | Water System | | | | Sewer System | | | | Total GLWA | | | |
| <u>Annual BUDGET</u> | <u>FY 2019</u> | <u>FY 2020</u> | <u>Change</u> | <u>%Change</u> | <u>FY 2019</u> | <u>FY 2020</u> | <u>Change</u> | <u>%Change</u> | <u>FY 2019</u> | <u>FY 2020</u> | <u>Change</u> | <u>%Change</u> |
| 1 Operation and Maintenance Expense | 121.6 | 133.5 | 11.9 | 9.8% | 191.1 | 188.0 | (3.1) | -1.6% | 312.6 | 321.5 | 8.8 | 2.8% |
| 2 Master Bond Ordinance Commitments | 170.7 | 174.1 | 3.4 | 2.0% | 266.9 | 268.1 | 1.2 | 0.5% | 437.6 | 442.3 | 4.6 | 1.1% |
| 3 Deposit to I&E (and other reserve) Funds | 39.1 | 34.1 | (5.1) | -12.9% | 12.2 | 26.7 | 14.5 | 119.7% | 51.3 | 60.8 | 9.5 | 18.5% |
| 4 TOTAL BUDGET | 331.4 | 341.7 | 10.3 | 3.1% | 470.2 | 482.8 | 12.7 | 2.7% | 801.6 | 824.5 | 22.9 | 2.9% |
| <u>less: "Non Customer" Revenue</u> | | | | | | | | | | | | |
| 5 Investment Earnings & Miscellaneous | (3.8) | (9.1) | (5.2) | 136.8% | (4.6) | (8.7) | (4.2) | 91.0% | (8.4) | (17.8) | (9.4) | 111.9% |
| 6 Subtotal Revenue Requirement "Offsets" | (3.8) | (9.1) | (5.2) | 136.8% | (4.6) | (8.7) | (4.2) | 91.0% | (8.4) | (17.8) | (9.4) | 111.9% |
| 7 Preliminary Revenue Req't from Charges | 327.6 | 332.6 | 5.0 | 1.5% | 465.6 | 474.1 | 8.5 | 1.8% | 793.1 | 806.7 | 13.5 | 1.7% |
| 8 plus: Expected "System" Bad Debt | 1.4 | 1.2 | (0.2) | -13.4% | 2.8 | 2.3 | (0.5) | -18.7% | 4.2 | 3.5 | (0.7) | -16.9% |
| 9 Revenue Required from Charges | 328.9 | 333.8 | 4.9 | 1.5% | 468.4 | 476.4 | 8.0 | 1.7% | 797.3 | 810.2 | 12.8 | 1.6% |
| 10 Suburban Wholesale Bad Debt True Up | | | | | 1.9 | 0.0 | (1.9) | -100.0% | 1.9 | 0.0 | (1.9) | -100.0% |
| 11 Adjusted Revenue Required from Charges | 328.9 | 333.8 | 4.9 | 1.5% | 470.2 | 476.4 | 6.1 | 1.3% | 799.2 | 810.2 | 11.0 | 1.4% |
| 12 Proforma Billed Revenue - Existing Charges | 328.9 | 329.7 | 0.8 | 0.2% | 470.0 | 470.2 | 0.3 | 0.1% | 799.2 | 799.9 | 0.8 | 0.1% |
| 13 Charge Revenue Adjustment Needed | | 4.1 | | | | 6.1 | | | | 10.2 | | |
| 14 % Charge Revenue Adjustment Needed | | 1.2% | | | | 1.3% | | | | 1.3% | | |
| <u>Charge Adjustment Illustration</u> | | | | | | | | | | | | |
| <u>Proforma Revenue - Existing Charges</u> | | | | | | | | | | | | |
| 15 Revenue from Charges | 328.9 | 329.7 | 0.8 | -0.2% | 470.0 | 470.2 | 0.3 | -0.1% | 799.2 | 799.9 | 0.8 | -0.1% |
| 16 Investment Earnings & Miscellaneous | 3.8 | 9.1 | 5.2 | -1.6% | 4.6 | 8.7 | 4.2 | -0.9% | 8.4 | 17.8 | 9.4 | -1.2% |
| 17 Expected Bad Debt Expense | (1.4) | (1.2) | 0.2 | -0.1% | (4.7) | (2.3) | 2.4 | -0.5% | (6.0) | (3.5) | 2.6 | -0.3% |
| 18 Net Proforma Revenue Comparison | 331.4 | 337.6 | 6.2 | | 469.9 | 476.7 | 6.8 | | 801.6 | 814.3 | 12.7 | |
| 19 Adjustment to Address Revenue Variance | | | | -1.9% | | | | -1.5% | | | | -1.6% |
| 20 Adjustment to Address BUDGET Variance (Line 4) | | | | 3.1% | | | | 2.7% | | | | 2.9% |
| 21 Average Charge Adjustment | | | * | 1.2% | | | | 1.3% | | | * | 1.3% |
| 22 * Average Charge Adjustment for Existing Customers | | | | 0.8% | | | | 1.3% | | | | 1.1% |

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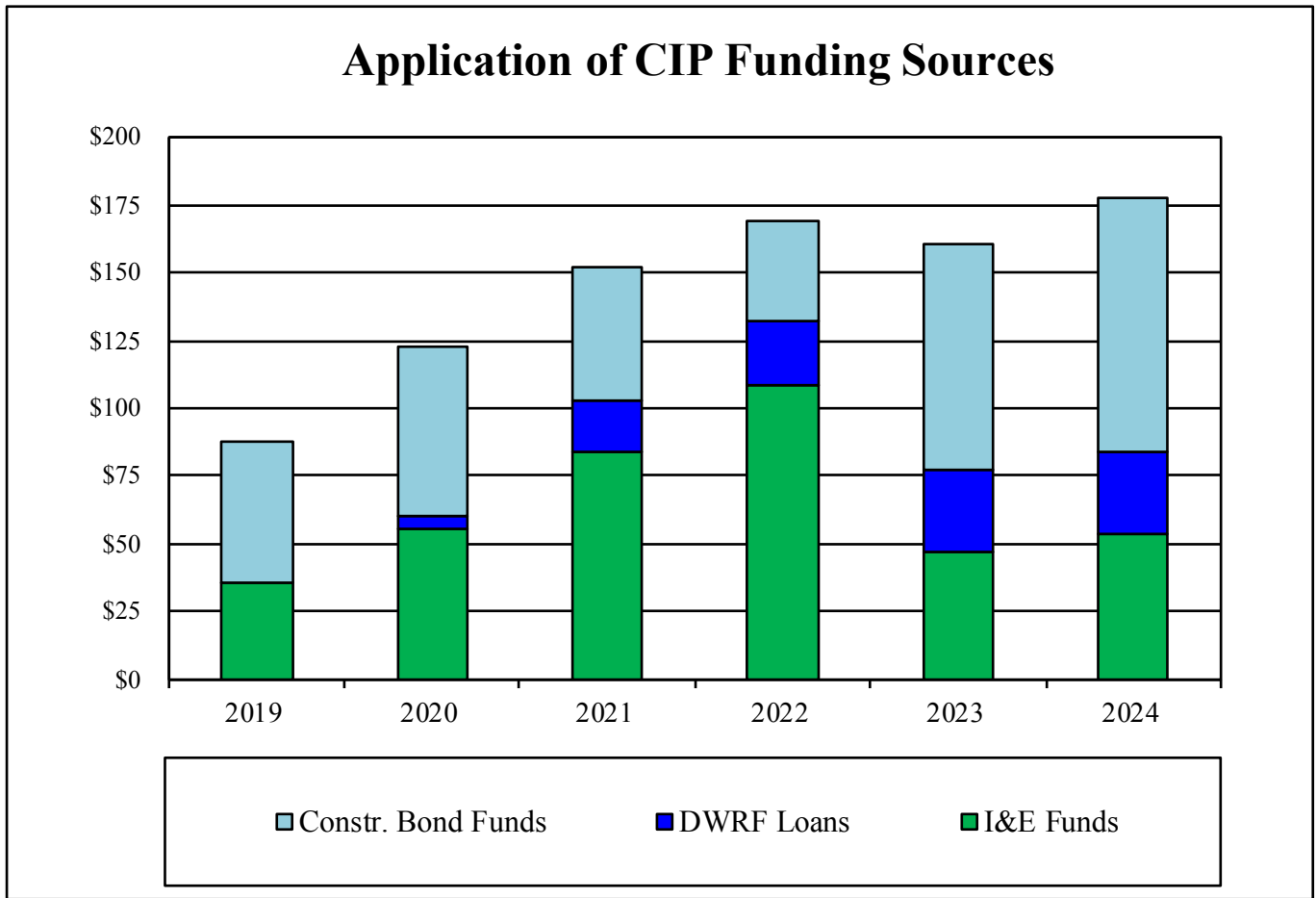
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Table 2
GLWA Water System Financial Plan Summary (\$ millions)



| | <u>2019</u> | <u>2020</u> | <u>2021</u> | <u>2022</u> | <u>2023</u> | <u>2024</u> |
|-----------------|-------------|-------------|-------------|-------------|-------------|-------------|
| CIP Requirement | 88.2 | 117.6 | 134.2 | 145.2 | 131.2 | 147.9 |
| <u>Sources</u> | | | | | | |
| Begin Balance | 361.2 | 334.1 | 257.6 | 185.5 | 168.0 | 170.5 |
| Bond Sale | | 0.0 | 3.1 | 84.3 | 83.2 | 95.7 |
| Net Prem / Disc | | | | | | |
| less: DWSD CIP | | 0.0 | (2.9) | (21.0) | (23.7) | (26.0) |
| less: Issue Exp | | 0.0 | (0.2) | (5.1) | (5.0) | (5.7) |
| SRF Loans | 10.5 | 9.5 | 30.3 | 24.1 | 29.6 | 30.0 |
| Revenue Xfers | 47.7 | 30.1 | 31.4 | 45.3 | 49.4 | 67.3 |
| Total Sources | 419.4 | 373.7 | 319.4 | 313.1 | 301.5 | 331.8 |
| End Balance | 331.2 | 256.2 | 185.2 | 168.0 | 170.3 | 183.8 |

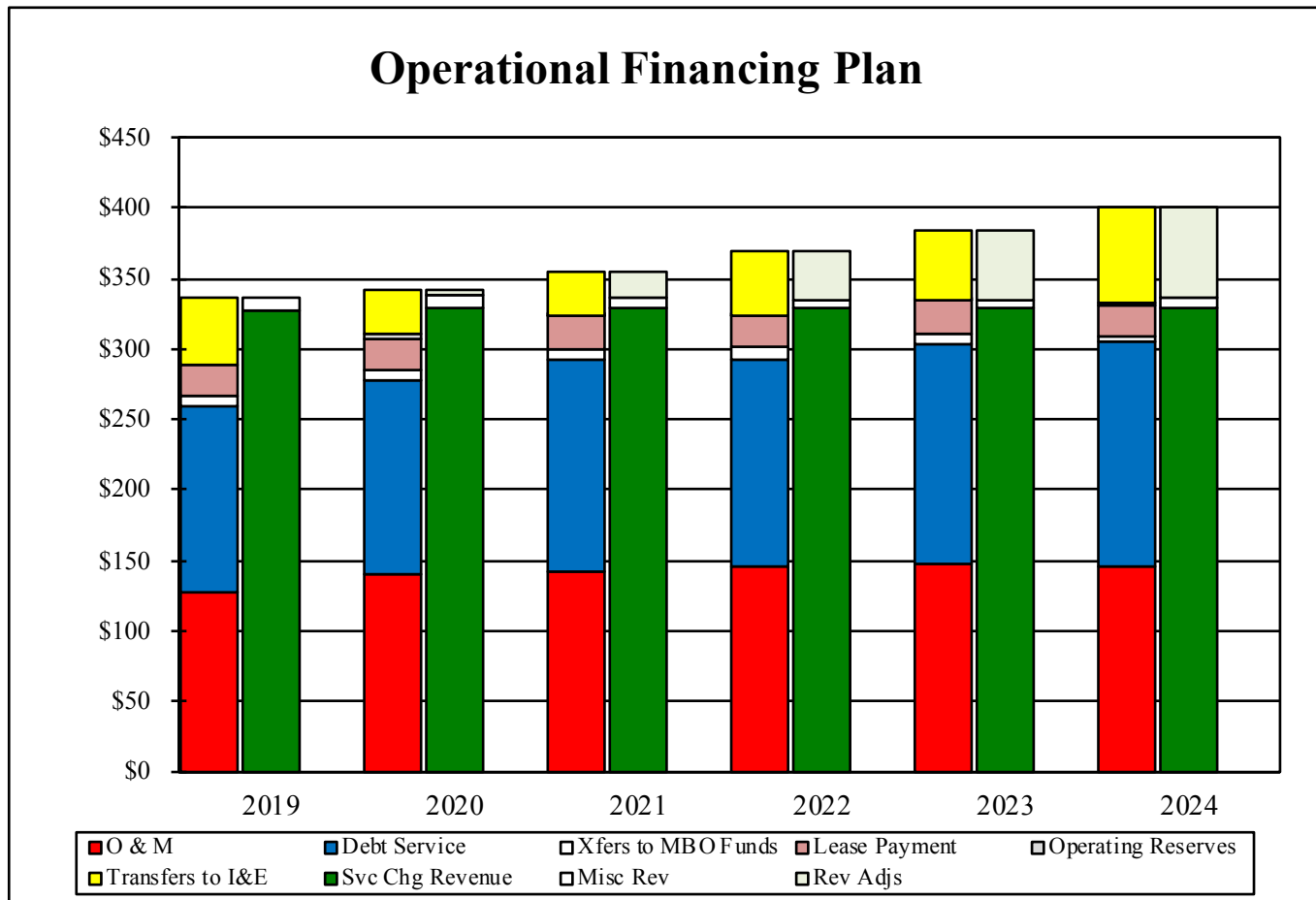
Table 2
 GLWA Water System Financial Plan Summary (\$ millions)



| | <u>2019</u> | <u>2020</u> | <u>2021</u> | <u>2022</u> | <u>2023</u> | <u>2024</u> |
|---------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| I&E Funds | 35.3 | 55.1 | 84.2 | 108.2 | 47.5 | 53.8 |
| DWRF Loans | 0.0 | 5.5 | 18.4 | 24.1 | 29.6 | 30.0 |
| Constr. Bond Funds | 52.9 | 62.4 | 49.9 | 36.9 | 83.8 | 94.1 |
| <i>I&E % of Total</i> | 40% | 45% | 55% | 64% | 30% | 30% |

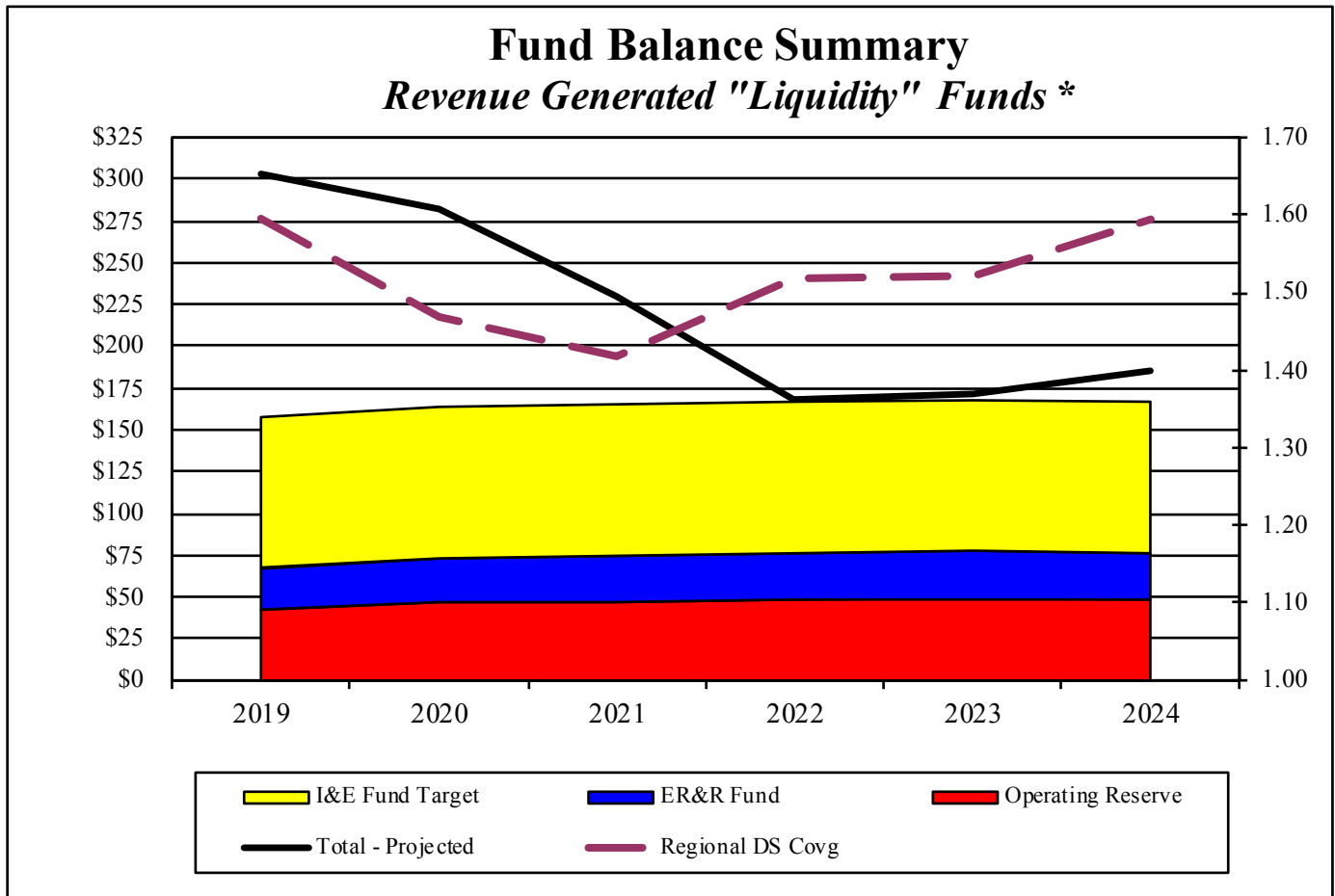
Table 2

GLWA Water System Financial Plan Summary (\$ millions)



| | <u>2019</u> | <u>2020</u> | <u>2021</u> | <u>2022</u> | <u>2023</u> | <u>2024</u> |
|----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| REVENUE | | | | | | |
| Svc. Chg. Revenue | 327.6 | 328.5 | 328.8 | 328.8 | 328.8 | 328.8 |
| <i>Revenue Adjustments</i> | | 1.3% | 4.4% | 4.5% | 4.0% | 4.0% |
| Revenue from Adjs | | 4.1 | 18.7 | 34.4 | 49.1 | 64.0 |
| Other | 9.4 | 9.1 | 7.9 | 6.3 | 6.5 | 6.9 |
| Total Revenue | 337.0 | 341.7 | 355.4 | 369.6 | 384.3 | 399.7 |
| BUDGET | | | | | | |
| O&M Expense | 127.6 | 139.5 | 142.2 | 144.9 | 147.7 | 145.7 |
| Debt Service | 131.2 | 137.6 | 150.3 | 147.8 | 155.6 | 159.3 |
| Xfers to MBO Funds | 7.9 | 8.0 | 8.0 | 8.1 | 8.2 | 3.9 |
| Lease Payment | 22.5 | 22.5 | 22.5 | 22.5 | 22.5 | 22.5 |
| Operating Reserves | 0.0 | 4.0 | 0.9 | 0.9 | 0.9 | 0.9 |
| Transfers to I&E | 47.7 | 30.1 | 31.4 | 45.3 | 49.4 | 67.3 |
| Total BUDGET | 337.0 | 341.7 | 355.4 | 369.6 | 384.3 | 399.7 |
| Balance | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

Table 2
GLWA Water System Financial Plan Summary (\$ millions)



| | <u>2019</u> | <u>2020</u> | <u>2021</u> | <u>2022</u> | <u>2023</u> | <u>2024</u> |
|-------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <u>Fund Balance Minimums</u> | | | | | | |
| Operating Reserve | 42.5 | 46.5 | 47.4 | 48.3 | 49.2 | 48.6 |
| ER&R Fund | 25.1 | 27.0 | 27.5 | 28.0 | 28.5 | 27.8 |
| I&E Fund Target | 90.0 | 90.0 | 90.0 | 90.0 | 90.0 | 90.0 |
| Total - Minimums | 157.6 | 163.5 | 164.9 | 166.3 | 167.8 | 166.4 |
| <u>Projections</u> | | | | | | |
| Operating Reserve | 42.8 | 46.8 | 47.7 | 48.6 | 49.5 | 50.4 |
| ER&R Fund | 27.5 | 27.5 | 27.5 | 27.5 | 27.5 | 27.5 |
| I&E Fund | 232.9 | 207.8 | 155.0 | 92.0 | 94.0 | 107.6 |
| Total - Projected | 303.2 | 282.1 | 230.2 | 168.1 | 171.1 | 185.5 |
| <i>Projected > Minimum</i> | 145.5 | 118.6 | 65.3 | 1.8 | 3.3 | 19.1 |
| Regional DS Covg | 1.60 | 1.47 | 1.42 | 1.52 | 1.52 | 1.59 |

* Revenue Generated Funds only. Excludes Debt Service Reserve & Construction Funds (Bond Generated) & "Pass Thru" Funds (Debt Sevc

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Table 3
Water Supply System
Allocation of FY 2020 GLWA Wholesale Service BUDGET to Cost Pools

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | |
|--|---|----------------|----------------|----------------|----------------|--------------|--------------|---------------|-------------|-----------|-----------|
| | Amount to Allocate \$ | Cost Pools | | | | | | | | | |
| | | Common-to-All | | | | | | | | | Sub Only |
| | <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> | | |
| | \$ | \$ | \$ | \$ | \$ | \$ | \$ | \$ | \$ | \$ | |
| <u>BUDGET Elements</u> | | | | | | | | | | | |
| 1 | Regional System O&M Expense | 133,490,500 | 6,898,400 | 63,083,200 | 2,038,500 | 19,579,500 | 15,405,600 | 9,332,700 | 7,702,800 | 7,702,800 | 1,746,900 |
| 2 | Pension Obligation - Operating Portion | 6,048,000 | 0 | 3,331,500 | 121,300 | 1,165,400 | 391,800 | 542,100 | 195,900 | 195,900 | 104,000 |
| 3 | Debt Service | 137,557,700 | 0 | 52,514,700 | 4,285,800 | 48,858,400 | 0 | 0 | 30,404,600 | 0 | 1,494,100 |
| 4 | Non-Operating Portion of Pension Oblig | 6,268,300 | 0 | 3,452,900 | 125,800 | 1,207,800 | 406,100 | 561,900 | 203,000 | 203,000 | 107,800 |
| 5 | Transfer to WRAP Fund | 1,743,900 | 38,400 | 744,800 | 41,800 | 453,400 | 90,100 | 58,100 | 251,200 | 45,100 | 21,000 |
| 6 | Transfer to Extra. Repair and Repl. Fund | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7 | Lease Payment - Transfer to Detroit Local I&E | 22,500,000 | 495,200 | 9,609,200 | 539,000 | 5,850,100 | 1,163,100 | 749,100 | 3,241,500 | 581,500 | 271,300 |
| 8 | Transfer to GLWA Regional I&E Account | 30,098,600 | 0 | 11,490,600 | 937,800 | 10,690,600 | 0 | 0 | 6,652,800 | 0 | 326,900 |
| 9 | Operating Reserves | 3,976,000 | 205,500 | 1,878,900 | 60,700 | 583,200 | 458,900 | 278,000 | 229,400 | 229,400 | 52,000 |
| 10 | Total Gross BUDGET | 341,683,000 | 7,637,500 | 146,105,800 | 8,150,700 | 88,388,400 | 17,915,600 | 11,521,900 | 48,881,200 | 8,957,700 | 4,124,000 |
| 11 | less: Revenue from Non-Contract Cust | (1,438,000) | (31,600) | (614,100) | (34,400) | (373,900) | (74,300) | (47,900) | (207,200) | (37,200) | (17,300) |
| 12 | less: Non-Operating Revenue | (9,083,300) | (199,900) | (3,879,300) | (217,600) | (2,361,700) | (469,500) | (302,400) | (1,308,600) | (234,800) | (109,500) |
| 13 | Net BUDGET Req'd from Charges | 331,161,700 | 7,406,000 | 141,612,400 | 7,898,700 | 85,652,800 | 17,371,800 | 11,171,600 | 47,365,400 | 8,685,700 | 3,997,200 |
| <u>Summary - BUDGET Required from Charges</u> | | | | | | | | | | | |
| 14 | Net Operating Expenses | 142,894,000 | 7,073,700 | 67,998,700 | 2,210,900 | 21,235,400 | 16,187,100 | 10,109,500 | 8,092,700 | 8,093,400 | 1,894,700 |
| 15 | Net Capital Requirements | 188,267,700 | 332,300 | 73,613,700 | 5,687,800 | 64,417,400 | 1,184,700 | 1,062,100 | 39,272,700 | 592,300 | 2,102,500 |
| 16 | Total | 331,161,700 | 7,406,000 | 141,612,400 | 7,898,700 | 85,652,800 | 17,371,800 | 11,171,600 | 47,365,400 | 8,685,700 | 3,997,200 |
| 17 | Relative Cost Pool Distribution | | 2.2% | 42.8% | 2.4% | 25.9% | 5.2% | 3.4% | 14.3% | 2.6% | 1.2% |

Table 4a
Water Supply System
FY 2020 Units of Service Data

| | (1) | (2) | (3) | (4) | (5) | (6) |
|--------------------------|-----------------------------|----------------|------------------|-----------------|------------------|---------------------|
| | 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> |
| | <i>mcf</i> | <i>mgd</i> | <i>mgd</i> | <i>miles</i> | <i>feet</i> | <i>5/8" proxies</i> |
| 1 Allen Park | 130,800 | 5.70 | 7.90 | 21.0 | 602 | 928 |
| 2 Almont Village | 9,000 | 0.40 | 0.44 | 37.9 | 802 | 115 |
| 3 Ash Township | 41,000 | 1.44 | 2.19 | 29.9 | 635 | 160 |
| 4 Belleville | 12,600 | 0.50 | 0.75 | 32.5 | 676 | 115 |
| 5 Berlin Township | 27,900 | 1.20 | 1.90 | 34.6 | 598 | 211 |
| 6 Brownstown Township | 144,400 | 6.80 | 11.00 | 28.5 | 601 | 523 |
| 7 Bruce Twp | 1,610 | 0.314 | 0.875 | 32.8 | 767 | 115 |
| 8 Canton Township | 361,700 | 22.50 | 23.50 | 32.2 | 742 | 1,770 |
| 9 Center Line | 31,300 | 1.13 | 1.60 | 18.4 | 623 | 155 |
| 10 Chesterfield Township | 169,900 | 8.75 | 12.00 | 28.3 | 617 | 725 |
| 11 Clinton Township | 414,400 | 19.70 | 22.90 | 22.8 | 607 | 1,218 |
| 12 Commerce Township | 106,400 | 6.54 | 7.58 | 31.4 | 967 | 520 |
| 13 Dearborn | 619,800 | 26.22 | 36.32 | 20.1 | 597 | 3 |
| 14 Dearborn Heights | 202,500 | 8.00 | 12.00 | 22.4 | 624 | 617 |
| 15 Eastpointe | 108,700 | 3.70 | 5.50 | 18.1 | 612 | 1,013 |
| 16 Ecorse | 140,800 | 3.80 | 4.40 | 20.1 | 591 | 285 |
| 17 Farmington | 47,900 | 2.25 | 2.45 | 27.1 | 765 | 315 |
| 18 Farmington Hills | 377,700 | 20.00 | 21.30 | 27.4 | 784 | 2,754 |
| 19 Ferndale | 69,300 | 2.80 | 3.10 | 18.2 | 643 | 568 |
| 20 Flat Rock | 66,500 | 2.63 | 3.83 | 30.1 | 601 | 235 |
| 21 Flint | 553,900 | 14.50 | 14.50 | 52.0 | 866 | 3,600 |
| 22 Fraser | 62,000 | 2.77 | 4.28 | 21.0 | 617 | 296 |
| 23 Garden City | 87,700 | 3.30 | 5.21 | 25.0 | 638 | 491 |
| 24 Gibraltar | 17,700 | 0.65 | 0.86 | 30.9 | 588 | 176 |
| 25 Grosse Ile Township | 40,200 | 2.01 | 3.51 | 27.0 | 584 | 400 |
| 26 Grosse Pt. Park | 59,500 | 3.60 | 6.07 | 18.0 | 583 | 291 |
| 27 Grosse Pt. Shores | 21,000 | 1.43 | 2.67 | 18.9 | 587 | 283 |
| 28 Grosse Pt. Woods | 64,900 | 3.98 | 4.84 | 18.9 | 587 | 461 |
| 29 Hamtramck | 59,300 | 1.77 | 2.74 | 16.7 | 633 | 658 |
| 30 Harper Woods | 55,900 | 2.09 | 2.99 | 18.4 | 598 | 357 |
| 31 Harrison Township | 95,200 | 3.70 | 4.40 | 24.0 | 587 | 440 |
| 32 Hazel Park | 50,700 | 1.70 | 2.44 | 18.1 | 639 | 538 |
| 33 Highland Park | 106,200 | 3.35 | 3.43 | 17.3 | 639 | 500 |
| 34 Huron Township | 62,600 | 3.10 | 3.91 | 29.9 | 635 | 278 |
| 35 Imlay City | 41,900 | 2.22 | 2.35 | 45.9 | 908 | 155 |
| 36 Imlay Twp | 170 | 0.012 | 0.024 | 42.7 | 825 | 80 |
| 37 Inkster | 90,500 | 2.44 | 3.34 | 24.4 | 638 | 443 |
| 38 Keego Harbor | 10,100 | 0.45 | 0.67 | 29.1 | 934 | 123 |
| 39 Lapeer | 55,700 | 1.72 | 2.50 | 49.1 | 850 | 400 |
| 40 Lenox Township | 14,800 | 0.51 | 0.70 | 30.5 | 619 | 400 |
| 41 Lincoln Park | 147,100 | 5.50 | 7.00 | 20.4 | 594 | 813 |
| 42 Livonia | 501,400 | 23.00 | 33.00 | 26.2 | 687 | 2,386 |
| 43 Macomb Township | 341,100 | 24.60 | 41.70 | 26.8 | 622 | 1,015 |
| 44 Madison Heights | 125,300 | 4.75 | 6.50 | 19.4 | 629 | 755 |
| 45 Mayfield Twp | 830 | 0.04 | 0.07 | 48.3 | 839 | 155 |
| 46 Melvindale | 44,100 | 1.50 | 2.10 | 19.9 | 594 | 525 |
| 47 New Haven, Village of | 25,500 | 0.60 | 1.10 | 29.8 | 613 | 80 |
| 48 N O C W A | 932,500 | 45.10 | 49.10 | 27.7 | 895 | 5,173 |
| 49 Northville | 31,700 | 1.55 | 2.02 | 31.1 | 836 | 211 |
| 50 Northville Township | 143,400 | 10.00 | 13.80 | 30.5 | 855 | 521 |
| 51 Novi | 303,700 | 17.00 | 19.00 | 31.4 | 936 | 1,836 |
| 52 Oak Park | 96,800 | 3.90 | 3.90 | 19.7 | 669 | 285 |

Table 4a
Water Supply System
FY 2020 Units of Service Data

| | (1) | (2) | (3) | (4) | (5) | (6) | |
|----|--------------------------------|------------------|------------------|-----------------|------------------|---------------------|--------|
| | 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> | |
| | <i>mcf</i> | <i>mgd</i> | <i>mgd</i> | <i>miles</i> | <i>feet</i> | <i>5/8" proxies</i> | |
| 53 | Oakland Co. Drain Comm. | 9,400 | 0.184 | 0.184 | 20.4 | 617 | 115 |
| 54 | Plymouth | 43,800 | 1.81 | 2.62 | 30.8 | 750 | 203 |
| 55 | Plymouth Township | 173,400 | 10.00 | 10.00 | 31.3 | 793 | 315 |
| 56 | Redford Township | 173,000 | 7.20 | 10.00 | 22.6 | 638 | 1,271 |
| 57 | River Rouge | 40,400 | 1.78 | 2.26 | 19.4 | 585 | 431 |
| 58 | Riverview | 44,500 | 1.68 | 2.67 | 25.3 | 594 | 130 |
| 59 | Rockwood | 10,200 | 0.56 | 0.72 | 32.7 | 592 | 88 |
| 60 | Romeo | 5,700 | 0.42 | 0.60 | 32.2 | 789 | 155 |
| 61 | Romulus | 204,400 | 8.92 | 11.00 | 27.3 | 651 | 919 |
| 62 | Roseville | 189,600 | 6.39 | 9.06 | 19.0 | 620 | 885 |
| 63 | Royal Oak Township | 12,300 | 0.473 | 0.649 | 19.2 | 665 | 146 |
| 64 | S O C W A | 1,310,900 | 60.50 | 60.50 | 22.2 | 732 | 4,998 |
| 65 | Shelby Township | 401,400 | 24.79 | 44.12 | 26.4 | 694 | 1,246 |
| 66 | South Rockwood | 5,000 | 0.176 | 0.297 | 33.4 | 586 | 88 |
| 67 | Southgate | 120,100 | 5.00 | 7.00 | 23.7 | 601 | 361 |
| 68 | St. Clair County-Burtchville T | 7,300 | 0.48 | 0.68 | 47.2 | 620 | 105 |
| 69 | St. Clair County-Greenwood | 13,900 | 0.75 | 0.75 | 45.4 | 774 | 413 |
| 70 | St. Clair Shores | 191,800 | 7.50 | 10.00 | 20.2 | 594 | 1,239 |
| 71 | Sterling Heights | 598,200 | 33.00 | 52.50 | 22.3 | 632 | 3,175 |
| 72 | Sumpter Township | 28,900 | 1.08 | 1.67 | 32.9 | 663 | 155 |
| 73 | Sylvan Lake | 6,600 | 0.35 | 0.55 | 29.1 | 938 | 80 |
| 74 | Taylor | 277,800 | 11.20 | 14.00 | 23.5 | 616 | 1,078 |
| 75 | Trenton | 88,500 | 3.30 | 4.92 | 25.8 | 596 | 1,185 |
| 76 | Troy | 492,100 | 27.00 | 40.00 | 24.2 | 756 | 2,548 |
| 77 | Utica | 26,300 | 1.20 | 1.75 | 24.4 | 660 | 155 |
| 78 | Van Buren Township | 127,700 | 6.90 | 8.17 | 32.5 | 676 | 1,090 |
| 79 | Walled Lake | 31,800 | 1.16 | 1.67 | 31.7 | 959 | 115 |
| 80 | Warren | 612,300 | 27.00 | 35.00 | 18.4 | 623 | 1,509 |
| 81 | Washington Township | 77,600 | 5.40 | 5.40 | 29.6 | 754 | 278 |
| 82 | Wayne | 91,200 | 8.28 | 8.28 | 25.9 | 646 | 600 |
| 83 | West Bloomfield Township | 277,000 | 15.50 | 26.00 | 28.7 | 912 | 1,960 |
| 84 | Westland | 338,900 | 12.50 | 17.50 | 26.0 | 653 | 1,925 |
| 85 | Wixom | 77,600 | 4.33 | 5.10 | 33.9 | 944 | 155 |
| 86 | Woodhaven | 60,400 | 3.24 | 5.12 | 28.5 | 596 | 195 |
| 87 | Ypsilanti Comm Util Auth | 511,600 | 21.00 | 21.00 | 35.8 | 726 | 1,880 |
| 88 | Subtotal Wholesale | 14,009,210 | 658.27 | 854.00 | | | 67,661 |
| 89 | Detroit Incl. Sub. Ind. | 4,283,800 | 117.73 | 139.26 | 16.8 | 629 | |
| 90 | Grand Total | 18,293,010 | 775.99 | 993.26 | | | 67,661 |

Table 4b
Water Supply System
Detailed FY 2020 Units of Service

| | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) |
|--------------------------|-------------------------|---------------------|-----------------|---------------------|------------------|------------------|--------------------|-------------------|----------------------------|--------------------|--------------------|--------------------|--------------------|
| | Units of Service Detail | | | | | | | | | | | | |
| | <u>Avg Day Use</u> | <u>Dist x Sales</u> | <u>Allo NRW</u> | <u>Avg Day Prod</u> | <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</i> | <i>mcf/day</i> | <i>mcf/day</i> | <i>mcf/day</i> | <i>mcf/day</i> | <i>mcf/day</i> | <i>mcf/day</i> | <i>mcf/day</i> | <i>mcf/day</i> | <i>mcf/day</i> | <i>mcf/day</i> | <i>mcf/day</i> |
| | <i>(1)/365</i> | <i>(1) x (4)</i> | <i>~ (8)</i> | <i>(7) + (9)</i> | <i>(2) + (9)</i> | <i>(3) + (9)</i> | <i>(12) - (11)</i> | <i>(4) x (12)</i> | <i>[(5)-610]/10.56+(4)</i> | <i>(10) x (15)</i> | <i>(11) x (15)</i> | <i>(12) x (15)</i> | <i>(13) x (15)</i> |
| 1 Allen Park | 358.4 | 2,746,800 | 48.4 | 406.8 | 810.4 | 1,104.5 | 294.1 | 23,194.0 | 21.0 | 8,542.8 | 17,018.0 | 23,194.0 | 6,176.0 |
| 2 Almont Village | 24.7 | 341,100 | 6.0 | 30.7 | 59.5 | 64.8 | 5.3 | 2,456.7 | 56.1 | 1,722.3 | 3,336.4 | 3,636.4 | 300.0 |
| 3 Ash Township | 112.3 | 1,225,900 | 21.7 | 134.0 | 214.2 | 314.5 | 100.3 | 9,402.4 | 32.3 | 4,328.2 | 6,918.7 | 10,157.1 | 3,238.4 |
| 4 Belleville | 34.5 | 409,500 | 7.1 | 41.6 | 73.9 | 107.4 | 33.4 | 3,489.2 | 38.8 | 1,614.1 | 2,868.9 | 4,165.6 | 1,296.7 |
| 5 Berlin Township | 76.4 | 965,300 | 17.0 | 93.4 | 177.4 | 271.0 | 93.6 | 9,376.4 | 34.6 | 3,231.6 | 6,138.6 | 9,376.4 | 3,237.7 |
| 6 Brownstown Township | 395.6 | 4,115,400 | 72.9 | 468.5 | 981.9 | 1,543.4 | 561.5 | 43,986.5 | 28.5 | 13,352.3 | 27,984.9 | 43,986.5 | 16,001.6 |
| 7 Bruce Twp | 4.4 | 52,800 | 0.8 | 5.2 | 42.8 | 117.8 | 75.0 | 3,862.9 | 47.7 | 248.0 | 2,040.4 | 5,617.7 | 3,577.3 |
| 8 Canton Township | 991.0 | 11,646,700 | 206.0 | 1,197.0 | 3,213.8 | 3,347.5 | 133.7 | 107,789.3 | 44.7 | 53,505.9 | 143,657.4 | 149,632.9 | 5,975.5 |
| 9 Center Line | 85.8 | 575,900 | 10.1 | 95.9 | 161.2 | 224.0 | 62.8 | 4,121.4 | 19.6 | 1,879.6 | 3,158.7 | 4,390.2 | 1,231.5 |
| 10 Chesterfield Township | 465.5 | 4,808,200 | 84.9 | 550.4 | 1,254.6 | 1,689.1 | 434.5 | 47,800.6 | 29.0 | 15,961.6 | 36,383.5 | 48,982.9 | 12,599.4 |
| 11 Clinton Township | 1,135.3 | 9,448,300 | 167.2 | 1,302.5 | 2,800.7 | 3,228.5 | 427.8 | 73,609.4 | 22.8 | 29,697.0 | 63,856.1 | 73,609.4 | 9,753.3 |
| 12 Commerce Township | 291.5 | 3,341,000 | 59.2 | 350.7 | 933.5 | 1,072.5 | 139.0 | 33,676.5 | 65.2 | 22,865.6 | 60,862.3 | 69,926.9 | 9,064.6 |
| 13 Dearborn | 1,698.1 | 12,458,000 | 220.3 | 1,918.4 | 3,725.2 | 5,076.1 | 1,350.9 | 102,029.9 | 20.1 | 38,559.8 | 74,877.4 | 102,029.9 | 27,152.5 |
| 14 Dearborn Heights | 554.8 | 4,536,000 | 80.3 | 635.1 | 1,149.7 | 1,684.5 | 534.7 | 37,732.1 | 23.7 | 15,051.9 | 27,248.9 | 39,921.9 | 12,672.9 |
| 15 Eastpointe | 297.8 | 1,967,500 | 34.8 | 332.6 | 529.4 | 770.0 | 240.6 | 13,937.8 | 18.3 | 6,086.6 | 9,688.3 | 14,091.8 | 4,403.4 |
| 16 Ecorse | 385.8 | 2,830,100 | 50.1 | 435.9 | 558.1 | 638.3 | 80.2 | 12,829.7 | 20.1 | 8,761.6 | 11,217.5 | 12,829.7 | 1,612.2 |
| 17 Farmington | 131.2 | 1,298,100 | 23.0 | 154.2 | 323.8 | 350.5 | 26.7 | 9,499.0 | 41.8 | 6,445.6 | 13,534.1 | 14,651.6 | 1,117.6 |
| 18 Farmington Hills | 1,034.8 | 10,349,000 | 183.0 | 1,217.8 | 2,856.6 | 3,030.4 | 173.8 | 83,032.8 | 43.9 | 53,461.4 | 125,405.2 | 133,034.4 | 7,629.1 |
| 19 Ferndale | 189.9 | 1,261,300 | 22.2 | 212.1 | 396.5 | 436.6 | 40.1 | 7,946.3 | 21.3 | 4,517.7 | 8,445.6 | 9,299.8 | 854.2 |
| 20 Flat Rock | 182.2 | 2,001,700 | 35.3 | 217.5 | 386.9 | 547.3 | 160.4 | 16,473.6 | 30.1 | 6,546.8 | 11,645.1 | 16,473.6 | 4,828.5 |
| 21 Flint | 1,517.5 | 28,802,800 | 509.6 | 2,027.1 | 2,448.0 | 2,448.0 | 0.0 | 127,294.3 | 76.2 | 154,465.0 | 186,535.2 | 186,535.2 | 0.0 |
| 22 Fraser | 169.9 | 1,302,000 | 23.0 | 192.9 | 393.3 | 595.2 | 201.9 | 12,498.2 | 21.7 | 4,185.9 | 8,534.5 | 12,914.8 | 4,380.3 |
| 23 Garden City | 240.3 | 2,192,500 | 38.9 | 279.2 | 480.0 | 735.4 | 255.3 | 18,384.4 | 27.7 | 7,733.8 | 13,297.3 | 20,369.9 | 7,072.6 |
| 24 Gibraltar | 48.5 | 546,900 | 9.6 | 58.1 | 96.5 | 124.6 | 28.1 | 3,849.1 | 30.9 | 1,795.3 | 2,981.6 | 3,849.1 | 867.5 |
| 25 Grosse Ile Township | 110.1 | 1,085,400 | 19.2 | 129.3 | 287.9 | 488.4 | 200.5 | 13,187.3 | 27.0 | 3,491.1 | 7,773.2 | 13,187.3 | 5,414.1 |
| 26 Grosse Pt. Park | 163.0 | 1,071,000 | 18.9 | 181.9 | 500.1 | 830.3 | 330.2 | 14,946.1 | 18.0 | 3,274.2 | 9,002.7 | 14,946.1 | 5,943.4 |
| 27 Grosse Pt. Shores | 57.5 | 396,900 | 7.2 | 64.7 | 198.4 | 364.1 | 165.8 | 6,882.0 | 18.9 | 1,222.8 | 3,749.1 | 6,882.0 | 3,132.9 |
| 28 Grosse Pt. Woods | 177.8 | 1,226,600 | 21.7 | 199.5 | 553.7 | 668.7 | 115.0 | 12,638.7 | 18.9 | 3,770.6 | 10,465.8 | 12,638.7 | 2,172.8 |
| 29 Hamtramck | 162.5 | 990,300 | 17.5 | 180.0 | 254.1 | 383.8 | 129.7 | 6,409.2 | 18.9 | 3,402.0 | 4,802.8 | 7,253.5 | 2,450.8 |
| 30 Harper Woods | 153.2 | 1,028,600 | 18.0 | 171.2 | 297.4 | 417.7 | 120.3 | 7,685.8 | 18.4 | 3,150.1 | 5,472.0 | 7,685.8 | 2,213.7 |
| 31 Harrison Township | 260.8 | 2,284,800 | 40.6 | 301.4 | 535.2 | 628.8 | 93.6 | 15,091.1 | 24.0 | 7,233.6 | 12,845.2 | 15,091.1 | 2,245.8 |
| 32 Hazel Park | 138.9 | 917,700 | 16.2 | 155.1 | 243.5 | 342.4 | 98.9 | 6,197.1 | 20.8 | 3,226.1 | 5,063.9 | 7,121.5 | 2,057.6 |
| 33 Highland Park | 291.0 | 1,837,300 | 32.6 | 323.6 | 480.6 | 490.9 | 10.3 | 8,492.7 | 20.0 | 6,472.0 | 9,612.9 | 9,818.2 | 205.3 |
| 34 Huron Township | 171.5 | 1,871,700 | 33.2 | 204.7 | 447.6 | 555.9 | 108.3 | 16,621.1 | 32.3 | 6,611.8 | 14,457.8 | 17,955.3 | 3,497.5 |
| 35 Imlay City | 114.8 | 1,923,200 | 34.0 | 148.8 | 330.8 | 348.1 | 17.4 | 15,980.1 | 74.1 | 11,026.1 | 24,510.1 | 25,797.9 | 1,287.7 |
| 36 Imlay Twp | 0.5 | 7,300 | 0.0 | 0.5 | 1.6 | 3.2 | 1.6 | 137.0 | 63.1 | 31.6 | 101.2 | 202.4 | 101.2 |
| 37 Inkster | 247.9 | 2,208,200 | 39.2 | 287.1 | 365.4 | 485.7 | 120.3 | 11,850.9 | 27.1 | 7,780.4 | 9,901.8 | 13,162.3 | 3,260.5 |
| 38 Keego Harbor | 27.7 | 293,900 | 5.2 | 32.9 | 65.4 | 94.9 | 29.5 | 2,761.6 | 59.8 | 1,967.4 | 3,908.3 | 5,675.0 | 1,766.7 |
| 39 Lapeer | 152.6 | 2,734,900 | 48.5 | 201.1 | 278.4 | 382.7 | 104.3 | 18,790.6 | 71.8 | 14,439.0 | 19,991.3 | 27,478.0 | 7,486.6 |
| 40 Lenox Township | 40.5 | 451,400 | 8.0 | 48.5 | 76.2 | 102.1 | 25.9 | 3,114.4 | 31.4 | 1,522.9 | 2,392.0 | 3,206.3 | 814.3 |
| 41 Lincoln Park | 403.0 | 3,000,800 | 53.2 | 456.2 | 788.4 | 989.0 | 200.5 | 20,174.9 | 20.4 | 9,306.5 | 16,084.2 | 20,174.9 | 4,090.6 |
| 42 Livonia | 1,373.7 | 13,136,700 | 232.3 | 1,606.0 | 3,307.0 | 4,643.8 | 1,336.8 | 121,666.5 | 33.5 | 53,801.0 | 110,782.9 | 155,565.9 | 44,783.0 |
| 43 Macomb Township | 934.5 | 9,141,500 | 161.7 | 1,096.2 | 3,450.2 | 5,736.2 | 2,285.9 | 153,729.6 | 27.9 | 30,584.0 | 96,261.7 | 160,039.4 | 63,777.7 |
| 44 Madison Heights | 343.3 | 2,430,800 | 43.0 | 386.3 | 678.0 | 911.9 | 233.9 | 17,691.3 | 21.2 | 8,189.6 | 14,373.2 | 19,332.8 | 4,959.5 |
| 45 Mayfield Twp | 2.3 | 40,100 | 0.8 | 3.1 | 6.1 | 10.2 | 4.0 | 490.6 | 70.0 | 217.0 | 430.3 | 711.0 | 280.7 |
| 46 Melvindale | 120.8 | 877,600 | 15.6 | 136.4 | 216.1 | 296.3 | 80.2 | 5,897.0 | 19.9 | 2,714.4 | 4,300.8 | 5,897.0 | 1,596.1 |

Table 4b
Water Supply System
Detailed FY 2020 Units of Service

| | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) |
|-----------------------------------|-------------------------|--------------|----------|--------------|-----------|-----------|-------------|-------------|---------------------|-------------|-------------|-------------|-------------|
| | Units of Service Detail | | | | | | | | | | | | |
| | Avg Day Use | Dist x Sales | Allo NRW | Avg Day Prod | Max Day | Peak Hour | PH Incr | PH Dist | Elev Factor | Comm DE | MD DE | PH DE | PHI DE |
| | mcfd/day | mcfd | mcfd/day | mcfd/day | mcfd/day | mcfd/day | mcfd/day | mcfd/day | mcfd/day | mcfd/day | mcfd/day | mcfd/day | mcfd/day |
| | (1)/365 | (1) x (4) | ~ (8) | (7) + (9) | (2) + (9) | (3) + (9) | (12) - (11) | (4) x (12) | ((3)-610)/10.56+(4) | (10) x (15) | (11) x (15) | (12) x (15) | (13) x (15) |
| 47 New Haven, Village of | 69.9 | 759,900 | 13.4 | 83.3 | 93.6 | 160.4 | 66.8 | 4,781.4 | 30.1 | 2,507.3 | 2,817.6 | 4,829.5 | 2,011.9 |
| 48 N O C W A | 2,554.8 | 25,830,300 | 457.0 | 3,011.8 | 6,486.0 | 7,020.7 | 534.7 | 194,473.8 | 54.7 | 164,745.5 | 354,783.8 | 384,033.1 | 29,249.3 |
| 49 Northville | 86.8 | 985,900 | 17.6 | 104.4 | 224.8 | 287.6 | 62.8 | 8,945.4 | 52.5 | 5,481.0 | 11,802.3 | 15,100.8 | 3,298.6 |
| 50 Northville Township | 392.9 | 4,373,700 | 77.2 | 470.1 | 1,414.0 | 1,922.0 | 508.0 | 58,620.7 | 53.7 | 25,244.4 | 75,932.1 | 103,210.9 | 27,278.9 |
| 51 Novi | 832.1 | 9,536,200 | 168.7 | 1,000.8 | 2,441.3 | 2,708.6 | 267.4 | 85,051.0 | 62.3 | 62,349.8 | 152,091.1 | 168,747.7 | 16,656.6 |
| 52 Oak Park | 265.2 | 1,907,000 | 33.7 | 298.9 | 555.1 | 555.1 | 0.0 | 10,934.6 | 25.3 | 7,562.2 | 14,042.9 | 14,042.9 | 0.0 |
| 53 Oakland Co. Drain Comm. | 25.8 | 191,800 | 3.2 | 29.0 | 27.8 | 27.8 | 0.0 | 567.1 | 21.1 | 611.9 | 586.5 | 586.5 | 0.0 |
| 54 Plymouth | 120.0 | 1,349,000 | 23.8 | 143.8 | 265.8 | 374.0 | 108.3 | 11,520.5 | 44.1 | 6,341.6 | 11,720.1 | 16,495.3 | 4,775.2 |
| 55 Plymouth Township | 475.1 | 5,427,400 | 95.9 | 571.0 | 1,432.7 | 1,432.7 | 0.0 | 44,843.7 | 48.6 | 27,750.6 | 69,629.5 | 69,629.5 | 0.0 |
| 56 Redford Township | 474.0 | 3,909,800 | 69.0 | 543.0 | 1,031.5 | 1,405.8 | 374.3 | 31,771.2 | 25.3 | 13,737.9 | 26,096.9 | 35,566.9 | 9,469.9 |
| 57 River Rouge | 110.7 | 783,800 | 14.0 | 124.7 | 252.0 | 316.1 | 64.2 | 6,132.7 | 19.4 | 2,419.2 | 4,887.9 | 6,132.7 | 1,244.8 |
| 58 Riverview | 121.9 | 1,125,900 | 20.0 | 141.9 | 244.6 | 376.9 | 132.3 | 9,536.3 | 25.3 | 3,590.1 | 6,188.0 | 9,536.3 | 3,348.3 |
| 59 Rockwood | 27.9 | 333,500 | 6.1 | 34.0 | 81.0 | 101.7 | 20.7 | 3,325.0 | 32.7 | 1,111.8 | 2,647.4 | 3,325.0 | 677.6 |
| 60 Romeo | 15.6 | 183,500 | 3.3 | 18.9 | 59.4 | 83.5 | 24.1 | 2,689.0 | 49.2 | 929.9 | 2,924.7 | 4,108.6 | 1,183.9 |
| 61 Romulus | 560.0 | 5,580,100 | 98.6 | 658.6 | 1,291.0 | 1,569.1 | 278.1 | 42,836.0 | 31.2 | 20,548.3 | 40,280.2 | 48,955.5 | 8,675.3 |
| 62 Roseville | 519.5 | 3,602,400 | 63.8 | 583.3 | 918.0 | 1,274.9 | 356.9 | 24,224.0 | 19.9 | 11,607.7 | 18,268.6 | 25,371.4 | 7,102.8 |
| 63 Royal Oak Township | 33.7 | 236,200 | 4.1 | 37.8 | 67.3 | 90.9 | 23.5 | 1,744.5 | 24.4 | 922.3 | 1,642.9 | 2,217.0 | 574.1 |
| 64 S O C W A | 3,591.5 | 29,102,000 | 514.8 | 4,106.3 | 8,602.5 | 8,602.5 | 0.0 | 190,974.9 | 33.8 | 138,792.9 | 290,763.6 | 290,763.6 | 0.0 |
| 65 Shelby Township | 1,099.7 | 10,597,000 | 187.4 | 1,287.1 | 3,501.3 | 6,085.4 | 2,584.0 | 160,654.2 | 34.4 | 44,276.2 | 120,446.1 | 209,337.3 | 88,891.1 |
| 66 South Rockwood | 13.7 | 167,000 | 3.0 | 16.7 | 26.5 | 42.7 | 16.2 | 1,426.3 | 33.4 | 557.8 | 886.0 | 1,426.3 | 540.3 |
| 67 Southgate | 329.0 | 2,846,400 | 50.5 | 379.5 | 718.9 | 986.3 | 267.4 | 23,374.5 | 23.7 | 8,994.2 | 17,038.0 | 23,374.5 | 6,336.5 |
| 68 St. Clair County-Burtchville T | 20.0 | 344,600 | 6.0 | 26.0 | 69.9 | 96.9 | 27.0 | 4,573.8 | 48.1 | 1,250.6 | 3,362.2 | 4,661.0 | 1,298.9 |
| 69 St. Clair County-Greenwood | 38.1 | 631,100 | 11.2 | 49.3 | 111.5 | 111.5 | 0.0 | 5,060.3 | 60.9 | 3,002.4 | 6,787.9 | 6,787.9 | 0.0 |
| 70 St. Clair Shores | 525.5 | 3,874,400 | 68.5 | 594.0 | 1,071.1 | 1,405.3 | 334.2 | 28,387.2 | 20.2 | 11,998.8 | 21,636.3 | 28,387.2 | 6,750.9 |
| 71 Sterling Heights | 1,638.9 | 13,339,900 | 235.9 | 1,874.8 | 4,647.4 | 7,254.1 | 2,606.8 | 161,767.1 | 24.4 | 45,745.1 | 113,395.5 | 177,000.7 | 63,605.2 |
| 72 Sumpter Township | 79.2 | 950,800 | 16.7 | 95.9 | 161.1 | 239.9 | 78.9 | 7,894.2 | 37.9 | 3,634.6 | 6,104.7 | 9,094.0 | 2,989.2 |
| 73 Sylvan Lake | 18.1 | 192,100 | 3.3 | 21.4 | 50.4 | 76.8 | 26.5 | 2,235.6 | 60.2 | 1,288.3 | 3,031.4 | 4,624.8 | 1,593.4 |
| 74 Taylor | 761.1 | 6,528,300 | 115.3 | 876.4 | 1,612.5 | 1,986.8 | 374.3 | 46,690.4 | 24.1 | 21,121.2 | 38,861.8 | 47,882.5 | 9,020.8 |
| 75 Trenton | 242.5 | 2,283,300 | 40.2 | 282.7 | 481.3 | 697.9 | 216.6 | 18,006.0 | 25.8 | 7,293.7 | 12,418.7 | 18,006.0 | 5,587.3 |
| 76 Troy | 1,348.2 | 11,908,800 | 210.7 | 1,558.9 | 3,820.1 | 5,557.9 | 1,737.8 | 134,501.7 | 38.0 | 59,238.2 | 145,162.8 | 211,201.0 | 66,038.2 |
| 77 Utica | 72.1 | 641,700 | 11.2 | 83.3 | 171.6 | 245.1 | 73.5 | 5,981.4 | 29.1 | 2,424.0 | 4,994.0 | 7,133.6 | 2,139.6 |
| 78 Van Buren Township | 349.9 | 4,150,300 | 73.4 | 423.3 | 995.8 | 1,165.6 | 169.8 | 37,881.0 | 38.8 | 16,424.0 | 38,636.9 | 45,224.1 | 6,587.2 |
| 79 Walled Lake | 87.1 | 1,008,100 | 17.8 | 104.9 | 172.9 | 241.0 | 68.2 | 7,641.2 | 64.7 | 6,787.0 | 11,184.7 | 15,595.7 | 4,411.1 |
| 80 Warren | 1,677.5 | 11,266,300 | 199.2 | 1,876.7 | 3,808.6 | 4,878.0 | 1,069.4 | 89,755.6 | 19.6 | 36,783.3 | 74,648.1 | 95,609.2 | 20,961.1 |
| 81 Washington Township | 212.6 | 2,297,000 | 40.6 | 253.2 | 762.5 | 762.5 | 0.0 | 22,569.3 | 43.2 | 10,938.2 | 32,938.9 | 32,938.9 | 0.0 |
| 82 Wayne | 249.9 | 2,362,100 | 41.9 | 291.8 | 1,148.8 | 1,148.8 | 0.0 | 29,753.3 | 29.3 | 8,549.7 | 33,659.1 | 33,659.1 | 0.0 |
| 83 West Bloomfield Township | 758.9 | 7,949,900 | 140.6 | 899.5 | 2,212.6 | 3,616.3 | 1,403.6 | 103,787.6 | 57.3 | 51,541.4 | 126,784.8 | 207,213.7 | 80,428.9 |
| 84 Westland | 928.5 | 8,811,400 | 155.9 | 1,084.4 | 1,826.9 | 2,495.3 | 668.4 | 64,878.0 | 30.1 | 32,640.4 | 54,989.9 | 75,108.8 | 20,118.9 |
| 85 Wixom | 212.6 | 2,630,600 | 46.6 | 259.2 | 625.4 | 728.4 | 102.9 | 24,691.8 | 65.5 | 16,977.6 | 40,966.1 | 47,708.3 | 6,742.2 |
| 86 Woodhaven | 165.5 | 1,721,400 | 30.4 | 195.9 | 463.5 | 714.8 | 251.3 | 20,373.1 | 28.5 | 5,583.2 | 13,210.5 | 20,373.1 | 7,162.6 |
| 87 Ypsilanti Comm Util Auth | 1,401.6 | 18,315,300 | 323.9 | 1,725.5 | 3,131.2 | 3,131.2 | 0.0 | 112,096.7 | 46.8 | 80,753.4 | 146,539.8 | 146,539.8 | 0.0 |
| 88 Subtotal Wholesale | 38,381.7 | 368,215,700 | 6,512.4 | 44,894.1 | 94,510.2 | 120,675.8 | 26,165.6 | 3,135,659.7 | | 1,622,052.3 | 3,408,708.1 | 4,234,040.8 | 825,331.9 |
| 89 Detroit Incl. Sub. Ind. | 11,736.4 | 71,967,800 | 1,273.4 | 13,009.8 | 17,011.0 | 19,889.9 | 2,879.0 | 334,151.1 | 18.6 | 241,982.3 | 316,404.0 | 369,953.0 | 53,549.0 |
| 90 Grand Total | 50,118.1 | 440,183,500 | 7,785.8 | 57,903.9 | 111,521.2 | 140,565.7 | 29,044.5 | 3,469,810.8 | | 1,864,034.6 | 3,725,112.1 | 4,603,993.8 | 878,880.9 |

Table 4c
Water Supply System
Consolidated FY 2019 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/day | Mcf-miles/day | Mcf-miles/day | Mcf-miles/day | Mcf-miles/day | eq 5/8" mtrs | | |
| 1 | Allen Park | 130,800 | 406.8 | 810.4 | 294.1 | 23,194.0 | 8,542.8 | 17,018.0 | 23,194.0 | 6,176.0 | 928 |
| 2 | Almont Village | 9,000 | 30.7 | 59.5 | 5.3 | 2,456.7 | 1,722.3 | 3,336.4 | 3,636.4 | 300.0 | 115 |
| 3 | Ash Township | 41,000 | 134.0 | 214.2 | 100.3 | 9,402.4 | 4,328.2 | 6,918.7 | 10,157.1 | 3,238.4 | 160 |
| 4 | Belleville | 12,600 | 41.6 | 73.9 | 33.4 | 3,489.2 | 1,614.1 | 2,868.9 | 4,165.6 | 1,296.7 | 115 |
| 5 | Berlin Township | 27,900 | 93.4 | 177.4 | 93.6 | 9,376.4 | 3,231.6 | 6,138.6 | 9,376.4 | 3,237.7 | 211 |
| 6 | Brownstown Township | 144,400 | 468.5 | 981.9 | 561.5 | 43,986.5 | 13,352.3 | 27,984.9 | 43,986.5 | 16,001.6 | 523 |
| 7 | Bruce Twp | 1,610 | 5.2 | 42.8 | 75.0 | 3,862.9 | 248.0 | 2,040.4 | 5,617.7 | 3,577.3 | 115 |
| 8 | Canton Township | 361,700 | 1,197.0 | 3,213.8 | 133.7 | 107,789.3 | 53,505.9 | 143,657.4 | 149,632.9 | 5,975.5 | 1,770 |
| 9 | Center Line | 31,300 | 95.9 | 161.2 | 62.8 | 4,121.4 | 1,879.6 | 3,158.7 | 4,390.2 | 1,231.5 | 155 |
| 10 | Chesterfield Township | 169,900 | 550.4 | 1,254.6 | 434.5 | 47,800.6 | 15,961.6 | 36,383.5 | 48,982.9 | 12,599.4 | 725 |
| 11 | Clinton Township | 414,400 | 1,302.5 | 2,800.7 | 427.8 | 73,609.4 | 29,697.0 | 63,856.1 | 73,609.4 | 9,753.3 | 1,218 |
| 12 | Commerce Township | 106,400 | 350.7 | 933.5 | 139.0 | 33,676.5 | 22,865.6 | 60,862.3 | 69,926.9 | 9,064.6 | 520 |
| 13 | Dearborn | 619,800 | 1,918.4 | 3,725.2 | 1,350.9 | 102,029.9 | 38,559.8 | 74,877.4 | 102,029.9 | 27,152.5 | 3 |
| 14 | Dearborn Heights | 202,500 | 635.1 | 1,149.7 | 534.7 | 37,732.1 | 15,051.9 | 27,248.9 | 39,921.9 | 12,672.9 | 617 |
| 15 | Eastpointe | 108,700 | 332.6 | 529.4 | 240.6 | 13,937.8 | 6,086.6 | 9,688.3 | 14,091.8 | 4,403.4 | 1,013 |
| 16 | Ecorse | 140,800 | 435.9 | 558.1 | 80.2 | 12,829.7 | 8,761.6 | 11,217.5 | 12,829.7 | 1,612.2 | 285 |
| 17 | Farmington | 47,900 | 154.2 | 323.8 | 26.7 | 9,499.0 | 6,445.6 | 13,534.1 | 14,651.6 | 1,117.6 | 315 |
| 18 | Farmington Hills | 377,700 | 1,217.8 | 2,856.6 | 173.8 | 83,032.8 | 53,461.4 | 125,405.2 | 133,034.4 | 7,629.1 | 2,754 |
| 19 | Ferndale | 69,300 | 212.1 | 396.5 | 40.1 | 7,946.3 | 4,517.7 | 8,445.6 | 9,299.8 | 854.2 | 568 |
| 20 | Flat Rock | 66,500 | 217.5 | 386.9 | 160.4 | 16,473.6 | 6,546.8 | 11,645.1 | 16,473.6 | 4,828.5 | 235 |
| 21 | Flint | 553,900 | 2,027.1 | 2,448.0 | 0.0 | 127,294.3 | 154,465.0 | 186,535.2 | 186,535.2 | 0.0 | 3,600 |
| 22 | Fraser | 62,000 | 192.9 | 393.3 | 201.9 | 12,498.2 | 4,185.9 | 8,534.5 | 12,914.8 | 4,380.3 | 296 |
| 23 | Garden City | 87,700 | 279.2 | 480.0 | 255.3 | 18,384.4 | 7,733.8 | 13,297.3 | 20,369.9 | 7,072.6 | 491 |
| 24 | Gibraltar | 17,700 | 58.1 | 96.5 | 28.1 | 3,849.1 | 1,795.3 | 2,981.6 | 3,849.1 | 867.5 | 176 |
| 25 | Grosse Ile Township | 40,200 | 129.3 | 287.9 | 200.5 | 13,187.3 | 3,491.1 | 7,773.2 | 13,187.3 | 5,414.1 | 400 |
| 26 | Grosse Pt. Park | 59,500 | 181.9 | 500.1 | 330.2 | 14,946.1 | 3,274.2 | 9,002.7 | 14,946.1 | 5,943.4 | 291 |
| 27 | Grosse Pt. Shores | 21,000 | 64.7 | 198.4 | 165.8 | 6,882.0 | 1,222.8 | 3,749.1 | 6,882.0 | 3,132.9 | 283 |
| 28 | Grosse Pt. Woods | 64,900 | 199.5 | 553.7 | 115.0 | 12,638.7 | 3,770.6 | 10,465.8 | 12,638.7 | 2,172.8 | 461 |
| 29 | Hamtramck | 59,300 | 180.0 | 254.1 | 129.7 | 6,409.2 | 3,402.0 | 4,802.8 | 7,253.5 | 2,450.8 | 658 |
| 30 | Harper Woods | 55,900 | 171.2 | 297.4 | 120.3 | 7,685.8 | 3,150.1 | 5,472.0 | 7,685.8 | 2,213.7 | 357 |
| 31 | Harrison Township | 95,200 | 301.4 | 535.2 | 93.6 | 15,091.1 | 7,233.6 | 12,845.2 | 15,091.1 | 2,245.8 | 440 |
| 32 | Hazel Park | 50,700 | 155.1 | 243.5 | 98.9 | 6,197.1 | 3,226.1 | 5,063.9 | 7,121.5 | 2,057.6 | 538 |
| 33 | Highland Park | 106,200 | 323.6 | 480.6 | 10.3 | 8,492.7 | 6,472.0 | 9,612.9 | 9,818.2 | 205.3 | 500 |
| 34 | Huron Township | 62,600 | 204.7 | 447.6 | 108.3 | 16,621.1 | 6,611.8 | 14,457.8 | 17,955.3 | 3,497.5 | 278 |
| 35 | Imlay City | 41,900 | 148.8 | 330.8 | 17.4 | 15,980.1 | 11,026.1 | 24,510.1 | 25,797.9 | 1,287.7 | 155 |
| 36 | Imlay Twp | 170 | 0.5 | 1.6 | 1.6 | 137.0 | 31.6 | 101.2 | 202.4 | 101.2 | 80 |
| 37 | Inkster | 90,500 | 287.1 | 365.4 | 120.3 | 11,850.9 | 7,780.4 | 9,901.8 | 13,162.3 | 3,260.5 | 443 |
| 38 | Keego Harbor | 10,100 | 32.9 | 65.4 | 29.5 | 2,761.6 | 1,967.4 | 3,908.3 | 5,675.0 | 1,766.7 | 123 |
| 39 | Lapeer | 55,700 | 201.1 | 278.4 | 104.3 | 18,790.6 | 14,439.0 | 19,991.3 | 27,478.0 | 7,486.6 | 400 |
| 40 | Lenox Township | 14,800 | 48.5 | 76.2 | 25.9 | 3,114.4 | 1,522.9 | 2,392.0 | 3,206.3 | 814.3 | 400 |
| 41 | Lincoln Park | 147,100 | 456.2 | 788.4 | 200.5 | 20,174.9 | 9,306.5 | 16,084.2 | 20,174.9 | 4,090.6 | 813 |
| 42 | Livonia | 501,400 | 1,606.0 | 3,307.0 | 1,336.8 | 121,666.5 | 53,801.0 | 110,782.9 | 155,565.9 | 44,783.0 | 2,386 |
| 43 | Macomb Township | 341,100 | 1,096.2 | 3,450.2 | 2,285.9 | 153,729.6 | 30,584.0 | 96,261.7 | 160,039.4 | 63,777.7 | 1,015 |
| 44 | Madison Heights | 125,300 | 386.3 | 678.0 | 233.9 | 17,691.3 | 8,189.6 | 14,373.2 | 19,332.8 | 4,959.5 | 755 |
| 45 | Mayfield Twp | 830 | 3.1 | 6.1 | 4.0 | 490.6 | 217.0 | 430.3 | 711.0 | 280.7 | 155 |
| 46 | Melvindale | 44,100 | 136.4 | 216.1 | 80.2 | 5,897.0 | 2,714.4 | 4,300.8 | 5,897.0 | 1,596.1 | 525 |

TFG

THE FOSTER GROUP

Table 4c
Water Supply System
Consolidated FY 2019 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 | |
| 47 New Haven, Village of | 25,500 | 83.3 | 93.6 | 66.8 | 4,781.4 | 2,507.3 | 2,817.6 | 4,829.5 | 2,011.9 | 80 |
| 48 N O C W A | 932,500 | 3,011.8 | 6,486.0 | 534.7 | 194,473.8 | 164,745.5 | 354,783.8 | 384,033.1 | 29,249.3 | 5,173 |
| 49 Northville | 31,700 | 104.4 | 224.8 | 62.8 | 8,945.4 | 5,481.0 | 11,802.3 | 15,100.8 | 3,298.6 | 211 |
| 50 Northville Township | 143,400 | 470.1 | 1,414.0 | 508.0 | 58,620.7 | 25,244.4 | 75,932.1 | 103,210.9 | 27,278.9 | 521 |
| 51 Novi | 303,700 | 1,000.8 | 2,441.3 | 267.4 | 85,051.0 | 62,349.8 | 152,091.1 | 168,747.7 | 16,656.6 | 1,836 |
| 52 Oak Park | 96,800 | 298.9 | 555.1 | 0.0 | 10,934.6 | 7,562.2 | 14,042.9 | 14,042.9 | 0.0 | 285 |
| 53 Oakland Co. Drain Comm. | 9,400 | 29.0 | 27.8 | 0.0 | 567.1 | 611.9 | 586.5 | 586.5 | 0.0 | 115 |
| 54 Plymouth | 43,800 | 143.8 | 265.8 | 108.3 | 11,520.5 | 6,341.6 | 11,720.1 | 16,495.3 | 4,775.2 | 203 |
| 55 Plymouth Township | 173,400 | 571.0 | 1,432.7 | 0.0 | 44,843.7 | 27,750.6 | 69,629.5 | 69,629.5 | 0.0 | 315 |
| 56 Redford Township | 173,000 | 543.0 | 1,031.5 | 374.3 | 31,771.2 | 13,737.9 | 26,096.9 | 35,566.9 | 9,469.9 | 1,271 |
| 57 River Rouge | 40,400 | 124.7 | 252.0 | 64.2 | 6,132.7 | 2,419.2 | 4,887.9 | 6,132.7 | 1,244.8 | 431 |
| 58 Riverview | 44,500 | 141.9 | 244.6 | 132.3 | 9,536.3 | 3,590.1 | 6,188.0 | 9,536.3 | 3,348.3 | 130 |
| 59 Rockwood | 10,200 | 34.0 | 81.0 | 20.7 | 3,325.0 | 1,111.8 | 2,647.4 | 3,325.0 | 677.6 | 88 |
| 60 Romeo | 5,700 | 18.9 | 59.4 | 24.1 | 2,689.0 | 929.9 | 2,924.7 | 4,108.6 | 1,183.9 | 155 |
| 61 Romulus | 204,400 | 658.6 | 1,291.0 | 278.1 | 42,836.0 | 20,548.3 | 40,280.2 | 48,955.5 | 8,675.3 | 919 |
| 62 Roseville | 189,600 | 583.3 | 918.0 | 356.9 | 24,224.0 | 11,607.7 | 18,268.6 | 25,371.4 | 7,102.8 | 885 |
| 63 Royal Oak Township | 12,300 | 37.8 | 67.3 | 23.5 | 1,744.5 | 922.3 | 1,642.9 | 2,217.0 | 574.1 | 146 |
| 64 S O C W A | 1,310,900 | 4,106.3 | 8,602.5 | 0.0 | 190,974.9 | 138,792.9 | 290,763.6 | 290,763.6 | 0.0 | 4,998 |
| 65 Shelby Township | 401,400 | 1,287.1 | 3,501.3 | 2,584.0 | 160,654.2 | 44,276.2 | 120,446.1 | 209,337.3 | 88,891.1 | 1,246 |
| 66 South Rockwood | 5,000 | 16.7 | 26.5 | 16.2 | 1,426.3 | 557.8 | 886.0 | 1,426.3 | 540.3 | 88 |
| 67 Southgate | 120,100 | 379.5 | 718.9 | 267.4 | 23,374.5 | 8,994.2 | 17,038.0 | 23,374.5 | 6,336.5 | 361 |
| 68 St. Clair County-Burtchville T | 7,300 | 26.0 | 69.9 | 27.0 | 4,573.8 | 1,250.6 | 3,362.2 | 4,661.0 | 1,298.9 | 105 |
| 69 St. Clair County-Greenwood | 13,900 | 49.3 | 111.5 | 0.0 | 5,060.3 | 3,002.4 | 6,787.9 | 6,787.9 | 0.0 | 413 |
| 70 St. Clair Shores | 191,800 | 594.0 | 1,071.1 | 334.2 | 28,387.2 | 11,998.8 | 21,636.3 | 28,387.2 | 6,750.9 | 1,239 |
| 71 Sterling Heights | 598,200 | 1,874.8 | 4,647.4 | 2,606.8 | 161,767.1 | 45,745.1 | 113,395.5 | 177,000.7 | 63,605.2 | 3,175 |
| 72 Sumpter Township | 28,900 | 95.9 | 161.1 | 78.9 | 7,894.2 | 3,634.6 | 6,104.7 | 9,094.0 | 2,989.2 | 155 |
| 73 Sylvan Lake | 6,600 | 21.4 | 50.4 | 26.5 | 2,235.6 | 1,288.3 | 3,031.4 | 4,624.8 | 1,593.4 | 80 |
| 74 Taylor | 277,800 | 876.4 | 1,612.5 | 374.3 | 46,690.4 | 21,121.2 | 38,861.8 | 47,882.5 | 9,020.8 | 1,078 |
| 75 Trenton | 88,500 | 282.7 | 481.3 | 216.6 | 18,006.0 | 7,293.7 | 12,418.7 | 18,006.0 | 5,587.3 | 1,185 |
| 76 Troy | 492,100 | 1,558.9 | 3,820.1 | 1,737.8 | 134,501.7 | 59,238.2 | 145,162.8 | 211,201.0 | 66,038.2 | 2,548 |
| 77 Utica | 26,300 | 83.3 | 171.6 | 73.5 | 5,981.4 | 2,424.0 | 4,994.0 | 7,133.6 | 2,139.6 | 155 |
| 78 Van Buren Township | 127,700 | 423.3 | 995.8 | 169.8 | 37,881.0 | 16,424.0 | 38,636.9 | 45,224.1 | 6,587.2 | 1,090 |
| 79 Walled Lake | 31,800 | 104.9 | 172.9 | 68.2 | 7,641.2 | 6,787.0 | 11,184.7 | 15,595.7 | 4,411.1 | 115 |
| 80 Warren | 612,300 | 1,876.7 | 3,808.6 | 1,069.4 | 89,755.6 | 36,783.3 | 74,648.1 | 95,609.2 | 20,961.1 | 1,509 |
| 81 Washington Township | 77,600 | 253.2 | 762.5 | 0.0 | 22,569.3 | 10,938.2 | 32,938.9 | 32,938.9 | 0.0 | 278 |
| 82 Wayne | 91,200 | 291.8 | 1,148.8 | 0.0 | 29,753.3 | 8,549.7 | 33,659.1 | 33,659.1 | 0.0 | 600 |
| 83 West Bloomfield Township | 277,000 | 899.5 | 2,212.6 | 1,403.6 | 103,787.6 | 51,541.4 | 126,784.8 | 207,213.7 | 80,428.9 | 1,960 |
| 84 Westland | 338,900 | 1,084.4 | 1,826.9 | 668.4 | 64,878.0 | 32,640.4 | 54,989.9 | 75,108.8 | 20,118.9 | 1,925 |
| 85 Wixom | 77,600 | 259.2 | 625.4 | 102.9 | 24,691.8 | 16,977.6 | 40,966.1 | 47,708.3 | 6,742.2 | 155 |
| 86 Woodhaven | 60,400 | 195.9 | 463.5 | 251.3 | 20,373.1 | 5,583.2 | 13,210.5 | 20,373.1 | 7,162.6 | 195 |
| 87 Ypsilanti Comm Util Auth | 511,600 | 1,725.5 | 3,131.2 | 0.0 | 112,096.7 | 80,753.4 | 146,539.8 | 146,539.8 | 0.0 | 1,880 |
| 88 Total Suburban | 14,009,210 | 44,894.1 | 94,510.2 | 26,165.6 | 3,135,659.7 | 1,622,052.3 | 3,408,708.1 | 4,234,040.8 | 825,331.9 | 67,661 |
| 89 Detroit Incl. Sub. Ind. | 4,283,800 | 13,009.8 | 17,011.0 | 2,879.0 | 334,151.1 | 241,982.3 | 316,404.0 | 369,953.0 | 53,549.0 | 0 |
| 90 Grand Total | 18,293,010 | 57,903.9 | 111,521.2 | 29,044.5 | 3,469,810.8 | 1,864,034.6 | 3,725,112.1 | 4,603,993.8 | 878,880.9 | 67,661 |

Table 5
Water Supply System
Summarized *Wholesale Service* BUDGET Allocation to Cost Pools and Customer Classes

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
|---------------------------------------|---------------|----------------|----------------|----------------|----------------|--------------|--------------|---------------|-------------|-----------|
| Amount to Allocate | Cost Pools | | | | | | | | | |
| | Common-to-All | | | | | | | | | Sub Only |
| \$ | <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> | \$ |
| <u>BUDGET Elements</u> | | | | | | | | | | |
| 1 Net Operating Expenses | 142,894,000 | 7,073,700 | 67,998,700 | 2,210,900 | 21,235,400 | 16,187,100 | 10,109,500 | 8,092,700 | 8,093,400 | 1,894,700 |
| 2 Net Capital Requirements | 188,267,700 | 332,300 | 73,613,700 | 5,687,800 | 64,417,400 | 1,184,700 | 1,062,100 | 39,272,700 | 592,300 | 2,102,500 |
| 3 Total Req'd from Charges | 331,161,700 | 7,406,000 | 141,612,400 | 7,898,700 | 85,652,800 | 17,371,800 | 11,171,600 | 47,365,400 | 8,685,700 | 3,997,200 |
| <u>Allocation %'s</u> | | | | | | | | | | |
| 4 Suburban Wholesale Class | | 77.53% | 84.75% | 90.09% | 90.37% | 87.02% | 91.51% | 91.96% | 93.91% | 100.00% |
| 5 Detroit Retail Class | | 22.47% | 15.25% | 9.91% | 9.63% | 12.98% | 8.49% | 8.04% | 6.09% | 0.00% |
| <u>Sub Wholesale Customers BUDGET</u> | | | | | | | | | | |
| 6 Net Operating Expenses | 124,566,900 | 5,484,400 | 57,626,500 | 1,991,700 | 19,190,400 | 14,085,700 | 9,250,800 | 7,442,400 | 7,600,300 | 1,894,700 |
| 7 Net Capital Requirements | 166,758,900 | 257,600 | 62,385,000 | 5,124,000 | 58,213,800 | 1,030,900 | 971,900 | 36,117,000 | 556,200 | 2,102,500 |
| 8 Total Req'd from Charges | 291,325,800 | 5,742,000 | 120,011,500 | 7,115,700 | 77,404,200 | 15,116,600 | 10,222,700 | 43,559,400 | 8,156,500 | 3,997,200 |
| <u>Detroit Customer Class BUDGET</u> | | | | | | | | | | |
| 9 Net Operating Expenses | 18,329,200 | 1,589,300 | 10,372,200 | 219,200 | 2,045,000 | 2,101,400 | 858,700 | 650,300 | 493,100 | 0 |
| 10 Net Capital Requirements | 21,506,600 | 74,700 | 11,228,700 | 563,800 | 6,203,600 | 153,800 | 90,200 | 3,155,700 | 36,100 | 0 |
| 11 Total Req'd from Charges | 39,835,800 | 1,664,000 | 21,600,900 | 783,000 | 8,248,600 | 2,255,200 | 948,900 | 3,806,000 | 529,200 | 0 |

Table 6
Water Supply System
Summarized and Adjusted FY 2020 BUDGET Allocation to Customer Classes

| | (1) | (2) | (3) | (4) | | (5) |
|---|------------------------------------|------------------------------|-------------|-----------------------------|----------------------|-----|
| | Suburban Wholesale Customers | Detroit Customer Class | Total | <i>Adjusted Communities</i> | | |
| | | | | <i>Flint</i> | <i>Highland Park</i> | |
| 1 Net Operating Expenses | 124,566,900 | 18,329,200 | 142,896,100 | | | |
| 2 Net Capital Requirements | 166,758,900 | 21,506,600 | 188,265,500 | | | |
| 3 Subtotal | 291,325,800 | 39,835,800 | 331,161,600 | 10,640,800 | 1,085,700 | |
| 4 Capital Adjustment | 20,700,000 | (20,700,000) | 0 | 756,100 | 77,100 | |
| 5 Total Req'd from Charges | 312,025,800 | 19,135,800 | 331,161,600 | 11,396,900 | 1,162,800 | |
| 6 Adjustment for KWA Debt Service | (836,500) | 836,500 | 0 | (6,652,200) | 22,200 | |
| 7 Adjustment for Highland Park Bad Debt | (144,600) | 144,600 | 0 | 37,900 | (1,185,000) | |
| 8 Rev Req't Adjustment for Charges (a) | 1,185,000 | | 1,185,000 | | 1,185,000 | |
| 9 Total Req'd from Charges (a) | 312,229,700 | 20,116,900 | 332,346,600 | 4,782,600 | 1,185,000 | |

(a) Charges for Highland Park will be designed to generate \$1,185,000

Table 7
Water Supply System
Calculation of FY 2020 *Wholesale Service* SHARE's - Common Cost Pools

| | | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) |
|-------------|-----------------------|---------------------------|-----------|---------|-----------|--------|--------------------------|-------------------|---------------------|--------------------|------------------------------|----------------------------|------------------------------|---------------------------------|
| | | Summary by Major Category | | | | | Specific Cost Categories | | | | | | | |
| CTA SHARE's | | Total | Commodity | Max Day | Peak Hour | Demand | Commodity | Maximum Day Usage | Peak Hour Increment | Peak Hour Distance | Commodity Distance-Elevation | Max Day Distance-Elevation | Peak Hour Distance-Elevation | Peak Hr Incr Distance-Elevation |
| 1 | Allen Park | 0.661% | 0.531% | 0.707% | 0.636% | 0.672% | 0.703% | 0.727% | 1.013% | 0.668% | 0.458% | 0.457% | 0.504% | 0.703% |
| 2 | Almont Village | 0.064% | 0.081% | 0.056% | 0.069% | 0.062% | 0.053% | 0.053% | 0.018% | 0.071% | 0.092% | 0.090% | 0.079% | 0.034% |
| 3 | Ash Township | 0.228% | 0.232% | 0.192% | 0.265% | 0.228% | 0.231% | 0.192% | 0.345% | 0.271% | 0.232% | 0.186% | 0.221% | 0.368% |
| 4 | Belleville | 0.084% | 0.082% | 0.067% | 0.101% | 0.084% | 0.072% | 0.066% | 0.115% | 0.101% | 0.087% | 0.077% | 0.090% | 0.148% |
| 5 | Berlin Township | 0.205% | 0.170% | 0.160% | 0.258% | 0.208% | 0.161% | 0.159% | 0.322% | 0.270% | 0.173% | 0.165% | 0.204% | 0.368% |
| 6 | Brownstown Township | 1.028% | 0.744% | 0.871% | 1.236% | 1.052% | 0.809% | 0.880% | 1.933% | 1.268% | 0.716% | 0.751% | 0.955% | 1.821% |
| 7 | Bruce Twp | 0.083% | 0.012% | 0.040% | 0.140% | 0.089% | 0.009% | 0.038% | 0.258% | 0.111% | 0.013% | 0.055% | 0.122% | 0.407% |
| 8 | Canton Township | 2.891% | 2.630% | 2.953% | 2.871% | 2.913% | 2.067% | 2.882% | 0.460% | 3.106% | 2.870% | 3.856% | 3.250% | 0.680% |
| 9 | Center Line | 0.128% | 0.120% | 0.140% | 0.118% | 0.129% | 0.166% | 0.145% | 0.216% | 0.119% | 0.101% | 0.085% | 0.095% | 0.140% |
| 10 | Chesterfield Township | 1.176% | 0.885% | 1.114% | 1.288% | 1.200% | 0.951% | 1.125% | 1.496% | 1.378% | 0.856% | 0.977% | 1.064% | 1.434% |
| 11 | Clinton Township | 2.133% | 1.790% | 2.453% | 1.863% | 2.161% | 2.249% | 2.511% | 1.473% | 2.121% | 1.593% | 1.714% | 1.599% | 1.110% |
| 12 | Commerce Township | 1.010% | 1.041% | 0.895% | 1.122% | 1.007% | 0.606% | 0.837% | 0.606% | 0.971% | 1.227% | 1.634% | 1.519% | 1.031% |
| 13 | Dearborn | 2.984% | 2.441% | 3.243% | 2.810% | 3.029% | 3.313% | 3.340% | 4.651% | 2.941% | 2.069% | 2.010% | 2.216% | 3.089% |
| 14 | Dearborn Heights | 1.032% | 0.894% | 1.009% | 1.078% | 1.043% | 1.097% | 1.031% | 1.841% | 1.087% | 0.807% | 0.731% | 0.867% | 1.442% |
| 15 | Eastpointe | 0.427% | 0.400% | 0.459% | 0.400% | 0.430% | 0.574% | 0.475% | 0.828% | 0.402% | 0.327% | 0.260% | 0.306% | 0.501% |
| 16 | Ecorse | 0.418% | 0.555% | 0.486% | 0.325% | 0.406% | 0.753% | 0.500% | 0.276% | 0.370% | 0.470% | 0.301% | 0.279% | 0.183% |
| 17 | Farmington | 0.286% | 0.322% | 0.296% | 0.270% | 0.283% | 0.266% | 0.290% | 0.092% | 0.274% | 0.346% | 0.363% | 0.318% | 0.127% |
| 18 | Farmington Hills | 2.506% | 2.640% | 2.620% | 2.367% | 2.495% | 2.103% | 2.561% | 0.598% | 2.393% | 2.868% | 3.366% | 2.890% | 0.868% |
| 19 | Ferndale | 0.278% | 0.279% | 0.346% | 0.208% | 0.278% | 0.366% | 0.356% | 0.138% | 0.229% | 0.242% | 0.227% | 0.202% | 0.097% |
| 20 | Flat Rock | 0.392% | 0.358% | 0.344% | 0.446% | 0.395% | 0.376% | 0.347% | 0.552% | 0.475% | 0.351% | 0.313% | 0.358% | 0.549% |
| 21 | Flint | 3.187% | 6.856% | 2.401% | 3.383% | 2.887% | 3.501% | 2.195% | 0.000% | 3.669% | 8.287% | 5.008% | 4.052% | 0.000% |
| 22 | Fraser | 0.345% | 0.257% | 0.344% | 0.361% | 0.352% | 0.333% | 0.353% | 0.695% | 0.360% | 0.225% | 0.229% | 0.281% | 0.498% |
| 23 | Garden City | 0.477% | 0.435% | 0.425% | 0.537% | 0.480% | 0.482% | 0.430% | 0.879% | 0.530% | 0.415% | 0.357% | 0.442% | 0.805% |
| 24 | Gibraltar | 0.094% | 0.097% | 0.086% | 0.101% | 0.093% | 0.100% | 0.087% | 0.097% | 0.111% | 0.096% | 0.080% | 0.084% | 0.099% |
| 25 | Grosse Ile Township | 0.308% | 0.198% | 0.255% | 0.380% | 0.317% | 0.223% | 0.258% | 0.690% | 0.380% | 0.187% | 0.209% | 0.286% | 0.616% |
| 26 | Grosse Pt. Park | 0.424% | 0.217% | 0.433% | 0.449% | 0.441% | 0.314% | 0.448% | 1.137% | 0.431% | 0.176% | 0.242% | 0.325% | 0.676% |
| 27 | Grosse Pt. Shores | 0.183% | 0.080% | 0.172% | 0.212% | 0.192% | 0.112% | 0.178% | 0.571% | 0.198% | 0.066% | 0.101% | 0.149% | 0.356% |
| 28 | Grosse Pt. Woods | 0.394% | 0.245% | 0.481% | 0.331% | 0.407% | 0.345% | 0.497% | 0.396% | 0.364% | 0.202% | 0.281% | 0.275% | 0.247% |
| 29 | Hamtramck | 0.209% | 0.221% | 0.221% | 0.195% | 0.208% | 0.311% | 0.228% | 0.446% | 0.185% | 0.183% | 0.129% | 0.158% | 0.279% |
| 30 | Harper Woods | 0.235% | 0.207% | 0.258% | 0.216% | 0.237% | 0.296% | 0.267% | 0.414% | 0.222% | 0.169% | 0.147% | 0.167% | 0.252% |
| 31 | Harrison Township | 0.428% | 0.427% | 0.470% | 0.385% | 0.428% | 0.521% | 0.480% | 0.322% | 0.435% | 0.388% | 0.345% | 0.328% | 0.256% |
| 32 | Hazel Park | 0.198% | 0.201% | 0.212% | 0.183% | 0.198% | 0.268% | 0.218% | 0.341% | 0.179% | 0.173% | 0.136% | 0.155% | 0.234% |
| 33 | Highland Park | 0.323% | 0.410% | 0.418% | 0.211% | 0.316% | 0.559% | 0.431% | 0.035% | 0.245% | 0.347% | 0.258% | 0.213% | 0.023% |
| 34 | Huron Township | 0.415% | 0.354% | 0.400% | 0.441% | 0.420% | 0.354% | 0.401% | 0.373% | 0.479% | 0.355% | 0.388% | 0.390% | 0.398% |
| 35 | Imlay City | 0.395% | 0.492% | 0.323% | 0.453% | 0.387% | 0.257% | 0.297% | 0.060% | 0.461% | 0.592% | 0.658% | 0.560% | 0.147% |
| 36 | Imlay Twp | 0.003% | 0.002% | 0.002% | 0.005% | 0.003% | 0.001% | 0.001% | 0.006% | 0.004% | 0.002% | 0.003% | 0.004% | 0.012% |
| 37 | Inkster | 0.335% | 0.441% | 0.323% | 0.329% | 0.326% | 0.496% | 0.328% | 0.414% | 0.342% | 0.417% | 0.266% | 0.286% | 0.371% |
| 38 | Keego Harbor | 0.082% | 0.091% | 0.062% | 0.102% | 0.082% | 0.057% | 0.059% | 0.102% | 0.080% | 0.106% | 0.105% | 0.123% | 0.201% |
| 39 | Lapeer | 0.435% | 0.647% | 0.271% | 0.567% | 0.418% | 0.347% | 0.250% | 0.359% | 0.542% | 0.775% | 0.537% | 0.597% | 0.852% |
| 40 | Lenox Township | 0.076% | 0.082% | 0.068% | 0.084% | 0.076% | 0.084% | 0.068% | 0.089% | 0.090% | 0.082% | 0.064% | 0.070% | 0.093% |
| 41 | Lincoln Park | 0.610% | 0.585% | 0.687% | 0.535% | 0.612% | 0.788% | 0.707% | 0.690% | 0.581% | 0.499% | 0.432% | 0.438% | 0.465% |
| 42 | Livonia | 3.255% | 2.853% | 2.966% | 3.616% | 3.288% | 2.774% | 2.965% | 4.603% | 3.506% | 2.886% | 2.974% | 3.379% | 5.095% |
| 43 | Macomb Township | 3.603% | 1.716% | 3.057% | 4.474% | 3.758% | 1.893% | 3.094% | 7.870% | 4.430% | 1.641% | 2.584% | 3.476% | 7.257% |
| 44 | Madison Heights | 0.543% | 0.507% | 0.592% | 0.500% | 0.546% | 0.667% | 0.608% | 0.805% | 0.510% | 0.439% | 0.386% | 0.420% | 0.564% |
| 45 | Mayfield Twp | 0.011% | 0.010% | 0.006% | 0.016% | 0.011% | 0.005% | 0.006% | 0.014% | 0.014% | 0.012% | 0.012% | 0.015% | 0.032% |
| 46 | Melvindale | 0.175% | 0.172% | 0.188% | 0.163% | 0.176% | 0.236% | 0.194% | 0.276% | 0.170% | 0.146% | 0.115% | 0.128% | 0.182% |

Table 7
Water Supply System
Calculation of FY 2020 *Wholesale Service* SHARE's - Common Cost Pools

| | | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) |
|------------|-----------------------------|---------------------------|----------|-----------|----------|-----------|--------------------------|---------------------|--------------------|------------------------------|----------------------------|------------------------------|---------------------------------|----------|
| | | Summary by Major Category | | | | | Specific Cost Categories | | | | | | | |
| CTA SHAREs | Total | Commodity | Max Day | Peak Hour | Demand | Commodity | Maximum Day Usage | Peak Hour Increment | Peak Hour Distance | Commodity Distance-Elevation | Max Day Distance-Elevation | Peak Hour Distance-Elevation | Peak Hr Incr Distance-Elevation | |
| 47 | New Haven, Village of | 0.112% | 0.138% | 0.083% | 0.138% | 0.110% | 0.144% | 0.084% | 0.230% | 0.138% | 0.135% | 0.076% | 0.105% | 0.229% |
| 48 | N O C W A | 6.237% | 7.751% | 6.087% | 6.140% | 6.113% | 5.201% | 5.816% | 1.841% | 5.605% | 8.838% | 9.524% | 8.341% | 3.328% |
| 49 | Northville | 0.248% | 0.260% | 0.210% | 0.285% | 0.247% | 0.180% | 0.202% | 0.216% | 0.258% | 0.294% | 0.317% | 0.328% | 0.375% |
| 50 | Northville Township | 1.600% | 1.192% | 1.324% | 1.950% | 1.634% | 0.812% | 1.268% | 1.749% | 1.689% | 1.354% | 2.038% | 2.242% | 3.104% |
| 51 | Novi | 2.549% | 2.862% | 2.328% | 2.722% | 2.523% | 1.728% | 2.189% | 0.921% | 2.451% | 3.345% | 4.083% | 3.665% | 1.895% |
| 52 | Oak Park | 0.388% | 0.439% | 0.489% | 0.277% | 0.384% | 0.516% | 0.498% | 0.000% | 0.315% | 0.406% | 0.377% | 0.305% | 0.000% |
| 53 | Oakland Co. Drain Comm. | 0.020% | 0.038% | 0.024% | 0.013% | 0.019% | 0.050% | 0.025% | 0.000% | 0.016% | 0.033% | 0.016% | 0.013% | 0.000% |
| 54 | Plymouth | 0.300% | 0.313% | 0.244% | 0.355% | 0.299% | 0.248% | 0.238% | 0.373% | 0.332% | 0.340% | 0.315% | 0.358% | 0.543% |
| 55 | Plymouth Township | 1.279% | 1.338% | 1.327% | 1.219% | 1.274% | 0.986% | 1.285% | 0.000% | 1.292% | 1.489% | 1.869% | 1.512% | 0.000% |
| 56 | Redford Township | 0.896% | 0.797% | 0.909% | 0.899% | 0.904% | 0.938% | 0.925% | 1.289% | 0.916% | 0.737% | 0.701% | 0.773% | 1.077% |
| 57 | River Rouge | 0.189% | 0.155% | 0.219% | 0.163% | 0.191% | 0.215% | 0.226% | 0.221% | 0.177% | 0.130% | 0.131% | 0.133% | 0.142% |
| 58 | Riverview | 0.239% | 0.208% | 0.215% | 0.269% | 0.242% | 0.245% | 0.219% | 0.456% | 0.275% | 0.193% | 0.166% | 0.207% | 0.381% |
| 59 | Rockwood | 0.078% | 0.059% | 0.072% | 0.086% | 0.079% | 0.059% | 0.073% | 0.071% | 0.096% | 0.060% | 0.071% | 0.072% | 0.077% |
| 60 | Romeo | 0.068% | 0.045% | 0.055% | 0.085% | 0.070% | 0.033% | 0.053% | 0.083% | 0.077% | 0.050% | 0.079% | 0.089% | 0.135% |
| 61 | Romulus | 1.149% | 1.113% | 1.152% | 1.151% | 1.152% | 1.137% | 1.158% | 0.957% | 1.235% | 1.102% | 1.081% | 1.063% | 0.987% |
| 62 | Roseville | 0.743% | 0.738% | 0.799% | 0.686% | 0.743% | 1.007% | 0.823% | 1.229% | 0.698% | 0.623% | 0.490% | 0.551% | 0.808% |
| 63 | Royal Oak Township | 0.056% | 0.054% | 0.059% | 0.052% | 0.056% | 0.065% | 0.060% | 0.081% | 0.050% | 0.049% | 0.044% | 0.048% | 0.065% |
| 64 | S O C W A | 6.517% | 7.340% | 7.720% | 5.151% | 6.449% | 7.092% | 7.714% | 0.000% | 5.504% | 7.446% | 7.805% | 6.315% | 0.000% |
| 65 | Shelby Township | 4.000% | 2.330% | 3.146% | 5.147% | 4.136% | 2.223% | 3.140% | 8.897% | 4.630% | 2.375% | 3.233% | 4.547% | 10.114% |
| 66 | South Rockwood | 0.032% | 0.029% | 0.024% | 0.040% | 0.032% | 0.029% | 0.024% | 0.056% | 0.041% | 0.030% | 0.024% | 0.031% | 0.061% |
| 67 | Southgate | 0.626% | 0.534% | 0.631% | 0.637% | 0.634% | 0.655% | 0.645% | 0.921% | 0.674% | 0.483% | 0.457% | 0.508% | 0.721% |
| 68 | St. Clair County-Burtchvill | 0.090% | 0.061% | 0.065% | 0.121% | 0.093% | 0.045% | 0.063% | 0.093% | 0.132% | 0.067% | 0.090% | 0.101% | 0.148% |
| 69 | St. Clair County-Greenwo | 0.119% | 0.138% | 0.106% | 0.130% | 0.118% | 0.085% | 0.100% | 0.000% | 0.146% | 0.161% | 0.182% | 0.147% | 0.000% |
| 70 | St. Clair Shores | 0.845% | 0.758% | 0.933% | 0.769% | 0.852% | 1.026% | 0.960% | 1.151% | 0.818% | 0.644% | 0.581% | 0.617% | 0.768% |
| 71 | Sterling Heights | 4.297% | 2.688% | 4.085% | 4.780% | 4.429% | 3.238% | 4.167% | 8.975% | 4.662% | 2.454% | 3.044% | 3.845% | 7.237% |
| 72 | Sumpter Township | 0.186% | 0.186% | 0.146% | 0.227% | 0.186% | 0.166% | 0.144% | 0.272% | 0.228% | 0.195% | 0.164% | 0.198% | 0.340% |
| 73 | Sylvan Lake | 0.065% | 0.059% | 0.048% | 0.084% | 0.066% | 0.037% | 0.045% | 0.091% | 0.064% | 0.069% | 0.081% | 0.100% | 0.181% |
| 74 | Taylor | 1.317% | 1.247% | 1.416% | 1.227% | 1.323% | 1.514% | 1.446% | 1.289% | 1.346% | 1.133% | 1.043% | 1.040% | 1.026% |
| 75 | Trenton | 0.457% | 0.421% | 0.424% | 0.497% | 0.460% | 0.488% | 0.432% | 0.746% | 0.519% | 0.391% | 0.333% | 0.391% | 0.636% |
| 76 | Troy | 3.868% | 3.033% | 3.460% | 4.424% | 3.937% | 2.692% | 3.425% | 5.983% | 3.876% | 3.178% | 3.897% | 4.587% | 7.514% |
| 77 | Utica | 0.162% | 0.134% | 0.152% | 0.175% | 0.164% | 0.144% | 0.154% | 0.253% | 0.172% | 0.130% | 0.134% | 0.155% | 0.243% |
| 78 | Van Buren Township | 0.947% | 0.836% | 0.904% | 1.010% | 0.956% | 0.731% | 0.893% | 0.585% | 1.092% | 0.881% | 1.037% | 0.982% | 0.749% |
| 79 | Walled Lake | 0.226% | 0.310% | 0.166% | 0.275% | 0.220% | 0.181% | 0.155% | 0.235% | 0.220% | 0.364% | 0.300% | 0.339% | 0.502% |
| 80 | Warren | 2.855% | 2.352% | 3.312% | 2.471% | 2.896% | 3.241% | 3.415% | 3.682% | 2.587% | 1.973% | 2.004% | 2.077% | 2.385% |
| 81 | Washington Township | 0.641% | 0.542% | 0.698% | 0.599% | 0.649% | 0.437% | 0.684% | 0.000% | 0.650% | 0.587% | 0.884% | 0.715% | 0.000% |
| 82 | Wayne | 0.843% | 0.472% | 1.021% | 0.722% | 0.873% | 0.504% | 1.030% | 0.000% | 0.857% | 0.459% | 0.904% | 0.731% | 0.000% |
| 83 | West Bloomfield Township | 2.951% | 2.403% | 2.088% | 3.924% | 2.996% | 1.553% | 1.984% | 4.833% | 2.991% | 2.765% | 3.404% | 4.501% | 9.151% |
| 84 | Westland | 1.737% | 1.788% | 1.626% | 1.841% | 1.733% | 1.873% | 1.638% | 2.301% | 1.870% | 1.751% | 1.476% | 1.631% | 2.289% |
| 85 | Wixom | 0.704% | 0.772% | 0.600% | 0.799% | 0.698% | 0.448% | 0.561% | 0.354% | 0.712% | 0.911% | 1.100% | 1.036% | 0.767% |
| 86 | Woodhaven | 0.476% | 0.311% | 0.411% | 0.569% | 0.489% | 0.338% | 0.416% | 0.865% | 0.587% | 0.300% | 0.355% | 0.443% | 0.815% |
| 87 | Ypsilanti Comm Util Auth | 2.954% | 3.928% | 2.890% | 2.857% | 2.874% | 2.980% | 2.808% | 0.000% | 3.231% | 4.332% | 3.934% | 3.183% | 0.000% |
| 88 | Total Suburban | 87.824% | 84.183% | 85.241% | 91.065% | 88.122% | 77.532% | 84.746% | 90.088% | 90.370% | 87.018% | 91.506% | 91.965% | 93.907% |
| 89 | Detroit Customers | 12.176% | 15.817% | 14.759% | 8.935% | 11.878% | 22.468% | 15.254% | 9.912% | 9.630% | 12.982% | 8.494% | 8.035% | 6.093% |
| 90 | 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% |

Table 8
Water Supply System

Allocation of FY 2020 *Wholesale Service* BUDGET to Customers - Common Cost Pools

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) |
|-----------------------------|--------------------|---------------------------|--------------------|--------------------|--------------------|------------------|--------------------|-----------------------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| BUDGET to Allocate: | 327,164,400 | 24,777,800 | 152,784,000 | 149,602,600 | 302,386,600 | 7,406,000 | 141,612,400 | 7,898,700 | 85,652,800 | 17,371,800 | 11,171,600 | 47,365,400 | 8,685,700 |
| | | Specific Cost Categories | | | | | | | | | | | |
| | | Summary by Major Category | | | | | Maximum | Peak | Peak | Commodity | Max Day | Peak Hour | Peak Hour Incr |
| ALLOCATED CTA BUDGET | Total | Commodity | Max Day | Peak Hour | Demand | Commodity | Day Usage | Hour Increment | Hour Distance | Distance-Elevation | Distance-Elevation | Distance-Elevation | Distance-Elevation |
| 1 Allen Park | 2,163,700 | 131,600 | 1,080,000 | 952,100 | 2,032,100 | 52,000 | 1,029,000 | 80,000 | 572,500 | 79,600 | 51,000 | 238,600 | 61,000 |
| 2 Almont Village | 208,000 | 20,000 | 85,500 | 102,500 | 188,000 | 3,900 | 75,500 | 1,500 | 60,600 | 16,100 | 10,000 | 37,400 | 3,000 |
| 3 Ash Township | 746,000 | 57,400 | 292,700 | 395,900 | 688,600 | 17,100 | 272,000 | 27,300 | 232,100 | 40,300 | 20,700 | 104,500 | 32,000 |
| 4 Belleville | 273,700 | 20,300 | 102,500 | 150,900 | 253,400 | 5,300 | 93,900 | 9,100 | 86,100 | 15,000 | 8,600 | 42,900 | 12,800 |
| 5 Berlin Township | 671,100 | 42,000 | 243,700 | 385,400 | 629,100 | 11,900 | 225,300 | 25,400 | 231,500 | 30,100 | 18,400 | 96,500 | 32,000 |
| 6 Brownstown Township | 3,364,200 | 184,300 | 1,330,800 | 1,849,100 | 3,179,900 | 59,900 | 1,246,900 | 152,700 | 1,085,800 | 124,400 | 83,900 | 452,500 | 158,100 |
| 7 Bruce Twp | 272,400 | 3,000 | 60,400 | 209,000 | 269,400 | 700 | 54,300 | 20,400 | 95,400 | 2,300 | 6,100 | 57,800 | 35,400 |
| 8 Canton Township | 9,459,200 | 651,700 | 4,511,800 | 4,295,700 | 8,807,500 | 153,100 | 4,081,000 | 36,400 | 2,660,800 | 498,600 | 430,800 | 1,539,400 | 59,100 |
| 9 Center Line | 420,100 | 29,800 | 214,100 | 176,200 | 390,300 | 12,300 | 204,600 | 17,100 | 101,700 | 17,500 | 9,500 | 45,200 | 12,200 |
| 10 Chesterfield Township | 3,848,000 | 219,200 | 1,702,200 | 1,926,600 | 3,628,800 | 70,400 | 1,593,100 | 118,200 | 1,180,000 | 148,800 | 109,100 | 503,900 | 124,500 |
| 11 Clinton Township | 6,978,400 | 443,400 | 3,747,900 | 2,787,100 | 6,535,000 | 166,600 | 3,556,400 | 116,300 | 1,817,100 | 276,800 | 191,500 | 757,300 | 96,400 |
| 12 Commerce Township | 3,303,900 | 258,000 | 1,367,800 | 1,678,100 | 3,045,900 | 44,900 | 1,185,300 | 37,800 | 831,300 | 213,100 | 182,500 | 719,400 | 89,600 |
| 13 Dearborn | 9,763,800 | 604,800 | 4,955,000 | 4,204,000 | 9,159,000 | 245,400 | 4,730,400 | 367,400 | 2,518,600 | 359,400 | 224,600 | 1,049,700 | 268,300 |
| 14 Dearborn Heights | 3,375,900 | 221,500 | 1,541,700 | 1,612,700 | 3,154,400 | 81,200 | 1,460,000 | 145,400 | 931,400 | 140,300 | 81,700 | 410,700 | 125,200 |
| 15 Eastpointe | 1,398,600 | 99,200 | 701,400 | 598,000 | 1,299,400 | 42,500 | 672,300 | 65,400 | 344,100 | 56,700 | 29,100 | 145,000 | 43,500 |
| 16 Ecorse | 1,366,200 | 137,500 | 742,300 | 486,400 | 1,228,700 | 55,800 | 708,700 | 21,800 | 316,700 | 81,700 | 33,600 | 132,000 | 15,900 |
| 17 Farmington | 935,000 | 79,800 | 451,700 | 403,500 | 855,200 | 19,700 | 411,100 | 7,300 | 234,500 | 60,100 | 40,600 | 150,700 | 11,000 |
| 18 Farmington Hills | 8,198,500 | 654,000 | 4,003,500 | 3,541,000 | 7,544,500 | 155,800 | 3,627,400 | 47,300 | 2,049,700 | 498,200 | 376,100 | 1,368,600 | 75,400 |
| 19 Ferndale | 909,200 | 69,200 | 528,800 | 311,200 | 840,000 | 27,100 | 503,500 | 10,900 | 196,200 | 42,100 | 25,300 | 95,700 | 8,400 |
| 20 Flat Rock | 1,282,500 | 88,800 | 526,200 | 667,500 | 1,193,700 | 27,800 | 491,300 | 43,600 | 406,700 | 61,000 | 34,900 | 169,500 | 47,700 |
| 21 Flint | 10,428,100 | 1,698,800 | 3,667,900 | 5,061,400 | 8,729,300 | 259,300 | 3,108,500 | 0 | 3,142,300 | 1,439,500 | 559,400 | 1,919,100 | 0 |
| 22 Fraser | 1,128,300 | 63,700 | 525,000 | 539,600 | 1,064,600 | 24,700 | 499,400 | 54,900 | 308,500 | 39,000 | 25,600 | 132,900 | 43,300 |
| 23 Garden City | 1,560,000 | 107,800 | 649,500 | 802,700 | 1,452,200 | 35,700 | 609,600 | 69,400 | 453,800 | 72,100 | 39,900 | 209,600 | 69,900 |
| 24 Gibraltar | 306,300 | 24,100 | 131,400 | 150,800 | 282,200 | 7,400 | 122,500 | 7,600 | 95,000 | 16,700 | 8,900 | 39,600 | 8,600 |
| 25 Grosse Ile Township | 1,007,100 | 49,000 | 388,900 | 569,200 | 958,100 | 16,500 | 365,600 | 54,500 | 325,500 | 32,500 | 23,300 | 135,700 | 53,500 |
| 26 Grosse Pt. Park | 1,387,100 | 53,800 | 662,100 | 671,200 | 1,333,300 | 23,300 | 635,100 | 89,800 | 368,900 | 30,500 | 27,000 | 153,800 | 58,700 |
| 27 Grosse Pt. Shores | 599,600 | 19,700 | 263,100 | 316,800 | 579,900 | 8,300 | 251,900 | 45,100 | 169,900 | 11,400 | 11,200 | 70,800 | 31,000 |
| 28 Grosse Pt. Woods | 1,290,000 | 60,600 | 734,600 | 494,800 | 1,229,400 | 25,500 | 703,200 | 31,300 | 312,000 | 35,100 | 31,400 | 130,000 | 21,500 |
| 29 Hamtramck | 684,100 | 54,700 | 337,100 | 292,300 | 629,400 | 23,000 | 322,700 | 35,300 | 158,200 | 31,700 | 14,400 | 74,600 | 24,200 |
| 30 Harper Woods | 768,700 | 51,300 | 394,000 | 323,400 | 717,400 | 21,900 | 377,600 | 32,700 | 189,700 | 29,400 | 16,400 | 79,100 | 21,900 |
| 31 Harrison Township | 1,399,400 | 105,900 | 718,100 | 575,400 | 1,293,500 | 38,500 | 679,600 | 25,400 | 372,500 | 67,400 | 38,500 | 155,300 | 22,200 |
| 32 Hazel Park | 647,700 | 49,900 | 324,300 | 273,500 | 597,800 | 19,800 | 309,100 | 26,900 | 153,000 | 30,100 | 15,200 | 73,300 | 20,300 |
| 33 Highland Park | 1,056,200 | 101,700 | 639,100 | 315,400 | 954,500 | 41,400 | 610,300 | 2,800 | 209,600 | 60,300 | 28,800 | 101,000 | 2,000 |
| 34 Huron Township | 1,358,600 | 87,800 | 611,800 | 659,000 | 1,270,800 | 26,200 | 568,400 | 29,400 | 410,300 | 61,600 | 43,400 | 184,700 | 34,600 |
| 35 Imlay City | 1,292,600 | 121,800 | 493,500 | 677,300 | 1,170,800 | 19,000 | 420,000 | 4,700 | 394,500 | 102,800 | 73,500 | 265,400 | 12,700 |
| 36 Imlay Twp | 9,600 | 400 | 2,300 | 6,900 | 9,200 | 100 | 2,000 | 400 | 3,400 | 300 | 300 | 2,100 | 1,000 |
| 37 Inkster | 1,095,700 | 109,200 | 493,700 | 492,800 | 986,500 | 36,700 | 464,000 | 32,700 | 292,500 | 72,500 | 29,700 | 135,400 | 32,200 |
| 38 Keego Harbor | 269,300 | 22,500 | 94,700 | 152,100 | 246,800 | 4,200 | 83,000 | 8,000 | 68,200 | 18,300 | 11,700 | 58,400 | 17,500 |
| 39 Lapeer | 1,422,800 | 160,300 | 413,600 | 848,900 | 1,262,500 | 25,700 | 353,600 | 28,400 | 463,800 | 134,600 | 60,000 | 282,700 | 74,000 |
| 40 Lenox Township | 249,300 | 20,400 | 103,900 | 125,000 | 228,900 | 6,200 | 96,700 | 7,100 | 76,900 | 14,200 | 7,200 | 33,000 | 8,000 |
| 41 Lincoln Park | 1,994,900 | 145,000 | 1,049,400 | 800,500 | 1,849,900 | 58,300 | 1,001,200 | 54,500 | 498,000 | 86,700 | 48,200 | 207,600 | 40,400 |
| 42 Livonia | 10,648,200 | 706,800 | 4,531,500 | 5,409,900 | 9,941,400 | 205,400 | 4,199,300 | 363,500 | 3,003,400 | 501,400 | 332,200 | 1,600,400 | 442,600 |
| 43 Macomb Township | 11,788,400 | 425,200 | 4,669,900 | 6,693,300 | 11,363,200 | 140,200 | 4,381,200 | 621,700 | 3,794,800 | 285,000 | 288,700 | 1,646,500 | 630,300 |
| 44 Madison Heights | 1,777,900 | 125,700 | 904,000 | 748,200 | 1,652,200 | 49,400 | 860,900 | 63,600 | 436,700 | 76,300 | 43,100 | 198,900 | 49,000 |
| 45 Mayfield Twp | 34,800 | 2,400 | 9,100 | 23,300 | 32,400 | 400 | 7,800 | 1,100 | 12,100 | 2,000 | 1,300 | 7,300 | 2,800 |
| 46 Melvindale | 573,900 | 42,700 | 287,300 | 243,900 | 531,200 | 17,400 | 274,400 | 21,800 | 145,600 | 25,300 | 12,900 | 60,700 | 15,800 |

Table 8
Water Supply System

Allocation of FY 2020 *Wholesale Service* BUDGET to Customers - Common Cost Pools

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) |
|-------------------------------|--------------------|---------------------------|--------------------|--------------------|--------------------|------------------|--------------------|-----------------------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| BUDGET to Allocate: | 327,164,400 | 24,777,800 | 152,784,000 | 149,602,600 | 302,386,600 | 7,406,000 | 141,612,400 | 7,898,700 | 85,652,800 | 17,371,800 | 11,171,600 | 47,365,400 | 8,685,700 |
| | | Specific Cost Categories | | | | | | | | | | | |
| | | Summary by Major Category | | | | | Maximum | Peak | Peak | Commodity | Max Day | Peak Hour | Peak Hour Incr |
| ALLOCATED CTA BUDGET | Total | Commodity | Max Day | Peak Hour | Demand | Commodity | Day Usage | Hour Increment | Hour Distance | Distance-Elevation | Distance-Elevation | Distance-Elevation | Distance-Elevation |
| 47 New Haven, Village of | 367,200 | 34,100 | 127,300 | 205,800 | 333,100 | 10,700 | 118,900 | 18,200 | 118,000 | 23,400 | 8,400 | 49,700 | 19,900 |
| 48 N O C W A | 20,406,600 | 1,920,500 | 9,300,100 | 9,186,000 | 18,486,100 | 385,200 | 8,236,100 | 145,400 | 4,800,600 | 1,535,300 | 1,064,000 | 3,950,900 | 289,100 |
| 49 Northville | 811,300 | 64,500 | 320,900 | 425,900 | 746,800 | 13,400 | 285,500 | 17,100 | 220,800 | 51,100 | 35,400 | 155,400 | 32,600 |
| 50 Northville Township | 5,235,200 | 295,400 | 2,023,200 | 2,916,600 | 4,939,800 | 60,100 | 1,795,500 | 138,100 | 1,447,100 | 235,300 | 227,700 | 1,061,800 | 269,600 |
| 51 Novi | 8,338,100 | 709,100 | 3,556,100 | 4,072,900 | 7,629,000 | 128,000 | 3,100,000 | 72,700 | 2,099,500 | 581,100 | 456,100 | 1,736,100 | 164,600 |
| 52 Oak Park | 1,270,000 | 108,700 | 746,900 | 414,400 | 1,161,300 | 38,200 | 704,800 | 0 | 269,900 | 70,500 | 42,100 | 144,500 | 0 |
| 53 Oakland Co. Drain Comm. | 66,500 | 9,400 | 37,100 | 20,000 | 57,100 | 3,700 | 35,300 | 0 | 14,000 | 5,700 | 1,800 | 6,000 | 0 |
| 54 Plymouth | 980,800 | 77,500 | 372,600 | 530,700 | 903,300 | 18,400 | 337,500 | 29,400 | 284,400 | 59,100 | 35,100 | 169,700 | 47,200 |
| 55 Plymouth Township | 4,183,000 | 331,600 | 2,028,100 | 1,823,300 | 3,851,400 | 73,000 | 1,819,300 | 0 | 1,107,000 | 258,600 | 208,800 | 716,300 | 0 |
| 56 Redford Township | 2,931,200 | 197,500 | 1,388,100 | 1,345,600 | 2,733,700 | 69,500 | 1,309,800 | 101,800 | 784,300 | 128,000 | 78,300 | 365,900 | 93,600 |
| 57 River Rouge | 617,300 | 38,400 | 334,600 | 244,300 | 578,900 | 15,900 | 319,900 | 17,500 | 151,400 | 22,500 | 14,700 | 63,100 | 12,300 |
| 58 Riverview | 783,400 | 51,600 | 329,200 | 402,600 | 731,800 | 18,100 | 310,600 | 36,000 | 235,400 | 33,500 | 18,600 | 98,100 | 33,100 |
| 59 Rockwood | 254,000 | 14,700 | 110,700 | 128,600 | 239,300 | 4,300 | 102,800 | 5,600 | 82,100 | 10,400 | 7,900 | 34,200 | 6,700 |
| 60 Romeo | 222,300 | 11,100 | 84,300 | 126,900 | 211,200 | 2,400 | 75,500 | 6,500 | 66,400 | 8,700 | 8,800 | 42,300 | 11,700 |
| 61 Romulus | 3,758,200 | 275,700 | 1,760,200 | 1,722,300 | 3,482,500 | 84,200 | 1,639,400 | 75,600 | 1,057,400 | 191,500 | 120,800 | 503,600 | 85,700 |
| 62 Roseville | 2,429,600 | 182,800 | 1,220,500 | 1,026,300 | 2,246,800 | 74,600 | 1,165,700 | 97,100 | 598,000 | 108,200 | 54,800 | 261,000 | 70,200 |
| 63 Royal Oak Township | 181,800 | 13,400 | 90,400 | 78,000 | 168,400 | 4,800 | 85,500 | 6,400 | 43,100 | 8,600 | 4,900 | 22,800 | 5,700 |
| 64 S O C W A | 21,319,800 | 1,818,700 | 11,795,600 | 7,705,500 | 19,501,100 | 525,200 | 10,923,600 | 0 | 4,714,200 | 1,293,500 | 872,000 | 2,991,300 | 0 |
| 65 Shelby Township | 13,085,100 | 577,200 | 4,807,300 | 7,700,600 | 12,507,900 | 164,600 | 4,446,100 | 702,700 | 3,965,800 | 412,600 | 361,200 | 2,153,600 | 878,500 |
| 66 South Rockwood | 103,300 | 7,300 | 36,400 | 59,600 | 96,000 | 2,100 | 33,700 | 4,400 | 35,200 | 5,200 | 2,700 | 14,700 | 5,300 |
| 67 Southgate | 2,049,100 | 132,300 | 964,000 | 952,800 | 1,916,800 | 48,500 | 912,900 | 72,700 | 577,000 | 83,800 | 51,100 | 240,500 | 62,600 |
| 68 St. Clair County-Burtchvil | 294,900 | 15,000 | 98,900 | 181,000 | 279,900 | 3,300 | 88,800 | 7,300 | 112,900 | 11,700 | 10,100 | 48,000 | 12,800 |
| 69 St. Clair County-Greenwo | 390,900 | 34,300 | 161,900 | 194,700 | 356,600 | 6,300 | 141,500 | 0 | 124,900 | 28,000 | 20,400 | 69,800 | 0 |
| 70 St. Clair Shores | 2,763,100 | 187,800 | 1,425,000 | 1,150,300 | 2,575,300 | 76,000 | 1,360,100 | 90,900 | 700,700 | 111,800 | 64,900 | 292,000 | 66,700 |
| 71 Sterling Heights | 14,059,200 | 666,100 | 6,241,400 | 7,151,700 | 13,393,100 | 239,800 | 5,901,300 | 708,900 | 3,993,200 | 426,300 | 340,100 | 1,821,000 | 628,600 |
| 72 Sumpter Township | 608,400 | 46,200 | 222,800 | 339,400 | 562,200 | 12,300 | 204,500 | 21,400 | 194,900 | 33,900 | 18,300 | 93,600 | 29,500 |
| 73 Sylvan Lake | 213,400 | 14,700 | 73,000 | 125,700 | 198,700 | 2,700 | 63,900 | 7,200 | 55,200 | 12,000 | 9,100 | 47,600 | 15,700 |
| 74 Taylor | 4,309,100 | 308,900 | 2,164,100 | 1,836,100 | 4,000,200 | 112,100 | 2,047,600 | 101,800 | 1,152,600 | 196,800 | 116,500 | 492,600 | 89,100 |
| 75 Trenton | 1,496,400 | 104,200 | 648,400 | 743,800 | 1,392,200 | 36,200 | 611,200 | 58,900 | 444,500 | 68,000 | 37,200 | 185,200 | 55,200 |
| 76 Troy | 12,655,800 | 751,500 | 5,286,100 | 6,618,200 | 11,904,300 | 199,400 | 4,850,800 | 472,600 | 3,320,200 | 552,100 | 435,300 | 2,172,800 | 652,600 |
| 77 Utica | 528,400 | 33,300 | 232,900 | 262,200 | 495,100 | 10,700 | 217,900 | 20,000 | 147,700 | 22,600 | 15,000 | 73,400 | 21,100 |
| 78 Van Buren Township | 3,099,300 | 207,200 | 1,380,400 | 1,511,700 | 2,892,100 | 54,100 | 1,264,500 | 46,200 | 935,100 | 153,100 | 115,900 | 465,300 | 65,100 |
| 79 Walled Lake | 740,800 | 76,700 | 253,000 | 411,100 | 664,100 | 13,400 | 219,500 | 18,500 | 188,600 | 63,300 | 33,500 | 160,400 | 43,600 |
| 80 Warren | 9,340,100 | 582,800 | 5,060,100 | 3,697,200 | 8,757,300 | 240,000 | 4,836,200 | 290,800 | 2,215,600 | 342,800 | 223,900 | 983,600 | 207,200 |
| 81 Washington Township | 2,097,300 | 134,300 | 1,067,000 | 896,000 | 1,963,000 | 32,400 | 968,200 | 0 | 557,100 | 101,900 | 98,800 | 338,900 | 0 |
| 82 Wayne | 2,757,400 | 117,000 | 1,559,600 | 1,080,800 | 2,640,400 | 37,300 | 1,458,700 | 0 | 734,500 | 79,700 | 100,900 | 346,300 | 0 |
| 83 West Bloomfield Township | 9,655,600 | 595,300 | 3,189,900 | 5,870,400 | 9,060,300 | 115,000 | 2,809,700 | 381,700 | 2,562,000 | 480,300 | 380,200 | 2,131,800 | 794,900 |
| 84 Westland | 5,682,500 | 442,900 | 2,484,800 | 2,754,800 | 5,239,600 | 138,700 | 2,319,900 | 181,800 | 1,601,500 | 304,200 | 164,900 | 772,700 | 198,800 |
| 85 Wixom | 2,303,400 | 191,400 | 917,100 | 1,194,900 | 2,112,000 | 33,200 | 794,200 | 28,000 | 609,500 | 158,200 | 122,900 | 490,800 | 66,600 |
| 86 Woodhaven | 1,556,900 | 77,100 | 628,200 | 851,600 | 1,479,800 | 25,100 | 588,600 | 68,300 | 502,900 | 52,000 | 39,600 | 209,600 | 70,800 |
| 87 Ypsilanti Comm Util Auth | 9,663,600 | 973,300 | 4,415,600 | 4,274,700 | 8,690,300 | 220,700 | 3,976,100 | 0 | 2,767,100 | 752,600 | 439,500 | 1,507,600 | 0 |
| 88 Total Suburban | 287,327,300 | 20,858,200 | 130,233,600 | 136,235,500 | 266,469,100 | 5,741,500 | 120,011,200 | 7,115,400 | 77,404,200 | 15,116,700 | 10,222,400 | 43,559,700 | 8,156,200 |
| 89 Detroit Customers | 39,835,700 | 3,919,100 | 22,549,900 | 13,366,700 | 35,916,600 | 1,664,000 | 21,601,000 | 782,900 | 8,248,600 | 2,255,100 | 948,900 | 3,806,000 | 529,200 |
| 90 GRAND TOTAL | 327,163,000 | 24,777,300 | 152,783,500 | 149,602,200 | 302,385,700 | 7,405,500 | 141,612,200 | 7,898,300 | 85,652,800 | 17,371,800 | 11,171,300 | 47,365,700 | 8,685,400 |

Table 9
Water Supply System
Calculation of FY 2020 SHARE's - Suburban Only Cost Pools

| | | (1) | (2) | (3) | (4) | (5) |
|-----------------------------|-----------------------|-----------------------------------|-------------------------------|--|--|--|
| | | Allocated CTA <u>BUDGET</u> | Wholesale Master Meters | Allocated Unadjusted <u>BUDGET</u> | Allocation of BUDGET <u>Adjustment</u> | Suburban Wholesale <u>SHAREs</u> |
| SUB WHOLESALE SHAREs | | | | | | |
| 1 | Allen Park | 0.753% | 1.372% | 0.762% | 0.762% | 0.781% |
| 2 | Almont Village | 0.072% | 0.170% | 0.074% | 0.074% | 0.076% |
| 3 | Ash Township | 0.260% | 0.236% | 0.259% | 0.259% | 0.266% |
| 4 | Belleville | 0.095% | 0.170% | 0.096% | 0.096% | 0.099% |
| 5 | Berlin Township | 0.234% | 0.312% | 0.235% | 0.235% | 0.241% |
| 6 | Brownstown Township | 1.171% | 0.773% | 1.165% | 1.165% | 1.195% |
| 7 | Bruce Twp | 0.095% | 0.170% | 0.096% | 0.096% | 0.098% |
| 8 | Canton Township | 3.292% | 2.616% | 3.283% | 3.283% | 3.367% |
| 9 | Center Line | 0.146% | 0.229% | 0.147% | 0.147% | 0.151% |
| 10 | Chesterfield Township | 1.339% | 1.072% | 1.336% | 1.336% | 1.370% |
| 11 | Clinton Township | 2.429% | 1.800% | 2.420% | 2.420% | 2.482% |
| 12 | Commerce Township | 1.150% | 0.769% | 1.145% | 1.145% | 1.174% |
| 13 | Dearborn | 3.398% | 0.004% | 3.352% | 3.352% | 3.438% |
| 14 | Dearborn Heights | 1.175% | 0.912% | 1.171% | 1.171% | 1.201% |
| 15 | Eastpointe | 0.487% | 1.497% | 0.501% | 0.501% | 0.513% |
| 16 | Ecorse | 0.475% | 0.421% | 0.475% | 0.475% | 0.487% |
| 17 | Farmington | 0.325% | 0.466% | 0.327% | 0.327% | 0.336% |
| 18 | Farmington Hills | 2.853% | 4.070% | 2.870% | 2.870% | 2.943% |
| 19 | Ferndale | 0.316% | 0.839% | 0.324% | 0.324% | 0.332% |
| 20 | Flat Rock | 0.446% | 0.347% | 0.445% | 0.445% | 0.456% |
| 21 | Flint | 3.629% | 5.321% | 3.653% | 3.653% | 1.537% |
| 22 | Fraser | 0.393% | 0.437% | 0.393% | 0.393% | 0.403% |
| 23 | Garden City | 0.543% | 0.726% | 0.545% | 0.545% | 0.559% |
| 24 | Gibraltar | 0.107% | 0.260% | 0.109% | 0.109% | 0.111% |
| 25 | Grosse Ile Township | 0.351% | 0.591% | 0.354% | 0.354% | 0.363% |
| 26 | Grosse Pt. Park | 0.483% | 0.430% | 0.482% | 0.482% | 0.494% |
| 27 | Grosse Pt. Shores | 0.209% | 0.418% | 0.212% | 0.212% | 0.217% |
| 28 | Grosse Pt. Woods | 0.449% | 0.681% | 0.452% | 0.452% | 0.464% |
| 29 | Hamtramck | 0.238% | 0.972% | 0.248% | 0.248% | 0.254% |
| 30 | Harper Woods | 0.268% | 0.528% | 0.271% | 0.271% | 0.278% |
| 31 | Harrison Township | 0.487% | 0.650% | 0.489% | 0.489% | 0.502% |
| 32 | Hazel Park | 0.225% | 0.795% | 0.233% | 0.233% | 0.239% |
| 33 | Highland Park | 0.368% | 0.739% | 0.373% | 0.373% | 0.000% |
| 34 | Huron Township | 0.473% | 0.411% | 0.472% | 0.472% | 0.484% |
| 35 | Imlay City | 0.450% | 0.229% | 0.447% | 0.447% | 0.458% |
| 36 | Imlay Twp | 0.003% | 0.118% | 0.005% | 0.005% | 0.005% |
| 37 | Inkster | 0.381% | 0.655% | 0.385% | 0.385% | 0.395% |
| 38 | Keego Harbor | 0.094% | 0.182% | 0.095% | 0.095% | 0.097% |
| 39 | Lapeer | 0.495% | 0.591% | 0.496% | 0.496% | 0.509% |
| 40 | Lenox Township | 0.087% | 0.591% | 0.094% | 0.094% | 0.096% |
| 41 | Lincoln Park | 0.694% | 1.202% | 0.701% | 0.701% | 0.719% |
| 42 | Livonia | 3.706% | 3.526% | 3.703% | 3.703% | 3.798% |
| 43 | Macomb Township | 4.103% | 1.500% | 4.067% | 4.067% | 4.171% |
| 44 | Madison Heights | 0.619% | 1.116% | 0.626% | 0.626% | 0.641% |

Table 9
Water Supply System
Calculation of FY 2020 SHARE's - Suburban Only Cost Pools

| | (1) | (2) | (3) | (4) | (5) | |
|-----------------------------|-----------------------------------|-------------------------------|--|--|--|---------|
| | Allocated CTA <u>BUDGET</u> | Wholesale Master Meters | Allocated Unadjusted <u>BUDGET</u> | Allocation of BUDGET <u>Adjustment</u> | Suburban Wholesale <u>SHAREs</u> | |
| SUB WHOLESALe SHAREs | | | | | | |
| 45 | Mayfield Twp | 0.012% | 0.229% | 0.015% | 0.015% | 0.015% |
| 46 | Melvindale | 0.200% | 0.776% | 0.208% | 0.208% | 0.213% |
| 47 | New Haven, Village of | 0.128% | 0.118% | 0.128% | 0.128% | 0.131% |
| 48 | N O C W A | 7.102% | 7.645% | 7.110% | 7.110% | 7.290% |
| 49 | Northville | 0.282% | 0.312% | 0.283% | 0.283% | 0.290% |
| 50 | Northville Township | 1.822% | 0.770% | 1.808% | 1.808% | 1.854% |
| 51 | Novi | 2.902% | 2.714% | 2.899% | 2.899% | 2.973% |
| 52 | Oak Park | 0.442% | 0.421% | 0.442% | 0.442% | 0.453% |
| 53 | Oakland Co. Drain Comm. | 0.023% | 0.170% | 0.025% | 0.025% | 0.026% |
| 54 | Plymouth | 0.341% | 0.300% | 0.341% | 0.341% | 0.349% |
| 55 | Plymouth Township | 1.456% | 0.466% | 1.442% | 1.442% | 1.479% |
| 56 | Redford Township | 1.020% | 1.878% | 1.032% | 1.032% | 1.058% |
| 57 | River Rouge | 0.215% | 0.637% | 0.221% | 0.221% | 0.226% |
| 58 | Riverview | 0.273% | 0.192% | 0.272% | 0.272% | 0.278% |
| 59 | Rockwood | 0.088% | 0.130% | 0.089% | 0.089% | 0.091% |
| 60 | Romeo | 0.077% | 0.229% | 0.079% | 0.079% | 0.081% |
| 61 | Romulus | 1.308% | 1.358% | 1.309% | 1.309% | 1.342% |
| 62 | Roseville | 0.846% | 1.308% | 0.852% | 0.852% | 0.873% |
| 63 | Royal Oak Township | 0.063% | 0.216% | 0.065% | 0.065% | 0.067% |
| 64 | S O C W A | 7.420% | 7.387% | 7.420% | 7.420% | 7.608% |
| 65 | Shelby Township | 4.554% | 1.842% | 4.517% | 4.517% | 4.633% |
| 66 | South Rockwood | 0.036% | 0.130% | 0.037% | 0.037% | 0.038% |
| 67 | Southgate | 0.713% | 0.534% | 0.711% | 0.711% | 0.729% |
| 68 | St. Clair County-Burtchvill | 0.103% | 0.155% | 0.103% | 0.103% | 0.106% |
| 69 | St. Clair County-Greenwo | 0.136% | 0.610% | 0.143% | 0.143% | 0.146% |
| 70 | St. Clair Shores | 0.962% | 1.831% | 0.974% | 0.974% | 0.998% |
| 71 | Sterling Heights | 4.893% | 4.693% | 4.890% | 4.890% | 5.015% |
| 72 | Sumpter Township | 0.212% | 0.229% | 0.212% | 0.212% | 0.217% |
| 73 | Sylvan Lake | 0.074% | 0.118% | 0.075% | 0.075% | 0.077% |
| 74 | Taylor | 1.500% | 1.593% | 1.501% | 1.501% | 1.539% |
| 75 | Trenton | 0.521% | 1.751% | 0.538% | 0.538% | 0.551% |
| 76 | Troy | 4.405% | 3.766% | 4.396% | 4.396% | 4.508% |
| 77 | Utica | 0.184% | 0.229% | 0.185% | 0.185% | 0.189% |
| 78 | Van Buren Township | 1.079% | 1.611% | 1.086% | 1.086% | 1.113% |
| 79 | Walled Lake | 0.258% | 0.170% | 0.257% | 0.257% | 0.263% |
| 80 | Warren | 3.251% | 2.230% | 3.237% | 3.237% | 3.319% |
| 81 | Washington Township | 0.730% | 0.411% | 0.726% | 0.726% | 0.744% |
| 82 | Wayne | 0.960% | 0.887% | 0.959% | 0.959% | 0.983% |
| 83 | West Bloomfield Township | 3.360% | 2.897% | 3.354% | 3.354% | 3.440% |
| 84 | Westland | 1.978% | 2.845% | 1.990% | 1.990% | 2.040% |
| 85 | Wixom | 0.802% | 0.229% | 0.794% | 0.794% | 0.814% |
| 86 | Woodhaven | 0.542% | 0.288% | 0.538% | 0.538% | 0.552% |
| 87 | Ypsilanti Comm Util Auth | 3.363% | 2.779% | 3.355% | 3.355% | 3.441% |
| 88 | Total Suburban | 100.000% | 100.000% | 100.000% | 100.000% | 99.954% |

Table 10
Water Supply System
Allocation of FY 2020 *Wholesale Service* BUDGET to Customers - Suburban Only Cost Pools and Adjustments

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|----------------------------|----------------------|---------------------------------------|-----------------------------|--|---------------------------|---------------------------------------|---------------------------|--|--|
| BUDGET to Allocate: | | 3,997,200 | | 20,700,000 | | 6,652,200 | | 1,185,000 | |
| | Allocated CTA BUDGET | Suburban Only Wholesale Master Meters | Allocated Unadjusted BUDGET | Allocation of Ownership Benefit Adjustment | Adjusted Allocated BUDGET | Allocation of KWA Debt Service Credit | Adjusted Allocated BUDGET | Allocation of Highland Park Bad Debt Expense | Final Adjusted BUDGET Required from Chgs |
| 1 Allen Park | 2,163,700 | 54,800 | 2,218,500 | 157,600 | 2,376,100 | 45,400 | 2,421,500 | 7,900 | 2,429,400 |
| 2 Almont Village | 208,000 | 6,800 | 214,800 | 15,300 | 230,100 | 4,400 | 234,500 | 800 | 235,300 |
| 3 Ash Township | 746,000 | 9,500 | 755,500 | 53,700 | 809,200 | 15,700 | 824,900 | 2,700 | 827,600 |
| 4 Belleville | 273,700 | 6,800 | 280,500 | 19,900 | 300,400 | 5,700 | 306,100 | 1,000 | 307,100 |
| 5 Berlin Township | 671,100 | 12,500 | 683,600 | 48,600 | 732,200 | 14,100 | 746,300 | 2,400 | 748,700 |
| 6 Brownstown Township | 3,364,200 | 30,900 | 3,395,100 | 241,200 | 3,636,300 | 70,700 | 3,707,000 | 12,200 | 3,719,200 |
| 7 Bruce Twp | 272,400 | 6,800 | 279,200 | 19,800 | 299,000 | 5,700 | 304,700 | 1,000 | 305,700 |
| 8 Canton Township | 9,459,200 | 104,600 | 9,563,800 | 679,600 | 10,243,400 | 198,700 | 10,442,100 | 34,400 | 10,476,500 |
| 9 Center Line | 420,100 | 9,200 | 429,300 | 30,500 | 459,800 | 8,800 | 468,600 | 1,500 | 470,100 |
| 10 Chesterfield Township | 3,848,000 | 42,800 | 3,890,800 | 276,500 | 4,167,300 | 80,800 | 4,248,100 | 14,000 | 4,262,100 |
| 11 Clinton Township | 6,978,400 | 72,000 | 7,050,400 | 501,000 | 7,551,400 | 146,600 | 7,698,000 | 25,400 | 7,723,400 |
| 12 Commerce Township | 3,303,900 | 30,700 | 3,334,600 | 236,900 | 3,571,500 | 69,400 | 3,640,900 | 12,000 | 3,652,900 |
| 13 Dearborn | 9,763,800 | 200 | 9,764,000 | 693,800 | 10,457,800 | 205,100 | 10,662,900 | 35,500 | 10,698,400 |
| 14 Dearborn Heights | 3,375,900 | 36,500 | 3,412,400 | 242,500 | 3,654,900 | 70,900 | 3,725,800 | 12,300 | 3,738,100 |
| 15 Eastpointe | 1,398,600 | 59,800 | 1,458,400 | 103,600 | 1,562,000 | 29,400 | 1,591,400 | 5,100 | 1,596,500 |
| 16 Ecorse | 1,366,200 | 16,800 | 1,383,000 | 98,300 | 1,481,300 | 28,700 | 1,510,000 | 5,000 | 1,515,000 |
| 17 Farmington | 935,000 | 18,600 | 953,600 | 67,800 | 1,021,400 | 19,600 | 1,041,000 | 3,400 | 1,044,400 |
| 18 Farmington Hills | 8,198,500 | 162,700 | 8,361,200 | 594,100 | 8,955,300 | 172,200 | 9,127,500 | 29,800 | 9,157,300 |
| 19 Ferndale | 909,200 | 33,600 | 942,800 | 67,000 | 1,009,800 | 19,100 | 1,028,900 | 3,300 | 1,032,200 |
| 20 Flat Rock | 1,282,500 | 13,900 | 1,296,400 | 92,100 | 1,388,500 | 26,900 | 1,415,400 | 4,700 | 1,420,100 |
| 21 Flint | 10,428,100 | 212,700 | 10,640,800 | 756,100 | 11,396,900 | (6,652,200) | 4,744,700 | 37,900 | 4,782,600 |
| 22 Fraser | 1,128,300 | 17,500 | 1,145,800 | 81,400 | 1,227,200 | 23,700 | 1,250,900 | 4,100 | 1,255,000 |
| 23 Garden City | 1,560,000 | 29,000 | 1,589,000 | 112,900 | 1,701,900 | 32,800 | 1,734,700 | 5,700 | 1,740,400 |
| 24 Gibraltar | 306,300 | 10,400 | 316,700 | 22,500 | 339,200 | 6,400 | 345,600 | 1,100 | 346,700 |
| 25 Grosse Ile Township | 1,007,100 | 23,600 | 1,030,700 | 73,200 | 1,103,900 | 21,200 | 1,125,100 | 3,700 | 1,128,800 |
| 26 Grosse Pt. Park | 1,387,100 | 17,200 | 1,404,300 | 99,800 | 1,504,100 | 29,100 | 1,533,200 | 5,000 | 1,538,200 |
| 27 Grosse Pt. Shores | 599,600 | 16,700 | 616,300 | 43,800 | 660,100 | 12,600 | 672,700 | 2,200 | 674,900 |
| 28 Grosse Pt. Woods | 1,290,000 | 27,200 | 1,317,200 | 93,600 | 1,410,800 | 27,100 | 1,437,900 | 4,700 | 1,442,600 |
| 29 Hamtramck | 684,100 | 38,900 | 723,000 | 51,400 | 774,400 | 14,400 | 788,800 | 2,500 | 791,300 |
| 30 Harper Woods | 768,700 | 21,100 | 789,800 | 56,100 | 845,900 | 16,100 | 862,000 | 2,800 | 864,800 |
| 31 Harrison Township | 1,399,400 | 26,000 | 1,425,400 | 101,300 | 1,526,700 | 29,400 | 1,556,100 | 5,100 | 1,561,200 |
| 32 Hazel Park | 647,700 | 31,800 | 679,500 | 48,300 | 727,800 | 13,600 | 741,400 | 2,400 | 743,800 |
| 33 Highland Park | 1,056,200 | 29,500 | 1,085,700 | 77,100 | 1,162,800 | 22,200 | 1,185,000 | (1,185,000) | 0 |
| 34 Huron Township | 1,358,600 | 16,400 | 1,375,000 | 97,700 | 1,472,700 | 28,500 | 1,501,200 | 4,900 | 1,506,100 |
| 35 Imlay City | 1,292,600 | 9,200 | 1,301,800 | 92,500 | 1,394,300 | 27,100 | 1,421,400 | 4,700 | 1,426,100 |
| 36 Imlay Twp | 9,600 | 4,700 | 14,300 | 1,000 | 15,300 | 200 | 15,500 | 0 | 15,500 |
| 37 Inkster | 1,095,700 | 26,200 | 1,121,900 | 79,700 | 1,201,600 | 23,000 | 1,224,600 | 4,000 | 1,228,600 |
| 38 Keego Harbor | 269,300 | 7,300 | 276,600 | 19,700 | 296,300 | 5,700 | 302,000 | 1,000 | 303,000 |
| 39 Lapeer | 1,422,800 | 23,600 | 1,446,400 | 102,800 | 1,549,200 | 29,900 | 1,579,100 | 5,200 | 1,584,300 |
| 40 Lenox Township | 249,300 | 23,600 | 272,900 | 19,400 | 292,300 | 5,200 | 297,500 | 900 | 298,400 |
| 41 Lincoln Park | 1,994,900 | 48,000 | 2,042,900 | 145,200 | 2,188,100 | 41,900 | 2,230,000 | 7,200 | 2,237,200 |
| 42 Livonia | 10,648,200 | 141,000 | 10,789,200 | 766,600 | 11,555,800 | 223,600 | 11,779,400 | 38,700 | 11,818,100 |
| 43 Macomb Township | 11,788,400 | 60,000 | 11,848,400 | 841,900 | 12,690,300 | 247,600 | 12,937,900 | 42,800 | 12,980,700 |
| 44 Madison Heights | 1,777,900 | 44,600 | 1,822,500 | 129,500 | 1,952,000 | 37,300 | 1,989,300 | 6,500 | 1,995,800 |
| 45 Mayfield Twp | 34,800 | 9,200 | 44,000 | 3,100 | 47,100 | 700 | 47,800 | 100 | 47,900 |
| 46 Melvindale | 573,900 | 31,000 | 604,900 | 43,000 | 647,900 | 12,100 | 660,000 | 2,100 | 662,100 |
| 47 New Haven, Village of | 367,200 | 4,700 | 371,900 | 26,400 | 398,300 | 7,700 | 406,000 | 1,300 | 407,300 |
| 48 N O C W A | 20,406,600 | 305,600 | 20,712,200 | 1,471,700 | 22,183,900 | 428,600 | 22,612,500 | 74,200 | 22,686,700 |
| 49 Northville | 811,300 | 12,500 | 823,800 | 58,500 | 882,300 | 17,000 | 899,300 | 2,900 | 902,200 |
| 50 Northville Township | 5,235,200 | 30,800 | 5,266,000 | 374,200 | 5,640,200 | 110,000 | 5,750,200 | 19,000 | 5,769,200 |
| 51 Novi | 8,338,100 | 108,500 | 8,446,600 | 600,200 | 9,046,800 | 175,100 | 9,221,900 | 30,300 | 9,252,200 |
| 52 Oak Park | 1,270,000 | 16,800 | 1,286,800 | 91,400 | 1,378,200 | 26,700 | 1,404,900 | 4,600 | 1,409,500 |
| 53 Oakland Co. Drain Comm. | 66,500 | 6,800 | 73,300 | 5,200 | 78,500 | 1,400 | 79,900 | 200 | 80,100 |
| 54 Plymouth | 980,800 | 12,000 | 992,800 | 70,500 | 1,063,300 | 20,600 | 1,083,900 | 3,600 | 1,087,500 |
| 55 Plymouth Township | 4,183,000 | 18,600 | 4,201,600 | 298,500 | 4,500,100 | 87,900 | 4,588,000 | 15,200 | 4,603,200 |
| 56 Redford Township | 2,931,200 | 75,100 | 3,006,300 | 213,600 | 3,219,900 | 61,600 | 3,281,500 | 10,700 | 3,292,200 |
| 57 River Rouge | 617,300 | 25,500 | 642,800 | 45,700 | 688,500 | 13,000 | 701,500 | 2,200 | 703,700 |

Table 10
Water Supply System
Allocation of FY 2020 *Wholesale Service* BUDGET to Customers - Suburban Only Cost Pools and Adjustments

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|--------------------------------|----------------------|-------------------------|-----------------------------|--|---------------------------|---------------------------------------|---------------------------|--|---------------------------|
| BUDGET to Allocate: | | 3,997,200 | | 20,700,000 | | 6,652,200 | | 1,185,000 | |
| | | Suburban Only | | | | | | | Final Adjusted |
| | Allocated CTA BUDGET | Wholesale Master Meters | Allocated Unadjusted BUDGET | Allocation of Ownership Benefit Adjustment | Adjusted Allocated BUDGET | Allocation of KWA Debt Service Credit | Adjusted Allocated BUDGET | Allocation of Highland Park Bad Debt Expense | BUDGET Required from Chgs |
| 58 Riverview | 783,400 | 7,700 | 791,100 | 56,200 | 847,300 | 16,500 | 863,800 | 2,800 | 866,600 |
| 59 Rockwood | 254,000 | 5,200 | 259,200 | 18,400 | 277,600 | 5,300 | 282,900 | 900 | 283,800 |
| 60 Romeo | 222,300 | 9,200 | 231,500 | 16,400 | 247,900 | 4,700 | 252,600 | 800 | 253,400 |
| 61 Romulus | 3,758,200 | 54,300 | 3,812,500 | 270,900 | 4,083,400 | 78,900 | 4,162,300 | 13,700 | 4,176,000 |
| 62 Roseville | 2,429,600 | 52,300 | 2,481,900 | 176,400 | 2,658,300 | 51,000 | 2,709,300 | 8,800 | 2,718,100 |
| 63 Royal Oak Township | 181,800 | 8,600 | 190,400 | 13,500 | 203,900 | 3,800 | 207,700 | 700 | 208,400 |
| 64 S O C W A | 21,319,800 | 295,300 | 21,615,100 | 1,535,900 | 23,151,000 | 447,800 | 23,598,800 | 77,500 | 23,676,300 |
| 65 Shelby Township | 13,085,100 | 73,600 | 13,158,700 | 935,000 | 14,093,700 | 274,800 | 14,368,500 | 47,500 | 14,416,000 |
| 66 South Rockwood | 103,300 | 5,200 | 108,500 | 7,700 | 116,200 | 2,200 | 118,400 | 400 | 118,800 |
| 67 Southgate | 2,049,100 | 21,300 | 2,070,400 | 147,100 | 2,217,500 | 43,000 | 2,260,500 | 7,400 | 2,267,900 |
| 68 St. Clair County-Burtchvill | 294,900 | 6,200 | 301,100 | 21,400 | 322,500 | 6,200 | 328,700 | 1,100 | 329,800 |
| 69 St. Clair County-Greenwo | 390,900 | 24,400 | 415,300 | 29,500 | 444,800 | 8,200 | 453,000 | 1,400 | 454,400 |
| 70 St. Clair Shores | 2,763,100 | 73,200 | 2,836,300 | 201,500 | 3,037,800 | 58,000 | 3,095,800 | 10,000 | 3,105,800 |
| 71 Sterling Heights | 14,059,200 | 187,600 | 14,246,800 | 1,012,300 | 15,259,100 | 295,300 | 15,554,400 | 51,100 | 15,605,500 |
| 72 Sumpster Township | 608,400 | 9,200 | 617,600 | 43,900 | 661,500 | 12,800 | 674,300 | 2,200 | 676,500 |
| 73 Sylvan Lake | 213,400 | 4,700 | 218,100 | 15,500 | 233,600 | 4,500 | 238,100 | 800 | 238,900 |
| 74 Taylor | 4,309,100 | 63,700 | 4,372,800 | 310,700 | 4,683,500 | 90,500 | 4,774,000 | 15,700 | 4,789,700 |
| 75 Trenton | 1,496,400 | 70,000 | 1,566,400 | 111,300 | 1,677,700 | 31,400 | 1,709,100 | 5,400 | 1,714,500 |
| 76 Troy | 12,655,800 | 150,500 | 12,806,300 | 909,900 | 13,716,200 | 265,800 | 13,982,000 | 46,000 | 14,028,000 |
| 77 Utica | 528,400 | 9,200 | 537,600 | 38,200 | 575,800 | 11,100 | 586,900 | 1,900 | 588,800 |
| 78 Van Buren Township | 3,099,300 | 64,400 | 3,163,700 | 224,800 | 3,388,500 | 65,100 | 3,453,600 | 11,300 | 3,464,900 |
| 79 Walled Lake | 740,800 | 6,800 | 747,600 | 53,100 | 800,700 | 15,600 | 816,300 | 2,700 | 819,000 |
| 80 Warren | 9,340,100 | 89,100 | 9,429,200 | 670,000 | 10,099,200 | 196,200 | 10,295,400 | 33,900 | 10,329,300 |
| 81 Washington Township | 2,097,300 | 16,400 | 2,113,700 | 150,200 | 2,263,900 | 44,000 | 2,307,900 | 7,600 | 2,315,500 |
| 82 Wayne | 2,757,400 | 35,400 | 2,792,800 | 198,400 | 2,991,200 | 57,900 | 3,049,100 | 10,000 | 3,059,100 |
| 83 West Bloomfield Township | 9,655,600 | 115,800 | 9,771,400 | 694,300 | 10,465,700 | 202,800 | 10,668,500 | 35,100 | 10,703,600 |
| 84 Westland | 5,682,500 | 113,700 | 5,796,200 | 411,800 | 6,208,000 | 119,300 | 6,327,300 | 20,600 | 6,347,900 |
| 85 Wixom | 2,303,400 | 9,200 | 2,312,600 | 164,300 | 2,476,900 | 48,400 | 2,525,300 | 8,400 | 2,533,700 |
| 86 Woodhaven | 1,556,900 | 11,500 | 1,568,400 | 111,400 | 1,679,800 | 32,700 | 1,712,500 | 5,700 | 1,718,200 |
| 87 Ypsilanti Comm Util Auth | 9,663,600 | 111,100 | 9,774,700 | 694,500 | 10,469,200 | 203,000 | 10,672,200 | 35,100 | 10,707,300 |
| 88 Total Suburban | 287,327,300 | 3,997,600 | 291,324,900 | 20,699,800 | 312,024,700 | (836,500) | 311,188,200 | (144,600) | 311,043,600 |
| 89 Detroit Customers | 39,835,700 | 0 | 39,835,700 | (20,700,000) | 19,135,700 | 836,600 | 19,972,300 | 144,800 | 20,117,100 |
| 90 GRAND TOTAL | 327,163,000 | 3,997,600 | 331,160,600 | (200) | 331,160,400 | 100 | 331,160,500 | 200 | 331,160,700 |

Table 11
Water Supply System
Calculation of FY 2020 Wholesale Water Service Charge Schedule

| | (1) | (2) | (3) | (4) | (5) | (6) | |
|----|--|------------------|------------------|------------------------|--------------------------|------------------|-------|
| | Adjusted Allocated <u>BUDGET</u> | Recover Via | | Sales <u>Volume</u> | Proposed Service Charges | | |
| | | <u>Fixed Mo</u> | <u>Commodity</u> | <u>Mcf</u> | <u>Fixed Mo</u> | <u>Commodity</u> | |
| | | <i>\$/mo</i> | <i>\$/Mcf</i> | | <i>\$/mo</i> | <i>\$/Mcf</i> | |
| | | 60% | 40% | | (2) / 12 | (3) / (4) | |
| 1 | Allen Park | 2,429,400 | 1,457,600 | 971,800 | 130,800 | 121,500 | 7.43 |
| 2 | Almont Village | 235,300 | 141,200 | 94,100 | 9,000 | 11,800 | 10.46 |
| 3 | Ash Township | 827,600 | 496,600 | 331,000 | 41,000 | 41,400 | 8.07 |
| 4 | Belleville | 307,100 | 184,300 | 122,800 | 12,600 | 15,400 | 9.75 |
| 5 | Berlin Township | 748,700 | 449,200 | 299,500 | 27,900 | 37,400 | 10.73 |
| 6 | Brownstown Township | 3,719,200 | 2,231,500 | 1,487,700 | 144,400 | 186,000 | 10.30 |
| 7 | Bruce Twp | 305,700 | 183,400 | 122,300 | 1,610 | 15,300 | 75.96 |
| 8 | Canton Township | 10,476,500 | 6,285,900 | 4,190,600 | 361,700 | 523,800 | 11.59 |
| 9 | Center Line | 470,100 | 282,100 | 188,000 | 31,300 | 23,500 | 6.01 |
| 10 | Chesterfield Township | 4,262,100 | 2,557,300 | 1,704,800 | 169,900 | 213,100 | 10.03 |
| 11 | Clinton Township | 7,723,400 | 4,634,000 | 3,089,400 | 414,400 | 386,200 | 7.46 |
| 12 | Commerce Township | 3,652,900 | 2,191,700 | 1,461,200 | 106,400 | 182,600 | 13.73 |
| 13 | Dearborn | 10,698,400 | 6,419,000 | 4,279,400 | 619,800 | 534,900 | 6.90 |
| 14 | Dearborn Heights | 3,738,100 | 2,242,900 | 1,495,200 | 202,500 | 186,900 | 7.38 |
| 15 | Eastpointe | 1,596,500 | 957,900 | 638,600 | 108,700 | 79,800 | 5.87 |
| 16 | Ecorse | 1,515,000 | 909,000 | 606,000 | 140,800 | 75,800 | 4.30 |
| 17 | Farmington | 1,044,400 | 626,600 | 417,800 | 47,900 | 52,200 | 8.72 |
| 18 | Farmington Hills | 9,157,300 | 5,494,400 | 3,662,900 | 377,700 | 457,900 | 9.70 |
| 19 | Ferndale | 1,032,200 | 619,300 | 412,900 | 69,300 | 51,600 | 5.96 |
| 20 | Flat Rock | 1,420,100 | 852,100 | 568,000 | 66,500 | 71,000 | 8.54 |
| 21 | Flint (a) | 4,782,600 | 2,869,600 | 1,913,000 | 553,900 | 239,100 | 3.45 |
| 22 | Fraser | 1,255,000 | 753,000 | 502,000 | 62,000 | 62,800 | 8.10 |
| 23 | Garden City | 1,740,400 | 1,044,200 | 696,200 | 87,700 | 87,000 | 7.94 |
| 24 | Gibraltar | 346,700 | 208,000 | 138,700 | 17,700 | 17,300 | 7.84 |
| 25 | Grosse Ile Township | 1,128,800 | 677,300 | 451,500 | 40,200 | 56,400 | 11.23 |
| 26 | Grosse Pt. Park | 1,538,200 | 922,900 | 615,300 | 59,500 | 76,900 | 10.34 |
| 27 | Grosse Pt. Shores | 674,900 | 404,900 | 270,000 | 21,000 | 33,700 | 12.86 |
| 28 | Grosse Pt. Woods | 1,442,600 | 865,600 | 577,000 | 64,900 | 72,100 | 8.89 |
| 29 | Hamtramck | 791,300 | 474,800 | 316,500 | 59,300 | 39,600 | 5.34 |
| 30 | Harper Woods | 864,800 | 518,900 | 345,900 | 55,900 | 43,200 | 6.19 |
| 31 | Harrison Township | 1,561,200 | 936,700 | 624,500 | 95,200 | 78,100 | 6.56 |
| 32 | Hazel Park | 743,800 | 446,300 | 297,500 | 50,700 | 37,200 | 5.87 |
| 33 | Highland Park (b) | 1,185,000 | 711,000 | 474,000 | 106,200 | 59,300 | 4.46 |
| 34 | Huron Township | 1,506,100 | 903,700 | 602,400 | 62,600 | 75,300 | 9.62 |
| 35 | Imlay City | 1,426,100 | 855,700 | 570,400 | 41,900 | 71,300 | 13.61 |
| 36 | Imlay Twp | 15,500 | 9,300 | 6,200 | 170 | 800 | 36.47 |
| 37 | Inkster | 1,228,600 | 737,200 | 491,400 | 90,500 | 61,400 | 5.43 |
| 38 | Keego Harbor | 303,000 | 181,800 | 121,200 | 10,100 | 15,200 | 12.00 |
| 39 | Lapeer | 1,584,300 | 950,600 | 633,700 | 55,700 | 79,200 | 11.38 |
| 40 | Lenox Township | 298,400 | 179,000 | 119,400 | 14,800 | 14,900 | 8.07 |
| 41 | Lincoln Park | 2,237,200 | 1,342,300 | 894,900 | 147,100 | 111,900 | 6.08 |
| 42 | Livonia | 11,818,100 | 7,090,900 | 4,727,200 | 501,400 | 590,900 | 9.43 |
| 43 | Macomb Township | 12,980,700 | 7,788,400 | 5,192,300 | 341,100 | 649,000 | 15.22 |
| 44 | Madison Heights | 1,995,800 | 1,197,500 | 798,300 | 125,300 | 99,800 | 6.37 |
| 45 | Mayfield Twp | 47,900 | 28,700 | 19,200 | 830 | 2,400 | 23.13 |
| 46 | Melvindale | 662,100 | 397,300 | 264,800 | 44,100 | 33,100 | 6.00 |
| 47 | New Haven, Village of | 407,300 | 244,400 | 162,900 | 25,500 | 20,400 | 6.39 |
| 48 | N O C W A | 22,686,700 | 13,612,000 | 9,074,700 | 932,500 | 1,134,300 | 9.73 |

Table 11
Water Supply System
Calculation of FY 2020 Wholesale Water Service Charge Schedule

| | (1) | (2) | (3) | (4) | (5) | (6) | |
|----|---------------------------------|-------------|-------------|-----------------|--------------------------|-----------|-------|
| | Adjusted Allocated BUDGET | Recover Via | | Sales Volume | Proposed Service Charges | | |
| | | Fixed Mo | Commodity | Mcf | Fixed Mo | Commodity | |
| | | \$/mo | \$/Mcf | | \$/mo | \$/Mcf | |
| | | 60% | 40% | | (2) / 12 | (3) / (4) | |
| 49 | Northville | 902,200 | 541,300 | 360,900 | 31,700 | 45,100 | 11.38 |
| 50 | Northville Township | 5,769,200 | 3,461,500 | 2,307,700 | 143,400 | 288,500 | 16.09 |
| 51 | Novi | 9,252,200 | 5,551,300 | 3,700,900 | 303,700 | 462,600 | 12.19 |
| 52 | Oak Park | 1,409,500 | 845,700 | 563,800 | 96,800 | 70,500 | 5.82 |
| 53 | Oakland Co. Drain Comm. | 80,100 | 48,100 | 32,000 | 9,400 | 4,000 | 3.40 |
| 54 | Plymouth | 1,087,500 | 652,500 | 435,000 | 43,800 | 54,400 | 9.93 |
| 55 | Plymouth Township | 4,603,200 | 2,761,900 | 1,841,300 | 173,400 | 230,200 | 10.62 |
| 56 | Redford Township | 3,292,200 | 1,975,300 | 1,316,900 | 173,000 | 164,600 | 7.61 |
| 57 | River Rouge | 703,700 | 422,200 | 281,500 | 40,400 | 35,200 | 6.97 |
| 58 | Riverview | 866,600 | 520,000 | 346,600 | 44,500 | 43,300 | 7.79 |
| 59 | Rockwood | 283,800 | 170,300 | 113,500 | 10,200 | 14,200 | 11.13 |
| 60 | Romeo | 253,400 | 152,000 | 101,400 | 5,700 | 12,700 | 17.79 |
| 61 | Romulus | 4,176,000 | 2,505,600 | 1,670,400 | 204,400 | 208,800 | 8.17 |
| 62 | Roseville | 2,718,100 | 1,630,900 | 1,087,200 | 189,600 | 135,900 | 5.73 |
| 63 | Royal Oak Township | 208,400 | 125,000 | 83,400 | 12,300 | 10,400 | 6.78 |
| 64 | S O C W A | 23,676,300 | 14,205,800 | 9,470,500 | 1,310,900 | 1,183,800 | 7.22 |
| 65 | Shelby Township | 14,416,000 | 8,649,600 | 5,766,400 | 401,400 | 720,800 | 14.37 |
| 66 | South Rockwood | 118,800 | 71,300 | 47,500 | 5,000 | 5,900 | 9.50 |
| 67 | Southgate | 2,267,900 | 1,360,700 | 907,200 | 120,100 | 113,400 | 7.55 |
| 68 | St. Clair County-Burtchvill | 329,800 | 197,900 | 131,900 | 7,300 | 16,500 | 18.07 |
| 69 | St. Clair County-Greenwo | 454,400 | 272,600 | 181,800 | 13,900 | 22,700 | 13.08 |
| 70 | St. Clair Shores | 3,105,800 | 1,863,500 | 1,242,300 | 191,800 | 155,300 | 6.48 |
| 71 | Sterling Heights | 15,605,500 | 9,363,300 | 6,242,200 | 598,200 | 780,300 | 10.43 |
| 72 | Sumpter Township | 676,500 | 405,900 | 270,600 | 28,900 | 33,800 | 9.36 |
| 73 | Sylvan Lake | 238,900 | 143,300 | 95,600 | 6,600 | 11,900 | 14.48 |
| 74 | Taylor | 4,789,700 | 2,873,800 | 1,915,900 | 277,800 | 239,500 | 6.90 |
| 75 | Trenton | 1,714,500 | 1,028,700 | 685,800 | 88,500 | 85,700 | 7.75 |
| 76 | Troy | 14,028,000 | 8,416,800 | 5,611,200 | 492,100 | 701,400 | 11.40 |
| 77 | Utica | 588,800 | 353,300 | 235,500 | 26,300 | 29,400 | 8.95 |
| 78 | Van Buren Township | 3,464,900 | 2,078,900 | 1,386,000 | 127,700 | 173,200 | 10.85 |
| 79 | Walled Lake | 819,000 | 491,400 | 327,600 | 31,800 | 41,000 | 10.30 |
| 80 | Warren | 10,329,300 | 6,197,600 | 4,131,700 | 612,300 | 516,500 | 6.75 |
| 81 | Washington Township | 2,315,500 | 1,389,300 | 926,200 | 77,600 | 115,800 | 11.94 |
| 82 | Wayne | 3,059,100 | 1,835,500 | 1,223,600 | 91,200 | 153,000 | 13.42 |
| 83 | West Bloomfield Township | 10,703,600 | 6,422,200 | 4,281,400 | 277,000 | 535,200 | 15.46 |
| 84 | Westland | 6,347,900 | 3,808,700 | 2,539,200 | 338,900 | 317,400 | 7.49 |
| 85 | Wixom | 2,533,700 | 1,520,200 | 1,013,500 | 77,600 | 126,700 | 13.06 |
| 86 | Woodhaven | 1,718,200 | 1,030,900 | 687,300 | 60,400 | 85,900 | 11.38 |
| 87 | Ypsilanti Comm Util Auth | 10,707,300 | 6,424,400 | 4,282,900 | 511,600 | 535,400 | 8.37 |
| 88 | Total Suburban | 312,228,600 | 187,337,200 | 124,891,400 | 14,009,210 | 179,400 | 8.91 |
| 89 | Detroit Customers (c) | 20,117,100 | | | | | |
| 90 | GRAND TOTAL | 332,345,700 | | | | | |

(a) Represents Flint's "net" wholesale revenue requirement after credit for KWA debt service. "Gross" revenue requirement 11,434,800

(b) Highland Park's charges are calculated to bill full allocated revenue requirement, irrespective of payment assumptions.

(c) Represents Detroit's "net" wholesale revenue requirement after Ownership Benefit credit. "Gross" revenue requirement 40,817,100

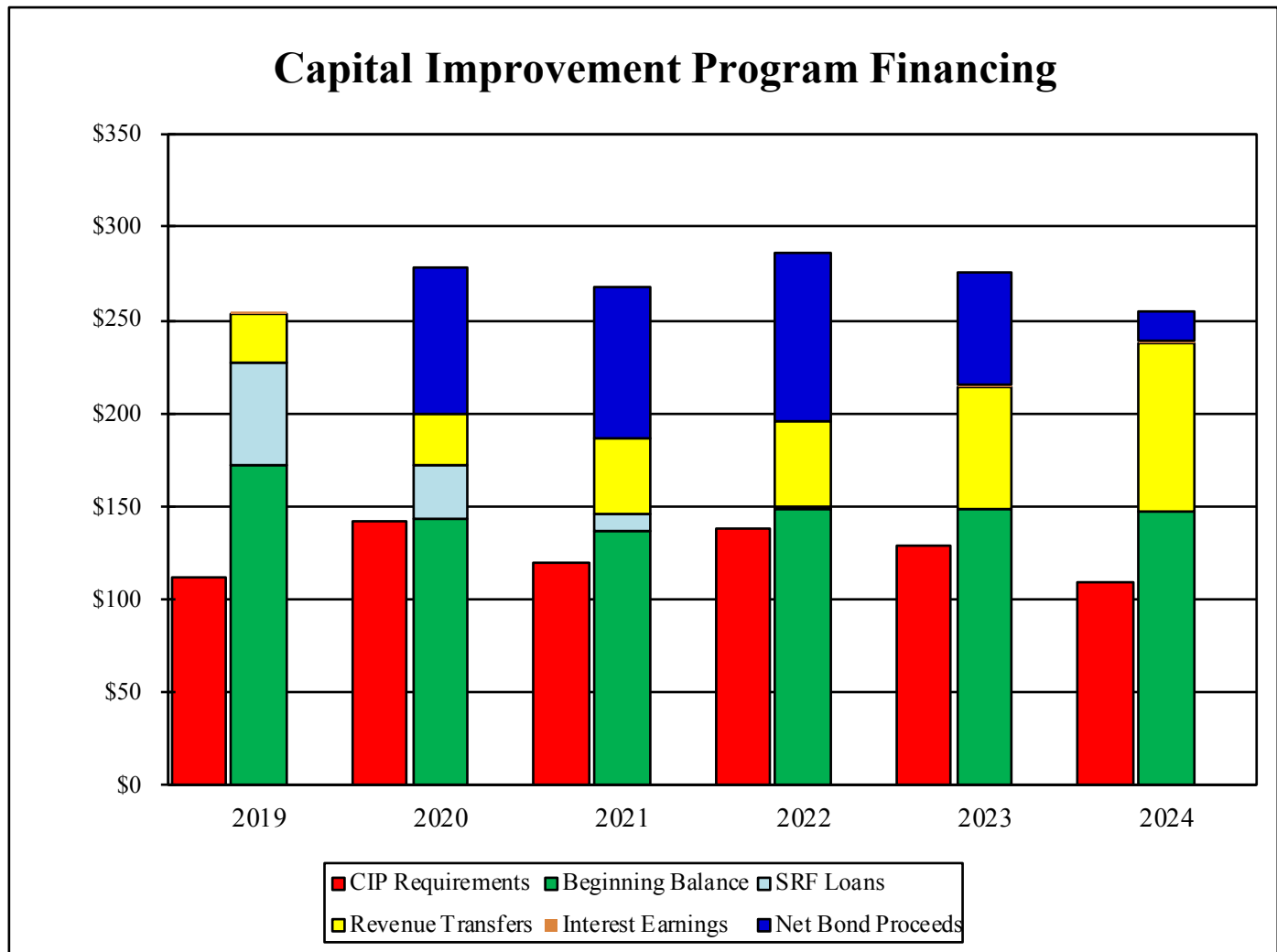
Table 1
Executive Summary of FY 2020 BUDGET Request Comparison (\$ millions)

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
|---|----------------|----------------|---------------|----------------|----------------|----------------|---------------|----------------|----------------|----------------|---------------|----------------|
| | Water System | | | | Sewer System | | | | Total GLWA | | | |
| <u>Annual BUDGET</u> | <u>FY 2019</u> | <u>FY 2020</u> | <u>Change</u> | <u>%Change</u> | <u>FY 2019</u> | <u>FY 2020</u> | <u>Change</u> | <u>%Change</u> | <u>FY 2019</u> | <u>FY 2020</u> | <u>Change</u> | <u>%Change</u> |
| 1 Operation and Maintenance Expense | 121.6 | 133.5 | 11.9 | 9.8% | 191.1 | 188.0 | (3.1) | -1.6% | 312.6 | 321.5 | 8.8 | 2.8% |
| 2 Master Bond Ordinance Commitments | 170.7 | 174.1 | 3.4 | 2.0% | 266.9 | 268.1 | 1.2 | 0.5% | 437.6 | 442.3 | 4.6 | 1.1% |
| 3 Deposit to I&E (and other reserve) Funds | 39.1 | 34.1 | (5.1) | -12.9% | 12.2 | 26.7 | 14.5 | 119.7% | 51.3 | 60.8 | 9.5 | 18.5% |
| 4 TOTAL BUDGET | 331.4 | 341.7 | 10.3 | 3.1% | 470.2 | 482.8 | 12.7 | 2.7% | 801.6 | 824.5 | 22.9 | 2.9% |
| <u>less: "Non Customer" Revenue</u> | | | | | | | | | | | | |
| 5 Investment Earnings & Miscellaneous | (3.8) | (9.1) | (5.2) | 136.8% | (4.6) | (8.7) | (4.2) | 91.0% | (8.4) | (17.8) | (9.4) | 111.9% |
| 6 Subtotal Revenue Requirement "Offsets" | (3.8) | (9.1) | (5.2) | 136.8% | (4.6) | (8.7) | (4.2) | 91.0% | (8.4) | (17.8) | (9.4) | 111.9% |
| 7 Preliminary Revenue Req't from Charges | 327.6 | 332.6 | 5.0 | 1.5% | 465.6 | 474.1 | 8.5 | 1.8% | 793.1 | 806.7 | 13.5 | 1.7% |
| 8 plus: Expected "System" Bad Debt | 1.4 | 1.2 | (0.2) | -13.4% | 2.8 | 2.3 | (0.5) | -18.7% | 4.2 | 3.5 | (0.7) | -16.9% |
| 9 Revenue Required from Charges | 328.9 | 333.8 | 4.9 | 1.5% | 468.4 | 476.4 | 8.0 | 1.7% | 797.3 | 810.2 | 12.8 | 1.6% |
| 10 Suburban Wholesale Bad Debt True Up | | | | | 1.9 | 0.0 | (1.9) | -100.0% | 1.9 | 0.0 | (1.9) | -100.0% |
| 11 Adjusted Revenue Required from Charges | 328.9 | 333.8 | 4.9 | 1.5% | 470.2 | 476.4 | 6.1 | 1.3% | 799.2 | 810.2 | 11.0 | 1.4% |
| 12 Proforma Billed Revenue - Existing Charges | 328.9 | 329.7 | 0.8 | 0.2% | 470.0 | 470.2 | 0.3 | 0.1% | 799.2 | 799.9 | 0.8 | 0.1% |
| 13 Charge Revenue Adjustment Needed | | 4.1 | | | | 6.1 | | | | 10.2 | | |
| 14 % Charge Revenue Adjustment Needed | | 1.2% | | | | 1.3% | | | | 1.3% | | |
| <u>Charge Adjustment Illustration</u> | | | | | | | | | | | | |
| <u>Proforma Revenue - Existing Charges</u> | | | | | | | | | | | | |
| 15 Revenue from Charges | 328.9 | 329.7 | 0.8 | -0.2% | 470.0 | 470.2 | 0.3 | -0.1% | 799.2 | 799.9 | 0.8 | -0.1% |
| 16 Investment Earnings & Miscellaneous | 3.8 | 9.1 | 5.2 | -1.6% | 4.6 | 8.7 | 4.2 | -0.9% | 8.4 | 17.8 | 9.4 | -1.2% |
| 17 Expected Bad Debt Expense | (1.4) | (1.2) | 0.2 | -0.1% | (4.7) | (2.3) | 2.4 | -0.5% | (6.0) | (3.5) | 2.6 | -0.3% |
| 18 Net Proforma Revenue Comparison | 331.4 | 337.6 | 6.2 | | 469.9 | 476.7 | 6.8 | | 801.6 | 814.3 | 12.7 | |
| 19 Adjustment to Address Revenue Variance | | | | -1.9% | | | | -1.5% | | | | -1.6% |
| 20 Adjustment to Address BUDGET Variance (Line 4) | | | | 3.1% | | | | 2.7% | | | | 2.9% |
| 21 Average Charge Adjustment | | | * | 1.2% | | | | 1.3% | | | * | 1.3% |
| 22 * Average Charge Adjustment for Existing Customers | | | | 0.8% | | | | 1.3% | | | | 1.1% |

TFG

THE FOSTER GROUP

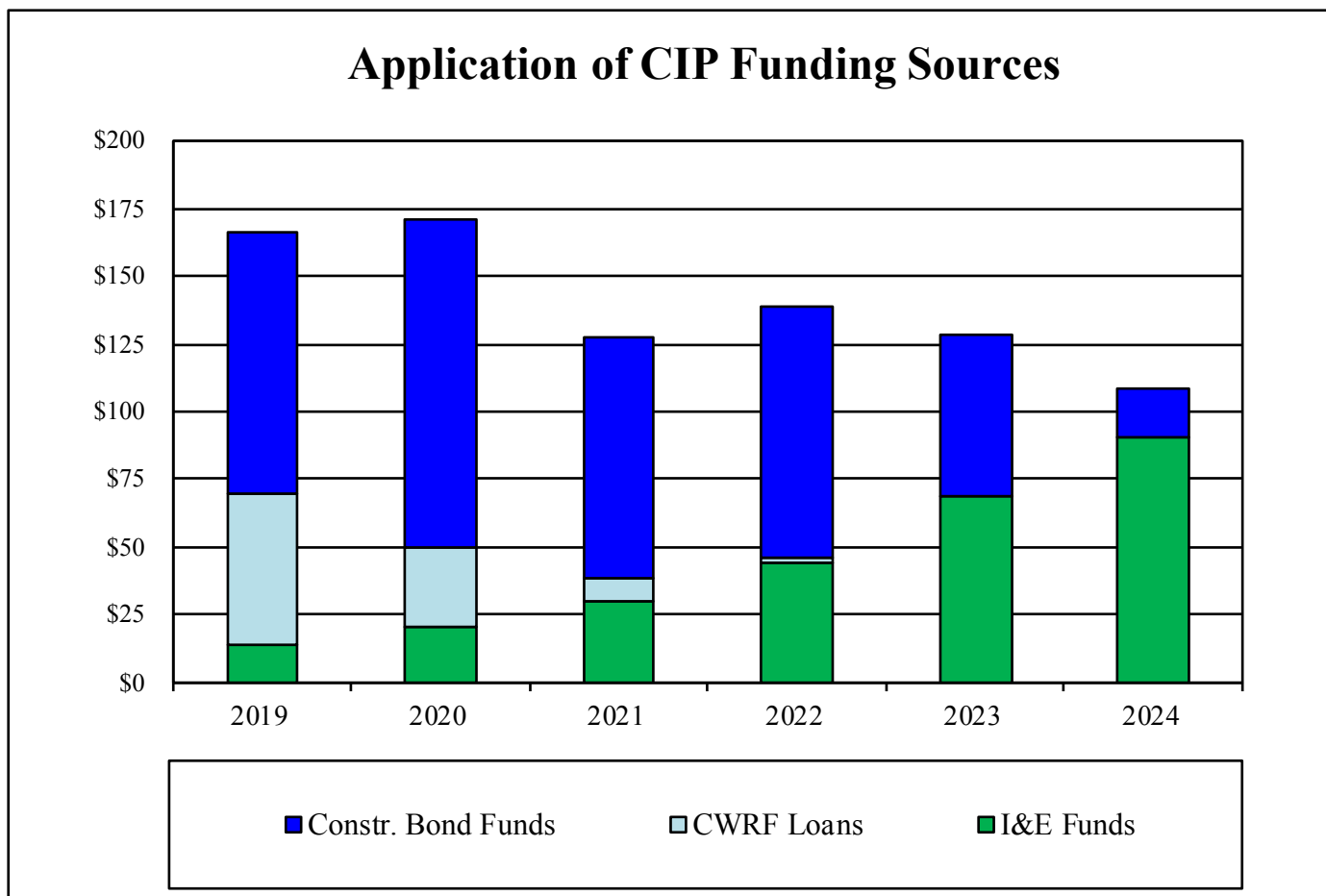
Table 2
GLWA Sewer System Financial Plan Summary (\$ millions)



| | <u>2019</u> | <u>2020</u> | <u>2021</u> | <u>2022</u> | <u>2023</u> | <u>2024</u> |
|-----------------|-------------|-------------|-------------|-------------|-------------|-------------|
| CIP Req't | 111.1 | 141.2 | 119.2 | 137.3 | 128.4 | 108.5 |
| <u>Sources</u> | | | | | | |
| Begin Balance | 171.4 | 143.2 | 137.0 | 148.5 | 148.9 | 146.8 |
| Bond Sale | | 84.0 | 87.0 | 96.0 | 64.0 | 18.0 |
| less: DWSD CIP | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| less: Issue Exp | | (5.0) | (5.2) | (5.8) | (3.8) | (1.1) |
| SRF Loans | 55.2 | 29.3 | 8.3 | 1.3 | 0.0 | 0.0 |
| Revenue Xfers | 26.3 | 26.7 | 40.5 | 46.0 | 65.6 | 90.6 |
| Total Sources | 252.9 | 278.2 | 267.5 | 286.1 | 274.6 | 254.3 |
| End Balance | 141.8 | 136.9 | 148.3 | 148.8 | 146.3 | 145.8 |

Table 2

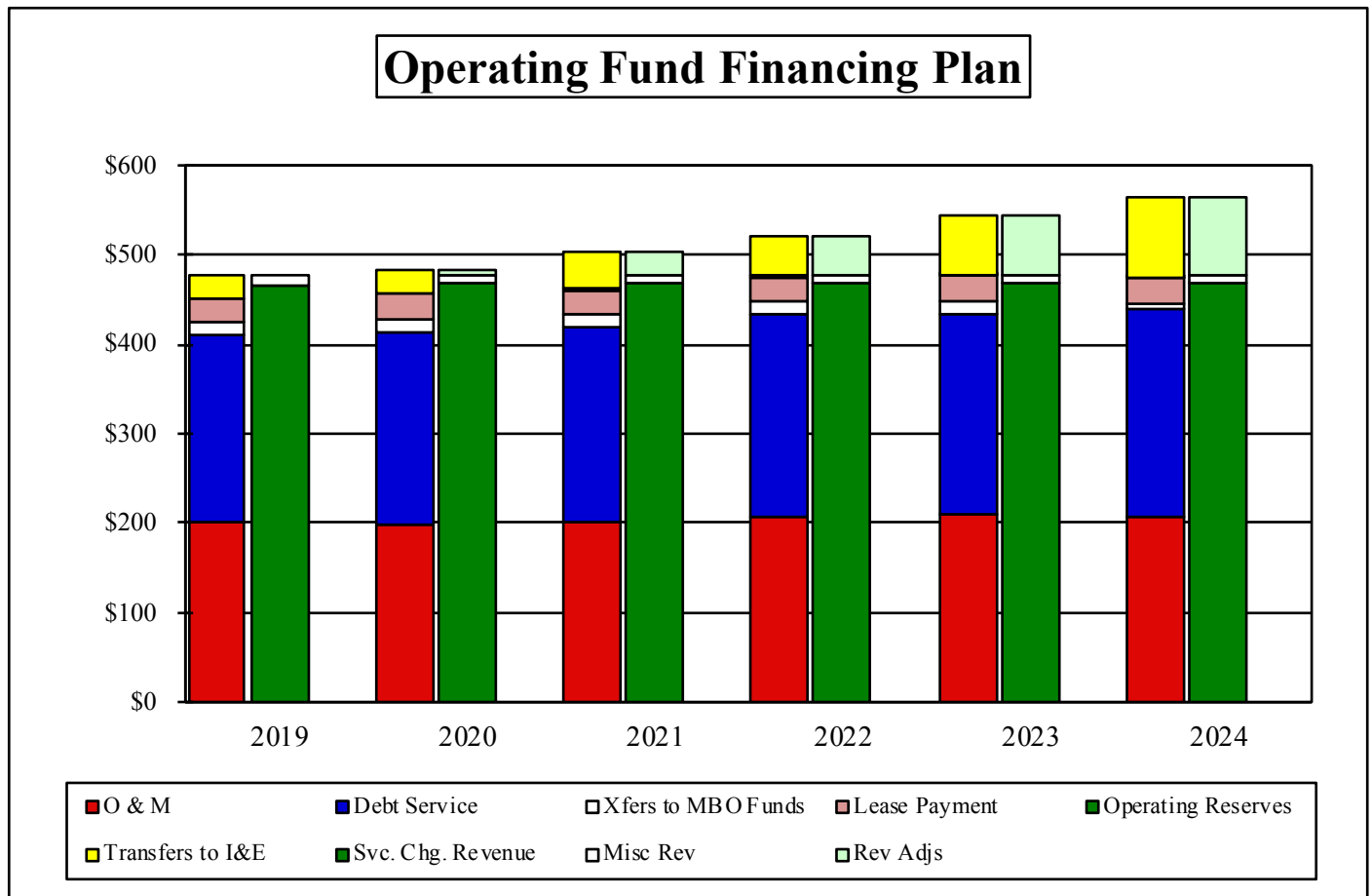
GLWA Sewer System Financial Plan Summary (\$ millions)



| | <u>2019</u> | <u>2020</u> | <u>2021</u> | <u>2022</u> | <u>2023</u> | <u>2024</u> |
|---------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| I&E Funds | 14.3 | 20.1 | 29.9 | 44.7 | 68.8 | 90.9 |
| CWRP Loans | 55.2 | 29.3 | 8.3 | 1.3 | 0.0 | 0.0 |
| Constr. Bond Funds | 96.9 | 121.1 | 89.3 | 92.6 | 59.5 | 17.6 |
| <i>I&E % of Total</i> | 9% | 12% | 23% | 32% | 54% | 84% |

Table 2

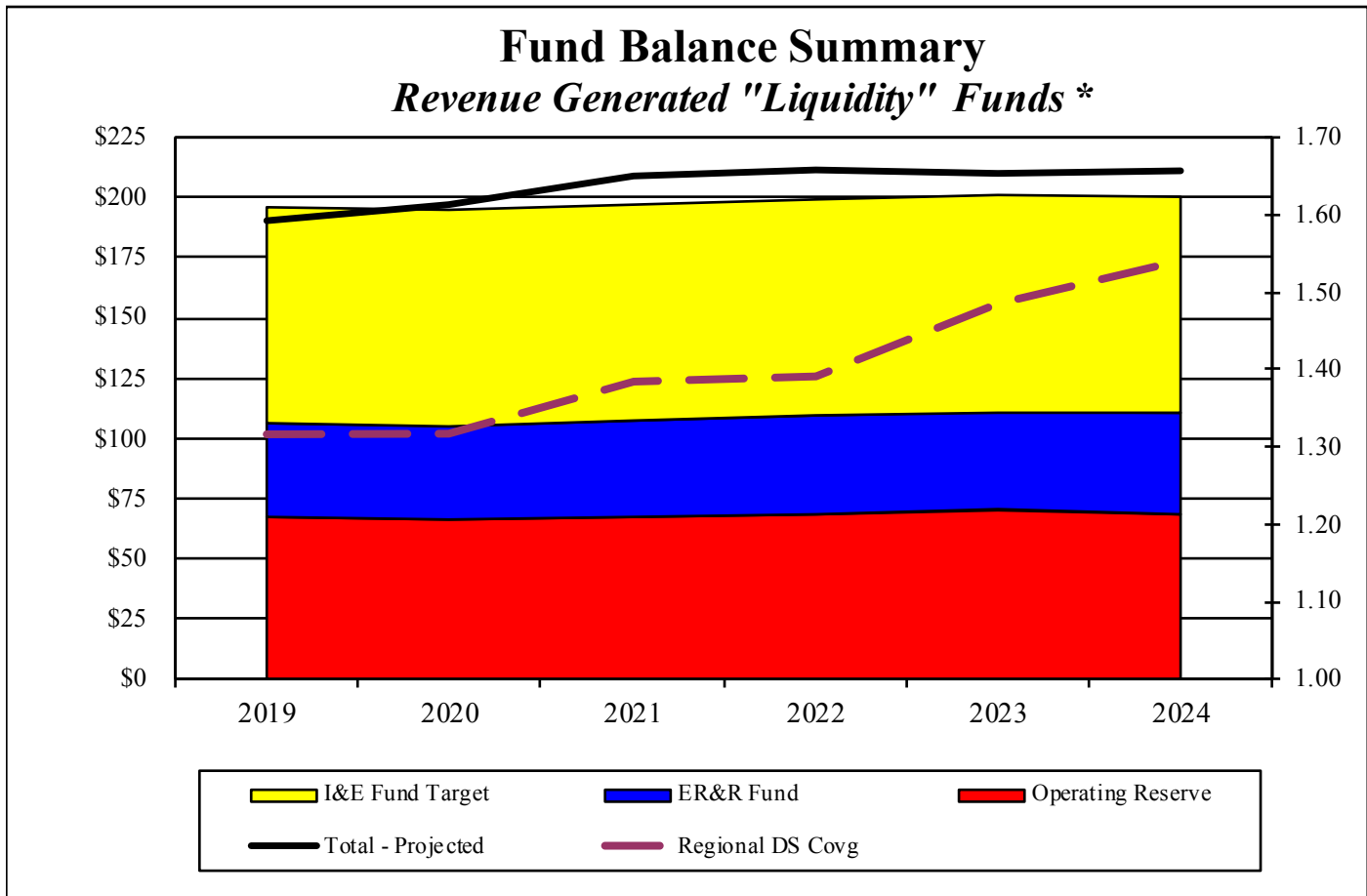
GLWA Sewer System Financial Plan Summary (\$ millions)



| | <u>2019</u> | <u>2020</u> | <u>2021</u> | <u>2022</u> | <u>2023</u> | <u>2024</u> |
|----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| REVENUE | | | | | | |
| Svc. Chg. Revenue | 465.6 | 468.0 | 468.0 | 468.0 | 468.0 | 468.0 |
| Revenue Adjustments | | 1.3% | 4.0% | 4.0% | 4.1% | 4.0% |
| Revenue from Adjs | 0.0 | 6.1 | 25.1 | 45.1 | 66.0 | 87.7 |
| Other | 10.6 | 8.7 | 9.0 | 9.2 | 9.1 | 9.2 |
| Total Revenue | 476.2 | 482.8 | 502.1 | 522.2 | 543.1 | 564.8 |
| BUDGET | | | | | | |
| O&M Expense | 201.9 | 198.8 | 202.6 | 206.4 | 210.3 | 205.6 |
| Debt Service | 208.4 | 215.7 | 216.2 | 226.8 | 224.1 | 233.2 |
| Xfers to MBO Funds | 14.0 | 14.1 | 14.1 | 14.2 | 14.3 | 6.7 |
| Lease Payment | 27.5 | 27.5 | 27.5 | 27.5 | 27.5 | 27.5 |
| Operating Reserves | 0.0 | 0.0 | 1.3 | 1.3 | 1.3 | 1.3 |
| Transfers to I&E | 24.4 | 26.7 | 40.5 | 46.0 | 65.6 | 90.6 |
| Total BUDGET | 476.2 | 482.8 | 502.1 | 522.2 | 543.1 | 564.8 |
| Balance | 0.0 | 0.0 | (0.0) | 0.0 | 0.0 | 0.0 |

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Table 2
 GLWA Sewer System Financial Plan Summary (\$ millions)



| | <u>2019</u> | <u>2020</u> | <u>2021</u> | <u>2022</u> | <u>2023</u> | <u>2024</u> |
|------------------------------|--------------|-------------|-------------|-------------|-------------|-------------|
| <u>Fund Balance Minimums</u> | | | | | | |
| Operating Reserve | 67.3 | 66.3 | 67.5 | 68.8 | 70.1 | 68.5 |
| ER&R Fund | 38.9 | 38.6 | 39.4 | 40.2 | 41.0 | 41.8 |
| I&E Fund Target | 90.0 | 90.0 | 90.0 | 90.0 | 90.0 | 90.0 |
| | ----- | ----- | ----- | ----- | ----- | ----- |
| Total - Minimums | 196.2 | 194.9 | 196.9 | 199.0 | 201.1 | 200.3 |
| <u>Projections</u> | | | | | | |
| Operating Reserve | 67.3 | 67.3 | 68.6 | 69.8 | 71.1 | 72.5 |
| ER&R Fund | 44.0 | 44.0 | 44.0 | 44.0 | 44.0 | 44.0 |
| I&E Fund | 79.1 | 85.7 | 96.3 | 97.6 | 94.5 | 94.2 |
| | ----- | ----- | ----- | ----- | ----- | ----- |
| Total - Projected | 190.4 | 197.0 | 208.9 | 211.5 | 209.6 | 210.6 |
| <i>Projected > Min</i> | <i>(5.8)</i> | <i>2.1</i> | <i>11.9</i> | <i>12.5</i> | <i>8.5</i> | <i>10.3</i> |
| Regional DS Covg | 1.32 | 1.32 | 1.39 | 1.39 | 1.49 | 1.54 |

Table 3
Sewage Disposal System
Allocation of FY 2020 GLWA Wholesale Service BUDGET to Cost Pools

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|-----------------------------|----------------------------------|-----------------------------|---------------------------|-------------------------------|-------------------------------------|--------------------------------|-------------------------------|--------------------|
| | Allocated <u>FY 2020</u> | less: OMID <u>Contractual</u> | Remaining <u>Balance</u> | Cost Pools | | | Common to All <u>SHAREs</u> | <u>Common-to-All (SHAREs)</u> | |
| <u>BUDGET Elements</u> | | | | <u>CSO Facilities</u> | <u>Suburban Wholesale</u> | <u>Industrial Waste Control</u> | | <u>Flow</u> | <u>Pollutants</u> |
| 1 Regional System O&M Expense | 187,968,700 | 1,506,700 | 186,462,000 | 16,880,000 | 3,378,200 | 6,757,300 | 159,446,400 | 48,574,700 | 110,871,700 |
| 2 Pension Obligation - Operating Portion | 10,824,000 | 189,400 | 10,634,600 | 1,144,600 | 229,100 | 458,200 | 8,802,600 | 2,734,000 | 6,068,600 |
| 3 Debt Service | 215,738,800 | 5,960,000 | 209,778,800 | 34,946,700 | 4,799,500 | 310,800 | 169,721,900 | 114,568,400 | 55,153,500 |
| 4 Non-Operating Portion of Pension Oblig | 11,620,700 | 203,400 | 11,417,300 | 1,228,800 | 245,900 | 491,900 | 9,450,700 | 2,935,300 | 6,515,400 |
| 5 Transfer to WRAP Fund | 2,464,400 | 10,400 | 2,454,000 | 321,700 | 51,000 | 45,300 | 2,036,100 | 1,004,800 | 1,031,300 |
| 6 Transfer to Extra. Repair and Repl. Fund | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7 Lease Payment - Transfer to Detroit Local I&E | 27,500,000 | 181,500 | 27,318,500 | 3,581,400 | 567,600 | 503,800 | 22,665,700 | 11,185,600 | 11,480,100 |
| 8 Transfer to GLWA Regional I&E Account | 26,706,400 | 0 | 26,706,400 | 4,449,000 | 611,000 | 39,600 | 21,606,800 | 14,585,400 | 7,021,400 |
| 9 Operating Reserves | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10 Total Gross BUDGET | 482,823,000 | 8,051,400 | 474,771,600 | 62,552,200 | 9,882,300 | 8,606,900 | 393,730,200 | 195,588,200 | 198,142,000 |
| 11 less: Non-Operating Revenue | (8,730,600) | 0 | (8,730,600) | (1,454,400) | (199,700) | (12,900) | (7,063,400) | (4,768,100) | (2,295,300) |
| 12 Net BUDGET Req'd from Charges | 474,092,400 | 8,051,400 | 466,041,000 | 61,097,800 | 9,682,600 | 8,594,000 | 386,666,800 | 190,820,100 | 195,846,700 |
| <u>Summary - BUDGET Required from Charges</u> | | | | | | | | | |
| 13 Net Operating Expenses | 198,792,700 | 1,696,100 | 197,096,600 | 18,024,600 | 3,607,300 | 7,215,500 | 168,249,000 | 51,308,700 | 116,940,300 |
| 14 Net Capital Requirements | 275,299,700 | 6,355,300 | 268,944,400 | 43,073,200 | 6,075,300 | 1,378,500 | 218,417,800 | 139,511,400 | 78,906,400 |
| 15 Total | 474,092,400 | 8,051,400 | 466,041,000 | 61,097,800 | 9,682,600 | 8,594,000 | 386,666,800 | 190,820,100 | 195,846,700 |
| 16 Relative Cost Pool Distribution | | | | 13.1% | 2.1% | 1.8% | 83.0% | 40.9% | 42.0% |

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Table 4
Sewage Disposal System
FY 2020 SHARES

| | (1) | (2) | (3) | (4) | (5) | (6) | |
|---------------------------|-----------------------------|-----------------------|------------------|-------------------|---------------|------------|---------|
| | CTA SHARE | Suburban Wholesale | OMID Specific | CSO Facilities | Share Details | | |
| | | | | | Flow | Pollutants | |
| <u>Suburban Wholesale</u> | | | | | | | |
| 1 | OMID | 16.436% | 22.182% | 100.000% | 2.651% | 12.456% | 20.415% |
| 2 | Rouge Valley | 12.893% | 20.347% | | 2.956% | 11.426% | 14.361% |
| 3 | Oakland GWK | 10.735% | 18.625% | | 2.256% | 10.459% | 11.011% |
| 4 | Evergreen Farmington | 8.378% | 12.718% | | 1.485% | 7.142% | 9.613% |
| 5 | SE Macomb San Dist | 5.910% | 10.020% | | 1.174% | 5.627% | 6.193% |
| 6 | Dearborn | 4.518% | 8.048% | | 1.631% | 4.520% | 4.597% |
| 7 | Grosse Pointe Farms | 0.596% | 1.075% | | 0.504% | 0.604% | 0.588% |
| 8 | Grosse Pointe Park | 0.435% | 0.746% | | 0.062% | 0.419% | 0.451% |
| 9 | Melvindale | 0.367% | 0.568% | | 0.074% | 0.319% | 0.415% |
| 10 | Farmington | 0.275% | 0.445% | | 0.052% | 0.250% | 0.301% |
| 11 | Center Line | 0.247% | 0.368% | | 0.056% | 0.206% | 0.288% |
| 12 | Allen Park | 0.206% | 0.316% | | 0.031% | 0.177% | 0.234% |
| 13 | Highland Park | 1.065% | 2.164% | | 2.065% | 1.215% | 0.864% |
| 14 | Hamtramck | 0.717% | 1.764% | | 1.595% | 0.991% | 0.652% |
| 15 | Grosse Pointe | 0.180% | 0.417% | | 0.228% | 0.234% | 0.166% |
| 16 | Harper Woods | 0.051% | 0.112% | | 0.013% | 0.063% | 0.048% |
| 17 | Redford Township | 0.045% | 0.073% | | 0.133% | 0.041% | 0.032% |
| 18 | Wayne County #3 | 0.007% | 0.011% | | 0.035% | 0.006% | 0.005% |
| 19 | Subtotal Suburban Wholesale | 63.058% | 100.000% | 100.000% | 17.000% | 56.155% | 70.232% |
| 20 | City of Detroit Customers | 36.942% | | | 83.000% | 43.845% | 29.768% |
| 21 | Total | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% |

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Table 5
Sewage Disposal System
Summarized FY 2020 *Wholesale Service* BUDGET Allocation to Cost Pools and Customer Classes

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---------------------------------|------------------------------|----------------------|-----------------------|------------------|-------------------|-----------------------------|-------------|--------------------------|-------------------|
| | Amount to <u>Allocate</u> | Cost Pool Allocation | | | | | | <i>Common to All (b)</i> | |
| | | Common to All | Suburban Wholesale | OMID Specific | CSO Facilities | Industrial Waste Control | TOTAL | <i>Flow</i> | <i>Pollutants</i> |
| | \$ | \$ | \$ | \$ | \$ | \$ | \$ | \$ | \$ |
| <u>BUDGET Elements</u> | | | | | | | | | |
| 1 Net Operating Expenses | 198,792,700 | 168,249,000 | 3,607,300 | 1,696,100 | 18,024,600 | 7,215,500 | 198,792,500 | 51,308,700 | 116,940,300 |
| 2 Net Capital Requirements | 275,299,700 | 218,417,800 | 6,075,300 | 6,355,300 | 43,073,200 | 1,378,500 | 275,300,100 | 139,511,400 | 78,906,400 |
| 3 Net to Recover from Charges | 474,092,400 | 386,666,800 | 9,682,600 | 8,051,400 | 61,097,800 | 8,594,000 | 474,092,600 | 190,820,100 | 195,846,700 |
| <u>Allocated to Industrial</u> | | | | | | | | | |
| 4 Net Operating Expenses | 10,314,400 | 3,098,900 | 0 | 0 | 0 | 7,215,500 | 10,314,400 | 0 | 3,098,900 |
| 5 Net Capital Requirements | 3,469,600 | 2,091,100 | 0 | 0 | 0 | 1,378,500 | 3,469,600 | 0 | 2,091,100 |
| 6 Net to Recover from Charges | 13,784,000 | 5,190,000 | 0 | 0 | 0 | 8,594,000 | 13,784,000 | 0 | 5,190,000 |
| <u>Net Req'd from Customers</u> | | | | | | | | | |
| 7 Net Operating Expenses | 188,478,300 | 165,150,100 | 3,607,300 | 1,696,100 | 18,024,600 | 0 | 188,478,100 | 51,308,700 | 113,841,400 |
| 8 Net Capital Requirements | 271,830,100 | 216,326,700 | 6,075,300 | 6,355,300 | 43,073,200 | 0 | 271,830,500 | 139,511,400 | 76,815,300 |
| 9 Net BUDGET from Charges | 460,308,400 | 381,476,800 | 9,682,600 | 8,051,400 | 61,097,800 | 0 | 460,308,600 | 190,820,100 | 190,656,700 |

(a) *Industrial Surcharge Customers*

based on % of total influent pollutant loadings that are "surchargeable"

2.65%

(b) *Relative Flow/Pollutants in CTA Cost Pool*

50%

50%

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Table 6
Sewage Disposal System
Allocation of FY 2020 *Wholesale Service* BUDGET to Customers

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | |
|--------------------------|------------------------------|-----------------------|------------------|-------------------|------------|--|---------------------------------|-------------------------------|---------------------|--------------------------------------|-------------|
| | Allocation of FY 2020 BUDGET | | | | | Detroit Capital Ownership Adjustment | Adjusted Allocated BUDGET | Additional Allocated Elements | | Total Amount for "Net" Charges | |
| | Common to All | Suburban Wholesale | OMID Specific | CSO Facilities | TOTAL | | | Bad Debt Projected | Bad Debt True-Up | | |
| | \$ | \$ | \$ | \$ | \$ | \$ | \$ | \$ | \$ | \$ | |
| <u>Metered Customers</u> | | | | | | | | | | | |
| 1 | OMID | 62,698,900 | 2,147,800 | 8,051,400 | 1,619,800 | 74,517,900 | 1,223,700 | 75,741,600 | 501,400 | 0 | 76,243,000 |
| 2 | Rouge Valley | 49,184,900 | 1,970,100 | 0 | 1,805,900 | 52,960,900 | 1,122,300 | 54,083,200 | 459,800 | 0 | 54,543,000 |
| 3 | Oakland GWK | 40,950,600 | 1,803,400 | 0 | 1,378,300 | 44,132,300 | 1,027,400 | 45,159,700 | 420,900 | 0 | 45,580,600 |
| 4 | Evergreen Farmington | 31,958,700 | 1,231,500 | 0 | 907,300 | 34,097,500 | 701,500 | 34,799,000 | 287,400 | 0 | 35,086,400 |
| 5 | SE Macomb San Dist | 22,544,400 | 970,200 | 0 | 717,300 | 24,231,900 | 552,700 | 24,784,600 | 226,400 | 0 | 25,011,000 |
| 6 | Dearborn | 17,234,900 | 779,300 | 0 | 996,500 | 19,010,700 | 444,000 | 19,454,700 | 181,900 | 0 | 19,636,600 |
| 7 | Grosse Pointe Farms | 2,272,400 | 104,100 | 0 | 307,900 | 2,684,400 | 59,300 | 2,743,700 | 24,300 | 0 | 2,768,000 |
| 8 | Grosse Pointe Park | 1,658,100 | 72,200 | 0 | 37,700 | 1,768,000 | 41,100 | 1,809,100 | 16,900 | 0 | 1,826,000 |
| 9 | Melvindale | 1,399,700 | 55,000 | 0 | 45,200 | 1,499,900 | 31,300 | 1,531,200 | 12,800 | 0 | 1,544,000 |
| 10 | Farmington | 1,050,200 | 43,100 | 0 | 32,000 | 1,125,300 | 24,500 | 1,149,800 | 10,100 | 0 | 1,159,900 |
| 11 | Center Line | 942,300 | 35,600 | 0 | 33,900 | 1,011,800 | 20,300 | 1,032,100 | 8,300 | 0 | 1,040,400 |
| 12 | Allen Park | 784,900 | 30,600 | 0 | 18,800 | 834,300 | 17,400 | 851,700 | 7,100 | 0 | 858,800 |
| 13 | Highland Park | 4,061,600 | 209,600 | 0 | 1,261,500 | 5,532,700 | 119,400 | 5,652,100 | 48,900 | 0 | 5,701,000 |
| 14 | Hamtramck | 2,734,400 | 170,800 | 0 | 974,200 | 3,879,400 | 97,300 | 3,976,700 | 39,900 | 0 | 4,016,600 |
| 15 | Grosse Pointe | 686,300 | 40,400 | 0 | 139,500 | 866,200 | 23,000 | 889,200 | 9,400 | 0 | 898,600 |
| 16 | Harper Woods | 193,600 | 10,800 | 0 | 7,800 | 212,200 | 6,200 | 218,400 | 2,500 | 0 | 220,900 |
| 17 | Redford Township | 170,900 | 7,100 | 0 | 81,500 | 259,500 | 4,000 | 263,500 | 1,700 | 0 | 265,200 |
| 18 | Wayne County #3 | 26,200 | 1,100 | 0 | 21,200 | 48,500 | 600 | 49,100 | 300 | 0 | 49,400 |
| 19 | Subtotal Suburban Wholesale | 240,553,000 | 9,682,700 | 8,051,400 | 10,386,300 | 268,673,400 | 5,516,000 | 274,189,400 | 2,260,000 | 0 | 276,449,400 |
| 20 | City of Detroit Customers | 140,923,600 | 0 | 0 | 50,711,200 | 191,634,800 | (5,516,000) | 186,118,800 | | | |
| 21 | Subtotal | 381,476,600 | 9,682,700 | 8,051,400 | 61,097,500 | 460,308,200 | 0 | 460,308,200 | | | |
| 22 | Industrial Waste Control | | | | | 8,594,000 | | 8,594,000 | | | |
| 23 | Industrial Surcharges | | | | | 5,190,000 | | 5,190,000 | | | |
| 24 | Total | | | | | 474,092,200 | | 474,092,200 | | | |

Table 7
Sewage Disposal System
Determination of FY 2020 Wholesale Service Charge Schedule - *Fixed Monthly Charges*

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | |
|--------------------------|-------------------------------|-----------------------|------------------|-------------------|-----------|--|---------------------------------|-------------------------------|---------------------|-------------------------|------------|
| | FY 2020 BUDGET | | | | | Detroit Capital Ownership Adjustment | Adjusted Allocated BUDGET | Additional Allocated Elements | | Total Net Charges | |
| | Common to All | Suburban Wholesale | OMID Specific | CSO Facilities | TOTAL | | | Bad Debt Projected | Bad Debt True-Up | | |
| | \$ | \$ | \$ | \$ | \$ | \$ | \$ | \$ | \$ | \$ | |
| <u>Metered Customers</u> | | | | | | | | | | | |
| 1 | OMID | 5,224,900 | 179,000 | 671,000 | 135,000 | 6,209,900 | 102,000 | 6,311,900 | 41,800 | 0 | 6,353,700 |
| 2 | Rouge Valley | 4,098,700 | 164,200 | 0 | 150,500 | 4,413,400 | 93,500 | 4,506,900 | 38,300 | 0 | 4,545,200 |
| 3 | Oakland GWK | 3,412,600 | 150,300 | 0 | 114,900 | 3,677,800 | 85,600 | 3,763,400 | 35,100 | 0 | 3,798,500 |
| 4 | Evergreen Farmington | 2,663,200 | 102,600 | 0 | 75,600 | 2,841,400 | 58,500 | 2,899,900 | 24,000 | 0 | 2,923,900 |
| 5 | SE Macomb San Dist | 1,878,700 | 80,900 | 0 | 59,800 | 2,019,400 | 46,100 | 2,065,500 | 18,900 | 0 | 2,084,400 |
| 6 | Dearborn | 1,436,200 | 64,900 | 0 | 83,000 | 1,584,100 | 37,000 | 1,621,100 | 15,200 | 0 | 1,636,300 |
| 7 | Grosse Pointe Farms | 189,400 | 8,700 | 0 | 25,700 | 223,800 | 4,900 | 228,700 | 2,000 | 0 | 230,700 |
| 8 | Grosse Pointe Park | 138,200 | 6,000 | 0 | 3,100 | 147,300 | 3,400 | 150,700 | 1,400 | 0 | 152,100 |
| 9 | Melvindale | 116,600 | 4,600 | 0 | 3,800 | 125,000 | 2,600 | 127,600 | 1,100 | 0 | 128,700 |
| 10 | Farmington | 87,500 | 3,600 | 0 | 2,700 | 93,800 | 2,000 | 95,800 | 800 | 0 | 96,600 |
| 11 | Center Line | 78,500 | 3,000 | 0 | 2,800 | 84,300 | 1,700 | 86,000 | 700 | 0 | 86,700 |
| 12 | Allen Park | 65,400 | 2,600 | 0 | 1,600 | 69,600 | 1,500 | 71,100 | 600 | 0 | 71,700 |
| 13 | Highland Park | 338,500 | 17,500 | 0 | 105,100 | 461,100 | 10,000 | 471,100 | 4,100 | 0 | 475,200 |
| 14 | Hamtramck | 227,900 | 14,200 | 0 | 81,200 | 323,300 | 8,100 | 331,400 | 3,300 | 0 | 334,700 |
| 15 | Grosse Pointe | 57,200 | 3,400 | 0 | 11,600 | 72,200 | 1,900 | 74,100 | 800 | 0 | 74,900 |
| 16 | Harper Woods | 16,100 | 900 | 0 | 700 | 17,700 | 500 | 18,200 | 200 | 0 | 18,400 |
| 17 | Redford Township | 14,200 | 600 | 0 | 6,800 | 21,600 | 300 | 21,900 | 100 | 0 | 22,000 |
| 18 | Wayne County #3 | 2,200 | 100 | 0 | 1,800 | 4,100 | 100 | 4,200 | 0 | 0 | 4,200 |
| 19 | Subtotal Suburban Wholesale | 20,046,000 | 807,100 | 671,000 | 865,700 | 22,389,800 | 459,700 | 22,849,500 | 188,400 | 0 | 23,037,900 |
| 20 | City of Detroit Customers (a) | 11,743,600 | 0 | 0 | 4,225,900 | 15,969,500 | (459,700) | 15,509,800 | | | 15,509,800 |
| 21 | Total | 31,789,600 | 807,100 | 671,000 | 5,091,600 | 38,359,300 | 0 | 38,359,300 | 188,400 | 0 | 38,547,700 |

(a) Retail rates for Detroit will still contain fixed and commodity charges.

Table 8
Sewage Disposal System
Determination of FY 2020 Industrial Specific Service Charge Schedule

| Industrial Waste Control Charges | | | Industrial Surcharges | | | |
|----------------------------------|--------------------|-------------|-----------------------|-----------------|-------------|-------|
| Revenue Requirement - \$ | | 8,594,000 | Revenue | Estimated | Unit | |
| Eq Mtrs | | 212,224 | <u>Req't</u> | <u>Loadings</u> | <u>Rate</u> | |
| Unit Cost - \$/eq mtr | | 3.37 | \$ | lbs | \$/lb | |
| | | | BOD | 3,467,400 | 7,000,000 | 0.495 |
| | | | SS | 1,030,100 | 2,050,000 | 0.502 |
| | | | PHOS | 370,600 | 50,000 | 7.412 |
| | | | FOG | 321,900 | 675,000 | 0.477 |
| | | | | ----- | ----- | |
| | | | | 5,190,000 | 9,775,000 | 0.531 |
| <u>Meter</u> | <u>Equivalency</u> | <u>Unit</u> | | | | |
| <u>Size</u> | <u>Ratio</u> | <u>Rate</u> | | | | |
| 5/8 | 1.0 | 3.37 | | | | |
| 3/4 | 1.5 | 5.06 | | | | |
| 1 | 2.5 | 8.43 | | | | |
| 1-1/2 | 5.5 | 18.54 | | | | |
| 2 | 8.0 | 26.96 | | | | |
| 3 | 14.5 | 48.87 | | | | |
| 4 | 20.0 | 67.40 | | | | |
| 6 | 30.0 | 101.10 | | | | |
| 8 | 50.0 | 168.50 | | | | |
| 10 | 70.0 | 235.90 | | | | |
| 12 | 80.0 | 269.60 | | | | |
| 14 | 100.0 | 337.00 | | | | |
| 16 | 120.0 | 404.40 | | | | |
| 18 | 140.0 | 471.80 | | | | |
| 20 | 160.0 | 539.20 | | | | |
| 24 | 180.0 | 606.60 | | | | |
| 30 | 200.0 | 674.00 | | | | |
| 36 | 220.0 | 741.40 | | | | |
| 48 | 240.0 | 808.80 | | | | |

Appendices

- A. January 21, 2019 memorandum: “FY 2020 Cost of Service and Charges Study - Detailed Cost Allocation Schedules”
- B. January 18, 2019 memorandum: “Proposed Amendment Oakland Macomb Interceptor Drainage District Agreement”
- C. January 17, 2019 memorandum: “GLWA Sewer Facilities Served Directly by GLWA Transmission Mains”
- D. January 16, 2019 memorandum: “Preliminary Proposed FY 2020 Budget/Charges; Executive Summary”
- E. January 2, 2019 memorandum: “FY 2020 Budget/Charge Planning Update; Executive Summary”
- F. December 19, 2018 memorandum: “Preliminary FY 2020 Budget/Charge Planning; Executive Summary”
- G. December 10, 2018 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 2020 Cost of Service and Charges Study
Detailed Cost Allocation Schedules

January 21, 2019

To: Nicolette Bateson

From: Bart Foster

The attached exhibits are intended to delineate the process we've taken to allocate the FY 2020 BUDGET to cost pools as part of the FY 2020 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 3" 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.

As we have discussed, the FY 2020 GLWA operating expense budget represents the results of a detailed, rigorous review of financial data from GLWA cost reporting systems. It also has been developed based on the second year implementation of the ongoing Cost Allocation Project, which is part of the overall GLWA strategic initiative to review cost allocation and charge methodologies. For the FY 2020 Cost of Service Study, significant review efforts have been applied towards refining 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 Field Service Operations cost center includes specific contracts to address investigation and repair of Water transmission mains, and other contracts to address investigation and repair of Sewer interceptors. The costs of those specific contracts should also be directly assigned to the appropriate fund.

The FY 2020 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 pages A-12 through A-16 of the exhibits. All other “general” Centralized Services budgeted costs have been assigned 50% to Water and 50% to Sewer¹.

All Administrative Services budgeted costs have also been assigned 50% to Water and 50% to Sewer. In prior years a small majority of the budgeted Centralized Services and Administrative Services operating costs were allocated to Sewer. The FY 2020 Budget, Cost of Service Study, and Service Charges, implements a GLWA policy decision to generally assign these support costs equally between systems, after recognizing discrete initiatives as discussed above.

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 Customers.

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 2020 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 Customer 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.

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-16. This allocation is based on discussions with System Control Center managers.

² BUDGET refers to overall revenue requirement.

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

Water Operations Group Functional Allocation Matrix - FY 2020 Budget

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

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 2020 allocation factors are based on historical data and judgement. The ongoing Cost Allocation Project will review these factors.

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

Water Operations Group Functional Allocation Matrix - FY 2020 Budget

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

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 2020 allocation factors are based on historical data and judgement. The ongoing Cost Allocation Project will review these factors.

| STEP 1 - ALLOCATION FACTORS | Water System Functional Categories | | | | | | | | | | Indirect Sewer System Functional Categories | | |
|--|---|----------------|--------------|-----------------|---------|---------------------------|------------------|--------------------|---------------|---------|---|----------------|--------------|
| | Water Treatment Plant Functional Categories | | | | | Water Delivery Facilities | | | | | Wastewater Collection Facilities | | |
| | Source of Supply | Low Lift Pumps | Purification | High Lift Pumps | General | Reservoirs | Booster Stations | Transmission Mains | Master Meters | General | Lift Stations | CSO Facilities | Interceptors |
| Other | | | | | | | | | | | | | |
| 9.3.1 Water Works Park | 6.0% | 9.0% | 70.0% | 15.0% | 0.0% | | | | | 0.0% | | | |
| 9.3.2 Lake Huron Water Plant | 6.0% | 9.0% | 70.0% | 15.0% | 0.0% | | | | | 0.0% | | | |
| 9.3.3 Springwells Water Plant | 6.0% | 9.0% | 70.0% | 15.0% | 0.0% | | | | | 0.0% | | | |
| 9.3.4 Northeast Water Plant | 6.0% | 9.0% | 70.0% | 15.0% | 0.0% | | | | | 0.0% | | | |
| 9.3.5 Southwest Water Plant | 6.0% | 9.0% | 70.0% | 15.0% | 0.0% | | | | | 0.0% | | | |
| Total WTPs | 6.0% | 9.0% | 70.0% | 15.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | | | |
| TOTAL WTP Budget | | | | | | | | | | | | | |
| 9.3.1 Water Works Park | 4.5% | 10.6% | 62.5% | 22.4% | 0.0% | | | | | 0.0% | | | |
| 9.3.2 Lake Huron Water Plant | 3.7% | 13.7% | 50.0% | 32.5% | 0.0% | | | | | 0.0% | | | |
| 9.3.3 Springwells Water Plant | 4.4% | 10.9% | 61.5% | 23.2% | 0.0% | | | | | 0.0% | | | |
| 9.3.4 Northeast Water Plant | 4.2% | 11.6% | 58.6% | 25.5% | 0.0% | | | | | 0.0% | | | |
| 9.3.5 Southwest Water Plant | 4.9% | 10.5% | 63.4% | 21.2% | 0.0% | | | | | 0.0% | | | |
| Total WTPs | 4.3% | 11.6% | 58.6% | 25.5% | 0.0% | 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% | 0.0% | 100.0% | 0.0% | 0.0% | 0.0% | | | |
| Part 3 - Support Services | | | | | | | | | | | | | |
| 9.1 Chief Operating Officer Water Operations & F | 5.6% | 8.2% | 67.0% | 12.6% | 0.0% | 0.7% | 3.0% | 0.7% | 0.0% | 0.0% | 0.7% | 0.7% | 0.7% |
| 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% | 10.0% | 15.0% | 10.0% | | 10.0% | 10.0% | 10.0% | 0.0% | 0.0% | 10.0% | 10.0% | 10.0% |
| 9.7.1 Water Operations Unallocated Reserve | 5.6% | 8.2% | 67.0% | 12.6% | 0.0% | 0.7% | 3.0% | 0.7% | 0.0% | 0.0% | 0.7% | 0.7% | 0.7% |
| Total Support Costs | 5.0% | 7.0% | 64.8% | 8.6% | 0.0% | 2.3% | 3.1% | 2.3% | 0.0% | 0.0% | | | |
| TOTAL GROUP | 3.8% | 9.4% | 51.1% | 19.8% | 0.0% | 0.3% | 14.6% | 0.3% | 0.0% | 0.0% | 0.3% | 0.3% | 0.3% |
| Indirect Allocation Factors | 5.6% | 8.2% | 67.0% | 12.6% | 0.0% | 0.7% | 3.0% | 0.7% | 0.0% | 0.0% | 0.7% | 0.7% | 0.7% |

Aligns with FY 2020 Budget Request as of 01/18/19. Subsequent modifications may occur.

Water Operations Group Functional Allocation Matrix - FY 2020 Budget

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| STEP 1 - ALLOCATION FACTORS | Water System Functional Categories | | | | | | | | | | | Indirect Sewer System Functional Categories | | |
|--|---|----------------|--------------|-----------------|-----------|------------|---------------------------|--------------------|---------------|---------|---------------|---|--------------|---|
| | Water Treatment Plant Functional Categories | | | | | | Water Delivery Facilities | | | | | Wastewater Collection Facilities | | |
| | Source of Supply | Low Lift Pumps | Purification | High Lift Pumps | General | Reservoirs | Booster Stations | Transmission Mains | Master Meters | General | Lift Stations | CSO Facilities | Interceptors | |
| STEP 2 - ALLOCATION OF BUDGET | | | | | | | | | | | | | | |
| Part 1 - Water Treatment Plants | | | | | | | | | | | | | | |
| Personnel Costs | | | | | | | | | | | | | | |
| 9.3.1 Water Works Park | 3,052,900 | 183,200 | 274,800 | 2,137,000 | 457,900 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9.3.2 Lake Huron Water Plant | 2,545,600 | 152,700 | 229,100 | 1,782,000 | 381,800 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9.3.3 Springwells Water Plant | 2,831,600 | 169,900 | 254,800 | 1,982,200 | 424,700 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9.3.4 Northeast Water Plant | 2,493,000 | 149,600 | 224,400 | 1,745,000 | 374,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9.3.5 Southwest Water Plant | 2,393,100 | 143,600 | 215,400 | 1,675,100 | 359,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total WTPs | 13,316,200 | 799,000 | 1,198,500 | 9,321,300 | 1,997,400 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Contractual Services | | | | | | | | | | | | | | |
| 9.3.1 Water Works Park | 1,632,100 | 97,900 | 146,900 | 1,142,500 | 244,800 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9.3.2 Lake Huron Water Plant | 1,579,700 | 94,800 | 142,200 | 1,105,700 | 237,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9.3.3 Springwells Water Plant | 3,887,400 | 233,200 | 349,900 | 2,721,200 | 583,100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9.3.4 Northeast Water Plant | 2,126,900 | 127,600 | 191,400 | 1,488,900 | 319,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9.3.5 Southwest Water Plant | 1,672,100 | 100,300 | 150,500 | 1,170,500 | 250,800 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total WTPs | 10,898,200 | 653,800 | 980,900 | 7,628,800 | 1,634,700 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Electricity | | | | | | | | | | | | | | |
| 9.3.1 Water Works Park | 2,200,000 | 55,000 | 440,000 | 550,000 | 1,155,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9.3.2 Lake Huron Water Plant | 6,100,000 | 152,500 | 1,220,000 | 1,525,000 | 3,202,500 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9.3.3 Springwells Water Plant | 3,315,000 | 82,900 | 663,000 | 828,700 | 1,740,400 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9.3.4 Northeast Water Plant | 3,100,000 | 77,500 | 620,000 | 775,000 | 1,627,500 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9.3.5 Southwest Water Plant | 1,326,000 | 33,200 | 265,200 | 331,400 | 696,200 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total WTPs | 16,041,000 | 401,100 | 3,208,200 | 4,010,100 | 8,421,600 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Chemicals | | | | | | | | | | | | | | |
| 9.3.1 Water Works Park | 1,048,700 | 0 | 0 | 1,048,700 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9.3.2 Lake Huron Water Plant | 1,076,200 | 0 | 0 | 1,076,200 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9.3.3 Springwells Water Plant | 1,466,000 | 0 | 0 | 1,466,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9.3.4 Northeast Water Plant | 1,020,000 | 0 | 0 | 1,020,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9.3.5 Southwest Water Plant | 453,400 | 0 | 0 | 453,400 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total WTPs | 5,064,300 | 0 | 0 | 5,064,300 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Utilities | | | | | | | | | | | | | | |
| 9.3.1 Water Works Park | 270,000 | 16,200 | 24,300 | 189,000 | 40,500 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9.3.2 Lake Huron Water Plant | 265,000 | 15,900 | 23,900 | 185,400 | 39,800 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9.3.3 Springwells Water Plant | 239,700 | 14,400 | 21,600 | 167,700 | 36,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9.3.4 Northeast Water Plant | 349,700 | 21,000 | 31,500 | 244,700 | 52,500 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9.3.5 Southwest Water Plant | 365,000 | 21,900 | 32,900 | 255,400 | 54,800 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total WTPs | 1,489,400 | 89,400 | 134,200 | 1,042,200 | 223,600 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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| STEP 1 - ALLOCATION FACTORS | Water System Functional Categories | | | | | | | | | | Indirect Sewer System Functional Categories | | | |
|-----------------------------------|---|------------------|------------------|-------------------|-------------------|---------------------------|------------------|--------------------|----------------|----------|---|----------------|----------------|----------------|
| | Water Treatment Plant Functional Categories | | | | | Water Delivery Facilities | | | | | Wastewater Collection Facilities | | | |
| | Source of Supply | Low Lift Pumps | Purification | High Lift Pumps | General | Reservoirs | Booster Stations | Transmission Mains | Master Meters | General | Lift Stations | CSO Facilities | Interceptors | |
| Other | | | | | | | | | | | | | | |
| 9.3.1 Water Works Park | 839,700 | 50,400 | 75,600 | 587,700 | 126,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 9.3.2 Lake Huron Water Plant | 559,700 | 33,600 | 50,400 | 391,700 | 84,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 9.3.3 Springwells Water Plant | 674,100 | 40,400 | 60,700 | 471,900 | 101,100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 9.3.4 Northeast Water Plant | 487,000 | 29,200 | 43,800 | 340,900 | 73,100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 9.3.5 Southwest Water Plant | 765,900 | 46,000 | 68,900 | 536,100 | 114,900 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Total WTPs | 3,326,400 | 199,600 | 299,400 | 2,328,300 | 499,100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| TOTAL WTP Budget | | | | | | | | | | | | | | |
| 9.3.1 Water Works Park | 9,043,400 | 402,700 | 961,600 | 5,654,900 | 2,024,200 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 9.3.2 Lake Huron Water Plant | 12,126,200 | 449,500 | 1,665,600 | 6,066,000 | 3,945,100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 9.3.3 Springwells Water Plant | 12,413,800 | 540,800 | 1,350,000 | 7,637,700 | 2,885,300 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 9.3.4 Northeast Water Plant | 9,576,600 | 404,900 | 1,111,100 | 5,614,500 | 2,446,100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 9.3.5 Southwest Water Plant | 6,975,500 | 345,000 | 732,900 | 4,421,900 | 1,475,700 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Total WTPs | 50,135,500 | 2,142,900 | 5,821,200 | 29,395,000 | 12,776,400 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Part 2 - Booster Stations | | | | | | | | | | | | | | |
| Personnel Costs | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Contractual Services | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Electricity | 9,027,500 | 0 | 0 | 0 | 0 | 0 | 9,027,500 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Chemicals | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Other Utilities | 121,000 | 0 | 0 | 0 | 0 | 0 | 121,000 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Other | 493,600 | 0 | 0 | 0 | 0 | 0 | 493,600 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Total Booster Station Costs | 9,642,100 | 0 | 0 | 0 | 0 | 0 | 9,642,100 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Part 3 - Support Services | | | | | | | | | | | | | | |
| 9.1 Chief Operating Officer Water | 359,600 | 20,000 | 29,400 | 240,700 | 45,400 | 0 | 2,700 | 10,600 | 2,700 | 0 | 0 | 2,700 | 2,700 | 2,700 |
| 9.2.1 Water Director | 1,617,800 | 161,800 | 161,800 | 1,132,400 | 161,800 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9.2.2 Water Quality | 1,949,600 | 0 | 0 | 1,949,600 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9.5.1 Water / Field Engineering | 1,672,300 | 83,600 | 167,200 | 251,100 | 167,200 | 0 | 167,200 | 167,200 | 167,200 | 0 | 0 | 167,200 | 167,200 | 167,200 |
| 9.7.1 Water Operations Unallocat | 2,644,200 | 147,000 | 215,900 | 1,770,300 | 333,900 | 0 | 19,800 | 78,100 | 19,800 | 0 | 0 | 19,800 | 19,800 | 19,800 |
| Total Support Costs | 8,243,500 | 412,400 | 574,300 | 5,344,100 | 708,300 | 0 | 189,700 | 255,900 | 189,700 | 0 | 0 | 189,700 | 189,700 | 189,700 |
| TOTAL GROUP | 68,021,100 | 2,555,300 | 6,395,500 | 34,739,100 | 13,484,700 | 0 | 189,700 | 9,898,000 | 189,700 | 0 | 0 | 189,700 | 189,700 | 189,700 |
| Indirect Allocation Factors | 22,375,900 | 1,244,000 | 1,826,900 | 14,982,700 | 2,825,500 | 0 | 167,200 | 660,800 | 167,200 | 0 | 0 | 167,200 | 167,200 | 167,200 |

Wastewater Operations Group Functional Allocation Matrix - FY 2020 Budget

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

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 2020 allocation factors are based on historical data and judgement. The ongoing Cost Allocation Project will review these factors.

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

| 1 - ALLOCATION FACTORS | 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 | General |
| 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% | | 0.0% |
| 8.2.2 Wastewater Process Control | 7.5% | 4.0% | 8.0% | 16.0% | 12.0% | 25.0% | 25.0% | | | | 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% |
| 8.2.4 Wastewater Secondary Process | 0.0% | 0.0% | 0.0% | 50.0% | 50.0% | 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% |
| 8.2.6 Wastewater Incineration Process | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 100.0% | | | | 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% |
| Total WRRF | 3.7% | 3.8% | 16.2% | 13.1% | 12.1% | 21.3% | 28.8% | 0.0% | 0.0% | 0.0% | 1.0% | 0.0% | 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% | | 0.0% |
| 8.2.2 Wastewater Process Control | 7.5% | 4.0% | 8.0% | 16.0% | 12.0% | 25.0% | 25.0% | | | | 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% |
| 8.2.4 Wastewater Secondary Process | 0.0% | 0.0% | 0.0% | 50.0% | 50.0% | 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% |
| 8.2.6 Wastewater Incineration Process | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 100.0% | | | | 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% |
| Total WRRF | 22.8% | 9.1% | 4.6% | 18.2% | 10.9% | 22.8% | 11.6% | 0.0% | 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% | | 0.0% |
| 8.2.2 Wastewater Process Control | 7.5% | 4.0% | 8.0% | 16.0% | 12.0% | 25.0% | 25.0% | | | | 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% |
| 8.2.4 Wastewater Secondary Process | 0.0% | 0.0% | 0.0% | 50.0% | 50.0% | 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% |
| 8.2.6 Wastewater Incineration Process | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 100.0% | | | | 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% |
| Total WRRF | 22.8% | 9.1% | 4.6% | 18.2% | 10.9% | 22.8% | 11.6% | 0.0% | 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% | | 0.0% |
| 8.2.2 Wastewater Process Control | 7.5% | 4.0% | 8.0% | 16.0% | 12.0% | 25.0% | 25.0% | | | | 0.0% | | 2.5% |
| 8.2.4 Wastewater Primary Process | 10.0% | 15.0% | 75.0% | 0.0% | 0.0% | 0.0% | 0.0% | | | | 0.0% | | 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% |
| 8.2.5 Wastewater Dewatering Process | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 100.0% | 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% |
| 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% |
| Total WRRF | 2.3% | 3.4% | 17.1% | 31.4% | 31.4% | 7.5% | 6.9% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |

Wastewater Operations Group Functional Allocation Matrix - FY 2020 Budget

Goal is to allocate specific budget items within the Group that align with Cost Pools used to allocate costs to Customers.
 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 2020 allocation factors are based on historical data and judgement. The ongoing Cost Allocation Project will review these factors.

| 1 - ALLOCATION FACTORS | 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 | General |
| Other Utilities | | | | | | | | | | | | | |
| 8.2.1 Wastewater Operations | 5.0% | 5.0% | 5.0% | 20.0% | 5.0% | 5.0% | 55.00% | | | | 0.0% | | 0.0% |
| 8.2.2 Wastewater Process Control | 7.5% | 4.0% | 8.0% | 16.0% | 12.0% | 25.0% | 25.00% | | | | 2.5% | | 0.0% |
| 8.2.4 Wastewater Primary Process | 10.0% | 15.0% | 75.0% | 0.0% | 0.0% | 0.0% | 0.00% | | | | 0.0% | | 0.0% |
| 8.2.4 Wastewater Secondary Process | 0.0% | 0.0% | 0.0% | 50.0% | 50.0% | 0.0% | 0.00% | | | | 0.0% | | 0.0% |
| 8.2.5 Wastewater Dewatering Process | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 100.0% | 0.00% | | | | 0.0% | | 0.0% |
| 8.2.6 Wastewater Incineration Process | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 100.00% | | | | 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% | 100.00% | | | | 0.0% | | 0.0% |
| Total WRRF | 3.5% | 3.5% | 3.5% | 14.1% | 3.5% | 3.5% | 68.4% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Other | | | | | | | | | | | | | |
| 8.2.1 Wastewater Operations | 7.5% | 4.0% | 8.0% | 16.0% | 12.0% | 10.0% | 37.50% | | | | 5.0% | | 0.0% |
| 8.2.2 Wastewater Process Control | 7.5% | 4.0% | 8.0% | 16.0% | 12.0% | 25.0% | 25.00% | | | | 2.5% | | 0.0% |
| 8.2.4 Wastewater Primary Process | 10.0% | 15.0% | 75.0% | 0.0% | 0.0% | 0.0% | 0.00% | | | | 0.0% | | 0.0% |
| 8.2.4 Wastewater Secondary Process | 0.0% | 0.0% | 0.0% | 50.0% | 50.0% | 0.0% | 0.00% | | | | 0.0% | | 0.0% |
| 8.2.5 Wastewater Dewatering Process | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 100.0% | 0.00% | | | | 0.0% | | 0.0% |
| 8.2.6 Wastewater Incineration Process | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 100.00% | | | | 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% | 100.00% | | | | 0.0% | | 0.0% |
| Total WRRF | 5.3% | 4.2% | 14.3% | 13.5% | 11.3% | 19.7% | 29.1% | 0.0% | 0.0% | 0.0% | 2.5% | 0.0% | 0.0% |
| TOTAL WRRF Budget | | | | | | | | | | | | | |
| 8.2.1 Wastewater Operations | 13.9% | 6.6% | 6.2% | 18.4% | 10.5% | 14.9% | 27.5% | 0.0% | 0.0% | 0.0% | 2.0% | 0.0% | 0.0% |
| 8.2.2 Wastewater Process Control | 7.5% | 4.0% | 8.0% | 16.0% | 12.0% | 25.0% | 25.0% | 0.0% | 0.0% | 0.0% | 2.5% | 0.0% | 0.0% |
| 8.2.4 Wastewater Primary Process | 10.0% | 15.0% | 75.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 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% | 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% | 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% | 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% | 0.0% |
| Total WRRF | 6.0% | 3.8% | 9.2% | 13.7% | 10.8% | 13.1% | 42.6% | 0.0% | 0.0% | 0.0% | 0.8% | 0.0% | 0.0% |
| Part 2 - Lift 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 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% | 0.0% |

Wastewater Operations Group Functional Allocation Matrix - FY 2020 Budget

Goal is to allocate specific budget items within the Group that align with Cost Pools used to allocate costs to Customers.
 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 2020 allocation factors are based on historical data and judgement. The ongoing Cost Allocation Project will review these factors.

| | 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 | General |
| 1 - ALLOCATION FACTORS | | | | | | | | | | | | | |
| Part 3 - CSO Facilities | | | | | | | | | | | | | |
| 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 CSO Costs | 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% |
| Part 4 - Industrial Waste Control | | | | | | | | | | | | | |
| 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 IWC Costs | 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% |
| Part 5 - Support Services | | | | | | | | | | | | | |
| 8.1 Chief Operating Officer Wastewater | 3.0% | 3.1% | 12.9% | 10.4% | 9.6% | 17.0% | 23.0% | 0.0% | 12.1% | 0.0% | 8.8% | 0.0% | 0.0% |
| 8.2.8 Wastewater Fire Damage | | | | | | 100.0% | | | | | | | 0.0% |
| 8.5 Wastewater Engineering | 5.0% | | 10.0% | 15.0% | 10.0% | 15.0% | 20.0% | 15.0% | 5.0% | | 0.0% | 5.0% | 0.0% |
| 8.61 Analytical Laboratory | | | 15.0% | 15.0% | 15.0% | 15.0% | 15.0% | | | | 40.0% | | 0.0% |
| 8.7 O&M Unallocated Reserve | 3.0% | 3.1% | 12.9% | 10.4% | 9.6% | 17.0% | 23.0% | 0.0% | 12.1% | 0.0% | 8.8% | 0.0% | 0.0% |
| Total Support Costs | 3.1% | 1.0% | 12.2% | 13.5% | 11.1% | 12.1% | 19.8% | 6.5% | 6.2% | 0.0% | 12.4% | 2.2% | 6.2% |
| TOTAL GROUP | 4.8% | 2.8% | 8.3% | 11.8% | 9.3% | 11.2% | 33.4% | 3.3% | 10.3% | 0.0% | 4.4% | 0.3% | 10.3% |
| Indirect Allocation Factors | 3.0% | 3.1% | 12.9% | 10.4% | 9.6% | 17.0% | 23.0% | 0.0% | 12.1% | 0.0% | 8.8% | 0.0% | 0.0% |

Aligns with FY 2020 Budget Request as of 01/18/19. Subsequent modifications may occur.

Wastewater Operations Group Functional Allocation Matrix - FY 2020 Budget

Goal is to allocate specific budget items within the Group that align with Cost Pools used to allocate costs to Customers. 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 2020 allocation factors are based on historical data and judgement. The ongoing Cost Allocation Project will review these factors.

| 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 | General | |
| Personnel Costs | | | | | | | | | | | | | | |
| 8.2.1 Wastewater Operations | 2,911,900 | 218,400 | 116,500 | 232,900 | 465,900 | 349,400 | 291,200 | 1,092,000 | 0 | 0 | 0 | 145,600 | 0 | 0 |
| 8.2.2 Wastewater Process Control | 2,201,000 | 165,100 | 88,000 | 176,000 | 352,200 | 264,100 | 550,300 | 550,300 | 0 | 0 | 0 | 55,000 | 0 | 0 |
| 8.2.4 Wastewater Primary Process | 3,917,600 | 391,800 | 587,600 | 2,938,200 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8.2.4 Wastewater Secondary Process | 3,761,500 | 0 | 0 | (100) | 1,880,800 | 1,880,800 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8.2.5 Wastewater Dewatering Process | 3,570,700 | 0 | 0 | 0 | 0 | 0 | 3,570,700 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8.2.6 Wastewater Incineration Process | 3,521,900 | 0 | 0 | 0 | 0 | 0 | 0 | 3,521,900 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8.2.7 Biosolids Dryer Facility and Hauling Co | 794,600 | 0 | 0 | 0 | 0 | 0 | 0 | 794,600 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total WRRF | 20,679,200 | 775,300 | 792,100 | 3,347,000 | 2,698,900 | 2,494,300 | 4,412,200 | 5,958,800 | 0 | 0 | 0 | 200,600 | 0 | 0 |
| Contractual Services | | | | | | | | | | | | | | |
| 8.2.1 Wastewater Operations | 3,858,300 | 289,400 | 154,300 | 308,700 | 617,300 | 463,000 | 385,800 | 1,446,900 | 0 | 0 | 0 | 192,900 | 0 | 0 |
| 8.2.2 Wastewater Process Control | 1,904,100 | 142,800 | 76,200 | 152,300 | 304,700 | 228,500 | 476,000 | 476,000 | 0 | 0 | 0 | 47,600 | 0 | 0 |
| 8.2.4 Wastewater Primary Process | 156,000 | 15,600 | 23,400 | 117,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8.2.4 Wastewater Secondary Process | 629,200 | 0 | 0 | 0 | 314,600 | 314,600 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8.2.5 Wastewater Dewatering Process | 107,000 | 0 | 0 | 0 | 0 | 0 | 107,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8.2.6 Wastewater Incineration Process | 150,000 | 0 | 0 | 0 | 0 | 0 | 0 | 150,000 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8.2.7 Biosolids Dryer Facility and Hauling Co | 17,325,000 | 0 | 0 | 0 | 0 | 0 | 0 | 17,325,000 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total WRRF | 24,129,600 | 447,800 | 253,900 | 578,000 | 1,236,600 | 1,006,100 | 968,800 | 19,397,900 | 0 | 0 | 0 | 240,500 | 0 | 0 |
| Electricity | | | | | | | | | | | | | | |
| 8.2.1 Wastewater Operations | 11,319,000 | 2,829,800 | 1,131,900 | 565,800 | 2,263,800 | 1,358,300 | 2,829,800 | 339,600 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8.2.2 Wastewater Process Control | 0 | 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 | 0 |
| 8.2.4 Wastewater Secondary Process | 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 | 0 | 0 | 0 | 0 |
| 8.2.6 Wastewater Incineration Process | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8.2.7 Biosolids Dryer Facility and Hauling Co | 1,100,000 | 0 | 0 | 0 | 0 | 0 | 0 | 1,100,000 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total WRRF | 12,419,000 | 2,829,800 | 1,131,900 | 565,800 | 2,263,800 | 1,358,300 | 2,829,800 | 1,439,600 | 0 | 0 | 0 | 0 | 0 | 0 |
| Chemicals | | | | | | | | | | | | | | |
| 8.2.1 Wastewater Operations | 2,000 | 0 | 0 | 800 | 200 | 800 | 0 | 200 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8.2.2 Wastewater Process Control | 45,000 | 3,400 | 1,800 | 3,500 | 7,200 | 5,400 | 11,300 | 11,300 | 0 | 0 | 0 | 0 | 0 | 1,100 |
| 8.2.4 Wastewater Primary Process | 2,086,000 | 208,600 | 312,900 | 1,564,500 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8.2.4 Wastewater Secondary Process | 5,753,200 | 0 | 0 | 0 | 2,876,600 | 2,876,600 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8.2.5 Wastewater Dewatering Process | 679,000 | 0 | 0 | 0 | 0 | 0 | 679,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8.2.6 Wastewater Incineration Process | 618,000 | 0 | 0 | 0 | 0 | 0 | 0 | 618,000 | 0 | 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 | 0 |
| Total WRRF | 9,183,200 | 212,000 | 314,700 | 1,568,800 | 2,884,000 | 2,882,800 | 690,300 | 629,500 | 0 | 0 | 0 | 0 | 0 | 1,100 |

Wastewater Operations Group Functional Allocation Matrix - FY 2020 Budget

Goal is to allocate specific budget items within the Group that align with Cost Pools used to allocate costs to Customers.
 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 2020 allocation factors are based on historical data and judgement. The ongoing Cost Allocation Project will review these factors.

| 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 | General |
| Other Utilities | | | | | | | | | | | | | |
| 8.2.1 Wastewater Operations | 6,022,400 | 301,100 | 301,100 | 301,200 | 1,204,500 | 301,100 | 301,100 | 3,312,300 | 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 | 2,546,400 | 0 | 0 | 0 | 0 | 0 | 0 | 2,546,400 | 0 | 0 | 0 | 0 | 0 |
| Total WRRF | 8,568,800 | 301,100 | 301,100 | 301,200 | 1,204,500 | 301,100 | 301,100 | 5,858,700 | 0 | 0 | 0 | 0 | 0 |
| Other | | | | | | | | | | | | | |
| 8.2.1 Wastewater Operations | 4,395,300 | 329,600 | 175,800 | 351,800 | 703,200 | 527,400 | 439,500 | 1,648,200 | 0 | 0 | 0 | 219,800 | 0 |
| 8.2.2 Wastewater Process Control | 794,600 | 59,600 | 31,800 | 63,400 | 127,100 | 95,400 | 198,700 | 198,700 | 0 | 0 | 0 | 19,900 | 0 |
| 8.2.4 Wastewater Primary Process | 1,304,000 | 130,400 | 195,600 | 978,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8.2.4 Wastewater Secondary Process | 956,000 | 0 | 0 | 478,000 | 478,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8.2.5 Wastewater Dewatering Process | 1,280,000 | 0 | 0 | 0 | 0 | 1,280,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8.2.6 Wastewater Incineration Process | 984,100 | 0 | 0 | 0 | 0 | 0 | 984,100 | 0 | 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 | 9,714,000 | 519,600 | 403,200 | 1,393,200 | 1,308,300 | 1,100,800 | 1,918,200 | 2,831,000 | 0 | 0 | 0 | 239,700 | 0 |
| TOTAL WRRF Budget | | | | | | | | | | | | | |
| 8.2.1 Wastewater Operations | 28,508,900 | 3,968,300 | 1,879,600 | 1,761,200 | 5,254,900 | 3,000,000 | 4,247,400 | 7,839,200 | 0 | 0 | 0 | 558,300 | 0 |
| 8.2.2 Wastewater Process Control | 4,944,700 | 370,900 | 197,800 | 395,200 | 791,200 | 593,400 | 1,236,300 | 1,236,300 | 0 | 0 | 0 | 122,500 | 1,100 |
| 8.2.4 Wastewater Primary Process | 7,463,600 | 746,400 | 1,119,500 | 5,597,700 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8.2.4 Wastewater Secondary Process | 11,099,900 | 0 | 0 | (100) | 5,550,000 | 5,550,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8.2.5 Wastewater Dewatering Process | 5,636,700 | 0 | 0 | 0 | 0 | 5,636,700 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8.2.6 Wastewater Incineration Process | 5,274,000 | 0 | 0 | 0 | 0 | 0 | 5,274,000 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8.2.7 Biosolids Dryer Facility and Hauling Co | 21,766,000 | 0 | 0 | 0 | 0 | 0 | 21,766,000 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total WRRF | 84,693,800 | 5,085,600 | 3,196,900 | 7,754,000 | 11,596,100 | 9,143,400 | 11,120,400 | 36,115,500 | 0 | 0 | 0 | 680,800 | 1,100 |
| Part 2 - Lift Stations | | | | | | | | | | | | | |
| Personnel Costs | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Contractual Services | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Electricity | 2,291,300 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,291,300 | 0 | 0 | 0 | 0 |
| Chemicals | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Utilities | 105,800 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 105,800 | 0 | 0 | 0 | 0 |
| Other | 429,500 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 429,500 | 0 | 0 | 0 | 0 |
| Total Lift Stations Costs | 2,826,600 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,826,600 | 0 | 0 | 0 | 0 |

Wastewater Operations Group Functional Allocation Matrix - FY 2020 Budget

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

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 2020 allocation factors are based on historical data and judgement. The ongoing Cost Allocation Project will review these factors.

| 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 | General | |
| Part 3 - CSO Facilities | | | | | | | | | | | | | | |
| Personnel Costs | 3,144,100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,144,100 | 0 | 0 | 0 | 0 | |
| Contractual Services | 2,701,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,701,000 | 0 | 0 | 0 | 0 | |
| Electricity | 1,072,400 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,072,400 | 0 | 0 | 0 | 0 | |
| Chemicals | 1,231,400 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,231,400 | 0 | 0 | 0 | 0 | |
| Other Utilities | 1,134,200 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,134,200 | 0 | 0 | 0 | 0 | |
| Other | 1,802,500 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,802,500 | 0 | 0 | 0 | 0 | |
| Total CSO Costs | 11,085,600 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11,085,600 | 0 | 0 | 0 | 0 | |
| Part 4 - Industrial Waste Control | | | | | | | | | | | | | | |
| Personnel Costs | 2,077,900 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,077,900 | 0 | 0 | |
| Contractual Services | 172,900 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 172,900 | 0 | 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 | 156,300 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 156,300 | 0 | 0 | |
| Total IWC Costs | 2,407,100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,407,100 | 0 | 0 | |
| Part 5 - Support Services | | | | | | | | | | | | | | |
| 8.1 Chief Operating Officer Wastewater | 2,511,100 | 75,200 | 76,800 | 324,500 | 261,700 | 241,800 | 427,800 | 577,700 | 0 | 304,800 | 0 | 220,900 | 0 | |
| 8.2.8 Wastewater Fire Damage | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 8.5 Wastewater Engineering | 7,504,300 | 375,200 | 0 | 750,400 | 1,125,600 | 750,400 | 1,125,600 | 1,500,900 | 1,125,600 | 375,200 | 0 | 0 | 375,200 | |
| 8.61 Analytical Laboratory | 4,148,900 | 0 | 0 | 622,300 | 622,300 | 622,300 | 0 | 622,300 | 0 | 0 | 1,659,600 | 0 | 0 | |
| 8.7 O&M Unallocated Reserve | 3,264,900 | 97,700 | 99,800 | 421,900 | 340,200 | 314,400 | 556,200 | 751,100 | 0 | 396,300 | 0 | 287,200 | 0 | |
| Total Support Costs | 17,429,200 | 548,100 | 176,600 | 2,119,100 | 2,349,800 | 1,928,900 | 2,109,600 | 3,452,000 | 1,125,600 | 1,076,300 | 0 | 2,167,700 | 375,200 | |
| TOTAL GROUP | 118,442,300 | 5,633,700 | 3,373,500 | 9,873,100 | 13,945,900 | 11,072,300 | 13,230,000 | 39,567,500 | 3,952,200 | 12,161,900 | 0 | 5,255,600 | 375,200 | 1,100 |
| Indirect Allocation Factors | 1,670,100 | 1,195,300 | 5,490,600 | 5,132,800 | 4,345,500 | 7,456,000 | 10,290,700 | 1,555,100 | 5,321,800 | 0 | 2,674,500 | 375,200 | 0 | |

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

Reflects detailed cost center analyses as set forth on pages A-12 thru A-16

Centralized Services Group Functional Allocation Matrix - FY 2020 Budget

Goal is to allocate specific budget items within the Group that align with Cost Pools used to allocate costs to Customers.
 The first step in the process is to establish direct cost pool allocation factors.
 The FY 2020 allocation factors are based on a combination of historical data and judgement and the ongoing Cost Allocation Project.

| | | 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 |
| Part 1 - Cost Pool Allocation Factors | | | | | | | | | | | | | | |
| Centralized Services | | | | | | | | | | | | | | |
| 4.1 Chief Planning Officer | | | | | | | 50.00% | | | | | | | 50.00% |
| 4.2 System Planning | 24.79% | 0.00% | 8.26% | 8.26% | 0.00% | 0.00% | 46.29% | 4.13% | 4.13% | 4.13% | 0.00% | 0.00% | 0.00% | 0.00% |
| 4.3 System Analytics | 14.47% | 0.00% | 4.82% | 4.82% | 0.00% | 0.00% | 29.19% | 2.41% | 7.42% | 18.84% | 0.00% | 18.02% | 0.00% | 0.00% |
| 4.4 Asset Management & Capital Planning | 5.57% | 0.00% | 1.86% | 43.21% | 0.00% | 0.00% | 6.50% | 0.93% | 0.93% | 41.01% | 0.00% | 0.00% | 0.00% | 0.00% |
| 4.5 Energy Management | 30.00% | | 20.00% | | | | 45.00% | 5.00% | | | | | | |
| 5.1 Field Services Director | | | 20.00% | 25.00% | 5.00% | | | | | | 46.25% | | 3.75% | |
| 5.2 Field Engineering | | | | | | 50.00% | | | | | | | | 50.00% |
| 5.3 Field Service Operations | 0.00% | 2.25% | 4.49% | 40.61% | 2.25% | 0.00% | 0.00% | 6.74% | 0.00% | 41.43% | 0.00% | 2.25% | 0.00% | 0.00% |
| 5.4 Facility Operations | 40.00% | | 10.00% | | | | 50.00% | | | | | | | |
| 5.5 Fleet Operations | | | | | | 50.00% | | | | | | | | 50.00% |
| 12.1 Centralized Services Unallocated Reserve | | | | | | 50.00% | | | | | | | | 50.00% |
| 7.1 Systems Control | 5.18% | 5.18% | 36.26% | 5.18% | 5.18% | 0.00% | 0.00% | 32.66% | 0.00% | 10.36% | 0.00% | 0.00% | 0.00% | 0.00% |
| Part 2 - Functional O&M Allocation | | | | | | | | | | | | | | |
| | | 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 | 408,900 | 0 | 0 | 0 | 0 | 0 | 204,500 | 0 | 0 | 0 | 0 | 0 | 0 | 204,500 |
| 4.2 System Planning | 4,377,000 | 1,085,100 | 0 | 361,700 | 361,700 | 0 | 0 | 2,026,100 | 180,800 | 180,800 | 180,800 | 0 | 0 | 0 |
| 4.3 System Analytics | 9,385,500 | 1,358,200 | 0 | 452,800 | 452,800 | 0 | 0 | 2,739,700 | 226,300 | 696,300 | 1,768,400 | 0 | 1,691,000 | 0 |
| 4.4 Asset Management & Capital Planning | 4,990,100 | 277,900 | 0 | 92,700 | 2,156,200 | 0 | 0 | 324,400 | 46,300 | 46,300 | 2,046,300 | 0 | 0 | 0 |
| 4.5 Energy Management | 2,040,000 | 612,000 | 0 | 408,000 | 0 | 0 | 0 | 918,000 | 102,000 | 0 | 0 | 0 | 0 | 0 |
| 5.1 Field Services Director | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5.2 Field Engineering | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5.3 Field Service Operations | 20,493,100 | 0 | 460,100 | 920,200 | 8,321,300 | 460,100 | 0 | 0 | 1,380,300 | 0 | 8,491,000 | 0 | 460,100 | 0 |
| 5.4 Facility Operations | 8,538,200 | 3,415,300 | 0 | 853,800 | 0 | 0 | 0 | 4,269,100 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5.5 Fleet Operations | 2,034,500 | 0 | 0 | 0 | 0 | 0 | 1,017,300 | 0 | 0 | 0 | 0 | 0 | 0 | 1,017,300 |
| 12.1 Centralized Services Unallocated Reserve | 653,100 | 0 | 0 | 0 | 0 | 0 | 326,600 | 0 | 0 | 0 | 0 | 0 | 0 | 326,600 |
| 7.1 Systems Control | 11,939,700 | 618,600 | 618,600 | 4,329,200 | 617,900 | 618,600 | 0 | 0 | 3,899,900 | 0 | 1,236,900 | 0 | 0 | 0 |
| Total Centralized Services | 64,860,100 | 7,367,100 | 1,078,700 | 7,418,400 | 11,909,900 | 1,078,700 | 1,548,400 | 10,277,300 | 5,835,600 | 923,400 | 13,723,400 | 0 | 2,151,100 | 1,548,400 |
| Direct Subtotal | 61,763,600 | 7,367,100 | 1,078,700 | 7,418,400 | 11,909,900 | 1,078,700 | | 10,277,300 | 5,835,600 | 923,400 | 13,723,400 | 0 | 2,151,100 | |
| Indirect Allocation Factors | | 25.5% | 3.7% | 25.7% | 41.3% | 3.7% | | 31.2% | 17.7% | 2.8% | 41.7% | 0.0% | 6.5% | |
| Allocated Indirect | 100 | 395,400 | 57,900 | 398,100 | 639,200 | 57,900 | (1,548,400) | 483,500 | 274,600 | 43,400 | 645,700 | 0 | 101,200 | (1,548,400) |
| Reallocated Total | 64,860,500 | 7,762,500 | 1,136,600 | 7,816,500 | 12,549,100 | 1,136,600 | 0 | 10,760,800 | 6,110,200 | 966,800 | 14,369,100 | 0 | 2,252,300 | 0 |

Aligns with FY 2020 Budget Request as of 01/18/19. Subsequent modifications may occur.

Specific Functional Allocation Matrix - FY 2020 Budget
Systems Planning

Allocation factors based on Cost Allocation Plan analyses

Part 1 - Allocation Factors

| | Water System Functional Categories | | | | | | Wastewater System Functional Categories | | | | | | |
|----------------------|------------------------------------|------------|------------------|------------------------|---------------|-------------|---|---------------|--------------------|--------------------------------------|--------------------------|---------------|-------------|
| | Water Plants | Reservoirs | Booster Stations | Transmission Mains (a) | Master Meters | Total Water | WRRF | Lift Stations | New CSO Facilities | Outfalls "Existing" Interceptors (b) | Industrial Waste Control | Master Meters | Total Sewer |
| Personnel Expenses | 30.0% | 0.0% | 10.0% | 10.0% | 0.0% | 50.0% | 35.0% | 5.0% | 5.0% | 5.0% | 0.0% | 0.0% | 50.0% |
| Contractual Services | 22.8% | 0.0% | 7.6% | 7.6% | 0.0% | 38.0% | 50.6% | 3.8% | 3.8% | 3.8% | 0.0% | 0.0% | 62.0% |
| Electricity | 30.0% | 0.0% | 10.0% | 10.0% | 0.0% | 50.0% | 35.0% | 5.0% | 5.0% | 5.0% | 0.0% | 0.0% | 50.0% |
| Other Utilities | 30.0% | 0.0% | 10.0% | 10.0% | 0.0% | 50.0% | 35.0% | 5.0% | 5.0% | 5.0% | 0.0% | 0.0% | 50.0% |
| Chemicals | 30.0% | 0.0% | 10.0% | 10.0% | 0.0% | 50.0% | 35.0% | 5.0% | 5.0% | 5.0% | 0.0% | 0.0% | 50.0% |
| Other | 30.0% | 0.0% | 10.0% | 10.0% | 0.0% | 50.0% | 35.0% | 5.0% | 5.0% | 5.0% | 0.0% | 0.0% | 50.0% |

Part 2 - Allocation of Budget to Cost Pools

| | | | | | | | | | | | | | | |
|-----------------------------|-----------|-----------|---|---------|---------|---|-----------|-----------|---------|---------|---------|---|---|-----------|
| Personnel Expenses | 1,088,100 | 326,400 | 0 | 108,800 | 108,800 | 0 | 544,000 | 380,900 | 54,400 | 54,400 | 54,400 | 0 | 0 | 544,100 |
| Contractual Services | 3,174,000 | 724,200 | 0 | 241,400 | 241,400 | 0 | 1,207,000 | 1,604,900 | 120,700 | 120,700 | 120,700 | 0 | 0 | 1,967,000 |
| Electricity | 0 | 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 | 0 |
| Chemicals | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other | 114,900 | 34,500 | 0 | 11,500 | 11,500 | 0 | 57,500 | 40,300 | 5,700 | 5,700 | 5,700 | 0 | 0 | 57,400 |
| Total Systems Planning | 4,377,000 | 1,085,100 | 0 | 361,700 | 361,700 | 0 | 1,808,500 | 2,026,100 | 180,800 | 180,800 | 180,800 | 0 | 0 | 2,568,500 |
| Shared Services Credit | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Net GLWA Budget to Allocate | 4,377,000 | 1,085,100 | 0 | 361,700 | 361,700 | 0 | 1,808,500 | 2,026,100 | 180,800 | 180,800 | 180,800 | 0 | 0 | 2,568,500 |

- (a) Reflects Transmission System elements such as pressure reducing valves, etc.
- (b) Reflects Collection System elements at 183 sites such as remote control inflatable dams, outfall gates, etc.

| Specific Contracts | | | | | | | | | | | | | | |
|-------------------------------|-----------|---------|------|---------|---------|------|-----------|-----------|---------|---------|---------|------|------|-----------|
| CS-036 Wastewater Master Plan | 760,000 | | | | | | | 760,000 | | | | | | |
| Non-Specific Contracts | 2,414,000 | 724,200 | 0 | 241,400 | 241,400 | 0 | 1,207,000 | 844,900 | 120,700 | 120,700 | 120,700 | 0 | 0 | 1,207,000 |
| Total Contracts | 3,174,000 | 724,200 | 0 | 241,400 | 241,400 | 0 | 1,207,000 | 1,604,900 | 120,700 | 120,700 | 120,700 | 0 | 0 | 1,207,000 |
| | | 22.8% | 0.0% | 7.6% | 7.6% | 0.0% | 38.0% | 50.6% | 3.8% | 3.8% | 3.8% | 0.0% | 0.0% | 38.0% |

Reflects detailed review of specific contract focus areas

Specific Functional Allocation Matrix - FY 2020 Budget
System Analytics

Allocation factors based on Cost Allocation Plan analyses

Part 1 - Allocation Factors

| | Water System Functional Categories | | | | | | Wastewater System Functional Categories | | | | | | |
|----------------------|------------------------------------|------------|------------------|------------------------|---------------|-------------|---|---------------|--------------------|---|--------------------------|---------------|-------------|
| | Water Plants | Reservoirs | Booster Stations | Transmission Mains (a) | Master Meters | Total Water | WRRF | Lift Stations | New CSO Facilities | Outfalls "Existing" Interceptors (b) | Industrial Waste Control | Master Meters | Total Sewer |
| Personnel Expenses | 30.0% | 0.0% | 10.0% | 10.0% | 0.0% | 50.0% | 35.0% | 5.0% | 5.0% | 5.0% | 0.0% | 0.0% | 50.0% |
| Contractual Services | 2.0% | 0.0% | 0.7% | 0.7% | 0.0% | 3.3% | 24.5% | 0.3% | 9.4% | 30.0% | 0.0% | 32.5% | 96.7% |
| Electricity | 30.0% | 0.0% | 10.0% | 10.0% | 0.0% | 50.0% | 35.0% | 5.0% | 5.0% | 5.0% | 0.0% | 0.0% | 50.0% |
| Other Utilities | 30.0% | 0.0% | 10.0% | 10.0% | 0.0% | 50.0% | 35.0% | 5.0% | 5.0% | 5.0% | 0.0% | 0.0% | 50.0% |
| Chemicals | 30.0% | 0.0% | 10.0% | 10.0% | 0.0% | 50.0% | 35.0% | 5.0% | 5.0% | 5.0% | 0.0% | 0.0% | 50.0% |
| Other | 30.0% | 0.0% | 10.0% | 10.0% | 0.0% | 50.0% | 35.0% | 5.0% | 5.0% | 5.0% | 0.0% | 0.0% | 50.0% |

Part 2 - Allocation of Budget to Cost Pools

| | | | | | | | | | | | | | | |
|-----------------------------|-----------|-----------|---|---------|---------|---|-----------|-----------|---------|---------|-----------|---|-----------|-----------|
| Personnel Expenses | 3,780,500 | 1,134,200 | 0 | 378,100 | 378,100 | 0 | 1,890,400 | 1,323,100 | 189,000 | 189,000 | 189,000 | 0 | 0 | 1,890,100 |
| Contractual Services | 5,206,200 | 104,300 | 0 | 34,800 | 34,800 | 0 | 173,900 | 1,277,000 | 17,400 | 487,400 | 1,559,500 | 0 | 1,691,000 | 5,032,300 |
| Electricity | 80,500 | 24,200 | 0 | 8,100 | 8,100 | 0 | 40,400 | 28,100 | 4,000 | 4,000 | 4,000 | 0 | 0 | 40,100 |
| Other Utilities | 0 | 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 | 0 |
| Other | 378,300 | 113,500 | 0 | 37,800 | 37,800 | 0 | 189,100 | 132,500 | 18,900 | 18,900 | 18,900 | 0 | 0 | 189,200 |
| Total System Analytics | 9,445,500 | 1,376,200 | 0 | 458,800 | 458,800 | 0 | 2,293,800 | 2,760,700 | 229,300 | 699,300 | 1,771,400 | 0 | 1,691,000 | 7,151,700 |
| Shared Services Credit | (60,000) | (18,000) | 0 | (6,000) | (6,000) | 0 | (30,000) | (21,000) | (3,000) | (3,000) | (3,000) | 0 | 0 | (30,000) |
| Net GLWA Budget to Allocate | 9,385,500 | 1,358,200 | 0 | 452,800 | 452,800 | 0 | 2,263,800 | 2,739,700 | 226,300 | 696,300 | 1,768,400 | 0 | 1,691,000 | 7,121,700 |

- (a) Reflects Transmission System elements such as pressure reducing valves, etc.
- (b) Reflects Collection System elements at 183 sites such as remote control inflatable dams, outfall gates, etc.

Specific Contracts

| | | | | | | | | | | | | | | |
|-------------------------------------|-----------|---------|------|--------|--------|------|---------|-----------|--------|---------|-----------|------|-----------|---------|
| CON-179 PCI Technical Sewer Support | 655,400 | | | | | | | 655,400 | | | | | | |
| TBD Sewer SHARES Sampling | 500,000 | | | | | | | 500,000 | | | | | | |
| TBD CSO Condition Assessment | 470,000 | | | | | | | | | 470,000 | | | | |
| TBD Collection System Modelling | 1,542,100 | | | | | | | | | | 1,542,100 | | | |
| CS-239 CDM Good Metering | 816,000 | | | | | | | | | | | | 816,000 | |
| CS-236 ASI Meter Dye Testing | 875,000 | | | | | | | | | | | | 875,000 | |
| Non-Specific Contracts | 347,700 | 104,300 | 0 | 34,800 | 34,800 | 0 | 173,900 | 121,700 | 17,400 | 17,400 | 17,400 | 0 | 0 | 173,900 |
| Total Contracts | 5,206,200 | 104,300 | 0 | 34,800 | 34,800 | 0 | 173,900 | 1,277,100 | 17,400 | 487,400 | 1,559,500 | 0 | 1,691,000 | 173,900 |
| | | 2.0% | 0.0% | 0.7% | 0.7% | 0.0% | 3.3% | 24.5% | 0.3% | 9.4% | 30.0% | 0.0% | 32.5% | 3.3% |

Reflects detailed review of specific contract focus areas

Specific Functional Allocation Matrix - FY 2020 Budget
Asset Management / Capital Planning

Allocation factors based on Cost Allocation Plan analyses

Part 1 - Allocation Factors

| | Water System Functional Categories | | | | | | Wastewater System Functional Categories | | | | | | |
|----------------------|------------------------------------|------------|------------------|------------------------|---------------|-------------|---|---------------|--------------------|--------------------------------------|--------------------------|---------------|-------------|
| | Water Plants | Reservoirs | Booster Stations | Transmission Mains (a) | Master Meters | Total Water | WRRF | Lift Stations | New CSO Facilities | Outfalls "Existing" Interceptors (b) | Industrial Waste Control | Master Meters | Total Sewer |
| Personnel Expenses | 30.0% | 0.0% | 10.0% | 10.0% | 0.0% | 50.0% | 35.0% | 5.0% | 5.0% | 5.0% | 0.0% | 0.0% | 50.0% |
| Contractual Services | -3.3% | 0.0% | -1.1% | 55.3% | 0.0% | 50.9% | -3.8% | -0.5% | -0.5% | 54.1% | 0.0% | 0.0% | 49.1% |
| Electricity | 30.0% | 0.0% | 10.0% | 10.0% | 0.0% | 50.0% | 35.0% | 5.0% | 5.0% | 5.0% | 0.0% | 0.0% | 50.0% |
| Other Utilities | 30.0% | 0.0% | 10.0% | 10.0% | 0.0% | 50.0% | 35.0% | 5.0% | 5.0% | 5.0% | 0.0% | 0.0% | 50.0% |
| Chemicals | 30.0% | 0.0% | 10.0% | 10.0% | 0.0% | 50.0% | 35.0% | 5.0% | 5.0% | 5.0% | 0.0% | 0.0% | 50.0% |
| Other | 30.0% | 0.0% | 10.0% | 10.0% | 0.0% | 50.0% | 35.0% | 5.0% | 5.0% | 5.0% | 0.0% | 0.0% | 50.0% |

Part 2 - Allocation of Budget to Cost Pools

| | | | | | | | | | | | | | | |
|---|-----------|-----------|------|----------|-----------|------|-----------|-----------|----------|----------|-----------|------|------|-----------|
| Personnel Expenses | 1,111,800 | 333,500 | 0 | 111,200 | 111,200 | 0 | 555,900 | 389,100 | 55,600 | 55,600 | 55,600 | 0 | 0 | 555,900 |
| Contractual Services | 3,661,500 | (120,600) | 0 | (40,200) | 2,023,300 | 0 | 1,862,500 | (140,700) | (20,100) | (20,100) | 1,979,900 | 0 | 0 | 1,799,000 |
| Electricity | 0 | 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 | 0 |
| Chemicals | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other | 216,800 | 65,000 | 0 | 21,700 | 21,700 | 0 | 108,400 | 76,000 | 10,800 | 10,800 | 10,800 | 0 | 0 | 108,400 |
| Total Asset Management / Capital Planning | 4,990,100 | 277,900 | 0 | 92,700 | 2,156,200 | 0 | 2,526,800 | 324,400 | 46,300 | 46,300 | 2,046,300 | 0 | 0 | 2,463,300 |
| Shared Services Credit | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Net GLWA Budget to Allocate | 4,990,100 | 277,900 | 0 | 92,700 | 2,156,200 | 0 | 2,526,800 | 324,400 | 46,300 | 46,300 | 2,046,300 | 0 | 0 | 2,463,300 |
| Allocated Maintenance Budget | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Relative Maintenance Budget | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |

(a) Reflects Transmission System elements such as pressure reducing valves, etc.
 (b) Reflects Collection System elements at 183 sites such as remote control inflatable dams, outfall gates, etc.

| | | | | | | | | | | | | | | |
|---|-----------|-----------|------|----------|-----------|------|-----------|-----------|----------|----------|-----------|------|------|-----------|
| Specific Contracts | | | | | | | | | | | | | | |
| TBD Transmission Pipe Integrity Program | 2,063,500 | | | | 2,063,500 | | | | | | | | | |
| Sewer Specific Estimate | 2,000,000 | | | | | | | | | | 2,000,000 | | | |
| Non-Specific Contracts | (402,000) | (120,600) | 0 | (40,200) | (40,200) | 0 | (201,000) | (140,700) | (20,100) | (20,100) | (20,100) | 0 | 0 | (201,000) |
| | 3,661,500 | (120,600) | 0 | (40,200) | 2,023,300 | 0 | (201,000) | (140,700) | (20,100) | (20,100) | 1,979,900 | 0 | 0 | (201,000) |
| | | -3.3% | 0.0% | -1.1% | 55.3% | 0.0% | -5.5% | -3.8% | -0.5% | -0.5% | 54.1% | 0.0% | 0.0% | -5.5% |

Reflects detailed review of specific contract focus areas

Specific Functional Allocation Matrix - FY 2020 Budget
Field Service Operations

Allocation factors based on Cost Allocation Plan analyses

Part 1 - Allocation Factors

| | Water System Functional Categories | | | | | | Wastewater System Functional Categories | | | | | | |
|----------------------|------------------------------------|------------|------------------|------------------------|---------------|-------------|---|---------------|--------------------|--------------------------------------|--------------------------|---------------|-------------|
| | Water Plants | Reservoirs | Booster Stations | Transmission Mains (a) | Master Meters | Total Water | WRRF | Lift Stations | New CSO Facilities | Outfalls "Existing" Interceptors (b) | Industrial Waste Control | Master Meters | Total Sewer |
| Personnel Expenses | 0.0% | 5.0% | 10.0% | 30.0% | 5.0% | 50.0% | 0.0% | 15.0% | 0.0% | 30.0% | 0.0% | 5.0% | 50.0% |
| Contractual Services | 0.0% | 1.2% | 2.5% | 44.5% | 1.2% | 49.4% | 0.0% | 3.7% | 0.0% | 45.6% | 0.0% | 1.2% | 50.6% |
| Electricity | 0.0% | 5.0% | 10.0% | 30.0% | 5.0% | 50.0% | 0.0% | 15.0% | 0.0% | 30.0% | 0.0% | 5.0% | 50.0% |
| Other Utilities | 0.0% | 5.0% | 10.0% | 30.0% | 5.0% | 50.0% | 0.0% | 15.0% | 0.0% | 30.0% | 0.0% | 5.0% | 50.0% |
| Chemicals | 0.0% | 5.0% | 10.0% | 30.0% | 5.0% | 50.0% | 0.0% | 15.0% | 0.0% | 30.0% | 0.0% | 5.0% | 50.0% |
| Other | 0.0% | 5.0% | 10.0% | 30.0% | 5.0% | 50.0% | 0.0% | 15.0% | 0.0% | 30.0% | 0.0% | 5.0% | 50.0% |

Part 2 - Allocation of Budget to Cost Pools

| | | | | | | | | | | | | | | |
|---------------------------------------|-------------------|----------|----------------|----------------|------------------|----------------|-------------------|----------|------------------|----------|------------------|----------|----------------|-------------------|
| Personnel Expenses | 5,085,800 | 0 | 254,300 | 508,600 | 1,525,700 | 254,300 | 2,542,900 | 0 | 762,900 | 0 | 1,525,700 | 0 | 254,300 | 2,542,900 |
| Contractual Services | 15,021,300 | 0 | 186,500 | 373,000 | 6,679,800 | 186,500 | 7,425,800 | 0 | 559,500 | 0 | 6,849,500 | 0 | 186,500 | 7,595,500 |
| Electricity | 0 | 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 | 0 |
| Chemicals | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other | 402,700 | 0 | 20,100 | 40,300 | 120,900 | 20,100 | 201,400 | 0 | 60,400 | 0 | 120,800 | 0 | 20,100 | 201,300 |
| Total Field Service Operations | 20,509,800 | 0 | 460,900 | 921,900 | 8,326,400 | 460,900 | 10,170,100 | 0 | 1,382,800 | 0 | 8,496,000 | 0 | 460,900 | 10,339,700 |
| Shared Services Credit | (16,700) | 0 | (800) | (1,700) | (5,100) | (800) | (8,400) | 0 | (2,500) | 0 | (5,000) | 0 | (800) | (8,300) |
| Net GLWA Budget to Allocate | 20,493,100 | 0 | 460,100 | 920,200 | 8,321,300 | 460,100 | 10,161,700 | 0 | 1,380,300 | 0 | 8,491,000 | 0 | 460,100 | 10,331,400 |

(a) Reflects Transmission System elements such as pressure reducing valves, etc.

(b) Reflects Collection System elements at 183 sites such as remote control inflatable dams, outfall gates, etc.

Specific Contracts

| | | | | | | | | | | | | | | |
|---------------------------------------|-------------------|----------|----------------|----------------|------------------|----------------|------------------|----------|----------------|----------|------------------|----------|----------------|------------------|
| TBD Leak Repair | 798,100 | | | | | | 798,100 | | | | | | | |
| TBD Sewer Cleaning and Investigation | 997,700 | | | | | | | | | | 997,700 | | | |
| CS-277 14 Mile Road Trans Cond Assess | 570,600 | | | | | | 570,600 | | | | | | | |
| CON-149 Inland Waters Sewer Repair | 4,732,800 | | | | | | | | | | 4,732,800 | | | |
| CON-158 Lakeshore Matl/Equip | 1,400,000 | 0 | 70,000 | 140,000 | 420,000 | 70,000 | 700,000 | 0 | 210,000 | 0 | 420,000 | 0 | 70,000 | 700,000 |
| CON-158 Lakeshore Skilled Labor | 1,800,000 | 0 | 90,000 | 180,000 | 540,000 | 90,000 | 900,000 | 0 | 270,000 | 0 | 540,000 | 0 | 90,000 | 900,000 |
| CON-181 Water Transmission Repair | 2,550,000 | | | | | | 2,550,000 | | | | | | | |
| WS-695C Toolos Gate Valve Inspection | 1,642,100 | | | | | | 1,642,100 | | | | | | | |
| Non-Specific Contracts | 530,000 | 0 | 26,500 | 53,000 | 159,000 | 26,500 | 265,000 | 0 | 79,500 | 0 | 159,000 | 0 | 26,500 | 265,000 |
| Total Contracts | 15,021,300 | 0 | 186,500 | 373,000 | 6,679,800 | 186,500 | 1,865,000 | 0 | 559,500 | 0 | 6,849,500 | 0 | 186,500 | 1,865,000 |
| | | 0.0% | 1.2% | 2.5% | 44.5% | 1.2% | 12.4% | 0.0% | 3.7% | 0.0% | 45.6% | 0.0% | 1.2% | 12.4% |

Reflects detailed review of specific contract focus areas

Specific Functional Allocation Matrix - FY 2020 Budget
System Control Center

Allocation factors based on Cost Allocation Plan analyses

Part 1 - Allocation Factors

| | Water System Functional Categories | | | | | | Wastewater System Functional Categories | | | | | |
|----------------------|------------------------------------|------------|------------------|------------------------|---------------|-------------|---|---------------|--------------------|-----------------------------|--------------------------|-------------|
| | Water Plants | Reservoirs | Booster Stations | Transmission Mains (a) | Master Meters | Total Water | WRRF | Lift Stations | Outfalls | | Master Meters | Total Sewer |
| | | | | | | | | | New CSO Facilities | "Existing" Interceptors (b) | Industrial Waste Control | |
| Personnel Expenses | 5.0% | 5.0% | 35.0% | 5.0% | 5.0% | 55.0% | 0.0% | 35.0% | 0.0% | 10.0% | 0.0% | 45.0% |
| Contractual Services | 5.0% | 5.0% | 35.0% | 5.0% | 5.0% | 55.0% | 0.0% | 35.0% | 0.0% | 10.0% | 0.0% | 45.0% |
| Electricity | 5.0% | 5.0% | 35.0% | 5.0% | 5.0% | 55.0% | 0.0% | 35.0% | 0.0% | 10.0% | 0.0% | 45.0% |
| Other Utilities | 5.0% | 5.0% | 35.0% | 5.0% | 5.0% | 55.0% | 0.0% | 35.0% | 0.0% | 10.0% | 0.0% | 45.0% |
| Chemicals | 5.0% | 5.0% | 35.0% | 5.0% | 5.0% | 55.0% | 0.0% | 35.0% | 0.0% | 10.0% | 0.0% | 45.0% |
| Other | 5.0% | 5.0% | 35.0% | 5.0% | 5.0% | 55.0% | 0.0% | 35.0% | 0.0% | 10.0% | 0.0% | 45.0% |

Part 2 - Allocation of Budget to Cost Pools

| | Personnel Expenses | Contractual Services | Electricity | Other Utilities | Chemicals | Other | Total System Control Center | Shared Services Credit | Net GLWA Budget to Allocate | Water Plants | Reservoirs | Booster Stations | Transmission Mains (a) | Master Meters | Total Water | WRRF | Lift Stations | New CSO Facilities | "Existing" Interceptors (b) | Industrial Waste Control | Master Meters | Total Sewer | |
|-----------------------------|--------------------|----------------------|-------------|-----------------|-----------|---------|-----------------------------|------------------------|-----------------------------|--------------|------------|------------------|------------------------|---------------|-------------|------|---------------|--------------------|-----------------------------|--------------------------|---------------|-------------|-----------|
| Personnel Expenses | 3,741,900 | 7,603,100 | 51,000 | 27,100 | 0 | 945,800 | 12,368,900 | (429,200) | 11,939,700 | 187,100 | 187,100 | 1,309,700 | 187,000 | 187,100 | 2,058,000 | 0 | 1,309,700 | 0 | 374,200 | 0 | 0 | 0 | 1,683,900 |
| Contractual Services | | | | | | | | | | 380,200 | 380,200 | 2,661,100 | 380,000 | 380,200 | 4,181,700 | 0 | 2,661,100 | 0 | 760,300 | 0 | 0 | 0 | 3,421,400 |
| Electricity | | | | | | | | | | 2,600 | 2,600 | 17,900 | 2,400 | 2,600 | 28,100 | 0 | 17,800 | 0 | 5,100 | 0 | 0 | 0 | 22,900 |
| Other Utilities | | | | | | | | | | 1,400 | 1,400 | 9,500 | 1,200 | 1,400 | 14,900 | 0 | 9,500 | 0 | 2,700 | 0 | 0 | 0 | 12,200 |
| Chemicals | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other | | | | | | | | | | 47,300 | 47,300 | 331,000 | 47,300 | 47,300 | 520,200 | 0 | 331,000 | 0 | 94,600 | 0 | 0 | 0 | 425,600 |
| Total System Control Center | | | | | | | | | | 618,600 | 618,600 | 4,329,200 | 617,900 | 618,600 | 6,802,900 | 0 | 4,329,100 | 0 | 1,236,900 | 0 | 0 | 0 | 5,566,000 |
| Shared Services Credit | | | | | | | | | | | | | | | 0 | | (429,200) | | | | | | (429,200) |
| Net GLWA Budget to Allocate | | | | | | | | | | 618,600 | 618,600 | 4,329,200 | 617,900 | 618,600 | 6,802,900 | 0 | 3,899,900 | 0 | 1,236,900 | 0 | 0 | 0 | 5,136,800 |

(a) Reflects Transmission System elements such as pressure reducing valves, etc.
(b) Reflects Collection System elements at 183 sites such as remote control inflatable dams, outfall gates, etc.

| Specific Contracts | CON-158 Lakeshore Matl/Equip | CON-158 Lakeshore Skilled Labor | Motor City Electric High Voltage Rprs | CS-090A PCI Insrtumentation SCADA Contols | CS-159 PCI Equip Maintenance | Non-Specific Contracts | Total Contracts | Water Plants | Reservoirs | Booster Stations | Transmission Mains (a) | Master Meters | Total Water | WRRF | Lift Stations | New CSO Facilities | "Existing" Interceptors (b) | Industrial Waste Control | Master Meters | Total Sewer | | | |
|---|------------------------------|---------------------------------|---------------------------------------|---|------------------------------|------------------------|-----------------|--------------|------------|------------------|------------------------|---------------|-------------|---------|---------------|--------------------|-----------------------------|--------------------------|---------------|-------------|---|---|-----------|
| CON-158 Lakeshore Matl/Equip | 1,050,900 | 1,331,100 | 700,600 | 2,887,000 | 665,600 | 967,900 | 7,603,100 | 52,500 | 66,600 | 35,000 | 144,400 | 33,300 | 48,400 | 380,200 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 472,900 |
| CON-158 Lakeshore Skilled Labor | | | | | | | | 52,500 | 66,600 | 35,000 | 144,400 | 33,300 | 48,400 | 380,200 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 599,000 |
| Motor City Electric High Voltage Rprs | | | | | | | | 35,000 | 35,000 | 245,200 | 35,000 | 35,000 | 385,200 | 0 | 245,200 | 0 | 70,100 | 0 | 0 | 0 | 0 | 0 | 315,300 |
| CS-090A PCI Insrtumentation SCADA Contols | | | | | | | | 144,400 | 144,400 | 1,010,500 | 144,400 | 144,400 | 1,588,100 | 0 | 1,010,500 | 0 | 288,700 | 0 | 0 | 0 | 0 | 0 | 1,299,200 |
| CS-159 PCI Equip Maintenance | | | | | | | | 33,300 | 33,300 | 233,000 | 33,300 | 33,300 | 366,200 | 0 | 233,000 | 0 | 66,600 | 0 | 0 | 0 | 0 | 0 | 299,600 |
| Non-Specific Contracts | | | | | | | | 48,400 | 48,400 | 338,800 | 48,400 | 48,400 | 532,400 | 0 | 338,800 | 0 | 96,800 | 0 | 0 | 0 | 0 | 0 | 435,600 |
| Total Contracts | | | | | | | | 380,200 | 380,200 | 2,661,200 | 380,200 | 380,200 | 4,182,000 | 0 | 2,661,200 | 0 | 760,400 | 0 | 0 | 0 | 0 | 0 | 3,421,600 |

Contractual Services review does not indicate specific cost pool focus

Aligns with FY 2020 Budget Request as of 01/18/19. Subsequent modifications may occur.

Administrative Services Group Functional Allocation Matrix - FY 2020 Budget

Goal is to allocate specific budget items within the Group that align with Cost Pools used to allocate costs to Custom. For purposes of the FY 2020 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 | |
| | | Water | Sewer | Water | Sewer |
| Part 1 - Water / Sewer Allocation | | | | | |
| Administrative and Other Services | | | | | |
| 1.1 Board of Directors | 202,400 | 50.0% | 50.0% | 101,200 | 101,200 |
| 1.2 Chief Executive Officer | 632,700 | 50.0% | 50.0% | 316,400 | 316,300 |
| 1.3 Public Affairs | 1,386,100 | 50.0% | 50.0% | 693,100 | 693,000 |
| 2.1 Chief Administrative Officer | 936,600 | 50.0% | 50.0% | 468,300 | 468,300 |
| 2.2 General Counsel | 3,038,900 | 50.0% | 50.0% | 1,519,500 | 1,519,400 |
| 2.3 Organizational Development | 4,366,400 | 50.0% | 50.0% | 2,183,200 | 2,183,200 |
| 2.4 Risk Management and Safety | 1,819,800 | 50.0% | 50.0% | 909,900 | 909,900 |
| 2.5 Risk Management Insurance Fund | 2,411,300 | 50.0% | 50.0% | 1,205,700 | 1,205,600 |
| 3.1 Chief Financial Officer | 840,400 | 50.0% | 50.0% | 420,200 | 420,200 |
| 3.2 Finance | 4,751,000 | 50.0% | 50.0% | 2,375,500 | 2,375,500 |
| 3.3 Treasury | 986,400 | 50.0% | 50.0% | 493,200 | 493,200 |
| 3.4 Public Finance | 878,400 | 50.0% | 50.0% | 439,200 | 439,200 |
| 3.5 Procurement | 2,051,400 | 50.0% | 50.0% | 1,025,700 | 1,025,700 |
| 3.6 Internal Audit & Lease Administration | 544,000 | 50.0% | 50.0% | 272,000 | 272,000 |
| 3.7 Transformation | 4,431,900 | 50.0% | 50.0% | 2,216,000 | 2,215,900 |
| 6.1 Chief Information Officer | 1,379,000 | 50.0% | 50.0% | 689,500 | 689,500 |
| 6.2 Administration | 1,622,600 | 50.0% | 50.0% | 811,300 | 811,300 |
| 6.3 Business Applications | 5,913,900 | 50.0% | 50.0% | 2,957,000 | 2,956,900 |
| 6.4 Enterprise Applications | 4,098,700 | 50.0% | 50.0% | 2,049,400 | 2,049,300 |
| 6.5 Infrastructure | 19,432,400 | 50.0% | 50.0% | 9,716,200 | 9,716,200 |
| 6.6 Service Desk | 3,807,700 | 50.0% | 50.0% | 1,903,900 | 1,903,800 |
| 10.1 Security | 4,253,600 | 50.0% | 50.0% | 2,126,800 | 2,126,800 |
| 13.1 Administrative Services O&M Unalloc | 350,100 | 50.0% | 50.0% | 175,100 | 175,000 |
| Total Administrative Services | 70,135,700 | 50.0% | 50.0% | 35,068,300 | 35,067,400 |



Consolidated Allocation of Water Operating Costs to Cost Pools - FY 2020 Budget

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

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

The FY 2020 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

Total
Power
Chemicals
Other Utilities
Subtotal w/o Commodities
WTP Allocation Factors

Centralized Services

Original Allocation
Allocation of General
Allocated Total

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

Administrative Services

Original Allocation
Allocation of General
Allocated Total

ALLOCATED GRAND TOTAL

| Water System Functional Operating Cost Allocation | | | | | | | | | | | |
|---|------------------|-------------------|-------------------|-------------|--------------------------------|-------------------|--------------------|------------------|-----------|-----------------|--------------------|
| Water Treatment Plant Allocation | | | | | Water Delivery Cost Allocation | | | | | Admin & General | Grand Total O&M |
| Source of Supply | Low Lift Pumps | Purification | High Lift Pumps | General | Reservoirs | Booster Stations | Transmission Mains | Master Meters | General | | |
| 2,555,300 | 6,395,500 | 34,739,100 | 13,484,700 | 0 | 189,700 | 9,898,000 | 189,700 | 0 | 0 | | 67,452,000 |
| 401,100 | 3,208,200 | 4,010,100 | 8,421,600 | 0 | 0 | 9,027,500 | 0 | 0 | 0 | | 25,068,500 |
| 0 | 0 | 5,064,300 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 5,064,300 |
| 89,400 | 134,200 | 1,042,200 | 223,600 | 0 | 0 | 121,000 | 0 | 0 | 0 | | 1,610,400 |
| 2,064,800 | 3,053,100 | 24,622,500 | 4,839,500 | 0 | 189,700 | 749,500 | 189,700 | 0 | 0 | | 35,708,800 |
| 6.0% | 8.8% | 71.2% | 14.0% | | | | | | | | |
| from Page A-11 | | | | | 7,762,500 | 1,136,600 | 7,816,500 | 12,549,100 | 1,136,600 | 0 | 30,401,300 |
| 463,500 | 685,400 | 5,527,300 | 1,086,400 | (7,762,500) | | | | | | | 100 |
| 463,500 | 685,400 | 5,527,300 | 1,086,400 | 0 | 1,136,600 | 7,816,500 | 12,549,100 | 1,136,600 | 0 | | 30,401,400 |
| 3,018,800 | 7,080,900 | 40,266,400 | 14,571,100 | 0 | 1,326,300 | 17,714,500 | 12,738,800 | 1,136,600 | 0 | | 97,853,400 |
| 2,528,300 | 3,738,500 | 30,149,800 | 5,925,900 | 0 | 1,326,300 | 8,566,000 | 12,738,800 | 1,136,600 | 0 | | 66,110,200 |
| 3.8% | 5.7% | 45.6% | 9.0% | 0.0% | 2.0% | 13.0% | 19.3% | 1.7% | 0.0% | | |
| from Page A-17 | | | | | | | | | | 35,068,300 | 35,068,300 |
| 1,341,100 | 1,983,100 | 15,993,000 | 3,143,400 | 0 | 703,500 | 4,543,900 | 6,757,300 | 602,900 | 0 | (35,068,300) | (100) |
| 1,341,100 | 1,983,100 | 15,993,000 | 3,143,400 | 0 | 703,500 | 4,543,900 | 6,757,300 | 602,900 | 0 | 0 | 35,068,200 |
| 4,359,900 | 9,064,000 | 56,259,400 | 17,714,500 | 0 | 2,029,800 | 22,258,400 | 19,496,100 | 1,739,500 | 0 | 0 | 132,921,600 |

Step 2 - Develop Allocation Factors

Based on Prior Simplified Assumptions

| | Common-to-All | | | | | | | | Sub Only | Det Only |
|------------------------|---------------|---------|---------|---------|---------|---------|--------|--------|----------|----------|
| | Commod | Max Day | PH Incr | PH Dist | Comm DE | MD DE | PH DE | PHI DE | Mtrs | Direct |
| Source of Supply Power | 50.00% | 50.00% | | | | | | | | |
| Source of Supply Other | | 100.00% | | | | | | | | |
| Low Lift Pumps Power | 50.00% | 50.00% | | | | | | | | |
| Low Lift Pumps Other | | 100.00% | | | | | | | | |
| Purification Chemicals | 100.00% | | | | | | | | | |
| Purification Other | | 100.00% | | | | | | | | |
| High Lift Pumps Power | | | | | 50.00% | | 25.00% | 25.00% | | |
| High Lift Pumps Other | | | | | | 100.00% | | | | |
| Reservoirs | | | 100.00% | | | | | | | |
| Booster Stations | | | | | 50.00% | | 25.00% | 25.00% | | |
| Transmission Mains | | | | 100.00% | | | | | | |
| Suburban Meters | | | | | | | | | 100.00% | |

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



Consolidated Allocation of Water Operating Costs to Cost Pools - FY 2020 Budget

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

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

The FY 2020 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

| | 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 | | | |
| All Operating Costs | | | | | | | | | | | | | |
| Source of Supply Power | 401,100 | 200,600 | 200,600 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 401,200 |
| Source of Supply Other | 3,958,800 | 0 | 3,958,800 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,958,800 |
| Low Lift Pumps Power | 3,208,200 | 1,604,100 | 1,604,100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,208,200 |
| Low Lift Pumps Other | 5,855,800 | 0 | 5,855,800 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5,855,800 |
| Purification Chemicals | 5,064,300 | 5,064,300 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5,064,300 |
| Purification Other | 51,195,100 | 0 | 51,195,100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 51,195,100 |
| High Lift Pumps Power | 8,421,600 | 0 | 0 | 0 | 0 | 4,210,800 | 0 | 2,105,400 | 2,105,400 | 0 | 0 | 0 | 8,421,600 |
| High Lift Pumps Other | 9,292,900 | 0 | 0 | 0 | 0 | 9,292,900 | 0 | 0 | 0 | 0 | 0 | 0 | 9,292,900 |
| Reservoirs | 2,029,800 | 0 | 0 | 2,029,800 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,029,800 |
| Booster Stations | 22,258,400 | 0 | 0 | 0 | 0 | 11,129,200 | 0 | 5,564,600 | 5,564,600 | 0 | 0 | 0 | 22,258,400 |
| Transmission Mains | 19,496,100 | 0 | 0 | 0 | 19,496,100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19,496,100 |
| Suburban Meters | 1,739,500 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,739,500 | 0 | 0 | 1,739,500 |
| Total | 132,921,600 | 6,869,000 | 62,814,400 | 2,029,800 | 19,496,100 | 15,340,000 | 9,292,900 | 7,670,000 | 7,670,000 | 1,739,500 | 0 | 0 | 132,921,700 |
| <i>Cost Pool Allocation Factor - All Costs</i> | | 5.2% | 47.3% | 1.5% | 14.7% | 11.5% | 7.0% | 5.8% | 5.8% | 1.3% | 0.0% | | |
| Non-Commodity Costs | | | | | | | | | | | | | |
| Source of Supply Power | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Source of Supply Other | 2,528,300 | 0 | 2,528,300 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,528,300 |
| Low Lift Pumps Power | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Low Lift Pumps Other | 3,738,500 | 0 | 3,738,500 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,738,500 |
| Purification Chemicals | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Purification Other | 30,149,800 | 0 | 30,149,800 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30,149,800 |
| High Lift Pumps Power | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| High Lift Pumps Other | 5,925,900 | 0 | 0 | 0 | 0 | 0 | 5,925,900 | 0 | 0 | 0 | 0 | 0 | 5,925,900 |
| Reservoirs | 1,326,300 | 0 | 0 | 1,326,300 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,326,300 |
| Booster Stations | 8,566,000 | 0 | 0 | 0 | 0 | 4,283,000 | 0 | 2,141,500 | 2,141,500 | 0 | 0 | 0 | 8,566,000 |
| Transmission Mains | 12,738,800 | 0 | 0 | 0 | 12,738,800 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12,738,800 |
| Suburban Meters | 1,136,600 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,136,600 | 0 | 0 | 1,136,600 |
| Total | 66,110,200 | 0 | 36,416,600 | 1,326,300 | 12,738,800 | 4,283,000 | 5,925,900 | 2,141,500 | 2,141,500 | 1,136,600 | 0 | 0 | 66,110,200 |
| <i>Cost Pool Allocation Factor - Non Commodity Costs</i> | | 0.0% | 55.1% | 2.0% | 19.3% | 6.5% | 9.0% | 3.2% | 3.2% | 1.7% | 0.0% | | |

TFG

THE FOSTER GROUP

Consolidated Allocation of Wastewater Operating Costs to Cost Pools - FY 2020 Budget

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

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

The FY 2020 allocation factors are based on historical data and judgement. The upcoming Sewer Cost Allocation Methodology Project will review these factors.

Step 1 - Summarize Group Expenses

from Page A-10

| | Wastewater System Functional Categories | | | | | | | | | | | | | | | Grand Total O&M | |
|--------------------------------------|---|------------------|-------------------|-------------------|---------------------|-------------------|-------------------|--------------|---------------------------------------|-------------------|-------------------|--------------------------|------------------|--------------|-----------------|-----------------|--------------------|
| | WRRF Cost Allocation | | | | | | | | Wastewater Collection Cost Allocation | | | | | | Admin & General | | |
| | Primary Pumping | Rack & Grit | Primary Treatment | Aeration | Secondary Treatment | Dewatering | Sludge Disposal | General WRRF | Lift Stations | CSO Facilities | Interceptors | Industrial Waste Control | Master Meters | General | | | |
| Wastewater Operations Group | | | | | | | | | | | | | | | | | |
| Total | 5,633,700 | 3,373,500 | 9,873,100 | 13,945,900 | 11,072,300 | 13,230,000 | 39,567,500 | | 3,952,200 | 12,161,900 | 0 | 5,255,600 | 375,200 | 1,100 | | | 118,442,000 |
| Power | 2,829,800 | 1,131,900 | 565,800 | 2,263,800 | 1,358,300 | 2,829,800 | 1,439,600 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12,419,000 |
| Chemicals | 212,000 | 314,700 | 1,568,800 | 2,884,000 | 2,882,800 | 690,300 | 629,500 | | 0 | 0 | 0 | 0 | 0 | 1,100 | | | 9,183,200 |
| Other Utilities | 301,100 | 301,100 | 301,200 | 1,204,500 | 301,100 | 301,100 | 5,858,700 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8,568,800 |
| Subtotal w/o Commodities | 2,290,800 | 1,625,800 | 7,437,300 | 7,593,600 | 6,530,100 | 9,408,800 | 31,639,700 | | 3,952,200 | 12,161,900 | 0 | 5,255,600 | 375,200 | 0 | | | 88,271,000 |
| WW Operations Allocation Factors | 3.4% | 2.4% | 11.2% | 11.4% | 9.8% | 14.1% | 47.6% | | | | | | | | | | 100.0% |
| Centralized Services | | | | | | | | | | | | | | | | | |
| Original Allocation | | | | | | | | 10,760,800 | 6,110,200 | 966,800 | 14,369,100 | 0 | 2,252,300 | | | | 34,459,200 |
| Allocation of General | 370,500 | 263,000 | 1,203,000 | 1,228,300 | 1,056,300 | 1,521,900 | 5,117,800 | (10,760,800) | | | | | | | | | 0 |
| Allocated Total | 370,500 | 263,000 | 1,203,000 | 1,228,300 | 1,056,300 | 1,521,900 | 5,117,800 | 0 | 6,110,200 | 966,800 | 14,369,100 | 0 | 2,252,300 | | | | 34,459,200 |
| Subtotal "Direct" Total | 6,004,200 | 3,636,500 | 11,076,100 | 15,174,200 | 12,128,600 | 14,751,900 | 44,685,300 | 0 | 10,062,400 | 13,128,700 | 14,369,100 | 5,255,600 | 2,627,500 | 1,100 | | | 152,901,200 |
| Subtotal "Direct" w/o Commodities | 2,661,300 | 1,888,800 | 8,640,300 | 8,821,900 | 7,586,400 | 10,930,700 | 36,757,500 | 0 | 10,062,400 | 13,128,700 | 14,369,100 | 5,255,600 | 2,627,500 | 0 | | | 122,730,200 |
| Indirect Overhead Allocation Factors | 2.2% | 1.5% | 7.0% | 7.2% | 6.2% | 8.9% | 29.9% | 0.0% | 8.2% | 10.7% | 11.7% | 4.3% | 2.1% | 0.0% | | | 100.0% |
| Administrative Services | | | | | | | | | | | | | | | | | |
| Original Allocation | | | | | | | | | | | | | | | | | 35,067,400 |
| Allocation of General | 760,400 | 539,700 | 2,468,800 | 2,520,700 | 2,167,600 | 3,123,200 | 10,502,600 | 0 | 2,875,100 | 3,751,200 | 4,105,600 | 1,501,700 | 750,700 | 0 | | (35,067,400) | (100) |
| Allocated Total | 760,400 | 539,700 | 2,468,800 | 2,520,700 | 2,167,600 | 3,123,200 | 10,502,600 | 0 | 2,875,100 | 3,751,200 | 4,105,600 | 1,501,700 | 750,700 | 0 | | 0 | 35,067,300 |
| ALLOCATED GRAND TOTAL | 6,764,600 | 4,176,200 | 13,544,900 | 17,694,900 | 14,296,200 | 17,875,100 | 55,187,900 | 0 | 12,937,500 | 16,879,900 | 18,474,700 | 6,757,300 | 3,378,200 | 1,100 | 0 | 0 | 187,968,500 |

from Page A-11

from Page A-17

Step 2 - Develop Allocation Factors

Based on Prior Simplified Assumptions

| Total System | Cost Pool Allocation | | | | | | | | | |
|---------------------------|----------------------|-------------------|----------------|--------------------|--------------------------|------------------------|--|--------|---------|--------|
| | Specific Cost Pools | | | | | Common-to-All (SHAREs) | | | | |
| | OMID Contractual | Remaining Balance | CSO Facilities | Suburban Wholesale | Industrial Waste Control | Det Only Direct | Separated for Illustrative Purposes only for FY 2020 COS | | | |
| | | | | | | Flow | BOD | TSS | PHOS | FOG |
| Primary Pumping | | | | | | | 100.00% | | | |
| Rack & Grit | | | | | | | 100.00% | | | |
| Primary Chemical Addition | | | | | | | | | 100.00% | |
| Primary Sedimentation | | | | | | | | 70.00% | 20.00% | 10.00% |
| Aeration | | | | | | | 100.00% | | | |
| Secondary Clarification | | | | | | | 25.00% | 65.00% | 10.00% | |
| Chlorination | | | | | | | 100.00% | | | |
| Dewatering | | | | | | | 15.00% | 70.00% | 15.00% | |
| Sludge Treatment | | | | | | | 15.00% | 70.00% | 15.00% | |
| Process Water & Outfall | | | | | | | 100.00% | | | |
| Lift Stations | | | | | | | 100.00% | | | |
| CSO Facilities | | | 100.00% | | | | | | | |
| Interceptors | | | | | | | 100.00% | | | |
| Industrial Waste Control | | | | | 100.00% | | | | | |
| Suburban Meters | | | | 100.00% | | | | | | |

Traditional original Sewer Methodology allocation factors developed as part of the original Rate Settlement Agreements

Reflects proposed amendment to OMID service agreement

Consolidated Allocation of Wastewater Operating Costs to Cost Pools - FY 2020 Budget

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

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

The FY 2020 allocation factors are based on historical data and judgement. The upcoming Sewer Cost Allocation Methodology Project will review these factors.

Step 3 - Apply Allocation Factors

| | Total System | OMID Contractual | Remaining Balance | Cost Pool Allocation | | | | | | | Allocated Balance | | | |
|--|--------------------|------------------|--------------------|----------------------|--------------------|--------------------------|-----------------|--|-------------------|-------------------|-------------------|------------------|----------|--------------------|
| | | | | Specific Cost Pools | | | | Common-to-All (SHAREs) | | | | | | |
| | | | | CSO Facilities | Suburban Wholesale | Industrial Waste Control | Det Only Direct | Separated for Illustrative Purposes only for FY 2020 COS | | | | | | |
| | | | | Flow | BOD | TSS | PHOS | FOG | | | | | | |
| All Operating Costs | | | | | | | | | | | | | | |
| Primary Pumping | 6,764,600 | | 6,764,600 | 0 | 0 | 0 | 0 | 6,764,600 | 0 | 0 | 0 | 0 | 0 | 6,764,600 |
| Rack & Grit | 4,176,200 | | 4,176,200 | 0 | 0 | 0 | 0 | 4,176,200 | 0 | 0 | 0 | 0 | 0 | 4,176,200 |
| Primary Chemical Addition | 1,568,800 | | 1,568,800 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,568,800 | 0 | 0 | 1,568,800 |
| Primary Sedimentation | 11,976,100 | | 11,976,100 | 0 | 0 | 0 | 0 | 0 | 0 | 8,383,300 | 2,395,200 | 1,197,600 | 0 | 11,976,100 |
| Aeration | 17,694,900 | | 17,694,900 | 0 | 0 | 0 | 0 | 0 | 17,694,900 | 0 | 0 | 0 | 0 | 17,694,900 |
| Secondary Clarification | 11,413,400 | | 11,413,400 | 0 | 0 | 0 | 0 | 0 | 2,853,400 | 7,418,700 | 1,141,300 | 0 | 0 | 11,413,400 |
| Chlorination | 2,882,800 | | 2,882,800 | 0 | 0 | 0 | 0 | 2,882,800 | 0 | 0 | 0 | 0 | 0 | 2,882,800 |
| Dewatering | 17,875,100 | | 17,875,100 | 0 | 0 | 0 | 0 | 0 | 2,681,300 | 12,512,600 | 2,681,300 | 0 | 0 | 17,875,200 |
| Sludge Treatment | 55,187,900 | | 55,187,900 | 0 | 0 | 0 | 0 | 0 | 8,278,200 | 38,631,500 | 8,278,200 | 0 | 0 | 55,187,900 |
| Process Water & Outfall | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lift Stations | 12,937,500 | 1,506,700 | 11,430,800 | 0 | 0 | 0 | 0 | 11,430,800 | 0 | 0 | 0 | 0 | 0 | 11,430,800 |
| CSO Facilities | 16,879,900 | | 16,879,900 | 16,879,900 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16,879,900 |
| Interceptors | 18,474,700 | | 18,474,700 | 0 | 0 | 0 | 0 | 18,474,700 | 0 | 0 | 0 | 0 | 0 | 18,474,700 |
| Industrial Waste Control | 6,757,300 | | 6,757,300 | 0 | 0 | 6,757,300 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6,757,300 |
| Suburban Meters | 3,378,200 | | 3,378,200 | 0 | 3,378,200 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,378,200 |
| Total | 187,967,400 | 1,506,700 | 186,460,700 | 16,879,900 | 3,378,200 | 6,757,300 | 0 | 43,729,100 | 31,507,800 | 66,946,100 | 16,064,800 | 1,197,600 | 0 | 186,460,800 |
| <i>Cost Pool Allocation Factor - All Costs</i> | | | | 9.1% | 1.8% | 3.6% | 0.0% | 23.5% | 16.9% | 35.9% | 8.6% | 0.6% | | |
| Non-Commodity Costs | | | | | | | | | | | | | | |
| Primary Pumping | 2,661,300 | | 2,661,300 | 0 | 0 | 0 | 0 | 2,661,300 | 0 | 0 | 0 | 0 | 0 | 2,661,300 |
| Rack & Grit | 1,888,800 | | 1,888,800 | 0 | 0 | 0 | 0 | 1,888,800 | 0 | 0 | 0 | 0 | 0 | 1,888,800 |
| Primary Chemical Addition | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Primary Sedimentation | 8,640,300 | | 8,640,300 | 0 | 0 | 0 | 0 | 0 | 0 | 6,048,200 | 1,728,100 | 864,000 | 0 | 8,640,300 |
| Aeration | 8,821,900 | | 8,821,900 | 0 | 0 | 0 | 0 | 0 | 8,821,900 | 0 | 0 | 0 | 0 | 8,821,900 |
| Secondary Clarification | 7,586,400 | | 7,586,400 | 0 | 0 | 0 | 0 | 0 | 1,896,600 | 4,931,200 | 758,600 | 0 | 0 | 7,586,400 |
| Chlorination | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dewatering | 10,930,700 | | 10,930,700 | 0 | 0 | 0 | 0 | 0 | 1,639,600 | 7,651,500 | 1,639,600 | 0 | 0 | 10,930,700 |
| Sludge Treatment | 36,757,500 | | 36,757,500 | 0 | 0 | 0 | 0 | 0 | 5,513,600 | 25,730,300 | 5,513,600 | 0 | 0 | 36,757,500 |
| Process Water & Outfall | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lift Stations | 10,062,400 | 750,000 | 9,312,400 | 0 | 0 | 0 | 0 | 9,312,400 | 0 | 0 | 0 | 0 | 0 | 9,312,400 |
| CSO Facilities | 13,128,700 | | 13,128,700 | 13,128,700 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13,128,700 |
| Interceptors | 14,369,100 | | 14,369,100 | 0 | 0 | 0 | 0 | 14,369,100 | 0 | 0 | 0 | 0 | 0 | 14,369,100 |
| Industrial Waste Control | 5,255,600 | | 5,255,600 | 0 | 0 | 5,255,600 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5,255,600 |
| Suburban Meters | 2,627,500 | | 2,627,500 | 0 | 2,627,500 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,627,500 |
| Total | 122,730,200 | 750,000 | 121,980,200 | 13,128,700 | 2,627,500 | 5,255,600 | 0 | 28,231,600 | 17,871,700 | 44,361,200 | 9,639,900 | 864,000 | 0 | 121,980,200 |
| <i>Cost Pool Allocation Factor - Non Commodity Costs</i> | | | | 10.8% | 2.2% | 4.3% | 0.0% | 23.1% | 14.7% | 36.4% | 7.9% | 0.7% | | |

Allocation of Water Capital Revenue Requirements to Cost Pools - FY 2020 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 Customers.

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 - 6/30/18 (Includes CWIP) | | | | Allocate WRRF 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 | Acquisition Cost | Accumulated Depreciation | Net Book Value | Annual Depr Expense |
| 1 | Source of Supply | 40,734,300 | 7,600,500 | 33,133,800 | 2,533,000 | 25,350,100 | 5,722,800 | 19,699,900 | 1,501,900 | 66,084,400 | 13,323,300 | 52,833,700 | 4,034,900 |
| 2 | Low Lift Pumping | 52,017,100 | 14,612,800 | 37,404,300 | 4,215,000 | 32,371,700 | 11,002,700 | 22,239,000 | 2,499,300 | 84,388,800 | 25,615,500 | 59,643,300 | 6,714,300 |
| 3 | Purification | 455,011,100 | 62,917,800 | 392,093,300 | 23,395,300 | 283,166,200 | 47,373,800 | 233,121,500 | 13,872,300 | 738,177,300 | 110,291,600 | 625,214,800 | 37,267,600 |
| 4 | High Lift Pumping | 97,147,500 | 27,944,200 | 69,203,300 | 9,042,500 | 60,457,600 | 21,040,500 | 41,145,300 | 5,361,800 | 157,605,100 | 48,984,700 | 110,348,600 | 14,404,300 |
| 5 | Reservoirs | 71,474,500 | 7,054,700 | 64,419,800 | 3,646,000 | 71,474,500 | 7,054,700 | 64,419,800 | 3,646,000 | 71,474,500 | 7,054,700 | 64,419,800 | 3,646,000 |
| 6 | Water Booster Stations | 271,188,400 | 59,400,300 | 211,788,000 | 20,185,700 | 271,188,400 | 59,400,300 | 211,788,000 | 20,185,700 | 271,188,400 | 59,400,300 | 211,788,000 | 20,185,700 |
| 7 | Transmission Mains | 892,491,100 | 93,554,500 | 798,936,600 | 37,390,300 | 892,491,100 | 93,554,500 | 798,936,600 | 37,390,300 | 892,491,100 | 93,554,500 | 798,936,600 | 37,390,300 |
| 8 | Wholesale Master Meters | 175,700 | 24,700 | 151,000 | 17,200 | 175,700 | 24,700 | 151,000 | 17,200 | 175,700 | 24,947,000 | 15,251,000 | 1,737,200 |
| 9 | Subtotal | 1,880,239,700 | 273,109,500 | 1,607,130,100 | 100,425,000 | 418,915,600 | 87,609,800 | 331,305,700 | 24,955,300 | 2,299,155,300 | 360,719,300 | 1,938,435,800 | 125,380,300 |
| 10 | Water Treatment General | 418,915,600 | 87,609,800 | 331,305,700 | 24,955,300 | (418,915,600) | (87,609,800) | (331,305,700) | (24,955,300) | 0 | 0 | 0 | 0 |
| 11 | Total | 2,299,155,300 | 360,719,300 | 1,938,435,800 | 125,380,300 | 0 | 0 | 0 | 0 | 2,299,155,300 | 360,719,300 | 1,938,435,800 | 125,380,300 |

| Step 2 - Identify Capital Rev Req't | | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|-------------------------------------|-------------------------------------|----------------------|--------------------------|----------------|---------------------|------------------------------|---------------------|-------------------------|
| | | 6/30/18 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 |
| 1 | Source of Supply | 66,084,400 | 13,323,300 | 52,833,700 | 4,034,900 | 2,674,600 | 2,265,200 | 4,939,800 |
| 2 | Low Lift Pumping | 84,388,800 | 25,615,500 | 59,643,300 | 6,714,300 | 4,450,600 | 2,557,200 | 7,007,800 |
| 3 | Purification | 738,177,300 | 110,291,600 | 625,214,800 | 37,267,600 | 24,703,100 | 26,805,700 | 51,508,800 |
| 4 | High Lift Pumping | 157,605,100 | 48,984,700 | 110,348,600 | 14,404,300 | 9,548,000 | 4,731,100 | 14,279,100 |
| 5 | Reservoirs | 71,474,500 | 7,054,700 | 64,419,800 | 3,646,000 | 2,416,800 | 2,762,000 | 5,178,800 |
| 6 | Water Booster Stations | 271,188,400 | 59,400,300 | 211,788,000 | 20,185,700 | 13,380,200 | 9,080,300 | 22,460,500 |
| 7 | Transmission Mains | 892,491,100 | 93,554,500 | 798,936,600 | 37,390,300 | 24,784,400 | 34,253,900 | 59,038,300 |
| 8 | Wholesale Master Meters | 17,745,700 | 2,494,700 | 15,251,000 | 1,737,200 | 1,151,500 | 653,900 | 1,805,400 |
| 9 | Total | 2,299,155,300 | 360,719,300 | 1,938,435,800 | 125,380,300 | 83,109,200 | 83,109,300 | 166,218,500 |
| 10 | Debt Service | 137,557,700 | | | | | | |
| 11 | Xfer to GLWA Regional I&E Account | 30,098,600 | | | | | | |
| 12 | less: Non-Operating Revenue | (1,438,000) | | | | | | |
| 13 | Total Capital Rev Req't | 166,218,300 | | | | 83,109,200 | 83,109,100 | 166,218,300 |
| 14 | 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 2020 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 Customers.

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.

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | | | | | | | |
|--|-------------|------------------------------|---------|------------|------------|------------|------------|------------|-----------|---------------|--|--|--|--|----------|----------|
| | | | | | | | | | | Cost Pools | | | | | | |
| | | | | | | | | | | Common-to-All | | | | | Sub Only | Det Only |
| Commod | Max Day | PH Incr | PH Dist | PH DE | Mtrs | Direct | | | | | | | | | | |
| 1 Source of Supply | 4,939,800 | Max Day | | 4,939,800 | | | | | | | | | | | | |
| 2 Low Lift Pumping | 7,007,800 | Max Day | | 7,007,800 | | | | | | | | | | | | |
| 3 Purification | 51,508,800 | Max Day | | 51,508,800 | | | | | | | | | | | | |
| 4 High Lift Pumping | 14,279,100 | Peak Hour Distance/Elevation | | | | 14,279,100 | | | | | | | | | | |
| 5 Reservoirs | 5,178,800 | Peak Hour Increment | | 5,178,800 | | | | | | | | | | | | |
| 6 Water Booster Stations | 22,460,500 | Peak Hour Distance/Elevation | | | | 22,460,500 | | | | | | | | | | |
| 7 Transmission Mains | 59,038,300 | Peak Hour Distance | | | 59,038,300 | | | | | | | | | | | |
| 8 Wholesale Master Meters | 1,805,400 | Suburban Meters | | | | | 1,805,400 | | | | | | | | | |
| 9 Total | 166,218,500 | | | 0 | 63,456,400 | 5,178,800 | 59,038,300 | 36,739,600 | 1,805,400 | 0 | | | | | | |
| 10 Capital Revenue Req't Allocation Factor | | | | 0.0% | 38.2% | 3.1% | 35.5% | 22.1% | 1.1% | 0.0% | | | | | | |
| <u>Compare to FY 2019 Factors</u> | | | | | | | | | | | | | | | | |
| 11 FY 2019 Factors | | | | 0.0% | 40.8% | 2.2% | 31.3% | 25.3% | 0.4% | 0.0% | | | | | | |
| 12 Absolute Change | | | | 0.0% | -2.6% | 0.9% | 4.3% | -3.2% | 0.7% | 0.0% | | | | | | |
| 13 % Change | | | | 0.00% | -6.44% | 39.44% | 13.61% | -12.64% | 173.59% | 0.00% | | | | | | |

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

Direct from GLWA
Capital Asset Records

Allocation of Wastewater Capital Revenue Requirements to Cost Pools - FY 2020 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 Customers.

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 - 6/30/18 (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 | 130,227,400 | 25,809,300 | 104,418,100 | 9,071,600 | 23,004,100 | 3,553,400 | 19,300,700 | 1,552,500 | 153,231,500 | 29,362,700 | 123,718,800 | 10,624,100 |
| 2 Rack & Grit | 45,469,700 | 12,823,500 | 32,646,200 | 608,400 | 8,032,000 | 1,765,500 | 6,034,400 | 104,100 | 53,501,700 | 14,589,000 | 38,680,600 | 712,500 |
| 3 Primary Chemical Addition | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4 Primary Sedimentation | 226,867,900 | 36,310,200 | 190,557,700 | 14,286,100 | 40,075,200 | 4,999,200 | 35,222,900 | 2,444,900 | 266,943,100 | 41,309,400 | 225,780,600 | 16,731,000 |
| 5 Aeration | 124,770,500 | 17,710,500 | 107,060,000 | 6,556,200 | 22,040,200 | 2,438,400 | 19,789,100 | 1,122,000 | 146,810,700 | 20,148,900 | 126,849,100 | 7,678,200 |
| 6 Secondary Clarification | 175,524,800 | 33,981,200 | 141,543,700 | 13,397,600 | 31,005,700 | 4,678,500 | 26,163,100 | 2,292,900 | 206,530,500 | 38,659,700 | 167,706,800 | 15,690,500 |
| 7 Chlorination | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8 Dewatering | 124,432,200 | 27,700,400 | 96,731,800 | 9,720,600 | 21,980,400 | 3,813,800 | 17,880,000 | 1,663,600 | 146,412,600 | 31,514,200 | 114,611,800 | 11,384,200 |
| 9 Sludge Treatment | 398,259,800 | 70,732,900 | 327,526,900 | 20,578,600 | 70,350,900 | 9,738,500 | 60,540,400 | 3,521,900 | 468,610,700 | 80,471,400 | 388,067,300 | 24,100,500 |
| 10 Process Water & Outfall | 211,790,800 | 24,705,700 | 187,085,100 | 9,176,800 | 37,411,900 | 3,401,600 | 34,580,900 | 1,570,600 | 249,202,700 | 28,107,300 | 221,666,000 | 10,747,400 |
| 11 Lift Stations | 324,623,700 | 35,206,400 | 289,417,300 | 12,151,800 | | | | | 324,623,700 | 35,206,400 | 289,417,300 | 12,151,800 |
| 12 CSO Facilities | 562,954,400 | 46,671,100 | 516,283,300 | 18,131,200 | | | | | 562,954,400 | 46,671,100 | 516,283,300 | 18,131,200 |
| 13 Interceptors | 407,409,200 | 19,011,000 | 388,398,200 | 7,606,100 | | | | | 407,409,200 | 19,011,000 | 388,398,200 | 7,606,100 |
| 14 Industrial Waste Control | 3,677,600 | 760,800 | 2,916,800 | 249,300 | | | | | 3,677,600 | 760,800 | 2,916,800 | 249,300 |
| 15 Suburban Meters | 61,080,000 | 8,654,100 | 52,425,800 | 3,461,700 | | | | | 61,080,000 | 8,654,100 | 52,425,800 | 3,461,700 |
| 16 OMID Facilities | 16,202,100 | 3,071,300 | 13,130,800 | 1,089,100 | | | | | 16,202,100 | 3,071,300 | 13,130,800 | 1,089,100 |
| 17 Subtotal | 2,813,290,100 | 363,148,400 | 2,450,141,700 | 126,085,100 | 253,900,400 | 34,388,900 | 219,511,500 | 14,272,500 | 3,067,190,500 | 397,537,300 | 2,669,653,200 | 140,357,600 |
| 18 WRRF General | 253,900,400 | 34,388,900 | 219,511,500 | 14,272,500 | (253,900,400) | (34,388,900) | (219,511,500) | (14,272,500) | 0 | 0 | 0 | 0 |
| 19 Wastewater General | 137,671,500 | 60,026,200 | 77,645,300 | 6,203,600 | | | | | 137,671,500 | 60,026,200 | 77,645,300 | 6,203,600 |
| 20 DWSO Only | 0 | 0 | 0 | 0 | | | | | 0 | 0 | 0 | 0 |
| 21 Total | 3,204,862,000 | 457,563,500 | 2,747,298,500 | 146,561,200 | 0 | 0 | 0 | 0 | 3,204,862,000 | 457,563,500 | 2,747,298,500 | 146,561,200 |

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 | 6,877,800 | 4,433,600 | 3,598,300 | 469,600 | 160,109,300 | 33,796,300 | 127,317,100 | 11,093,700 |
| 2 Rack & Grit | 2,401,400 | 2,202,900 | 1,125,000 | 31,500 | 55,903,100 | 16,791,900 | 39,805,600 | 744,000 |
| 3 Primary Chemical Addition | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4 Primary Sedimentation | 11,981,800 | 6,237,500 | 6,566,700 | 739,500 | 278,924,900 | 47,546,900 | 232,347,300 | 17,470,500 |
| 5 Aeration | 6,589,600 | 3,042,400 | 3,689,300 | 339,400 | 153,400,300 | 23,191,300 | 130,538,400 | 8,017,600 |
| 6 Secondary Clarification | 9,270,200 | 5,837,400 | 4,877,700 | 693,500 | 215,800,700 | 44,497,100 | 172,584,500 | 16,384,000 |
| 7 Chlorination | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8 Dewatering | 6,571,800 | 4,758,500 | 3,333,400 | 503,200 | 152,984,400 | 36,272,700 | 117,945,200 | 11,887,400 |
| 9 Sludge Treatment | 21,033,700 | 12,150,800 | 11,286,700 | 1,065,200 | 489,644,400 | 92,622,200 | 399,354,000 | 25,165,700 |
| 10 Process Water & Outfall | 11,185,500 | 4,244,100 | 6,447,000 | 475,000 | 260,388,200 | 32,351,400 | 228,113,000 | 11,222,400 |
| 11 Lift Stations | 14,570,800 | 5,316,000 | 8,417,500 | 537,100 | 339,194,500 | 40,522,400 | 297,834,800 | 12,688,900 |
| 12 CSO Facilities | 25,268,300 | 7,047,100 | 15,015,800 | 801,400 | 588,222,700 | 53,718,200 | 531,299,100 | 18,932,600 |
| 13 Interceptors | 18,286,600 | 2,870,600 | 11,296,300 | 336,200 | 425,695,800 | 21,881,600 | 399,694,500 | 7,942,300 |
| 14 Industrial Waste Control | 165,100 | 114,900 | 84,800 | 11,000 | 3,842,700 | 875,700 | 3,001,600 | 260,300 |
| 15 Suburban Meters | 2,741,600 | 1,306,700 | 1,524,800 | 153,000 | 63,821,600 | 9,960,800 | 53,950,600 | 3,614,700 |
| 16 OMID Facilities | 727,300 | 463,700 | 382,000 | 48,000 | 16,929,400 | 3,535,000 | 13,512,800 | 1,137,100 |
| 17 Subtotal | 137,671,500 | 60,026,200 | 77,645,300 | 6,203,600 | 3,204,862,000 | 457,563,500 | 2,747,298,500 | 146,561,200 |
| 18 WWRF General | | | | | 0 | 0 | 0 | 0 |
| 19 Wastewater General | (137,671,500) | (60,026,200) | (77,645,300) | (6,203,600) | 0 | 0 | 0 | 0 |
| 20 DWSD Only | | | | | 0 | 0 | 0 | 0 |
| 21 Total | 0 | 0 | 0 | 0 | 3,204,862,000 | 457,563,500 | 2,747,298,500 | 146,561,200 |

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Allocation of Wastewater Capital Revenue Requirements to Cost Pools - FY 2020 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 Custo

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 2 - Identify Capital Rev Req't

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|-----------------------------|----------------------|--------------------------|----------------|---------------------|------------------------------|---------------------------|-------------------------|
| | 6/30/18 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) 80% | ~ rel (3) 4.25% | |
| 1 Primary Pumping | 160,109,300 | 33,796,300 | 127,317,100 | 11,093,700 | 8,845,300 | 5,415,500 | 14,260,800 |
| 2 Rack & Grit | 55,903,100 | 16,791,900 | 39,805,600 | 744,000 | 593,200 | 1,693,100 | 2,286,300 |
| 3 Primary Chemical Addition | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4 Primary Sedimentation | 278,924,900 | 47,546,900 | 232,347,300 | 17,470,500 | 13,929,700 | 9,883,000 | 23,812,700 |
| 5 Aeration | 153,400,300 | 23,191,300 | 130,538,400 | 8,017,600 | 6,392,700 | 5,552,500 | 11,945,200 |
| 6 Secondary Clarification | 215,800,700 | 44,497,100 | 172,584,500 | 16,384,000 | 13,063,400 | 7,340,900 | 20,404,300 |
| 7 Chlorination | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8 Dewatering | 152,984,400 | 36,272,700 | 117,945,200 | 11,887,400 | 9,478,200 | 5,016,800 | 14,495,000 |
| 9 Sludge Treatment | 489,644,400 | 92,622,200 | 399,354,000 | 25,165,700 | 20,065,300 | 16,986,700 | 37,052,000 |
| 10 Process Water & Outfall | 260,388,200 | 32,351,400 | 228,113,000 | 11,222,400 | 8,947,900 | 9,702,900 | 18,650,800 |
| 11 Lift Stations | 339,194,500 | 40,522,400 | 297,834,800 | 12,688,900 | 10,117,200 | 12,668,500 | 22,785,700 |
| 12 CSO Facilities | 588,222,700 | 53,718,200 | 531,299,100 | 18,932,600 | 15,095,500 | 22,599,000 | 37,694,500 |
| 13 Interceptors | 425,695,800 | 21,881,600 | 399,694,500 | 7,942,300 | 6,332,600 | 17,001,200 | 23,333,800 |
| 14 Industrial Waste Control | 3,842,700 | 875,700 | 3,001,600 | 260,300 | 207,500 | 127,700 | 335,200 |
| 15 Suburban Meters | 63,821,600 | 9,960,800 | 53,950,600 | 3,614,700 | 2,882,100 | 2,294,800 | 5,176,900 |
| 16 OMID Facilities | 16,929,400 | 3,535,000 | 13,512,800 | 1,137,100 | 906,600 | 574,800 | 1,481,400 |
| 17 Total | 3,204,862,000 | 457,563,500 | 2,747,298,500 | 146,561,200 | 116,857,200 | 116,857,400 | 233,714,600 |

Adjustment to approximate "pre valuation" depreciation expense

Effective Utility Basis Rate of Return

| | | | | | | | |
|---|-------------|---|--|--|-------------|-------------|-------------|
| 18 <u>Capital Revenue Requirement</u> | | | | | | | |
| 18 Debt Service | 215,738,800 | | | | | | |
| 19 Xfer to GLWA Regional I&E Account | 26,706,400 | | | | | | |
| 20 Xfer to Extra. Repair and Repl. Fund | 0 | | | | | | |
| 21 less: Non-Operating Revenue | (8,730,600) | | | | | | |
| 22 Total Capital Rev Req't | 233,714,600 | Allocate based on Utility Basis Concept --> | | | 116,857,200 | 116,857,400 | 233,714,600 |
| 23 Relative "Utility Basis" Components | | | | | 50.0% | 50.0% | |

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

Allocation of Wastewater Capital Revenue Requirements to Cost Pools - FY 2020 Budget

Reflects proposed amendment to OMID service agreement

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 Customers.
 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)-(9) | | | | | | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | |
|--|-------------------------|------------------|-------------------|--|-----------------------------|-----|------|-----|-------|----------------|---------------------|--------------------------|--|-----------------|------------------------|------------|-----------|-----------|--|
| | Total Capital Rev Req't | OMID Contractual | Remaining Balance | Capital Revenue Requirement Allocation Factors | | | | | | CSO Facilities | Specific Cost Pools | | | Det Only Direct | Common-to-All (SHAREs) | | | | |
| | | | | Common-to-All (SHAREs) | | | | | | | Suburban Wholesale | Industrial Waste Control | Separated for Illustrative Purposes only for FY 2020 COS | | | | | | |
| | | | | Flow | BOD | TSS | PHOS | FOG | Other | | | | | Flow | BOD | TSS | PHOS | FOG | |
| 1 Primary Pumping | 14,260,800 | | 14,260,800 | 100% | | | | | | | | | | 14,260,800 | 0 | 0 | 0 | 0 | |
| 2 Rack & Grit | 2,286,300 | | 2,286,300 | 100% | | | | | | | | | | 2,286,300 | 0 | 0 | 0 | 0 | |
| 3 Primary Chemical Addition | 0 | | 0 | | | | 100% | | | | | | | 0 | 0 | 0 | 0 | 0 | |
| 4 Primary Sedimentation | 23,812,700 | | 23,812,700 | 85% | | 10% | | 5% | | | | | | 20,240,800 | 0 | 2,381,300 | 0 | 1,190,600 | |
| 5 Aeration | 11,945,200 | | 11,945,200 | 20% | 80% | | | | | | | | | 2,389,000 | 9,556,200 | 0 | 0 | 0 | |
| 6 Secondary Clarification | 20,404,300 | | 20,404,300 | 65% | 35% | | | | | | | | | 13,262,800 | 7,141,500 | 0 | 0 | 0 | |
| 7 Chlorination | 0 | | 0 | 100% | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | |
| 8 Dewatering | 14,495,000 | | 14,495,000 | | 15% | 70% | 15% | | | | | | | 0 | 2,174,300 | 10,146,500 | 2,174,300 | 0 | |
| 9 Sludge Treatment | 37,052,000 | | 37,052,000 | | 15% | 70% | 15% | | | | | | | 0 | 5,557,800 | 25,936,400 | 5,557,800 | 0 | |
| 10 Process Water & Outfall | 18,650,800 | | 18,650,800 | 100% | | | | | | | | | | 18,650,800 | 0 | 0 | 0 | 0 | |
| 11 Lift Stations | 22,785,700 | 5,960,000 | 16,825,700 | 100% | | | | | | | | | | 16,825,700 | 0 | 0 | 0 | 0 | |
| 12 CSO Facilities | 37,694,500 | | 37,694,500 | | Direct Cost Pool Allocation | | | | | 37,694,500 | | | | | | | | | |
| 13 Interceptors | 23,333,800 | | 23,333,800 | 100.0% | | | | | | | | | | 23,333,800 | 0 | 0 | 0 | 0 | |
| 14 Industrial Waste Control | 335,200 | | 335,200 | | Direct Cost Pool Allocation | | | | | | | 335,200 | | | | | | | |
| 15 Suburban Meters | 5,176,900 | | 5,176,900 | | Direct Cost Pool Allocation | | | | | | 5,176,900 | | | | | | | | |
| 16 OMID Facilities | 1,481,400 | | 1,481,400 | | Direct Cost Pool Allocation | | | | | | | | | | | | | | |
| 17 Total | 233,714,600 | 5,960,000 | 227,754,600 | | | | | | | 37,694,500 | 5,176,900 | 335,200 | 0 | 111,250,000 | 24,429,800 | 38,464,200 | 7,732,100 | 1,190,600 | |
| 18 Capital Revenue Req't Allocation Factor | | | | | | | | | | 16.7% | 2.3% | 0.1% | 0.0% | 49.2% | 10.8% | 17.0% | 3.4% | 0.5% | |

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

O&M factors from page A-19

Consolidated Water Revenue Requirement Allocated to Cost Pools

Goal is to use allocation factors resulting from detailed review to allocate the final 2020 BUDGET figures for the FY 2020 Charges

Allocation Factors from Detailed Review

| | | 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 |
| O&M Expense - Total | 1 | 5.2% | 47.3% | 1.5% | 14.7% | 11.5% | 7.0% | 5.8% | 5.8% | 1.3% | 0.0% |
| O&M Expense - Non-Commodity | 2 | 0.0% | 55.1% | 2.0% | 19.3% | 6.5% | 9.0% | 3.2% | 3.2% | 1.7% | 0.0% |
| Capital Revenue Requirements | 3 | 0.0% | 38.2% | 3.1% | 35.5% | 0.0% | 0.0% | 22.1% | 0.0% | 1.1% | 0.0% |

Capital factors from page A-23

Apply Allocation Factors to BUDGET

| BUDGET Elements | Budget to Allocate | Allocation Basis | Cost Pool Allocation | | | | | | | | | | Allocated 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 | |
| 1 Regional System O&M Expense | 133,490,500 | 1 | 6,898,400 | 63,083,200 | 2,038,500 | 19,579,500 | 15,405,600 | 9,332,700 | 7,702,800 | 7,702,800 | 1,746,900 | 0 | 133,490,400 |
| 2 Pension Obligation - Operating Portion | 6,048,000 | 2 | 0 | 3,331,500 | 121,300 | 1,165,400 | 391,800 | 542,100 | 195,900 | 195,900 | 104,000 | 0 | 6,047,900 |
| 3 Debt Service | 137,557,700 | 3 | 0 | 52,514,700 | 4,285,800 | 48,858,400 | 0 | 0 | 30,404,600 | 0 | 1,494,100 | 0 | 137,557,600 |
| 4 Non-Operating Portion of Pension Oblig | 6,268,300 | 2 | 0 | 3,452,900 | 125,800 | 1,207,800 | 406,100 | 561,900 | 203,000 | 203,000 | 107,800 | 0 | 6,268,300 |
| 5 Transfer to WRAP Fund | 1,743,900 | 4 | 38,400 | 744,800 | 41,800 | 453,400 | 90,100 | 58,100 | 251,200 | 45,100 | 21,000 | 0 | 1,743,900 |
| 6 Transfer to Extra. Repair and Repl. Fund | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7 Lease Payment - Transfer to Detroit Local I&E | 22,500,000 | 4 | 495,200 | 9,609,200 | 539,000 | 5,850,100 | 1,163,100 | 749,100 | 3,241,500 | 581,500 | 271,300 | 0 | 22,500,000 |
| 8 Transfer to GLWA Regional I&E Account | 30,098,600 | 3 | 0 | 11,490,600 | 937,800 | 10,690,600 | 0 | 0 | 6,652,800 | 0 | 326,900 | 0 | 30,098,700 |
| 9 Operating Reserves | 3,976,000 | 1 | 205,500 | 1,878,900 | 60,700 | 583,200 | 458,900 | 278,000 | 229,400 | 229,400 | 52,000 | 0 | 3,976,000 |
| 10 Total Gross BUDGET | 341,683,000 | | 7,637,500 | 146,105,800 | 8,150,700 | 88,388,400 | 17,915,600 | 11,521,900 | 48,881,200 | 8,957,700 | 4,124,000 | 0 | 341,682,800 |
| 11 less: Revenue from Non-Contract Cust | (1,438,000) | 4 | (31,600) | (614,100) | (34,400) | (373,900) | (74,300) | (47,900) | (207,200) | (37,200) | (17,300) | 0 | (1,437,900) |
| 12 less: Non-Operating Revenue | (9,083,300) | 4 | (199,900) | (3,879,300) | (217,600) | (2,361,700) | (469,500) | (302,400) | (1,308,600) | (234,800) | (109,500) | 0 | (9,083,300) |
| 13 Net BUDGET Req'd from Charges | 331,161,700 | | 7,406,000 | 141,612,400 | 7,898,700 | 85,652,800 | 17,371,800 | 11,171,600 | 47,365,400 | 8,685,700 | 3,997,200 | 0 | 331,161,600 |
| 14 Subtotal Direct Elements | | | 6,898,400 | 133,872,900 | 7,509,200 | 81,501,700 | 16,203,500 | 10,436,700 | 45,159,100 | 8,101,700 | 3,779,700 | 0 | 313,462,900 |
| 15 Allocation Factors for Indirect Elements | | 4 | 2.2% | 42.7% | 2.4% | 26.0% | 5.2% | 3.3% | 14.4% | 2.6% | 1.2% | 0.0% | |

THIS IS WATER TABLE 3 IN THE FY 2020 COST OF SERVICE STUDY MEMORANDUM

Reflects proposed amendment to OMID service agreement

O&M factors from page A-21

Consolidated Sewer Revenue Requirement Allocated to Cost Pools

Goal is to use allocation factors resulting from detailed review to allocate the final 2020 BUDGET figures for the FY 2020 Charges

Allocation Factors from Detailed Review

Capital factors from page A-27

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

| | Specific Cost Pools | | | | Cost Pool Allocation | | | | | |
|---|---|--------------------|--------------------------|-----------------|------------------------|-------|-------|------|------|--|
| | CSO Facilities | Suburban Wholesale | Industrial Waste Control | Det Only Direct | Common-to-All (SHAREs) | | | | | |
| | | | | | Flow | BOD | TSS | PHOS | FOG | |
| | <i>Separated for Illustrative Purposes only for FY 2020 COS</i> | | | | | | | | | |
| 1 | 9.1% | 1.8% | 3.6% | 0.0% | 23.5% | 16.9% | 35.9% | 8.6% | 0.6% | |
| 2 | 10.8% | 2.2% | 4.3% | 0.0% | 23.1% | 14.7% | 36.4% | 7.9% | 0.7% | |
| 3 | 16.7% | 2.3% | 0.1% | 0.0% | 49.2% | 10.8% | 17.0% | 3.4% | 0.5% | |

Apply Allocation Factors to BUDGET

| BUDGET Elements | Budget to Allocate | OMID Contractual | Remaining Balance | Allocation Basis | Specific Cost Pools | | | | Cost Pool Allocation | | | | | Allocated TOTAL |
|---|---|------------------|-------------------|------------------|---------------------|--------------------|--------------------------|-----------------|------------------------|------------|-------------|------------|-----------|-----------------|
| | | | | | CSO Facilities | Suburban Wholesale | Industrial Waste Control | Det Only Direct | Common-to-All (SHAREs) | | | | | |
| | | | | | | | | | Flow | BOD | TSS | PHOS | FOG | |
| <i>Separated for Illustrative Purposes only for FY 2020 COS</i> | | | | | | | | | | | | | | |
| 1 | 187,968,700 | 1,506,700 | 186,462,000 | 1 | 16,880,000 | 3,378,200 | 6,757,300 | 0 | 43,729,400 | 31,508,000 | 66,946,500 | 16,064,900 | 1,197,600 | 186,461,900 |
| 2 | 10,824,000 | 189,400 | 10,634,600 | 2 | 1,144,600 | 229,100 | 458,200 | 0 | 2,461,300 | 1,558,100 | 3,867,500 | 840,400 | 75,300 | 10,634,500 |
| 3 | 215,738,800 | 5,960,000 | 209,778,800 | 3 | 34,946,700 | 4,799,500 | 310,800 | 0 | 103,140,300 | 22,649,000 | 35,660,300 | 7,168,500 | 1,103,800 | 209,778,900 |
| 4 | 11,620,700 | 203,400 | 11,417,300 | 2 | 1,228,800 | 245,900 | 491,900 | 0 | 2,642,500 | 1,672,800 | 4,152,200 | 902,300 | 80,900 | 11,417,300 |
| 5 | 2,464,400 | 10,400 | 2,454,000 | 4 | 321,700 | 51,000 | 45,300 | 0 | 904,600 | 333,700 | 639,500 | 143,900 | 14,400 | 2,454,100 |
| 6 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7 | 27,500,000 | 181,500 | 27,318,500 | 4 | 3,581,400 | 567,600 | 503,800 | 0 | 10,069,800 | 3,715,100 | 7,118,600 | 1,602,400 | 159,800 | 27,318,500 |
| 8 | 26,706,400 | 0 | 26,706,400 | 3 | 4,449,000 | 611,000 | 39,600 | 0 | 13,130,500 | 2,883,400 | 4,539,800 | 912,600 | 140,500 | 26,706,400 |
| 9 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10 | 482,823,000 | 8,051,400 | 474,771,600 | | 62,552,200 | 9,882,300 | 8,606,900 | 0 | 176,078,400 | 64,320,100 | 122,924,400 | 27,635,000 | 2,772,300 | 474,771,600 |
| 11 | (8,730,600) | 0 | (8,730,600) | 3 | (1,454,400) | (199,700) | (12,900) | 0 | (4,292,500) | (942,600) | (1,484,100) | (298,300) | (45,900) | (8,730,400) |
| 12 | 474,092,400 | 8,051,400 | 466,041,000 | | 61,097,800 | 9,682,600 | 8,594,000 | 0 | 171,785,900 | 63,377,500 | 121,440,300 | 27,336,700 | 2,726,400 | 466,041,200 |
| 13 | <i>Subtotal Direct Elements</i> | | | | 57,194,700 | 9,064,000 | 8,044,900 | 0 | 160,811,500 | 59,328,700 | 113,682,200 | 25,590,400 | 2,552,200 | 436,268,600 |
| 14 | <i>Allocation Factors for Indirect Elements</i> | | | | 13.110% | 2.1% | 1.8% | 0.0% | 36.9% | 13.6% | 26.1% | 5.9% | 0.6% | |

THIS IS SEWER TABLE 3 IN THE FY 2020 COST OF SERVICE STUDY MEMORANDUM



Financial Services Audit Committee Communication

Date: January 18, 2019

To: Great Lakes Water Authority Audit Committee

From: Nicolette N. Bateson, CPA, Chief Financial Officer/Treasurer

Re: Proposed Amendment Oakland Macomb Interceptor Drainage District Agreement

Background: The Great Lakes Water Authority (GLWA) provides wastewater disposal services to the Oakland Macomb Interceptor Drainage District (OMIDD). The Authority's Northeast Sewer Pump Station (NESPS) serves only OMIDD yet it is also a key component in the continuing development of GLWA's comprehensive regional wastewater master planning efforts.

The 2009 OMIDD services agreement provided for sewage disposal services and contemplated further collaboration in the future, including the NESPS. Since 2017, representatives of OMIDD and GLWA have been meeting to explore those collaboration opportunities.

Analysis: On January 14, 2019, OMIDD and GLWA staff representatives reached an agreement on terms that both agreed to present to their respective boards before proceeding with a proposed amendment to the 2009 agreement. The next steps are for the outline of the terms to be brought forward to both the GLWA and OMIDD Boards for review.

Key aspects of the proposal address: 1) operations (control maintained by GLWA), 2) maintenance (OMIDD provides maintenance), 3) capital funding (OMIDD has authority to construct and finance), 4) annual fees, and 5) payout of debt associated with NESPS.

Attached is a simplified table that outlines the financial terms agreed to by the staff representatives of each entity. This information was pertinent to GLWA in calculating the FY 2020 charges for all member partners for next week's charges rollout meeting #4. This information will be referenced in other Audit Committee agenda items.

The next action is a review by the Board at a date to be determined by General Counsel.

Proposed Action: Receive and file.

DRAFT

Summary of OMID Cost Elements - Initial 5-year Contract Amendment Period
FY 2020 to FY 2024

| | Baseline Amount | Annual Index after FY 2020 | Initial 5-year Agreement Period Cost Responsibility | | | | | Total | Basis |
|--|-----------------|----------------------------|---|-----------|-----------|-----------|-----------|------------|---|
| | | | FY 2020 | FY 2021 | FY 2022 | FY 2023 | FY 2024 | | |
| 1 Utility Charges For NEPS | 750,000 | NA - pass thru | 750,000 | 750,000 | 750,000 | 750,000 | 750,000 | 3,750,000 | Estimated direct pass through - Budget includes utilities only |
| 2 GLWA Operating Expense | 756,700 | 4.0% | 756,700 | 787,000 | 818,500 | 851,200 | 885,200 | 4,098,600 | Limited to proportional operational support activities - 25% of operating expenses allocated to lift stations |
| 3 GLWA Legacy Pension Obligation | 392,800 | 0.0% | 392,800 | 392,800 | 392,800 | 392,800 | 392,800 | 1,964,000 | Estimated Personnel cost allocation from legacy period - 1.75% of assigned sewer operating and non-operating pension obligations. |
| 4 Transfer to WRAP Fund | 10,400 | | 10,400 | 10,600 | 10,700 | 10,900 | 11,000 | 53,600 | 0.5% applied to annual elements |
| 5 Lease Payment | 181,500 | 0.0% | 181,500 | 181,500 | 181,500 | 181,500 | 181,500 | 907,500 | 6/30/18 asset review - NESPS = 0.66% of Sewer capital assets. |
| 6 Subtotal "Annual" Elements | 2,091,400 | | 2,091,400 | 2,121,900 | 2,153,500 | 2,186,400 | 2,220,500 | 10,773,700 | |
| 7 Capital Contribution | 11,920,000 | NA - pass thru | 11,920,000 | | | | | 11,920,000 | 6/30/2019 Net Book Value of NESPS Assets |
| 8 TOTAL | 14,011,400 | | 14,011,400 | 2,121,900 | 2,153,500 | 2,186,400 | 2,220,500 | 22,693,700 | |
| 9 Total less Pass thru Utility Charges | 13,261,400 | | 13,261,400 | 1,371,900 | 1,403,500 | 1,436,400 | 1,470,500 | 18,943,700 | |

Dated: January 14, 2019

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MEMORANDUM

GLWA Sewer Facilities Served Directly by GLWA
Transmission Mains

January 17, 2019

To: Nicolette Bateson

From: Bart Foster

This memorandum has been prepared to introduce how the above referenced topic has been addressed in the proposed GLWA FY 2020 Budget and service charge analysis. The accompanying exhibit assists in the explanation below.

The facilities in question are part of the Water Resource Recovery Facility (WRRF) and currently classified as retail **water** customers of DWSD. Traditional DWSD policy has been to not bill WRRF facilities for **sewer** service, given that they are providing that service to the region on property. Currently, these facilities are served as six DWSD retail water accounts and billed approximately \$3.6 million annually for water service.

Since the facilities are directly served via GLWA transmission mains, and do not receive any direct benefit of DWSD retail activities, GLWA proposes to change the structure of the accounts. It is our understanding that effective July 1, 2019, GLWA proposes to bill these facilities directly, rather than have them treated as DWSD retail customer accounts. GLWA (Water) will establish a mechanism to directly bill GLWA (Sewer) for wholesale water service. In essence, GLWA Sewer will become a new “internal” Customer of GLWA Water. The task at hand is to illustrate the various impacts of the proposed new approach GLWA is proposing these accounts. is new business arrangement.

Let’s start with the impact on the GLWA Budget, as summarized on Lines 1 through 3 of the exhibit. Initially, the GLWA Sewer operating expenses will experience a \$3.6 million reduction as the purchased **retail** water costs from DWSD are removed. These savings will be offset by the replaced purchased **wholesale** water costs from GLWA Water. We have established a reasonable wholesale price for this water (\$9.89/Mcf) that is designed to implement the new business arrangement in a manner that does not impact Suburban Wholesale Water Customers. *See Line 6.* This produces an annual wholesale water expense of approximately \$1.4 million. So the net budget impact on GLWA Sewer is an operating expense savings of approximately \$2.2 million.

GLWA Sewer Facilities Served Directly by GLWA
Transmission MainsJanuary 17, 2019
Page 2

Next let's evaluate the impact on GLWA cost of service allocations, as shown on Lines 4 through 9. On Line 4, we illustrate the preliminary allocation of the FY 2020 Water BUDGET to the Detroit and Suburban Wholesale customer classes *prior to recognizing the new structure*¹. Since the facilities in question will no longer be categorized as retail DWSD customers, it is appropriate to remove the volumes and demands in question from Detroit's water units of service. We removed those volumes and demands from our cost of service analysis and assigned them to a new "Internal GLWA" Customer. The resulting reallocated cost of service is shown on Line 5, and compared to the prior allocation on Line 6. The water system in total, and the Suburban Wholesale class, are unaffected by this change. In effect, the amount allocated to the new internal GLWA Customer results in a reduced water cost of service allocation to the Detroit customer class.

A similar comparison for the Sewer cost of service impacts is shown on Lines 7 through 9. We have verified that the sales volumes to the facilities in question were not included in determining the current SHARES, since they were not billed for sewer service. Therefore there is no need to adjust Sewer units of service. Rather, the sewer operating budget savings are allocated proportionally to the Detroit and Suburban customer classes based on their existing SHARES, as shown on Line 9. *The internal GLWA amount on Line 9 is actually related to reduced industrial surcharges as a result of the adjustment.*

The consolidated impact of these adjustments is shown for the Detroit customer class on Lines 10 through 15. The wholesale water cost allocation savings of \$1.4 million are offset by the \$3.6 million loss of retail water revenue, resulting in a net increase of \$2.2 million to be recovered from the "remaining" DWSD water customers. This equates to a 2.2% increase, all else being equal, as shown on Line 15. Detroit's \$782,000 share of the sewer savings equates to an overall reduction, all else being equal, of 0.3%. The combined water and sewer impact of this adjustment is a net cost to DWSD of \$1.4 million, or 0.3% of total DWSD retail revenues, as shown on Lines 13 and 15.

Finally, Lines 16 through 19 present a similar analysis for the Suburban Wholesale customer classes. There is no impact of this adjustment on Suburban Wholesale water customers. The Suburban Wholesale \$1.4 million share of the sewer savings equates to an overall reduction, all else being equal, of 0.5% of annual revenue requirements.

We are prepared to discuss this matter at your convenience.

¹ There are other, concurrent modifications to the cost of service analyses and the final impacts may not match these calculations precisely. The differences will not be material.

Illustration of Potential Impact of Reassigning GLWA Sewer Facilities as GLWA Water Customers

DWSD Impact Illustration

GLWA Internal price for Water =

9.89 \$/Mcf

| | <u>Water</u> | <u>Sewer</u> | <u>Total</u> | <u>Note</u> |
|---------------------------|--------------|--------------|--------------|---|
| GLWA Budget Impact | | | | |
| 1 | | (3,626,500) | (3,626,500) | DWSD no longer bills GLWA facilities served off of Transmission mains |
| 2 | | 1,438,000 | 1,438,000 | GLWA Water charges GLWA Sewer for internal wholesale water purchases |
| 3 | 0 | (2,188,500) | (2,188,500) | (1) - (2) |

| | <u>Total</u> | <u>Detroit</u> | <u>Suburban</u> | <u>Internal GLWA</u> | | |
|--|------------------------------------|----------------|-----------------|----------------------|-----------|--|
| GLWA WATER Cost of Service Impact | | | | | | |
| 4 | Preliminary Allocated Water BUDGET | 335,144,300 | 21,698,100 | 313,446,200 | 0 | Preliminary "Status Quo" FY 2020 cost of service analysis |
| 5 | Adjusted Allocated Water BUDGET | 335,142,400 | 20,258,200 | 313,446,200 | 1,438,000 | GLWA Sewer becomes an internal Water Customer and assumes the units of service associated with purchased wholesale water from Line (1) |
| 6 | Impact of Adjustment | (1,900) | (1,439,900) | 0 | 1,438,000 | Minor rounding variance |
| GLWA SEWER Cost of Service Impact | | | | | | |
| 7 | Preliminary Allocated Sewer BUDGET | 477,881,200 | 188,891,800 | 288,989,400 | 0 | Preliminary "Status Quo" FY 2020 cost of service analysis |
| 8 | Adjusted Allocated Sewer BUDGET | 475,692,700 | 188,110,000 | 287,582,700 | 0 | |
| 9 | Impact of Adjustment | (2,188,500) | (781,800) | (1,378,900) | (27,800) | GLWA Sewer budget reduction from Line (3) allocated ~ SHARES ** |

| | <u>Water</u> | <u>Sewer</u> | <u>Total</u> | | |
|--|--|------------------|------------------|------------------|---|
| Detroit Customer Impact | | | | | |
| 10 | Baseline Revenue Impact | 3,626,500 | 0 | 3,626,500 | See Line (1) - Initially a revenue loss to DWSD |
| less: GLWA Wholesale Rev Req't Impact | | | | | |
| 11 | Water Supply System | (1,439,900) | | (1,439,900) | From Line (6) - results from DWSD's reduced units of service |
| 12 | Sewage Disposal System | | (781,800) | (781,800) | From Line (9) - DWSD shares in lower Sewer BUDGET |
| 13 | Net Increase in Charge Requirements | 2,186,600 | (781,800) | 1,404,800 | Net Impact - Line (10) revenue impact less lines (11) and (12) |
| 14 | Revenue Base (after "lost" revenue) | 97,963,500 | 307,737,200 | 405,700,700 | Preliminary DWSD Revenue Base, Net of GLWA Transmission Served Facilities |
| 15 | Impact on Revenue Base | 2.2% | -0.3% | 0.3% | Line (13) / Line (14) |

| | <u>Water</u> | <u>Sewer</u> | <u>Total</u> | | |
|---|--|--------------|--------------------|--------------------|--|
| Suburban Wholesale Customer Impact | | | | | |
| GLWA Wholesale Rev Req't Impact | | | | | |
| 16 | Water Supply System | 0 | | 0 | From Line (6) - Zero Impact |
| 17 | Sewage Disposal System | | (1,378,900) | (1,378,900) | From Line (9) - Suburban Customers share in lower Sewer BUDGET |
| 18 | Net Increase in Charge Requirements | 0 | (1,378,900) | (1,378,900) | Net Impact |
| 19 | Revenue Base | 313,446,200 | 288,989,400 | 602,435,600 | From Lines (4) and (7) |
| 20 | Impact on Revenue Base | 0.0% | -0.5% | -0.2% | Line (18) / Line (19) |



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MEMORANDUM

Preliminary Proposed FY 2020 Budget/Charges
 Executive Summary

January 16, 2019

To: Nicolette Bateson

From: Bart Foster

This memorandum is intended to provide an executive summary introduction of our preliminary proposed water and sewer service charges for FY 2020. The preliminary proposed service charges are designed to support the proposed FY 2020 GLWA proposed budgets, and to implement the results of our cost of service study to allocate the revenue requirements in the proposed budgets to GLWA Customers. The format of this discussion follows the format of prior submittals on this topic, which were set forth in memoranda dated December 19, 2018, and reflected the status of the budget request and analysis as of December 18, 2018 and January 2, 2019. Those documents provide background, history, and perspectives which remain pertinent. We'll not repeat that material in this discussion, but rather focus on introducing exhibits supporting the final proposed budgets, summarizing the proposed charges, and discussing the resolution of the open issues referenced in those documents.

We'll first address the proposed budget, then introduce a summary of the preliminary proposed service charges.

Preliminary Proposed FY 2020 Budget

We have reviewed in detail the proposed BUDGET for FY 2020, and have utilized it to establish preliminary cost of service allocations. This final version of the FY 2020 BUDGET reflects ongoing review and modifications over the past two weeks to address certain elements, as discussed herein. In effect, this final version produces a sixth scenario (Scenario "F") that appends the five sequential scenarios presented in the prior memoranda.

As a reminder, here are the scenarios.

- A. Original plan from 2nd year of the FY 2019 Biennial Budget
- B. Updated forecast resulting from the Series 2018 bond sale results
- C. Initial planning level budget targets
- D. Working version of budget as of 12/18/18
- E. Working version of budget as of 1/2/2019
- F. Preliminary Proposed GLWA Budget – 1/16/2019***

The table below presents key metrics for each FY 2020 scenario, and the exhibits to this memorandum provide additional detail¹.

| FY 2020 GLWA Budget / Charge Planning Evolution | | | | | | |
|---|---|---|---|---|---|---|
| | FY 2019 Biennial <u>Budget</u> A | Bond Sale Forecast <u>Update</u> B | Initial Planning <u>Budget</u> C | Working Budget as of <u>12/18/18</u> D | Working Budget as of <u>01/02/19</u> E | Proposed Budget Rqst <u>01/16/19</u> F |
| <u>Revenue Requirement Increase</u> | | | | | | |
| Water Supply System | 4.0% | 4.0% | 3.5% | 3.5% | 3.5% | 3.1% |
| Sewage Disposal System | 4.0% | 4.0% | 3.5% | 3.5% | 3.5% | 2.7% |
| Combined Water and Sewer | 4.0% | 4.0% | 3.5% | 3.5% | 3.5% | 2.9% |
| <u>O&M Budget Increase</u> | | | | | | |
| Water Supply System | 2.0% | 2.0% | 2.0% | 9.6% | 9.7% | 9.8% |
| Sewage Disposal System | 2.0% | 2.0% | 2.0% | 0.4% | 0.4% | -3.6% |
| Combined Water and Sewer | 2.0% | 2.0% | 2.0% | 4.0% | 4.0% | 2.8% |
| <u>Average Charge Increase</u> | | | | | | |
| Water Supply System | 4.1% | 2.1% | 1.6% | 1.6% | 1.6% | 1.2% |
| Sewage Disposal System | 4.0% | 3.1% | 2.6% | 2.1% | 2.1% | 1.3% |
| Combined Water and Sewer | 4.0% | 2.7% | 2.2% | 1.9% | 1.9% | 1.3% |
| <u>Planned I&E / Reserve Deposits - \$ millions</u> | | | | | | |
| Water Supply System | 42.2 | 45.2 | 43.5 | 34.3 | 34.1 | 34.1 |
| Sewage Disposal System | 20.5 | 26.8 | 24.4 | 27.4 | 26.7 | 26.7 |
| Combined Water and Sewer | 62.6 | 71.9 | 67.9 | 61.7 | 60.8 | 60.8 |
| (a) Establishing an "internal" Water Customer will reduce the adjustment for existing Customers to: | | | | | | 0.8% |

As indicated in the exhibit, the final version of the budget request (expressed as Scenario F) results in noteworthy changes compared to the prior Scenario E, as briefly introduced below².

Water Supply System

- A slight increase (\$93,000) in the Water O&M budget, related to a modification in the shared services arrangement with DWSD for water quality sampling activities;
- A \$1.4 million decrease in budgeted debt service;
 - Based on updated information regarding the approved Drinking Water Revolving Fund projects, it is apparent that any interest payment requirements will be minimal, and we have removed the originally estimated amounts from the budgeted revenue requirements.
- Maintaining the prior budgeted contributions to the I&E Fund;

¹ See Exhibit Pages 1-3.

² Several of these budget elements also impact proposed water and sewer charges, as discussed in the next section.

- **These developments reduce the overall Water BUDGET increase from 3.5% to 3.1%, and reduce the average Water Charge increase from 1.6% to 1.2%.**
 - *Further, the establishment of a new “internal” Customer related to how certain GLWA Sewer facilities will be billed for water service will reduced the average Water Charge increase for existing Water Customers to 0.8%.*

Sewage Disposal System

- A reduction of approximately \$2.2 million in the Sewer O&M budget, related to purchased water costs for certain GLWA Sewer facilities;
 - *The facilities in question are served off of GLWA transmission mains but are currently billed by DWSD as full-service retail customer. The budget assumes that this arrangement will cease as of July 1, 2019, and that GLWA Water will invoice GLWA Sewer for internal “wholesale only” costs related to this transaction. This arrangement will result in GLWA Sewer budget savings and impact water cost of service allocations, as introduced later.*
- An additional reduction of \$1.5 million in the Sewer O&M budget, related to combined sewer overflow programs;
 - *Ongoing detailed review indicates that certain of the programs introduced in the FY 2019 Budget are likely to not be complete until FY 2020. This budget modification was made to embrace the commitment to monitor the progress of such programs, and to make modifications to ensure charges reflect anticipated costs for this special cost pool.*
- A slight (\$100,000) reduction in the Sewer O&M budget related to implementation of the proposed amendment to the OMID Service Agreement;
- Maintaining the prior budgeted contributions to the I&E Fund;
- **These developments reduce the overall Sewer BUDGET increase from 3.5% to 2.7%, and reduce the average Sewer Charge increase from 2.1% to 1.3%.**

[Remainder of page intentionally left blank]

The table below compares the operating budget request for Scenarios E and F.

| FY 2020 GLWA Budget / Charge Planning O&M Expense Budget Request - \$ millions | | | | |
|---|--|--|-----------------|-------------------|
| | Working Budget as of <u>01/02/19</u> E | Proposed Budget Rqst <u>01/16/19</u> F | <u>Variance</u> | <u>% Variance</u> |
| <u>Total GLWA</u> | | | | |
| Water Operations | 67.93 | 68.02 | 0.09 | 0.1% |
| Sewer Operations | 120.69 | 116.90 | (3.79) | -3.1% |
| Centralized Services | 106.91 | 106.91 | - | 0.0% |
| Administrative Services | 29.63 | 29.63 | - | 0.0% |
| Total | 325.15 | 321.46 | (3.70) | -1.1% |
| <u>Water Supply System</u> | | | | |
| Water Operations | 67.93 | 68.02 | 0.09 | 0.1% |
| Sewer Operations | - | - | - | 0.0% |
| Centralized Services | 50.66 | 50.66 | - | 0.0% |
| Administrative Services | 14.81 | 14.81 | - | 0.0% |
| Total | 133.40 | 133.49 | 0.09 | 0.1% |
| <u>Sewage Disposal System</u> | | | | |
| Water Operations | - | - | - | 0.0% |
| Sewer Operations | 120.69 | 116.90 | (3.79) | -3.1% |
| Centralized Services | 56.26 | 56.26 | - | 0.0% |
| Administrative Services | 14.81 | 14.81 | - | 0.0% |
| Total | 191.76 | 187.97 | (3.79) | -2.0% |

Preliminary Proposed FY 2020 Service Charges

We have allocated the revenue requirements introduced in the prior section to Customers in accordance with the current cost of service methodologies and have prepared proposed charges for each Customer. Our proposed charges will be formally introduced and submitted next week and will be accompanied with a detailed report. Herewith a brief introduction of key elements impacting our proposed charges, followed by some comparative summaries.

Water Supply System

Let's initially define how we're classifying Water Customers for purposes of this discussion.

- Of the 88 existing GLWA Water Customers:
 - 85 are Suburban Wholesale Customers served via Master Meters
 - 49 of these Customers had their FY 2020 contractual max day and peak hour demands impacted by the Contract Alignment Process ("CAP");

- The other 36 Customers did not have their demands adjusted for this year – and are referred to herein as “NoMod” Customers;
 - *The other 3 Customers are not served via Master Meters, and are referred to as the Non Master Metered (“NMM”) Customer Class*
 - Detroit, Dearborn, Highland Park
- There will be a new GLWA “internal” Water Customer, as GLWA Water will bill certain GLWA Sewer facilities directly for water service.

Next, let’s introduce key elements impacting FY 2020 Water cost of service allocations.

- The Units of Service (“UoS”) Study for the NMM Customers;
 - *Findings from the first phase of this study resulted in significant charge increases for this class. These increases were partially implemented in the current (FY 2019) water charges, with the understanding that the second – and final - step towards effecting the findings would occur in FY 2020.*
 - *Findings from the second phase of this study resulted in materially lower charges for this class that envisioned in the first phase. The proposed FY 2020 charges fully implement the phase 2 UoS findings.*
 - *The originally forecasted benefit to the other Customers associated with phase 1 findings is effectively eliminated in the FY 2020 charges.*
- The CAP results for those Customers whose demands were modified for FY 2020.
 - *The reduced demands for this class reallocates (all else being equal) approximately \$3.7 million of annual revenue requirement responsibility away from this class to the other classes.*
- Redefined water service to GLWA sewer facilities served via of GLWA transmission mains;
 - *Since these facilities will no longer be reflected as a DWSD retail customer, it is appropriate to remove the related water usage from their units of service established by the UoS study.*
 - *We have done so, which lowers the allocate revenue requirement to Detroit (although Detroit also suffers the revenue loss from the facilities).*
 - *Under this operating scenario, GLWA Sewer becomes an internal GLWA Water Customer, and assumes the units of service associated with the facilities. We have established a wholesale cost that does not impact other Suburban Wholesale Water Customers, although there is a benefit to all Sewer Customers, as discussed below.*
- The impact of the detailed cost pool analyses for the FY 2020 budget, particularly related to Centralized Services activities;

- *The results of these analyses have the general impact of increasing the portion of the revenue requirements related to Transmission Mains, which are allocated to Customers based on their peak hour demand and their distance factor;*
- *As a result, Customers with relatively high peak hour demands and/or distance factors will experience a higher than average charge adjustment than Customers with relatively low peak hour demands and/or distance factors, all else being equal.*

The impact of the proposed water service charges on the major customer classes is summarized in the table below³.

| Executive Summary FY 2020 Water Charge Adjustments (\$ millions) | | | | | |
|--|------------------|---------------------------------|--------------------------------|---------------------------------|-----------------------------------|
| | <u>Customers</u> | <u>Revenue Existing Charges</u> | <u>Allocated Revenue Req't</u> | <u>Charge Increase Variance</u> | <u>Charge Increase % Variance</u> |
| CAP Suburban Wholesale | 49 | 178.55 | 176.73 | (1.82) | -1.0% |
| "No Mods" Master Metered Suburban Wholesale | 36 | 119.66 | 123.62 | 3.96 | 3.3% |
| Non Master Metered Customers | 3 | 31.49 | 32.05 | 0.56 | 1.8% |
| Internal GLWA (Sewer Facilities) | 1 | | 1.44 | 1.44 | NA |
| Total System | 89 | 329.70 | 333.84 | 4.13 | 1.3% |
| Total less Internal Customer | 88 | 329.70 | 332.40 | 2.69 | 0.8% |

Sewage Disposal System

Again, let's start by defining how we're classifying Sewer Customers for purposes of this discussion.

- Oakland Macomb Interceptor District ("OMID"):
 - *Treated separately due to the OMID only cost pool and the implementation of the proposed amendment to the OMID Service Agreement, discussed herein;*
- Non-OMID Suburban Wholesale;
 - *All other Suburban Wholesale Customers;*
- Detroit Customer Class

Here are the key elements impacting FY 2020 Sewer cost of service allocations.

- The proposed amendment to the OMID Service Agreement;

³ See Exhibit Pages 4 through 6 for an illustration of how individual cost of service allocation elements impact each Customer Class in total. These exhibits follow the format for a portion of the individual charge calculation sheets that will be distributed to each Customer next week.

- *The specifics of this proposed amendment are detailed under separate cover. In summary, the proposed amendment would limit services provided to the Northeast Sewer Pump Station (“NESPS”) to operating activities. All capital financing and maintenance activities would be directly provided by OMID;*
- *The initial recognition of this new operating scenario will result in fewer costs allocated directly to OMID, and more costs allocated to other cost pools, including the “common to all SHAREs” cost pool;*
- *Our cost of service study and proposed charges implement this arrangement in a manner designed to embrace stability objectives;*
- *For purposes of the FY 2020 Charges, we have assumed that one-half (\$5.92 million) of the total capital contribution of \$11.92 million will be treated as revenue during FY 2020, and will be designed to meet FY 2020 revenue requirements;*
- *We have assumed that the remaining \$5.92 million will be treated similarly for FY 2021.*
- The impact of the detailed cost pool analyses for the FY 2020 budget, particularly related to Centralized Services activities;
 - *These analyses were particularly critical to establish the revised OMID only cost pool assignments mentioned above;*
 - *The results of these analyses have also had the effect of decreasing the overall Sewer budget, and slightly increasing allocation to the Combined Sewer Overflow (“CSO”) cost pool.*
- The reduced revenue requirements related to:
 - *Lower purchased water costs related to the redefined water service to GLWA sewer facilities;*
 - These savings are reflected as “common to all” based on existing SHAREs
 - *Reduced CSO program budget;*
 - 83% of these savings accrue to Detroit, and 17% to the Suburban Customers.
- The FY 2020 SHAREs are identical to the FY 2019 SHAREs, so there is no charge impact of differential units of service.

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The impact of the proposed Sewer service charges on the major customer classes is summarized in the table below.

| Executive Summary FY 2020 Sewer Charge Adjustments (<i>\$ millions</i>) | | | | |
|---|---------------------------------------|--------------------------------------|---------------------------------------|---|
| | Revenue Existing <u>Charges</u> | Allocated Revenue <u>Req't</u> | Charge Increase <u>Variance</u> | Charge Increase <u>% Variance</u> |
| OMID | 77.53 | 76.26 | (1.27) | -1.6% |
| All Other Suburban Wholesale | 197.42 | 200.25 | 2.83 | 1.4% |
| Detroit | 181.16 | 186.05 | 4.89 | 2.7% |
| Industrial Specific Customers | 14.10 | 13.79 | (0.31) | -2.2% |
| Total System | 470.21 | 476.35 | 6.14 | 1.3% |

We note that the Suburban Wholesale Sewer Charge adjustments in the above table reflect the lower allocation of bad debt expense associated with Highland Park, and the Detroit adjustments do not. Absent this adjustment, the average charge increase for the “All Other Suburban Wholesale” class would be 2.4%.

We continue diligent review of the proposed charges and preparation of additional materials to present our findings. We are prepared to discuss this matter at your convenience.

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MEMORANDUM

FY 2020 Budget/Charge Planning Update
Executive Summary

January 2, 2019

To: Nicolette Bateson

From: Bart Foster

This memorandum has been prepared to summarize our updated observations regarding the planning parameters and open issues impacting potential GLWA proposed budgets, cost of service allocations, and water and sewer charges for FY 2020. Our initial perspectives on these matters were set forth in a memorandum dated December 19, 2018, and reflected the status of the budget request and analysis as of December 18, 2018. That document also provided some background and history which remains pertinent. We'll not repeat that material in this discussion, but rather focus on introducing updated exhibits and discussing recent analyses and developments.

Our analyses and presentation reflects the current version of the FY 2020 budget and financial plan as of January 2, 2019. In effect, this produces a fifth scenario (Scenario "E") that appends the four sequential scenarios presented in the prior memorandum. The principal focus areas of the review over the past two weeks have included:

- Ongoing due diligence on the original budget request;
- Detailed analyses of budget responsibility for the Water and Sewer funds for Centralized Services and Administrative Services operating expenses;
- Modifications to the capital outlay budget, including the funding source;
- Incorporation of additional capital improvement program financing plan analyses.

As a reminder, here are the scenarios.

- A. Original plan from 2nd year of the FY 2019 Biennial Budget
- B. Updated forecast resulting from the Series 2018 bond sale results
- C. Initial planning level budget targets
- D. Working version of budget as of 12/18/18
- E. Working version of budget as of 1/2/2019**

The table below presents key metrics for each FY 2020 scenario, and the exhibits to this memorandum provide additional detail.

| FY 2020 GLWA Budget / Charge Planning | | | | | |
|--|---|---|---|---|---|
| | FY 2019 Biennial <u>Budget</u> A | Bond Sale Forecast <u>Update</u> B | Initial Planning <u>Budget</u> C | Working Budget as of <u>12/18/18</u> D | Working Budget as of <u>01/02/19</u> E |
| <u>Revenue Requirement Increase</u> | | | | | |
| Water Supply System | 4.0% | 4.0% | 3.5% | 3.5% | 3.5% |
| Sewage Disposal System | 4.0% | 4.0% | 3.5% | 3.5% | 3.5% |
| Combined Water and Sewer | 4.0% | 4.0% | 3.5% | 3.5% | 3.5% |
| <u>O&M Budget Increase</u> | | | | | |
| Water Supply System | 2.0% | 2.0% | 2.0% | 9.6% | 9.7% |
| Sewage Disposal System | 2.0% | 2.0% | 2.0% | 0.4% | 0.4% |
| Combined Water and Sewer | 2.0% | 2.0% | 2.0% | 4.0% | 4.0% |
| <u>Average Charge Increase</u> | | | | | |
| Water Supply System | 4.1% | 2.1% | 1.6% | 1.6% | 1.6% |
| Sewage Disposal System | 4.1% | 3.1% | 2.6% | 2.1% | 2.1% |
| Combined Water and Sewer | 4.1% | 2.7% | 2.2% | 1.9% | 1.9% |
| <u>Planned I&E / Reserve Deposits - \$ millions</u> | | | | | |
| Water Supply System | 42.2 | 45.2 | 43.5 | 34.3 | 34.1 |
| Sewage Disposal System | 20.9 | 26.8 | 24.4 | 27.4 | 27.6 |
| Combined Water and Sewer | 63.1 | 71.9 | 67.9 | 61.7 | 61.7 |

As indicated in the exhibit, the additional review has not produced material changes between Scenarios D and E. The total FY 2020 GLWA operating expense budget request has not changed, and the allocation between Water and Sewer has only resulted in a minor shift of approximately \$150,000. This minor adjustment in total should not be interpreted as an indication that “no changes” were made as a result of the ongoing review. Rather, the detailed review of Water and Sewer expenses produced adjustments that went “both ways” and that netted in a total change of \$150,000 compared to the prior version. The shift in operating expense between Scenarios D and E is directly accommodated with a corresponding shift in planned I&E / reserve deposits, as none of the other elements, including the overall revenue requirement increase of 3.5%, have been adjusted as part of the additional review to date.

To summarize, the current version of the budget request (expressed as Scenario E) compared to the original, baseline scenario, assumes:

- 3.5% revenue requirement increase;
- 4% O&M budget increase;
 - Overall increase from 2.0% to 4.0% attributable to lower shared services credit from DWSD and new projects in the Planning Group

- *Differential Water / Sewer increases reflecting the detailed review of specific Centralized and Administrative Services programs*
- Lower charge increases than revenue requirement increases due to recognition of higher forecasted investment income.
 - *Direct result of recognizing benefits of active investment strategies*
- Recognition of debt service savings achieved via the Series 2018 bond sales.
 - *Resulting increase in “bottom line” results*
- Slight reduction in Sewer charge increase of lower impact of Highland Park bad debt requirements.
- Slight reduction in overall combined charge increase
 - *Lower overall reduction in forecasted “bottom line” results, and a reallocation between Water and Sewer.*
 - *These figures are approximately \$5 million higher (for both Water and Sewer) than those in the feasibility forecasts established at the creation of the Authority*

As noted above, significant review efforts have been applied towards refining the manner by which budgeted operating expenses of the Centralized Services group have been assigned to Water and Sewer. 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 Field Service Operations cost center includes specific contracts to address investigation and repair of Water transmission mains, and other contracts to address investigation and repair of Sewer interceptors. The costs of those specific contracts should also be directly assigned to the appropriate fund. Together with the Financial Planning and Analysis team we have conducted a detailed investigation of each of the major cost centers, and have assigned discrete activities directly to Water and Sewer budget responsibilities based on our review. All other “general” Centralized Services budgeted costs have been assigned 50% to Water and 50% to Sewer¹. All Administrative Services budgeted costs have also been assigned 50% to Water and 50% to Sewer. The table below compares the operating budget request for Scenarios D and E.

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¹ The System Control Center budgeted costs are assigned 55% to Water and 45% to Sewer based on discussions with System Control Center managers.

| FY 2020 GLWA Budget / Charge Planning O&M Expense Budget Request - \$ millions | | | | |
|---|-----------------------|---------------|----------|------------|
| | Working Budget as of: | | Variance | % Variance |
| | 12/18/18 D | 01/02/19 E | | |
| <u>Total GLWA</u> | | | | |
| Water Operations | 67.93 | 67.93 | - | 0.0% |
| Sewer Operations | 120.69 | 120.69 | - | 0.0% |
| Centralized Services | 106.91 | 106.91 | - | 0.0% |
| Administrative Services | 29.63 | 29.63 | - | 0.0% |
| Total | 325.15 | 325.15 | - | 0.00 |
| <u>Water Supply System</u> | | | | |
| Water Operations | 67.93 | 67.93 | - | 0.0% |
| Sewer Operations | - | - | - | 0.0% |
| Centralized Services | 50.50 | 50.66 | 0.15 | 0.3% |
| Administrative Services | 14.82 | 14.81 | (0.00) | 0.0% |
| Total | 133.25 | 133.40 | 0.00 | 0.0% |
| <u>Sewage Disposal System</u> | | | | |
| Water Operations | - | - | - | 0.0% |
| Sewer Operations | 120.69 | 120.69 | - | 0.0% |
| Centralized Services | 56.41 | 56.26 | (0.15) | -0.3% |
| Administrative Services | 14.81 | 14.81 | 0.00 | 0.0% |
| Total | 191.91 | (0.15) | (0.00) | 0.0% |

FY 2020 Planning – Ongoing Review

The current “working version” scenario introduced above remains under review, including specific departmental budget requests. In addition, several parallel investigations regarding cost of service allocations that could impact how the proposed budget / charges impact individual Customers remain ongoing. These include:

- ~~Ongoing review of the most appropriate assignment of “Centralized Services” and “Administrative Services” support costs to the Water and Sewer funds, and to cost pools within those funds;~~
 - *Effectively complete pending final review*
- The potential operating agreement with OMID, and the impact of such on the GLWA revenue requirements and revenue requirement allocations to OMID and to other Sewer Customers;
- Updated capital financing plans, including the aforementioned modifications to the capital outlay budget;

- Incorporation of additional capital improvement program financing plan analyses;
- The impact on Water cost of service allocations and charges of:
 - *The contract alignment project (CAP) and the impact on suburban wholesale master metered units of service;*
 - *The incorporation of the UoS study phase 2 findings regarding units of service for non-master metered Customers (Detroit, Dearborn, Highland Park)*
- Incorporation of DWSD Local System budgets and financial plans;
- Budget and cost allocation impacts of potential changes in the GLWA / DWSD definitions of:
 - *Transmission / distribution main responsibility; and*
 - *Service provided by DWSD to GLWA facilities*

We continue diligent review on each of these issues and in our preparation of the FY 2020 Cost of Service Study and the accompanying proposed wholesale service charges for FY 2020.

We are prepared to discuss this matter at your convenience.

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MEMORANDUM

Preliminary FY 2020 Budget/Charge Planning
Executive Summary

December 19, 2018

To: Nicolette Bateson

From: Bart Foster

You have asked for preliminary observations regarding the planning parameters and open issues impacting potential GLWA proposed budgets, cost of service allocations, and water and sewer charges for FY 2020. This memorandum is intended to introduce our initial perspectives on those elements in an executive summary format. We have included historical information to provide some context to the discussion in both this summary introduction and the accompanying more detailed commentary and exhibits.

Background / Recent History

Anytime the relative change in GLWA budgets and charges is discussed it is important to provide context regarding the “4% increase limitation” set forth in the Leases that effectively established GLWA. Specifically, Article 5.6 of the Lease(s) states:

“As provided in the MOU, through the Fiscal Year ending June 30, 2025, the Water (Sewer) System is assumed to experience annual increases in the Authority Revenue Requirement of not more than 4%; provided however, this limitation shall not be applicable if the Authority Revenue Requirement must increase beyond the 4% assumption in order to satisfy the Rate Covenant or to pay the cost of improvements to the Leased Water (Sewer) Facilities that are required to be made by Applicable Laws.”

Clearly the intent of the foundational documents was to target annual increases in the Authority **revenue requirement** that did not exceed 4%, while recognizing that other elements might impact annual **charge** adjustments that varied from this amount. These “other elements” include varying levels of baseline revenues associated with water sales and demographic changes in the Authority customer base, and varying levels of “non-charge” revenue (such as investment earnings) that are eligible to meet the total revenue requirement.

This understanding is essential when reviewing the annual changes in revenue requirements and charges that have been implemented by GLWA since its inception, as illustrated in the table below.

| GLWA Budget / Charge Adjustment History | | | | |
|--|----------------|----------------|----------------|--------------------|
| | <u>FY 2017</u> | <u>FY 2018</u> | <u>FY 2019</u> | <u>Avg to Date</u> |
| <u>Revenue Requirement Increase</u> | | | | |
| Water Supply System | 4.0% | -0.9% | 1.0% | 1.3% |
| Sewage Disposal System | 4.0% | 0.3% | 1.0% | 1.8% |
| Combined Water and Sewer | 4.0% | -0.2% | 1.0% | 1.6% |
| <u>O&M Budget Increase</u> | | | | |
| Water Supply System | 4.0% | 8.7% | 0.0% | 4.2% |
| Sewage Disposal System | 4.0% | 8.7% | 0.0% | 4.2% |
| Combined Water and Sewer | 4.0% | 8.7% | 0.0% | 4.2% |
| <u>Average Charge Increase</u> | | | | |
| Water Supply System | 4.5% | 1.9% | 1.6% | 2.7% |
| Sewage Disposal System | 8.3% | -0.7% | 0.1% | 2.5% |
| Combined Water and Sewer | 6.7% | 0.3% | 0.7% | 2.5% |
| <u>Planned I&E / Reserve Deposits - \$ millions</u> | | | | |
| Water Supply System | 23.8 | 34.4 | 39.1 | |
| Sewage Disposal System | 14.1 | 14.6 | 12.2 | |
| Combined Water and Sewer | 37.9 | 49.1 | 51.3 | |

The table presents key metrics for each year, including annual changes in revenue requirements, operation and maintenance expense budgets, and “average” System charges. The figures in green at the bottom of the table represent the planned revenue requirements that are remaining in the Master Bond Ordinance (“MBO”) flow of funds after addressing requirements for operating expense, debt service, and the fixed MBO requirements including the Lease Payment. We’ve often referred to these amounts as “the bottom line” as they reflect amounts available to the Improvement and Extension Fund and/or reserve funds. Growth in these amounts is key to the overall GLWA financial improvement and sustainability strategy, as articulated in the foundational agreements.

Let’s briefly discuss the developments for each fiscal year plan.

FY 2017 was the initial year for which GLWA had control over budgets and charges. The FY 2017 overall revenue requirement increase was established equivalent to the 4% promise for both the Water and Sewer systems, and the operating expense budgets were increased by the same amount. The Water average charge increase was slightly higher than the revenue requirement increase due to slightly lower revenues from projected water sales and investment income. The Sewer average charge increase was also higher than the revenue requirement increase. This metric is complicated by a couple of matters. Charges in the prior year (FY 2016) included amounts related to the final year of the “Five Year Look-Back” adjustments that had the effect of increasing revenues to recover amounts that were not included in budgeted revenue requirements. Unwinding this element created a negative impact on baseline

revenues¹. Also, the FY 2017 Sewer charges included a significant amount related to the “bad debt true-up” related to Highland Park, which was included as a charge requirement for the suburban wholesale charges, but not as a budgeted revenue requirement².

FY 2018 marked the first year for which significant debt service savings associated with the initial GLWA revenue bond transactions in October 2016 were reflected in the budgeted revenue requirements. These savings supported an initially proposed FY 2018 financial plan that included a 2% budgeted revenue requirement increase for the Sewer system, and a “flat” (no increase) budgeted revenue requirement for the Water system. Final modifications as part of the budget / charge review process lowered the budgeted revenue requirements to those shown in the table, and actually resulted in a revenue requirement **decrease** of approximately one percent for Water. The operating budget increase of 8.7% for both systems is a bit misleading. GLWA made an administrative change regarding how certain activities, such as purchases of minor equipment, were budgeted. In prior budgets, these amounts were assumed to be “capitalizable” and were effectively addressed via the “bottom line” portion of the budget. GLWA realized that these amounts were more appropriately treated as operating expenses and included them in the operating budget for FY 2018. This \$20 million budget reallocation had the effect of turning a budget increase of less than two percent to the 8.7% shown in the table. The average FY 2018 charge adjustment for Water was actually an increase despite the budgeted revenue requirement decrease. This reflected the planned exit of Genesee County as a full-service water customer during FY 2018, and the resulting loss of baseline revenues. Conversely, the average FY 2018 charge adjustment for Sewer was actually a small decrease despite the budgeted revenue requirement increase. This also results from bad debt true-up adjustments for the suburban wholesale and Detroit customer classes, which are included as charge requirements but not as budgeted revenue requirements. The FY 2018 suburban wholesale charge requirements for Highland Park bad debt were reduced by \$1.8 million from FY 2017 levels³, and the baseline revenues for FY 2018 included \$4.2 million for Detroit bad debt true-up, which was not in prior revenue projections for purposes of these analyses⁴.

The initially proposed financial plans for FY 2019 included 2% budgeted revenue requirement increases for both the Water and Sewer systems. These initial plans sought to modify the allocation of certain Administrative and Centralized Services functions between the Water and Sewer operating budgets. Initial analyses indicated that more of these costs should be allocated to Water, and the preliminary operating expense budgets reflected a phased approach to reflect those analyses. As a result, initially the Water O&M budget increase was 3.1% and the Sewer O&M budget increase was 1.1%. Overall the preliminary O&M budget increase was just under 2.0%. Final modifications as part of the budget / charge review process resulted in a reduction of the overall budgeted revenue requirement increases from 2.0% to 1.0%, and a decision to

¹ In hindsight, there are other analytical approaches that could change how the Sewer “charge increase” for FY 2017 is reflected. We’ve opted to maintain the approach that resulted in previously published information.

² The impact of Highland Park bad debt expense on Sewer and Water charges is discussed in a separate document nearby.

³ Ibid footnote 2.

⁴ Ibid footnote 1 for FY 2018.

accommodate the revised totals by maintaining the FY 2019 O&M budgets at FY 2018 levels for both the Water and Sewer systems. As a result, the initially envisioned phased allocation adjustment regarding Administrative and Centralized Services functions was not reflected in the FY 2019 budget. The average FY 2019 charge adjustment for Water was slightly higher than the revenue requirement increase due to slightly lower projected investment income. The average FY 2019 charge adjustment for Sewer was lower than the budgeted revenue requirement increase, again reflecting the impact of bad debt true-up adjustments. The FY 2019 suburban wholesale charge requirements for Highland Park bad debt were reduced by \$2.5 million from FY 2018 levels⁵.

To summarize the developments for the three fiscal years for which GLWA has established financial plans and charges:

- The average annual increase in budgeted . . .
 - Revenue requirements has been 1.6%, slightly higher for Water and slightly lower for Sewer;
 - Operation and maintenance expense has been 4.2%;
 - *This increase reflects a modified budget recognition of certain elements such as purchases of minor equipment.*
 - Average charges to Customers has been approximately 2.5% for both Water and Sewer.
- The financial plans have produced planned levels of revenues “available to the bottom line” that are comparable to the originally projected levels envisioned in the feasibility forecasts established at the creation of the Authority and the accompanying \$50 million annual Lease Payment – ***despite lower revenue requirement and charge increases than originally envisioned.*** These successful financial planning “bottom line” results are in large part due to:
 - Stabilized water and sewer revenues as a result of strategic charge modifications;
 - Continued executive / managerial controls on operating expenses;
 - The ability to refinance outstanding debt at lower interest rates and to leverage a fundamental premise of the Authority;
 - A lower than originally forecasted level of investment in capital improvements.

Material providing additional detail of the historical summary presented above is presented in the exhibits accompanying this memorandum.

[Remainder of page intentionally left blank]

⁵ Ibid footnote 2.

FY 2020 Planning - Evolution

Now let's address the various depictions of the FY 2020 financial plan. For purposes of this discussion we've established four scenarios.

- A. Original plan from 2nd year of the FY 2019 Biennial Budget
- B. Updated forecast resulting from the Series 2018 bond sale results
- C. Initial planning level budget targets
- D. Working version of budget as of 12/18/18

The table below presents key metrics for each FY 2020 scenario, in the same format previously presented for the historical financial plans.

| FY 2020 GLWA Budget / Charge Planning | | | | |
|--|--|--|--|--|
| | FY 2019 Biennial <u>Budget</u> A | Bond Sale Forecast <u>Update</u> B | Initial Planning <u>Budget</u> C | Working Budget as of <u>12/18/18</u> D |
| <u>Revenue Requirement Increase</u> | | | | |
| Water Supply System | 4.0% | 4.0% | 3.5% | 3.5% |
| Sewage Disposal System | 4.0% | 4.0% | 3.5% | 3.5% |
| Combined Water and Sewer | 4.0% | 4.0% | 3.5% | 3.5% |
| <u>O&M Budget Increase</u> | | | | |
| Water Supply System | 2.0% | 2.0% | 2.0% | 9.6% |
| Sewage Disposal System | 2.0% | 2.0% | 2.0% | 0.4% |
| Combined Water and Sewer | 2.0% | 2.0% | 2.0% | 4.0% |
| <u>Average Charge Increase</u> | | | | |
| Water Supply System | 4.1% | 2.1% | 1.6% | 1.6% |
| Sewage Disposal System | 4.0% | 3.1% | 2.6% | 2.1% |
| Combined Water and Sewer | 4.0% | 2.7% | 2.2% | 1.9% |
| <u>Planned I&E / Reserve Deposits - \$ millions</u> | | | | |
| Water Supply System | 42.2 | 45.2 | 43.5 | 34.3 |
| Sewage Disposal System | <u>20.5</u> | <u>26.8</u> | <u>24.4</u> | <u>27.4</u> |
| Combined Water and Sewer | 62.6 | 71.9 | 67.9 | 61.7 |

Herewith a brief introduction of each financial plan scenario.

- A. Original plan from 2nd year of the FY 2019 Biennial Budget
 - 4% revenue requirement increase;
 - 2% O&M budget increase;
 - *Uniform Water / Sewer*

- Charge increases that approximate revenue requirement increases.
 - Planned “bottom line” contributions consistent with the originally projected levels envisioned in the feasibility forecasts established at the creation of the Authority.
 - *Higher for Water, slightly lower for Sewer*
- B. Updated forecast resulting from the Series 2018 bond sale results
- 4% revenue requirement increase;
 - 2% O&M budget increase;
 - *Uniform Water / Sewer*
 - Lower charge increases than revenue requirement increases due to recognition of higher forecasted investment income.
 - *Direct result of recognizing benefits of active investment strategies*
 - Recognition of debt service savings achieved via the Series 2018 bond sales.
 - *Resulting increase in “bottom line” results*
- C. Initial planning level budget targets
- 3.5% revenue requirement increase;
 - 2% O&M budget increase;
 - *Uniform Water / Sewer*
 - Lower charge increases than B due to lower “top line” targeted revenue requirement increase;
 - *Resulting slight decrease in “bottom line” results*
- D. Working version of budget as of 12/18/18
- 3.5% revenue requirement increase;
 - 4% O&M budget increase;
 - *Overall increase from 2.0% to 4.0% attributable to lower shared services credit from DWSD and new projects in the Planning Group*
 - *Differential Water / Sewer increases reflecting additional review of specific Centralized and Administrative services*
 - No change in Water charge increase compared to C;
 - Slight reduction in Sewer charge increase compared to C as a result of lower impact of Highland Park bad debt requirements⁶
 - Slight reduction in overall combined charge increase compared to C, but . . .
 - *Lower overall reduction in forecasted “bottom line” results, and a reallocation between Water and Sewer*

⁶ Ibid footnote 2

- *These figures are approximately \$5 million higher (for both Water and Sewer) than those in the feasibility forecasts established at the creation of the Authority*

Material providing additional detail on each of these scenarios is presented in the exhibits accompanying this memorandum.

FY 2020 Planning – Ongoing Review

The preliminary “working version” scenario introduced above remains under review, including specific departmental budget requests. In addition, there are several parallel investigations regarding cost of service allocations that could impact how the proposed budget / charges impact individual Customers. These include:

- Ongoing review of the most appropriate assignment of “Centralized Services” and “Administrative Services” support costs to the Water and Sewer funds, and to cost pools within those funds;
- The potential operating agreement with OMID, and the impact of such on the GLWA revenue requirements and revenue requirement allocations to OMID and to other Sewer Customers;
- The impact on Water cost of service allocations and charges of:
 - *The contract alignment project (CAP) and the impact on suburban wholesale master metered units of service;*
 - *The incorporation of the UoS study phase 2 findings regarding units of service for non-master metered Customers (Detroit, Dearborn, Highland Park)*
- Incorporation of DWSD Local System budgets and financial plans;
- Budget and cost allocation impacts of potential changes in the GLWA / DWSD definitions of:
 - *Transmission / distribution main responsibility; and*
 - *Service provided by DWSD to GLWA facilities*

We continue diligent review on each of these issues and in our preparation of the FY 2020 Cost of Service Study and the accompanying proposed wholesale service charges for FY 2020.

We are prepared to discuss this matter at your convenience.

TFG
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MEMORANDUM

Highland Park Bad Debt Expense Review

December 10, 2018

To: Nicolette Bateson

From: Bart Foster

You have asked for observations regarding the level of Highland Park bad debt expense recognized in the FY 2018 audited financial statements, and a review of how such amounts impact charges to other GLWA Customers. The attached exhibit summarizes our initial analysis, which reflects an update of the approach we've been applying for several years. Herewith a brief introduction:

The year-end working papers supporting the FY 2018 audit reveal an "allowance for doubtful accounts" for Highland Park totaling approximately \$38.8 million, and a resulting FY 2018 bad debt expense of approximately \$3.46 million, as summarized below.

| | Allowance for Doubtful Accts | | Change (a) |
|------------------------------------|------------------------------|------------------|------------------|
| | <u>6/30/17</u> | <u>6/30/18</u> | |
| Sewer | 28,837,730 | 30,938,511 | 2,100,781 |
| Sewer Industrial Waste Control (b) | 1,550,467 | 1,630,776 | 80,310 |
| Water | <u>4,941,777</u> | <u>6,221,815</u> | <u>1,280,039</u> |
| Total (b) | 35,329,973 | 38,791,102 | 3,461,129 |

(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) Includes a small amount not related to Highland Park.

The table indicates the amount for the Sewer System and Water System separately, and also identifies the portion of the Sewer bad debt expense related to Industrial Waste Control ("IWC") charges. Let's address each the Sewer and Water elements separately in terms of how they impact charges to GLWA Customers.

Sewer

At the risk of complicating the instant discussion, some historical background is important to provide context to the discussion.

Terms of the original 1995 Sewer Rate Settlement Agreement between the predecessor DWSD and the Suburban Wholesale Contract Customers stipulated that any bad debt expense incurred by City of Detroit Customers would be charged to Detroit Customers, and that any bad debt expense incurred by a Suburban Wholesale Customer would be charged to all Suburban Wholesale Customers. This requirement was originally implemented by including an estimated amount for bad debt expense for the Detroit customer class in prospective charges, and then “trueing it up” via the old Look-Back process. The same approach was applied to Suburban Wholesale Customer bad debt, although originally no prospective amounts were included in charges – rather the actual amounts were recovered via the Look-Back process.

The terms of the 1995 Rate Settlement Agreement were effectively made part of the service agreements when the Federal Court oversight ended, and the bad debt true up provisions were maintained as part of the Rate Simplification Initiative adopted for the FY 2015 sewer charges. However, the old Look-Back process was discontinued as part of Rate Simplification, and the only “true-up” notion carried forward was that related to prospective and actual bad debt expense. Upon formation of GLWA, the “bad debt true up” requirement was included in the water and sewer services agreement between GLWA and the City of Detroit. That agreement also introduced additional provisions to ensure collections from the Detroit customer class, including establishment of a Budget Stabilization Fund and monitoring of actual collections compared to actual revenue requirements.

When GLWA and DWSD representatives were negotiating the 2018 Memorandum of Understanding (the “2018 MOU”) they recognized that the Budget Stabilization Fund and monthly monitoring aspects of the agreements were adequate to ensure full collections from the Detroit customer class. The parties realized that the bad debt true-up requirement served only to confuse the issue and create unnecessary volatility. The 2018 MOU eliminated that bad debt true-up aspect - as it relates to the Detroit customer class - from the agreements. However, the original true-up requirement for Suburban Wholesale bad debt expense technically remains in the service agreements with GLWA’s Suburban Wholesale Sewer Customers. Which brings us to the discussion of Highland Park sewer bad debt expense . . .

Here is the nutshell summary of the impact on Customer charges, as illustrated in the attached exhibit.

- The FY 2018 Sewer bad debt expense for Highland Park was \$2.1 million compared to the \$4.39 million prospective amount included in Charges to suburban wholesale Customers; *See Lines 8 and 9.*
- This creates a \$2.29 million “credit” due to suburban wholesale Customer related to FY 2018 activity; *See Line 10.*

- Cumulatively since we started this approach after the old 5-year look-back was terminated, the running “true-up” total (the variance between prospective bad debt included in charges and actual bad debt experienced) is \$9.59 million; *See Line 5.*
 - This amount includes the \$17.3 million that remained at the conclusion of the old Look-Back process; *See Line 1.*
- GLWA had originally embarked on a “phased” recovery of the original amounts, designed to run through FY 2022; *See Lines 11 through 14.*
- Through the end of FY 2019, \$8.14 million will have been recognized via the true up amounts included in Charges; *See Line 5, Column 5.*
- This leaves a balance of \$1.45 million to recover; *See Line 5, Column 6.*
- Assuming approximate current collection rates continue, it appears that a credit adjustment totaling approximately \$1.45 million **could** occur for FY 2019; *See Line 6.*
- To the extent this assumption is accepted, I would recommend not including any true-up adjustment in the FY 2020 Charges – as the amounts charged to Customers related to Highland Park bad debt expense through FY 2019 would be precisely equivalent to the actual bad debt expense; *See Line 7, Column 6.*
- I would also consider increasing the assumed collection rate on prospective billings to Highland Park from 50% to 60%;

If accepted, these recommendations would reduce the amounts charged to Suburban Wholesale Sewer Customers related to Highland Park prospective and true-up bad debt from \$4.65 million (in the FY 2019 Charges) to \$2.2 million in the preliminary FY 2020 Charges. Given the apparent historical balance, and the fact that the original “true-up” notion has been removed from the agreement with the Detroit customer class, it would seem to be reasonable to revisit the application of the true-up concept for Suburban Wholesale bad debt expense.

Water

There are not any contractual nor other agreements on how bad debt expense related to water service to Highland Park should be treated. Starting with the FY 2017 Water service charges, we began effectively increasing charges to ALL Customers (including Detroit) by amounts equivalent to Highland Park’s allocated revenue requirement. This approach recognized an assumption that the entire amount of billings for water service to Highland Park would go unpaid. The FY 2018 Water bad debt expense for Highland Park was \$1.28 million, which was consistent with the amount we included in the FY 2018 charges.

We are prepared to discuss this matter at your convenience.

Suburban Wholesale Sewer Bad Debt True-Up Adjustment - Highland Park

| | (1) | (2) | (3) | (4) | (5) | (6) | |
|---------------------------------|---------------------------------|----------------------------|-------------|-------------|--|-------------------|-------------|
| True-Up Recovery History | | | | | | | |
| | Balance to Recover | Recovered via True-Ups in: | | | | Remaining Balance | |
| | | 2017 | 2018 | 2019 | Total -> 2019 | | |
| <u>From Line 10</u> | | | | | | | |
| 1 | Pre-2016 Bad Debt "True-Up" | 17,295,300 | 3,459,100 | 3,459,100 | 3,459,100 | 10,377,300 | 6,918,000 |
| 2 | FY 2016 True-Up | (2,594,000) | | (648,500) | (648,500) | (1,297,000) | (1,297,000) |
| 3 | FY 2017 True-Up | (2,817,800) | | | (939,300) | (939,300) | (1,878,500) |
| 4 | FY 2018 True-Up | (2,289,200) | | | | 0 | (2,289,200) |
| 5 | Subtotal thru 2018 | 9,594,300 | 3,459,100 | 2,810,600 | 1,871,300 | 8,141,000 | 1,453,300 |
| 6 | FY 2019 True-Up Estimate | (1,453,300) | | | | 0 | (1,453,300) |
| 7 | Subtotal thru 2019 | 8,141,000 | 3,459,100 | 2,810,600 | 1,871,300 | 8,141,000 | 0 |
| True-Up Recovery Amounts | | | | | | | |
| | Pre-2016 | 2016 | 2017 | 2018 | 2019 | | |
| 8 | Bad Debt in Prospective Charges | 0 | 5,569,200 | 5,600,000 | 4,390,000 | 2,780,000 | |
| 9 | Actual Bad Debt | 17,295,300 | 2,975,200 | 2,782,200 | 2,100,800 | 1,326,700 | ** |
| 10 | True-Up Variance | 17,295,300 | (2,594,000) | (2,817,800) | (2,289,200) | (1,453,300) | |
| <u>Original Recovery Plan</u> | | | | | | | |
| 11 | Years | 5 | 4 | 3 | Potentially exclude from future True-Up applications | | |
| 12 | Annual Adjustment | 3,459,100 | (648,500) | (939,300) | | | |
| 13 | Starting: | 2017 | 2018 | 2019 | | | |
| 14 | Through | 2022 | 2022 | 2022 | | | |

** Hypothetical projection designed to illustrate what FY 2019 results would have to be to achieve cumulative zero balance. Reflects collection rate of 76% compared to FY 2018 collection rate of 73%.

| Payment History | Billings | Payments | Net | Balance | Collection Rate |
|-----------------|------------|------------|------------|------------|-----------------|
| 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% |
| Cumulative | 34,592,468 | 13,703,096 | 20,889,372 | | 40% |