



## THE FOSTER GROUP

---

P.O. BOX 26282  
LEAWOOD, KS 66225  
TEL: (913) 345-1410  
FAX: (913) 345-1640

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

### MEMORANDUM

FY 2019 Cost of Service Study and Service  
Charge Recommendations

February 2, 2018

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 2019. The materials presented herein summarize calculations that are subject to review, change and modification by the Great Lakes Water Authority (“GLWA”) Board. A public hearing on the proposed water and sewer service charges for FY 2019 is scheduled for February 28, 2018.

This is the third 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), and the Services Agreements with the City of Detroit.

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 2019 Financial Plan and Service Charges has been exhaustively 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 [GLWA.org](http://GLWA.org), and we encourage interested stakeholders to review that material, all of which is intended to be incorporated by reference to this concluding 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 2019 BUDGET depicted herein represents the “budget request” as developed by GLWA, and as set forth in the *“FY 2019 & FY 2020 Biennial Budget and Five Year Plan*

- (FY 2019 thru FY 2023)” document published initially at the January 5 Audit Committee Meeting.
- *As further explained herein, the FY 2019 BUDGET included in these calculations reflects a 2% budgetary increase compared to the FY 2018 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 2019 BUDGET will likely 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, which does not contemplate any issuance of new money debt to finance the Capital Improvement Programs (“CIPs”).*
    - *GLWA plans to formally update the capital financing plans for the Water Supply and Sewage Disposal Systems once updated CIPs are finalized for both the Regional and Local Systems.*
    - *We do not believe that the updated capital financing plans will materially impact the revenue requirements used to calculate the proposed service charges.*
  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 2019 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. GLWA and DWSD need to formally establish allocation of responsibility for the items listed below. It is our understanding that the parties intend to finalize the arrangement on these items through a Memorandum of Understanding and that will serve as an addendum to the Lease(s) and/or Service Agreement. For purposes of the FY 2019 Cost of Service Study, we have applied our understanding of current estimated allocations, which for most of these items reflect the same general allocation to wholesale and retail cost pools as applied in the FY 2017 Cost of Service Study.

- *Final amortization terms of “Obligation Payable” from DWSD to GLWA (Local System share of debt service);*
  - *Specific determination of certain local system requirements related to the Agreements, including Budget Stabilization Fund requirements.*
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 2018) service charges, although specific operating programs as reflected in the budget request for FY 2019 do impact the cost pool allocations. Also, the FY 2019 Cost of Service Study is the first study that reflects results of the independent GLWA capital asset inventory and valuation project, which was completed during 2017. 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 taken to allocate the FY 2019 BUDGET to cost pools as part of the FY 2019 Cost of Service and Charges Study is included as an appendix to this memorandum report.***

The exhibits to this memorandum contain executive summary material on:

- The determination of the PRELIMINARY FY 2019 BUDGET;
- The allocation of PRELIMINARY FY 2019 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 2019 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<sup>1</sup>. It is our understanding that these individual calculation sheets have been distributed to each Customer concurrent with notification of the public hearing on this matter, which is scheduled for March 1, 2017. We suggest publishing this memorandum to support ongoing review in advance of that public hearing. Additional material is being prepared to support that review.

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

---

<sup>1</sup> With respect to the proposed Water Service Charges, the Board and Customers have been notified of two potential scenarios. Scenario 1 assumes full implementation of the Units of Service Study for non-master metered customers that is discussed herein. Scenario 2 assumes partial implementation. This report is limited to a discussion of Scenario 1.

**Water Service Charge Calculation Tables:**

1. Presents and executive summary of the comprehensive Water Supply System BUDGET for FY 2019 compared to FY 2018. 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 request<sup>2</sup>. Of note:
  - The total BUDGET increase is 2%, as shown on Line 4 of the table.
  - The customer status change for the Genesee County Drain Commission (GCDC) results in a negative revenue variance that must be reflected in the FY 2019 Charges. The current charges were computed assuming revenue totaling approximately \$3.7 million from GCDC. Under the arrangements finalized last year, GCDC's contract status has changed from full service to reciprocal backup service, and the BUDGET does not anticipate any revenue from GCDC. The proposed Charges must recognize the resulting negative revenue variance of \$3.7 million. *See Lines 6 and 15.*
  - This variance is slightly offset by positive revenue variances from all other Customers, and from non-operating revenue – but exacerbated by a higher expected level of bad debt expense from Highland Park. *See Lines 14, 16, 17.*
  - In order to address the net negative revenue variance of approximately \$2.2 million, revenues from service charges to GLWA Contract Customers must be increased by 2.7% in order to balance the 2.0% BUDGET increase.
  - ***The Cost of Service Study calculations delineated herein allocate responsibility for the “Revenue Requirement from Charges” totaling \$332.4 million on Line 10 of Column 2 of the table.***
  
2. Illustrates projected debt service coverage ratios that result from the preliminary Five Year Plan<sup>2</sup>.
  - The preliminary Five Year Plan assumes annual BUDGET increases of 4% for FY 2020, FY 2021, FY 2022 and FY 2023;
  - The forecast produces stable and rising debt service coverage ratios;
  - These preliminary projections are impacted by the level of capital investment required by both the Regional GLWA and Local DWSD System. *Final CIP plans for both entities remain under development.*
  - The Five Year Plan does not project any new debt issuances until FY 2020.
  - These preliminary projections do not recognize any potential savings that may emerge from refinancing transactions.

---

<sup>2</sup> Note that this table presents information for both the Water and Sewer systems.

3. Allocates the FY 2019 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 an appendix 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 2019 reflects a moderate increase in peak hour related costs and corresponding decreases in commodity and max day 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. 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 2019 the projected volume was determined by averaging annual sales for each Customer over the most recent 36 months from October 2014 through September 2017. Sales data for “base” months (October through March) were reduced by 5% to reflect demographic reduction in potable water use based on recent trends being experienced worldwide. Sales data for “peak” months (April through September) were not adjusted. Peak monthly data for the three-year averaging period reflect for one very low demand year, one moderately high demand year, and one about average year.
  - The max day and peak hour demand figures in Table 4a reflect figures from Exhibit B of the contract for the 78 master meter Customers served under the model contract. ***Max day and peak hour demands for 35 of these Customers were eligible for change for the FY 2019 Cost of Service Study, either through the periodic “re-opener” schedule in the contract(s) or via naturally changing figures in existing Exhibit Bs.***
  - For the 7 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 1” of the Units of Service (“UoS”) Study<sup>3</sup> for Customers that are not served by master meters.*
  - *The GLWA implementation plan for purposes of the FY 2019 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 as applied adjustment factors to the technical data. This approach:*
    - *Increases max day and peak hour demands for Detroit and Highland Park by 10% - similar to the approach applied to model contract Customers who re-opened during 2017.*
    - *Increases Dearborn’s max day and peak hour demands by 20% - consistent with the manner that demands for other Customers under “old” contract formats are treated.*
  - Tables 4b and 4c then combine these basic characteristics into consolidated units that align with Cost Pools.
  - *Note that this is the first study in recent years that includes the City of Flint and the City of Highland Park as wholesale Customers for purposes of determining Cost of Service Allocations. Service Charges for any service to these Customers were handled separately in recent studies.*
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 circumstances<sup>4</sup>:
- 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 2019 is estimated to be \$6,874,000. 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

<sup>3</sup> The technical results of the UoS Study are documented elsewhere.

<sup>4</sup> These adjustments are illustrated for all Customers in Table 10.

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 \$4.5 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 2019 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 \$1.53 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. We note that there are not any “Suburban Only” costs related to the Customer Outreach Program in the FY 2019 Cost of Service Study, nor were there in FY 2018.
  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 2019 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 2019 compared to FY 2018. 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 request<sup>5</sup>. Of note:
  - The total BUDGET increase is 2%, as shown on Line 4 of the table.
  - The projected FY 2019 revenues from non-operating sources represent a positive variance of approximately \$1.8 million. *See Lines 5 and 16.*
  - Additionally, the reduced expected bad debt expense associated with Highland Park results in a projected positive variance of approximately \$2.5 million. *See Lines 9 and 17, and the detailed description in the Appendix.*
  - The positive revenue variance provided by these items totals approximately \$4.4 million, which effectively means that the 2.0% BUDGET increase can be accommodated with service charge increases to GLWA Customers of only 1.1%. ***However the retail Industrial Waste Control customers will receive a large decrease. Therefore the effective average "Charge Adjustment" for GLWA Contract Customers is 2.3%.***
  - ***The Cost of Service Study calculations delineated herein allocate responsibility for the "Revenue Requirement from Charges" totaling \$474.9 million on Line 10 of Column 6 of the table.***
2. Illustrates projected debt service coverage ratios that result from the preliminary Five Year Plan<sup>5</sup>.
  - The preliminary Five Year Plan assumes annual BUDGET increases of 4% for FY 2020, FY 2021, FY 2022 and FY 2023;
  - The forecast produces stable and rising debt service coverage ratios;

---

<sup>5</sup> Note that this table presents information for both the Water and Sewer systems.

- These preliminary projections are impacted by the level of capital investment required by both the Regional GLWA and Local DWSD System. *Final CIP plans for both entities remain under development.*
  - The Five Year Plan does not project any new debt issuances until FY 2020.
  - These preliminary projections do not recognize any potential savings that may emerge from refinancing transactions.
3. Allocates the FY 2019 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 an appendix 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 2019 reflects a material increase in costs allocated to the Combined Sewer Overflow (CSO) and the Oakland Macomb Interceptor District (OMID) Specific Cost Pools, and corresponding decreases in the Industrial Waste Control (IWC) and Common to All (CTA – SHAREs) 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. 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 CSO and OMID Cost Pools and a corresponding decrease in the CTA-SHAREs Cost Pool.
4. Presents the proposed SHAREs for FY 2019. ***These SHAREs are unchanged from FY 2018, although the FY 2018 Charges only implemented one half of the impact of the FY 2018 SHAREs compared to the FY 2017 SHAREs. This study for FY 2019 reflects the second and final step of the phased implementation.***
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 2018 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 2019 Service Charge calculations assume that Highland Park will continue partial payments during FY 2018, and that collections will approximate 50 percent of total billings. The Service Agreement protocol calls for the remaining 50 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. ***The amount in Column 9 reflects a “phased” approach to the requirements of the service agreements. Please see the memorandum included as an appendix to this document for a more thorough explanation of this matter.***
  - Adjustments identical in concept to these are also applicable for the Detroit Customer Class (for the estimated Detroit retail bad debt expense and bad debt true-up) and are allocated to that class as part of the development of retail service charges for Detroit Customers.
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 2019 “Industrial Specific” charges – the Industrial Waste Control service charges and the pollutant surcharges.

Table 1  
Executive Summary of FY 2019 BUDGET Request Comprison (\$ millions)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Water System				Sewer System				Total GLWA			
<u>Annual BUDGET</u>	FY 2018	FY 2019	Change	% Change	FY 2018	FY 2019	Change	% Change	FY 2018	FY 2019	Change	% Change
1 Operation and Maintenance Expense	121.6	125.3	3.7	3.1%	191.1	193.1	2.0	1.1%	312.6	318.4	5.8	1.9%
2 Master Bond Ordinance Commitments	173.7	171.3	(2.4)	-1.4%	262.5	269.7	7.2	2.7%	436.2	441.0	4.8	1.1%
3 Deposit to Improvement & Extension Fund	32.8	38.0	5.2	15.9%	11.9	12.0	0.1	0.7%	44.7	50.0	5.3	11.8%
4 <b>TOTAL BUDGET</b>	328.1	334.7	6.6	<b>2.0%</b>	465.5	474.8	9.3	<b>2.0%</b>	793.6	809.5	15.9	<b>2.0%</b>
less: "Non Customer" Revenue												
5 Investment Earnings & Miscellaneous	(4.2)	(3.8)	0.4	-9.7%	(2.8)	(4.6)	(1.8)	66.2%	(7.0)	(8.4)	(1.4)	20.1%
6 Genesee County Drain Commission	(3.7)	0.0	3.7	-100.0%	NA	NA	NA	NA	(3.7)	0.0	3.7	-100.0%
7 Subtotal Revenue Requirement "Offsets"	(7.9)	(3.8)	4.1	-51.7%	(2.8)	(4.6)	(1.8)	66.2%	(10.7)	(8.4)	2.3	-21.4%
8 Preliminary Revenue Req't from Charges	320.2	330.8	10.7	3.3%	462.7	470.2	7.5	1.6%	782.9	801.1	18.2	2.3%
9 plus: Expected "System" Bad Debt	1.3	1.5	0.3	19.8%	7.2	4.7	(2.5)	-35.4%	8.5	6.2	(2.3)	-27.1%
10 Revenue Required from Charges	321.4	332.4	10.9	3.4%	469.9	474.9	4.9	1.1%	791.4	807.3	15.9	2.0%
11 Proforma Billed Revenue - Existing Charges	321.4	323.6	2.2	0.7%	469.9	470.0	0.0	0.0%	791.4	793.6	2.2	0.3%
12 Charge Revenue Adjustment Needed		8.8				4.9				13.7		
13 % Charge Revenue Adjustment Needed		<b>2.7%</b>				<b>1.1%</b>				<b>1.7%</b>		
<b>Charge Adjustment Illustration</b>												
<u>Proforma Revenue - Existing Charges</u>												
14 Contract Customers	321.4	323.6	2.2		469.9	470.0	0.0		791.4	793.6	2.2	
15 Genesee County Drain Commission	3.7	0.0	(3.7)		NA	NA	NA		3.7	0.0	(3.7)	
16 Investment Earnings & Miscellaneous	4.2	3.8	(0.4)		2.8	4.6	1.8		7.0	8.4	1.4	
17 Expected Bad Debt Expense	(1.3)	(1.5)	(0.3)		(7.2)	(4.7)	2.5		(8.5)	(6.2)	2.3	
18 Net Proforma Revenue Comparison	328.1	325.9	(2.2)		465.5	469.9	4.4		793.6	795.8	2.2	
19 Adjustment to Address Revenue Variance			<b>0.7%</b>				<b>-0.9%</b>				<b>-0.3%</b>	
20 Adjustment to Address BUDGET Variance (Line 4)			<b>2.0%</b>				<b>2.0%</b>				<b>2.0%</b>	
21 <b>Average Charge Adjustment</b>			<b>2.7%</b>				<b>1.1%</b>				<b>1.7%</b>	

TFG

THE FOSTER GROUP

**Table 2**  
**Summary of 5-year Financial Forecast: Debt Service Coverage Projections**

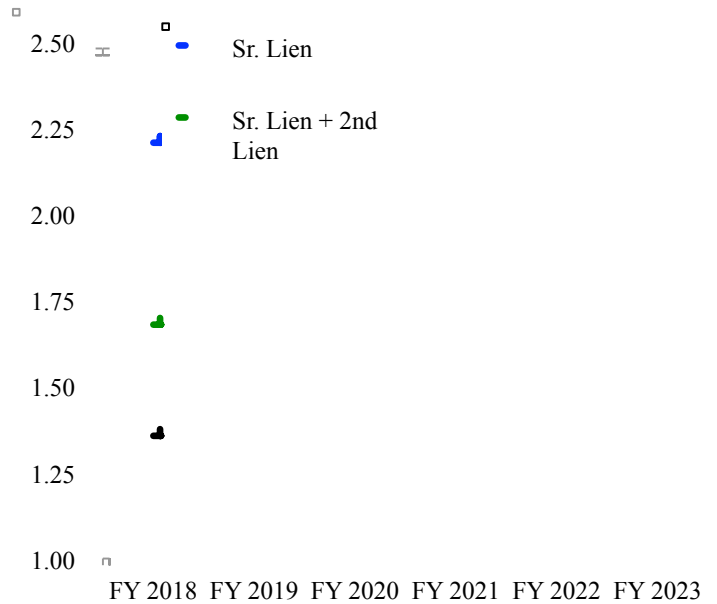
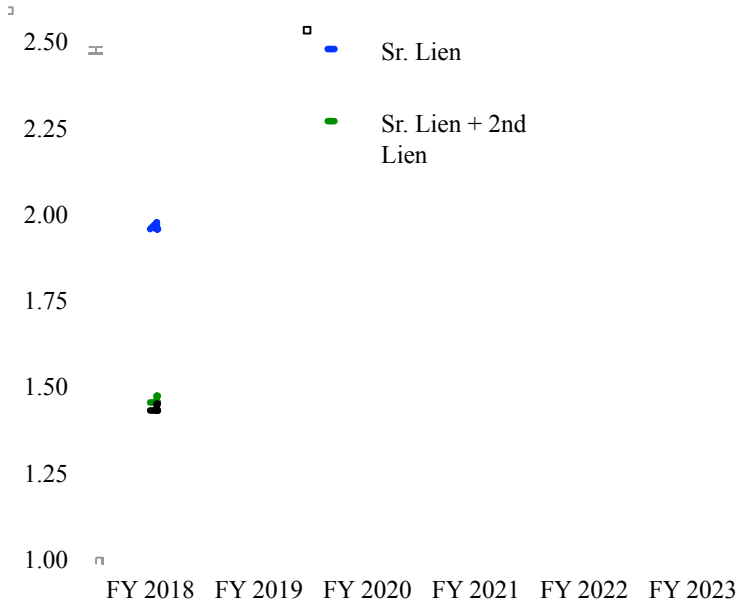
<u>Water</u>	<u>Budget FY 2018</u>	<u>Budget FY 2019</u>	<u>Forecast FY 2020</u>	<u>Forecast FY 2021</u>	<u>Forecast FY 2022</u>	<u>Forecast FY 2023</u>
Sr. Lien	1.91	1.99	1.94	1.95	1.97	1.97
Sr. Lien + 2nd Lien	1.43	1.41	1.39	1.41	1.47	1.49
All Bonds	1.41	1.39	1.37	1.38	1.45	1.47

<u>Sewer</u>	<u>Budget FY 2018</u>	<u>Budget FY 2019</u>	<u>Forecast FY 2020</u>	<u>Forecast FY 2021</u>	<u>Forecast FY 2022</u>	<u>Forecast FY 2023</u>
Sr. Lien	2.10	2.02	2.01	2.25	2.12	2.09
Sr. Lien + 2nd Lien	1.61	1.55	1.56	1.64	1.65	1.72
All Bonds	1.27	1.23	1.23	1.29	1.31	1.39

***Water***

***Sewer***



<u>Requirements</u>	<u>MBO Minimum</u>	<u>Prior Policy Minimum</u>
<i>Sr. Lien</i>	<i>1.20</i>	<i>1.35</i>
<i>Sr. Lien + 2nd Lien</i>	<i>1.10</i>	<i>1.25</i>
<i>All Bonds</i>	<i>1.00</i>	<i>1.15</i>

Table 3  
Water Supply System  
Allocation of FY 2019 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								
	Commod	Max Day	PH Incr	PH Dist	Comm DE	MD DE	PH DE	PHI DE	Mtrs	
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
<b>BUDGET Elements</b>										
1 Regional System O&M Expense	125,311,800	8,232,500	57,834,300	213,300	7,279,800	20,529,300	8,510,400	10,264,600	10,264,600	2,183,100
2 Pension Obligation - Operating Portion	6,048,000	0	3,360,200	14,500	495,100	734,400	560,800	367,200	367,200	148,500
3 Debt Service	133,210,100	0	54,356,600	2,976,400	41,645,400	0	0	33,702,900	0	528,900
4 Non-Operating Portion of Pension Oblig	6,268,300	0	3,482,600	15,000	513,200	761,200	581,300	380,600	380,600	153,900
5 Transfer to WRAP Fund	1,564,800	41,700	681,700	20,600	313,200	111,600	48,900	275,300	55,800	16,000
6 Transfer to Extra. Repair and Repl. Fund	250,500	0	102,200	5,600	78,300	0	0	63,400	0	1,000
7 Lease Payment - Transfer to Detroit Local I&E	22,500,000	599,700	9,801,700	296,400	4,503,500	1,604,500	703,200	3,958,200	802,200	230,600
8 Transfer to GLWA Regional I&E Account	38,024,900	0	15,516,100	849,600	11,887,700	0	0	9,620,500	0	151,000
9 Operating Reserves	1,502,700	98,700	693,500	2,600	87,300	246,200	102,100	123,100	123,100	26,200
10 Total Gross BUDGET	334,681,100	8,972,600	145,828,900	4,394,000	66,803,500	23,987,200	10,506,700	58,755,800	11,993,500	3,439,200
11 less: Revenue from Non-Contract Cust	0	0	0	0	0	0	0	0	0	0
12 less: Non-Operating Revenue	(3,836,600)	(102,300)	(1,671,300)	(50,500)	(767,900)	(273,600)	(119,900)	(674,900)	(136,800)	(39,300)
13 Net BUDGET Req'd from Charges	330,844,500	8,870,300	144,157,600	4,343,500	66,035,600	23,713,600	10,386,800	58,080,900	11,856,700	3,399,900
<b>Summary - BUDGET Required from Charges</b>										
14 Net Operating Expenses	132,862,500	8,331,200	61,888,000	230,400	7,862,200	21,509,900	9,173,300	10,754,900	10,754,900	2,357,800
15 Net Capital Requirements	197,982,000	539,100	82,269,600	4,113,100	58,173,400	2,203,700	1,213,500	47,326,000	1,101,800	1,042,100
16 Total	330,844,500	8,870,300	144,157,600	4,343,500	66,035,600	23,713,600	10,386,800	58,080,900	11,856,700	3,399,900
17 Relative Cost Pool Distribution		2.7%	43.6%	1.3%	20.0%	7.2%	3.1%	17.6%	3.6%	1.0%

Table 4a  
Water Supply System  
FY 2019 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	132,200	5.70	7.90	21.0	602	928
2	Almont Village	8,900	0.40	0.44	37.9	802	115
3	Ash Township	40,700	1.57	2.10	29.9	635	160
4	Belleville	12,300	0.50	0.75	32.5	676	123
5	Berlin Township	28,400	1.29	2.05	34.6	598	211
6	Brownstown Township	139,200	7.00	11.50	28.5	601	523
7	Bruce Twp	1,360	0.20	0.53	32.8	767	115
8	Canton Township	356,100	22.50	23.50	32.2	742	1,770
9	Center Line	31,500	1.13	1.60	18.4	623	155
10	Chesterfield Township	165,700	8.75	12.00	28.3	617	725
11	Clinton Township	407,600	21.40	26.60	22.8	607	1,218
12	Commerce Township	103,400	6.54	7.88	31.4	967	520
13	Dearborn	<b>717,300</b>	<b>32.88</b>	<b>43.08</b>	<b>20.10</b>	<b>597.00</b>	<b>3</b>
14	Dearborn Heights	206,000	8.00	12.00	22.4	624	617
15	Eastpointe	113,500	3.70	5.50	18.1	612	1,013
16	Ecorse	144,100	3.80	4.40	20.1	591	285
17	Farmington	48,300	2.25	2.45	27.1	765	315
18	Farmington Hills	378,700	22.00	22.00	27.4	784	2,754
19	Ferndale	68,500	2.80	3.10	18.2	643	568
20	Flat Rock	68,100	2.60	3.50	30.1	601	235
21	Flint	544,400	14.50	14.50	52.0	866	3,600
22	Fraser	62,100	2.77	4.28	21.0	617	296
23	Garden City	89,000	3.35	5.35	25.0	638	491
24	Gibraltar	17,600	0.94	1.45	30.9	588	176
25	Grosse Ile Township	41,300	2.78	4.40	27.0	584	400
26	Grosse Pt. Park	60,100	3.60	6.07	18.0	583	291
27	Grosse Pt. Shores	20,200	1.43	2.67	18.9	587	283
28	Grosse Pt. Woods	63,900	4.96	4.96	18.9	587	461
29	Hamtramck	58,200	1.62	2.36	16.7	633	658
30	Harper Woods	57,000	2.34	3.25	18.4	598	357
31	Harrison Township	91,100	4.20	4.20	24.0	587	440
32	Hazel Park	51,800	1.70	2.44	18.1	639	538
33	Highland Park	<b>151,300</b>	<b>4.40</b>	<b>4.62</b>	<b>17.30</b>	<b>639.00</b>	<b>500</b>
34	Huron Township	62,200	3.00	4.19	29.9	635	278
35	Imlay City	38,500	1.88	1.88	45.9	908	155
36	Imlay Twp	140	0.012	0.024	42.7	825	80
37	Inkster	92,100	4.75	5.68	24.4	638	443
38	Keego Harbor	10,300	0.45	0.68	29.1	934	123
39	Lapeer	55,200	1.86	2.23	49.1	850	400
40	Lenox Township	15,400	0.49	0.78	30.5	619	400
41	Lincoln Park	144,500	5.50	8.00	20.4	594	813
42	Livonia	501,800	30.00	42.00	26.2	687	2,386
43	Macomb Township	325,400	25.10	36.50	26.8	622	1,015
44	Madison Heights	135,700	5.35	6.85	19.4	629	755
45	Mayfield Twp	540	0.03	0.07	48.3	839	155
46	Melvindale	44,100	1.70	2.30	19.9	594	525
47	New Haven, Village of	16,700	0.70	1.10	29.8	613	80
48	N O C W A	914,400	49.50	52.50	27.7	895	5,173

TFG

Table 4a  
Water Supply System  
FY 2019 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>	
49	Northville	32,200	1.55	1.65	31.1	836	211
50	Northville Township	139,300	10.00	13.80	30.5	855	521
51	Novi	294,700	19.00	19.00	31.4	936	1,836
52	Oak Park	97,000	3.90	3.90	19.7	669	285
53	Oakland Co. Drain Comm.	8,300	0.15	0.15	20.4	617	115
54	Plymouth	42,400	1.81	2.62	30.8	750	203
55	Plymouth Township	172,700	10.00	10.00	31.3	793	315
56	Redford Township	173,900	7.20	10.00	22.6	638	1,271
57	River Rouge	45,600	1.80	2.40	19.4	585	431
58	Riverview	43,300	1.90	2.75	25.3	594	130
59	Rockwood	10,300	0.56	0.90	32.7	592	88
60	Romeo	5,700	0.45	0.63	32.2	789	155
61	Romulus	199,100	8.59	10.60	27.3	651	919
62	Roseville	190,000	6.39	9.06	19.0	620	885
63	Royal Oak Township	12,100	0.51	0.80	19.2	665	146
64	S O C W A	1,290,500	62.30	62.30	22.2	732	5,006
65	Shelby Township	399,000	25.00	44.50	26.4	694	1,246
66	South Rockwood	5,100	0.17	0.28	33.4	586	88
67	Southgate	121,500	5.20	7.40	23.7	601	361
68	St. Clair County-Burtchville Twp	7,600	0.48	0.68	47.2	620	105
69	St. Clair County-Greenwood	12,800	0.75	0.75	45.4	774	413
70	St. Clair Shores	202,800	7.50	10.00	20.2	594	1,239
71	Sterling Heights	607,300	33.00	52.50	22.3	632	3,175
72	Sumpter Township	28,500	1.12	1.75	32.9	663	155
73	Sylvan Lake	6,700	0.36	0.54	29.1	938	80
74	Taylor	282,400	11.20	14.00	23.5	616	1,078
75	Trenton	88,500	4.85	7.05	25.8	596	1,185
76	Troy	472,800	27.00	40.00	24.2	756	2,548
77	Utica	25,000	1.20	1.75	24.4	660	155
78	Van Buren Township	125,900	6.90	8.17	32.5	676	1,090
79	Walled Lake	31,000	1.38	1.94	31.7	959	115
80	Warren	642,100	31.00	35.00	18.4	623	1,509
81	Washington Township	74,900	5.40	5.40	29.6	754	278
82	Wayne	91,700	8.28	8.28	25.9	646	600
83	West Bloomfield Township	264,800	15.50	26.00	28.7	912	1,960
84	Westland	319,700	13.00	18.20	26.0	653	1,925
85	Wixom	75,500	4.33	5.10	33.9	944	155
86	Woodhaven	60,800	3.24	5.12	28.5	596	195
87	Ypsilanti Comm Util Auth	500,900	21.00	21.00	35.8	726	1,880
88	Subtotal Wholesale	14,041,240	697.90	884.19			67,677
89	Detroit Incl. Sub. Ind.	<b>4,786,600</b>	<b>129.86</b>	<b>157.33</b>	<b>16.80</b>	<b>629.00</b>	
90	Grand Total	18,827,840	827.75	1,041.52			67,677

Table 4b  
Water Supply System  
Detailed FY 2019 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	362.2	2,776,200	49.6	411.8	811.6	1,105.7	294.1	23,219.2	21.0	8,647.8	17,043.2	23,219.2	6,176.0
2 Almont Village	24.4	337,300	6.0	30.4	59.5	64.8	5.3	2,456.7	56.1	1,705.4	3,336.4	3,636.4	300.0
3 Ash Township	111.5	1,216,900	21.7	133.2	231.6	302.4	70.9	9,042.6	32.3	4,302.4	7,480.0	9,768.5	2,288.5
4 Belleville	33.7	399,800	7.1	40.8	73.9	107.4	33.4	3,489.2	38.8	1,583.0	2,868.9	4,165.6	1,296.7
5 Berlin Township	77.8	982,600	17.5	95.3	189.9	291.5	101.6	10,087.5	34.6	3,297.4	6,572.2	10,087.5	3,515.3
6 Brownstown Township	381.4	3,967,200	70.9	452.3	1,006.7	1,608.2	601.6	45,834.4	28.5	12,890.6	28,689.9	45,834.4	17,144.5
7 Bruce Twp	3.7	44,600	0.8	4.5	27.5	71.7	44.1	2,350.1	47.7	214.7	1,313.5	3,417.7	2,104.3
8 Canton Township	975.6	11,466,400	204.9	1,180.5	3,212.7	3,346.4	133.7	107,753.8	44.7	52,768.4	143,608.2	149,583.8	5,975.5
9 Center Line	86.3	579,600	10.4	96.7	161.5	224.3	62.8	4,126.9	19.6	1,895.3	3,164.6	4,396.1	1,231.5
10 Chesterfield Township	454.0	4,689,300	83.8	537.8	1,253.5	1,688.0	434.5	47,769.5	29.0	15,596.2	36,351.6	48,951.0	12,599.4
11 Clinton Township	1,116.7	9,293,300	166.0	1,282.7	3,026.8	3,721.9	695.1	84,859.4	22.8	29,245.6	69,010.2	84,859.4	15,849.2
12 Commerce Township	283.3	3,246,800	58.1	341.4	932.4	1,111.5	179.1	34,901.2	65.2	22,259.3	60,790.6	72,470.0	11,679.4
13 Dearborn	1,965.2	14,417,700	257.5	2,222.7	4,652.9	6,016.5	1,363.5	120,930.8	20.1	44,676.3	93,523.6	120,930.8	27,407.2
14 Dearborn Heights	564.4	4,614,400	82.4	646.8	1,151.8	1,686.6	534.7	37,779.1	23.7	15,329.2	27,298.7	39,971.6	12,672.9
15 Eastpointe	311.0	2,054,400	36.7	347.7	531.3	771.9	240.6	13,972.2	18.3	6,362.9	9,723.1	14,126.6	4,403.4
16 Ecorse	394.8	2,896,400	51.8	446.6	559.8	640.0	80.2	12,863.9	20.1	8,976.7	11,251.7	12,863.9	1,612.2
17 Farmington	132.3	1,308,900	23.3	155.6	324.1	350.8	26.7	9,507.1	41.8	6,504.1	13,546.6	14,664.2	1,117.6
18 Farmington Hills	1,037.5	10,376,400	185.5	1,223.0	3,126.5	3,126.5	0.0	85,665.3	43.9	53,689.7	137,252.1	137,252.1	0.0
19 Ferndale	187.7	1,246,700	22.2	209.9	396.5	436.6	40.1	7,946.3	21.3	4,470.9	8,445.6	9,299.8	854.2
20 Flat Rock	186.6	2,049,800	36.7	223.3	384.3	504.6	120.3	15,187.9	30.1	6,721.3	11,566.5	15,187.9	3,621.4
21 Flint	1,491.5	28,308,800	505.8	1,997.3	2,444.2	2,444.2	0.0	127,096.7	76.2	152,194.3	186,245.6	186,245.6	0.0
22 Fraser	170.1	1,304,100	23.3	193.4	393.6	595.5	201.9	12,504.5	21.7	4,196.8	8,541.0	12,921.3	4,380.3
23 Garden City	243.8	2,225,000	39.8	283.6	487.6	755.0	267.4	18,874.8	27.7	7,855.7	13,507.3	20,913.2	7,405.9
24 Gibraltar	48.2	543,800	9.6	57.8	135.5	203.8	68.3	6,298.0	30.9	1,786.0	4,186.9	6,298.0	2,111.1
25 Grosse Ile Township	113.2	1,115,100	20.0	133.2	392.2	608.2	216.1	16,422.6	27.0	3,596.4	10,588.6	16,422.6	5,834.0
26 Grosse Pt. Park	164.7	1,081,800	19.4	184.1	500.8	831.1	330.3	14,960.5	18.0	3,313.8	9,014.3	14,960.5	5,946.2
27 Grosse Pt. Shores	55.3	381,800	6.9	62.2	198.1	363.8	165.8	6,876.3	18.9	1,175.6	3,743.4	6,876.3	3,132.9
28 Grosse Pt. Woods	175.1	1,207,700	21.6	196.7	684.7	684.7	0.0	12,940.0	18.9	3,717.6	12,940.0	12,940.0	0.0
29 Hamtramck	159.5	971,900	17.2	176.7	233.8	332.7	98.9	5,555.9	18.9	3,339.6	4,418.1	6,287.8	1,869.7
30 Harper Woods	156.2	1,048,800	18.6	174.8	331.4	453.1	121.6	8,336.3	18.4	3,216.3	6,098.0	8,336.3	2,238.3
31 Harrison Township	249.6	2,186,400	39.2	288.8	600.7	600.7	0.0	14,415.8	24.0	6,931.2	14,415.8	14,415.8	0.0
32 Hazel Park	141.9	937,600	16.7	158.6	244.0	342.9	98.9	6,206.1	20.8	3,298.9	5,074.3	7,131.9	2,057.6
33 Highland Park	414.5	2,617,500	46.9	461.4	635.1	664.5	29.4	11,495.9	20.0	9,228.0	12,701.9	13,290.1	588.2
34 Huron Township	170.4	1,859,800	33.2	203.6	434.2	593.3	159.1	17,740.3	32.3	6,576.3	14,026.0	19,164.3	5,138.3
35 Imlay City	105.5	1,767,200	31.5	137.0	282.8	282.8	0.0	12,981.4	74.1	10,151.7	20,956.9	20,956.9	0.0
36 Imlay Twp	0.4	6,000	0.0	0.4	1.6	3.2	1.6	137.0	63.1	25.2	101.2	202.4	101.2
37 Inkster	252.3	2,247,200	40.3	292.6	675.6	800.0	124.5	19,521.1	27.1	7,929.5	18,308.6	21,681.2	3,372.6
38 Keego Harbor	28.2	299,700	5.5	33.7	65.7	96.4	30.7	2,805.3	59.8	2,015.3	3,926.2	5,764.9	1,838.6
39 Lapeer	151.2	2,710,300	48.5	199.7	297.1	346.6	49.5	17,018.4	71.8	14,338.5	21,335.1	24,886.4	3,551.4
40 Lenox Township	42.2	469,700	8.5	50.7	73.6	112.9	39.3	3,443.6	31.4	1,592.0	2,311.1	3,545.2	1,234.1
41 Lincoln Park	395.9	2,947,800	52.6	448.5	787.8	1,122.0	334.2	22,889.7	20.4	9,149.4	16,072.0	22,889.7	6,817.7
42 Livonia	1,374.8	13,147,200	234.8	1,609.6	4,245.2	5,849.4	1,604.2	153,253.8	33.5	53,921.6	142,214.7	195,954.3	53,739.6
43 Macomb Township	891.5	8,720,700	155.9	1,047.4	3,511.3	5,035.2	1,524.0	134,944.4	27.9	29,222.5	97,964.8	140,483.2	42,518.4
44 Madison Heights	371.8	2,632,600	47.1	418.9	762.3	962.8	200.5	18,678.5	21.2	8,880.7	16,160.6	20,411.6	4,251.0
45 Mayfield Twp	1.5	26,100	0.5	2.0	4.5	9.9	5.3	476.1	70.0	140.0	315.7	690.0	374.3
46 Melvindale	120.8	877,600	15.6	136.4	242.9	323.1	80.2	6,429.0	19.9	2,714.4	4,832.9	6,429.0	1,596.1
47 New Haven, Village of	45.8	497,700	8.7	54.5	102.3	155.7	53.5	4,641.3	30.1	1,640.5	3,078.5	4,688.0	1,609.5
48 N O C W A	2,505.2	25,328,900	452.6	2,957.8	7,069.8	7,470.8	401.0	206,942.0	54.7	161,791.7	386,717.4	408,654.3	21,937.0
49 Northville	88.2	1,001,400	17.8	106.0	225.0	238.4	13.4	7,413.4	52.5	5,565.0	11,812.8	12,514.6	701.8
50 Northville Township	381.6	4,248,700	75.9	457.5	1,412.7	1,920.7	508.0	58,581.1	53.7	24,567.8	75,862.3	103,141.1	27,278.9

Table 4b  
Water Supply System  
Detailed FY 2019 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>	
51	Novi	807.4	9,253,600	165.5	972.9	2,705.4	2,705.4	0.0	84,950.5	62.3	60,611.7	168,548.3	168,548.3	0.0
52	Oak Park	265.8	1,910,900	34.2	300.0	555.6	555.6	0.0	10,944.4	25.3	7,590.0	14,055.5	14,055.5	0.0
53	Oakland Co. Drain Comm.	22.7	169,300	3.1	25.8	22.9	22.9	0.0	466.8	21.1	544.4	482.9	482.9	0.0
54	Plymouth	116.2	1,305,900	23.3	139.5	265.3	373.5	108.3	11,505.1	44.1	6,152.0	11,698.0	16,473.2	4,775.2
55	Plymouth Township	473.2	5,405,500	96.7	569.9	1,433.5	1,433.5	0.0	44,868.7	48.6	27,697.1	69,668.4	69,668.4	0.0
56	Redford Township	476.4	3,930,100	70.2	546.6	1,032.7	1,407.0	374.3	31,798.3	25.3	13,829.0	26,127.3	35,597.2	9,469.9
57	River Rouge	124.9	884,600	15.9	140.8	256.5	336.7	80.2	6,532.6	19.4	2,731.5	4,976.6	6,532.6	1,556.0
58	Riverview	118.6	1,095,500	19.5	138.1	273.5	387.1	113.6	9,794.2	25.3	3,493.9	6,919.4	9,794.2	2,874.8
59	Rockwood	28.2	336,800	6.0	34.2	80.9	126.3	45.5	4,130.4	32.7	1,118.3	2,644.2	4,130.4	1,486.3
60	Romeo	15.6	183,500	3.3	18.9	63.5	87.5	24.1	2,818.1	49.2	929.9	3,122.0	4,305.9	1,183.9
61	Romulus	545.5	5,435,400	97.0	642.5	1,245.3	1,514.0	268.7	41,332.6	31.2	20,046.0	38,853.9	47,237.2	8,383.4
62	Roseville	520.5	3,610,000	64.4	584.9	918.6	1,275.5	356.9	24,235.4	19.9	11,639.5	18,280.5	25,383.4	7,102.8
63	Royal Oak Township	33.2	232,300	4.1	37.3	72.3	111.0	38.8	2,132.1	24.4	910.1	1,763.6	2,709.5	945.9
64	S O C W A	3,535.6	28,649,100	511.8	4,047.4	8,840.1	8,840.1	0.0	196,250.2	33.8	136,802.1	298,795.3	298,795.3	0.0
65	Shelby Township	1,093.2	10,533,600	188.2	1,281.4	3,530.2	6,137.0	2,606.8	162,016.4	34.4	44,080.2	121,439.3	211,112.3	89,672.9
66	South Rockwood	14.0	170,300	3.0	17.0	26.3	40.3	14.0	1,345.9	33.4	567.8	877.1	1,345.9	468.8
67	Southgate	332.9	2,879,600	51.5	384.4	746.6	1,040.7	294.1	24,665.4	23.7	9,110.3	17,695.3	24,665.4	6,970.1
68	St. Clair County-Burchville Twp	20.8	358,700	6.3	27.1	70.2	97.2	27.0	4,588.0	48.1	1,303.5	3,376.6	4,675.5	1,298.9
69	St. Clair County-Greenwood	35.1	581,100	10.4	45.5	111.1	111.1	0.0	5,042.2	60.9	2,771.0	6,763.6	6,763.6	0.0
70	St. Clair Shores	555.6	4,096,600	73.2	628.8	1,075.8	1,410.0	334.2	28,482.1	20.2	12,701.8	21,731.2	28,482.1	6,750.9
71	Sterling Heights	1,663.8	13,542,800	242.0	1,905.8	4,653.5	7,260.2	2,606.8	161,903.1	24.4	46,501.5	113,544.4	177,149.6	63,605.2
72	Sumpter Township	78.1	937,700	16.7	94.8	166.4	250.6	84.2	8,246.1	37.9	3,592.9	6,307.4	9,499.3	3,191.9
73	Sylvan Lake	18.4	195,000	3.5	21.9	51.6	75.7	24.1	2,202.5	60.2	1,318.4	3,107.8	4,556.4	1,448.6
74	Taylor	773.7	6,636,400	118.6	892.3	1,615.8	1,990.1	374.3	46,768.0	24.1	21,504.4	38,941.3	47,962.1	9,020.8
75	Trenton	242.5	2,283,300	40.8	283.3	688.6	982.6	294.0	25,351.1	25.8	7,309.1	17,765.5	25,351.1	7,585.6
76	Troy	1,295.3	11,441,800	204.4	1,499.7	3,813.8	5,551.6	1,737.8	134,349.2	38.0	56,988.6	144,923.4	210,961.6	66,038.2
77	Utica	68.5	610,000	11.0	79.5	171.4	244.9	73.5	5,976.6	29.1	2,313.5	4,988.2	7,127.8	2,139.6
78	Van Buren Township	344.9	4,091,800	73.2	418.1	995.6	1,165.4	169.8	37,874.5	38.8	16,222.3	38,629.1	45,216.4	6,587.2
79	Walled Lake	84.9	982,700	17.6	102.5	202.1	276.9	74.9	8,779.0	64.7	6,631.8	13,074.5	19,918.0	4,843.5
80	Warren	1,759.2	11,814,600	211.2	1,970.4	4,355.3	4,890.0	534.7	89,976.4	19.6	38,619.8	85,363.8	95,844.4	10,480.6
81	Washington Township	205.2	2,217,000	39.7	244.9	761.6	761.6	0.0	22,542.6	43.2	10,579.7	32,900.0	32,900.0	0.0
82	Wayne	251.2	2,375,000	42.5	293.7	1,149.4	1,149.4	0.0	29,768.8	29.3	8,605.4	33,676.7	33,676.7	0.0
83	West Bloomfield Township	725.5	7,599,800	135.9	861.4	2,207.9	3,611.6	1,403.6	103,652.8	57.3	49,358.2	126,515.4	206,944.3	80,428.9
84	Westland	875.9	8,312,200	148.5	1,024.4	1,886.3	2,581.5	695.1	67,118.6	30.1	30,834.4	56,779.0	77,702.7	20,923.7
85	Wixom	206.8	2,559,500	45.8	252.6	624.6	727.6	102.9	24,664.6	65.5	16,545.3	40,913.7	47,655.9	6,742.2
86	Woodhaven	166.6	1,732,800	30.9	197.5	464.0	715.3	251.3	20,387.3	28.5	5,628.8	13,224.7	20,387.3	7,162.6
87	Ypsilanti Comm Util Auth	1,372.3	17,932,200	320.6	1,692.9	3,127.9	3,127.9	0.0	111,978.5	46.8	79,227.7	146,385.3	146,385.3	0.0
88	Subtotal Wholesale	38,469.2	366,970,600	6,557.4	45,026.6	99,852.7	124,756.3	24,903.6	3,229,062.4	1,611,621.4	3,575,168.4	4,351,780.7	776,612.3	
89	Detroit Incl. Sub. Ind.	13,114.0	80,414,900	1,436.4	14,550.4	18,795.5	22,468.8	3,673.3	377,475.2	18.6	270,637.4	349,596.1	417,919.0	68,322.9
90	Grand Total	51,583.2	447,385,500	7,993.8	59,577.0	118,648.1	147,225.0	28,576.9	3,606,537.6	1,882,258.8	3,924,764.5	4,769,699.7	844,935.2	

Table 4c  
Water Supply System  
Consolidated FY 2019 Units of Service

(1)	(2) through (10)										
	Consolidated Units of Service										
	Sales Volume Mcf	Common-to-All									Suburban Only
Commod Mcf/day		Max Day Mcf/day	PH Incr Mcf/day	PH Dist Mcf-miles/day	Comm DE Mcf-miles/day	MD DE Mcf-miles/day	PH DE Mcf-miles/day	PHI DE Mcf-miles/day	Mtrs eq 5/8" mtrs		
1	Allen Park	132,200	411.8	811.6	294.1	23,219.2	8,647.8	17,043.2	23,219.2	6,176.0	928
2	Almont Village	8,900	30.4	59.5	5.3	2,456.7	1,705.4	3,336.4	3,636.4	300.0	115
3	Ash Township	40,700	133.2	231.6	70.9	9,042.6	4,302.4	7,480.0	9,768.5	2,288.5	160
4	Belleville	12,300	40.8	73.9	33.4	3,489.2	1,583.0	2,868.9	4,165.6	1,296.7	123
5	Berlin Township	28,400	95.3	189.9	101.6	10,087.5	3,297.4	6,572.2	10,087.5	3,515.3	211
6	Brownstown Township	139,200	452.3	1,006.7	601.6	45,834.4	12,890.6	28,689.9	45,834.4	17,144.5	523
7	Bruce Twp	1,360	4.5	27.5	44.1	2,350.1	214.7	1,313.5	3,417.7	2,104.3	115
8	Canton Township	356,100	1,180.5	3,212.7	133.7	107,753.8	52,768.4	143,608.2	149,583.8	5,975.5	1,770
9	Center Line	31,500	96.7	161.5	62.8	4,126.9	1,895.3	3,164.6	4,396.1	1,231.5	155
10	Chesterfield Township	165,700	537.8	1,253.5	434.5	47,769.5	15,596.2	36,351.6	48,951.0	12,599.4	725
11	Clinton Township	407,600	1,282.7	3,026.8	695.1	84,859.4	29,245.6	69,010.2	84,859.4	15,849.2	1,218
12	Commerce Township	103,400	341.4	932.4	179.1	34,901.2	22,259.3	60,790.6	72,470.0	11,679.4	520
13	Dearborn	717,300	2,222.7	4,652.9	1,363.5	120,930.8	44,676.3	93,523.6	120,930.8	27,407.2	3
14	Dearborn Heights	206,000	646.8	1,151.8	534.7	37,779.1	15,329.2	27,298.7	39,971.6	12,672.9	617
15	Eastpointe	113,500	347.7	531.3	240.6	13,972.2	6,362.9	9,723.1	14,126.6	4,403.4	1,013
16	Ecorse	144,100	446.6	559.8	80.2	12,863.9	8,976.7	11,251.7	12,863.9	1,612.2	285
17	Farmington	48,300	155.6	324.1	26.7	9,507.1	6,504.1	13,546.6	14,664.2	1,117.6	315
18	Farmington Hills	378,700	1,223.0	3,126.5	0.0	85,665.3	53,689.7	137,252.1	137,252.1	0.0	2,754
19	Ferndale	68,500	209.9	396.5	40.1	7,946.3	4,470.9	8,445.6	9,299.8	854.2	568
20	Flat Rock	68,100	223.3	384.3	120.3	15,187.9	6,721.3	11,566.5	15,187.9	3,621.4	235
21	Flint	544,400	1,997.3	2,444.2	0.0	127,096.7	152,194.3	186,245.6	186,245.6	0.0	3,600
22	Fraser	62,100	193.4	393.6	201.9	12,504.5	4,196.8	8,541.0	12,921.3	4,380.3	296
23	Garden City	89,000	283.6	487.6	267.4	18,874.8	7,855.7	13,507.3	20,913.2	7,405.9	491
24	Gibraltar	17,600	57.8	135.5	68.3	6,298.0	1,786.0	4,186.9	6,298.0	2,111.1	176
25	Grosse Ile Township	41,300	133.2	392.2	216.1	16,422.6	3,596.4	10,588.6	16,422.6	5,834.0	400
26	Grosse Pt. Park	60,100	184.1	500.8	330.3	14,960.5	3,313.8	9,014.3	14,960.5	5,946.2	291
27	Grosse Pt. Shores	20,200	62.2	198.1	165.8	6,876.3	1,175.6	3,743.4	6,876.3	3,132.9	283
28	Grosse Pt. Woods	63,900	196.7	684.7	0.0	12,940.0	3,717.6	12,940.0	12,940.0	0.0	461
29	Hamtramck	58,200	176.7	233.8	98.9	5,555.9	3,339.6	4,418.1	6,287.8	1,869.7	658
30	Harper Woods	57,000	174.8	331.4	121.6	8,336.3	3,216.3	6,098.0	8,336.3	2,238.3	357
31	Harrison Township	91,100	288.8	600.7	0.0	14,415.8	6,931.2	14,415.8	14,415.8	0.0	440
32	Hazel Park	51,800	158.6	244.0	98.9	6,206.1	3,298.9	5,074.3	7,131.9	2,057.6	538
33	Highland Park	151,300	461.4	635.1	29.4	11,495.9	9,228.0	12,701.9	13,290.1	588.2	500
34	Huron Township	62,200	203.6	434.2	159.1	17,740.3	6,576.3	14,026.0	19,164.3	5,138.3	278
35	Imlay City	38,500	137.0	282.8	0.0	12,981.4	10,151.7	20,956.9	20,956.9	0.0	155
36	Imlay Twp	140	0.4	1.6	1.6	137.0	25.2	101.2	202.4	101.2	80
37	Inkster	92,100	292.6	675.6	124.5	19,521.1	7,929.5	18,308.6	21,681.2	3,372.6	443
38	Keego Harbor	10,300	33.7	65.7	30.7	2,805.3	2,015.3	3,926.2	5,764.9	1,838.6	123
39	Lapeer	55,200	199.7	297.1	49.5	17,018.4	14,338.5	21,335.1	24,886.4	3,551.4	400
40	Lenox Township	15,400	50.7	73.6	39.3	3,443.6	1,592.0	2,311.1	3,545.2	1,234.1	400
41	Lincoln Park	144,500	448.5	787.8	334.2	22,889.7	9,149.4	16,072.0	22,889.7	6,817.7	813
42	Livonia	501,800	1,609.6	4,245.2	1,604.2	153,253.8	53,921.6	142,214.7	195,954.3	53,739.6	2,386
43	Macomb Township	325,400	1,047.4	3,511.3	1,524.0	134,944.4	29,222.5	97,964.8	140,483.2	42,518.4	1,015
44	Madison Heights	135,700	418.9	762.3	200.5	18,678.5	8,880.7	16,160.6	20,411.6	4,251.0	755
45	Mayfield Twp	540	2.0	4.5	5.3	476.1	140.0	315.7	690.0	374.3	155
46	Melvindale	44,100	136.4	242.9	80.2	6,429.0	2,714.4	4,832.9	6,429.0	1,596.1	525

Table 4c  
Water Supply System  
Consolidated FY 2019 Units of Service

(1)	(2) - (10)									
	Consolidated Units of Service									
	Sales Volume Mcf	Common-to-All								
	Commod Mcf/day	Max Day Mcf/day	PH Incr Mcf/day	PH Dist Mcf-miles/day	Comm DE Mcf-miles/day	MD DE Mcf-miles/day	PH DE Mcf-miles/day	PHI DE Mcf-miles/day	Mtrs eq 5/8" mtrs	
47 New Haven, Village of	16,700	54.5	102.3	53.5	4,641.3	1,640.5	3,078.5	4,688.0	1,609.5	80
48 N O C W A	914,400	2,957.8	7,069.8	401.0	206,942.0	161,791.7	386,717.4	408,654.3	21,937.0	5,173
49 Northville	32,200	106.0	225.0	13.4	7,413.4	5,565.0	11,812.8	12,514.6	701.8	211
50 Northville Township	139,300	457.5	1,412.7	508.0	58,581.1	24,567.8	75,862.3	103,141.1	27,278.9	521
51 Novi	294,700	972.9	2,705.4	0.0	84,950.5	60,611.7	168,548.3	168,548.3	0.0	1,836
52 Oak Park	97,000	300.0	555.6	0.0	10,944.4	7,590.0	14,055.5	14,055.5	0.0	285
53 Oakland Co. Drain Comm.	8,300	25.8	22.9	0.0	466.8	544.4	482.9	482.9	0.0	115
54 Plymouth	42,400	139.5	265.3	108.3	11,505.1	6,152.0	11,698.0	16,473.2	4,775.2	203
55 Plymouth Township	172,700	569.9	1,433.5	0.0	44,868.7	27,697.1	69,668.4	69,668.4	0.0	315
56 Redford Township	173,900	546.6	1,032.7	374.3	31,798.3	13,829.0	26,127.3	35,597.2	9,469.9	1,271
57 River Rouge	45,600	140.8	256.5	80.2	6,532.6	2,731.5	4,976.6	6,532.6	1,556.0	431
58 Riverview	43,300	138.1	273.5	113.6	9,794.2	3,493.9	6,919.4	9,794.2	2,874.8	130
59 Rockwood	10,300	34.2	80.9	45.5	4,130.4	1,118.3	2,644.2	4,130.4	1,486.3	88
60 Romeo	5,700	18.9	63.5	24.1	2,818.1	929.9	3,122.0	4,305.9	1,183.9	155
61 Romulus	199,100	642.5	1,245.3	268.7	41,332.6	20,046.0	38,853.9	47,237.2	8,383.4	919
62 Roseville	190,000	584.9	918.6	356.9	24,235.4	11,639.5	18,280.5	25,383.4	7,102.8	885
63 Royal Oak Township	12,100	37.3	72.3	38.8	2,132.1	910.1	1,763.6	2,709.5	945.9	146
64 S O C W A	1,290,500	4,047.4	8,840.1	0.0	196,250.2	136,802.1	298,795.3	298,795.3	0.0	5,006
65 Shelby Township	399,000	1,281.4	3,530.2	2,606.8	162,016.4	44,080.2	121,439.3	211,112.3	89,672.9	1,246
66 South Rockwood	5,100	17.0	26.3	14.0	1,345.9	567.8	877.1	1,345.9	468.8	88
67 Southgate	121,500	384.4	746.6	294.1	24,665.4	9,110.3	17,695.3	24,665.4	6,970.1	361
68 St. Clair County-Burtchville Twp	7,600	27.1	70.2	27.0	4,588.0	1,303.5	3,376.6	4,675.5	1,298.9	105
69 St. Clair County-Greenwood	12,800	45.5	111.1	0.0	5,042.2	2,771.0	6,763.6	6,763.6	0.0	413
70 St. Clair Shores	202,800	628.8	1,075.8	334.2	28,482.1	12,701.8	21,731.2	28,482.1	6,750.9	1,239
71 Sterling Heights	607,300	1,905.8	4,653.5	2,606.8	161,903.1	46,501.5	113,544.4	177,149.6	63,605.2	3,175
72 Sumpter Township	28,500	94.8	166.4	84.2	8,246.1	3,592.9	6,307.4	9,499.3	3,191.9	155
73 Sylvan Lake	6,700	21.9	51.6	24.1	2,202.5	1,318.4	3,107.8	4,556.4	1,448.6	80
74 Taylor	282,400	892.3	1,615.8	374.3	46,768.0	21,504.4	38,941.3	47,962.1	9,020.8	1,078
75 Trenton	88,500	283.3	688.6	294.0	25,351.1	7,309.1	17,765.5	25,351.1	7,585.6	1,185
76 Troy	472,800	1,499.7	3,813.8	1,737.8	134,349.2	56,988.6	144,923.4	210,961.6	66,038.2	2,548
77 Utica	25,000	79.5	171.4	73.5	5,976.6	2,313.5	4,988.2	7,127.8	2,139.6	155
78 Van Buren Township	125,900	418.1	995.6	169.8	37,874.5	16,222.3	38,629.1	45,216.4	6,587.2	1,090
79 Walled Lake	31,000	102.5	202.1	74.9	8,779.0	6,631.8	13,074.5	17,918.0	4,843.5	115
80 Warren	642,100	1,970.4	4,355.3	534.7	89,976.4	38,619.8	85,363.8	95,844.4	10,480.6	1,509
81 Washington Township	74,900	244.9	761.6	0.0	22,542.6	10,579.7	32,900.0	32,900.0	0.0	278
82 Wayne	91,700	293.7	1,149.4	0.0	29,768.8	8,605.4	33,676.7	33,676.7	0.0	600
83 West Bloomfield Township	264,800	861.4	2,207.9	1,403.6	103,652.8	49,358.2	126,515.4	206,944.3	80,428.9	1,960
84 Westland	319,700	1,024.4	1,886.3	695.1	67,118.6	30,834.4	56,779.0	77,702.7	20,923.7	1,925
85 Wixom	75,500	252.6	624.6	102.9	24,664.6	16,545.3	40,913.7	47,655.9	6,742.2	155
86 Woodhaven	60,800	197.5	464.0	251.3	20,387.3	5,628.8	13,224.7	20,387.3	7,162.6	195
87 Ypsilanti Comm Util Auth	500,900	1,692.9	3,127.9	0.0	111,978.5	79,227.7	146,385.3	146,385.3	0.0	1,880
88 Total Suburban	14,041,240	45,026.6	99,852.7	24,903.6	3,229,062.4	1,611,621.4	3,575,168.4	4,351,780.7	776,612.3	67,677
89 Detroit Incl. Sub. Ind.	4,786,600	14,550.4	18,795.5	3,673.3	377,475.2	270,637.4	349,596.1	417,919.0	68,322.9	0
90 Grand Total	18,827,840	59,577.0	118,648.1	28,576.9	3,606,537.6	1,882,258.8	3,924,764.5	4,769,699.7	844,935.2	67,677

Table 5  
Water Supply System  
Summarized FY 2019 *Wholesale Service* BUDGET Allocation to Cost Pools and Customer Classes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
	Cost Pools										
	Common-to-All									Sub Only	
Allocated FY 2019 \$	Commod \$	Max Day \$	PH Incr \$	PH Dist \$	Comm DE \$	MD DE \$	PH DE \$	PHI DE \$	Mtrs \$		
<u>BUDGET Elements</u>											
1	Net Operating Expenses	132,862,500	8,331,200	61,888,000	230,400	7,862,200	21,509,900	9,173,300	10,754,900	10,754,900	2,357,800
2	Net Capital Requirements	197,982,000	539,100	82,269,600	4,113,100	58,173,400	2,203,700	1,213,500	47,326,000	1,101,800	1,042,100
3	Total Req'd from Charges	330,844,500	8,870,300	144,157,600	4,343,500	66,035,600	23,713,600	10,386,800	58,080,900	11,856,700	3,399,900
<u>Allocation %'s</u>											
4	Suburban Wholesale Class		75.58%	84.16%	87.15%	89.53%	85.62%	91.09%	91.24%	91.91%	100.00%
5	Detroit Retail Class		24.42%	15.84%	12.85%	10.47%	14.38%	8.91%	8.76%	8.09%	0.00%
<u>Sub Wholesale Customers BUDGET</u>											
6	Net Operating Expenses	114,449,600	6,296,500	52,084,100	200,800	7,039,300	18,417,100	8,356,200	9,812,600	9,885,200	2,357,800
7	Net Capital Requirements	173,539,800	407,400	69,237,000	3,584,400	52,084,700	1,886,800	1,105,400	43,179,300	1,012,700	1,042,100
8	Total Req'd from Charges	287,989,400	6,703,900	121,321,100	3,785,200	59,124,000	20,303,900	9,461,600	52,991,900	10,897,900	3,399,900
<u>Detroit Customer Class BUDGET</u>											
9	Net Operating Expenses	18,413,000	2,034,700	9,803,900	29,600	822,900	3,092,800	817,100	942,300	869,700	0
10	Net Capital Requirements	24,442,500	131,700	13,032,600	528,700	6,088,700	316,900	108,100	4,146,700	89,100	0
11	Total Req'd from Charges	42,855,500	2,166,400	22,836,500	558,300	6,911,600	3,409,700	925,200	5,089,000	958,800	0

Table 6  
Water Supply System  
Summarized and Adjusted FY 2019 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	114,449,600	18,413,000	132,862,600		
2 Net Capital Requirements	173,539,800	24,442,500	197,982,300		
3 Subtotal	287,989,400	42,855,500	330,844,900	10,453,300	1,400,400
4 Capital Adjustment	20,700,000	(20,700,000)	0	751,400	100,700
5 Total Req'd from Charges	308,689,400	22,155,500	330,844,900	11,204,700	1,501,100
6 Adjustment for KWA Debt Service	(928,900)	928,900	0	(6,874,000)	29,800
7 Adjustment for Highland Park Bad Debt	(201,100)	201,100	0	48,200	(1,530,900)
8 Rev Req't Adjustment for Charges (a)	1,530,900		1,530,900		1,530,900
9 Total Req'd from Charges (a)	309,090,300	23,285,500	332,375,800	4,378,900	1,530,900

*(a) Charges for Highland Park will be designed to generate \$1,530,900*

Table 7  
Water Supply System  
Calculation of FY 2019 Wholesale Service SHARE's - Common Cost Pools

(1) CTASHARES	(2) Total	(3) Summary by Major Category				(6) Commodity	(7) Maximum Day Usage	(8) Peak Hour Increment	(9) Peak Hour Distance	(10) Specific Cost Categories			
		(3) Commodity	(4) Max Day	(5) Peak Hour	(6) Demand					(10) Commodity Distance-Elevation	(11) Max Day Distance-Elevation	(12) Peak Hour Distance-Elevation	(13) Peak Hr Incr Distance-Elevation
1 Allen Park	0.623%	0.522%	0.667%	0.598%	0.634%	0.691%	0.684%	1.029%	0.644%	0.459%	0.434%	0.487%	0.731%
2 Almont Village	0.062%	0.080%	0.052%	0.067%	0.059%	0.051%	0.050%	0.019%	0.068%	0.091%	0.085%	0.076%	0.036%
3 Ash Township	0.215%	0.227%	0.195%	0.233%	0.213%	0.224%	0.195%	0.248%	0.251%	0.229%	0.191%	0.205%	0.271%
4 Belleville	0.080%	0.080%	0.063%	0.098%	0.080%	0.068%	0.062%	0.117%	0.097%	0.084%	0.073%	0.087%	0.153%
5 Berlin Township	0.206%	0.171%	0.161%	0.265%	0.210%	0.160%	0.160%	0.356%	0.280%	0.175%	0.167%	0.211%	0.416%
6 Brownstown Township	0.995%	0.705%	0.841%	1.232%	1.027%	0.759%	0.848%	2.105%	1.271%	0.685%	0.731%	0.961%	2.029%
7 Bruce Twp	0.049%	0.010%	0.024%	0.086%	0.054%	0.008%	0.023%	0.154%	0.065%	0.011%	0.033%	0.072%	0.249%
8 Canton Township	2.756%	2.580%	2.772%	2.779%	2.775%	1.981%	2.708%	0.468%	2.988%	2.803%	3.659%	3.136%	0.707%
9 Center Line	0.122%	0.118%	0.132%	0.111%	0.122%	0.162%	0.136%	0.220%	0.114%	0.101%	0.081%	0.092%	0.146%
10 Chesterfield Township	1.102%	0.849%	1.048%	1.130%	1.120%	0.903%	1.056%	1.520%	1.325%	0.829%	0.926%	1.026%	1.491%
11 Clinton Township	2.240%	1.717%	2.498%	2.078%	2.298%	2.153%	2.551%	2.433%	2.353%	1.554%	1.758%	1.779%	1.876%
12 Commerce Township	1.019%	1.016%	0.837%	1.221%	1.020%	0.573%	0.786%	0.627%	0.968%	1.183%	1.549%	1.519%	1.382%
13 Dearborn	3.382%	2.743%	3.818%	3.049%	3.452%	2.731%	3.922%	4.771%	3.532%	2.374%	2.383%	2.535%	3.244%
14 Dearborn Heights	0.977%	0.888%	0.952%	1.024%	0.987%	1.086%	0.971%	1.871%	1.048%	0.814%	0.696%	0.838%	1.500%
15 Eastpointe	0.406%	0.405%	0.434%	0.375%	0.406%	0.448%	0.584%	0.406%	0.338%	0.248%	0.296%	0.296%	0.521%
16 Ecorse	0.402%	0.551%	0.459%	0.304%	0.386%	0.750%	0.472%	0.281%	0.357%	0.477%	0.287%	0.270%	0.191%
17 Farmington	0.277%	0.323%	0.278%	0.265%	0.272%	0.264%	0.273%	0.094%	0.264%	0.346%	0.345%	0.307%	0.132%
18 Farmington Hills	2.523%	2.635%	2.693%	2.309%	2.510%	2.053%	2.635%	0.000%	2.375%	2.852%	3.497%	2.878%	0.000%
19 Ferndale	0.265%	0.269%	0.326%	0.197%	0.265%	0.352%	0.334%	0.140%	0.220%	0.238%	0.215%	0.195%	0.101%
20 Flat Rock	0.350%	0.362%	0.322%	0.379%	0.349%	0.375%	0.324%	0.421%	0.357%	0.295%	0.318%	0.429%	0.000%
21 Flint	3.137%	6.797%	2.241%	3.275%	2.733%	3.352%	2.060%	0.000%	3.524%	0.806%	4.745%	3.905%	0.000%
22 Fraser	0.324%	0.251%	0.324%	0.341%	0.332%	0.325%	0.332%	0.706%	0.347%	0.223%	0.218%	0.271%	0.518%
23 Garden City	0.462%	0.433%	0.406%	0.531%	0.466%	0.476%	0.411%	0.936%	0.523%	0.417%	0.344%	0.438%	0.877%
24 Gibraltar	0.134%	0.095%	0.114%	0.165%	0.138%	0.097%	0.114%	0.239%	0.175%	0.095%	0.107%	0.132%	0.250%
25 Grosse Ile Township	0.362%	0.200%	0.326%	0.439%	0.380%	0.224%	0.331%	0.756%	0.455%	0.191%	0.270%	0.344%	0.690%
26 Grosse Pt. Park	0.394%	0.212%	0.409%	0.420%	0.414%	0.309%	0.422%	1.156%	0.415%	0.176%	0.230%	0.314%	0.704%
27 Grosse Pt. Shores	0.169%	0.074%	0.162%	0.199%	0.180%	0.104%	0.167%	0.580%	0.191%	0.062%	0.095%	0.144%	0.371%
28 Grosse Pt. Woods	0.408%	0.234%	0.560%	0.281%	0.428%	0.330%	0.577%	0.000%	0.359%	0.198%	0.330%	0.271%	0.000%
29 Hamtramck	0.178%	0.210%	0.191%	0.156%	0.175%	0.297%	0.197%	0.346%	0.154%	0.177%	0.113%	0.132%	0.221%
30 Harper Woods	0.241%	0.204%	0.271%	0.217%	0.245%	0.293%	0.279%	0.426%	0.231%	0.171%	0.155%	0.175%	0.265%
31 Harrison Township	0.409%	0.400%	0.497%	0.313%	0.410%	0.485%	0.506%	0.000%	0.400%	0.368%	0.367%	0.302%	0.000%
32 Hazel Park	0.189%	0.200%	0.200%	0.174%	0.188%	0.266%	0.206%	0.188%	0.172%	0.175%	0.129%	0.150%	0.244%
33 Highland Park	0.420%	0.568%	0.521%	0.274%	0.404%	0.774%	0.535%	0.103%	0.319%	0.490%	0.324%	0.279%	0.070%
34 Huron Township	0.407%	0.347%	0.365%	0.466%	0.413%	0.342%	0.366%	0.557%	0.492%	0.349%	0.357%	0.402%	0.608%
35 Imlay City	0.318%	0.455%	0.258%	0.351%	0.303%	0.230%	0.238%	0.000%	0.360%	0.539%	0.534%	0.439%	0.000%
36 Imlay Twp	0.003%	0.001%	0.001%	0.005%	0.003%	0.001%	0.001%	0.006%	0.004%	0.001%	0.003%	0.004%	0.012%
37 Inkster	0.519%	0.440%	0.562%	0.490%	0.528%	0.491%	0.569%	0.435%	0.541%	0.421%	0.466%	0.455%	0.399%
38 Keego Harbor	0.083%	0.093%	0.058%	0.108%	0.082%	0.057%	0.055%	0.108%	0.078%	0.107%	0.100%	0.121%	0.218%
39 Lapeer	0.397%	0.645%	0.270%	0.479%	0.369%	0.173%	0.335%	0.250%	0.173%	0.472%	0.762%	0.544%	0.420%
40 Lenox Township	0.077%	0.085%	0.062%	0.092%	0.076%	0.085%	0.062%	0.138%	0.095%	0.085%	0.059%	0.074%	0.146%
41 Lincoln Park	0.619%	0.559%	0.647%	0.602%	0.625%	0.753%	0.664%	1.169%	0.635%	0.486%	0.410%	0.480%	0.807%
42 Livonia	3.861%	2.820%	3.581%	4.412%	3.976%	2.702%	3.578%	5.614%	4.249%	2.865%	3.624%	4.108%	6.360%
43 Macomb Township	3.072%	1.608%	2.928%	3.570%	3.234%	1.758%	2.959%	5.333%	3.742%	1.553%	2.496%	2.945%	5.032%
44 Madison Heights	0.557%	0.535%	0.627%	0.485%	0.560%	0.703%	0.642%	0.702%	0.518%	0.472%	0.412%	0.428%	0.503%
45 Mayfield Twp	0.010%	0.006%	0.004%	0.017%	0.010%	0.003%	0.004%	0.019%	0.013%	0.007%	0.008%	0.014%	0.044%
46 Melvindale	0.181%	0.167%	0.199%	0.164%	0.183%	0.229%	0.205%	0.281%	0.178%	0.144%	0.123%	0.135%	0.189%
47 New Haven, Village of	0.102%	0.088%	0.086%	0.123%	0.089%	0.091%	0.086%	0.187%	0.129%	0.087%	0.078%	0.098%	0.190%
48 N O C W A	6.482%	7.607%	6.220%	6.510%	6.358%	4.965%	5.959%	1.403%	5.738%	8.596%	9.853%	8.568%	2.596%
49 Northville	0.211%	0.264%	0.197%	0.214%	0.205%	0.178%	0.190%	0.206%	0.178%	0.296%	0.301%	0.262%	0.083%
50 Northville Township	1.552%	1.159%	1.241%	1.987%	1.596%	0.768%	1.191%	1.778%	1.624%	1.305%	1.933%	2.162%	3.229%
51 Novi	2.519%	2.788%	2.416%	2.571%	2.490%	1.633%	2.280%	0.000%	2.355%	3.220%	4.294%	3.534%	0.000%
52 Oak Park	0.374%	0.431%	0.461%	0.265%	0.368%	0.504%	0.368%	0.000%	0.303%	0.403%	0.358%	0.295%	0.000%
53 Oakland Co. Drain Comm.	0.017%	0.033%	0.019%	0.010%	0.015%	0.043%	0.019%	0.000%	0.013%	0.029%	0.012%	0.010%	0.000%
54 Plymouth	0.289%	0.302%	0.229%	0.353%	0.288%	0.324%	0.224%	0.379%	0.319%	0.327%	0.298%	0.345%	0.565%
55 Plymouth Township	1.231%	1.331%	1.246%	1.190%	1.220%	0.957%	1.208%	0.000%	1.244%	1.471%	1.775%	1.461%	0.000%

Table 7  
Water Supply System  
Calculation of FY 2019 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						
		Total	Commodity	Max Day	Peak Hour											Demand	Commodity	Maximum Day Usage	Peak Hour Increment	Peak Hour Distance	Commodity Distance-Elevation	Max Day Distance-Elevation
56	Redford Township	0.850%	0.784%	0.857%	0.859%	0.858%	0.917%	0.870%	1.310%	0.882%	0.735%	0.666%	0.746%	1.121%								
57	River Rouge	0.187%	0.170%	0.210%	0.166%	0.189%	0.236%	0.216%	0.281%	0.181%	0.145%	0.127%	0.137%	0.184%								
58	Riverview	0.236%	0.198%	0.227%	0.254%	0.240%	0.232%	0.231%	0.398%	0.272%	0.186%	0.176%	0.205%	0.340%								
59	Rockwood	0.085%	0.059%	0.068%	0.110%	0.088%	0.057%	0.068%	0.159%	0.115%	0.059%	0.067%	0.087%	0.176%								
60	Romeo	0.068%	0.044%	0.055%	0.089%	0.071%	0.032%	0.053%	0.084%	0.078%	0.049%	0.080%	0.090%	0.140%								
61	Romulus	1.055%	1.069%	1.046%	1.062%	1.053%	1.078%	1.050%	0.940%	1.146%	1.065%	0.990%	0.990%	0.992%								
62	Roseville	0.704%	0.717%	0.754%	0.646%	0.702%	0.982%	0.774%	1.249%	0.672%	0.618%	0.466%	0.532%	0.841%								
63	Royal Oak Township	0.061%	0.052%	0.060%	0.065%	0.062%	0.063%	0.061%	0.136%	0.059%	0.048%	0.045%	0.057%	0.112%								
64	S O C W A	6.441%	7.139%	7.462%	5.154%	6.363%	6.794%	7.451%	0.000%	5.442%	7.268%	7.613%	6.264%	0.000%								
65	Shelby Township	3.832%	2.290%	2.983%	5.125%	4.003%	2.151%	2.975%	9.122%	4.492%	2.342%	3.094%	4.426%	10.613%								
66	South Rockwood	0.029%	0.030%	0.022%	0.035%	0.028%	0.029%	0.022%	0.049%	0.037%	0.030%	0.022%	0.028%	0.055%								
67	Southgate	0.617%	0.528%	0.617%	0.637%	0.627%	0.645%	0.629%	1.029%	0.684%	0.484%	0.451%	0.517%	0.825%								
68	St. Clair County-Burchville Twp	0.085%	0.063%	0.061%	0.116%	0.087%	0.045%	0.059%	0.094%	0.127%	0.069%	0.086%	0.098%	0.154%								
69	St. Clair County-Greenwood	0.113%	0.128%	0.099%	0.125%	0.111%	0.076%	0.094%	0.000%	0.140%	0.147%	0.172%	0.142%	0.000%								
70	St. Clair Shores	0.804%	0.778%	0.883%	0.723%	0.807%	1.055%	0.907%	1.169%	0.790%	0.675%	0.554%	0.597%	0.799%								
71	Sterling Heights	4.042%	2.669%	3.853%	4.569%	4.193%	3.199%	3.922%	9.122%	4.489%	2.471%	2.893%	3.714%	7.528%								
72	Sumpter Township	0.184%	0.182%	0.142%	0.231%	0.184%	0.159%	0.140%	0.295%	0.229%	0.191%	0.161%	0.199%	0.378%								
73	Sylvan Lake	0.064%	0.061%	0.046%	0.085%	0.065%	0.037%	0.044%	0.084%	0.061%	0.070%	0.079%	0.096%	0.171%								
74	Taylor	1.250%	1.239%	1.337%	1.157%	1.251%	1.498%	1.362%	1.310%	1.297%	1.142%	0.992%	1.006%	1.068%								
75	Trenton	0.593%	0.412%	0.572%	0.659%	0.613%	0.476%	0.580%	1.029%	0.703%	0.388%	0.453%	0.532%	0.898%								
76	Troy	3.719%	2.889%	3.246%	4.433%	3.811%	2.517%	3.214%	6.081%	3.725%	3.028%	3.693%	4.423%	7.816%								
77	Utica	0.153%	0.126%	0.143%	0.169%	0.156%	0.133%	0.144%	0.257%	0.166%	0.123%	0.127%	0.149%	0.253%								
78	Van Buren Township	0.898%	0.818%	0.849%	0.971%	0.907%	0.702%	0.839%	0.594%	1.050%	0.862%	0.984%	0.948%	0.780%								
79	Walled Lake	0.256%	0.304%	0.181%	0.327%	0.250%	0.172%	0.170%	0.262%	0.243%	0.352%	0.333%	0.376%	0.573%								
80	Warren	2.853%	2.394%	3.570%	2.169%	2.903%	3.307%	3.671%	1.871%	2.495%	2.052%	2.175%	2.009%	1.240%								
81	Washington Township	0.609%	0.521%	0.655%	0.580%	0.619%	0.411%	0.642%	0.000%	0.625%	0.562%	0.838%	0.690%	0.000%								
82	Wayne	0.792%	0.467%	0.961%	0.681%	0.828%	0.493%	0.969%	0.000%	0.825%	0.457%	0.858%	0.706%	0.000%								
83	West Bloomfield Township	2.910%	2.302%	1.953%	4.105%	2.977%	1.446%	1.861%	4.912%	2.874%	2.622%	3.224%	4.339%	9.519%								
84	Westland	1.697%	1.660%	1.580%	1.835%	1.701%	1.719%	1.590%	2.433%	1.861%	1.638%	1.447%	1.629%	2.476%								
85	Wixom	0.689%	0.755%	0.561%	0.814%	0.681%	0.424%	0.526%	0.360%	0.684%	0.879%	1.042%	0.999%	0.798%								
86	Woodhaven	0.446%	0.308%	0.387%	0.542%	0.461%	0.332%	0.391%	0.879%	0.565%	0.299%	0.337%	0.427%	0.848%								
87	Ypsilanti Comm Util Auth	2.831%	3.837%	2.710%	2.732%	2.720%	2.842%	2.636%	0.000%	3.105%	4.209%	3.730%	3.069%	0.000%								
88	Total Suburban	86.912%	82.887%	84.625%	90.366%	87.357%	75.577%	84.159%	87.146%	89.534%	85.622%	91.093%	91.238%	91.914%								
89	Detroit Customers	13.088%	17.113%	15.375%	9.634%	12.643%	24.423%	15.841%	12.854%	10.466%	14.378%	8.907%	8.762%	8.086%								
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 2019 Wholesale Service BUDGET to Customers - Common Cost Pools

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
<b>BUDGET to Allocate:</b>	<b>327,445,000</b>	<b>32,583,900</b>	<b>154,544,400</b>	<b>140,316,700</b>	<b>294,861,100</b>	8,870,300	144,157,600	4,343,500	66,035,600	23,713,600	10,386,800	58,080,900	11,856,700
		Specific Cost Categories											
		Summary by Major Category					Maximum Day Usage	Peak Hour Increment	Peak Hour Distance	Commodity Distance-Elevation	Max Day Distance-Elevation	Peak Hour Distance-Elevation	Peak Hour Incr Distance-Elevation
<b>ALLOCATED CTA BUDGET</b>	<b>Total</b>	<b>Commodity</b>	<b>Max Day</b>	<b>Peak Hour</b>	<b>Demand</b>	<b>Commodity</b>							
1 Allen Park	2,040,600	170,200	1,031,200	839,200	1,870,400	61,300	986,100	44,700	425,100	108,900	45,100	282,700	86,700
2 Almont Village	201,400	26,000	81,100	94,300	175,400	4,500	72,300	800	45,000	21,500	8,800	44,300	4,200
3 Ash Township	702,700	74,000	301,200	327,500	628,700	19,800	281,400	10,800	165,600	54,200	19,800	119,000	32,100
4 Belleville	261,300	26,000	97,400	137,900	235,300	6,100	89,800	5,100	63,900	19,900	7,600	50,700	18,200
5 Berlin Township	676,100	55,700	248,200	372,200	620,400	14,200	230,800	15,400	184,700	41,500	17,400	122,800	49,300
6 Brownstown Township	3,258,000	229,700	1,299,000	1,729,300	3,028,300	67,300	1,223,100	91,400	839,200	162,400	75,900	558,100	240,600
7 Bruce Twp	161,200	3,400	37,000	120,800	157,800	700	33,500	6,700	43,000	2,700	3,500	41,600	29,500
8 Canton Township	9,022,800	840,600	4,283,500	3,898,700	8,182,200	175,800	3,903,400	20,300	1,973,000	664,800	380,100	1,821,500	83,900
9 Center Line	398,800	38,300	204,600	155,900	360,500	14,400	196,200	9,500	75,600	23,900	8,400	53,500	17,300
10 Chesterfield Township	3,609,400	276,600	1,619,200	1,713,600	3,332,800	80,100	1,523,000	66,000	874,700	196,500	96,200	596,100	176,800
11 Clinton Township	7,334,800	559,500	3,860,100	2,915,200	6,775,300	191,000	3,677,500	105,700	1,553,800	368,500	182,600	1,033,300	222,400
12 Commerce Township	3,337,500	331,200	1,293,700	1,712,600	3,006,300	50,800	1,132,800	27,200	639,000	280,400	160,900	882,500	163,900
13 Dearborn	11,073,200	893,800	5,900,800	4,278,600	10,179,400	330,900	5,653,300	207,200	2,214,200	562,900	247,500	1,472,600	384,600
14 Dearborn Heights	3,198,600	289,400	1,471,700	1,437,500	2,909,200	96,300	1,399,500	81,300	691,700	193,100	72,200	486,700	177,800
15 Eastpointe	1,329,500	132,000	671,300	526,200	1,197,500	51,800	645,600	36,600	255,800	80,200	25,700	172,000	61,800
16 Ecorse	1,316,400	179,600	709,900	426,900	1,136,800	66,500	680,100	12,200	235,500	113,100	29,800	156,600	22,600
17 Farmington	907,300	105,100	429,700	372,500	802,200	23,200	393,800	4,100	174,100	81,900	35,900	178,600	15,700
18 Farmington Hills	8,260,200	858,500	4,161,900	3,239,800	7,401,700	182,100	3,798,700	0	1,568,500	676,400	363,200	1,671,300	0
19 Ferndale	868,600	87,600	504,200	276,800	613,000	31,300	481,800	6,100	145,500	56,300	22,400	113,200	12,000
20 Flat Rock	1,147,500	117,900	497,500	532,100	1,029,600	33,200	466,900	18,300	278,100	84,700	30,600	184,900	50,800
21 Flint	10,272,400	2,214,800	3,462,600	4,595,000	8,057,600	297,400	2,969,700	0	2,327,100	1,917,400	492,900	2,267,900	0
22 Fraser	1,061,000	81,700	500,800	478,500	979,300	28,800	478,200	30,700	229,000	52,900	22,600	157,300	61,500
23 Garden City	1,514,200	141,200	628,200	744,800	1,373,000	42,200	592,500	40,600	345,600	99,000	35,700	254,700	103,900
24 Gibraltar	438,800	31,100	175,700	232,000	407,700	8,600	164,600	10,400	115,300	22,500	11,100	76,700	29,600
25 Grosse Ile Township	1,185,000	65,100	504,500	615,400	1,119,900	19,800	476,500	32,800	300,700	45,300	28,000	200,000	81,900
26 Grosse Pt. Park	1,291,200	69,100	632,400	589,700	1,222,100	27,400	608,500	50,200	273,900	41,700	23,900	182,200	83,400
27 Grosse Pt. Shores	553,400	24,100	250,500	278,800	529,300	9,300	240,600	25,200	125,900	14,800	9,900	83,700	44,000
28 Grosse Pt. Woods	1,336,700	76,100	866,100	394,500	1,260,600	29,300	831,900	0	236,900	46,800	34,200	157,600	0
29 Hamtramck	583,600	68,400	295,700	219,500	515,200	26,300	284,000	15,000	101,700	42,100	11,700	76,600	26,200
30 Harper Woods	789,300	66,500	418,800	304,000	722,800	26,000	402,700	18,500	152,600	40,500	16,100	101,500	31,400
31 Harrison Township	1,337,800	130,300	768,000	439,500	1,207,500	43,000	729,800	0	264,000	87,300	38,200	175,500	0
32 Hazel Park	619,300	65,200	309,800	244,300	554,100	23,600	296,400	15,000	113,600	41,600	13,400	86,800	28,900
33 Highland Park	1,375,300	185,000	805,200	385,100	1,190,300	68,700	771,600	4,500	210,500	116,300	33,600	161,800	8,300
34 Huron Township	1,332,400	113,200	564,700	654,500	1,219,200	30,300	527,600	24,200	324,800	82,900	37,100	233,400	72,100
35 Imlay City	1,040,300	148,300	399,100	492,900	892,000	20,400	343,600	0	237,700	127,900	55,500	255,200	0
36 Imlay Twp	9,200	400	2,200	6,600	8,800	100	1,900	200	2,500	300	300	2,500	1,400
37 Inkster	1,700,400	143,500	869,300	687,600	1,556,900	43,600	820,800	18,900	357,400	99,900	48,500	264,000	47,300
38 Keego Harbor	272,700	30,400	90,200	152,100	242,300	5,000	79,800	4,700	51,400	25,400	10,400	70,200	25,800
39 Lapeer	1,299,700	210,300	417,500	671,900	1,089,400	29,700	361,000	7,500	311,600	180,600	56,500	303,000	49,800
40 Lenox Township	252,700	27,600	95,500	129,600	225,100	7,500	89,400	6,000	63,100	20,100	6,100	43,200	17,300
41 Lincoln Park	2,026,100	182,100	999,700	844,300	1,844,000	66,800	957,200	50,800	419,100	115,300	42,500	278,700	95,700
42 Livonia	12,643,400	919,000	5,534,300	6,190,100	11,724,400	239,700	5,157,900	243,800	2,806,100	679,300	376,400	2,386,100	754,100
43 Macomb Township	10,059,300	524,100	4,525,500	5,009,700	9,535,200	155,900	4,266,200	231,600	2,470,800	368,200	259,300	1,710,700	596,600
44 Madison Heights	1,824,100	174,300	969,000	680,800	1,649,800	62,400	926,200	30,500	342,000	111,900	42,800	248,600	59,700
45 Mayfield Twp	31,600	2,100	6,300	23,200	29,500	300	5,500	800	8,700	1,800	800	8,400	5,300
46 Melvindale	593,000	54,500	307,900	230,600	538,500	20,300	295,100	12,200	117,700	34,200	12,800	78,300	22,400
47 New Haven, Village of	334,000	28,800	132,400	172,800	305,200	8,100	124,300	8,100	85,000	20,700	8,100	57,100	22,600
48 N O C W A	21,226,000	2,478,700	9,613,200	9,134,100	18,747,300	440,400	8,589,800	61,000	3,789,100	2,038,300	1,023,400	4,976,200	307,800
49 Northville	690,500	85,900	304,700	299,900	604,600	15,800	273,400	2,000	135,700	70,100	31,300	152,400	9,800
50 Northville Township	5,083,400	377,600	1,917,200	2,788,600	4,705,800	68,100	1,716,400	77,200	1,072,600	309,500	200,800	1,256,000	382,800
51 Novi	8,249,500	908,500	3,733,200	3,607,800	7,341,000	144,900	3,287,100	0	1,555,400	763,600	446,100	2,052,400	0
52 Oak Park	1,224,100	140,300	712,200	371,600	1,083,800	44,700	675,000	0	200,400	95,600	37,200	171,200	0
53 Oakland Co. Drain Comm.	54,200	10,700	29,100	14,400	43,500	3,800	27,800	0	8,500	6,900	1,300	5,900	0
54 Plymouth	946,400	98,300	353,300	494,800	848,100	20,800	322,300	16,500	210,700	77,500	31,000	200,600	67,000

Table 8  
Water Supply System  
Allocation of FY 2019 Wholesale Service BUDGET to Customers - Common Cost Pools

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	
<b>BUDGET to Allocate:</b>	<b>327,445,000</b>	<b>32,583,900</b>	<b>154,544,400</b>	<b>140,316,700</b>	<b>294,861,100</b>	<b>8,870,300</b>	<b>144,157,600</b>	<b>4,343,500</b>	<b>66,035,600</b>	<b>23,713,600</b>	<b>10,386,800</b>	<b>58,080,900</b>	<b>11,856,700</b>	
		Specific Cost Categories												
<b>ALLOCATED CTA BUDGET</b>	<b>Total</b>	<b>Summary by Major Category</b>												
		<b>Commodity</b>	<b>Max Day</b>	<b>Peak Hour</b>	<b>Demand</b>	<b>Commodity</b>	<b>Maximum Day Usage</b>	<b>Peak Hour Increment</b>	<b>Peak Hour Distance</b>	<b>Commodity Distance-Elevation</b>	<b>Max Day Distance-Elevation</b>	<b>Peak Hour Distance-Elevation</b>	<b>Peak Hour Incr Distance-Elevation</b>	
55	Plymouth Township	4,029,800	433,800	1,926,100	1,669,900	3,596,000	84,900	1,741,700	0	821,500	348,900	184,400	848,400	0
56	Redford Township	2,784,900	255,600	1,323,800	1,205,500	2,529,300	81,400	1,254,700	56,900	582,200	174,200	69,100	433,500	132,900
57	River Rouge	613,400	55,400	324,900	233,100	558,000	21,000	311,700	12,200	119,600	34,400	13,200	79,500	21,800
58	Riverview	771,400	64,600	350,600	356,200	706,800	20,600	332,300	17,300	179,300	44,000	18,300	119,300	40,300
59	Rockwood	278,100	19,200	105,200	153,700	258,900	5,100	98,200	6,900	75,600	14,100	7,000	50,300	20,900
60	Romeo	224,200	14,500	85,400	124,300	209,700	2,800	77,100	3,700	51,600	11,700	8,300	52,400	16,600
61	Romulus	3,454,500	348,200	1,615,900	1,490,400	3,106,300	95,700	1,513,100	40,800	756,800	252,500	102,800	575,200	117,600
62	Roseville	2,305,000	233,700	1,164,500	906,800	2,071,300	87,100	1,116,100	54,300	443,700	146,600	48,400	309,100	99,700
63	Royal Oak Township	200,800	17,100	92,500	91,200	183,700	5,600	87,800	5,900	39,000	11,500	4,700	33,000	13,300
64	S O C W A	21,089,300	2,326,100	11,531,500	7,231,700	18,763,200	602,600	10,740,700	0	3,593,300	1,723,500	790,800	3,638,400	0
65	Shelby Township	12,548,500	746,100	4,610,600	7,191,800	11,802,400	190,800	4,289,200	396,200	2,966,500	555,300	321,400	2,570,700	1,258,400
66	South Rockwood	93,600	9,700	34,200	49,700	83,900	2,500	31,900	2,100	24,600	7,200	2,300	16,400	6,600
67	Southgate	2,020,500	172,000	954,000	894,500	1,848,500	57,200	907,200	44,700	451,600	114,800	46,800	300,400	97,800
68	St. Clair County-Burtchville Twp	277,800	20,400	94,200	163,200	257,400	4,000	85,300	4,100	84,000	16,400	8,900	56,900	18,200
69	St. Clair County-Greenwood	369,200	41,700	152,800	174,700	327,500	6,800	134,900	0	92,300	34,900	17,900	82,400	0
70	St. Clair Shores	2,632,000	253,600	1,364,600	1,013,800	2,378,400	93,600	1,307,100	50,800	521,500	160,000	57,500	346,800	94,700
71	Sterling Heights	13,234,500	869,600	5,954,500	6,410,400	12,364,900	283,800	5,654,000	396,200	2,964,400	585,800	300,500	2,157,200	892,600
72	Sumpter Township	602,600	59,400	218,900	324,300	543,200	14,100	202,200	12,800	151,000	45,300	16,700	115,700	44,800
73	Sylvan Lake	210,600	19,900	70,900	119,800	190,700	3,300	62,700	3,700	40,300	16,600	8,200	55,500	20,300
74	Taylor	4,093,900	403,800	2,066,300	1,623,800	3,690,100	132,900	1,963,200	56,900	856,300	270,900	103,100	584,000	126,600
75	Trenton	1,941,900	134,300	883,600	924,000	1,807,600	42,200	836,600	44,700	464,200	92,100	47,000	308,700	106,400
76	Troy	12,178,100	941,300	5,017,200	6,219,600	11,236,800	223,300	4,633,700	264,100	2,459,900	718,000	383,500	2,568,900	926,700
77	Utica	499,800	40,900	221,500	237,400	458,900	11,800	208,300	11,200	109,400	29,100	13,200	86,800	30,000
78	Van Buren Township	2,940,800	266,700	1,311,800	1,362,300	2,674,100	62,300	1,209,600	25,800	693,500	204,400	102,200	550,600	92,400
79	Walled Lake	837,300	98,900	280,100	458,300	738,400	15,300	245,500	11,400	160,700	83,600	34,600	218,200	68,000
80	Warren	9,340,600	780,000	5,517,600	3,043,000	8,560,600	293,400	5,291,700	81,300	1,647,500	486,600	225,900	1,167,100	147,100
81	Washington Township	1,995,600	169,800	1,012,400	813,400	1,825,800	36,500	925,300	0	412,800	133,300	87,100	400,600	0
82	Wayne	2,592,900	152,100	1,485,600	955,200	2,440,800	43,700	1,396,500	0	545,100	108,400	89,100	410,100	0
83	West Bloomfield Township	9,527,400	750,100	3,017,500	5,759,800	8,777,300	128,300	2,682,700	213,300	1,897,900	621,800	334,800	2,520,000	1,128,600
84	Westland	5,557,600	541,000	2,442,200	2,574,400	5,016,600	152,500	2,291,900	105,700	1,228,900	388,500	150,300	946,200	293,600
85	Wixom	2,255,300	246,000	867,200	1,142,100	2,009,300	37,600	758,900	15,600	451,600	208,400	108,300	580,300	94,600
86	Woodhaven	1,459,400	100,300	598,800	760,300	1,359,100	29,400	563,800	38,200	373,300	70,900	35,000	248,300	100,500
87	Ypsilanti Comm Util Auth	9,270,800	1,250,200	4,187,800	3,832,800	8,020,600	252,100	3,800,400	0	2,050,300	998,100	387,400	1,782,500	0
88	Total Suburban	284,589,000	27,008,300	130,782,700	126,798,000	257,580,700	6,704,500	121,320,900	3,785,100	59,123,300	20,303,800	9,461,800	52,991,800	10,897,800
89	Detroit Customers	42,855,400	5,576,000	23,761,700	13,517,700	37,279,400	2,166,400	22,836,500	558,300	6,911,600	3,409,600	925,200	5,089,000	958,800
90	GRAND TOTAL	327,444,400	32,584,300	154,544,400	140,315,700	294,860,100	8,870,900	144,157,400	4,343,400	66,034,900	23,713,400	10,387,000	58,080,800	11,856,600

Table 9  
Water Supply System  
Calculation of FY 2019 SHARE's - Suburban Only Cost Pools

		(1)	(2)	(3)	(4)
<b>SUB WHOLESALe SHARES</b>		Allocated CTA BUDGET	Specific Cost Categories		Allocated Unadjusted BUDGET
			Wholesale Master Meters	Customer Outreach Program	
1	Allen Park	0.717%	1.371%	0.915%	0.725%
2	Almont Village	0.071%	0.170%	0.068%	0.072%
3	Ash Township	0.247%	0.236%	0.296%	0.247%
4	Belleville	0.092%	0.182%	0.091%	0.093%
5	Berlin Township	0.238%	0.312%	0.212%	0.238%
6	Brownstown Township	1.145%	0.773%	1.005%	1.140%
7	Bruce Twp	0.057%	0.170%	0.010%	0.058%
8	Canton Township	3.170%	2.615%	2.622%	3.164%
9	Center Line	0.140%	0.229%	0.215%	0.141%
10	Chesterfield Township	1.268%	1.071%	1.194%	1.266%
11	Clinton Township	2.577%	1.800%	2.849%	2.568%
12	Commerce Township	1.173%	0.768%	0.758%	1.168%
13	Dearborn	3.891%	0.004%	4.936%	3.845%
14	Dearborn Heights	1.124%	0.912%	1.436%	1.121%
15	Eastpointe	0.467%	1.497%	0.772%	0.479%
16	Ecorse	0.463%	0.421%	0.992%	0.462%
17	Farmington	0.319%	0.465%	0.346%	0.321%
18	Farmington Hills	2.903%	4.069%	2.716%	2.916%
19	Ferndale	0.305%	0.839%	0.466%	0.312%
20	Flat Rock	0.403%	0.347%	0.496%	0.403%
21	Flint	3.610%	5.319%	4.436%	3.630%
22	Fraser	0.373%	0.437%	0.430%	0.374%
23	Garden City	0.532%	0.726%	0.630%	0.534%
24	Gibraltar	0.154%	0.260%	0.128%	0.155%
25	Grosse Ile Township	0.416%	0.591%	0.296%	0.418%
26	Grosse Pt. Park	0.454%	0.430%	0.409%	0.453%
27	Grosse Pt. Shores	0.194%	0.418%	0.138%	0.197%
28	Grosse Pt. Woods	0.470%	0.681%	0.437%	0.472%
29	Hamtramck	0.205%	0.972%	0.392%	0.214%
30	Harper Woods	0.277%	0.528%	0.388%	0.280%
31	Harrison Township	0.470%	0.650%	0.641%	0.472%
32	Hazel Park	0.218%	0.795%	0.352%	0.224%
33	Highland Park	0.483%	0.739%	1.025%	0.486%
34	Huron Township	0.468%	0.411%	0.452%	0.468%
35	Imlay City	0.366%	0.229%	0.304%	0.364%
36	Imlay Twp	0.003%	0.118%	0.001%	0.005%
37	Inkster	0.597%	0.655%	0.650%	0.598%
38	Keego Harbor	0.096%	0.182%	0.075%	0.097%
39	Lapeer	0.457%	0.591%	0.444%	0.458%
40	Lenox Township	0.089%	0.591%	0.113%	0.095%
41	Lincoln Park	0.712%	1.201%	0.996%	0.718%
42	Livonia	4.443%	3.526%	3.575%	4.432%
43	Macomb Township	3.535%	1.500%	2.326%	3.511%
44	Madison Heights	0.641%	1.116%	0.930%	0.647%

TFG

Table 9  
Water Supply System  
Calculation of FY 2019 SHARE's - Suburban Only Cost Pools

		(1)	(2)	(3)	(4)
<b>SUB WHOLESAL SHAREs</b>		Allocated CTA BUDGET	Specific Cost Categories		Allocated Unadjusted BUDGET
			Wholesale Master Meters	Customer Outreach Program	
45	Mayfield Twp	0.011%	0.229%	0.004%	0.014%
46	Melvindale	0.208%	0.776%	0.303%	0.215%
47	New Haven, Village of	0.117%	0.118%	0.121%	0.117%
48	N O C W A	7.458%	7.644%	6.569%	7.461%
49	Northville	0.243%	0.312%	0.235%	0.243%
50	Northville Township	1.786%	0.770%	1.016%	1.774%
51	Novi	2.899%	2.713%	2.161%	2.897%
52	Oak Park	0.430%	0.421%	0.666%	0.430%
53	Oakland Co. Drain Comm.	0.019%	0.170%	0.057%	0.021%
54	Plymouth	0.333%	0.300%	0.310%	0.332%
55	Plymouth Township	1.416%	0.465%	1.266%	1.405%
56	Redford Township	0.979%	1.878%	1.214%	0.989%
57	River Rouge	0.216%	0.637%	0.313%	0.221%
58	Riverview	0.271%	0.192%	0.307%	0.270%
59	Rockwood	0.098%	0.130%	0.076%	0.098%
60	Romeo	0.079%	0.229%	0.042%	0.081%
61	Romulus	1.214%	1.358%	1.427%	1.216%
62	Roseville	0.810%	1.308%	1.299%	0.816%
63	Royal Oak Township	0.071%	0.216%	0.083%	0.072%
64	S O C W A	7.410%	7.397%	8.989%	7.410%
65	Shelby Township	4.409%	1.841%	2.846%	4.379%
66	South Rockwood	0.033%	0.130%	0.038%	0.034%
67	Southgate	0.710%	0.533%	0.854%	0.708%
68	St. Clair County-Burtchville Twp	0.098%	0.155%	0.060%	0.098%
69	St. Clair County-Greenwood	0.130%	0.610%	0.101%	0.135%
70	St. Clair Shores	0.925%	1.831%	1.397%	0.936%
71	Sterling Heights	4.650%	4.691%	4.233%	4.651%
72	Sumpter Township	0.212%	0.229%	0.211%	0.212%
73	Sylvan Lake	0.074%	0.118%	0.049%	0.075%
74	Taylor	1.439%	1.593%	1.982%	1.440%
75	Trenton	0.682%	1.751%	0.629%	0.695%
76	Troy	4.279%	3.765%	3.331%	4.273%
77	Utica	0.176%	0.229%	0.177%	0.176%
78	Van Buren Township	1.033%	1.611%	0.929%	1.040%
79	Walled Lake	0.294%	0.170%	0.228%	0.293%
80	Warren	3.282%	2.230%	4.376%	3.270%
81	Washington Township	0.701%	0.411%	0.544%	0.698%
82	Wayne	0.911%	0.887%	0.652%	0.911%
83	West Bloomfield Township	3.348%	2.896%	1.913%	3.342%
84	Westland	1.953%	2.844%	2.275%	1.963%
85	Wixom	0.792%	0.229%	0.561%	0.786%
86	Woodhaven	0.513%	0.288%	0.439%	0.510%
87	Ypsilanti Comm Util Auth	3.258%	2.778%	3.760%	3.252%
88	Total Suburban	100.000%	100.000%	100.000%	100.000%

TFG

Table 10  
Water Supply System  
Allocation of FY 2019 *Wholesale Service* BUDGET to Customers - Suburban Only Cost Pools and Adjustments

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
<b>BUDGET to Allocate:</b>		3,399,900	0	20,700,000		6,874,000		1,530,900		
	Suburban Only			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
	Allocated CTA BUDGET	Wholesale Master Meters	Customer Outreach Program							
1 Allen Park	2,040,600	46,600	0	2,087,200	150,000	2,237,200	44,200	2,281,400	9,600	2,291,000
2 Almont Village	201,400	5,800	0	207,200	14,900	222,100	4,400	226,500	900	227,400
3 Ash Township	702,700	8,000	0	710,700	51,100	761,800	15,200	777,000	3,300	780,300
4 Belleville	261,300	6,200	0	267,500	19,200	286,700	5,700	292,400	1,200	293,600
5 Berlin Township	676,100	10,600	0	686,700	49,400	736,100	14,700	750,800	3,200	754,000
6 Brownstown Township	3,258,000	26,300	0	3,284,300	236,100	3,520,400	70,600	3,591,000	15,300	3,606,300
7 Bruce Twp	161,200	5,800	0	167,000	12,000	179,000	3,500	182,500	800	183,300
8 Canton Township	9,022,800	88,900	0	9,111,700	654,900	9,766,600	195,500	9,962,100	42,400	10,004,500
9 Center Line	398,800	7,800	0	406,600	29,200	435,800	8,600	444,400	1,900	446,300
10 Chesterfield Township	3,609,400	36,400	0	3,645,800	262,100	3,907,900	78,200	3,986,100	16,900	4,003,000
11 Clinton Township	7,334,800	61,200	0	7,396,000	531,600	7,927,600	159,000	8,086,600	34,400	8,121,000
12 Commerce Township	3,337,500	26,100	0	3,363,600	241,800	3,605,400	72,300	3,677,700	15,700	3,693,400
13 Dearborn	11,073,200	200	0	11,073,400	795,900	11,869,300	240,000	12,109,300	52,000	12,161,300
14 Dearborn Heights	3,198,600	31,000	0	3,229,600	232,100	3,461,700	69,300	3,531,000	15,000	3,546,000
15 Eastpointe	1,329,500	50,900	0	1,380,400	99,200	1,479,600	28,800	1,508,400	6,200	1,514,600
16 Ecorse	1,316,400	14,300	0	1,330,700	95,600	1,426,300	28,500	1,454,800	6,200	1,461,000
17 Farmington	907,300	15,800	0	923,100	66,400	989,500	19,700	1,009,200	4,300	1,013,500
18 Farmington Hills	8,260,200	138,400	0	8,398,600	603,700	9,002,300	179,000	9,181,300	38,800	9,220,100
19 Ferndale	868,600	28,500	0	897,100	64,500	961,600	18,800	980,400	4,100	984,500
20 Flat Rock	1,147,500	11,800	0	1,159,300	83,300	1,242,600	24,900	1,267,500	5,400	1,272,900
21 Flint	10,272,400	180,900	0	10,453,300	751,400	11,204,700	(6,874,000)	4,330,700	48,200	4,378,900
22 Fraser	1,061,000	14,900	0	1,075,900	77,300	1,153,200	23,000	1,176,200	5,000	1,181,200
23 Garden City	1,514,200	24,700	0	1,538,900	110,600	1,649,500	32,800	1,682,300	7,100	1,689,400
24 Gibraltar	438,800	8,800	0	447,600	32,200	479,800	9,500	489,300	2,100	491,400
25 Grosse Ile Township	1,185,000	20,100	0	1,205,100	86,600	1,291,700	25,700	1,317,400	5,600	1,323,000
26 Grosse Pt. Park	1,291,200	14,600	0	1,305,800	93,900	1,399,700	28,000	1,427,700	6,100	1,433,800
27 Grosse Pt. Shores	553,400	14,200	0	567,600	40,800	608,400	12,000	620,400	2,600	623,000
28 Grosse Pt. Woods	1,336,700	23,200	0	1,359,900	97,700	1,457,600	29,000	1,486,600	6,300	1,492,900
29 Hamtramck	583,600	33,100	0	616,700	44,300	661,000	12,600	673,600	2,700	676,300
30 Harper Woods	789,300	17,900	0	807,200	58,000	865,200	17,100	882,300	3,700	886,000
31 Harrison Township	1,337,800	22,100	0	1,359,900	97,700	1,457,600	29,000	1,486,600	6,300	1,492,900
32 Hazel Park	619,300	27,000	0	646,300	46,500	692,800	13,400	706,200	2,900	709,100
33 Highland Park	1,375,300	25,100	0	1,400,400	100,700	1,501,100	29,800	1,530,900	(1,530,900)	0
34 Huron Township	1,332,400	14,000	0	1,346,400	96,800	1,443,200	28,900	1,472,100	6,300	1,478,400
35 Imlay City	1,040,300	7,800	0	1,048,100	75,300	1,123,400	22,500	1,145,900	4,900	1,150,800
36 Imlay Twp	9,200	4,000	0	13,200	900	14,100	200	14,300	0	14,300
37 Inkster	1,700,400	22,300	0	1,722,700	123,800	1,846,500	36,900	1,883,400	8,000	1,891,400
38 Keego Harbor	272,700	6,200	0	278,900	20,000	298,900	5,900	304,800	1,300	306,100
39 Lapeer	1,299,700	20,100	0	1,319,800	94,900	1,414,700	28,200	1,442,900	6,100	1,449,000
40 Lenox Township	252,700	20,100	0	272,800	19,600	292,400	5,500	297,900	1,200	299,100
41 Lincoln Park	2,026,100	40,800	0	2,066,900	148,600	2,215,500	43,900	2,259,400	9,500	2,268,900
42 Livonia	12,643,400	119,900	0	12,763,300	917,400	13,680,700	274,000	13,954,700	59,400	14,014,100
43 Macomb Township	10,059,300	51,000	0	10,110,300	726,700	10,837,000	218,000	11,055,000	47,200	11,102,200
44 Madison Heights	1,824,100	37,900	0	1,862,000	133,800	1,995,800	39,500	2,035,300	8,600	2,043,900
45 Mayfield Twp	31,600	7,800	0	39,400	2,800	42,200	700	42,900	100	43,000
46 Melvindale	593,000	26,400	0	619,400	44,500	663,900	12,900	676,800	2,800	679,600

Table 10  
Water Supply System  
Allocation of FY 2019 *Wholesale Service* BUDGET to Customers - Suburban Only Cost Pools and Adjustments

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)		
<b>BUDGET to Allocate:</b>		3,399,900	0	20,700,000		6,874,000		1,530,900			
		Suburban Only							Final Adjusted		
	Allocated CTA BUDGET	Wholesale Master Meters	Customer Outreach Program	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	
47	New Haven, Village of	334,000	4,000	0	338,000	24,300	362,300	7,200	369,500	1,600	371,100
48	N O C W A	21,226,000	259,900	0	21,485,900	1,544,400	23,030,300	460,000	23,490,300	99,700	23,590,000
49	Northville	690,500	10,600	0	701,100	50,400	751,500	15,000	766,500	3,200	769,700
50	Northville Township	5,083,400	26,200	0	5,109,600	367,300	5,476,900	110,200	5,587,100	23,900	5,611,000
51	Novi	8,249,500	92,200	0	8,341,700	599,600	8,941,300	178,800	9,120,100	38,700	9,158,800
52	Oak Park	1,224,100	14,300	0	1,238,400	89,000	1,327,400	26,500	1,353,900	5,700	1,359,600
53	Oakland Co. Drain Comm.	54,200	5,800	0	60,000	4,300	64,300	1,200	65,500	300	65,800
54	Plymouth	946,400	10,200	0	956,600	68,800	1,025,400	20,500	1,045,900	4,400	1,050,300
55	Plymouth Township	4,029,800	15,800	0	4,045,600	290,800	4,336,400	87,300	4,423,700	18,900	4,442,600
56	Redford Township	2,784,900	63,900	0	2,848,800	204,800	3,053,600	60,400	3,114,000	13,100	3,127,100
57	River Rouge	613,400	21,700	0	635,100	45,600	680,700	13,300	694,000	2,900	696,900
58	Riverview	771,400	6,500	0	777,900	55,900	833,800	16,700	850,500	3,600	854,100
59	Rockwood	278,100	4,400	0	282,500	20,300	302,800	6,000	308,800	1,300	310,100
60	Romeo	224,200	7,800	0	232,000	16,700	248,700	4,900	253,600	1,100	254,700
61	Romulus	3,454,500	46,200	0	3,500,700	251,600	3,752,300	74,900	3,827,200	16,200	3,843,400
62	Roseville	2,305,000	44,500	0	2,349,500	168,900	2,518,400	50,000	2,568,400	10,800	2,579,200
63	Royal Oak Township	200,800	7,300	0	208,100	15,000	223,100	4,400	227,500	900	228,400
64	S O C W A	21,089,300	251,500	0	21,340,800	1,533,900	22,874,700	457,100	23,331,800	99,000	23,430,800
65	Shelby Township	12,548,500	62,600	0	12,611,100	906,500	13,517,600	272,000	13,789,600	58,900	13,848,500
66	South Rockwood	93,600	4,400	0	98,000	7,000	105,000	2,000	107,000	400	107,400
67	Southgate	2,020,500	18,100	0	2,038,600	146,500	2,185,100	43,800	2,228,900	9,500	2,238,400
68	St. Clair County-Burtchville Twp	277,800	5,300	0	283,100	20,300	303,400	6,000	309,400	1,300	310,700
69	St. Clair County-Greenwood	369,200	20,700	0	389,900	28,000	417,900	8,000	425,900	1,700	427,600
70	St. Clair Shores	2,632,000	62,200	0	2,694,200	193,700	2,887,900	57,000	2,944,900	12,400	2,957,300
71	Sterling Heights	13,234,500	159,500	0	13,394,000	962,700	14,356,700	286,800	14,643,500	62,100	14,705,600
72	Sumpter Township	602,600	7,800	0	610,400	43,900	654,300	13,100	667,400	2,800	670,200
73	Sylvan Lake	210,600	4,000	0	214,600	15,400	230,000	4,600	234,600	1,000	235,600
74	Taylor	4,093,900	54,200	0	4,148,100	298,200	4,446,300	88,700	4,535,000	19,200	4,554,200
75	Trenton	1,941,900	59,500	0	2,001,400	143,900	2,145,300	42,100	2,187,400	9,100	2,196,500
76	Troy	12,178,100	128,000	0	12,306,100	884,500	13,190,600	263,900	13,454,500	57,200	13,511,700
77	Utica	499,800	7,800	0	507,600	36,500	544,100	10,800	554,900	2,300	557,200
78	Van Buren Township	2,940,800	54,800	0	2,995,600	215,300	3,210,900	63,700	3,274,600	13,800	3,288,400
79	Walled Lake	837,300	5,800	0	843,100	60,600	903,700	18,100	921,800	3,900	925,700
80	Warren	9,340,600	75,800	0	9,416,400	676,800	10,093,200	202,400	10,295,600	43,900	10,339,500
81	Washington Township	1,995,600	14,000	0	2,009,600	144,400	2,154,000	43,300	2,197,300	9,400	2,206,700
82	Wayne	2,592,900	30,100	0	2,623,000	188,500	2,811,500	56,200	2,867,700	12,200	2,879,900
83	West Bloomfield Township	9,527,400	98,500	0	9,625,900	691,900	10,317,800	206,500	10,524,300	44,700	10,569,000
84	Westland	5,557,600	96,700	0	5,654,300	406,400	6,060,700	120,400	6,181,100	26,100	6,207,200
85	Wixom	2,255,300	7,800	0	2,263,100	162,700	2,425,800	48,900	2,474,700	10,600	2,485,300
86	Woodhaven	1,459,400	9,800	0	1,469,200	105,600	1,574,800	31,600	1,606,400	6,900	1,613,300
87	Ypsilanti Comm Util Auth	9,270,800	94,400	0	9,365,200	673,100	10,038,300	200,900	10,239,200	43,500	10,282,700
88	Total Suburban	284,589,000	3,400,100	0	287,989,100	20,699,800	308,688,900	(928,900)	307,760,000	(201,100)	307,558,900
89	Detroit Customers	42,855,400	0	0	42,855,400	(20,700,000)	22,155,400	928,800	23,084,200	201,200	23,285,400
90	GRAND TOTAL	327,444,400	3,400,100	0	330,844,500	(200)	330,844,300	(100)	330,844,200	100	330,844,300

Table 11  
Water Supply System  
Calculation of FY 2019 Wholesale Water Service Charge Schedule

	(1)	(2)	(3)	(4)	(5)	(6)	
	Adjusted Allocated <u>BUDGET</u>	<u>Recover Via</u>		<u>Sales Volume</u>	<u>Proposed Service Charges</u>		
		<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>	
		<b>60%</b>	<b>40%</b>		(2) / 12	(3) / (4)	
1	Allen Park	2,291,000	1,374,600	916,400	132,200	114,600	6.93
2	Almont Village	227,400	136,400	91,000	8,900	11,400	10.22
3	Ash Township	780,300	468,200	312,100	40,700	39,000	7.67
4	Belleville	293,600	176,200	117,400	12,300	14,700	9.54
5	Berlin Township	754,000	452,400	301,600	28,400	37,700	10.62
6	Brownstown Township	3,606,300	2,163,800	1,442,500	139,200	180,300	10.36
7	Bruce Twp	183,300	110,000	73,300	1,360	9,200	53.90
8	Canton Township	10,004,500	6,002,700	4,001,800	356,100	500,200	11.24
9	Center Line	446,300	267,800	178,500	31,500	22,300	5.67
10	Chesterfield Township	4,003,000	2,401,800	1,601,200	165,700	200,200	9.66
11	Clinton Township	8,121,000	4,872,600	3,248,400	407,600	406,100	7.97
12	Commerce Township	3,693,400	2,216,000	1,477,400	103,400	184,700	14.29
13	Dearborn	12,161,300	7,296,800	4,864,500	717,300	608,100	6.78
14	Dearborn Heights	3,546,000	2,127,600	1,418,400	206,000	177,300	6.89
15	Eastpointe	1,514,600	908,800	605,800	113,500	75,700	5.34
16	Ecorse	1,461,000	876,600	584,400	144,100	73,100	4.06
17	Farmington	1,013,500	608,100	405,400	48,300	50,700	8.39
18	Farmington Hills	9,220,100	5,532,100	3,688,000	378,700	461,000	9.74
19	Ferndale	984,500	590,700	393,800	68,500	49,200	5.75
20	Flat Rock	1,272,900	763,700	509,200	68,100	63,600	7.48
21	Flint (a)	4,378,900	2,627,300	1,751,600	544,400	218,900	3.22
22	Fraser	1,181,200	708,700	472,500	62,100	59,100	7.61
23	Garden City	1,689,400	1,013,600	675,800	89,000	84,500	7.59
24	Gibraltar	491,400	294,800	196,600	17,600	24,600	11.17
25	Grosse Ile Township	1,323,000	793,800	529,200	41,300	66,200	12.81
26	Grosse Pt. Park	1,433,800	860,300	573,500	60,100	71,700	9.54
27	Grosse Pt. Shores	623,000	373,800	249,200	20,200	31,200	12.34
28	Grosse Pt. Woods	1,492,900	895,700	597,200	63,900	74,600	9.35
29	Hamtramck	676,300	405,800	270,500	58,200	33,800	4.65
30	Harper Woods	886,000	531,600	354,400	57,000	44,300	6.22
31	Harrison Township	1,492,900	895,700	597,200	91,100	74,600	6.56
32	Hazel Park	709,100	425,500	283,600	51,800	35,500	5.47
33	Highland Park (b)	<b>1,530,900</b>	918,500	612,400	151,300	76,500	4.05
34	Huron Township	1,478,400	887,000	591,400	62,200	73,900	9.51
35	Imlay City	1,150,800	690,500	460,300	38,500	57,500	11.96
36	Imlay Twp	14,300	8,600	5,700	140	700	40.71
37	Inkster	1,891,400	1,134,800	756,600	92,100	94,600	8.21
38	Keego Harbor	306,100	183,700	122,400	10,300	15,300	11.88
39	Lapeer	1,449,000	869,400	579,600	55,200	72,500	10.50
40	Lenox Township	299,100	179,500	119,600	15,400	15,000	7.77
41	Lincoln Park	2,268,900	1,361,300	907,600	144,500	113,400	6.28
42	Livonia	14,014,100	8,408,500	5,605,600	501,800	700,700	11.17
43	Macomb Township	11,102,200	6,661,300	4,440,900	325,400	555,100	13.65
44	Madison Heights	2,043,900	1,226,300	817,600	135,700	102,200	6.03
45	Mayfield Twp	43,000	25,800	17,200	540	2,200	31.85
46	Melvindale	679,600	407,800	271,800	44,100	34,000	6.16
47	New Haven, Village of	371,100	222,700	148,400	16,700	18,600	8.89
48	N O C W A	23,590,000	14,154,000	9,436,000	914,400	1,179,500	10.32
49	Northville	769,700	461,800	307,900	32,200	38,500	9.56
50	Northville Township	5,611,000	3,366,600	2,244,400	139,300	280,600	16.11
51	Novi	9,158,800	5,495,300	3,663,500	294,700	457,900	12.43
52	Oak Park	1,359,600	815,800	543,800	97,000	68,000	5.61

TFG

Table 11  
Water Supply System  
Calculation of FY 2019 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 60%	\$/Mcf 40%		\$/mo (2) / 12	\$/Mcf (3) / (4)	
53	Oakland Co. Drain Comm.	65,800	39,500	26,300	8,300	3,300	3.17
54	Plymouth	1,050,300	630,200	420,100	42,400	52,500	9.91
55	Plymouth Township	4,442,600	2,665,600	1,777,000	172,700	222,100	10.29
56	Redford Township	3,127,100	1,876,300	1,250,800	173,900	156,400	7.19
57	River Rouge	696,900	418,100	278,800	45,600	34,800	6.11
58	Riverview	854,100	512,500	341,600	43,300	42,700	7.89
59	Rockwood	310,100	186,100	124,000	10,300	15,500	12.04
60	Romeo	254,700	152,800	101,900	5,700	12,700	17.88
61	Romulus	3,843,400	2,306,000	1,537,400	199,100	192,200	7.72
62	Roseville	2,579,200	1,547,500	1,031,700	190,000	129,000	5.43
63	Royal Oak Township	228,400	137,000	91,400	12,100	11,400	7.55
64	S O C W A	23,430,800	14,058,500	9,372,300	1,290,500	1,171,500	7.26
65	Shelby Township	13,848,500	8,309,100	5,539,400	399,000	692,400	13.88
66	South Rockwood	107,400	64,400	43,000	5,100	5,400	8.43
67	Southgate	2,238,400	1,343,000	895,400	121,500	111,900	7.37
68	St. Clair County-Burtchville Twp	310,700	186,400	124,300	7,600	15,500	16.36
69	St. Clair County-Greenwood	427,600	256,600	171,000	12,800	21,400	13.36
70	St. Clair Shores	2,957,300	1,774,400	1,182,900	202,800	147,900	5.83
71	Sterling Heights	14,705,600	8,823,400	5,882,200	607,300	735,300	9.69
72	Sumpter Township	670,200	402,100	268,100	28,500	33,500	9.41
73	Sylvan Lake	235,600	141,400	94,200	6,700	11,800	14.06
74	Taylor	4,554,200	2,732,500	1,821,700	282,400	227,700	6.45
75	Trenton	2,196,500	1,317,900	878,600	88,500	109,800	9.93
76	Troy	13,511,700	8,107,000	5,404,700	472,800	675,600	11.43
77	Utica	557,200	334,300	222,900	25,000	27,900	8.92
78	Van Buren Township	3,288,400	1,973,000	1,315,400	125,900	164,400	10.45
79	Walled Lake	925,700	555,400	370,300	31,000	46,300	11.95
80	Warren	10,339,500	6,203,700	4,135,800	642,100	517,000	6.44
81	Washington Township	2,206,700	1,324,000	882,700	74,900	110,300	11.79
82	Wayne	2,879,900	1,727,900	1,152,000	91,700	144,000	12.56
83	West Bloomfield Township	10,569,000	6,341,400	4,227,600	264,800	528,500	15.97
84	Westland	6,207,200	3,724,300	2,482,900	319,700	310,400	7.77
85	Wixom	2,485,300	1,491,200	994,100	75,500	124,300	13.17
86	Woodhaven	1,613,300	968,000	645,300	60,800	80,700	10.61
87	Ypsilanti Comm Util Auth	10,282,700	6,169,600	4,113,100	500,900	514,100	8.21
88	Total Suburban	309,089,800	185,453,800	123,636,000	14,041,240	177,600	8.81
89	Detroit Customers (c)	23,285,400					
90	GRAND TOTAL	332,375,200					

(a) Represents Flint's "net" wholesale revenue requirement after credit for KWA debt service. "Gross" revenue requirement is: 11,252,900

(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 is: 43,985,400

Table 1  
Executive Summary of FY 2019 BUDGET Request Comprison (\$ millions)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Water System				Sewer System				Total GLWA			
<u>Annual BUDGET</u>	FY 2018	FY 2019	Change	% Change	FY 2018	FY 2019	Change	% Change	FY 2018	FY 2019	Change	% Change
1 Operation and Maintenance Expense	121.6	125.3	3.7	3.1%	191.1	193.1	2.0	1.1%	312.6	318.4	5.8	1.9%
2 Master Bond Ordinance Commitments	173.7	171.3	(2.4)	-1.4%	262.5	269.7	7.2	2.7%	436.2	441.0	4.8	1.1%
3 Deposit to Improvement & Extension Fund	32.8	38.0	5.2	15.9%	11.9	12.0	0.1	0.7%	44.7	50.0	5.3	11.8%
4 <b>TOTAL BUDGET</b>	328.1	334.7	6.6	<b>2.0%</b>	465.5	474.8	9.3	<b>2.0%</b>	793.6	809.5	15.9	<b>2.0%</b>
less: "Non Customer" Revenue												
5 Investment Earnings & Miscellaneous	(4.2)	(3.8)	0.4	-9.7%	(2.8)	(4.6)	(1.8)	66.2%	(7.0)	(8.4)	(1.4)	20.1%
6 Genesee County Drain Commission	(3.7)	0.0	3.7	-100.0%	NA	NA	NA	NA	(3.7)	0.0	3.7	-100.0%
7 Subtotal Revenue Requirement "Offsets"	(7.9)	(3.8)	4.1	-51.7%	(2.8)	(4.6)	(1.8)	66.2%	(10.7)	(8.4)	2.3	-21.4%
8 Preliminary Revenue Req't from Charges	320.2	330.8	10.7	3.3%	462.7	470.2	7.5	1.6%	782.9	801.1	18.2	2.3%
9 plus: Expected "System" Bad Debt	1.3	1.5	0.3	19.8%	7.2	4.7	(2.5)	-35.4%	8.5	6.2	(2.3)	-27.1%
10 Revenue Required from Charges	321.4	332.4	10.9	3.4%	469.9	474.9	4.9	1.1%	791.4	807.3	15.9	2.0%
11 Proforma Billed Revenue - Existing Charges	321.4	323.6	2.2	0.7%	469.9	470.0	0.0	0.0%	791.4	793.6	2.2	0.3%
12 Charge Revenue Adjustment Needed		8.8				4.9				13.7		
13 % Charge Revenue Adjustment Needed		<b>2.7%</b>				<b>1.1%</b>				<b>1.7%</b>		
<b>Charge Adjustment Illustration</b>												
<u>Proforma Revenue - Existing Charges</u>												
14 Contract Customers	321.4	323.6	2.2		469.9	470.0	0.0		791.4	793.6	2.2	
15 Genesee County Drain Commission	3.7	0.0	(3.7)		NA	NA	NA		3.7	0.0	(3.7)	
16 Investment Earnings & Miscellaneous	4.2	3.8	(0.4)		2.8	4.6	1.8		7.0	8.4	1.4	
17 Expected Bad Debt Expense	(1.3)	(1.5)	(0.3)		(7.2)	(4.7)	2.5		(8.5)	(6.2)	2.3	
18 Net Proforma Revenue Comparison	328.1	325.9	(2.2)		465.5	469.9	4.4		793.6	795.8	2.2	
19 Adjustment to Address Revenue Variance			<b>0.7%</b>				<b>-0.9%</b>				<b>-0.3%</b>	
20 Adjustment to Address BUDGET Variance (Line 4)			<b>2.0%</b>				<b>2.0%</b>				<b>2.0%</b>	
21 <b>Average Charge Adjustment</b>			<b>2.7%</b>				<b>1.1%</b>				<b>1.7%</b>	

TFG

THE FOSTER GROUP

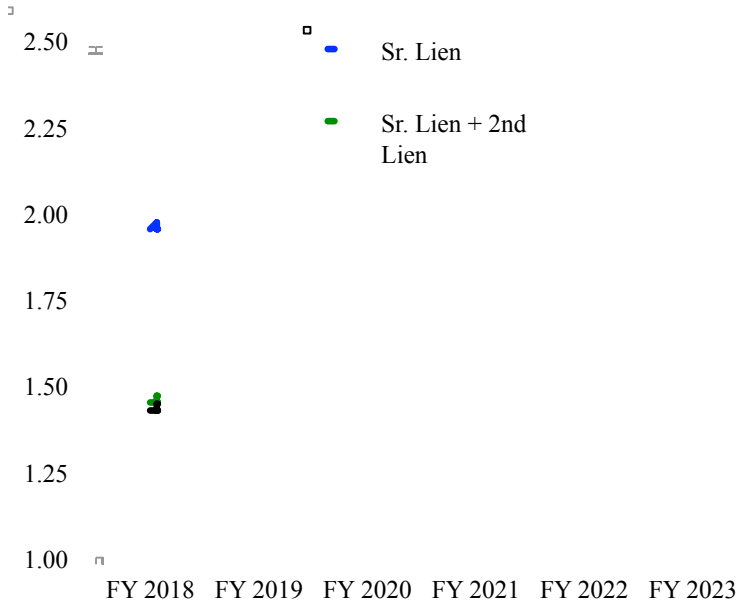
**Table 2**  
**Summary of 5-year Financial Forecast: Debt Service Coverage Projections**

<u>Water</u>	<u>Budget FY 2018</u>	<u>Budget FY 2019</u>	<u>Forecast FY 2020</u>	<u>Forecast FY 2021</u>	<u>Forecast FY 2022</u>	<u>Forecast FY 2023</u>
Sr. Lien	1.91	1.99	1.94	1.95	1.97	1.97
Sr. Lien + 2nd Lien	1.43	1.41	1.39	1.41	1.47	1.49
All Bonds	1.41	1.39	1.37	1.38	1.45	1.47

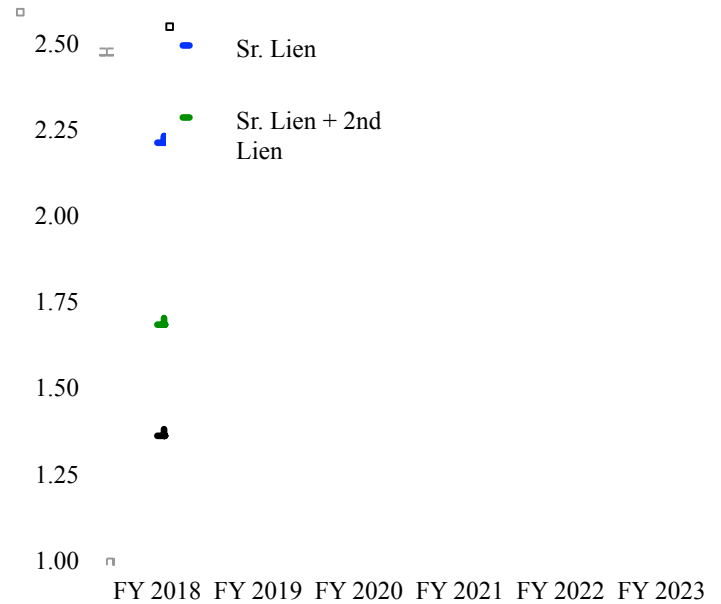
  

<u>Sewer</u>	<u>Budget FY 2018</u>	<u>Budget FY 2019</u>	<u>Forecast FY 2020</u>	<u>Forecast FY 2021</u>	<u>Forecast FY 2022</u>	<u>Forecast FY 2023</u>
Sr. Lien	2.10	2.02	2.01	2.25	2.12	2.09
Sr. Lien + 2nd Lien	1.61	1.55	1.56	1.64	1.65	1.72
All Bonds	1.27	1.23	1.23	1.29	1.31	1.39

***Water***



***Sewer***



<u>Requirements</u>	<u>MBO Minimum</u>	<u>Prior Policy Minimum</u>
<i>Sr. Lien</i>	<i>1.20</i>	<i>1.35</i>
<i>Sr. Lien + 2nd Lien</i>	<i>1.10</i>	<i>1.25</i>
<i>All Bonds</i>	<i>1.00</i>	<i>1.15</i>

Table 3  
Sewage Disposal System  
Allocation of FY 2019 GLWA Wholesale Service BUDGET to Cost Pools

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		Cost Pools						
<u>BUDGET Elements</u>	<u>Allocated FY 2019</u>	<u>Common to All SHAREs</u>	<u>Suburban Wholesale</u>	<u>OMID Specific</u>	<u>CSO Facilities</u>	<u>Industrial Waste Control</u>	<u>Common-to-All (SHAREs) Flow</u>	<u>Pollutants</u>
1 Regional System O&M Expense	193,122,000	157,127,900	3,926,000	6,046,800	18,781,700	7,239,600	47,350,100	109,777,800
2 Pension Obligation - Operating Portion	10,824,000	8,375,600	267,000	411,300	1,277,500	492,400	2,577,800	5,797,800
3 Debt Service	214,991,000	174,412,400	4,407,800	2,817,200	33,042,700	310,800	117,898,900	56,513,500
4 Non-Operating Portion of Pension Oblig	11,620,700	8,992,100	286,700	441,600	1,371,500	528,700	2,767,600	6,224,500
5 Transfer to WRAP Fund	2,261,000	1,832,300	46,700	50,400	287,700	43,900	905,200	927,100
6 Transfer to Extra. Repair and Repl. Fund	627,000	508,700	12,900	8,200	96,400	900	343,900	164,800
7 Lease Payment - Transfer to Detroit Local I&E	27,500,000	22,285,600	567,500	613,600	3,499,500	533,700	11,009,600	11,276,000
8 Transfer to GLWA Regional I&E Account	12,010,600	9,743,600	246,200	157,400	1,846,000	17,400	6,586,500	3,157,100
9 Operating Reserves	1,853,800	1,508,400	37,700	58,000	180,300	69,500	454,500	1,053,900
10 Total Gross BUDGET	474,810,100	384,786,600	9,798,500	10,604,500	60,383,300	9,236,900	189,894,100	194,892,500
11 less: Non-Operating Revenue	(4,570,900)	(3,704,200)	(94,300)	(102,000)	(581,700)	(88,700)	(1,829,900)	(1,874,300)
12 Net BUDGET Req'd from Charges	470,239,200	381,082,400	9,704,200	10,502,500	59,801,600	9,148,200	188,064,200	193,018,200
<u>Summary - BUDGET Required from Charges</u>								
13 Net Operating Expenses	205,799,800	167,011,900	4,230,700	6,516,100	20,239,500	7,801,500	50,382,400	116,629,500
14 Net Capital Requirements	264,439,400	214,070,500	5,473,500	3,986,400	39,562,100	1,346,700	137,681,800	76,388,700
15 Total	470,239,200	381,082,400	9,704,200	10,502,500	59,801,600	9,148,200	188,064,200	193,018,200
16 Relative Cost Pool Distribution		81.0%	2.1%	2.2%	12.7%	1.9%	40.0%	41.0%

**TFG**

THE FOSTER GROUP

Table 4  
Sewage Disposal System  
FY 2019 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	NE Wayne Co	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	<b>Total</b>	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Table 5  
Sewage Disposal System  
Summarized FY 2019 *Wholesale Service* BUDGET Allocation to Cost Pools and Customer Classes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Cost Pool Allocation							<i>Common to All (b)</i>	
Amount to Allocate	Common to All	Suburban Wholesale	OMID Specific	CSO Facilities	Industrial Waste Control	TOTAL	<i>Flow</i>	<i>Pollutants</i>	
\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
<b>BUDGET Elements</b>									
1 Net Operating Expenses	205,799,800	167,011,900	4,230,700	6,516,100	20,239,500	7,801,500	205,799,700	50,382,400	116,629,500
2 Net Capital Requirements	264,439,400	214,070,500	5,473,500	3,986,400	39,562,100	1,346,700	264,439,200	137,681,800	76,388,700
3 Net to Recover from Charges	470,239,200	381,082,400	9,704,200	10,502,500	59,801,600	9,148,200	470,238,900	188,064,200	193,018,200
<b>Allocated to Industrial</b>									
4 Net Operating Expenses	10,892,200	3,090,700	0	0	0	7,801,500	10,892,200	0	3,090,700
5 Net Capital Requirements	3,371,100	2,024,400	0	0	0	1,346,700	3,371,100	0	2,024,400
6 Net to Recover from Charges	14,263,300	5,115,100	0	0	0	9,148,200	14,263,300	0	5,115,100
<b>Net Req'd from Customers</b>									
7 Net Operating Expenses	194,907,600	163,921,200	4,230,700	6,516,100	20,239,500	0	194,907,500	50,382,400	113,538,800
8 Net Capital Requirements	261,068,300	212,046,100	5,473,500	3,986,400	39,562,100	0	261,068,100	137,681,800	74,364,300
9 Net BUDGET from Charges	455,975,900	375,967,300	9,704,200	10,502,500	59,801,600	0	954,741,100	188,064,200	187,903,100
(a) Industrial Surcharge Customers									2.65%
(b) Relative Flow/Pollutants in CTA Cost Pool								50%	50%
									<i>based on % of total influent pollutant loadings that are "surchargeable"</i>

Table 6  
Sewage Disposal System  
Allocation of FY 2019 *Wholesale Service* BUDGET to Customers

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
	Allocation of FY 2019 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	61,793,400	2,152,600	10,502,500	1,585,500	76,034,000	1,223,700	77,257,700	616,600	415,100	78,289,400
2	Rouge Valley	48,474,600	1,974,500	0	1,767,600	52,216,700	1,122,300	53,339,000	565,700	380,800	54,285,500
3	Oakland GWK	40,359,100	1,807,400	0	1,349,100	43,515,600	1,027,400	44,543,000	517,800	348,500	45,409,300
4	Evergreen Farmington	31,497,100	1,234,200	0	888,100	33,619,400	701,500	34,320,900	353,600	238,000	34,912,500
5	NE Wayne Co	22,218,800	972,300	0	702,000	23,893,100	552,700	24,445,800	278,600	187,500	24,911,900
6	Dearborn	16,985,900	781,000	0	975,400	18,742,300	444,000	19,186,300	223,700	150,600	19,560,600
7	Grosse Pointe Farms	2,239,600	104,300	0	301,400	2,645,300	59,300	2,704,600	29,900	20,100	2,754,600
8	Grosse Pointe Park	1,634,200	72,400	0	36,900	1,743,500	41,100	1,784,600	20,700	14,000	1,819,300
9	Melvindale	1,379,500	55,100	0	44,200	1,478,800	31,300	1,510,100	15,800	10,600	1,536,500
10	Farmington	1,035,100	43,200	0	31,300	1,109,600	24,500	1,134,100	12,400	8,300	1,154,800
11	Center Line	928,700	35,700	0	33,200	997,600	20,300	1,017,900	10,200	6,900	1,035,000
12	Allen Park	773,600	30,600	0	18,400	822,600	17,400	840,000	8,800	5,900	854,700
13	Highland Park	4,002,900	210,000	0	1,234,800	5,447,700	119,400	5,567,100	60,200	40,500	5,667,800
14	Hamtramck	2,694,900	171,200	0	953,600	3,819,700	97,300	3,917,000	49,000	33,000	3,999,000
15	Grosse Pointe	676,400	40,500	0	136,500	853,400	23,000	876,400	11,600	7,800	895,800
16	Harper Woods	190,800	10,800	0	7,600	209,200	6,200	215,400	3,100	2,100	220,600
17	Redford Township	168,500	7,100	0	79,800	255,400	4,000	259,400	2,000	1,400	262,800
18	Wayne County #3	25,800	1,100	0	20,800	47,700	600	48,300	300	200	48,800
19	Subtotal Suburban Wholesale	237,078,900	9,704,000	10,502,500	10,166,200	267,451,600	5,516,000	272,967,600	2,780,000	1,871,300	277,618,900
20	City of Detroit Customers	138,888,300	0	0	49,635,300	188,523,600	(5,516,000)	183,007,600	(a)	(a)	(a)
21	<b>Subtotal</b>	375,967,200	9,704,000	10,502,500	59,801,500	455,975,200	0	455,975,200			
22	Industrial Waste Control					9,148,200		9,148,200			
23	Industrial Surcharges					5,115,100		5,115,100			
24	<b>Total</b>					470,238,500		470,238,500			

(a) Subject to ongoing review of collections from Detroit customers and design of retail rates and charges for City of Detroit Customer Class.

Table 7  
Sewage Disposal System  
Determination of FY 2019 Wholesale Service Charge Schedule - *Fixed Monthly Charges*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
	FY 2019 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	5,149,500	179,400	875,200	132,100	6,336,200	102,000	6,438,200	51,400	34,600	6,524,200
2	Rouge Valley	4,039,600	164,500	0	147,300	4,351,400	93,500	4,444,900	47,100	31,700	4,523,700
3	Oakland GWK	3,363,300	150,600	0	112,400	3,626,300	85,600	3,711,900	43,200	29,000	3,784,100
4	Evergreen Farmington	2,624,800	102,900	0	74,000	2,801,700	58,500	2,860,200	29,500	19,800	2,909,500
5	NE Wayne Co	1,851,600	81,000	0	58,500	1,991,100	46,100	2,037,200	23,200	15,600	2,076,000
6	Dearborn	1,415,500	65,100	0	81,300	1,561,900	37,000	1,598,900	18,600	12,600	1,630,100
7	Grosse Pointe Farms	186,600	8,700	0	25,100	220,400	4,900	225,300	2,500	1,700	229,500
8	Grosse Pointe Park	136,200	6,000	0	3,100	145,300	3,400	148,700	1,700	1,200	151,600
9	Melvindale	115,000	4,600	0	3,700	123,300	2,600	125,900	1,300	900	128,100
10	Farmington	86,300	3,600	0	2,600	92,500	2,000	94,500	1,000	700	96,200
11	Center Line	77,400	3,000	0	2,800	83,200	1,700	84,900	900	600	86,400
12	Allen Park	64,500	2,600	0	1,500	68,600	1,500	70,100	700	500	71,300
13	Highland Park	333,600	17,500	0	102,900	454,000	10,000	464,000	5,000	3,400	472,400
14	Hamtramck	224,600	14,300	0	79,500	318,400	8,100	326,500	4,100	2,800	333,400
15	Grosse Pointe	56,400	3,400	0	11,400	71,200	1,900	73,100	1,000	700	74,800
16	Harper Woods	15,900	900	0	600	17,400	500	17,900	300	200	18,400
17	Redford Township	14,000	600	0	6,700	21,300	300	21,600	200	100	21,900
18	Wayne County #3	2,200	100	0	1,700	4,000	100	4,100	0	0	4,100
19	Subtotal Suburban Wholesale	19,757,000	808,800	875,200	847,200	22,288,200	459,700	22,747,900	231,700	156,100	23,135,700
20	City of Detroit Customers (a)	11,574,000	0	0	4,136,300	15,710,300	(459,700)	15,250,600			15,250,600
21	<b>Total</b>	31,331,000	808,800	875,200	4,983,500	37,998,500	0	37,998,500	231,700	156,100	38,386,300

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

Table 8  
Sewage Disposal System  
Determination of FY 2019 Industrial Specific Service Charge Schedule

Industrial Waste Control Charges			Industrial Surcharges			
Revenue Requirement - \$		9,148,200	Revenue	Estimated	Unit	
Eq Mtrs		212,224	<u>Req't</u>	<u>Loadings</u>	<u>Rate</u>	
Unit Cost - \$/eq mtr		3.59	\$	lbs	\$/lb	
<u>Meter Size</u>	<u>Equivalency Ratio</u>	<u>Unit Rate</u>	BOD	3,417,500	7,000,000	0.488
			SS	1,015,200	2,050,000	0.495
			PHOS	365,000	50,000	7.300
			FOG	317,400	675,000	0.470
				-----	-----	
5/8	1.0	3.59		5,115,100	9,775,000	0.523
3/4	1.5	5.39				
1	2.5	8.98				
1-1/2	5.5	19.75				
2	8.0	28.72				
3	14.5	52.06				
4	20.0	71.80				
6	30.0	107.70				
8	50.0	179.50				
10	70.0	251.30				
12	80.0	287.20				
14	100.0	359.00				
16	120.0	430.80				
18	140.0	502.60				
20	160.0	574.40				
24	180.0	646.20				
30	200.0	718.00				
36	220.0	789.80				
48	240.0	861.60				

## Appendices

- January 31, 2018 memorandum: “FY 2019 Cost of Service and Charges Study - Detailed Cost Allocation Schedules”
- February 2, 2018 memorandum: “Bad Debt Expense Treatment for FY 2019 Charges – Suburban Wholesale Sewer Customer Class”

**TFG**  
**THE FOSTER GROUP**

---

P.O. BOX 26282  
LEAWOOD, KS 66225  
TEL: (913) 345-1410  
FAX: (913) 345-1640

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

MEMORANDUM

FY 2019 Cost of Service and Charges Study  
Detailed Cost Allocation Schedules

January 31, 2018

To: Nicolette Bateson

From: Bart Foster

The attached material is intended to delineate the process we've taken to allocate the FY 2019 BUDGET to cost pools as part of the FY 2019 Cost of Service and Charges Study. This material illustrates the a 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 2019 GLWA operating expense budget represents the results of a detailed, rigorous review of financial data from the first full year of data available from stand-alone GLWA cost reporting systems. It also has been developed based on the first year implementation of the ongoing Cost Allocation Project, which is part of the overall GLWA strategic initiative to review cost allocation and charge methodologies. The initial phase of the Cost Allocation Project focuses on allocation of Centralized Services and Administrative Services costs between the Water and Sewer Funds. Subsequent phases of this 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. For the FY 2019 Cost of Service Study, the allocation factors we have applied were developed 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.

We have also incorporated 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.

We are prepared to discuss this matter at your convenience.

Aligns with FY 2019 Budget "Request" dated 01/04/18. Subsequent modifications may occur.

Water Operations Group Functional Allocation Matrix - FY 2019 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 2019 allocation factors are based on historical data and judgement. The ongoing Cost Allocation Project will review these factors.

		Water System Functional Categories									
		Water Treatment Plant Functional Categories					Water Delivery Facilities				
		Source of Supply	Low Lift Pumps	Purification	High Lift Pumps	General	Reservoirs	Booster Stations	Transmission Mains	Master Meters	General
<b>Part 1 - Water Treatment Plants</b>											
<b>Personnel Costs</b>											
9.3.1 Water Works Park	3,198,200	6.0%	9.0%	70.0%	15.0%	0.0%					0.0%
9.3.2 Lake Huron Water Plant	2,616,500	6.0%	9.0%	70.0%	15.0%	0.0%					0.0%
9.3.3 Springwells Water Plant	2,912,300	6.0%	9.0%	70.0%	15.0%	0.0%					0.0%
9.3.4 Northeast Water Plant	2,623,200	6.0%	9.0%	70.0%	15.0%	0.0%					0.0%
9.3.5 Southwest Water Plant	2,461,100	6.0%	9.0%	70.0%	15.0%	0.0%					0.0%
Total WTPs	13,811,300	6.0%	9.0%	70.0%	15.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<b>Electricity</b>											
9.3.1 Water Works Park	2,548,900	2.5%	20.0%	25.0%	52.5%	0.0%					0.0%
9.3.2 Lake Huron Water Plant	6,500,000	2.5%	20.0%	25.0%	52.5%	0.0%					0.0%
9.3.3 Springwells Water Plant	4,479,000	2.5%	20.0%	25.0%	52.5%	0.0%					0.0%
9.3.4 Northeast Water Plant	4,000,000	2.5%	20.0%	25.0%	52.5%	0.0%					0.0%
9.3.5 Southwest Water Plant	1,598,400	2.5%	20.0%	25.0%	52.5%	0.0%					0.0%
Total WTPs	19,126,300	2.5%	20.0%	25.0%	52.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<b>Chemicals</b>											
9.3.1 Water Works Park	1,567,200	0.0%	0.0%	100.0%	0.0%	0.0%					0.0%
9.3.2 Lake Huron Water Plant	1,186,300	0.0%	0.0%	100.0%	0.0%	0.0%					0.0%
9.3.3 Springwells Water Plant	1,529,200	0.0%	0.0%	100.0%	0.0%	0.0%					0.0%
9.3.4 Northeast Water Plant	1,000,000	0.0%	0.0%	100.0%	0.0%	0.0%					0.0%
9.3.5 Southwest Water Plant	798,000	0.0%	0.0%	100.0%	0.0%	0.0%					0.0%
Total WTPs	6,080,700	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<b>Other Utilities</b>											
9.3.1 Water Works Park	400,000	6.0%	9.0%	70.0%	15.0%	0.0%					0.0%
9.3.2 Lake Huron Water Plant	317,700	6.0%	9.0%	70.0%	15.0%	0.0%					0.0%
9.3.3 Springwells Water Plant	235,000	6.0%	9.0%	70.0%	15.0%	0.0%					0.0%
9.3.4 Northeast Water Plant	369,000	6.0%	9.0%	70.0%	15.0%	0.0%					0.0%
9.3.5 Southwest Water Plant	440,400	6.0%	9.0%	70.0%	15.0%	0.0%					0.0%
Total WTPs	1,762,100	6.0%	9.0%	70.0%	15.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<b>Other</b>											
9.3.1 Water Works Park	2,318,000	6.0%	9.0%	70.0%	15.0%	0.0%					0.0%
9.3.2 Lake Huron Water Plant	1,944,900	6.0%	9.0%	70.0%	15.0%	0.0%					0.0%
9.3.3 Springwells Water Plant	2,446,300	6.0%	9.0%	70.0%	15.0%	0.0%					0.0%
9.3.4 Northeast Water Plant	1,595,900	6.0%	9.0%	70.0%	15.0%	0.0%					0.0%
9.3.5 Southwest Water Plant	1,496,700	6.0%	9.0%	70.0%	15.0%	0.0%					0.0%
Total WTPs	9,801,800	6.0%	9.0%	70.0%	15.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

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

Water Operations Group Functional Allocation Matrix - FY 2019 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 2019 allocation factors are based on historical data and judgement. The ongoing Cost Allocation Project will review these factors.

		Water System Functional Categories									
		Water Treatment Plant Functional Categories					Water Delivery Facilities				
		Source of Supply	Low Lift Pumps	Purification	High Lift Pumps	General	Reservoirs	Booster Stations	Transmission Mains	Master Meters	General
<b>TOTAL WTP Budget</b>											
9.3.1 Water Works Park	10,032,300	4.2%	10.4%	63.3%	22.2%	0.0%					0.0%
9.3.2 Lake Huron Water Plant	12,565,400	3.6%	13.8%	49.6%	33.0%	0.0%					0.0%
9.3.3 Springwells Water Plant	11,601,800	3.9%	12.1%	56.6%	27.5%	0.0%					0.0%
9.3.4 Northeast Water Plant	9,588,100	3.9%	12.7%	54.4%	29.1%	0.0%					0.0%
9.3.5 Southwest Water Plant	6,794,600	4.5%	10.5%	62.9%	22.1%	0.0%					0.0%
Total WTPs	50,582,200	4.0%	12.1%	56.6%	27.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<b>Part 2 - Booster Stations</b>											
Personnel Costs	0							100.0%			0.0%
Electricity	9,292,000							100.0%			0.0%
Chemicals	0							100.0%			0.0%
Other Utilities	128,700							100.0%			0.0%
Other	0							100.0%			0.0%
Total Booster Station Costs	9,420,700	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%
<b>Part 3 - Support Services</b>											
9.1 Chief Operating Officer Wa	601,000	6.0%	9.0%	70.0%	15.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
9.2.1 Water Director	1,316,300	10.0%	10.0%	70.0%	10.0%						0.0%
9.2.2 Water Quality	1,147,700			100.0%							0.0%
9.5.1 Water Engineering	968,700	5.0%	10.0%	15.0%	10.0%		15.0%	15.0%	25.0%	5.0%	0.0%
9.7.1 Water Operations Unalloc	1,540,900	6.0%	9.0%	70.0%	15.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Support Costs	5,574,600	5.5%	7.6%	66.6%	9.9%	0.0%	2.6%	2.6%	4.3%	0.9%	0.0%
<b>TOTAL GROUP</b>	<b>65,577,500</b>	<b>3.5%</b>	<b>10.0%</b>	<b>49.3%</b>	<b>22.0%</b>	<b>0.0%</b>	<b>0.2%</b>	<b>14.6%</b>	<b>0.4%</b>	<b>0.1%</b>	<b>0.0%</b>
Indirect Allocation Factors	27,045,700	6.0%	9.0%	70.0%	15.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Personnel	13,811,300	6.0%	9.0%	70.0%	15.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
All But Commodities	27,045,700	5.9%	8.7%	69.3%	13.9%	0.0%	0.3%	0.5%	0.9%	0.2%	0.0%

\* No Commodities

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

Water Operations Group Functional Allocation Matrix - FY 2019 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 2019 allocation factors are based on historical data and judgement. The ongoing Cost Allocation Project will review these factors.

Water System Functional Operating Cost Allocation											
	Water Treatment Plant Allocation					Water Delivery Cost Allocation					
	Source of Supply	Low Lift Pumps	Purification	High Lift Pumps	General	Reservoirs	Booster Stations	Transmission Mains	Master Meters	General	
<b>Part 1 - Water Treatment Plants</b>											
<b>Personnel Costs</b>											
9.3.1 Water Works Park	3,198,200	191,900	287,800	2,238,800	479,700	0	0	0	0	0	0
9.3.2 Lake Huron Water Plant	2,616,500	157,000	235,500	1,831,500	392,500	0	0	0	0	0	0
9.3.3 Springwells Water Plant	2,912,300	174,700	262,100	2,038,700	436,800	0	0	0	0	0	0
9.3.4 Northeast Water Plant	2,623,200	157,400	236,100	1,836,200	393,500	0	0	0	0	0	0
9.3.5 Southwest Water Plant	2,461,100	147,700	221,500	1,722,700	369,200	0	0	0	0	0	0
Total WTPs	13,811,300	828,700	1,243,000	9,667,900	2,071,700	0	0	0	0	0	0
<b>Electricity</b>											
9.3.1 Water Works Park	2,548,900	63,700	509,800	637,200	1,338,200	0	0	0	0	0	0
9.3.2 Lake Huron Water Plant	6,500,000	162,500	1,300,000	1,625,000	3,412,500	0	0	0	0	0	0
9.3.3 Springwells Water Plant	4,479,000	112,000	895,800	1,119,700	2,351,500	0	0	0	0	0	0
9.3.4 Northeast Water Plant	4,000,000	100,000	800,000	1,000,000	2,100,000	0	0	0	0	0	0
9.3.5 Southwest Water Plant	1,598,400	40,000	319,700	399,500	839,200	0	0	0	0	0	0
Total WTPs	19,126,300	478,200	3,825,300	4,781,400	10,041,400	0	0	0	0	0	0
<b>Chemicals</b>											
9.3.1 Water Works Park	1,567,200	0	0	1,567,200	0	0	0	0	0	0	0
9.3.2 Lake Huron Water Plant	1,186,300	0	0	1,186,300	0	0	0	0	0	0	0
9.3.3 Springwells Water Plant	1,529,200	0	0	1,529,200	0	0	0	0	0	0	0
9.3.4 Northeast Water Plant	1,000,000	0	0	1,000,000	0	0	0	0	0	0	0
9.3.5 Southwest Water Plant	798,000	0	0	798,000	0	0	0	0	0	0	0
Total WTPs	6,080,700	0	0	6,080,700	0	0	0	0	0	0	0
<b>Other Utilities</b>											
9.3.1 Water Works Park	400,000	24,000	36,000	280,000	60,000	0	0	0	0	0	0
9.3.2 Lake Huron Water Plant	317,700	19,100	28,600	222,300	47,700	0	0	0	0	0	0
9.3.3 Springwells Water Plant	235,000	14,100	21,200	164,400	35,300	0	0	0	0	0	0
9.3.4 Northeast Water Plant	369,000	22,100	33,200	258,300	55,400	0	0	0	0	0	0
9.3.5 Southwest Water Plant	440,400	26,400	39,600	308,300	66,100	0	0	0	0	0	0
Total WTPs	1,762,100	105,700	158,600	1,233,300	264,500	0	0	0	0	0	0
<b>Other</b>											
9.3.1 Water Works Park	2,318,000	139,100	208,600	1,622,600	347,700	0	0	0	0	0	0
9.3.2 Lake Huron Water Plant	1,944,900	116,700	175,000	1,361,500	291,700	0	0	0	0	0	0
9.3.3 Springwells Water Plant	2,446,300	146,800	220,200	1,712,400	366,900	0	0	0	0	0	0
9.3.4 Northeast Water Plant	1,595,900	95,800	143,600	1,117,100	239,400	0	0	0	0	0	0
9.3.5 Southwest Water Plant	1,496,700	89,800	134,700	1,047,700	224,500	0	0	0	0	0	0
Total WTPs	9,801,800	588,200	882,100	6,861,300	1,470,200	0	0	0	0	0	0

Water Operations Group Functional Allocation Matrix - FY 2019 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 2019 allocation factors are based on historical data and judgement. The ongoing Cost Allocation Project will review these factors.

		Water System Functional Operating Cost Allocation									
		Water Treatment Plant Allocation					Water Delivery Cost Allocation				
		Source of Supply	Low Lift Pumps	Purification	High Lift Pumps	General	Reservoirs	Booster Stations	Transmission Mains	Master Meters	General
<b>TOTAL WTP Budget</b>											
9.3.1 Water Works Park	10,032,300	418,700	1,042,200	6,345,800	2,225,600	0	0	0	0	0	0
9.3.2 Lake Huron Water Plant	12,565,400	455,300	1,739,100	6,226,600	4,144,400	0	0	0	0	0	0
9.3.3 Springwells Water Plant	11,601,800	447,600	1,399,300	6,564,400	3,190,500	0	0	0	0	0	0
9.3.4 Northeast Water Plant	9,588,100	375,300	1,212,900	5,211,600	2,788,300	0	0	0	0	0	0
9.3.5 Southwest Water Plant	6,794,600	303,900	715,500	4,276,200	1,499,000	0	0	0	0	0	0
Total WTPs	50,582,200	2,000,800	6,109,000	28,624,600	13,847,800	0	0	0	0	0	0
<b>Part 2 - Booster Stations</b>											
Personnel Costs	0	0	0	0	0	0	0	0	0	0	0
Electricity	9,292,000	0	0	0	0	0	0	9,292,000	0	0	0
Chemicals	0	0	0	0	0	0	0	0	0	0	0
Other Utilities	128,700	0	0	0	0	0	0	128,700	0	0	0
Other	0	0	0	0	0	0	0	0	0	0	0
Total Booster Station Costs	9,420,700	0	0	0	0	0	0	9,420,700	0	0	0
<b>Part 3 - Support Services</b>											
9.1 Chief Operating Officer Wa	601,000	36,100	54,100	420,700	90,200	0	0	0	0	0	0
9.2.1 Water Director	1,316,300	131,600	131,600	921,400	131,600	0	0	0	0	0	0
9.2.2 Water Quality	1,147,700	0	0	1,147,700	0	0	0	0	0	0	0
9.5.1 Water Engineering	968,700	48,400	96,900	145,300	96,900	0	145,300	145,300	242,200	48,400	0
9.7.1 Water Operations Unalloc	1,540,900	92,500	138,700	1,078,600	231,100	0	0	0	0	0	0
Total Support Costs	5,574,600	308,600	421,300	3,713,700	549,800	0	145,300	145,300	242,200	48,400	0
<b>TOTAL GROUP</b>	<b>65,577,500</b>	<b>2,309,400</b>	<b>6,530,300</b>	<b>32,338,300</b>	<b>14,397,600</b>	<b>0</b>	<b>145,300</b>	<b>9,566,000</b>	<b>242,200</b>	<b>48,400</b>	<b>0</b>
Indirect Allocation Factors	27,045,700	1,596,900	2,353,600	18,743,600	3,770,400	0	145,300	145,300	242,200	48,400	0
Personnel	13,811,300	828,700	1,243,000	9,667,900	2,071,700	0	0	0	0	0	0
All But Commodities	27,045,700	1,596,900	2,353,600	18,743,600	3,770,400	0	145,300	145,300	242,200	48,400	0

\* No Commodities

Aligns with FY 2019 Budget  
 "Request" dated 01/04/18.  
 Subsequent modifications may occur.

Wastewater Operations Group Functional Allocation Matrix - FY 2019 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 Wastewater Plant, then for the supporting Divisions. The FY 2019 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
<b>Part I - Water Reuse &amp; Reclamation Facility</b>														
<b>Personnel Costs</b>														
8.2.1 Wastewater Operations	1,257,900	7.5%	4.0%	8.0%	16.0%	12.0%	10.0%	37.50%				5.0%		0.0%
8.2.2 Wastewater Process Contr	2,318,500	7.5%	4.0%	8.0%	16.0%	12.0%	25.0%	25.0%				2.5%		0.0%
8.2.4 Wastewater Primary Proce	3,701,800	10.0%	15.0%	75.0%	0.0%	0.0%	0.0%	0.0%				0.0%		0.0%
8.2.4 Wastewater Secondary Pr	3,997,200	0.0%	0.0%	0.0%	50.0%	50.0%	0.0%	0.0%				0.0%		0.0%
8.2.5 Wastewater Dewatering Pi	3,723,300	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%				0.0%		0.0%
8.2.6 Wastewater Incineration P	3,953,700	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%				0.0%		0.0%
8.2.7 Biosolids Dryer Facility a	806,100	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%				0.0%		0.0%
Total WRRF	19,758,500	3.2%	3.5%	15.5%	13.0%	12.3%	22.4%	29.4%	0.0%	0.0%	0.0%	0.6%	0.0%	0.0%
<b>Electricity</b>														
8.2.1 Wastewater Operations	11,478,100	25.0%	10.0%	5.0%	20.0%	12.0%	25.0%	3.00%				0.0%		0.0%
8.2.2 Wastewater Process Contr	0	7.5%	4.0%	8.0%	16.0%	12.0%	25.0%	25.0%				2.5%		0.0%
8.2.4 Wastewater Primary Proce	0	10.0%	15.0%	75.0%	0.0%	0.0%	0.0%	0.0%				0.0%		0.0%
8.2.4 Wastewater Secondary Pr	0	0.0%	0.0%	0.0%	50.0%	50.0%	0.0%	0.0%				0.0%		0.0%
8.2.5 Wastewater Dewatering Pi	0	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%				0.0%		0.0%
8.2.6 Wastewater Incineration P	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%				0.0%		0.0%
8.2.7 Biosolids Dryer Facility a	1,054,000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%				0.0%		0.0%
Total WRRF	12,532,100	22.9%	9.2%	4.6%	18.3%	11.0%	22.9%	11.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<b>Chemicals</b>														
8.2.1 Wastewater Operations	1,200	0.0%	0.0%	40.0%	10.0%	40.0%	0.0%	10.0%				0.0%		0.0%
8.2.2 Wastewater Process Contr	34,000	7.5%	4.0%	8.0%	16.0%	12.0%	25.0%	25.0%				0.0%		2.5%
8.2.4 Wastewater Primary Proce	2,800,000	10.0%	15.0%	75.0%	0.0%	0.0%	0.0%	0.0%				0.0%		0.0%
8.2.4 Wastewater Secondary Pr	5,270,500	0.0%	0.0%	0.0%	50.0%	50.0%	0.0%	0.0%				0.0%		0.0%
8.2.5 Wastewater Dewatering Pi	1,000,000	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%				0.0%		0.0%
8.2.6 Wastewater Incineration P	974,200	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%				0.0%		0.0%
8.2.7 Biosolids Dryer Facility a	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%				0.0%		0.0%
Total WRRF	10,079,900	2.8%	4.2%	20.9%	26.2%	26.2%	10.0%	9.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<b>Other Utilities</b>														
8.2.1 Wastewater Operations	8,985,100	5.0%	5.0%	5.0%	20.0%	5.0%	5.0%	55.00%				0.0%		0.0%
8.2.2 Wastewater Process Contr	0	7.5%	4.0%	8.0%	16.0%	12.0%	25.0%	25.0%				2.5%		0.0%
8.2.4 Wastewater Primary Proce	0	10.0%	15.0%	75.0%	0.0%	0.0%	0.0%	0.0%				0.0%		0.0%
8.2.4 Wastewater Secondary Pr	0	0.0%	0.0%	0.0%	50.0%	50.0%	0.0%	0.0%				0.0%		0.0%
8.2.5 Wastewater Dewatering Pi	0	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%				0.0%		0.0%
8.2.6 Wastewater Incineration P	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%				0.0%		0.0%
8.2.7 Biosolids Dryer Facility a	2,394,100	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%				0.0%		0.0%
Total WRRF	11,379,200	3.9%	3.9%	3.9%	15.8%	3.9%	3.9%	64.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<b>Other</b>														
8.2.1 Wastewater Operations	6,345,900	7.5%	4.0%	8.0%	16.0%	12.0%	10.0%	37.50%				5.0%		0.0%
8.2.2 Wastewater Process Contr	2,897,700	7.5%	4.0%	8.0%	16.0%	12.0%	25.0%	25.0%				2.5%		0.0%
8.2.4 Wastewater Primary Proce	1,013,000	10.0%	15.0%	75.0%	0.0%	0.0%	0.0%	0.0%				0.0%		0.0%
8.2.4 Wastewater Secondary Pr	1,795,600	0.0%	0.0%	0.0%	50.0%	50.0%	0.0%	0.0%				0.0%		0.0%
8.2.5 Wastewater Dewatering Pi	1,602,000	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%				0.0%		0.0%
8.2.6 Wastewater Incineration P	944,500	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%				0.0%		0.0%
8.2.7 Biosolids Dryer Facility a	18,901,500	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%				0.0%		0.0%
Total WRRF	33,500,200	2.4%	1.6%	4.5%	7.1%	6.0%	8.8%	68.5%	0.0%	0.0%	0.0%	1.2%	0.0%	0.0%
<b>TOTAL WRRF Budget</b>														

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

Wastewater Operations Group Functional Allocation Matrix - FY 2019 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 Wastewater Plant, then for the supporting Divisions. The FY 2019 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
8.2.1 Wastewater Operations	28,068,200	13.9%	6.8%	5.8%	18.9%	9.8%	14.5%	29.0%	0.0%	0.0%	0.0%	1.4%	0.0%	0.0%
8.2.2 Wastewater Process Contr	5,250,200	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 Proc	7,514,800	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 Pr	11,063,300	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 Pl	6,325,300	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 P	5,872,400	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 a	23,155,700	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	87,249,900	5.8%	3.7%	8.8%	13.4%	10.2%	13.4%	44.1%	0.0%	0.0%	0.0%	0.6%	0.0%	0.0%
<b>Part 2 - Lift Stations</b>														
Personnel Costs	0								100.0%					0.0%
Electricity	2,458,000								100.0%					0.0%
Chemicals	0								100.0%					0.0%
Other Utilities	100,200								100.0%					0.0%
Other	300,800								100.0%					0.0%
Total Lift Stations Costs	2,859,000	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%
<b>Part 3 - CSO Facilities</b>														
Personnel Costs	2,668,600									100.0%				0.0%
Electricity	992,900									100.0%				0.0%
Chemicals	1,200,000									100.0%				0.0%
Other Utilities	1,757,300									100.0%				0.0%
Other	7,285,700									100.0%				0.0%
Total CSO Costs	13,904,500	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%
<b>Part 4 - Industrial Waste Control</b>														
Personnel Costs	2,362,500											100.0%		0.0%
Electricity	57,600											100.0%		0.0%
Chemicals	10,500											100.0%		0.0%
Other Utilities	38,900											100.0%		0.0%
Other	487,300											100.0%		0.0%
Total IWC Costs	2,956,800	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%
<b>Part 5 - Support Services</b>														
8.1 Chief Operating Officer Wa	1,653,700	2.6%	2.8%	12.4%	10.4%	9.8%	17.9%	23.4%	0.0%	10.8%	0.0%	10.0%	0.0%	0.0%
8.2.8 Wastewater Fire Damage	0							100.0%						0.0%
8.5 Wastewater Engineering	5,787,600	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	4,109,700			15.0%	15.0%	15.0%		15.0%				40.0%		0.0%
8.7 O&M Unallocated Reserve	4,477,900	2.6%	2.8%	12.4%	10.4%	9.8%	17.9%	23.4%	0.0%	10.8%	0.0%	10.0%	0.0%	0.0%
Total Support Costs	16,028,900	2.8%	1.1%	12.2%	13.2%	11.2%	12.2%	20.0%	5.4%	5.9%	0.0%	14.1%	1.8%	5.9%
<b>TOTAL GROUP</b>	<b>122,999,100</b>	<b>4.5%</b>	<b>2.8%</b>	<b>7.8%</b>	<b>11.2%</b>	<b>8.7%</b>	<b>11.1%</b>	<b>33.9%</b>	<b>3.0%</b>	<b>12.1%</b>	<b>0.0%</b>	<b>4.7%</b>	<b>0.2%</b>	<b>12.1%</b>
Indirect Allocation Factors		2.6%	2.8%	12.4%	10.4%	9.8%	17.9%	23.4%	0.0%	10.8%	0.0%	10.0%	0.0%	0.0%
Personnel	24,789,600	2.6%	2.8%	12.4%	10.4%	9.8%	17.9%	23.4%	0.0%	10.8%	0.0%	10.0%	0.0%	0.0%
All But Commodities	72,151,200	2.4%	1.7%	7.1%	8.1%	6.9%	11.4%	41.5%	1.6%	14.2%	0.0%	4.7%	0.4%	0.0%
* No Commodities														

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

Wastewater Operations Group Functional Allocation Matrix - FY 2019 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 Wastewater Plant, then for the supporting Divisions. The FY 2019 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	
<b>Part I - Water Reuse &amp; Reclamation Facility</b>														
<b>Personnel Costs</b>														
8.2.1 Wastewater Operations	1,257,900	94,300	50,300	100,700	201,300	150,900	125,800	471,700	0	0	0	62,900	0	0
8.2.2 Wastewater Process Contr	2,318,500	173,900	92,700	185,500	371,000	278,200	579,600	579,600	0	0	0	58,000	0	0
8.2.4 Wastewater Primary Proce	3,701,800	370,200	555,300	2,776,300	0	0	0	0	0	0	0	0	0	0
8.2.4 Wastewater Secondary Pr	3,997,200	0	0	0	1,998,600	1,998,600	0	0	0	0	0	0	0	0
8.2.5 Wastewater Dewatering Pi	3,723,300	0	0	0	0	3,723,300	0	0	0	0	0	0	0	0
8.2.6 Wastewater Incineration P	3,953,700	0	0	0	0	0	3,953,700	0	0	0	0	0	0	0
8.2.7 Biosolids Dryer Facility a	806,100	0	0	0	0	0	806,100	0	0	0	0	0	0	0
Total WRRF	19,758,500	638,400	698,300	3,062,500	2,570,900	2,427,700	4,428,700	5,811,100	0	0	0	120,900	0	0
<b>Electricity</b>														
8.2.1 Wastewater Operations	11,478,100	2,869,500	1,147,800	574,000	2,295,600	1,377,400	2,869,500	344,300	0	0	0	0	0	0
8.2.2 Wastewater Process Contr	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8.2.4 Wastewater Primary Proce	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8.2.4 Wastewater Secondary Pr	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8.2.5 Wastewater Dewatering Pi	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8.2.6 Wastewater Incineration P	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8.2.7 Biosolids Dryer Facility a	1,054,000	0	0	0	0	0	1,054,000	0	0	0	0	0	0	0
Total WRRF	12,532,100	2,869,500	1,147,800	574,000	2,295,600	1,377,400	2,869,500	1,398,300	0	0	0	0	0	0
<b>Chemicals</b>														
8.2.1 Wastewater Operations	1,200	0	0	500	100	500	0	100	0	0	0	0	0	0
8.2.2 Wastewater Process Contr	34,000	2,600	1,400	2,600	5,400	4,100	8,500	8,500	0	0	0	0	0	900
8.2.4 Wastewater Primary Proce	2,800,000	280,000	420,000	2,100,000	0	0	0	0	0	0	0	0	0	0
8.2.4 Wastewater Secondary Pr	5,270,500	0	0	(100)	2,635,300	2,635,300	0	0	0	0	0	0	0	0
8.2.5 Wastewater Dewatering Pi	1,000,000	0	0	0	0	0	1,000,000	0	0	0	0	0	0	0
8.2.6 Wastewater Incineration P	974,200	0	0	0	0	0	974,200	0	0	0	0	0	0	0
8.2.7 Biosolids Dryer Facility a	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total WRRF	10,079,900	282,600	421,400	2,103,000	2,640,800	2,639,900	1,008,500	982,800	0	0	0	0	0	900
<b>Other Utilities</b>														
8.2.1 Wastewater Operations	8,985,100	449,300	449,300	449,100	1,797,000	449,300	449,300	4,941,800	0	0	0	0	0	0
8.2.2 Wastewater Process Contr	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8.2.4 Wastewater Primary Proce	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8.2.4 Wastewater Secondary Pr	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8.2.5 Wastewater Dewatering Pi	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8.2.6 Wastewater Incineration P	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8.2.7 Biosolids Dryer Facility a	2,394,100	0	0	0	0	0	2,394,100	0	0	0	0	0	0	0
Total WRRF	11,379,200	449,300	449,300	449,100	1,797,000	449,300	449,300	7,335,900	0	0	0	0	0	0
<b>Other</b>														
8.2.1 Wastewater Operations	6,345,900	475,900	253,800	507,800	1,015,300	761,500	634,600	2,379,700	0	0	0	317,300	0	0
8.2.2 Wastewater Process Contr	2,897,700	217,300	115,900	232,000	463,600	347,700	724,400	724,400	0	0	0	72,400	0	0
8.2.4 Wastewater Primary Proce	1,013,000	101,300	152,000	759,700	0	0	0	0	0	0	0	0	0	0
8.2.4 Wastewater Secondary Pr	1,795,600	0	0	0	897,800	897,800	0	0	0	0	0	0	0	0
8.2.5 Wastewater Dewatering Pi	1,602,000	0	0	0	0	0	1,602,000	0	0	0	0	0	0	0
8.2.6 Wastewater Incineration P	0	0	0	0	0	0	0	944,500	0	0	0	0	0	0
8.2.7 Biosolids Dryer Facility a	18,901,500	0	0	0	0	0	18,901,500	0	0	0	0	0	0	0
Total WRRF	33,500,200	794,500	521,700	1,499,500	2,376,700	2,007,000	2,961,000	22,950,100	0	0	0	389,700	0	0
<b>TOTAL WRRF Budget</b>														

Wastewater Operations Group Functional Allocation Matrix - FY 2019 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 Wastewater Plant, then for the supporting Divisions. The FY 2019 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
8.2.1 Wastewater Operations	28,068,200	3,889,000	1,901,200	1,632,100	5,309,300	2,739,600	4,079,200	8,137,600	0	0	0	380,200	0	0
8.2.2 Wastewater Process Contr	5,250,200	393,800	210,000	420,100	840,000	630,000	1,312,500	1,312,500	0	0	0	130,400	0	900
8.2.4 Wastewater Primary Proce	7,514,800	751,500	1,127,300	5,636,000	0	0	0	0	0	0	0	0	0	0
8.2.4 Wastewater Secondary Prc	11,063,300	0	0	(100)	5,531,700	5,531,700	0	0	0	0	0	0	0	0
8.2.5 Wastewater Dewatering Pl	6,325,300	0	0	0	0	0	6,325,300	0	0	0	0	0	0	0
8.2.6 Wastewater Incineration P	5,872,400	0	0	0	0	0	0	5,872,400	0	0	0	0	0	0
8.2.7 Biosolids Dryer Facility a	23,155,700	0	0	0	0	0	0	23,155,700	0	0	0	0	0	0
<b>Total WRRF</b>	<b>87,249,900</b>	<b>5,034,300</b>	<b>3,238,500</b>	<b>7,688,100</b>	<b>11,681,000</b>	<b>8,901,300</b>	<b>11,717,000</b>	<b>38,478,200</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>510,600</b>	<b>0</b>	<b>900</b>
<b>Part 2 - Lift Stations</b>														
Personnel Costs	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Electricity	2,458,000	0	0	0	0	0	0	0	2,458,000	0	0	0	0	0
Chemicals	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Utilities	100,200	0	0	0	0	0	0	0	100,200	0	0	0	0	0
Other	300,800	0	0	0	0	0	0	0	300,800	0	0	0	0	0
<b>Total Lift Stations Costs</b>	<b>2,859,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2,859,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Part 3 - CSO Facilities</b>														
Personnel Costs	2,668,600	0	0	0	0	0	0	0	2,668,600	0	0	0	0	0
Electricity	992,900	0	0	0	0	0	0	0	992,900	0	0	0	0	0
Chemicals	1,200,000	0	0	0	0	0	0	0	1,200,000	0	0	0	0	0
Other Utilities	1,757,300	0	0	0	0	0	0	0	1,757,300	0	0	0	0	0
Other	7,285,700	0	0	0	0	0	0	0	7,285,700	0	0	0	0	0
<b>Total CSO Costs</b>	<b>13,904,500</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>13,904,500</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Part 4 - Industrial Waste Control</b>														
Personnel Costs	2,362,500	0	0	0	0	0	0	0	0	0	2,362,500	0	0	0
Electricity	57,600	0	0	0	0	0	0	0	0	0	57,600	0	0	0
Chemicals	10,500	0	0	0	0	0	0	0	0	0	10,500	0	0	0
Other Utilities	38,900	0	0	0	0	0	0	0	0	0	38,900	0	0	0
Other	487,300	0	0	0	0	0	0	0	0	0	487,300	0	0	0
<b>Total IWC Costs</b>	<b>2,956,800</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2,956,800</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Part 5 - Support Services</b>														
8.1 Chief Operating Officer Wa	1,653,700	42,600	46,600	204,300	171,500	162,000	295,400	387,700	0	178,000	0	165,700	0	0
8.2.8 Wastewater Fire Damage	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8.5 Wastewater Engineering	5,787,600	289,400	0	578,800	868,100	578,800	868,100	1,157,500	868,100	289,400	0	0	289,400	0
8.61 Analytical Laboratory	4,109,700	0	0	616,500	616,500	616,500	0	616,500	0	0	0	1,643,900	0	0
8.7 O&M Unallocated Reserve	4,477,900	115,300	126,100	553,200	464,400	438,500	800,000	1,049,700	0	482,000	0	448,600	0	0
<b>Total Support Costs</b>	<b>16,028,900</b>	<b>447,300</b>	<b>172,700</b>	<b>1,952,800</b>	<b>2,120,500</b>	<b>1,795,800</b>	<b>1,963,500</b>	<b>3,211,400</b>	<b>868,100</b>	<b>949,400</b>	<b>0</b>	<b>2,258,200</b>	<b>289,400</b>	<b>0</b>
<b>TOTAL GROUP</b>	<b>122,999,100</b>	<b>5,481,600</b>	<b>3,411,200</b>	<b>9,640,900</b>	<b>13,801,500</b>	<b>10,697,100</b>	<b>13,680,500</b>	<b>41,689,600</b>	<b>3,727,100</b>	<b>14,853,900</b>	<b>0</b>	<b>5,725,600</b>	<b>289,400</b>	<b>900</b>
Indirect Allocation Factors		1,722,300	1,220,000	5,140,800	5,815,700	5,013,500	8,257,800	29,918,700	1,168,900	10,243,700	0	3,360,400	289,400	0
Personnel	24,789,600	638,400	698,300	3,062,500	2,570,900	2,427,700	4,428,700	5,811,100	0	2,668,600	0	2,483,400	0	0
All But Commodities	72,151,200	1,722,300	1,220,000	5,140,800	5,815,700	5,013,500	8,257,800	29,918,700	1,168,900	10,243,700	0	3,360,400	289,400	0

\* No Commodities

Aligns with FY 2019 Budget  
 "Request" dated 01/04/18.  
 Subsequent modifications may occur.

Centralized Services Group Functional Allocation Matrix - FY 2019 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 allocate costs to Water and Sewer, as illustrated below - then for the supporting Divisions.  
 The FY 2019 allocation factors are based on historical data and judgement. The ongoing Cost Allocation Project will review these factors.

**Part I - Water / Sewer Allocation**

<b>Centralized Services</b>	
4.1 Chief Planning Officer	367,200
4.2 System Planning	3,147,200
4.3 System Analytics	8,168,300
4.4 Asset Management & Capit:	1,665,000
4.5 Energy Management	385,100
5.1 Field Services Director	2,871,000
5.2 Field Engineering	485,600
5.3 Field Service Operations	17,192,400
5.4 Facility Operations	9,634,500
5.5 Fleet Operations	2,350,900
12.1 Centralized Services Unall	3,436,100
7.1 Systems Control	18,527,200
<b>Total Centralized Services</b>	<b>68,230,500</b>

<b>Water / Sewer Allocation</b>			
<b>Allocation Factor</b>		<b>Allocated Budget</b>	
<u>Water</u>	<u>Sewer</u>	<u>Water</u>	<u>Sewer</u>
46.0%	54.0%	168,900	198,300
46.0%	54.0%	1,447,700	1,699,500
46.0%	54.0%	3,757,400	4,410,900
46.0%	54.0%	765,900	899,100
46.0%	54.0%	177,100	208,000
46.0%	54.0%	1,320,700	1,550,300
46.0%	54.0%	223,400	262,200
46.0%	54.0%	7,908,500	9,283,900
46.0%	54.0%	4,431,900	5,202,600
46.0%	54.0%	1,081,400	1,269,500
46.0%	54.0%	1,580,600	1,855,500
46.0%	54.0%	8,522,500	10,004,700
46.0%	54.0%	31,386,000	36,844,500

Phase 1 allocation  
 of Cost Allocation  
 Project review

Centralized Services Group Functional Allocation Matrix - FY 2019 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 allocate costs to Water and Sewer, as illustrated below - then for the supporting Divisions.  
 The FY 2019 allocation factors are based on historical data and judgement. The ongoing Cost Allocation Project will review these factors.

Part 2 - Water Functional Allocation		Water System Functional Categories						Water System Functional Cost Allocation				
		Water Plants	Reservoirs	Booster Stations	Transmission Mains	Master Meters	General	Water Plants	Reservoirs	Booster Stations	Transmission Mains	Master Meters
<b>Centralized Services</b>												
4.1 Chief Planning Officer	168,900						100.0%	57,400	0	78,400	25,400	7,700
4.2 System Planning	1,447,700	60.0%	0.0%	20.0%	20.0%		0.0%	868,600	0	289,500	289,500	0
4.3 System Analytics	3,757,400	50.0%	0.0%	20.0%	20.0%	10.0%	0.0%	1,878,700	0	751,500	751,500	375,700
4.4 Asset Management & Capit	765,900	60.0%	0.0%	20.0%	20.0%		0.0%	459,500	0	153,200	153,200	0
4.5 Energy Management	177,100	60.0%		40.0%			0.0%	106,300	0	70,800	0	0
5.1 Field Services Director	1,320,700		0.0%	40.00%	50.0%	10.0%	0.0%	0	0	528,300	660,400	132,100
5.2 Field Engineering	223,400						100.0%	75,900	0	103,700	33,600	10,200
5.3 Field Service Operations	7,908,500	35.0%	0.0%	30.0%	25.0%	10.0%	0.0%	2,768,000	0	2,372,600	1,977,100	790,900
5.4 Facility Operations	4,431,900	80.0%	0.0%	20.0%			0.0%	3,545,500	0	886,400	0	0
5.5 Fleet Operations	1,081,400						100.0%	367,400	0	501,900	162,500	49,600
12.1 Centralized Services Unall	1,580,600						100.0%	537,100	0	733,600	237,500	72,500
7.1 Systems Control	8,522,500		0.0%	95.00%	5.0%		0.0%	0	0	8,096,400	426,100	0
<b>Total Centralized Services</b>	<b>31,386,000</b>	<b>34.0%</b>	<b>0.0%</b>	<b>46.4%</b>	<b>15.0%</b>	<b>4.6%</b>		<b>10,664,400</b>	<b>0</b>	<b>14,566,300</b>	<b>4,716,800</b>	<b>1,438,700</b>
Direct Subtotal	28,331,700							9,626,600	0	13,148,700	4,257,800	1,298,700
Indirect Allocation Factors		34.0%	0.0%	46.4%	15.0%	4.6%						

Part 3 - Wastewater Functional Allocation		Wastewater System Functional Categories						Wastewater System Functional Cost Allocation					
		WRRF	Lift Stations	CSO Facilities	Interceptors	Industrial Waste Control	Master Meters	General	WRRF	Lift Stations	CSO Facilities	Interceptors	Industrial Waste Control
<b>Centralized Services</b>													
4.1 Chief Planning Officer	198,300						100.0%	57,000	75,900	0	50,300	0	15,200
4.2 System Planning	1,699,500	65.0%	10.0%	0.0%	10.0%		15.0%	1,104,700	170,000	0	170,000	0	254,900
4.3 System Analytics	4,410,900	65.0%	10.0%	0.0%	10.0%		15.0%	2,867,100	441,100	0	441,100	0	661,600
4.4 Asset Management & Capit	899,100	80.0%	10.0%	0.0%	10.0%		0.0%	719,300	89,900	0	89,900	0	0
4.5 Energy Management	208,000	90.0%	10.0%	0.0%			0.0%	187,200	20,800	0	0	0	0
5.1 Field Services Director	1,550,300		10.0%	0.0%	75.0%		15.0%	0	155,000	0	1,162,700	0	232,500
5.2 Field Engineering	262,200						100.0%	75,400	100,300	0	66,500	0	20,000
5.3 Field Service Operations	9,283,900		25.0%	0.0%	60.0%		15.0%	0	2,321,000	0	5,570,300	0	1,392,600
5.4 Facility Operations	5,202,600	90.0%	10.0%	0.0%			0.0%	4,682,300	520,300	0	0	0	0
5.5 Fleet Operations	1,269,500						100.0%	364,900	485,600	0	321,900	0	97,000
12.1 Centralized Services Unall	1,855,500						100.0%	533,400	709,800	0	470,600	0	141,800
7.1 Systems Control	10,004,700		90.0%	0.0%	10.0%		0.0%	0	9,004,200	0	1,000,500	0	0
<b>Total Centralized Services</b>	<b>36,844,500</b>	<b>28.7%</b>	<b>38.3%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>7.6%</b>	<b>10,591,300</b>	<b>14,093,900</b>	<b>0</b>	<b>9,343,800</b>	<b>0</b>	<b>2,815,600</b>
Direct Subtotal	33,259,000							9,560,600	12,722,300	0	8,434,500	0	2,541,600
Indirect Allocation Factors		28.7%	38.3%	0.0%	0.0%	0.0%	7.6%						

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

Aligns with FY 2019 Budget  
 "Request" dated 01/04/18.  
 Subsequent modifications may occur.

Administrative Services Group Functional Allocation Matrix - FY 2019 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 allocate costs to Water and Sewer, as illustrated below - then for the supporting Divisions.  
 The FY 2019 allocation factors are based on historical data and judgement. The ongoing Cost Allocation Project will review these factors.

		Part 1 - Water / Sewer Allocation			
		Allocation Factor		Allocated Budget	
		Water	Sewer	Water	Sewer
<b>Part 1 - Water / Sewer Allocation</b>					
<b>Administrative and Other Services</b>					
1.1 Board of Directors	198,900	46.0%	54.0%	91,500	107,400
1.2 Chief Executive Officer	616,500	46.0%	54.0%	283,600	332,900
1.3 Public Affairs	1,211,500	46.0%	54.0%	557,300	654,200
2.1 Chief Administrative Officer	675,700	46.0%	54.0%	310,800	364,900
2.2 General Counsel	3,288,200	46.0%	54.0%	1,512,600	1,775,600
2.3 Organizational Development	4,117,400	46.0%	54.0%	1,894,000	2,223,400
2.4 Risk Management and Safety	1,840,400	46.0%	54.0%	846,600	993,800
2.5 Risk Management Insurance Fund	1,000,000	46.0%	54.0%	460,000	540,000
3.1 Chief Financial Officer	711,300	46.0%	54.0%	327,200	384,100
3.2 Finance	3,994,700	46.0%	54.0%	1,837,600	2,157,100
3.3 Treasury	1,246,500	46.0%	54.0%	573,400	673,100
3.4 Public Finance	1,132,200	46.0%	54.0%	520,800	611,400
3.5 Procurement	3,238,200	46.0%	54.0%	1,489,600	1,748,600
3.6 Internal Audit & Lease Administration	479,700	46.0%	54.0%	220,700	259,000
3.7 Transformation	2,782,800	46.0%	54.0%	1,280,100	1,502,700
6.1 Chief Information Officer	1,104,400	46.0%	54.0%	508,100	596,300
6.2 Administration	1,132,900	46.0%	54.0%	521,100	611,800
6.3 Business Applications	5,010,600	46.0%	54.0%	2,304,900	2,705,700
6.4 Enterprise Applications	2,232,900	46.0%	54.0%	1,027,100	1,205,800
6.5 Infrastructure	14,646,100	46.0%	54.0%	6,737,200	7,908,900
6.6 Service Desk	3,633,100	46.0%	54.0%	1,671,200	1,961,900
10.1 Security	5,082,200	46.0%	54.0%	2,337,800	2,744,400
11.1 Transition	0	0.0%	0.0%	0	0
13.1 Administrative Services O&M Unallc	2,250,500	46.0%	54.0%	1,035,200	1,215,300
<b>Total Administrative Services</b>	<b>61,626,700</b>	<b>46.0%</b>	<b>54.0%</b>	<b>28,348,400</b>	<b>33,278,300</b>
Direct Subtotal	49,854,300			22,933,100	26,921,200
Indirect Allocation Factors					
Direct Executive Admin	11,457,500			5,270,500	6,187,000
Admin Indirect Allocation %s					
Direct Finance	12,874,100			5,922,200	6,951,900
Finance Indirect Allocation %s					
Direct IT	25,522,700			11,740,400	13,782,300
IT Indirect Allocation %s					

Phase 1 allocation  
 of Cost Allocation  
 Project review



Administrative Services Group Functional Allocation Matrix - FY 2019 Budget

ALL Admin & General treated as general overhead

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 allocate costs to Water and Sewer, as illustrated below - then for the supporting Divisions. The FY 2019 allocation factors are based on historical data and judgement. The ongoing Cost Allocation Project will review these factors.

	Part 2 - Allocation Basis				Allocated Administrative Costs - Water				Allocated Administrative Costs - Wastewater			
	Indirect Overhead	Allocable on Sales	Allocable on Customer	DWSD Only	Indirect Overhead	Allocable on Sales	Allocable on Customers	DWSD Only	Indirect Overhead	Allocable on Sales	Allocable on Customers	DWSD Only
<b>Part 1 - Water / Sewer Allocation</b>												
<b>Administrative and Other Services</b>												
1.1 Board of Directors	198,900				91,500	0	0	0	107,400	0	0	0
1.2 Chief Executive Officer	616,500				283,600	0	0	0	332,900	0	0	0
1.3 Public Affairs	1,211,500	100.0%			557,300	0	0	0	654,200	0	0	0
2.1 Chief Administrative Officer	675,700				310,800	0	0	0	364,900	0	0	0
2.2 General Counsel	3,288,200	100.0%			1,512,600	0	0	0	1,775,600	0	0	0
2.3 Organizational Development	4,117,400	100.0%			1,894,000	0	0	0	2,223,400	0	0	0
2.4 Risk Management and Safety	1,840,400	100.0%			846,600	0	0	0	993,800	0	0	0
2.5 Risk Management Insurance Fund	1,000,000	100.0%			460,000	0	0	0	540,000	0	0	0
3.1 Chief Financial Officer	711,300				327,200	0	0	0	384,100	0	0	0
3.2 Finance	3,994,700	100.0%			1,837,600	0	0	0	2,157,100	0	0	0
3.3 Treasury	1,246,500	100.0%			573,400	0	0	0	673,100	0	0	0
3.4 Public Finance	1,132,200	100.0%			520,800	0	0	0	611,400	0	0	0
3.5 Procurement	3,238,200	100.0%			1,489,600	0	0	0	1,748,600	0	0	0
3.6 Internal Audit & Lease Administration	479,700	100.0%			220,700	0	0	0	259,000	0	0	0
3.7 Transformation	2,782,800	100.0%			1,280,100	0	0	0	1,502,700	0	0	0
6.1 Chief Information Officer	1,104,400				508,100	0	0	0	596,300	0	0	0
6.2 Administration	1,132,900				521,100	0	0	0	611,800	0	0	0
6.3 Business Applications	5,010,600	100.0%			2,304,900	0	0	0	2,705,700	0	0	0
6.4 Enterprise Applications	2,232,900	100.0%			1,027,100	0	0	0	1,205,800	0	0	0
6.5 Infrastructure	14,646,100	100.0%			6,737,200	0	0	0	7,908,900	0	0	0
6.6 Service Desk	3,633,100	100.0%			1,671,200	0	0	0	1,961,900	0	0	0
10.1 Security	5,082,200	100.0%			2,337,800	0	0	0	2,744,400	0	0	0
11.1 Transition	0				0	0	0	0	0	0	0	0
13.1 Administrative Services O&M Unall	2,250,500				1,035,200	0	0	0	1,215,300	0	0	0
<b>Total Administrative Services</b>	<b>61,626,700</b>				<b>28,348,400</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>33,278,300</b>	<b>0</b>	<b>0</b>	<b>0</b>
Direct Subtotal	49,854,300				22,933,100	0	0	0	26,921,200	0	0	0
Indirect Allocation Factors					100.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%
Direct Executive Admin	11,457,500				5,270,500	0	0	0	6,187,000	0	0	0
Admin Indirect Allocation %s					100.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%
Direct Finance	12,874,100				5,922,200	0	0	0	6,951,900	0	0	0
Finance Indirect Allocation %s					100.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%
Direct IT	25,522,700				11,740,400	0	0	0	13,782,300	0	0	0
IT Indirect Allocation %s					100.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%

Consolidated Allocation of Water Operating Costs to Cost Pools - FY 2019 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 2019 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

	Water System Functional Operating Cost Allocation											Grand Total O&M
	Water Treatment Plant Allocation					Water Delivery Cost Allocation					Admin & General	
	Source of Supply	Low Lift Pumps	Purification	High Lift Pumps	General	Reservoirs	Booster Stations	Transmission Mains	Master Meters	General		
<b>Water Operations Group</b>												
Total	2,309,400	6,530,300	32,338,300	14,397,600	0	145,300	9,566,000	242,200	48,400	0		65,577,500
Power	478,200	3,825,300	4,781,400	10,041,400	0	0	9,292,000	0	0	0		28,418,300
Chemicals	0	0	6,080,700	0	0	0	0	0	0	0		6,080,700
Other Utilities	105,700	158,600	1,233,300	264,500	0	0	128,700	0	0	0		1,890,800
Subtotal w/o Commodities	1,725,500	2,546,400	20,242,900	4,091,700	0	145,300	145,300	242,200	48,400	0		29,187,700
WTP Allocation Factors	6.0%	8.9%	70.8%	14.3%								
<b>Centralized Services</b>												
Original Allocation					10,664,400	0	14,566,300	4,716,800	1,438,700	0		31,386,200
Allocation of General	643,300	949,300	7,546,500	1,525,400	(10,664,400)							100
Allocated Total	643,300	949,300	7,546,500	1,525,400	0	0	14,566,300	4,716,800	1,438,700	0		31,386,300
Subtotal "Direct" Total	2,952,700	7,479,600	39,884,800	15,923,000	0	145,300	24,132,300	4,959,000	1,487,100	0		96,963,800
Subtotal "Direct" w/o Commodities	2,368,800	3,495,700	27,789,400	5,617,100	0	145,300	14,711,600	4,959,000	1,487,100	0		60,574,000
Indirect Overhead Allocation Factors	3.9%	5.8%	45.9%	9.3%	0.0%	0.2%	24.3%	8.2%	2.5%	0.0%		
<b>Administrative Services</b>												
Original Allocation											28,348,400	28,348,400
Allocation of General	1,108,600	1,636,000	13,005,300	2,628,800	0	68,000	6,885,000	2,320,800	696,000	0	(28,348,400)	100
Allocated Total	1,108,600	1,636,000	13,005,300	2,628,800	0	68,000	6,885,000	2,320,800	696,000	0	0	28,348,500
<b>ALLOCATED GRAND TOTAL</b>	<b>4,061,300</b>	<b>9,115,600</b>	<b>52,890,100</b>	<b>18,551,800</b>	<b>0</b>	<b>213,300</b>	<b>31,017,300</b>	<b>7,279,800</b>	<b>2,183,100</b>	<b>0</b>	<b>0</b>	<b>125,312,300</b>

Step 2 - Develop Allocation Factors  
 Based on Prior Simplified Assumptions

	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
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 2019 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 2019 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		
<b>All Operating Costs</b>												
Source of Supply Power	478,200	239,100	239,100	0	0	0	0	0	0	0	0	478,200
Source of Supply Other	3,583,100	0	3,583,100	0	0	0	0	0	0	0	0	3,583,100
Low Lift Pumps Power	3,825,300	1,912,700	1,912,700	0	0	0	0	0	0	0	0	3,825,400
Low Lift Pumps Other	5,290,300	0	5,290,300	0	0	0	0	0	0	0	0	5,290,300
Purification Chemicals	6,080,700	6,080,700	0	0	0	0	0	0	0	0	0	6,080,700
Purification Other	46,809,400	0	46,809,400	0	0	0	0	0	0	0	0	46,809,400
High Lift Pumps Power	10,041,400	0	0	0	5,020,700	0	2,510,400	2,510,400	0	0	0	10,041,500
High Lift Pumps Other	8,510,400	0	0	0	0	8,510,400	0	0	0	0	0	8,510,400
Reservoirs	213,300	0	0	213,300	0	0	0	0	0	0	0	213,300
Booster Stations	31,017,300	0	0	0	15,508,700	0	7,754,300	7,754,300	0	0	0	31,017,300
Transmission Mains	7,279,800	0	0	0	7,279,800	0	0	0	0	0	0	7,279,800
Suburban Meters	2,183,100	0	0	0	0	0	0	0	2,183,100	0	0	2,183,100
<b>Total</b>	<b>125,312,300</b>	<b>8,232,500</b>	<b>57,834,600</b>	<b>213,300</b>	<b>7,279,800</b>	<b>20,529,400</b>	<b>8,510,400</b>	<b>10,264,700</b>	<b>10,264,700</b>	<b>2,183,100</b>	<b>0</b>	<b>125,312,500</b>
<i>Cost Pool Allocation Factor - All Costs</i>		<b>6.6%</b>	<b>46.2%</b>	<b>0.2%</b>	<b>5.8%</b>	<b>16.4%</b>	<b>6.8%</b>	<b>8.2%</b>	<b>8.2%</b>	<b>1.7%</b>	<b>0.0%</b>	
<b>Non-Commodity Costs</b>												
Source of Supply Power		0	0	0	0	0	0	0	0	0	0	0
Source of Supply Other	2,368,800	0	2,368,800	0	0	0	0	0	0	0	0	2,368,800
Low Lift Pumps Power	0	0	0	0	0	0	0	0	0	0	0	0
Low Lift Pumps Other	3,495,700	0	3,495,700	0	0	0	0	0	0	0	0	3,495,700
Purification Chemicals	0	0	0	0	0	0	0	0	0	0	0	0
Purification Other	27,789,400	0	27,789,400	0	0	0	0	0	0	0	0	27,789,400
High Lift Pumps Power	0	0	0	0	0	0	0	0	0	0	0	0
High Lift Pumps Other	5,617,100	0	0	0	0	5,617,100	0	0	0	0	0	5,617,100
Reservoirs	145,300	0	0	145,300	0	0	0	0	0	0	0	145,300
Booster Stations	14,711,600	0	0	0	7,355,800	0	3,677,900	3,677,900	0	0	0	14,711,600
Transmission Mains	4,959,000	0	0	0	4,959,000	0	0	0	0	0	0	4,959,000
Suburban Meters	1,487,100	0	0	0	0	0	0	0	1,487,100	0	0	1,487,100
<b>Total</b>	<b>60,574,000</b>	<b>0</b>	<b>33,653,900</b>	<b>145,300</b>	<b>4,959,000</b>	<b>7,355,800</b>	<b>5,617,100</b>	<b>3,677,900</b>	<b>3,677,900</b>	<b>1,487,100</b>	<b>0</b>	<b>60,574,000</b>
<i>Cost Pool Allocation Factor - Non Commodity Costs</i>		<b>0.0%</b>	<b>55.6%</b>	<b>0.2%</b>	<b>8.2%</b>	<b>12.1%</b>	<b>9.3%</b>	<b>6.1%</b>	<b>6.1%</b>	<b>2.5%</b>	<b>0.0%</b>	

Consolidated Allocation of Wastewater Operating Costs to Cost Pools - FY 2019 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 2019 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 8

	WRRF Cost Allocation								Wastewater Collection Cost Allocation					Admin & General	Grand Total O&M
	Primary Pumping	Rack & Grit	Primary Treatment	Aeration	Secondary Treatment	Dewatering	Sludge Disposal	General WRRF	Lift Stations	CSO Facilities	Interceptors	Industrial Waste Control	Master Meters		
<b>Wastewater Operations Group</b>															
Total	5,481,600	3,411,200	9,640,900	13,801,500	10,697,100	13,680,500	41,689,600		3,727,100	14,853,900	0	5,725,600	289,400		122,999,300
Power	2,869,500	1,147,800	574,000	2,295,600	1,377,400	2,869,500	1,398,300		0	0	0	0	0		12,532,100
Chemicals	282,600	421,400	2,103,000	2,640,800	2,639,900	1,008,500	982,800		0	0	0	0	0		10,079,900
Other Utilities	449,300	449,300	449,100	1,797,000	449,300	449,300	7,335,900		0	0	0	0	0		11,379,200
Subtotal w/o Commodities	1,880,200	1,392,700	6,514,800	7,068,100	6,230,500	9,353,200	31,972,600		3,727,100	14,853,900	0	5,725,600	289,400		89,008,100
WTP Allocation Factors	2.9%	2.2%	10.1%	11.0%	9.7%	14.5%	49.6%								100.0%
<b>Centralized Services</b>															
Original Allocation							10,591,300		14,093,900	0	9,343,800	0	2,815,600		36,844,600
Allocation of General	309,200	229,000	1,071,200	1,162,200	1,024,500	1,537,900	(10,591,300)								0
Allocated Total	309,200	229,000	1,071,200	1,162,200	1,024,500	1,537,900	0		14,093,900	0	9,343,800	0	2,815,600		36,844,600
Subtotal "Direct" Total	5,790,800	3,640,200	10,712,100	14,963,700	11,721,600	15,218,400	46,946,900	0	17,821,000	14,853,900	9,343,800	5,725,600	3,105,000		159,843,900
Subtotal "Direct" w/o Commodities	2,189,400	1,621,700	7,586,000	8,230,300	7,255,000	10,891,100	37,229,900	0	17,821,000	14,853,900	9,343,800	5,725,600	3,105,000		125,852,700
Indirect Overhead Allocation Factors	1.7%	1.3%	6.0%	6.5%	5.8%	8.7%	29.6%	0.0%	14.2%	11.8%	7.4%	4.5%	2.5%		100.0%
<b>Administrative Services</b>															
Original Allocation														33,278,300	33,278,300
Allocation of General	578,900	428,800	2,005,900	2,176,300	1,918,400	2,879,900	9,844,400	0	4,712,300	3,927,700	2,470,700	1,514,000	821,000	(33,278,300)	0
Allocated Total	578,900	428,800	2,005,900	2,176,300	1,918,400	2,879,900	9,844,400	0	4,712,300	3,927,700	2,470,700	1,514,000	821,000	0	33,278,300
<b>ALLOCATED GRAND TOTAL</b>	<b>6,369,700</b>	<b>4,069,000</b>	<b>12,718,000</b>	<b>17,140,000</b>	<b>13,640,000</b>	<b>18,098,300</b>	<b>56,791,300</b>	<b>0</b>	<b>22,533,300</b>	<b>18,781,600</b>	<b>11,814,500</b>	<b>7,239,600</b>	<b>3,926,000</b>	<b>0</b>	<b>193,122,200</b>

from Page 10

from page 12

Step 2 - Develop Allocation Factors  
 Based on Prior Simplified Assumptions

	Cost Pool Allocation									
	Flow	Common-to-All (SHAREs)				Suburban Wholesale	OMID Specific	CSO Facilities	Industrial Waste Control	Det Only Direct
	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	75.00%									
CSO Facilities						25.00%		100.00%		
Interceptors	96.50%						3.50%			
Industrial Waste Control								100.00%		
Suburban Meters						100.00%				

OMID figures estimated based on updated data review

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

Consolidated Allocation of Wastewater Operating Costs to Cost Pools - FY 2019 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 2019 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**

	Cost Pool Allocation											Allocated TOTAL
	Common-to-All (SHAREs)					Suburban Wholesale	OMID Specific	CSO Facilities	Industrial Waste Control	Det Only Direct		
	Flow	BOD	TSS	PHOS	FOG							
<b>All Operating Costs</b>												
Primary Pumping	6,369,700	6,369,700	0	0	0	0	0	0	0	0	0	6,369,700
Rack & Grit	4,069,000	4,069,000	0	0	0	0	0	0	0	0	0	4,069,000
Primary Chemical Addition	<b>2,103,000</b>	0	0	2,103,000	0	0	0	0	0	0	0	2,103,000
Primary Sedimentation	10,615,000	0	0	7,430,500	2,123,000	1,061,500	0	0	0	0	0	10,615,000
Aeration	17,140,000	0	17,140,000	0	0	0	0	0	0	0	0	17,140,000
Secondary Clarification	11,000,100	0	2,750,000	7,150,100	1,100,000	0	0	0	0	0	0	11,000,100
Chlorination	<b>2,639,900</b>	2,639,900	0	0	0	0	0	0	0	0	0	2,639,900
Dewatering	18,098,300	0	2,714,700	12,668,800	2,714,700	0	0	0	0	0	0	18,098,200
Sludge Treatment	56,791,300	0	8,518,700	39,753,900	8,518,700	0	0	0	0	0	0	56,791,300
Process Water & Outfall	0	0	0	0	0	0	0	0	0	0	0	0
Lift Stations	22,533,300	16,900,000	0	0	0	0	5,633,300	0	0	0	0	22,533,300
CSO Facilities	18,781,600	0	0	0	0	0	0	18,781,600	0	0	0	18,781,600
Interceptors	11,814,500	11,401,000	0	0	0	0	413,500	0	0	0	0	11,814,500
Industrial Waste Control	7,239,600	0	0	0	0	0	0	0	7,239,600	0	0	7,239,600
Suburban Meters	3,926,000	0	0	0	0	0	3,926,000	0	0	0	0	3,926,000
<b>Total</b>	<b>193,121,300</b>	<b>41,379,600</b>	<b>31,123,400</b>	<b>67,003,300</b>	<b>16,559,400</b>	<b>1,061,500</b>	<b>3,926,000</b>	<b>6,046,800</b>	<b>18,781,600</b>	<b>7,239,600</b>	<b>0</b>	<b>193,121,200</b>
<i>Cost Pool Allocation Factor - All Costs</i>		<b>21.4%</b>	<b>16.1%</b>	<b>34.7%</b>	<b>8.6%</b>	<b>0.5%</b>	<b>2.0%</b>	<b>3.1%</b>	<b>9.7%</b>	<b>3.7%</b>	<b>0.0%</b>	
<b>Non-Commodity Costs</b>												
Primary Pumping	2,189,400	2,189,400	0	0	0	0	0	0	0	0	0	2,189,400
Rack & Grit	1,621,700	1,621,700	0	0	0	0	0	0	0	0	0	1,621,700
Primary Chemical Addition	0	0	0	0	0	0	0	0	0	0	0	0
Primary Sedimentation	7,586,000	0	0	5,310,200	1,517,200	758,600	0	0	0	0	0	7,586,000
Aeration	8,230,300	0	8,230,300	0	0	0	0	0	0	0	0	8,230,300
Secondary Clarification	7,255,000	0	1,813,800	4,715,800	725,500	0	0	0	0	0	0	7,255,100
Chlorination	0	0	0	0	0	0	0	0	0	0	0	0
Dewatering	10,891,100	0	1,633,700	7,623,800	1,633,700	0	0	0	0	0	0	10,891,200
Sludge Treatment	37,229,900	0	5,584,500	26,060,900	5,584,500	0	0	0	0	0	0	37,229,900
Process Water & Outfall	0	0	0	0	0	0	0	0	0	0	0	0
Lift Stations	17,821,000	13,365,800	0	0	0	0	4,455,300	0	0	0	0	17,821,100
CSO Facilities	14,853,900	0	0	0	0	0	0	14,853,900	0	0	0	14,853,900
Interceptors	9,343,800	9,016,800	0	0	0	0	327,000	0	0	0	0	9,343,800
Industrial Waste Control	5,725,600	0	0	0	0	0	0	0	5,725,600	0	0	5,725,600
Suburban Meters	3,105,000	0	0	0	0	0	3,105,000	0	0	0	0	3,105,000
<b>Total</b>	<b>125,852,700</b>	<b>26,193,700</b>	<b>17,262,300</b>	<b>43,710,700</b>	<b>9,460,900</b>	<b>758,600</b>	<b>3,105,000</b>	<b>4,782,300</b>	<b>14,853,900</b>	<b>5,725,600</b>	<b>0</b>	<b>125,853,000</b>
<i>Cost Pool Allocation Factor - Non Commodity Costs</i>		<b>20.8%</b>	<b>13.7%</b>	<b>34.7%</b>	<b>7.5%</b>	<b>0.6%</b>	<b>2.5%</b>	<b>3.8%</b>	<b>11.8%</b>	<b>4.5%</b>	<b>0.0%</b>	

Allocation of Water 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 (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.

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 - 6/30/17 (Includes CWIP)				Allocate WRRF General				Reallocated Total - 6/30/17			
	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	40,033,000	4,560,200	35,472,800	3,040,200	24,837,000	3,585,700	21,251,300	2,388,300	64,870,000	8,145,900	56,724,100	5,428,500
2 Low Lift Pumping	49,757,100	8,838,100	40,919,000	5,892,100	30,869,900	6,949,500	23,920,400	4,628,700	80,627,000	15,787,600	64,839,400	10,520,800
3 Purification	447,057,000	37,781,600	409,275,400	25,258,000	277,359,500	29,708,200	247,651,300	19,842,100	724,416,500	67,489,800	656,926,700	45,100,100
4 High Lift Pumping	90,131,800	15,657,000	74,474,800	10,439,800	55,918,800	12,311,300	43,607,500	8,201,200	146,050,600	27,968,300	118,082,300	18,641,000
5 Reservoirs	58,389,400	4,277,100	54,112,300	2,864,200	0	0	0	0	58,389,400	4,277,100	54,112,300	2,864,200
6 Water Booster Stations	285,061,100	35,396,100	249,665,000	24,001,500					285,061,100	35,396,100	249,665,000	24,001,500
7 Transmission Mains	877,006,500	56,130,200	820,876,300	37,420,200					877,006,500	56,130,200	820,876,300	37,420,200
8 Wholesale Master Meters	1,782,200	13,100	1,769,100	8,700	17,820,000	130,000	17,690,000	90,000	19,602,200	143,100	19,459,100	98,700
9 Subtotal	1,849,218,100	162,653,400	1,686,564,700	108,924,700	406,805,200	52,684,700	354,120,500	35,150,300	2,256,023,300	215,338,100	2,040,685,200	144,075,000
10 Water Treatment General	406,805,200	52,684,800	354,120,400	35,150,300	(406,805,200)	(52,684,800)	(354,120,400)	(35,150,300)	0	0	0	0
11 DWSD Only	0	0	0	0	0	(100)	100	0	0	0	0	0
12 Total	2,256,023,300	215,338,200	2,040,685,100	144,075,000	0	(100)	100	0	2,256,023,300	215,338,100	2,040,685,200	144,075,000

Step 2 - Identify Capital Rev Req't

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	6/30/17 Asset Values				Capital Rev Req't Allocation		
	Acquisition Cost	Accumulated Depreciation	Net Book Value	Annual Depr Expense	Annual Depr Expense	Return on Rate Base	Total Capital Rev Req't
					~ (4)	~ rel (3)	
					60%	4.17%	
1 Source of Supply	64,870,000	8,145,900	56,724,100	5,428,500	3,257,100	2,363,800	5,620,900
2 Low Lift Pumping	80,627,000	15,787,600	64,839,400	10,520,800	6,312,500	2,702,000	9,014,500
3 Purification	724,416,500	67,489,800	656,926,700	45,100,100	27,060,100	27,375,800	54,435,900
4 High Lift Pumping	146,050,600	27,968,300	118,082,300	18,641,000	11,184,600	4,920,800	16,105,400
5 Reservoirs	58,389,400	4,277,100	54,112,300	2,864,200	1,718,500	2,255,000	3,973,500
6 Water Booster Stations	285,061,100	35,396,100	249,665,000	24,001,500	14,400,900	10,404,200	24,805,100
7 Transmission Mains	877,006,500	56,130,200	820,876,300	37,420,200	22,452,100	34,208,000	56,660,100
8 Wholesale Master Meters	19,602,200	143,100	19,459,100	98,700	59,200	810,900	870,100
9 Total	2,256,023,300	215,338,100	2,040,685,200	144,075,000	86,445,000	85,040,500	171,485,500

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

10 Debt Service	133,210,100						
11 Xfer to GLWA Regional I&E Account	38,024,900						
12 Xfer to Extra. Repair and Repl. Fund	250,500						
13 less: Non-Operating Revenue	0						
14 Total Capital Rev Req't	171,485,500	Allocate based on Utility Basis Concept -->			86,445,000	85,040,500	171,485,500
15 Relative "Utility Basis" Components					50.4%	49.6%	



Allocation of Water 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 (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.

Step 3 - Allocate to Cost Pools	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Total Capital		Cost Pools						
	Rev Req't	Cost Pool Allocation	Common-to-All			Sub Only	Det Only		
			Commod	Max Day	PH Incr	PH Dist	PH DE	Mtrs	Direct
1 Source of Supply	5,620,900	Max Day		5,620,900					
2 Low Lift Pumping	9,014,500	Max Day		9,014,500					
3 Purification	54,435,900	Max Day		54,435,900					
4 High Lift Pumping	16,105,400	Peak Hour Distance/Elevation					16,105,400		
5 Reservoirs	3,973,500	Peak Hour Increment			3,973,500				
6 Water Booster Stations	24,805,100	Peak Hour Distance/Elevation					24,805,100		
7 Transmission Mains	56,660,100	Peak Hour Distance				56,660,100			
8 Wholesale Master Meters	870,100	Suburban Meters						870,100	
9 Total	171,485,500		0	69,071,300	3,973,500	56,660,100	40,910,500	870,100	0
10 Capital Revenue Req't Allocation Factor			0.0%	40.3%	2.3%	33.0%	23.9%	0.5%	0.0%

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 2019 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.

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 - 6/30/17 (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	129,458,300	15,482,400	113,975,900	10,330,800	27,711,100	3,101,400	24,576,100	1,955,800	157,169,400	18,583,800	138,552,000	12,286,600
2 Rack & Grit	41,911,400	6,713,400	35,198,000	6,084,800	8,971,300	1,344,800	7,589,600	1,151,900	50,882,700	8,058,200	42,787,600	7,236,700
3 Primary Chemical Addition	0	0	0	0	0	0	0	0	0	0	0	0
4 Primary Sedimentation	213,642,800	21,790,900	191,851,900	14,527,300	45,731,100	4,365,200	41,368,200	2,750,200	259,373,900	26,156,100	233,220,100	17,277,500
5 Aeration	116,725,000	10,638,900	106,086,100	7,092,700	24,985,500	2,131,200	22,874,900	1,342,700	141,710,500	12,770,100	128,961,000	8,435,400
6 Secondary Clarification	175,540,700	18,653,100	156,887,600	14,573,900	37,575,200	3,736,600	33,829,000	2,759,000	213,115,900	22,389,700	190,716,600	17,332,900
7 Chlorination	0	0	0	0	0	0	0	0	0	0	0	0
8 Dewatering	0	0	0	0	0	0	0	0	0	0	0	0
9 Sludge Treatment	518,033,300	57,222,800	460,810,500	39,887,200	110,887,200	11,462,900	99,362,500	7,551,200	628,920,500	68,685,700	560,173,000	47,438,400
10 Process Water & Outfall	152,720,700	7,883,600	144,837,100	5,255,700	32,690,500	1,579,200	31,230,600	995,000	185,411,200	9,462,800	176,067,700	6,250,700
11 Lift Stations	321,242,900	21,172,500	300,070,400	14,119,600					321,242,900	21,172,500	300,070,400	14,119,600
12 CSO Facilities	560,820,000	27,987,000	532,833,000	18,659,100					560,820,000	27,987,000	532,833,000	18,659,100
13 Interceptors	394,781,000	11,431,000	383,350,000	7,621,300					394,781,000	11,431,000	383,350,000	7,621,300
14 Industrial Waste Control	3,275,100	455,400	2,819,700	303,600					3,275,100	455,400	2,819,700	303,600
15 Suburban Meters	60,474,200	5,109,900	55,364,300	3,406,600					60,474,200	5,109,900	55,364,300	3,406,600
16 OMID Facilities	22,705,800	3,070,000	19,635,800	2,046,700					22,705,800	3,070,000	19,635,800	2,046,700
17 Subtotal	2,711,331,200	207,610,900	2,503,720,300	143,909,300	288,551,900	27,721,300	260,830,900	18,505,800	2,999,883,100	235,332,200	2,764,551,200	162,415,100
18 WRRF General	288,552,000	27,721,300	260,830,700	18,505,900	(288,552,000)	(27,721,300)	(260,830,700)	(18,505,900)	0	0	0	0
19 Wastewater General	138,652,400	35,994,700	102,657,700	24,030,900					138,652,400	35,994,700	102,657,700	24,030,900
20 DWSD Only	0	0	0	0					0	0	0	0
21 Total	3,138,535,600	271,326,900	2,867,208,700	186,446,100	(100)	0	200	(100)	3,138,535,500	271,326,900	2,867,208,900	186,446,000

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.

	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
	Acquisition Cost	Accumulated Depreciation	Net Book Value	Annual Depr Expense	Acquisition Cost	Accumulated Depreciation	Net Book Value	Annual Depr Expense
1 Primary Pumping	7,264,300	2,842,400	5,144,900	1,817,900	164,433,700	21,426,200	143,696,900	14,104,500
2 Rack & Grit	2,351,800	1,232,500	1,588,900	1,070,700	53,234,500	9,290,700	44,376,500	8,307,400
3 Primary Chemical Addition	0	0	0	0	0	0	0	0
4 Primary Sedimentation	11,988,100	4,000,600	8,660,300	2,556,400	271,362,000	30,156,700	241,880,400	19,833,900
5 Aeration	6,549,800	1,953,200	4,788,800	1,248,100	148,260,300	14,723,300	133,749,800	9,683,500
6 Secondary Clarification	9,850,100	3,424,600	7,082,000	2,564,600	222,966,000	25,814,300	197,798,600	19,897,500
7 Chlorination	0	0	0	0	0	0	0	0
8 Dewatering	0	0	0	0	0	0	0	0
9 Sludge Treatment	29,068,200	10,505,700	20,801,200	7,019,000	657,988,700	79,191,400	580,974,200	54,457,400
10 Process Water & Outfall	8,569,600	1,447,400	6,538,000	924,900	193,980,800	10,910,200	182,605,700	7,175,600
11 Lift Stations	14,847,600	3,238,400	11,142,700	2,089,100	336,090,500	24,410,900	311,213,100	16,208,700
12 CSO Facilities	25,920,700	4,280,700	19,786,000	2,760,800	586,740,700	32,267,700	552,619,000	21,419,900
13 Interceptors	18,246,500	1,748,400	14,235,200	1,127,600	413,027,500	13,179,400	397,585,200	8,748,900
14 Industrial Waste Control	151,400	69,700	104,700	44,900	3,426,500	525,100	2,924,400	348,500
15 Suburban Meters	2,795,100	781,600	2,055,900	504,000	63,269,300	5,891,500	57,420,200	3,910,600
16 OMID Facilities	1,049,400	469,600	729,100	302,800	23,755,200	3,539,600	20,364,900	2,349,500
17 Subtotal	138,652,600	35,994,800	102,657,700	24,030,800	3,138,535,700	271,327,000	2,867,208,900	186,445,900
18 WWRF General					0	0	0	0
19 Wastewater General	(138,652,400)	(35,994,700)	(102,657,700)	(24,030,900)	0	0	0	0
20 DWSD Only					0	0	0	0
21 Total	200	100	0	(100)	3,138,535,700	271,327,000	2,867,208,900	186,445,900

### 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 (debt service, etc) to Cost Pools and Custom

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.

Adjustment to approximate "pre valuation" depreciation expense

**Step 2 - Identify Capital Rev Req't**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	6/30/17 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) <b>60%</b>	~ rel (3) <b>3.88%</b>	
1 Primary Pumping	164,433,700	21,426,200	143,696,900	14,104,500	8,462,700	5,572,600	14,035,300
2 Rack & Grit	53,234,500	9,290,700	44,376,500	8,307,400	4,984,400	1,720,900	6,705,300
3 Primary Chemical Addition	0	0	0	0	0	0	0
4 Primary Sedimentation	271,362,000	30,156,700	241,880,400	19,833,900	11,900,300	9,380,100	21,280,400
5 Aeration	148,260,300	14,723,300	133,749,800	9,683,500	5,810,100	5,186,800	10,996,900
6 Secondary Clarification	222,966,000	25,814,300	197,798,600	19,897,500	11,938,500	7,670,600	19,609,100
7 Chlorination	0	0	0	0	0	0	0
8 Dewatering	0	0	0	0	0	0	0
9 Sludge Treatment	657,988,700	79,191,400	580,974,200	54,457,400	32,674,400	22,530,200	55,204,600
10 Process Water & Outfall	193,980,800	10,910,200	182,605,700	7,175,600	4,305,400	7,081,400	11,386,800
11 Lift Stations	336,090,500	24,410,900	311,213,100	16,208,700	9,725,200	12,068,800	21,794,000
12 CSO Facilities	586,740,700	32,267,700	552,619,000	21,419,900	12,851,900	21,430,600	34,282,500
13 Interceptors	413,027,500	13,179,400	397,585,200	8,748,900	5,249,300	15,418,300	20,667,600
14 Industrial Waste Control	3,426,500	525,100	2,924,400	348,500	209,100	113,400	322,500
15 Suburban Meters	63,269,300	5,891,500	57,420,200	3,910,600	2,346,400	2,226,800	4,573,200
16 OMID Facilities	23,755,200	3,539,600	20,364,900	2,349,500	1,409,700	789,800	2,199,500
17 Total	3,138,535,700	271,327,000	2,867,208,900	186,445,900	111,867,400	111,190,300	223,057,700

Effective Utility Basis Rate of Return

Capital Revenue Requirement

18 Debt Service	214,991,000						
19 Xfer to GLWA Regional I&E Account	12,010,600						
20 Xfer to Extra. Repair and Repl. Fund	627,000						
21 less: Non-Operating Revenue	(4,570,900)						
22 Total Capital Rev Req't	223,057,700	Allocate based on Utility Basis Concept -->			111,867,400	111,190,300	223,057,700
23 Relative "Utility Basis" Components					50.2%	49.8%	



THE FOSTER GROUP

PRELIMINARY

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 2019 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.

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

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

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)																	
																		Capital Revenue Requirement Allocation Factors							Allocation of Capital Revenue Requirements to Cost Pools									
																		Common-to-All (SHAREs)							Common-to-All (SHAREs)					Suburban	OMID	CSO	Industrial	Det Only
Total Capital Rev Req't	Flow	BOD	TSS	PHOS	FOG	Other	Flow	BOD	TSS	PHOS	FOG	Wholesale	Specific	Facilities	Waste Control	Direct																		
1 Primary Pumping	14,035,300	100%						14,035,300	0	0	0	0																						
2 Rack & Grit	6,705,300	100%						6,705,300	0	0	0	0																						
3 Primary Chemical Addition	0				100%			0	0	0	0	0																						
4 Primary Sedimentation	21,280,400	85%		10%		5%		18,088,300	0	2,128,000	0	1,064,000																						
5 Aeration	10,996,900	20%	80%					2,199,400	8,797,500	0	0	0																						
6 Secondary Clarification	19,609,100	65%	35%					12,745,900	6,863,200	0	0	0																						
7 Chlorination	0	100%						0	0	0	0	0																						
8 Dewatering	0		15%	70%	15%			0	0	0	0	0																						
9 Sludge Treatment	55,204,600		15%	70%	15%			0	8,280,700	38,643,200	8,280,700	0																						
10 Process Water & Outfall	11,386,800	100%						11,386,800	0	0	0	0																						
11 Lift Stations	21,794,000	100%						21,794,000	0	0	0	0																						
12 CSO Facilities	34,282,500		Direct Cost Pool Allocation												34,282,500																			
13 Interceptors	20,667,600	96.5%				3.5%		19,944,200	0	0	0	0		723,400																				
14 Industrial Waste Control	322,500		Direct Cost Pool Allocation													322,500																		
15 Suburban Meters	4,573,200		Direct Cost Pool Allocation									4,573,200																						
16 OMID Facilities	2,199,500		Direct Cost Pool Allocation										2,199,500																					
17 Total	223,057,700							106,899,200	23,941,400	40,771,200	8,280,700	1,064,000	4,573,200	2,922,900	34,282,500	322,500	0																	
18 Capital Revenue Req't Allocation Factor								47.9%	10.7%	18.3%	3.7%	0.5%	2.1%	1.3%	15.4%	0.1%	0.0%																	

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

Approximate inch-mile proportion of OMID only interceptors relative to total interceptor inventory

O&M factors from page 14

Consolidated Water Revenue Requirement Allocated to Cost Pools - FY 2019 Budget

Goal is to use allocation factors resulting from detailed review to allocate the final 2019 BUDGET figures for the FY 2019 Charges

Allocation Factors from Detailed Review

Capital factors from page 18

		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	6.6%	46.2%	0.2%	5.8%	16.4%	6.8%	8.2%	8.2%	1.7%	0.0%
O&M Expense - Non-Commodity	2	0.0%	55.6%	0.2%	8.2%	12.1%	9.3%	6.1%	6.1%	2.5%	0.0%
Capital Revenue Requirements	3	0.0%	40.8%	2.2%	31.3%	0.0%	0.0%	25.3%	0.0%	0.4%	0.0%

Apply Allocation Factors to BUDGET

		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	
<b>BUDGET Elements</b>														
1	Regional System O&M Expense	125,311,800	1	8,232,500	57,834,300	213,300	7,279,800	20,529,300	8,510,400	10,264,600	10,264,600	2,183,100	0	125,311,900
2	Pension Obligation - Operating Portion	6,048,000	2	0	3,360,200	14,500	495,100	734,400	560,800	367,200	367,200	148,500	0	6,047,900
3	Debt Service	133,210,100	3	0	54,356,600	2,976,400	41,645,400	0	0	33,702,900	0	528,900	0	133,210,200
4	Non-Operating Portion of Pension Oblig	6,268,300	2	0	3,482,600	15,000	513,200	761,200	581,300	380,600	380,600	153,900	0	6,268,400
5	Transfer to WRAP Fund	1,564,800	4	41,700	681,700	20,600	313,200	111,600	48,900	275,300	55,800	16,000	0	1,564,800
6	Transfer to Extra. Repair and Repl. Fund	250,500	3	0	102,200	5,600	78,300	0	0	63,400	0	1,000	0	250,500
7	Lease Payment - Transfer to Detroit Local I&E	22,500,000	4	599,700	9,801,700	296,400	4,503,500	1,604,500	703,200	3,958,200	802,200	230,600	0	22,500,000
8	Transfer to GLWA Regional I&E Account	38,024,900	3	0	15,516,100	849,600	11,887,700	0	0	9,620,500	0	151,000	0	38,024,900
9	Operating Reserves	1,502,700	1	98,700	693,500	2,600	87,300	246,200	102,100	123,100	123,100	26,200	0	1,502,800
10	<b>Total Gross BUDGET</b>	<b>334,681,100</b>		<b>8,972,600</b>	<b>145,828,900</b>	<b>4,394,000</b>	<b>66,803,500</b>	<b>23,987,200</b>	<b>10,506,700</b>	<b>58,755,800</b>	<b>11,993,500</b>	<b>3,439,200</b>	<b>0</b>	<b>334,681,400</b>
11	less: Revenue from Non-Contract Cust	0	4	0	0	0	0	0	0	0	0	0	0	0
12	less: Non-Operating Revenue	(3,836,600)	4	(102,300)	(1,671,300)	(50,500)	(767,900)	(273,600)	(119,900)	(674,900)	(136,800)	(39,300)	0	(3,836,500)
13	<b>Net BUDGET Req'd from Charges</b>	<b>330,844,500</b>		<b>8,870,300</b>	<b>144,157,600</b>	<b>4,343,500</b>	<b>66,035,600</b>	<b>23,713,600</b>	<b>10,386,800</b>	<b>58,080,900</b>	<b>11,856,700</b>	<b>3,399,900</b>	<b>0</b>	<b>330,844,900</b>
14	<i>Subtotal Direct Elements</i>			<i>8,232,500</i>	<i>134,549,800</i>	<i>4,068,800</i>	<i>61,821,200</i>	<i>22,024,900</i>	<i>9,652,500</i>	<i>54,335,800</i>	<i>11,012,400</i>	<i>3,165,400</i>	<i>0</i>	<i>308,863,300</i>
15	<i>Allocation Factors for Indirect Elements</i>		4	<i>2.7%</i>	<i>43.6%</i>	<i>1.3%</i>	<i>20.0%</i>	<i>7.1%</i>	<i>3.1%</i>	<i>17.6%</i>	<i>3.6%</i>	<i>1.0%</i>	<i>0.0%</i>	

THIS IS WATER TABLE 3 IN THE FY 2018 COST OF SERVICE STUDY MEMORANDUM

O&M factors from page 16

Consolidated Sewer Revenue Requirement Allocated to Cost Pools - FY 2019 Budget

Goal is to use allocation factors resulting from detailed review to allocate the final 2019 BUDGET figures for the FY 2019 Charges

Allocation Factors from Detailed Review			Cost Pool Allocation									
			Common-to-All (SHAREs)					Suburban	OMID	CSO	Industrial	Det Only
			Flow	BOD	TSS	PHOS	FOG	Wholesale	Specific	Facilities	Waste Control	Direct
O&M Expense - Total	1		21.4%	16.1%	34.7%	8.6%	0.5%	2.0%	3.1%	9.7%	3.7%	0.0%
O&M Expense - Non-Commodity	2		20.8%	13.7%	34.7%	7.5%	0.6%	2.5%	3.8%	11.8%	4.5%	0.0%
Capital Revenue Requirements	3		47.9%	10.7%	18.3%	3.7%	0.5%	2.1%	1.3%	15.4%	0.1%	0.0%

Apply Allocation Factors to BUDGET			Cost Pool Allocation									Allocated	
	Budget to Allocate	Allocation Basis	Common-to-All (SHAREs)					Suburban	OMID	CSO	Industrial	Det Only	TOTAL
			Flow	BOD	TSS	PHOS	FOG	Wholesale	Specific	Facilities	Waste Control	Direct	
<b>BUDGET Elements</b>													
1 Regional System O&M Expense	193,122,000	1	41,379,800	31,123,500	67,003,600	16,559,500	1,061,500	3,926,000	6,046,800	18,781,700	7,239,600	0	193,122,000
2 Pension Obligation - Operating Portion	10,824,000	2	2,252,800	1,484,600	3,759,300	813,700	65,200	267,000	411,300	1,277,500	492,400	0	10,823,800
3 Debt Service	214,991,000	3	103,033,300	23,075,600	39,296,800	7,981,200	1,025,500	4,407,800	2,817,200	33,042,700	310,800	0	214,990,900
4 Non-Operating Portion of Pension Oblig	11,620,700	2	2,418,600	1,593,900	4,036,000	873,600	70,000	286,700	441,600	1,371,500	528,700	0	11,620,600
5 Transfer to WRAP Fund	2,261,000	4	791,100	299,200	594,100	136,300	11,600	46,700	50,400	287,700	43,900	0	2,261,000
6 Transfer to Extra. Repair and Repl. Fund	627,000	3	300,500	67,300	114,600	23,300	3,000	12,900	8,200	96,400	900	0	627,100
7 Lease Payment - Transfer to Detroit Local I&E	27,500,000	4	9,621,400	3,639,200	7,226,000	1,657,400	141,600	567,500	613,600	3,499,500	533,700	0	27,499,900
8 Transfer to GLWA Regional I&E Account	12,010,600	3	5,756,000	1,289,100	2,195,300	445,900	57,300	246,200	157,400	1,846,000	17,400	0	12,010,600
9 Operating Reserves	1,853,800	1	397,200	298,800	643,200	159,000	10,200	37,700	58,000	180,300	69,500	0	1,853,900
10 Total Gross BUDGET	474,810,100		165,950,700	62,871,200	124,868,900	28,649,900	2,445,900	9,798,500	10,604,500	60,383,300	9,236,900	0	474,809,800
11 less: Non-Operating Revenue	(4,570,900)	4	(1,599,200)	(604,900)	(1,201,100)	(275,500)	(23,500)	(94,300)	(102,000)	(581,700)	(88,700)	0	(4,570,900)
12 Net BUDGET Req'd from Charges	470,239,200		164,351,500	62,266,300	123,667,800	28,374,400	2,422,400	9,704,200	10,502,500	59,801,600	9,148,200	0	470,238,900
13 Subtotal Direct Elements			154,840,500	58,566,700	116,291,000	26,673,900	2,279,500	9,133,700	9,874,300	56,319,400	8,588,900	0	442,567,900
14 Allocation Factors for Indirect Elements		4	35.0%	13.2%	26.3%	6.0%	0.5%	2.1%	2.2%	12.7%	1.9%	0.0%	

THIS IS SEWER TABLE 3 IN THE FY 2018 COST OF SERVICE STUDY MEMORANDUM



## THE FOSTER GROUP

P.O. BOX 26282  
LEAWOOD, KS 66225  
TEL: (913) 345-1410  
FAX: (913) 345-1640

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

### MEMORANDUM

Bad Debt Expense Treatment for FY 2019 Charges  
Suburban Wholesale Sewer Customer Class

February 2, 2018

To: Sue McCormick, Nickie Bateson

From: Bart Foster

This memorandum has been prepared to introduce the treatment of bad debt expense in our proposed FY 2019 Sewage Disposal System Cost of Service Allocations and Service Charge schedules. This topic has been discussed at length during presentations of Sewer Service Charges, and much of this commentary is unchanged from prior documents. The intent of this memorandum is to present developments for the FY 2019 Charges.

#### Background and FY 2017 Service Charge Treatment

- Since the late 1990's the prospective revenue requirements allocable to the Detroit customer class have included an estimated level of bad debt expense for the class.
- The suburban wholesale **sewer** customer revenue requirement started reflecting a similar **prospective** bad debt expense (associated with Highland Park) starting in FY 2016.
- The 1995 **Sewer** Rate Settlement Agreement requires a "true-up" of actual vs. projected bad debt expense by **both customer classes** (suburban to suburban and Detroit to Detroit), a concept that is now contained within the service agreements.
  - *See pages B-V-2 and B-V-3, of the Detroit Services Agreement, which directs: "The Authority shall review the differences between the projected bad debt expense assigned to specific customer classes (noted below) in a rate year and the actual bad debt expense incurred for that rate year. Any negative variance between the projected bad debt expense and the actual bad debt expense incurred for that year shall be incorporated into the revenue requirement for the next-commencing rate year to insure that revenue shortfalls due to nonpayment of sewer charges are recovered."*
- The concept immediately above was traditionally implemented via the "Look-Back" process. The final Look-Back analysis was the "5-year LBA" completing a "true-up" process for the five years ending with FY 2012.
  - *The adjustments to implement the 5-year LBA were structurally designed to recover adjustments via a phased implementation plan, the last year of which was*

*FY 2016. So none of the 5-year LBA was included in the FY 2017 service charges.*

- While the 5-year LBA was being finally and fully implemented, DWSD and the suburban customer group agreed to defer bad debt expense “true-ups” that were realized during FY 2013 and 2014.
  - *So bad debt expense from FYs 2013, 2014, and 2015, which have never been “trued-up” in prospective cost allocations and service charges, needed to be implemented starting with the FY 2017 service charges.*
- GLWA proposed (and implemented) a “phased” approach to this topic effective with the FY 2017 Sewer Service Charges. Under the original approach, the total sum of bad debt expense associated with Highland Park for FYs 2013, 2014, and 2015 (\$17.295 million) was scheduled to be recovered in equal installments of approximately \$3.459 million over five years, starting in FY 2017 and running through FY 2021.
  - *See attached exhibit, Line 2.*
- For the FY 2018 Sewer Service Charges, GLWA recognized the improved collections from Highland Park. The FY 2016 actual bad debt expense for Highland Park was lower than what was included in the FY 2016 Charges, resulting in a \$2.594 million “true-up” that served to reduce service Charges. GLWA continued the strategy to reflect this true-up in equal installments through FY 2021, and applied a credit of \$648,500 in the FY 2018 Charges.
  - *See attached exhibit, Line 3*

#### FY 2017 Bad Debt and FY 2019 Service Charges

While the receivable balance for the Highland Park account continues to grow, Highland Park’s periodic payments continue to increase. The preliminary review of the FY 2017 audit work papers indicate that FY 2017 bad debt expense attributable to Highland Park will total approximately \$2.782 million. Since the FY 2017 Sewer Service Charges assumed that no payments would be made, and included a total “projected bad debt expense” of approximately \$5.6 million in the prospective FY 2017 Charges, application of the terms of the “bad debt true-up” provision results in a credit totaling approximately \$2.817 million.

We recommend continuing the strategy of implementing this amount on the same basis that was established the past two years, and effectively “netting” it against the existing implementation schedule. This concept is illustrated on Line 4 of the attached exhibit. Also, our Sewer Service Charge recommendations recognize the partial payments being made by Highland Park. Rather than computing a “projected bad debt expense” that reflects 20 percent of total billings to Highland Park, our calculations assume that collections will equal 50 percent of total billings. This assumption results in a reduction in the impact on FY 2019 Service Charges Customers of the “prospective bad debt expense”, as shown on Line 1 of the attached exhibit.

The combined effect of these changes is to lower the total amount that must be included in the annual Suburban Wholesale revenue requirement related to Highland Park bad debt from approximately \$7.2 million in the FY 2018 Charges to approximately \$4.65 million in the FY 2019 Charges. This reduction of over \$2.5 million results in a more moderate average charge increase than would have otherwise been experienced, as illustrated below.

*Impact of Highland Park Collection Assumptions on annual revenue requirements included in Sewer Wholesale Service Charges - (\$ millions)*

	<u>Existing Charges</u>	<u>Proposed Charges</u>	<u>Variance</u>	<u>% Variance</u>
Projected Bad Debt Expense	4.39	2.78	(1.61)	-36.7%
Bad Debt True-Up	2.82	1.87	(0.94)	-33.5%
Total	<u>7.20</u>	<u>4.65</u>	<u>(2.55)</u>	-35.4%
Relative % of Suburban Revenue	2.7%	1.7%	-1.0%	

We are available to discuss this matter at your convenience.