



## THE FOSTER GROUP

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### MEMORANDUM

FY 2018 Cost of Service Study and Service  
Charge Recommendations

February 12, 2017

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 2018. 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 2018 is scheduled for March 1, 2017.

This is the second 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 2018 Financial Plan and Service Charges is introduced in our memorandum of January 19, 2017, which is included as an appendix to this document, and is incorporated by reference. Other supporting documents outlining developments related to the recommended FY 2018 Service Charges are similarly incorporated by reference herein, some of which are also included as appendices to this document.

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. FY 2018 BUDGET depicted herein is a “bottom line” budget.
  - *As further explained herein, the FY 2018 BUDGET included in these calculations reflects budgetary increases that are LESS THAN the full implementation of the 4% Revenue Requirement Increase set forth the Lease(s).*
  - *It is our understanding that the final FY 2018 BUDGET will likely contain modifications to the current 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 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 largely consistent with the Capital Financing Plan set forth in the projections contained in disclosure documents supporting DWSD’s issuance of revenue and revenue refunding bonds in October 2016.*
  - *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 2018 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 2018 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.

- *Terms of “Obligation Payable” from DWSD to GLWA (Local System share of debt service);*
  - *Allocation of responsibility for Pension Reimbursement payments;*
  - *Allocation of responsibility for payments on the B and C notes related to legacy employee benefit obligations (OPEB).*
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 2017) service charges, although specific operating programs as reflected in the budget request for FY 2018 do impact the cost pool allocations.

The exhibits to this memorandum contain executive summary material on:

- The determination of the PRELIMINARY FY 2018 BUDGET;
- The allocation of PRELIMINARY FY 2018 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 2018 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. 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, including at the final Customer rollout meeting scheduled for February 16. Additional material is being prepared to support that review.

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

*[Remainder of this page intentionally left blank]*

### **Water Service Charge Calculation Tables:**

1. Illustrates the development of the comprehensive Water Supply System BUDGET for FY 2018, separated into GLWA Regional System Wholesale Items (Lines 1 through 15), initial estimated DWSD Retail Local System items (Lines 16 through 25), and for the Consolidated Systems, (Lines 26 through 39). The FY 2018 GLWA Regional System Wholesale Items on Lines 1 through 15 reflect the Wholesale Service BUDGET (or “revenue requirements”) that is allocated to Customers in this study. Of note:
  - The DWSD Retail Local System items shown on Lines 16 through 25 are preliminary and provided for informational purposes only, and to support overall revenue figures for purposes of evaluation of Master Bond Ordinance compliance. Many of these items are still being developed, and are therefore designated as **TBD** – “to be determined”. ***These items are not allocated to Suburban Wholesale Customers and do not impact Suburban Wholesale Service Charges.***
  - Since the “Consolidated Systems” figures are reliant on the Local System figures, many of these items are also **TBD**.
  - The total FY 2018 Wholesale Service BUDGET reflects NO INCREASE from the FY 2017 BUDGET, as shown on Line 12 of the table. The financial plan anticipates approximately \$4 million of revenue from continued interim emergency service to the City of Flint for the first quarter of FY 2018, and a slight increase in interest income and related non-operating revenue. ***The Cost of Service Study calculations delineated herein allocate responsibility for the “Revenue Requirement from Charges” totaling \$324.2 million on Line 15 of Column 2 of the table.***
  
2. Illustrates details for the debt service budget for FY 2018, compared to the FY 2017 Budget and to figures in existence prior to the issuance of the Series 2016 Water and Sewer Revenue and Revenue Refunding Bonds in October 2016. *Note that this table presents information for both the Water and Sewer systems.*
  - As noted in the table, the allocation of long term Debt Service to the Regional and Local Systems is subject to final analysis and review. As this process continues GLWA has held the FY 2018 debt service allocation to the Local System at the levels established by the FY 2016 Cost of Service Study. This practice was employed for the FY 2017 Budget and has been continued for the FY 2018 Budget. The FY 2018 Water debt service budget also includes debt service on new instruments issued on behalf of the Local System.

- The combined results of the Water refunding and the optimized structure of the new money Water bonds results in budgetary annual Regional System debt service savings of \$19.4 million.
3. Allocates the FY 2018 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. There are a few items of note:
- Prior studies included a “Suburban Only – Customer Outreach” Cost Pool. In the FY 2018 BUDGET these costs are being treated as an administrative and general cost allocated to all cost pools and therefore to all Customers, including the Detroit Customer Class. The only costs that are specifically allocated to the “Suburban Only” are those costs related to the suburban master meters.
  - The preliminary operating expense budget reflects the detailed review of specific cost elements, and results in a shift of operating expenses from commodity and peak hour Cost Pools to max day Cost Pools.
  - Similarly, the portion of the BUDGET related to operating expense is higher for FY 2018 than for FY 2017 due to the savings resulting from the refunding bonds and a re-categorization of certain short-term capital budget items into the operating budget. Since the capital revenue requirements are largely allocable to peak hour cost pools, this development also shifts total BUDGET from peak hour Cost Pools to max day Cost Pools.
  - We note that this analysis does not include a “Detroit Only” Cost Pool.
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 2018 the projected volume was determined by averaging annual sales for each Customer over the most recent 36 months from October 2013 through September 2016. 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 two very low demand years and one moderately high demand year.

- *The max day and peak hour demand figures highlighted in green in Table 4a reflect figures from Exhibit B of the contract for those Customers served under the model contract. Demands for all other Customers are determined using a uniform analytical approach.* Tables 4b and 4c then combine these basic characteristics into consolidated units that align with Cost Pools.
  - *Note that we have not included the City of Flint, the Genesee County Drain Commission, nor the City of Highland Park as wholesale Customers for purposes of the FY 2018 Cost of Service Study. Service Charges for any service to these Customers will be handled separately.*
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 “Detroit capital ownership adjustment” identified in the MOU and the Lease. *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 Pools, based on the units of service information from Table 4, and presents the total BUDGET required from charges for each Customer.
  10. Calculates the proposed wholesale service charge structure for each Customer. The proposed service charge structure for FY 2018 represents the same approach as the existing charge structure, which was originally implemented for FY 2016. 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.

**Sewer Service Charge Calculation Tables:**

1. Illustrates the development of the comprehensive Sewage Disposal System BUDGET for FY 2018, separated into GLWA Regional System Wholesale Items (Lines 1 through 14), initial estimated DWSD Retail Local System items (Lines 15 through 24), and for the Consolidated Systems, (Lines 25 through 37). The FY 2018 GLWA Regional System Wholesale Items on Lines 1 through 14 reflect the Wholesale Service BUDGET (or "revenue requirements") that is allocated to Customers in this study. Of note:
  - The DWSD Retail Local System items shown on Lines 15 through 24 are preliminary and provided for informational purposes only, and to support overall revenue figures for purposes of evaluation of Master Bond Ordinance compliance. Many of these items are still being developed, and are therefore designated as **TBD** – "to be determined". ***These items are not allocated to Suburban Wholesale Customers and do not impact Suburban Wholesale Service Charges.***
  - Since the "Consolidated Systems" figures are reliant on the Local System figures, many of these items are also **TBD**.
  - The total FY 2018 Wholesale Service BUDGET reflects a 2% increase from the FY 2017 BUDGET, as shown on Line 12 of the table. ***The Cost of Service Study calculations delineated herein allocate responsibility for the "Revenue Requirement from Charges" totaling \$478.4 million on Line 14 of Column 2 of the table.***
  
2. Illustrates details for the debt service budget for FY 2018, compared to the FY 2017 Budget and to figures in existence prior to the issuance of the Series 2016 Water and Sewer Revenue and Revenue Refunding Bonds in October 2016. *Note that this table presents information for both the Water and Sewer systems.*
  - As noted in the table, the allocation of long term Debt Service to the Regional and Local Systems is subject to final analysis and review. As this process continues GLWA has held the FY 2018 debt service allocation to the Local System at the levels established by the FY 2016 Cost of Service Study. This practice was employed for the FY 2017 Budget and has been continued for the

FY 2018 Budget. The FY 2018 Water debt service budget also includes debt service on new instruments issued on behalf of the Local System.

- The Sewer refunding resulted in more moderate budgetary Regional System debt service savings of approximately \$6.7 million.
3. Allocates the FY 2018 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. There are a few items of note:
    - Prior studies included a “Suburban Only – Customer Outreach” Cost Pool. In the FY 2018 BUDGET these costs are being treated as an administrative and general cost allocated to all cost pools and therefore to all Customers, including the Detroit Customer Class. The only costs that are specifically allocated to the “Suburban Wholesale” Cost Pool are those costs related to the suburban master meters and related facilities.
    - The preliminary operating expense budget reflects the detailed review of specific cost elements, and results in a moderate shift of operating expenses amongst Cost Pools.
    - We note that this analysis does not include a “Detroit Only” Cost Pool.
  4. 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.
  5. Presents the proposed SHARES for FY 2018. ***The SHARES for FY 2018 are the result of a detailed analysis conducted as part of a scheduled update. The process followed to develop these figures, and the specific recommendations and calculations, are set forth in numerous documents, including our “Recommended FY 2018 SHARES” memorandum included as an appendix to this document.***
  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 2018 Service Charge calculations assume that Highland Park will continue partial payments during FY 2018, and that collections will approximate 20 percent of total billings. The Service Agreement protocol calls for the remaining 80 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 FYs 2013, 2014, 2015, and 2016. ***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 2017 “Industrial Specific” charges – the Industrial Waste Control service charges and the pollutant surcharges.

Table 1  
Water Supply System  
Comprehensive Summary of FY 2018 BUDGET Elements - \$ millions

	(1)	(2)	(3)	(4)	
	FY 2017	FY 2018	FY 2018 vs. FY 2017		
			Variance	% Variance	
<b><u>GLWA Regional System Wholesale Items</u></b>					
1	Regional System O&M Expense	111.9	111.6	(0.3)	-0.3%
2	<i>Re-Categorized "Capital Outlay"</i>		<b>10.0</b>	10.0	NA
3	Total Regional System O&M Expense	111.9	121.6	9.7	8.7%
4	Pension Obligation - Operating Portion	6.0	6.0	0.0	0.0%
5	Regional System Debt Service	159.3	138.6	(20.7)	-13.0%
6	Transfer to Pension Obligation Payment Fund	6.0	6.4	0.4	6.0%
7	Transfer to WRAP Fund	1.6	1.7	0.1	4.0%
8	Transfer to Extra. Repair and Repl. Fund	0.0	0.5	0.5	0.0%
9	Lease Payment - Transfer to Detroit Local I&E	22.5	22.5	0.0	0.0%
10	Transfer to GLWA Regional I&E Account	23.8	32.8	9.0	37.8%
11	Operating Reserves	0.0	1.1	1.1	0.0%
12	Total	331.2	331.2	0.0	<b>0.0%</b>
13	<i>less: Revenue from Non-Contract Customers</i>		(4.0)	(4.0)	0.0%
14	<i>less: Non-Operating Revenue</i>	(2.1)	(3.0)	(0.9)	42.9%
15	Net BUDGET Req'd from Charges to Customers	329.1	324.2	(4.9)	-1.5%
<b><u>DWSD Local System Retail Items</u></b>					
16	Local System O&M Expense	33.6	37.1	3.5	10.4%
17	Pension Obligation - Operating Portion	4.3	4.3	0.0	0.0%
18	Local System Debt Service	31.2	34.4	3.2	10.2%
19	Transfer to Pension Obligation Payment Fund	4.3	4.5	0.3	6.0%
20	Transfer to WRAP Fund	0.4	0.4	0.0	4.0%
21	Transfer to Budget Stabilization Fund	0.4	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>
22	Transfer to DWSD Local I&E Account	3.0	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>
23	Total	77.1	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>
24	<i>less: Non-Operating Revenue</i>	(4.5)	(4.8)	(0.3)	5.6%
25	Net BUDGET Req'd from Charges to Customers	72.6	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>
<b><u>CONSOLIDATED SYSTEMS</u></b>					
26	O&M Expense	145.5	158.6	13.2	9.1%
27	Pension Obligation - Operating Portion	10.3	10.3	0.0	0.0%
28	Debt Service	190.5	173.0	(17.5)	-9.2%
29	Transfer to Pension Obligation Payment Fund	10.3	10.9	0.6	6.0%
30	Transfer to WRAP Fund	2.1	2.2	0.1	4.0%
31	Transfer to Budget Stabilization Fund	0.4	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>
32	Transfer to Extra. Repair and Repl. Fund	0.0	0.5	0.5	0.0%
33	Lease Payment - Transfer to Detroit Local I&E	22.5	22.5	0.0	0.0%
34	Transfer to I&E Fund	26.8	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>
35	Operating Reserves	0.0	1.1	1.1	0.0%
36	Total	408.3	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>
37	<i>less: Revenue from Non-Contract Customers</i>	0.0	(4.0)	(4.0)	0.0%
38	<i>less: Non-Operating Revenue</i>	(6.6)	(7.7)	(1.1)	17.4%
39	Net BUDGET Req'd from Charges to Customers	401.7	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>

Table 2  
Debt Service Comparison Summary - \$ millions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	FY 2017 Budget		Pre-2016 Bonds		2016 Bonds Results		Impact of 2016 Bonds		Budget to Budget Var	
	FY 2017	FY 2018	FY 2017	FY 2018	FY 2017	FY 2018	FY 2017	FY 2018	FY 2017	FY 2018
							(5) - (3)	(6) - (4)	(5) - (1)	(6) - (2)
<b>Water Supply System</b>										
1 Existing Sr. and 2nd Revenue Bonds	175.4	174.0	175.4	174.0	164.7	157.9	(10.7)	(16.0)	(10.7)	(16.0)
2 Series 2016 New Money Bonds	12.6	12.6	11.0	16.1	8.5	12.6	(2.5)	(3.5)	(4.0)	0.0
3 Subtotal	187.9	186.6	186.4	190.1	173.2	170.5	(13.1)	(19.6)	(14.7)	(16.0)
4 DWRF Junior Lien Bonds	2.6	2.5	2.0	2.4	2.0	2.4	0.0	0.0	(0.5)	(0.1)
5 Total	190.5	189.1	188.4	192.5	175.3	173.0	(13.1)	(19.6)	(15.2)	(16.2)
6 less: Debt Service Allocated to Local System	31.2	31.2	31.2	31.2	31.2	34.4	0.0	3.2	0.0	3.2
7 Debt Service Allocated to Regional System	159.3	157.9	157.2	161.3	144.0	138.6	(13.1)	(22.7)	(15.2)	(19.4)
<b>Sewage Disposal System</b>										
8 Existing Sr. and 2nd Revenue Bonds	187.8	187.7	187.6	187.7	181.0	177.1	(6.6)	(10.6)	(6.8)	(10.6)
9 Planned Series 2017 New Money Bonds	0.0	0.0	0.0	3.6	0.0	3.6	0.0	0.0	0.0	3.6
10 Subtotal	187.8	187.7	187.6	191.2	181.0	180.7	(6.6)	(10.6)	(6.8)	(7.0)
11 CWRf Junior Lien Bonds *	57.2	57.2	56.9	57.5	56.8	57.5	(0.1)	(0.0)	(0.4)	0.3
12 Total	245.0	244.9	244.5	248.8	237.8	238.2	(6.7)	(10.6)	(7.2)	(6.7)
13 less: Debt Service Allocated to Local System	22.6	22.6	22.6	22.6	22.6	22.6	0.0	0.0	0.0	0.0
14 Debt Service Allocated to Regional System	222.4	222.4	221.9	226.2	215.3	215.6	(6.7)	(10.6)	(7.2)	(6.7)
<b>Combined Water and Sewer</b>										
15 Existing Sr. and 2nd Revenue Bonds	363.1	361.7	363.0	361.7	345.7	335.0	(17.3)	(26.6)	(17.5)	(26.6)
16 Planned Series 2017 New Money Bonds	12.6	12.6	11.0	19.7	8.5	16.2	(2.5)	(3.5)	(4.0)	3.6
17 Subtotal	375.7	374.3	374.0	381.4	354.2	351.2	(19.8)	(30.2)	(21.5)	(23.1)
18 CWRf Junior Lien Bonds *	59.8	59.8	58.9	60.0	58.9	59.9	(0.1)	(0.0)	(0.9)	0.1
19 Total	435.5	434.1	432.9	441.3	413.1	411.1	(19.8)	(30.2)	(22.4)	(22.9)
20 less: Debt Service Allocated to Local System	53.8	53.8	53.8	53.8	53.8	57.0	0.0	3.2	0.0	3.2
21 Debt Service Allocated to Regional System	381.7	380.3	379.1	387.5	359.3	354.2	(19.8)	(33.3)	(22.4)	(26.1)
<b>Local System Debt Service Allocation</b>										
<u>Water System Local Debt Service</u>										
22 Existing Sr. & 2nd Bonds @ 12/31/15 (a)	29.4	29.4	29.4	29.4	29.4	29.4	0.0	0.0	0.0	0.0
23 Existing DWRF Bonds @ 12/31/15 (a)	1.8	1.8	1.8	1.8	1.8	1.8	0.0	0.0	0.0	0.0
24 Subtotal	31.2	31.2	31.2	31.2	31.2	31.2	0.0	0.0	0.0	0.0
25 2016 DWRF Bonds	NA	NA	NA	NA	0.4	0.4	0.4	0.4	0.4	0.4
26 2016 New Money Bonds	NA	NA	NA	NA	2.5	2.5	2.5	2.5	2.5	2.5
27 2017 Projected DWRF Bonds	NA	NA	NA	NA	0.2	0.2	0.2	0.2	0.2	0.2
28 Total Debt Service - Local Water System	31.2	31.2	31.2	31.2	31.2	34.4	0.0	3.2	0.0	3.2
<u>Sewer System Local Debt Service</u>										
29 Existing Sr. & 2nd Bonds @ 12/31/15 (a)	22.6	22.6	22.6	22.6	22.6	22.6	0.0	0.0	0.0	0.0

(a) The allocation of long term Debt Service to the Regional and Local Systems is subject to final analysis and review. As this process continues GLWA has held the FY 2018 debt service allocation to the Local System at the levels established by the FY 2016 Cost of Service Study. This practice was employed for the FY 2017 Budget and has been continued for the FY 2018 Budget. The FY 2018 Water debt service budget also includes debt service on new instruments issued on behalf of the Local System.

\* Includes some CWRf Loans that are actually Sr. Lien

Table 3  
Water Supply System  
Allocation of FY 2018 GLWA Wholesale Service BUDGET to Cost Pools

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Amount to Allocate	Cost Pools								
		Commod	Max Day	PH Incr	PH Dist	Comm DE	MD DE	PH DE	PHI DE	Sub Only
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
<b>BUDGET Elements</b>										
1 Regional System O&M Expense	121,562,600	8,586,400	56,529,900	331,000	5,707,900	20,097,100	8,401,400	10,048,600	10,048,600	1,811,800
2 Pension Obligation - Operating Portion	6,037,100	0	3,403,100	23,800	409,900	744,400	581,700	372,200	372,200	130,100
3 Debt Service	138,558,400	0	61,560,500	6,779,900	24,695,800	0	0	44,687,100	0	835,200
4 Non-Operating Portion of Pension Oblig	6,396,300	0	3,605,500	25,200	434,200	788,700	616,300	394,300	394,300	137,800
5 Transfer to WRAP Fund	1,711,100	48,100	782,700	49,100	207,900	121,200	53,800	370,300	60,600	17,400
6 Transfer to Extra. Repair and Repl. Fund	528,600	0	234,900	25,900	94,200	0	0	170,500	0	3,200
7 Lease Payment - Transfer to Detroit Local I&E	22,500,000	632,600	10,291,700	645,900	2,733,300	1,593,700	707,300	4,869,300	796,900	229,300
8 Transfer to GLWA Regional I&E Account	32,821,200	0	14,582,200	1,606,000	5,849,800	0	0	10,585,300	0	197,800
9 Operating Reserves	1,097,900	77,500	510,600	3,000	51,600	181,500	75,900	90,800	90,800	16,400
10 Total Gross BUDGET	331,213,200	9,344,600	151,501,100	9,489,800	40,184,600	23,526,600	10,436,400	71,588,400	11,763,400	3,379,000
11 less: Revenue from Non-Contract Cust	(4,000,000)	(112,500)	(1,829,600)	(114,800)	(485,900)	(283,300)	(125,700)	(865,700)	(141,700)	(40,800)
12 less: Non-Operating Revenue	(2,968,900)	(83,500)	(1,358,000)	(85,200)	(360,700)	(210,300)	(93,300)	(642,500)	(105,100)	(30,300)
13 Net BUDGET Req'd from Charges	324,244,300	9,148,600	148,313,500	9,289,800	39,338,000	23,033,000	10,217,400	70,080,200	11,516,600	3,307,900
<b>Summary - BUDGET Required from Charges</b>										
14 Net Operating Expenses	127,129,300	8,558,700	59,707,100	353,400	6,094,100	20,767,600	8,948,900	10,383,300	10,383,800	1,934,400
15 Net Capital Requirements	197,115,000	589,900	88,606,400	8,936,400	33,243,900	2,265,400	1,268,500	59,696,900	1,132,800	1,373,500
16 Total	324,244,300	9,148,600	148,313,500	9,289,800	39,338,000	23,033,000	10,217,400	70,080,200	11,516,600	3,307,900

Table 4a  
Water Supply System  
FY 2018 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	135,500	5.70	8.40	21.0	602.0	961
2	Almont Village	9,000	0.40	0.44	37.9	802.0	115
3	Ash Township	40,200	1.57	2.10	29.9	635.0	160
4	Belleville	14,300	0.55	0.81	32.5	677.0	123
5	Berlin Township	29,000	1.29	2.05	34.6	598.0	211
6	Brownstown Township	138,500	6.90	11.30	28.5	601.0	523
7	Bruce Twp	1,040	0.11	0.53	32.8	767.0	115
8	Canton Township	335,600	22.50	36.00	32.2	741.0	1,820
9	Center Line	32,600	1.19	1.80	18.0	623.0	155
10	Chesterfield Township	163,400	8.75	12.00	28.3	616.0	725
11	Clinton Township	404,200	21.40	26.60	22.8	607.0	1,226
12	Commerce Township	97,800	6.32	11.60	31.4	967.0	520
13	Dearborn	619,800	25.69	33.81	20.3	605.0	3
14	Dearborn Heights	212,000	9.00	13.30	22.4	624.0	617
15	Eastpointe	114,100	4.00	6.10	18.1	612.0	1,013
16	Ecorse	149,300	3.80	4.40	20.1	591.0	285
17	Farmington	47,400	2.25	2.45	27.1	760.0	358
18	Farmington Hills	365,900	22.00	22.00	27.4	784.0	2,997
19	Ferndale	67,900	3.00	3.10	18.2	643.0	568
20	Flat Rock	64,000	2.60	3.50	29.7	601.0	335
21	Fraser	63,600	3.10	4.90	21.0	617.0	334
22	Garden City	89,600	3.35	5.35	25.0	638.0	491
23	Gibraltar	17,300	0.94	1.45	30.9	588.0	176
24	Grosse Ile Township	41,300	2.78	4.40	27.0	584.0	400
25	Grosse Pt. Park	61,100	3.60	6.07	18.0	583.0	291
26	Grosse Pt. Shores	19,700	1.43	2.67	18.9	587.0	283
27	Grosse Pt. Woods	72,000	4.96	4.96	18.9	587.0	461
28	Hamtramck	58,900	1.64	2.40	16.7	633.0	691
29	Harper Woods	57,300	2.34	3.25	18.4	598.0	357
30	Harrison Township	92,500	4.20	4.20	24.0	587.0	465
31	Hazel Park	51,400	1.70	2.44	18.1	639.0	546
32	Huron Township	61,200	3.00	4.19	29.9	635.0	278
33	Imlay City	37,700	1.66	1.66	45.9	908.0	155
34	Imlay Twp	80	0.012	0.024	42.7	825.0	80
35	Inkster	97,700	4.75	5.68	24.4	638.0	393
36	Keego Harbor	10,400	0.45	0.68	29.1	934.0	123
37	Lapeer	56,200	1.86	2.23	49.1	849.0	645
38	Lenox Township	17,400	0.49	0.78	30.5	619.0	400
39	Lincoln Park	142,800	5.50	8.00	20.4	593.0	813
40	Livonia	493,300	30.00	42.00	26.2	688.0	2,527
41	Macomb Township	311,100	25.10	36.50	26.8	622.0	1,050
42	Madison Heights	140,700	5.40	6.90	19.4	629.0	755
43	Mayfield Twp	550	0.02	0.05	48.3	839.0	155
44	Melvindale	44,700	1.70	2.30	19.9	594.0	533
45	New Haven, Village of	16,200	0.70	1.10	29.8	613.0	105

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Table 4a  
Water Supply System  
FY 2018 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>	
46	N O C W A	930,800	49.50	52.50	27.7	896.0	5,481
47	Northville	32,100	1.60	1.65	31.1	836.0	211
48	Northville Township	132,900	10.70	15.60	30.5	855.0	521
49	Novi	273,900	19.00	19.00	31.5	936.0	1,911
50	Oak Park	100,000	3.90	3.90	19.7	669.0	285
51	Oakland Co. Drain Comm.	8,600	0.15	0.15	20.4	617.0	115
52	Plymouth	42,000	1.81	2.62	30.8	750.0	203
53	Plymouth Township	169,900	10.00	10.00	31.3	793.0	315
54	Redford Township	172,500	7.90	11.50	22.6	635.0	1,829
55	River Rouge	53,100	1.80	2.40	19.4	585.0	431
56	Riverview	44,700	2.10	3.10	25.3	594.0	146
57	Rockwood	10,600	0.56	0.90	32.7	592.0	88
58	Romeo	6,000	0.45	0.63	32.2	789.0	155
59	Romulus	196,100	8.59	10.60	27.3	652.0	944
60	Roseville	199,100	6.70	9.50	19.0	620.0	885
61	Royal Oak Township	11,800	0.51	0.78	19.2	665.0	146
62	S O C W A	1,291,300	62.30	62.30	22.2	732.0	5,006
63	Shelby Township	399,300	25.00	44.50	26.4	694.0	1,246
64	South Rockwood	5,200	0.17	0.28	33.4	586.0	88
65	Southgate	123,500	5.20	7.40	23.7	601.0	361
66	St. Clair County-Burtchville T	8,100	0.48	0.68	47.2	620.0	105
67	St. Clair County-Greenwood	11,400	0.75	0.75	45.4	774.0	438
68	St. Clair Shores	207,000	9.50	10.00	20.2	594.0	1,239
69	Sterling Heights	615,900	38.00	58.00	22.3	632.0	3,218
70	Sumpter Township	29,100	1.12	1.75	32.9	663.0	123
71	Sylvan Lake	6,700	0.36	0.54	29.1	938.0	105
72	Taylor	281,400	12.00	16.00	23.5	616.0	1,078
73	Trenton	90,100	4.85	7.05	25.8	596.0	1,185
74	Troy	456,200	29.00	40.00	24.3	755.0	2,694
75	Utica	24,300	1.20	2.00	24.4	660.0	155
76	Van Buren Township	128,500	6.90	7.20	32.5	677.0	1,098
77	Walled Lake	30,800	1.38	1.94	31.7	959.0	123
78	Warren	683,900	31.00	35.00	18.0	623.0	2,292
79	Washington Township	70,500	5.40	5.40	29.6	754.0	278
80	Wayne	94,800	8.28	8.28	25.9	646.0	600
81	West Bloomfield Township	263,500	15.00	23.50	28.4	917.0	1,982
82	Westland	317,100	13.00	18.20	26.2	654.0	1,941
83	Wixom	69,000	5.10	5.10	33.9	944.0	155
84	Woodhaven	62,200	4.36	7.00	28.3	597.0	246
85	Ypsilanti Comm Util Auth	494,300	24.10	24.10	35.8	726.0	1,930
86	Subtotal Wholesale	13,244,470	689.43	888.28			66,689
87	Detroit Incl. Sub. Ind.	4,467,300	114.44	118.11	16.9	632.0	
88	Grand Total	17,711,770	803.87	1,006.38			66,689

Table 4b  
Water Supply System  
Detailed FY 2018 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	371.2	2,845,500	40.0	411.2	802.0	1,162.9	360.9	24,421.2	21.0	8,635.2	16,841.6	24,421.2	7,579.7
2 Almont Village	24.7	341,100	4.9	29.6	58.4	63.7	5.3	2,415.0	56.1	1,660.6	3,274.7	3,574.7	300.0
3 Ash Township	110.1	1,202,000	17.0	127.1	226.9	297.7	70.9	8,902.1	32.3	4,105.3	7,328.2	9,616.7	2,288.5
4 Belleville	39.2	464,800	6.6	45.8	79.9	115.3	35.4	3,746.7	38.8	1,777.0	3,098.4	4,473.0	1,374.5
5 Berlin Township	79.5	1,003,400	14.2	93.7	186.6	288.2	101.6	9,973.3	34.6	3,242.0	6,458.0	9,973.3	3,515.3
6 Brownstown Township	379.5	3,947,300	55.6	435.1	978.0	1,566.2	588.2	44,636.4	28.5	12,400.4	27,872.9	44,636.4	16,763.5
7 Bruce Twp	2.8	34,100	0.6	3.4	15.3	71.5	56.1	2,343.6	47.7	162.2	730.0	3,408.2	2,678.2
8 Canton Township	919.5	10,806,300	152.0	1,071.5	3,159.8	4,964.5	1,804.7	159,856.9	44.6	47,788.9	140,927.6	221,416.7	80,489.1
9 Center Line	89.3	586,800	8.2	97.5	167.3	248.8	81.5	4,478.8	19.2	1,872.0	3,211.8	4,777.4	1,565.7
10 Chesterfield Township	447.7	4,624,200	64.9	512.6	1,234.6	1,669.1	434.5	47,234.6	28.9	14,814.1	35,680.1	48,236.0	12,555.9
11 Clinton Township	1,107.4	9,215,800	129.6	1,237.0	2,990.4	3,685.5	695.1	84,029.5	22.8	28,203.6	68,180.3	84,029.5	15,849.2
12 Commerce Township	267.9	3,070,900	43.3	311.2	888.2	1,594.0	705.8	50,051.4	65.2	20,290.2	57,908.1	103,928.4	46,020.3
13 Dearborn	1,698.1	12,581,900	177.0	1,875.1	3,611.6	4,696.2	1,084.6	95,332.9	20.3	38,064.5	73,315.5	95,332.9	22,017.4
14 Dearborn Heights	580.8	4,748,800	66.9	647.7	1,270.0	1,844.9	574.8	41,324.7	23.7	15,350.5	30,099.6	43,723.0	13,623.4
15 Eastpointe	312.6	2,065,200	29.0	341.6	563.7	844.5	280.7	15,284.6	18.3	6,251.3	10,316.1	15,453.5	5,137.3
16 Ecorse	409.0	3,000,900	42.2	451.2	550.2	630.4	80.2	12,670.9	20.1	9,069.1	11,058.7	12,670.9	1,612.2
17 Farmington	129.9	1,284,500	18.0	147.9	318.8	345.5	26.7	9,363.5	41.3	6,108.3	13,165.7	14,269.9	1,104.2
18 Farmington Hills	1,002.5	10,025,700	141.1	1,143.6	3,082.1	3,082.1	0.0	84,448.8	43.9	50,204.0	135,303.0	135,303.0	0.0
19 Ferndale	186.0	1,235,800	17.3	203.3	418.3	431.7	13.4	7,857.1	21.3	4,330.3	8,910.7	9,195.4	284.7
20 Flat Rock	175.3	1,900,800	26.9	202.2	374.5	494.8	120.3	14,695.0	29.7	6,005.3	11,121.7	14,695.0	3,573.3
21 Fraser	174.2	1,335,600	19.0	193.2	433.4	674.0	240.6	14,154.7	21.7	4,192.4	9,405.0	14,626.6	5,221.6
22 Garden City	245.5	2,240,000	31.5	277.0	479.3	746.7	267.4	18,667.3	27.7	7,672.9	13,277.4	20,683.3	7,405.9
23 Gibraltar	47.4	534,600	7.4	54.8	133.3	201.6	68.3	6,230.0	30.9	1,693.3	4,118.9	6,230.0	2,111.1
24 Grosse Ile Township	113.2	1,115,100	15.6	128.8	387.8	603.8	216.1	16,303.8	27.0	3,477.6	10,469.8	16,303.8	5,834.0
25 Grosse Pt. Park	167.4	1,099,800	15.3	182.7	496.7	827.0	330.3	14,886.7	18.0	3,288.6	8,940.5	14,886.7	5,946.2
26 Grosse Pt. Shores	54.0	372,300	5.2	59.2	196.4	362.1	165.8	6,844.2	18.9	1,118.9	3,711.3	6,844.2	3,132.9
27 Grosse Pt. Woods	197.3	1,360,800	19.1	216.4	682.2	682.2	0.0	12,892.7	18.9	4,090.0	12,892.7	12,892.7	0.0
28 Hamtramck	161.4	983,600	13.7	175.1	232.9	334.5	101.6	5,586.7	18.9	3,309.4	4,402.5	6,322.7	1,920.2
29 Harper Woods	157.0	1,054,300	14.8	171.8	327.6	449.3	121.6	8,266.4	18.4	3,161.1	6,028.1	8,266.4	2,238.3
30 Harrison Township	253.4	2,220,000	31.3	284.7	592.8	592.8	0.0	14,226.2	24.0	6,832.8	14,226.2	14,226.2	0.0
31 Hazel Park	140.8	930,300	13.2	154.0	240.5	339.4	98.9	6,142.8	20.8	3,203.2	5,001.5	7,059.1	2,057.6
32 Huron Township	167.7	1,829,900	25.7	193.4	426.7	585.8	159.1	17,516.1	32.3	6,246.8	13,783.8	18,922.0	5,138.3
33 Imlay City	103.3	1,730,400	24.4	127.7	246.3	246.3	0.0	11,305.6	74.1	9,462.6	18,251.5	18,251.5	0.0
34 Imlay Twp	0.2	3,400	0.0	0.2	1.6	3.2	1.6	137.0	63.1	12.6	101.2	202.4	101.2
35 Inkster	267.7	2,383,900	33.4	301.1	668.7	793.1	124.5	19,352.8	27.1	8,159.8	18,121.6	21,494.3	3,372.6
36 Keego Harbor	28.5	302,600	4.4	32.9	64.6	95.3	30.7	2,773.3	59.8	1,967.4	3,860.5	5,699.1	1,838.6
37 Lapeer	154.0	2,759,400	38.9	192.9	287.5	337.0	49.5	16,547.1	71.7	13,830.9	20,617.0	24,163.4	3,546.4
38 Lenox Township	47.7	530,700	7.4	55.1	72.5	111.8	39.3	3,410.0	31.4	1,730.1	2,276.6	3,510.7	1,234.1
39 Lincoln Park	391.2	2,913,100	41.1	432.3	776.3	1,110.5	334.2	22,655.1	20.4	8,818.9	15,837.4	22,655.1	6,817.7
40 Livonia	1,351.5	12,924,500	181.7	1,533.2	4,192.1	5,796.3	1,604.2	151,862.6	33.6	51,515.5	140,855.1	194,755.1	53,900.0
41 Macomb Township	852.3	8,337,500	117.3	969.6	3,472.7	4,996.6	1,524.0	133,910.0	27.9	27,051.8	96,887.8	139,406.3	42,518.4
42 Madison Heights	385.5	2,729,600	38.3	423.8	760.2	960.7	200.5	18,637.5	21.2	8,984.6	16,115.7	20,366.8	4,251.0
43 Mayfield Twp	1.5	26,600	0.3	1.8	3.0	7.0	4.0	337.3	70.0	126.0	208.2	488.9	280.7
44 Melvindale	122.5	889,500	12.6	135.1	239.9	320.1	80.2	6,369.3	19.9	2,688.5	4,773.2	6,369.3	1,596.1
45 New Haven, Village of	44.4	482,800	6.8	51.2	100.4	153.8	53.5	4,584.7	30.1	1,541.1	3,021.3	4,630.8	1,609.5
46 N O C W A	2,550.1	25,783,200	362.8	2,912.9	6,980.0	7,381.0	401.0	204,454.5	54.8	159,626.9	382,503.3	404,480.4	21,977.1

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THE FOSTER GROUP

Table 4b  
Water Supply System  
Detailed FY 2018 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>
47 Northville	87.9	998,300	14.0	101.9	227.9	234.6	6.7	7,295.2	52.5	5,349.8	11,964.2	12,315.1	350.9
48 Northville Township	364.1	4,053,500	57.0	421.1	1,487.4	2,142.4	655.0	65,343.7	53.7	22,613.1	79,872.4	115,047.8	35,175.4
49 Novi	750.4	8,627,900	121.4	871.8	2,661.3	2,661.3	0.0	83,831.9	62.4	54,400.3	166,067.0	166,067.0	0.0
50 Oak Park	274.0	1,970,000	27.6	301.6	549.0	549.0	0.0	10,814.4	25.3	7,630.5	13,888.5	13,888.5	0.0
51 Oakland Co. Drain Comm.	23.6	175,400	2.4	26.0	22.2	22.2	0.0	452.6	21.1	548.6	468.1	468.1	0.0
52 Plymouth	115.1	1,293,600	18.1	133.2	260.1	368.3	108.3	11,345.0	44.1	5,874.1	11,468.7	16,243.9	4,775.2
53 Plymouth Township	465.5	5,317,900	74.8	540.3	1,411.6	1,411.6	0.0	44,183.3	48.6	26,258.6	68,604.0	68,604.0	0.0
54 Redford Township	472.6	3,898,500	54.8	527.4	1,110.9	1,592.1	481.2	35,982.1	25.0	13,185.0	27,771.9	39,803.2	12,031.2
55 River Rouge	145.5	1,030,100	14.5	160.0	255.1	335.3	80.2	6,505.5	19.4	3,104.0	4,949.4	6,505.5	1,556.0
56 Riverview	122.5	1,130,900	15.9	138.4	296.6	430.3	133.7	10,886.8	25.3	3,501.5	7,504.7	10,886.8	3,382.1
57 Rockwood	29.0	346,600	5.0	34.0	79.9	125.3	45.5	4,097.7	32.7	1,111.8	2,611.5	4,097.7	1,486.3
58 Romeo	16.4	193,200	2.8	19.2	63.0	87.0	24.1	2,802.0	49.2	944.6	3,097.4	4,281.3	1,183.9
59 Romulus	537.3	5,353,500	75.3	612.6	1,223.6	1,492.3	268.7	40,740.2	31.3	19,174.4	38,299.2	46,709.4	8,410.2
60 Roseville	545.5	3,782,900	53.1	598.6	948.8	1,323.1	374.3	25,138.2	19.9	11,912.1	18,880.3	26,329.0	7,448.7
61 Royal Oak Township	32.3	226,600	3.3	35.6	71.5	107.6	36.1	2,065.4	24.4	868.6	1,744.0	2,624.7	880.7
62 S O C W A	3,537.8	28,666,900	403.3	3,941.1	8,731.6	8,731.6	0.0	193,841.5	33.8	133,209.2	295,128.0	295,128.0	0.0
63 Shelby Township	1,094.0	10,541,500	148.2	1,242.2	3,490.2	6,097.0	2,606.8	160,960.4	34.4	42,731.7	120,063.3	209,736.3	89,672.9
64 South Rockwood	14.2	173,700	2.5	16.7	25.8	39.8	14.0	1,329.2	33.4	557.8	860.4	1,329.2	468.8
65 Southgate	338.4	2,927,000	41.1	379.5	736.2	1,030.3	294.1	24,419.0	23.7	8,994.2	17,448.9	24,419.0	6,970.1
66 St. Clair County-Burtchville T	22.2	382,300	5.5	27.7	69.4	96.4	27.0	4,550.2	48.1	1,332.4	3,338.1	4,637.0	1,298.9
67 St. Clair County-Greenwood	31.2	517,600	7.4	38.6	108.1	108.1	0.0	4,906.0	60.9	2,350.7	6,580.9	6,580.9	0.0
68 St. Clair Shores	567.1	4,181,400	58.9	626.0	1,328.9	1,395.7	66.8	28,193.3	20.2	12,645.2	26,843.1	28,193.3	1,350.2
69 Sterling Heights	1,687.4	13,734,600	193.1	1,880.5	5,273.0	7,946.6	2,673.6	177,208.5	24.4	45,884.2	128,660.2	193,896.3	65,236.1
70 Sumpter Township	79.7	957,400	13.5	93.2	163.2	247.4	84.2	8,140.8	37.9	3,532.3	6,186.1	9,378.0	3,191.9
71 Sylvan Lake	18.4	195,000	2.7	21.1	50.8	74.9	24.1	2,179.2	60.2	1,270.2	3,059.7	4,508.2	1,448.6
72 Taylor	771.0	6,612,900	92.8	863.8	1,697.0	2,231.7	534.7	52,444.7	24.1	20,817.6	40,896.9	53,783.7	12,886.8
73 Trenton	246.8	2,324,600	32.7	279.5	680.5	974.5	294.0	25,142.1	25.8	7,211.1	17,556.5	25,142.1	7,585.6
74 Troy	1,249.9	11,085,700	155.9	1,405.8	4,032.6	5,503.1	1,470.5	133,725.9	38.0	53,420.4	153,240.2	209,118.6	55,878.5
75 Utica	66.6	592,900	8.2	74.8	168.6	275.6	106.9	6,723.7	29.1	2,176.7	4,906.7	8,018.8	3,112.1
76 Van Buren Township	352.1	4,176,300	58.6	410.7	981.0	1,021.1	40.1	33,185.7	38.8	15,935.2	38,062.6	39,618.7	1,556.0
77 Walled Lake	84.4	976,400	13.7	98.1	198.2	273.0	74.9	8,655.4	64.7	6,347.1	12,822.2	17,665.7	4,843.5
78 Warren	1,873.7	12,310,200	173.1	2,046.8	4,317.2	4,851.9	534.7	87,334.5	19.2	39,298.6	82,890.2	93,156.8	10,266.7
79 Washington Township	193.2	2,086,800	29.3	222.5	751.2	751.2	0.0	22,234.8	43.2	9,612.0	32,450.8	32,450.8	0.0
80 Wayne	259.7	2,455,300	34.5	294.2	1,141.4	1,141.4	0.0	29,561.6	29.3	8,620.1	33,442.3	33,442.3	0.0
81 West Bloomfield Township	721.9	7,483,400	105.2	827.1	2,110.4	3,246.7	1,136.3	92,206.1	57.5	47,558.3	121,348.5	186,684.8	65,336.4
82 Westland	868.8	8,308,000	116.7	985.5	1,854.5	2,549.7	695.1	66,801.8	30.4	29,959.2	56,378.2	77,510.5	21,132.2
83 Wixom	189.0	2,339,100	32.9	221.9	714.7	714.7	0.0	24,227.3	65.5	14,534.5	46,810.9	46,810.9	0.0
84 Woodhaven	170.4	1,760,300	24.7	195.1	607.5	960.5	352.9	27,181.1	28.3	5,521.3	17,193.6	27,181.1	9,987.5
85 Ypsilanti Comm Util Auth	1,354.2	17,695,900	248.8	1,603.0	3,470.5	3,470.5	0.0	124,243.9	46.8	75,020.4	162,419.5	162,419.5	0.0
86 Subtotal Wholesale	36,286.5	332,743,400	4,679.8	40,966.3	96,842.9	123,425.3	26,582.4	3,152,001.9		1,389,155.9	3,380,269.9	4,241,555.4	861,285.3
87 Detroit Incl. Sub. Ind.	12,239.2	75,497,400	1,061.7	13,300.9	16,360.7	16,850.2	489.5	284,768.4	19.0	252,717.1	310,853.3	320,153.8	9,300.5
88 Grand Total	48,525.7	408,240,800	5,741.5	54,267.2	113,203.6	140,275.5	27,071.9	3,436,770.2		1,641,873.0	3,691,123.2	4,561,709.2	870,585.8

Table 4c  
Water Supply System  
Consolidated FY 2018 Units of Service

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Sales Volume <i>Mcf</i>	Consolidated Units of Service									
	Common-to-All									Suburban Only
	<u>Commod</u> <i>Mcf/day</i>	<u>Max Day</u> <i>Mcf/day</i>	<u>PH Incr</u> <i>Mcf/day</i>	<u>PH Dist</u> <i>Mcf-miles/day</i>	<u>Comm DE</u> <i>Mcf-miles/day</i>	<u>MD DE</u> <i>Mcf-miles/day</i>	<u>PH DE</u> <i>Mcf-miles/day</i>	<u>PHI DE</u> <i>Mcf-miles/day</i>	<u>Mtrs</u> <i>eq 5/8" mtrs</i>	
1 Allen Park	135,500	411.2	802.0	360.9	24,421.2	8,635.2	16,841.6	24,421.2	7,579.7	961
2 Almont Village	9,000	29.6	58.4	5.3	2,415.0	1,660.6	3,274.7	3,574.7	300.0	115
3 Ash Township	40,200	127.1	226.9	70.9	8,902.1	4,105.3	7,328.2	9,616.7	2,288.5	160
4 Belleville	14,300	45.8	79.9	35.4	3,746.7	1,777.0	3,098.4	4,473.0	1,374.5	123
5 Berlin Township	29,000	93.7	186.6	101.6	9,973.3	3,242.0	6,458.0	9,973.3	3,515.3	211
6 Brownstown Township	138,500	435.1	978.0	588.2	44,636.4	12,400.4	27,872.9	44,636.4	16,763.5	523
7 Bruce Twp	1,040	3.4	15.3	56.1	2,343.6	162.2	730.0	3,408.2	2,678.2	115
8 Canton Township	335,600	1,071.5	3,159.8	1,804.7	159,856.9	47,788.9	140,927.6	221,416.7	80,489.1	1,820
9 Center Line	32,600	97.5	167.3	81.5	4,478.8	1,872.0	3,211.8	4,777.4	1,565.7	155
10 Chesterfield Township	163,400	512.6	1,234.6	434.5	47,234.6	14,814.1	35,680.1	48,236.0	12,555.9	725
11 Clinton Township	404,200	1,237.0	2,990.4	695.1	84,029.5	28,203.6	68,180.3	84,029.5	15,849.2	1,226
12 Commerce Township	97,800	311.2	888.2	705.8	50,051.4	20,290.2	57,908.1	103,928.4	46,020.3	520
13 Dearborn	619,800	1,875.1	3,611.6	1,084.6	95,332.9	38,064.5	73,315.5	95,332.9	22,017.4	3
14 Dearborn Heights	212,000	647.7	1,270.0	574.8	41,324.7	15,350.5	30,099.6	43,723.0	13,623.4	617
15 Eastpointe	114,100	341.6	563.7	280.7	15,284.6	6,251.3	10,316.1	15,453.5	5,137.3	1,013
16 Ecorse	149,300	451.2	550.2	80.2	12,670.9	9,069.1	11,058.7	12,670.9	1,612.2	285
17 Farmington	47,400	147.9	318.8	26.7	9,363.5	6,108.3	13,165.7	14,269.9	1,104.2	358
18 Farmington Hills	365,900	1,143.6	3,082.1	0.0	84,448.8	50,204.0	135,303.0	135,303.0	0.0	2,997
19 Ferndale	67,900	203.3	418.3	13.4	7,857.1	4,330.3	8,910.7	9,195.4	284.7	568
20 Flat Rock	64,000	202.2	374.5	120.3	14,695.0	6,005.3	11,121.7	14,695.0	3,573.3	335
21 Fraser	63,600	193.2	433.4	240.6	14,154.7	4,192.4	9,405.0	14,626.6	5,221.6	334
22 Garden City	89,600	277.0	479.3	267.4	18,667.3	7,672.9	13,277.4	20,683.3	7,405.9	491
23 Gibraltar	17,300	54.8	133.3	68.3	6,230.0	1,693.3	4,118.9	6,230.0	2,111.1	176
24 Grosse Ile Township	41,300	128.8	387.8	216.1	16,303.8	3,477.6	10,469.8	16,303.8	5,834.0	400
25 Grosse Pt. Park	61,100	182.7	496.7	330.3	14,886.7	3,288.6	8,940.5	14,886.7	5,946.2	291
26 Grosse Pt. Shores	19,700	59.2	196.4	165.8	6,844.2	1,118.9	3,711.3	6,844.2	3,132.9	283
27 Grosse Pt. Woods	72,000	216.4	682.2	0.0	12,892.7	4,090.0	12,892.7	12,892.7	0.0	461
28 Hamtramck	58,900	175.1	232.9	101.6	5,586.7	3,309.4	4,402.5	6,322.7	1,920.2	691
29 Harper Woods	57,300	171.8	327.6	121.6	8,266.4	3,161.1	6,028.1	8,266.4	2,238.3	357
30 Harrison Township	92,500	284.7	592.8	0.0	14,226.2	6,832.8	14,226.2	14,226.2	0.0	465
31 Hazel Park	51,400	154.0	240.5	98.9	6,142.8	3,203.2	5,001.5	7,059.1	2,057.6	546
32 Huron Township	61,200	193.4	426.7	159.1	17,516.1	6,246.8	13,783.8	18,922.0	5,138.3	278
33 Imlay City	37,700	127.7	246.3	0.0	11,305.6	9,462.6	18,251.5	18,251.5	0.0	155

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THE FOSTER GROUP

Table 4c  
Water Supply System  
Consolidated FY 2018 Units of Service

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Sales Volume <i>Mcf</i>	Consolidated Units of Service									
	Common-to-All									Suburban Only
	<u>Commod</u> <i>Mcf/day</i>	<u>Max Day</u> <i>Mcf/day</i>	<u>PH Incr</u> <i>Mcf/day</i>	<u>PH Dist</u> <i>Mcf-miles/day</i>	<u>Comm DE</u> <i>Mcf-miles/day</i>	<u>MD DE</u> <i>Mcf-miles/day</i>	<u>PH DE</u> <i>Mcf-miles/day</i>	<u>PHI DE</u> <i>Mcf-miles/day</i>	<u>Mtrs</u> <i>eq 5/8" mtrs</i>	
34 Imlay Twp	80	0.2	1.6	1.6	137.0	12.6	101.2	202.4	101.2	80
35 Inkster	97,700	301.1	668.7	124.5	19,352.8	8,159.8	18,121.6	21,494.3	3,372.6	393
36 Keego Harbor	10,400	32.9	64.6	30.7	2,773.3	1,967.4	3,860.5	5,699.1	1,838.6	123
37 Lapeer	56,200	192.9	287.5	49.5	16,547.1	13,830.9	20,617.0	24,163.4	3,546.4	645
38 Lenox Township	17,400	55.1	72.5	39.3	3,410.0	1,730.1	2,276.6	3,510.7	1,234.1	400
39 Lincoln Park	142,800	432.3	776.3	334.2	22,655.1	8,818.9	15,837.4	22,655.1	6,817.7	813
40 Livonia	493,300	1,533.2	4,192.1	1,604.2	151,862.6	51,515.5	140,855.1	194,755.1	53,900.0	2,527
41 Macomb Township	311,100	969.6	3,472.7	1,524.0	133,910.0	27,051.8	96,887.8	139,406.3	42,518.4	1,050
42 Madison Heights	140,700	423.8	760.2	200.5	18,637.5	8,984.6	16,115.7	20,366.8	4,251.0	755
43 Mayfield Twp	550	1.8	3.0	4.0	337.3	126.0	208.2	488.9	280.7	155
44 Melvindale	44,700	135.1	239.9	80.2	6,369.3	2,688.5	4,773.2	6,369.3	1,596.1	533
45 New Haven, Village of	16,200	51.2	100.4	53.5	4,584.7	1,541.1	3,021.3	4,630.8	1,609.5	105
46 N O C W A	930,800	2,912.9	6,980.0	401.0	204,454.5	159,626.9	382,503.3	404,480.4	21,977.1	5,481
47 Northville	32,100	101.9	227.9	6.7	7,295.2	5,349.8	11,964.2	12,315.1	350.9	211
48 Northville Township	132,900	421.1	1,487.4	655.0	65,343.7	22,613.1	79,872.4	115,047.8	35,175.4	521
49 Novi	273,900	871.8	2,661.3	0.0	83,831.9	54,400.3	166,067.0	166,067.0	0.0	1,911
50 Oak Park	100,000	301.6	549.0	0.0	10,814.4	7,630.5	13,888.5	13,888.5	0.0	285
51 Oakland Co. Drain Comm.	8,600	26.0	22.2	0.0	452.6	548.6	468.1	468.1	0.0	115
52 Plymouth	42,000	133.2	260.1	108.3	11,345.0	5,874.1	11,468.7	16,243.9	4,775.2	203
53 Plymouth Township	169,900	540.3	1,411.6	0.0	44,183.3	26,258.6	68,604.0	68,604.0	0.0	315
54 Redford Township	172,500	527.4	1,110.9	481.2	35,982.1	13,185.0	27,771.9	39,803.2	12,031.2	1,829
55 River Rouge	53,100	160.0	255.1	80.2	6,505.5	3,104.0	4,949.4	6,505.5	1,556.0	431
56 Riverview	44,700	138.4	296.6	133.7	10,886.8	3,501.5	7,504.7	10,886.8	3,382.1	146
57 Rockwood	10,600	34.0	79.9	45.5	4,097.7	1,111.8	2,611.5	4,097.7	1,486.3	88
58 Romeo	6,000	19.2	63.0	24.1	2,802.0	944.6	3,097.4	4,281.3	1,183.9	155
59 Romulus	196,100	612.6	1,223.6	268.7	40,740.2	19,174.4	38,299.2	46,709.4	8,410.2	944
60 Roseville	199,100	598.6	948.8	374.3	25,138.2	11,912.1	18,880.3	26,329.0	7,448.7	885
61 Royal Oak Township	11,800	35.6	71.5	36.1	2,065.4	868.6	1,744.0	2,624.7	880.7	146
62 S O C W A	1,291,300	3,941.1	8,731.6	0.0	193,841.5	133,209.2	295,128.0	295,128.0	0.0	5,006
63 Shelby Township	399,300	1,242.2	3,490.2	2,606.8	160,960.4	42,731.7	120,063.3	209,736.3	89,672.9	1,246
64 South Rockwood	5,200	16.7	25.8	14.0	1,329.2	557.8	860.4	1,329.2	468.8	88
65 Southgate	123,500	379.5	736.2	294.1	24,419.0	8,994.2	17,448.9	24,419.0	6,970.1	361
66 St. Clair County-Burtchville T	8,100	27.7	69.4	27.0	4,550.2	1,332.4	3,338.1	4,637.0	1,298.9	105

Table 4c  
Water Supply System  
Consolidated FY 2018 Units of Service

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Consolidated Units of Service										
Sales	Common-to-All									Suburban Only
Volume	Commod	Max Day	PH Incr	PH Dist	Comm DE	MD DE	PH DE	PHI DE	Mtrs	
<i>Mcf</i>	<i>Mcf/day</i>	<i>Mcf/day</i>	<i>Mcf/day</i>	<i>Mcf-miles/day</i>	<i>Mcf-miles/day</i>	<i>Mcf-miles/day</i>	<i>Mcf-miles/day</i>	<i>Mcf-miles/day</i>	<i>eq 5/8" mtrs</i>	
67 St. Clair County-Greenwood	11,400	38.6	108.1	0.0	4,906.0	2,350.7	6,580.9	6,580.9	0.0	438
68 St. Clair Shores	207,000	626.0	1,328.9	66.8	28,193.3	12,645.2	26,843.1	28,193.3	1,350.2	1,239
69 Sterling Heights	615,900	1,880.5	5,273.0	2,673.6	177,208.5	45,884.2	128,660.2	193,896.3	65,236.1	3,218
70 Sumpter Township	29,100	93.2	163.2	84.2	8,140.8	3,532.3	6,186.1	9,378.0	3,191.9	123
71 Sylvan Lake	6,700	21.1	50.8	24.1	2,179.2	1,270.2	3,059.7	4,508.2	1,448.6	105
72 Taylor	281,400	863.8	1,697.0	534.7	52,444.7	20,817.6	40,896.9	53,783.7	12,886.8	1,078
73 Trenton	90,100	279.5	680.5	294.0	25,142.1	7,211.1	17,556.5	25,142.1	7,585.6	1,185
74 Troy	456,200	1,405.8	4,032.6	1,470.5	133,725.9	53,420.4	153,240.2	209,118.6	55,878.5	2,694
75 Utica	24,300	74.8	168.6	106.9	6,723.7	2,176.7	4,906.7	8,018.8	3,112.1	155
76 Van Buren Township	128,500	410.7	981.0	40.1	33,185.7	15,935.2	38,062.6	39,618.7	1,556.0	1,098
77 Walled Lake	30,800	98.1	198.2	74.9	8,655.4	6,347.1	12,822.2	17,665.7	4,843.5	123
78 Warren	683,900	2,046.8	4,317.2	534.7	87,334.5	39,298.6	82,890.2	93,156.8	10,266.7	2,292
79 Washington Township	70,500	222.5	751.2	0.0	22,234.8	9,612.0	32,450.8	32,450.8	0.0	278
80 Wayne	94,800	294.2	1,141.4	0.0	29,561.6	8,620.1	33,442.3	33,442.3	0.0	600
81 West Bloomfield Township	263,500	827.1	2,110.4	1,136.3	92,206.1	47,558.3	121,348.5	186,684.8	65,336.4	1,982
82 Westland	317,100	985.5	1,854.5	695.1	66,801.8	29,959.2	56,378.2	77,510.5	21,132.2	1,941
83 Wixom	69,000	221.9	714.7	0.0	24,227.3	14,534.5	46,810.9	46,810.9	0.0	155
84 Woodhaven	62,200	195.1	607.5	352.9	27,181.1	5,521.3	17,193.6	27,181.1	9,987.5	246
85 Ypsilanti Comm Util Auth	494,300	1,603.0	3,470.5	0.0	124,243.9	75,020.4	162,419.5	162,419.5	0.0	1,930
86 Total Suburban	13,244,470	40,966.3	96,842.9	26,582.4	3,152,001.9	1,389,155.9	3,380,269.9	4,241,555.4	861,285.3	66,689
87 Detroit Incl. Sub. Ind.	4,467,300	13,300.9	16,360.7	489.5	284,768.4	252,717.1	310,853.3	320,153.8	9,300.5	0
88 Grand Total	17,711,770	54,267.2	113,203.6	27,071.9	3,436,770.2	1,641,873.0	3,691,123.2	4,561,709.2	870,585.8	66,689

Table 5  
Water Supply System  
Summarized FY 2018 *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									Suburban Only	
Amount to Allocate	Commod	Max Day	PH Incr	PH Dist	Comm DE	MD DE	PH DE	PHI DE	Mtrs		
\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	
<u>BUDGET Elements</u>											
1	Net Operating Expenses	127,129,300	8,558,700	59,707,100	353,400	6,094,100	20,767,600	8,948,900	10,383,300	10,383,800	1,934,400
2	Net Capital Requirements	197,115,000	589,900	88,606,400	8,936,400	33,243,900	2,265,400	1,268,500	59,696,900	1,132,800	1,373,500
3	Total Req'd from Charges	324,244,300	9,148,600	148,313,500	9,289,800	39,338,000	23,033,000	10,217,400	70,080,200	11,516,600	3,307,900
<u>Allocation %'s</u>											
4	Suburban Wholesale Class		75.49%	85.55%	98.19%	91.71%	84.61%	91.58%	92.98%	98.93%	100.00%
5	Detroit Retail Class		24.51%	14.45%	1.81%	8.29%	15.39%	8.42%	7.02%	1.07%	0.00%
<u>Sub Wholesale Customers BUDGET</u>											
6	Net Operating Expenses	111,103,400	6,461,000	51,078,000	347,000	5,589,100	17,571,100	8,195,300	9,654,600	10,272,900	1,934,400
7	Net Capital Requirements	176,589,800	445,300	75,800,600	8,774,800	30,489,300	1,916,700	1,161,700	55,507,200	1,120,700	1,373,500
8	Total Req'd from Charges	287,693,200	6,906,300	126,878,600	9,121,800	36,078,400	19,487,800	9,357,000	65,161,800	11,393,600	3,307,900
<u>Detroit Customer Class BUDGET</u>											
9	Net Operating Expenses	16,027,900	2,097,700	8,629,100	6,400	505,000	3,196,500	753,600	728,700	110,900	0
10	Net Capital Requirements	20,523,900	144,600	12,805,800	161,600	2,754,600	348,700	106,800	4,189,700	12,100	0
11	Total Req'd from Charges	36,551,800	2,242,300	21,434,900	168,000	3,259,600	3,545,200	860,400	4,918,400	123,000	0

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

	(1)	(2)	(3)
	Suburban Wholesale Customers	Detroit Customer Class	Total
1 Net Operating Expenses	111,103,400	16,027,900	127,131,300
2 Net Capital Requirements	176,589,800	20,523,900	197,113,700
3 Subtotal	287,693,200	36,551,800	324,245,000
4 Capital Adjustment	20,700,000	(20,700,000)	0
5 Total Req'd from Charges	308,393,200	15,851,800	324,245,000

PROPOSED

Table 7  
Water Supply System  
Calculation of FY 2018 SHARE's - Common Cost Pools

CTA SHARES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	Total	Summary by Major Category				Specific Cost Categories							
		Commodity	Max Day	Peak Hour	Demand	Commodity	Maximum Day Usage	Peak Hour Increment	Peak Hour Distance	Commodity Distance-Elevation	Max Day Distance-Elevation	Peak Hour Distance-Elevation	Peak Hr Incr Distance-Elevation
1 Allen Park	0.675%	0.592%	0.692%	0.675%	0.684%	0.758%	0.708%	1.333%	0.711%	0.526%	0.456%	0.535%	0.871%
2 Almont Village	0.063%	0.088%	0.054%	0.068%	0.060%	0.055%	0.052%	0.020%	0.070%	0.101%	0.089%	0.078%	0.034%
3 Ash Township	0.218%	0.245%	0.200%	0.234%	0.215%	0.234%	0.200%	0.262%	0.259%	0.250%	0.199%	0.211%	0.263%
4 Belleville	0.090%	0.101%	0.071%	0.109%	0.088%	0.084%	0.071%	0.131%	0.109%	0.108%	0.084%	0.098%	0.158%
5 Berlin Township	0.210%	0.190%	0.166%	0.268%	0.212%	0.173%	0.165%	0.375%	0.290%	0.197%	0.175%	0.219%	0.404%
6 Brownstown Township	1.005%	0.769%	0.857%	1.244%	1.032%	0.802%	0.864%	2.173%	1.299%	0.755%	0.755%	0.979%	1.926%
7 Bruce Twp	0.050%	0.009%	0.014%	0.103%	0.054%	0.006%	0.014%	0.207%	0.068%	0.010%	0.020%	0.075%	0.308%
8 Canton Township	3.831%	2.644%	2.857%	5.310%	3.964%	1.974%	2.791%	6.666%	4.651%	2.911%	3.818%	4.854%	9.245%
9 Center Line	0.138%	0.133%	0.144%	0.133%	0.139%	0.180%	0.148%	0.301%	0.130%	0.114%	0.087%	0.105%	0.180%
10 Chesterfield Township	1.124%	0.914%	1.083%	1.226%	1.147%	0.945%	1.091%	1.605%	1.374%	0.902%	0.967%	1.057%	1.442%
11 Clinton Township	2.309%	1.877%	2.590%	2.074%	2.357%	2.279%	2.642%	2.568%	2.445%	1.718%	1.847%	1.842%	1.821%
12 Commerce Township	1.459%	1.048%	0.835%	2.319%	1.505%	0.573%	0.785%	2.607%	1.456%	1.236%	1.569%	2.278%	5.286%
13 Dearborn	2.806%	2.642%	3.113%	2.472%	2.824%	3.455%	3.190%	4.006%	2.774%	2.318%	1.986%	2.090%	2.529%
14 Dearborn Heights	1.120%	1.008%	1.102%	1.169%	1.132%	1.194%	1.122%	2.123%	1.202%	0.935%	0.815%	0.958%	1.565%
15 Eastpointe	0.464%	0.452%	0.484%	0.443%	0.465%	0.629%	0.498%	1.037%	0.445%	0.381%	0.279%	0.339%	0.590%
16 Ecorse	0.419%	0.632%	0.474%	0.298%	0.395%	0.831%	0.486%	0.296%	0.369%	0.552%	0.300%	0.278%	0.185%
17 Farmington	0.285%	0.344%	0.286%	0.269%	0.279%	0.273%	0.282%	0.099%	0.272%	0.372%	0.357%	0.313%	0.127%
18 Farmington Hills	2.603%	2.788%	2.783%	2.338%	2.583%	2.107%	2.723%	0.000%	2.457%	3.058%	3.666%	2.966%	0.000%
19 Ferndale	0.283%	0.295%	0.361%	0.184%	0.281%	0.375%	0.370%	0.049%	0.229%	0.264%	0.241%	0.202%	0.033%
20 Flat Rock	0.350%	0.368%	0.329%	0.371%	0.348%	0.373%	0.331%	0.444%	0.428%	0.366%	0.301%	0.322%	0.410%
21 Fraser	0.381%	0.284%	0.375%	0.413%	0.392%	0.356%	0.383%	0.889%	0.412%	0.255%	0.255%	0.321%	0.600%
22 Garden City	0.480%	0.479%	0.419%	0.554%	0.480%	0.510%	0.423%	0.988%	0.543%	0.467%	0.360%	0.453%	0.851%
23 Gibraltar	0.136%	0.103%	0.117%	0.168%	0.140%	0.101%	0.118%	0.252%	0.181%	0.103%	0.112%	0.137%	0.242%
24 Grosse Ile Township	0.373%	0.219%	0.339%	0.452%	0.390%	0.237%	0.343%	0.798%	0.474%	0.212%	0.284%	0.357%	0.670%
25 Grosse Pt. Park	0.419%	0.239%	0.426%	0.454%	0.439%	0.337%	0.439%	1.220%	0.433%	0.200%	0.242%	0.326%	0.683%
26 Grosse Pt. Shores	0.179%	0.080%	0.169%	0.216%	0.190%	0.109%	0.173%	0.612%	0.199%	0.068%	0.101%	0.150%	0.360%
27 Grosse Pt. Woods	0.427%	0.292%	0.586%	0.265%	0.442%	0.399%	0.603%	0.000%	0.375%	0.249%	0.349%	0.283%	0.000%
28 Hamtramck	0.192%	0.236%	0.200%	0.170%	0.187%	0.323%	0.206%	0.375%	0.163%	0.202%	0.119%	0.139%	0.221%
29 Harper Woods	0.253%	0.228%	0.281%	0.225%	0.256%	0.317%	0.289%	0.449%	0.241%	0.193%	0.163%	0.181%	0.257%
30 Harrison Township	0.418%	0.447%	0.515%	0.293%	0.415%	0.525%	0.524%	0.000%	0.414%	0.416%	0.385%	0.312%	0.000%
31 Hazel Park	0.199%	0.220%	0.207%	0.184%	0.197%	0.284%	0.212%	0.365%	0.179%	0.195%	0.136%	0.155%	0.236%
32 Huron Township	0.415%	0.374%	0.377%	0.471%	0.419%	0.356%	0.377%	0.588%	0.510%	0.380%	0.373%	0.415%	0.590%
33 Imlay City	0.292%	0.479%	0.235%	0.315%	0.271%	0.235%	0.218%	0.000%	0.329%	0.576%	0.494%	0.400%	0.000%
34 Imlay Twp	0.003%	0.001%	0.002%	0.005%	0.003%	0.000%	0.001%	0.006%	0.004%	0.001%	0.003%	0.004%	0.012%
35 Inkster	0.539%	0.514%	0.584%	0.491%	0.542%	0.555%	0.591%	0.460%	0.563%	0.497%	0.491%	0.471%	0.387%
36 Keego Harbor	0.088%	0.103%	0.060%	0.118%	0.086%	0.061%	0.057%	0.114%	0.081%	0.120%	0.105%	0.125%	0.211%
37 Lapeer	0.400%	0.704%	0.274%	0.480%	0.367%	0.355%	0.254%	0.183%	0.481%	0.842%	0.559%	0.530%	0.407%

TFG

THE FOSTER GROUP

Table 7  
Water Supply System  
Calculation of FY 2018 SHARE's - Common Cost Pools

CTA SHAREs	(1) Total	(2)-(5) Summary by Major Category				(6)-(13) Specific Cost Categories							
		(2) Commodity	(3) Max Day	(4) Peak Hour	(5) Demand	(6) Commodity	(7)	(8)	(9)	(10)	(11)	(12)	(13)
							Maximum Day Usage	Peak Hour Increment	Peak Hour Distance	Commodity Distance-Elevation	Max Day Distance-Elevation	Peak Hour Distance-Elevation	Peak Hr Incr Distance-Elevation
38 Lenox Township	0.080%	0.104%	0.064%	0.094%	0.078%	0.102%	0.064%	0.145%	0.099%	0.105%	0.062%	0.077%	0.142%
39 Lincoln Park	0.645%	0.611%	0.669%	0.624%	0.649%	0.797%	0.686%	1.234%	0.659%	0.537%	0.429%	0.497%	0.783%
40 Livonia	4.006%	3.049%	3.710%	4.603%	4.113%	2.825%	3.703%	5.926%	4.419%	3.138%	3.816%	4.269%	6.191%
41 Macomb Township	3.154%	1.687%	3.039%	3.655%	3.317%	1.787%	3.068%	5.629%	3.896%	1.648%	2.625%	3.056%	4.884%
42 Madison Heights	0.589%	0.613%	0.656%	0.500%	0.586%	0.781%	0.672%	0.741%	0.542%	0.547%	0.437%	0.446%	0.488%
43 Mayfield Twp	0.007%	0.007%	0.003%	0.013%	0.007%	0.003%	0.003%	0.015%	0.010%	0.008%	0.006%	0.011%	0.032%
44 Melvindale	0.189%	0.188%	0.207%	0.168%	0.189%	0.249%	0.212%	0.296%	0.185%	0.164%	0.129%	0.140%	0.183%
45 New Haven, Village of	0.104%	0.094%	0.088%	0.125%	0.105%	0.094%	0.089%	0.198%	0.133%	0.094%	0.082%	0.102%	0.185%
46 N O C W A	6.829%	8.484%	6.436%	6.898%	6.644%	5.368%	6.166%	1.481%	5.949%	9.722%	10.363%	8.867%	2.524%
47 Northville	0.219%	0.287%	0.209%	0.215%	0.212%	0.188%	0.201%	0.025%	0.212%	0.326%	0.324%	0.270%	0.040%
48 Northville Township	1.796%	1.206%	1.369%	2.461%	1.862%	0.776%	1.314%	2.420%	1.901%	1.377%	2.164%	2.522%	4.040%
49 Novi	2.607%	2.828%	2.489%	2.696%	2.583%	1.606%	2.351%	0.000%	2.439%	3.313%	4.499%	3.640%	0.000%
50 Oak Park	0.390%	0.490%	0.478%	0.259%	0.379%	0.556%	0.485%	0.000%	0.315%	0.465%	0.376%	0.304%	0.000%
51 Oakland Co. Drain Comm.	0.017%	0.038%	0.019%	0.010%	0.015%	0.048%	0.020%	0.000%	0.013%	0.033%	0.013%	0.010%	0.000%
52 Plymouth	0.298%	0.326%	0.235%	0.369%	0.295%	0.245%	0.230%	0.400%	0.330%	0.358%	0.311%	0.356%	0.549%
53 Plymouth Township	1.265%	1.428%	1.286%	1.198%	1.246%	0.996%	1.247%	0.000%	1.286%	1.599%	1.859%	1.504%	0.000%
54 Redford Township	0.983%	0.851%	0.967%	1.035%	0.997%	0.972%	0.981%	1.778%	1.047%	0.803%	0.752%	0.873%	1.382%
55 River Rouge	0.200%	0.219%	0.220%	0.171%	0.198%	0.295%	0.225%	0.296%	0.189%	0.189%	0.134%	0.143%	0.179%
56 Riverview	0.269%	0.225%	0.258%	0.294%	0.274%	0.255%	0.262%	0.494%	0.317%	0.213%	0.203%	0.239%	0.388%
57 Rockwood	0.087%	0.066%	0.071%	0.111%	0.089%	0.063%	0.071%	0.168%	0.119%	0.068%	0.071%	0.090%	0.171%
58 Romeo	0.072%	0.051%	0.057%	0.094%	0.074%	0.035%	0.056%	0.089%	0.082%	0.058%	0.084%	0.094%	0.136%
59 Romulus	1.081%	1.157%	1.078%	1.065%	1.072%	1.129%	1.081%	0.993%	1.185%	1.168%	1.038%	1.024%	0.966%
60 Roseville	0.773%	0.833%	0.817%	0.706%	0.767%	1.103%	0.838%	1.383%	0.731%	0.726%	0.512%	0.577%	0.856%
61 Royal Oak Township	0.064%	0.057%	0.062%	0.068%	0.065%	0.066%	0.063%	0.133%	0.060%	0.053%	0.047%	0.058%	0.101%
62 S O C W A	6.712%	7.871%	7.731%	5.185%	6.583%	7.262%	7.713%	0.000%	5.640%	8.113%	7.996%	6.470%	0.000%
63 Shelby Township	4.007%	2.514%	3.094%	5.487%	4.173%	2.289%	3.083%	9.629%	4.683%	2.603%	3.253%	4.598%	10.300%
64 South Rockwood	0.029%	0.033%	0.023%	0.036%	0.029%	0.031%	0.023%	0.052%	0.039%	0.034%	0.023%	0.029%	0.054%
65 Southgate	0.639%	0.591%	0.639%	0.651%	0.644%	0.699%	0.650%	1.086%	0.711%	0.548%	0.473%	0.535%	0.801%
66 St. Clair County-Burtchvill	0.085%	0.073%	0.063%	0.115%	0.087%	0.051%	0.061%	0.100%	0.132%	0.081%	0.090%	0.102%	0.149%
67 St. Clair County-Greenwod	0.111%	0.123%	0.101%	0.121%	0.110%	0.071%	0.095%	0.000%	0.143%	0.143%	0.178%	0.144%	0.000%
68 St. Clair Shores	0.902%	0.879%	1.145%	0.612%	0.905%	1.154%	1.174%	0.247%	0.820%	0.770%	0.727%	0.618%	0.155%
69 Sterling Heights	4.678%	2.985%	4.582%	5.212%	4.866%	3.465%	4.658%	9.876%	5.156%	2.795%	3.486%	4.251%	7.493%
70 Sumpter Township	0.188%	0.203%	0.146%	0.237%	0.187%	0.172%	0.144%	0.311%	0.237%	0.215%	0.168%	0.206%	0.367%
71 Sylvan Lake	0.068%	0.066%	0.047%	0.093%	0.068%	0.039%	0.045%	0.089%	0.063%	0.077%	0.083%	0.099%	0.166%
72 Taylor	1.419%	1.360%	1.474%	1.367%	1.426%	1.592%	1.499%	1.975%	1.526%	1.268%	1.108%	1.179%	1.480%
73 Trenton	0.612%	0.461%	0.593%	0.672%	0.629%	0.515%	0.601%	1.086%	0.732%	0.439%	0.476%	0.551%	0.871%
74 Troy	3.951%	3.065%	3.600%	4.597%	4.050%	2.591%	3.562%	5.432%	3.891%	3.254%	4.152%	4.584%	6.418%

Table 7  
 Water Supply System  
 Calculation of FY 2018 SHARE's - Common Cost Pools

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	
CTA SHAREs	Total	Summary by Major Category				Specific Cost Categories							
		Commodity	Max Day	Peak Hour	Demand	Commodity	Maximum Day Usage	Peak Hour Increment	Peak Hour Distance	Commodity Distance-Elevation	Max Day Distance-Elevation	Peak Hour Distance-Elevation	Peak Hr Incr Distance-Elevation
75 Utica	0.173%	0.134%	0.148%	0.214%	0.178%	0.138%	0.149%	0.395%	0.196%	0.133%	0.133%	0.176%	0.357%
76 Van Buren Township	0.843%	0.910%	0.877%	0.786%	0.836%	0.757%	0.867%	0.148%	0.966%	0.971%	1.031%	0.869%	0.179%
77 Walled Lake	0.268%	0.328%	0.186%	0.353%	0.262%	0.181%	0.175%	0.277%	0.252%	0.387%	0.347%	0.387%	0.556%
78 Warren	2.970%	2.785%	3.713%	2.112%	2.991%	3.772%	3.814%	1.975%	2.541%	2.394%	2.246%	2.042%	1.179%
79 Washington Township	0.623%	0.535%	0.677%	0.578%	0.633%	0.410%	0.664%	0.000%	0.647%	0.585%	0.879%	0.711%	0.000%
80 Wayne	0.813%	0.530%	1.002%	0.654%	0.845%	0.542%	1.008%	0.000%	0.860%	0.525%	0.906%	0.733%	0.000%
81 West Bloomfield Township	2.831%	2.506%	1.956%	3.976%	2.867%	1.524%	1.864%	4.197%	2.683%	2.897%	3.288%	4.092%	7.505%
82 Westland	1.759%	1.822%	1.631%	1.899%	1.752%	1.816%	1.638%	2.568%	1.944%	1.825%	1.527%	1.699%	2.427%
83 Wixom	0.718%	0.750%	0.672%	0.765%	0.714%	0.409%	0.631%	0.000%	0.705%	0.885%	1.268%	1.026%	0.000%
84 Woodhaven	0.603%	0.343%	0.532%	0.754%	0.632%	0.360%	0.537%	1.304%	0.791%	0.336%	0.466%	0.596%	1.147%
85 Ypsilanti Comm Util Auth	3.190%	4.110%	3.152%	3.008%	3.087%	2.954%	3.066%	0.000%	3.615%	4.569%	4.400%	3.560%	0.000%
86 Total Suburban	88.611%	82.016%	85.936%	93.497%	89.346%	75.490%	85.548%	98.192%	91.714%	84.608%	91.578%	92.982%	98.932%
87 Detroit Customers	11.389%	17.984%	14.064%	6.503%	10.654%	24.510%	14.452%	1.808%	8.286%	15.392%	8.422%	7.018%	1.068%
88 GRAND TOTAL	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%

Table 8  
Water Supply System  
Allocation of FY 2018 *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>320,937,100</b>	<b>32,181,600</b>	<b>158,530,900</b>	<b>130,224,600</b>	<b>288,755,500</b>	9,148,600	148,313,500	9,289,800	39,338,000	23,033,000	10,217,400	70,080,200	11,516,600
		Summary by Major Category					Specific Cost Categories							
<b>ALLOCATED CTA BUDGET</b>	Total	Commodity	Max Day	Peak Hour	Demand	Commodity	Maximum Day Usage	Peak Hour Increment	Peak Hour Distance	Commodity Distance-Elevation	Max Day Distance-Elevation	Peak Hour Distance-Elevation	Peak Hour Distance-Elevation	Peak Hour Increment
1	Allen Park	2,166,600	190,400	1,097,300	878,900	1,976,200	69,300	1,050,700	123,900	279,500	121,100	46,600	375,200	100,300
2	Almont Village	202,200	28,300	85,600	88,300	173,900	5,000	76,500	1,800	27,600	23,300	9,100	54,900	4,000
3	Ash Township	700,700	79,000	317,500	304,200	621,700	21,400	297,200	24,300	101,900	57,600	20,300	147,700	30,300
4	Belleville	287,800	32,600	113,200	142,000	255,200	7,700	104,600	12,200	42,900	24,900	8,600	68,700	18,200
5	Berlin Township	672,500	61,300	262,400	348,800	611,200	15,800	244,500	34,900	114,200	45,500	17,900	153,200	46,500
6	Brownstown Township	3,226,100	247,400	1,358,500	1,620,200	2,978,700	73,400	1,281,300	201,800	510,900	174,000	77,200	685,700	221,800
7	Bruce Twp	158,900	2,900	22,100	133,900	156,000	600	20,100	19,300	26,800	2,300	2,000	52,400	35,400
8	Canton Township	12,296,400	851,000	4,529,900	6,915,500	11,445,400	180,600	4,139,800	619,300	1,829,800	670,400	390,100	3,401,600	1,064,800
9	Center Line	444,200	42,700	228,100	173,400	401,500	16,400	219,200	28,000	51,300	26,300	8,900	73,400	20,700
10	Chesterfield Township	3,607,400	294,200	1,716,300	1,596,900	3,313,200	86,400	1,617,500	149,100	540,700	207,800	98,800	741,000	166,100
11	Clinton Township	7,411,600	604,200	4,106,500	2,700,900	6,807,400	208,500	3,917,800	238,500	961,800	395,700	188,700	1,290,900	209,700
12	Commerce Township	4,681,500	337,100	1,323,900	3,020,500	4,344,400	52,500	1,163,600	242,200	572,900	284,600	160,300	1,596,600	608,800
13	Dearborn	9,004,000	850,100	4,934,600	3,219,300	8,153,900	316,100	4,731,700	372,200	1,091,200	534,000	202,900	1,464,600	291,300
14	Dearborn Heights	3,593,900	324,500	1,747,200	1,522,200	3,269,400	109,200	1,663,900	197,300	473,000	215,300	83,300	671,700	180,200
15	Eastpointe	1,489,200	145,300	767,200	576,700	1,343,900	57,600	738,600	96,300	175,000	87,700	28,600	237,400	68,000
16	Ecorse	1,343,200	203,300	751,400	388,500	1,139,900	76,100	720,800	27,500	145,000	127,200	30,600	194,700	21,300
17	Farmington	914,900	110,600	454,100	350,200	804,300	24,900	417,700	9,200	107,200	85,700	36,400	219,200	14,600
18	Farmington Hills	8,354,800	897,100	4,412,500	3,045,200	7,457,700	192,800	4,038,000	0	966,600	704,300	374,500	2,078,600	0
19	Ferndale	907,400	95,000	572,800	239,600	812,400	34,300	548,100	4,600	89,900	60,700	24,700	141,300	3,800
20	Flat Rock	1,122,300	118,300	521,400	482,600	1,004,000	34,100	490,600	41,300	168,200	84,200	30,800	225,800	47,300
21	Fraser	1,223,600	91,400	593,800	538,400	1,132,200	32,600	567,800	82,600	162,000	58,800	26,000	224,700	69,100
22	Garden City	1,540,300	154,300	664,800	721,200	1,386,000	46,700	628,000	91,700	213,700	107,600	36,800	317,800	98,000
23	Gibraltar	437,300	33,000	186,000	218,300	404,300	9,200	174,600	23,400	71,300	23,800	11,400	95,700	27,900
24	Grosse Ile Township	1,195,900	70,500	537,000	588,400	1,125,400	21,700	508,000	74,100	186,600	48,800	29,000	250,500	77,200
25	Grosse Pt. Park	1,343,500	76,900	675,400	591,200	1,266,600	30,800	650,700	113,400	170,400	46,100	24,700	228,700	78,700
26	Grosse Pt. Shores	575,000	25,700	267,600	281,700	549,300	10,000	257,300	56,900	78,300	15,700	10,300	105,100	41,400
27	Grosse Pt. Woods	1,369,000	93,900	929,400	345,700	1,275,100	36,500	893,700	0	147,600	57,400	35,700	198,100	0
28	Hamtramck	614,600	75,900	317,400	221,300	538,700	29,500	305,200	34,900	63,900	46,400	12,200	97,100	25,400
29	Harper Woods	812,100	73,300	445,900	292,900	738,800	29,000	429,200	41,700	94,600	44,300	16,700	127,000	29,600
30	Harrison Township	1,341,300	143,900	816,000	381,400	1,197,400	48,000	776,600	0	162,800	95,900	39,400	218,600	0
31	Hazel Park	639,500	70,900	328,800	239,800	568,600	26,000	315,000	33,900	70,300	44,900	13,800	108,400	27,200
32	Huron Township	1,331,300	120,200	597,300	613,800	1,211,100	32,600	559,100	54,600	200,500	87,600	38,200	290,700	68,000
33	Imlay City	937,200	154,200	373,200	409,800	783,000	21,500	322,700	0	129,400	132,700	50,500	280,400	0
34	Imlay Twp	9,200	200	2,400	6,600	9,000	0	2,100	600	1,600	200	300	3,100	1,300
35	Inkster	1,730,600	165,300	926,300	639,000	1,565,300	50,800	876,100	42,700	221,500	114,500	50,200	330,200	44,600

Table 8  
Water Supply System  
Allocation of FY 2018 *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>320,937,100</b>	<b>32,181,600</b>	<b>158,530,900</b>	<b>130,224,600</b>	<b>288,755,500</b>	9,148,600	148,313,500	9,289,800	39,338,000	23,033,000	10,217,400	70,080,200	11,516,600
		Summary by Major Category				Specific Cost Categories								
<b>ALLOCATED CTA BUDGET</b>	Total	Commodity	Max Day	Peak Hour	Demand	Commodity	Maximum Day Usage	Peak Hour Increment	Peak Hour Distance	Commodity Distance-Elevation	Max Day Distance-Elevation	Peak Hour Distance-Elevation	Peak Hour Distance-Elevation	Peak Hour Increment
36	Keego Harbor	282,600	33,100	95,300	154,200	249,500	5,500	84,600	10,600	31,700	27,600	10,700	87,600	24,300
37	Lapeer	1,284,800	226,500	433,800	624,500	1,058,300	32,500	376,700	17,000	189,400	194,000	57,100	371,200	46,900
38	Lenox Township	257,600	33,600	101,300	122,700	224,000	9,300	95,000	13,500	39,000	24,300	6,300	53,900	16,300
39	Lincoln Park	2,069,700	196,600	1,060,900	812,200	1,873,100	72,900	1,017,100	114,700	259,300	123,700	43,800	348,000	90,200
40	Livonia	12,857,200	981,200	5,882,200	5,993,800	11,876,000	258,500	5,492,300	550,500	1,738,300	722,700	389,900	2,992,000	713,000
41	Macomb Township	10,120,900	543,000	4,817,900	4,760,000	9,577,900	163,500	4,549,700	523,000	1,532,800	379,500	268,200	2,141,700	562,500
42	Madison Heights	1,889,100	197,400	1,040,500	651,200	1,691,700	71,400	995,900	68,800	213,300	126,000	44,600	312,900	56,200
43	Mayfield Twp	23,100	2,100	4,500	16,500	21,000	300	3,900	1,400	3,900	1,800	600	7,500	3,700
44	Melvindale	607,200	60,500	327,400	219,300	546,700	22,800	314,200	27,500	72,900	37,700	13,200	97,800	21,100
45	New Haven, Village of	333,300	30,200	139,900	163,200	303,100	8,600	131,500	18,300	52,500	21,600	8,400	71,100	21,300
46	N O C W A	21,916,400	2,730,400	10,203,600	8,982,400	19,186,000	491,100	9,144,800	137,600	2,340,200	2,239,300	1,058,800	6,213,900	290,700
47	Northville	703,500	92,200	331,700	279,600	611,300	17,200	298,600	2,300	83,500	75,000	33,100	189,200	4,600
48	Northville Township	5,763,400	388,200	2,169,800	3,205,400	5,375,200	71,000	1,948,700	224,800	747,900	317,200	221,100	1,767,400	465,300
49	Novi	8,367,400	910,200	3,946,400	3,510,800	7,457,200	147,000	3,486,700	0	959,600	763,200	459,700	2,551,200	0
50	Oak Park	1,252,600	157,800	757,600	337,200	1,094,800	50,800	719,200	0	123,800	107,000	38,400	213,400	0
51	Oakland Co. Drain Comm.	54,900	12,100	30,400	12,400	42,800	4,400	29,100	0	5,200	7,700	1,300	7,200	0
52	Plymouth	957,200	104,900	372,400	479,900	852,300	22,500	340,700	37,200	129,900	82,400	31,700	249,600	63,200
53	Plymouth Township	4,058,400	459,500	2,039,300	1,559,600	3,598,900	91,100	1,849,400	0	505,700	368,400	189,900	1,053,900	0
54	Redford Township	3,153,900	273,900	1,532,300	1,347,700	2,880,000	88,900	1,455,400	165,100	411,900	185,000	76,900	611,500	159,200
55	River Rouge	641,000	70,500	348,000	222,500	570,500	27,000	334,300	27,500	74,500	43,500	13,700	99,900	20,600
56	Riverview	864,300	72,400	409,400	382,500	791,900	23,300	388,600	45,900	124,600	49,100	20,800	167,300	44,700
57	Rockwood	278,300	21,300	111,800	145,200	257,000	5,700	104,600	15,600	46,900	15,600	7,200	63,000	19,700
58	Romeo	229,500	16,500	91,100	121,900	213,000	3,200	82,500	8,300	32,100	13,300	8,600	65,800	15,700
59	Romulus	3,468,800	372,300	1,709,100	1,387,400	3,096,500	103,300	1,603,100	92,200	466,300	269,000	106,000	717,600	111,300
60	Roseville	2,482,400	268,000	1,295,300	919,100	2,214,400	100,900	1,243,000	128,400	287,700	167,100	52,300	404,500	98,500
61	Royal Oak Township	204,600	18,200	98,400	88,000	186,400	6,000	93,600	12,400	23,600	12,200	4,800	40,300	11,700
62	S O C W A	21,542,500	2,533,100	12,256,600	6,752,800	19,009,400	664,400	11,439,700	0	2,218,800	1,868,700	816,900	4,534,000	0
63	Shelby Township	12,859,100	808,900	4,905,000	7,145,200	12,050,200	209,400	4,572,700	894,500	1,842,400	599,500	332,300	3,222,100	1,186,200
64	South Rockwood	93,300	10,600	36,100	46,600	82,700	2,800	33,700	4,800	15,200	7,800	2,400	20,400	6,200
65	Southgate	2,050,800	190,200	1,012,900	847,700	1,860,600	64,000	964,600	100,900	279,500	126,200	48,300	375,100	92,200
66	St. Clair County-Burtchville	273,300	23,400	100,100	149,800	249,900	4,700	90,900	9,300	52,100	18,700	9,200	71,200	17,200
67	St. Clair County-Greenwood	356,600	39,500	159,800	157,300	317,100	6,500	141,600	0	56,200	33,000	18,200	101,100	0
68	St. Clair Shores	2,894,800	282,900	1,815,300	796,600	2,611,900	105,500	1,741,000	22,900	322,700	177,400	74,300	433,100	17,900
69	Sterling Heights	15,012,900	960,700	7,264,500	6,787,700	14,052,200	317,000	6,908,400	917,500	2,028,400	643,700	356,100	2,978,800	863,000
70	Sumpter Township	604,600	65,300	230,900	308,400	539,300	15,700	213,800	28,900	93,200	49,600	17,100	144,100	42,200

Table 8  
Water Supply System  
Allocation of FY 2018 *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>320,937,100</b>	<b>32,181,600</b>	<b>158,530,900</b>	<b>130,224,600</b>	<b>288,755,500</b>	9,148,600	148,313,500	9,289,800	39,338,000	23,033,000	10,217,400	70,080,200	11,516,600
		<b>Summary by Major Category</b>				<b>Specific Cost Categories</b>							
<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>	<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 Distance-Elevation</b>
71 Sylvan Lake	218,200	21,400	75,100	121,700	196,800	3,600	66,600	8,300	24,900	17,800	8,500	69,300	19,200
72 Taylor	4,554,700	437,600	2,336,500	1,780,600	4,117,100	145,600	2,223,300	183,500	600,300	292,000	113,200	826,300	170,500
73 Trenton	1,963,700	148,300	940,100	875,300	1,815,400	47,100	891,500	100,900	287,800	101,200	48,600	386,300	100,300
74 Troy	12,681,100	986,400	5,707,600	5,987,100	11,694,700	237,000	5,283,400	504,600	1,530,700	749,400	424,200	3,212,600	739,200
75 Utica	555,700	43,100	234,500	278,100	512,600	12,600	220,900	36,700	77,000	30,500	13,600	123,200	41,200
76 Van Buren Township	2,706,400	292,700	1,390,700	1,023,000	2,413,700	69,200	1,285,300	13,800	379,900	223,500	105,400	608,700	20,600
77 Walled Lake	860,900	105,500	295,100	460,300	755,400	16,500	259,600	25,700	99,100	89,000	35,500	271,400	64,100
78 Warren	9,532,000	896,400	5,885,600	2,750,000	8,635,600	345,100	5,656,200	183,500	999,600	551,300	229,400	1,431,100	135,800
79 Washington Township	1,999,300	172,300	1,074,000	753,000	1,827,000	37,500	984,200	0	254,500	134,800	89,800	498,500	0
80 Wayne	2,610,700	170,500	1,588,000	852,200	2,440,200	49,600	1,495,400	0	338,400	120,900	92,600	513,800	0
81 West Bloomfield Township	9,085,000	806,600	3,100,800	5,177,600	8,278,400	139,400	2,764,900	389,900	1,055,400	667,200	335,900	2,868,000	864,300
82 Westland	5,645,600	586,400	2,585,800	2,473,400	5,059,200	166,100	2,429,700	238,500	764,600	420,300	156,100	1,190,800	279,500
83 Wixom	2,303,600	241,300	1,065,900	996,400	2,062,300	37,400	936,300	0	277,300	203,900	129,600	719,100	0
84 Woodhaven	1,935,900	110,400	843,600	981,900	1,825,500	32,900	796,000	121,100	311,100	77,500	47,600	417,600	132,100
85 Ypsilanti Comm Util Auth	10,236,400	1,322,600	4,996,500	3,917,300	8,913,800	270,200	4,546,900	0	1,422,100	1,052,400	449,600	2,495,200	0
86 Total Suburban	284,385,200	26,393,600	136,235,100	121,756,500	257,991,600	6,906,100	126,878,100	9,122,100	36,078,600	19,487,500	9,357,000	65,161,900	11,393,900
87 Detroit Customers	36,551,900	5,787,500	22,295,500	8,468,900	30,764,400	2,242,300	21,435,000	168,000	3,259,500	3,545,200	860,500	4,918,400	123,000
88 GRAND TOTAL	320,937,100	32,181,100	158,530,600	130,225,400	288,756,000	9,148,400	148,313,100	9,290,100	39,338,100	23,032,700	10,217,500	70,080,300	11,516,900

Table 9  
Water Supply System  
Calculation of FY 2018 SHARE's - Suburban Only Cost Pools and Adjusted Suburban Total

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
<b>BUDGET to Allocate:</b>			3,307,900			20,700,000		
	Allocated CTA BUDGET	Wholesale Meter Allo	Wholesale Master Meters	Allocated Cost	Allocated Unadjusted BUDGET	Allocated Unadjusted BUDGET %	Allocation of BUDGET Adjustment	Adjusted BUDGET Required from Chgs
<b>SUB WHOLESALE SHARES</b>								
1 Allen Park	2,166,600	1.441%	47,700	2,214,300	0.770%	159,300	2,373,600	
2 Almont Village	202,200	0.172%	5,700	207,900	0.072%	15,000	222,900	
3 Ash Township	700,700	0.240%	7,900	708,600	0.246%	51,000	759,600	
4 Belleville	287,800	0.184%	6,100	293,900	0.102%	21,100	315,000	
5 Berlin Township	672,500	0.316%	10,500	683,000	0.237%	49,100	732,100	
6 Brownstown Township	3,226,100	0.784%	25,900	3,252,000	1.130%	234,000	3,486,000	
7 Bruce Twp	158,900	0.172%	5,700	164,600	0.057%	11,800	176,400	
8 Canton Township	12,296,400	2.729%	90,300	12,386,700	4.306%	891,200	13,277,900	
9 Center Line	444,200	0.232%	7,700	451,900	0.157%	32,500	484,400	
10 Chesterfield Township	3,607,400	1.087%	36,000	3,643,400	1.266%	262,100	3,905,500	
11 Clinton Township	7,411,600	1.838%	60,800	7,472,400	2.597%	537,700	8,010,100	
12 Commerce Township	4,681,500	0.780%	25,800	4,707,300	1.636%	338,700	5,046,000	
13 Dearborn	9,004,000	0.004%	100	9,004,100	3.130%	647,900	9,652,000	
14 Dearborn Heights	3,593,900	0.925%	30,600	3,624,500	1.260%	260,800	3,885,300	
15 Eastpointe	1,489,200	1.519%	50,200	1,539,400	0.535%	110,800	1,650,200	
16 Ecorse	1,343,200	0.427%	14,100	1,357,300	0.472%	97,700	1,455,000	
17 Farmington	914,900	0.537%	17,800	932,700	0.324%	67,100	999,800	
18 Farmington Hills	8,354,800	4.494%	148,700	8,503,500	2.956%	611,800	9,115,300	
19 Ferndale	907,400	0.852%	28,200	935,600	0.325%	67,300	1,002,900	
20 Flat Rock	1,122,300	0.502%	16,600	1,138,900	0.396%	81,900	1,220,800	
21 Fraser	1,223,600	0.501%	16,600	1,240,200	0.431%	89,200	1,329,400	
22 Garden City	1,540,300	0.736%	24,400	1,564,700	0.544%	112,600	1,677,300	
23 Gibraltar	437,300	0.264%	8,700	446,000	0.155%	32,100	478,100	
24 Grosse Ile Township	1,195,900	0.600%	19,800	1,215,700	0.423%	87,500	1,303,200	
25 Grosse Pt. Park	1,343,500	0.436%	14,400	1,357,900	0.472%	97,700	1,455,600	
26 Grosse Pt. Shores	575,000	0.424%	14,000	589,000	0.205%	42,400	631,400	
27 Grosse Pt. Woods	1,369,000	0.691%	22,900	1,391,900	0.484%	100,100	1,492,000	
28 Hamtramck	614,600	1.036%	34,300	648,900	0.226%	46,700	695,600	
29 Harper Woods	812,100	0.535%	17,700	829,800	0.288%	59,700	889,500	
30 Harrison Township	1,341,300	0.697%	23,100	1,364,400	0.474%	98,200	1,462,600	
31 Hazel Park	639,500	0.819%	27,100	666,600	0.232%	48,000	714,600	
32 Huron Township	1,331,300	0.417%	13,800	1,345,100	0.468%	96,800	1,441,900	
33 Imlay City	937,200	0.232%	7,700	944,900	0.328%	68,000	1,012,900	
34 Imlay Twp	9,200	0.120%	4,000	13,200	0.005%	900	14,100	
35 Inkster	1,730,600	0.589%	19,500	1,750,100	0.608%	125,900	1,876,000	
36 Keego Harbor	282,600	0.184%	6,100	288,700	0.100%	20,800	309,500	
37 Lapeer	1,284,800	0.967%	32,000	1,316,800	0.458%	94,700	1,411,500	
38 Lenox Township	257,600	0.600%	19,800	277,400	0.096%	20,000	297,400	
39 Lincoln Park	2,069,700	1.219%	40,300	2,110,000	0.733%	151,800	2,261,800	
40 Livonia	12,857,200	3.789%	125,300	12,982,500	4.513%	934,100	13,916,600	
41 Macomb Township	10,120,900	1.574%	52,100	10,173,000	3.536%	732,000	10,905,000	
42 Madison Heights	1,889,100	1.132%	37,400	1,926,500	0.670%	138,600	2,065,100	
43 Mayfield Twp	23,100	0.232%	7,700	30,800	0.011%	2,200	33,000	
44 Melvindale	607,200	0.799%	26,400	633,600	0.220%	45,600	679,200	

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Table 9  
Water Supply System  
Calculation of FY 2018 SHARE's - Suburban Only Cost Pools and Adjusted Suburban Total

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<b>BUDGET to Allocate:</b>			3,307,900			20,700,000	
	Allocated CTA BUDGET	Wholesale Master Meters	Wholesale Meter Allo Allocated Cost	Allocated Unadjusted BUDGET	Allocated Unadjusted BUDGET %	Allocation of BUDGET Adjustment	Adjusted BUDGET Required from Chgs
<b>SUB WHOLESALE SHARES</b>							
45 New Haven, Village of	333,300	0.157%	5,200	338,500	0.118%	24,400	362,900
46 N O C W A	21,916,400	8.219%	271,900	22,188,300	7.712%	1,596,500	23,784,800
47 Northville	703,500	0.316%	10,500	714,000	0.248%	51,400	765,400
48 Northville Township	5,763,400	0.781%	25,800	5,789,200	2.012%	416,500	6,205,700
49 Novi	8,367,400	2.866%	94,800	8,462,200	2.941%	608,900	9,071,100
50 Oak Park	1,252,600	0.427%	14,100	1,266,700	0.440%	91,100	1,357,800
51 Oakland Co. Drain Comm.	54,900	0.172%	5,700	60,600	0.021%	4,400	65,000
52 Plymouth	957,200	0.304%	10,100	967,300	0.336%	69,600	1,036,900
53 Plymouth Township	4,058,400	0.472%	15,600	4,074,000	1.416%	293,100	4,367,100
54 Redford Township	3,153,900	2.743%	90,700	3,244,600	1.128%	233,500	3,478,100
55 River Rouge	641,000	0.646%	21,400	662,400	0.230%	47,700	710,100
56 Riverview	864,300	0.219%	7,200	871,500	0.303%	62,700	934,200
57 Rockwood	278,300	0.132%	4,400	282,700	0.098%	20,300	303,000
58 Romeo	229,500	0.232%	7,700	237,200	0.082%	17,100	254,300
59 Romulus	3,468,800	1.416%	46,800	3,515,600	1.222%	253,000	3,768,600
60 Roseville	2,482,400	1.327%	43,900	2,526,300	0.878%	181,800	2,708,100
61 Royal Oak Township	204,600	0.219%	7,200	211,800	0.074%	15,200	227,000
62 S O C W A	21,542,500	7.506%	248,300	21,790,800	7.574%	1,567,900	23,358,700
63 Shelby Township	12,859,100	1.868%	61,800	12,920,900	4.491%	929,700	13,850,600
64 South Rockwood	93,300	0.132%	4,400	97,700	0.034%	7,000	104,700
65 Southgate	2,050,800	0.541%	17,900	2,068,700	0.719%	148,800	2,217,500
66 St. Clair County-Burtchvill	273,300	0.157%	5,200	278,500	0.097%	20,000	298,500
67 St. Clair County-Greenwoc	356,600	0.657%	21,700	378,300	0.131%	27,200	405,500
68 St. Clair Shores	2,894,800	1.858%	61,500	2,956,300	1.028%	212,700	3,169,000
69 Sterling Heights	15,012,900	4.825%	159,600	15,172,500	5.274%	1,091,700	16,264,200
70 Sumpter Township	604,600	0.184%	6,100	610,700	0.212%	43,900	654,600
71 Sylvan Lake	218,200	0.157%	5,200	223,400	0.078%	16,100	239,500
72 Taylor	4,554,700	1.616%	53,500	4,608,200	1.602%	331,600	4,939,800
73 Trenton	1,963,700	1.777%	58,800	2,022,500	0.703%	145,500	2,168,000
74 Troy	12,681,100	4.040%	133,600	12,814,700	4.454%	922,000	13,736,700
75 Utica	555,700	0.232%	7,700	563,400	0.196%	40,500	603,900
76 Van Buren Township	2,706,400	1.646%	54,500	2,760,900	0.960%	198,700	2,959,600
77 Walled Lake	860,900	0.184%	6,100	867,000	0.301%	62,400	929,400
78 Warren	9,532,000	3.437%	113,700	9,645,700	3.353%	694,000	10,339,700
79 Washington Township	1,999,300	0.417%	13,800	2,013,100	0.700%	144,800	2,157,900
80 Wayne	2,610,700	0.900%	29,800	2,640,500	0.918%	190,000	2,830,500
81 West Bloomfield Township	9,085,000	2.972%	98,300	9,183,300	3.192%	660,800	9,844,100
82 Westland	5,645,600	2.911%	96,300	5,741,900	1.996%	413,100	6,155,000
83 Wixom	2,303,600	0.232%	7,700	2,311,300	0.803%	166,300	2,477,600
84 Woodhaven	1,935,900	0.369%	12,200	1,948,100	0.677%	140,200	2,088,300
85 Ypsilanti Comm Util Auth	10,236,400	2.894%	95,700	10,332,100	3.591%	743,400	11,075,500
86 Total Suburban	284,385,200	100.000%	3,307,900	287,693,100	100.000%	20,699,900	308,393,000

Table 10  
Water Supply System  
Calculation of FY 2018 Suburban Wholesale Water Service Charge Schedule

	(1)	(2)	(3)	(4)	(5)	(6)	
	Adjusted Suburban Wholesale BUDGET	Recover Via		Sales Volume	Proposed Service Charges		
	\$	Fixed Monthly \$/mo 60%	Commodity \$/Mcf	Mcf	Fixed Mo \$/mo (2)/(12)	Commodity \$/Mcf (3)/(4)	
1	Allen Park	2,373,600	1,424,200	949,400	135,500	118,700	7.01
2	Almont Village	222,900	133,700	89,200	9,000	11,100	9.91
3	Ash Township	759,600	455,800	303,800	40,200	38,000	7.56
4	Belleville	315,000	189,000	126,000	14,300	15,800	8.81
5	Berlin Township	732,100	439,300	292,800	29,000	36,600	10.10
6	Brownstown Township	3,486,000	2,091,600	1,394,400	138,500	174,300	10.07
7	Bruce Twp	176,400	105,800	70,600	1,040	8,800	67.88
8	Canton Township	13,277,900	7,966,700	5,311,200	335,600	663,900	15.83
9	Center Line	484,400	290,600	193,800	32,600	24,200	5.94
10	Chesterfield Township	3,905,500	2,343,300	1,562,200	163,400	195,300	9.56
11	Clinton Township	8,010,100	4,806,100	3,204,000	404,200	400,500	7.93
12	Commerce Township	5,046,000	3,027,600	2,018,400	97,800	252,300	20.64
13	Dearborn	9,652,000	5,791,200	3,860,800	619,800	482,600	6.23
14	Dearborn Heights	3,885,300	2,331,200	1,554,100	212,000	194,300	7.33
15	Eastpointe	1,650,200	990,100	660,100	114,100	82,500	5.79
16	Ecorse	1,455,000	873,000	582,000	149,300	72,800	3.90
17	Farmington	999,800	599,900	399,900	47,400	50,000	8.44
18	Farmington Hills	9,115,300	5,469,200	3,646,100	365,900	455,800	9.96
19	Ferndale	1,002,900	601,700	401,200	67,900	50,100	5.91
20	Flat Rock	1,220,800	732,500	488,300	64,000	61,000	7.63
21	Fraser	1,329,400	797,600	531,800	63,600	66,500	8.36
22	Garden City	1,677,300	1,006,400	670,900	89,600	83,900	7.49
23	Gibraltar	478,100	286,900	191,200	17,300	23,900	11.05
24	Grosse Ile Township	1,303,200	781,900	521,300	41,300	65,200	12.62
25	Grosse Pt. Park	1,455,600	873,400	582,200	61,100	72,800	9.53
26	Grosse Pt. Shores	631,400	378,800	252,600	19,700	31,600	12.82
27	Grosse Pt. Woods	1,492,000	895,200	596,800	72,000	74,600	8.29
28	Hamtramck	695,600	417,400	278,200	58,900	34,800	4.72
29	Harper Woods	889,500	533,700	355,800	57,300	44,500	6.21
30	Harrison Township	1,462,600	877,600	585,000	92,500	73,100	6.32
31	Hazel Park	714,600	428,800	285,800	51,400	35,700	5.56
32	Huron Township	1,441,900	865,100	576,800	61,200	72,100	9.42
33	Imlay City	1,012,900	607,700	405,200	37,700	50,600	10.75
34	Imlay Twp	14,100	8,500	5,600	80	700	70.00
35	Inkster	1,876,000	1,125,600	750,400	97,700	93,800	7.68
36	Keego Harbor	309,500	185,700	123,800	10,400	15,500	11.90
37	Lapeer	1,411,500	846,900	564,600	56,200	70,600	10.05
38	Lenox Township	297,400	178,400	119,000	17,400	14,900	6.84
39	Lincoln Park	2,261,800	1,357,100	904,700	142,800	113,100	6.34
40	Livonia	13,916,600	8,350,000	5,566,600	493,300	695,800	11.28
41	Macomb Township	10,905,000	6,543,000	4,362,000	311,100	545,300	14.02
42	Madison Heights	2,065,100	1,239,100	826,000	140,700	103,300	5.87
43	Mayfield Twp	33,000	19,800	13,200	550	1,700	24.00

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Table 10  
Water Supply System  
Calculation of FY 2018 Suburban Wholesale Water Service Charge Schedule

	(1)	(2)	(3)	(4)	(5)	(6)
	Adjusted Suburban Wholesale BUDGET	Recover Via		Sales Volume	Proposed Service Charges	
	\$	Fixed Monthly \$/mo 60%	Commodity \$/Mcf	Mcf	Fixed Mo \$/mo (2)/(12)	Commodity \$/Mcf (3)/(4)
44 Melvindale	679,200	407,500	271,700	44,700	34,000	6.08
45 New Haven, Village of	362,900	217,700	145,200	16,200	18,100	8.96
46 N O C W A	23,784,800	14,270,900	9,513,900	930,800	1,189,200	10.22
47 Northville	765,400	459,200	306,200	32,100	38,300	9.54
48 Northville Township	6,205,700	3,723,400	2,482,300	132,900	310,300	18.68
49 Novi	9,071,100	5,442,700	3,628,400	273,900	453,600	13.25
50 Oak Park	1,357,800	814,700	543,100	100,000	67,900	5.43
51 Oakland Co. Drain Comm.	65,000	39,000	26,000	8,600	3,300	3.02
52 Plymouth	1,036,900	622,100	414,800	42,000	51,800	9.88
53 Plymouth Township	4,367,100	2,620,300	1,746,800	169,900	218,400	10.28
54 Redford Township	3,478,100	2,086,900	1,391,200	172,500	173,900	8.06
55 River Rouge	710,100	426,100	284,000	53,100	35,500	5.35
56 Riverview	934,200	560,500	373,700	44,700	46,700	8.36
57 Rockwood	303,000	181,800	121,200	10,600	15,200	11.43
58 Romeo	254,300	152,600	101,700	6,000	12,700	16.95
59 Romulus	3,768,600	2,261,200	1,507,400	196,100	188,400	7.69
60 Roseville	2,708,100	1,624,900	1,083,200	199,100	135,400	5.44
61 Royal Oak Township	227,000	136,200	90,800	11,800	11,400	7.69
62 S O C W A	23,358,700	14,015,200	9,343,500	1,291,300	1,167,900	7.24
63 Shelby Township	13,850,600	8,310,400	5,540,200	399,300	692,500	13.87
64 South Rockwood	104,700	62,800	41,900	5,200	5,200	8.06
65 Southgate	2,217,500	1,330,500	887,000	123,500	110,900	7.18
66 St. Clair County-Burtchville Twp	298,500	179,100	119,400	8,100	14,900	14.74
67 St. Clair County-Greenwood	405,500	243,300	162,200	11,400	20,300	14.23
68 St. Clair Shores	3,169,000	1,901,400	1,267,600	207,000	158,500	6.12
69 Sterling Heights	16,264,200	9,758,500	6,505,700	615,900	813,200	10.56
70 Sumpter Township	654,600	392,800	261,800	29,100	32,700	9.00
71 Sylvan Lake	239,500	143,700	95,800	6,700	12,000	14.30
72 Taylor	4,939,800	2,963,900	1,975,900	281,400	247,000	7.02
73 Trenton	2,168,000	1,300,800	867,200	90,100	108,400	9.62
74 Troy	13,736,700	8,242,000	5,494,700	456,200	686,800	12.04
75 Utica	603,900	362,300	241,600	24,300	30,200	9.94
76 Van Buren Township	2,959,600	1,775,800	1,183,800	128,500	148,000	9.21
77 Walled Lake	929,400	557,600	371,800	30,800	46,500	12.07
78 Warren	10,339,700	6,203,800	4,135,900	683,900	517,000	6.05
79 Washington Township	2,157,900	1,294,700	863,200	70,500	107,900	12.24
80 Wayne	2,830,500	1,698,300	1,132,200	94,800	141,500	11.94
81 West Bloomfield Township	9,844,100	5,906,500	3,937,600	263,500	492,200	14.94
82 Westland	6,155,000	3,693,000	2,462,000	317,100	307,800	7.76
83 Wixom	2,477,600	1,486,600	991,000	69,000	123,900	14.36
84 Woodhaven	2,088,300	1,253,000	835,300	62,200	104,400	13.43
85 Ypsilanti Comm Util Auth	11,075,500	6,645,300	4,430,200	494,300	553,800	8.96
86 Total Suburban	308,393,000	185,036,100	123,356,900	13,244,470	179,300	9.31

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Table 1  
Sewage Disposal System  
Comprehensive Summary of FY 2018 BUDGET Elements - \$ millions

	(1)	(2)	(3)	(4)	
			FY 2018 vs. FY 2017		
	FY 2017	FY 2018	Variance	% Variance	
<b><u>GLWA Regional System Wholesale Items</u></b>					
1	Regional System O&M Expense	175.9	181.1	5.2	3.0%
2	<i>Re-Categorized "Capital Outlay"</i>		<b>10.0</b>	10.0	NA
3	Total Regional System O&M Expense	175.9	191.1	15.2	8.7%
4	Pension Obligation - Operating Portion	10.8	10.8	0.0	0.0%
5	Regional System Debt Service	222.4	215.6	(6.8)	-3.1%
6	Transfer to Pension Obligation Payment Fund	11.1	11.4	0.4	3.2%
7	Transfer to WRAP Fund	2.3	2.4	0.1	4.0%
8	Transfer to Extra. Repair and Repl. Fund	0.0	0.9	0.9	0.0%
9	Lease Payment - Transfer to Detroit Local I&E	27.5	27.5	0.0	0.0%
10	Transfer to GLWA Regional I&E Account	21.7	19.6	(2.0)	-9.4%
11	Operating Reserves	0.0	1.7	1.7	0.0%
12	Total	471.7	481.1	9.4	<b>2.0%</b>
13	<i>less: Non-Operating Revenue</i>	(4.1)	(2.8)	1.4	-33.2%
14	Net BUDGET Req'd from Charges to Customers	467.6	478.4	10.8	2.3%
<b><u>DWSD Local System Retail Items</u></b>					
15	Local System O&M Expense	41.5	57.4	15.9	38.2%
16	Pension Obligation - Operating Portion	2.9	2.9	0.0	0.0%
17	Local System Debt Service	22.6	22.6	0.0	0.0%
18	Transfer to Pension Obligation Payment Fund	2.9	3.0	0.1	3.2%
19	Transfer to WRAP Fund	0.4	0.4	0.0	4.0%
20	Transfer to Budget Stabilization Fund	2.7	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>
21	Transfer to DWSD Local I&E Account	0.0	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>
22	Total	72.9	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>
23	<i>less: Non-Operating Revenue</i>	(4.5)	(5.0)	(0.5)	11.1%
24	Net BUDGET Req'd from Charges to Customers	68.4	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>
<b><u>CONSOLIDATED SYSTEMS</u></b>					
25	O&M Expense	217.4	248.5	31.1	14.3%
26	Pension Obligation - Operating Portion	13.7	13.7	0.0	0.0%
27	Debt Service	245.0	238.2	(6.8)	-2.8%
28	Transfer to Pension Obligation Payment Fund	14.0	14.5	0.4	3.2%
29	Transfer to WRAP Fund	2.7	2.8	0.1	4.0%
30	Transfer to Budget Stabilization Fund	2.7	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>
31	Transfer to Extra. Repair and Repl. Fund	0.0	0.9	0.9	0.0%
32	Lease Payment - Transfer to Detroit Local I&E	27.5	27.5	0.0	0.0%
33	Transfer to I&E Fund	21.7	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>
34	Operating Reserves	0.0	1.7	1.7	0.0%
35	Total	544.6	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>
36	<i>less: Non-Operating Revenue</i>	(8.6)	(7.8)	0.9	-10.0%
37	Net BUDGET Req'd from Charges to Customers	536.0	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>

Table 2  
Debt Service Comparison Summary - \$ millions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	FY 2017 Budget		Pre-2016 Bonds		2016 Bonds Results		Impact of 2016 Bonds		Budget to Budget Var	
	FY 2017	FY 2018	FY 2017	FY 2018	FY 2017	FY 2018	FY 2017	FY 2018	FY 2017	FY 2018
							(5) - (3)	(6) - (4)	(5) - (1)	(6) - (2)
<b>Water Supply System</b>										
1 Existing Sr. and 2nd Revenue Bonds	175.4	174.0	175.4	174.0	164.7	157.9	(10.7)	(16.0)	(10.7)	(16.0)
2 Series 2016 New Money Bonds	12.6	12.6	11.0	16.1	8.5	12.6	(2.5)	(3.5)	(4.0)	0.0
3 Subtotal	187.9	186.6	186.4	190.1	173.2	170.5	(13.1)	(19.6)	(14.7)	(16.0)
4 DWRf Junior Lien Bonds	2.6	2.5	2.0	2.4	2.0	2.4	0.0	0.0	(0.5)	(0.1)
5 Total	190.5	189.1	188.4	192.5	175.3	173.0	(13.1)	(19.6)	(15.2)	(16.2)
6 less: Debt Service Allocated to Local System	31.2	31.2	31.2	31.2	31.2	34.4	0.0	3.2	0.0	3.2
7 Debt Service Allocated to Regional System	159.3	157.9	157.2	161.3	144.0	138.6	(13.1)	(22.7)	(15.2)	(19.4)
<b>Sewage Disposal System</b>										
8 Existing Sr. and 2nd Revenue Bonds	187.8	187.7	187.6	187.7	181.0	177.1	(6.6)	(10.6)	(6.8)	(10.6)
9 Planned Series 2017 New Money Bonds	0.0	0.0	0.0	3.6	0.0	3.6	0.0	0.0	0.0	3.6
10 Subtotal	187.8	187.7	187.6	191.2	181.0	180.7	(6.6)	(10.6)	(6.8)	(7.0)
11 CWRf Junior Lien Bonds *	57.2	57.2	56.9	57.5	56.8	57.5	(0.1)	(0.0)	(0.4)	0.3
12 Total	245.0	244.9	244.5	248.8	237.8	238.2	(6.7)	(10.6)	(7.2)	(6.7)
13 less: Debt Service Allocated to Local System	22.6	22.6	22.6	22.6	22.6	22.6	0.0	0.0	0.0	0.0
14 Debt Service Allocated to Regional System	222.4	222.4	221.9	226.2	215.3	215.6	(6.7)	(10.6)	(7.2)	(6.7)
<b>Combined Water and Sewer</b>										
15 Existing Sr. and 2nd Revenue Bonds	363.1	361.7	363.0	361.7	345.7	335.0	(17.3)	(26.6)	(17.5)	(26.6)
16 Planned Series 2017 New Money Bonds	12.6	12.6	11.0	19.7	8.5	16.2	(2.5)	(3.5)	(4.0)	3.6
17 Subtotal	375.7	374.3	374.0	381.4	354.2	351.2	(19.8)	(30.2)	(21.5)	(23.1)
18 CWRf Junior Lien Bonds *	59.8	59.8	58.9	60.0	58.9	59.9	(0.1)	(0.0)	(0.9)	0.1
19 Total	435.5	434.1	432.9	441.3	413.1	411.1	(19.8)	(30.2)	(22.4)	(22.9)
20 less: Debt Service Allocated to Local System	53.8	53.8	53.8	53.8	53.8	57.0	0.0	3.2	0.0	3.2
21 Debt Service Allocated to Regional System	381.7	380.3	379.1	387.5	359.3	354.2	(19.8)	(33.3)	(22.4)	(26.1)
<b>Local System Debt Service Allocation</b>										
<u>Water System Local Debt Service</u>										
22 Existing Sr. & 2nd Bonds @ 12/31/15 (a)	29.4	29.4	29.4	29.4	29.4	29.4	0.0	0.0	0.0	0.0
23 Existing DWRf Bonds @ 12/31/15 (a)	1.8	1.8	1.8	1.8	1.8	1.8	0.0	0.0	0.0	0.0
24 Subtotal	31.2	31.2	31.2	31.2	31.2	31.2	0.0	0.0	0.0	0.0
25 2016 DWRf Bonds	NA	NA	NA	NA	0.4	0.4	0.4	0.4	0.4	0.4
26 2016 New Money Bonds	NA	NA	NA	NA	2.5	2.5	2.5	2.5	2.5	2.5
27 2017 Projected DWRf Bonds	NA	NA	NA	NA	0.2	0.2	0.2	0.2	0.2	0.2
28 Total Debt Service - Local Water System	31.2	31.2	31.2	31.2	31.2	34.4	0.0	3.2	0.0	3.2
<u>Sewer System Local Debt Service</u>										
29 Existing Sr. & 2nd Bonds @ 12/31/15 (a)	22.6	22.6	22.6	22.6	22.6	22.6	0.0	0.0	0.0	0.0

(a) The allocation of long term Debt Service to the Regional and Local Systems is subject to final analysis and review. As this process continues GLWA has held the FY 2018 debt service allocation to the Local System at the levels established by the FY 2016 Cost of Service Study. This practice was employed for the FY 2017 Budget and has been continued for the FY 2018 Budget. The FY 2018 Water debt service budget also includes debt service on new instruments issued on behalf of the Local System.

\* Includes some CWRf Loans that are actually Sr. Lien

Table 3  
Sewage Disposal System  
Allocation of FY 2018 GLWA Wholesale Service BUDGET to Cost Pools

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		Cost Pools						
<u>BUDGET Elements</u>	<u>Allocated FY 2018</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	191,079,400	161,963,800	3,340,300	4,078,700	10,174,100	11,522,300	54,613,500	107,350,300
2 Pension Obligation - Operating Portion	10,838,400	8,880,800	224,600	274,300	684,100	774,700	3,052,400	5,828,400
3 Debt Service	215,628,100	178,228,100	3,570,900	2,404,400	30,948,600	476,100	114,634,500	63,593,600
4 Non-Operating Portion of Pension Obli	11,447,900	9,380,300	237,200	289,700	722,600	818,300	3,224,000	6,156,300
5 Transfer to WRAP Fund	2,391,800	1,997,800	41,100	38,900	240,000	73,900	986,500	1,011,300
6 Transfer to Extra. Repair and Repl. Fur	972,000	803,400	16,100	10,800	139,500	2,100	516,700	286,700
7 Lease Payment - Transfer to Detroit Lo	27,500,000	22,971,300	472,200	447,800	2,759,300	849,300	11,342,800	11,628,500
8 Transfer to GLWA Regional I&E Accoun	11,922,100	9,854,300	197,400	132,900	1,711,200	26,300	6,338,100	3,516,200
9 Operating Reserves	1,733,000	1,468,900	30,300	37,000	92,300	104,500	495,400	973,500
10 Total Gross BUDGET	473,512,700	395,548,700	8,130,100	7,714,500	47,471,700	14,647,500	195,203,900	200,344,800
11 less: Non-Operating Revenue	(2,751,000)	(2,297,900)	(47,200)	(44,800)	(276,000)	(85,000)	(1,134,600)	(1,163,300)
12 Net BUDGET Req'd from Charges	470,761,700	393,250,800	8,082,900	7,669,700	47,195,700	14,562,500	194,069,300	199,181,500
<u>Summary - BUDGET Required from Charges</u>								
13 Net Operating Expenses	203,650,800	172,313,500	3,595,200	4,390,000	10,950,500	12,401,500	58,161,300	114,152,200
14 Net Capital Requirements	267,110,900	220,937,300	4,487,700	3,279,700	36,245,200	2,161,000	135,908,000	85,029,300
15 Total	470,761,700	393,250,800	8,082,900	7,669,700	47,195,700	14,562,500	194,069,300	199,181,500

Table 4  
Sewage Disposal System  
Adjusted and Summarized FY 2018 Wholesale Service BUDGET Allocation to Cost Pools

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Cost Pool Allocation								
Amount to Allocate	Common to All	Suburban Wholesale	OMID Specific	CSO Facilities	Industrial Waste Control	TOTAL	<i>Common to All (b)</i>		
\$	\$	\$	\$	\$	\$	\$	<i>Flow</i>	<i>Pollutants</i>	
<b>BUDGET Elements</b>									
1 Net Operating Expenses	203,650,800	172,313,500	3,595,200	4,390,000	10,950,500	12,401,500	203,650,700	58,161,300	114,152,200
2 Net Capital Requirements	267,110,900	220,937,300	4,487,700	3,279,700	36,245,200	2,161,000	267,110,900	135,908,000	85,029,300
3 Net to Recover from Charges	470,761,700	393,250,800	8,082,900	7,669,700	47,195,700	14,562,500	470,761,600	194,069,300	199,181,500
<b>Allocated to Industrial</b>									
4 Net Operating Expenses	15,318,100	2,916,600	0	0	0	12,401,500	15,318,100	0	2,916,600
5 Net Capital Requirements	4,333,500	2,172,500	0	0	0	2,161,000	4,333,500	0	2,172,500
6 Net to Recover from Charges	19,651,600	5,089,100	0	0	0	14,562,500	19,651,600	0	5,089,100
<b>Net Req'd from Customers</b>									
7 Net Operating Expenses	188,332,700	169,396,900	3,595,200	4,390,000	10,950,500	0	188,332,600	58,161,300	111,235,600
8 Net Capital Requirements	262,777,400	218,764,800	4,487,700	3,279,700	36,245,200	0	262,777,400	135,908,000	82,856,800
9 Net BUDGET from Charges	451,110,100	388,161,700	8,082,900	7,669,700	47,195,700	0	961,174,800	194,069,300	194,092,400

(a) Industrial Surcharge Customers

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

2.56%

(b) Relative Flow/Pollutants in CTA Cost Pool

50%

50%

Table 5  
Sewage Disposal System  
FY 2018 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	16.088%	22.009%	100.000%	2.651%	12.288%	19.888%
2	Rouge Valley	12.788%	20.450%		2.956%	11.418%	14.158%
3	Oakland GWK	10.631%	18.479%		2.256%	10.317%	10.946%
4	Evergreen Farmington	8.272%	12.717%		1.485%	7.100%	9.443%
5	NE Wayne Co	5.856%	9.973%		1.174%	5.568%	6.144%
6	Dearborn	4.674%	8.280%		1.631%	4.623%	4.805%
7	Grosse Pointe Farms	0.591%	1.067%		0.504%	0.595%	0.587%
8	Grosse Pointe Park	0.430%	0.740%		0.062%	0.413%	0.447%
9	Melvindale	0.361%	0.564%		0.074%	0.315%	0.408%
10	Farmington	0.272%	0.442%		0.052%	0.247%	0.297%
11	Center Line	0.243%	0.365%		0.056%	0.204%	0.282%
12	Allen Park	0.203%	0.313%		0.031%	0.175%	0.230%
13	Highland Park	1.081%	2.193%		2.065%	1.224%	0.887%
14	Hamtramck	0.728%	1.787%		1.595%	0.998%	0.669%
15	Grosse Pointe	0.183%	0.423%		0.228%	0.236%	0.170%
16	Harper Woods	0.052%	0.113%		0.013%	0.063%	0.050%
17	Redford Township	0.045%	0.074%		0.133%	0.041%	0.033%
18	Wayne County #3	0.007%	0.011%		0.035%	0.006%	0.005%
19	Subtotal Suburban Wholesale	62.503%	100.000%	100.000%	17.000%	55.832%	69.449%
20	City of Detroit Customers	37.497%			83.000%	44.168%	30.551%
21	<b>Total</b>	100.000%	0.000%		83.000%	44.168%	30.551%

Table 6  
Sewage Disposal System  
Allocation of FY 2018 Wholesale Service BUDGET to Customers

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
	Allocation of FY 2018 BUDGET					Detroit Capital Ownership Adjustment	Adjusted Allocated BUDGET	Additional Allocated Elements		Total Amount for "Net" Charges	
	Common to All	Suburban Wholesale	OMID Specific	CSO Facilities	TOTAL			Bad Debt Projected	Bad Debt True-Up		
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	
<u>Metered Customers</u>											
1	OMID	62,447,800	1,779,000	7,669,800	1,251,300	73,147,900	1,214,000	74,361,900	962,000	618,600	75,942,500
2	Rouge Valley	49,638,300	1,653,000	0	1,395,000	52,686,300	1,128,000	53,814,300	893,700	574,800	55,282,800
3	Oakland GWK	41,267,200	1,493,600	0	1,064,700	43,825,500	1,019,300	44,844,800	807,500	519,400	46,171,700
4	Evergreen Farmington	32,107,500	1,027,900	0	700,900	33,836,300	701,500	34,537,800	555,700	357,400	35,450,900
5	NE Wayne cSo	22,730,800	806,100	0	554,100	24,091,000	550,100	24,641,100	435,800	280,300	25,357,200
6	Dearborn	18,140,800	669,300	0	769,800	19,579,900	456,800	20,036,700	361,900	232,700	20,631,300
7	Grosse Pointe Farms	2,294,800	86,200	0	237,900	2,618,900	58,800	2,677,700	46,600	30,000	2,754,300
8	Grosse Pointe Park	1,670,100	59,800	0	29,100	1,759,000	40,800	1,799,800	32,300	20,800	1,852,900
9	Melvindale	1,402,600	45,600	0	34,900	1,483,100	31,100	1,514,200	24,600	15,800	1,554,600
10	Farmington	1,054,500	35,700	0	24,700	1,114,900	24,400	1,139,300	19,300	12,400	1,171,000
11	c\$enter Line	942,800	29,500	0	26,200	998,500	20,100	1,018,600	15,900	10,300	1,044,800
12	Allen Park	786,100	25,300	0	14,600	826,000	17,300	843,300	13,700	8,800	865,800
13	Highland Park	4,194,800	177,300	0	974,500	5,346,600	121,000	5,467,600	95,800	61,600	5,625,000
14	Hamtramc\$K	2,824,100	144,500	0	752,600	3,721,200	98,600	3,819,800	78,100	50,200	3,948,100
15	Grosse Pointe	708,800	34,200	0	107,700	850,700	23,300	874,000	18,500	11,900	904,400
16	Harper Woods	199,900	9,100	0	6,000	215,000	6,200	221,200	4,900	3,200	229,300
17	Redford Township	176,500	6,000	0	63,000	245,500	4,100	249,600	3,200	2,100	254,900
18	Wayne c\$ounty #3	27,000	900	0	16,400	44,300	600	44,900	500	300	45,700
19	Subtotal Suburban Wholesale	242,614,400	8,083,000	7,669,800	8,023,400	266,390,600	5,516,000	271,906,600	4,370,000	2,810,600	279,087,200
20	City of Detroit Customers	145,547,600	0	0	39,172,500	184,720,100	(5,516,000)	179,204,100	(a)	(a)	(a)
21	<b>Subtotal</b>	388,162,000	8,083,000	7,669,800	47,195,900	451,110,700	0	451,110,700			
22	Industrial Waste Control					14,562,500		14,562,500			
23	Industrial Surcharges					5,088,800		5,088,800			
24	<b>Total</b>					470,762,000		470,762,000			

(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 2018 Wholesale Service Charge Schedule

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
	FY 2018 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	5,204,000	148,300	639,100	104,300	6,095,700	101,200	6,196,900	80,200	51,600	6,328,700
2	Rouge Valley	4,136,500	137,800	0	116,300	4,390,600	94,000	4,484,600	74,500	47,900	4,607,000
3	Oakland GWK	3,438,900	124,500	0	88,700	3,652,100	84,900	3,737,000	67,300	43,300	3,847,600
4	Evergreen Farmington	2,675,600	85,700	0	58,400	2,819,700	58,500	2,878,200	46,300	29,800	2,954,300
5	NE Wayne Co	1,894,200	67,200	0	46,200	2,007,600	45,800	2,053,400	36,300	23,400	2,113,100
6	Dearborn	1,511,700	55,800	0	64,200	1,631,700	38,100	1,669,800	30,200	19,400	1,719,400
7	Grosse Pointe Farms	191,200	7,200	0	19,800	218,200	4,900	223,100	3,900	2,500	229,500
8	Grosse Pointe Park	139,200	5,000	0	2,400	146,600	3,400	150,000	2,700	1,700	154,400
9	Melvindale	116,900	3,800	0	2,900	123,600	2,600	126,200	2,100	1,300	129,600
10	Farmington	87,900	3,000	0	2,100	93,000	2,000	95,000	1,600	1,000	97,600
11	Center Line	78,600	2,500	0	2,200	83,300	1,700	85,000	1,300	900	87,200
12	Allen Park	65,500	2,100	0	1,200	68,800	1,400	70,200	1,100	700	72,000
13	Highland Park	349,600	14,800	0	81,200	445,600	10,100	455,700	8,000	5,100	468,800
14	Hamtramck	235,300	12,000	0	62,700	310,000	8,200	318,200	6,500	4,200	328,900
15	Grosse Pointe	59,100	2,900	0	9,000	71,000	1,900	72,900	1,500	1,000	75,400
16	Harper Woods	16,700	800	0	500	18,000	500	18,500	400	300	19,200
17	Redford Township	14,700	500	0	5,300	20,500	300	20,800	300	200	21,300
18	Wayne County #3	2,300	100	0	1,400	3,800	100	3,900	0	0	3,900
19	Subtotal Suburban Wholesale	20,217,900	674,000	639,100	668,800	22,199,800	459,600	22,659,400	364,200	234,300	23,257,900
20	City of Detroit Customers	12,129,000	0	0	3,264,400	15,393,400	(459,700)	14,933,700			14,933,700
21	<b>Total</b>	32,346,900	674,000	639,100	3,933,200	37,593,200	(100)	37,593,100	364,200	234,300	38,191,600

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



## Appendices

- January 19, 2017 memorandum: “FY 2018 Financial Plan and Service Charges”
- February 12, 2017 memorandum: “FY 2018 SHARE Recommendations”
- February 12, 2017 memorandum: “Bad Debt Expense Treatment for FY 2018 Charges – Suburban Wholesale Sewer Customer Class”



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### MEMORANDUM

FY 2018 Financial Plan and Service Charges

January 19, 2017

To: Sue McCormick

From: Bart Foster

You have asked for an executive summary of our preliminary recommendations regarding the FY 2018 financial plan and service charge schedules. The following commentary and observations summarize my understanding regarding the overarching strategies and approaches that are the result of our collective deliberations on this matter.

- There are significant key developments impacting the GLWA FY 2018 Financial Plan and Service Charges, including:
  - *The successful refinancing of outstanding debt assumed from DWSD, which has provided debt service savings;*
  - *The impending departure of Genesee County from the Water System during FY 2018;*
  - *The scheduled update of SHARES for the Sewer System, and the resulting shift in cost allocation amongst Customers.*
- GLWA's core planning objective this year has been to strike a careful balance between returning savings from the refunding transactions to Customers, while still preparing responsible financial plans in accordance with the Lease(s), the Master Bond Ordinances, the Water and Sewer Services Agreement, and expectations of our investors and the credit markets.
- For the Water System, we are preparing an overall BUDGET (total revenue requirement) that is equal to the existing BUDGET for FY 2017 - no increase. We note that the Lease effectively establishes an upper limit of 4 percent<sup>1</sup>.
  - *This will allow the Water System to absorb the loss of revenue from Genesee County while limiting the "average service charge" increase to approximately 4 percent.*
    - Our plan also includes approximately \$4 million in revenue during FY 2018 from Flint, reflecting anticipated service through October 1, 2017.
    - As always, impacts on individual Customers will vary based on their specific contract requirements and use of the System. However, there are not as many

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<sup>1</sup> We believe that it is important to remind stakeholders that, per the Leases: ". . . *this limitation shall not be applicable if the Authority Revenue Requirement must increase beyond the 4% assumption in order to satisfy the Rate Covenant or to pay the cost of improvements to the Leased Water Facilities that are required to be made by Applicable Laws.*"

significant changes in contract demands this year compared to recent years and we do not anticipate a great deal of variance from the average.

- The refunding savings for the Sewer System were not as significant as those for the Water System, but they still provide us the opportunity to prepare an overall BUDGET that reflects a 2 percent increase over the existing BUDGET for FY 2017, which is lower than the 4 percent upper limit referenced in the Lease.
  - *This will allow us to implement the results of the SHARE update - which will shift cost responsibility from Detroit and other (small) districts to the larger suburban Customers - while limiting the “average service charge” increase to those larger Suburban Customers to approximately 7 percent<sup>2</sup>.*
  - *The proposed plan also recognizing that Highland Park continues to make regular payments of its Sewer bills. While these payments are only partial, we are able to include this revenue in the FY 2018 financial plan, which will lessen the pressure on service charges to other Suburban Customers and reduce the impact on the “average service charge” increase for these Customers to approximately 6 percent<sup>3</sup>.*
  - *With respect to the SHARE update, we are finalizing a plan to responsibly acknowledge the significant efforts and findings of the work group’s technical review while embracing the Rate Simplification Initiative and the evolving developments associated with ongoing projects mentioned below.*
  - *Again, impacts on individual Sewer Customers will vary based on their specific contributions of wastewater volumes and loadings to the System, which define their use of the System.*
- Proposed service charges for ALL Customers, and the proposed wholesale revenue requirement for the Detroit Retail Customer Class, will be formally presented at a Customer Outreach Rollout Meeting next Thursday, January 26 at SEMCOG.
  - *The Water meeting is scheduled to start at 10:30; at noon there will be a combined Water / Sewer presentation; the Sewer meeting is scheduled to start at 12:30*
  - *The cost of service allocation study for FY 2018 embraces specific budget development while recognizes that there are many ongoing projects that will continue to impact core cost allocation approaches, including:*
    - Implementation of the Water Master Plan and strategic capacity reductions;
    - Launch of (and initial results of) the Wastewater Master Plan;
    - A comprehensive review via the Customer Outreach process of the overall cost of service allocation methodologies for both the Water and Sewer Systems;
    - Subsequent results of audited financial statements, including formal establishment of a beginning GLWA balance sheet and results of the fixed asset inventory and valuation.

We are prepared to discuss this matter at your convenience.

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<sup>2</sup> Preliminary, subject to change. We are still evaluating final technical data from the SHAREs project.

<sup>3</sup> *ibid*



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### MEMORANDUM

FY 2018 SHARE Recommendations

February 12, 2017

To: Sue McCormick, Nickie Bateson

From: Bart Foster

This memorandum has been prepared to briefly document recommended SHARE calculations for the FY 2018 Service Charges. The historical development of the SHARE concept and the process undertaken to update the SHARES for FY 2018 is well documented in correspondence, and we'll not attempt to duplicate the core concepts here. Rather, we briefly introduce our understanding of the technical findings that emerged from deliberations over the past years, and our recommendations as to how to implement such findings.

The SHARE Assessment Project (the "Project") has been a technical study that sought to develop "best available and verifiable" information on three key topics. The topics are introduced below, followed by our understanding of the findings and opinions established by the Project on each, and finally by our recommendations to deal with each in updated SHARE calculations for FY 2018.

#### **Introduction of Assessment Topics**

- ***Customer Flow Contributions.*** A key element for determining SHARES each Customer's contributions of wastewater volumes to the System. The Project sought to update estimated flow volume contributions from each Customer based on three distinct types of flow sources of wastewater contributions: sanitary volumes, dry weather infiltration and inflow (DWII) and wet weather volumes, and to estimate the amount of flow in the City of Detroit (and other small districts without billing meters, collectively referred to as "D+") that should be attributed to that class, and the amount of such flows that should be attributed as "common" responsibility of all Customers.
- ***Strength of Flow.*** The Project analyzed national data and sampled flow contributions in the GLWA System to establish opinions on the various pollutants carried in the

three distinct sources of wastewater contributions for four key pollutant measures<sup>1</sup>, so that pollutant loadings could be assigned to Customers based on their relative flow contributions. The existing SHAREs assume that both DWII and wet weather flows carry 1/3 the amount of pollutants that sanitary flows do, or that the “relative strength” of these extraneous non-sanitary flows were 1/3 of the sanitary strength.

- **Cost Pool Allocations.** The Project was designed to review how the relative GLWA “common-to-all” costs are most appropriately assigned to “volume” and “pollutant” categories, and to individual categories within the overall “pollutant” category.

### **Our Understanding of Technical Findings and Opinions**

- **Customer Flow Contributions.** Flow balance information was analyzed to establish flows by flow type for each Customer and for influent volumes at the WRRF in total for an updated “data period” from FY 2013 - FY 2016. A significant amount of effort was undertaken in an attempt to estimate the amount of flow that should be allocated to D+ and how much should be treated as a “common” responsibility of all Customers. Portions of the flow emanating in the D+ region is metered via retail (water, proxy for sanitary) billing meters and various “system” wastewater meters. The Project found that estimates from these meters accounted for about 2/3 of the total flow in the D+ area, and used extrapolation techniques to estimate the remainder. The Project estimates that the D+ and “common” flow volumes for the data period total approximately 352 cfs and 193 cfs, respectively. Approximately 7.5 cfs in the D+ region, and approximately 3 cfs in the Suburban Wholesale region, was deemed to be “common” flow as the Project estimated that these flows were DWII associated with leaks from GLWA transmission mains. The “common” flow as a percentage of total influent volume for the data period was approximately 20.7%.
- **Strength of Flow.** The Project established three basis of “relative strength” of each pollutant for each flow type. Expressed as a percentage of sanitary strength, the effective relative strength (total for combined pollutants) of DWII ranged from 0.6% to 2.4% and for wet weather ranged from 18% to 27%.
- **Cost Pool Allocations.** The Project concluded that existing financial reports and asset records were not adequately developed to support material changes in relative

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<sup>1</sup> BOD – Biochemical Oxygen Demand; TSS – Total Suspended Solids; PHOS – Phosphorus; and FOG – Fats, Oils, and Grease.

allocations of cost to “flow” and individual “pollutant” cost pools, but that the existing allocation approaches and estimates were consistent with industry standards.

### **SHARE Recommendations**

- ***General.*** We believe that it is important to recognize the difficulty of evaluating wastewater contributions in a large regional system, and to grasp the reality that precision in these types of evaluations of is unattainable, particularly for wastewater flows and loadings. There will always be opportunities to pursue “better available and verifiable” information. The Project should be celebrated as adding significant value to the efforts to continue to improve cost allocation through the SHARE process. Having said that, there are evolving operational and theoretical studies either ongoing or about to launch that will provide additional data, and which may result in changing philosophies regarding wastewater cost allocation in the near future. Full implementation of Project findings without attentiveness to other developments could result in disincentives to support larger current and evolving Regional wastewater management strategies. As such, our proposed SHARE modifications seek to recognize Project guidance in a directionally appropriate manner, while implementing Project findings in a less technical manner. This approach embraces the goals of the Rate Simplification Initiative, which include: ease of understanding, stability, and consistency with Customer practices in their local systems. Our specific SHARE recommendations are based on:
  - ***Customer Flow Contributions.*** Although we understand that (as of this writing) some flow data continues to be subject to final review, our recommended SHARE calculations reflects the ALL of the flow data that has been provided and implements it in accordance with the technical Project recommendations, with one exception. It is our understanding that assumptions regarding GLWA main inventory may change materially in the near future, which could alter the technical estimates of “common” flow related to this topic. We also believe that the overall concept of treating this flow as “common” may be subject to additional review in ongoing technical studies, including the “Units of Service” study that is about to start for the GLWA Water System. As such, our recommended SHARE calculations to not recognize the Project recommendation to treat as “common” estimated DWII associated with leaks from GLWA transmission mains. Our approach results in a relative “common” flow estimate that is approximately 19.6% of total influent volume.
    - √ *Our interpretation of Project flow volume data is illustrated on attached Exhibit Pages 1 and 2.*

- ***Strength of Flow.*** We believe that it is particularly important to acknowledge the difficulties in accurately estimating the pollutant loadings in wet weather flow volumes, and that this particular estimate appears to have been the most elusive target of the Project. We also believe that the full embrace of the technical findings could result in disincentives to support larger current and evolving Regional wastewater management strategies. Our recommendation acknowledges that prior, general assumptions on this topic appear reasonable, and attempts to simplify the approach with a directionally appropriate adjustment. We recommend establishing a policy that sets DWII strength at 5% of sanitary and sets wet weather strength at 25% of sanitary ***for all pollutants***, starting with the FY 2018 SHARES<sup>2</sup>. This approach recognizes the reality that assignment of costs to individual cost pools is not consistent with currently available financial data, and embraces the goals of the Rate Simplification Initiative.

√ *On Exhibit Page 3, we illustrate the relative assignment of pollutant loadings to Customers based on these assumptions. Exhibit Page 3 also computes the individual volume and pollutant Shares for each Customer.*

- ***Cost Pool Allocations.*** The existing, long standing approach to assigning cost accountability for removing pollutants from the WRRF remains conceptually valid. For example, the CDM study pump station costs allocated based on flow and solids removal cost allocated based on the amount of pollutants. As the GLWA starting balance sheet is finalized, and as audited financial results for GLWA operations are prepared, more refined data with which to specifically assign costs to volume and pollutant cost pools will emerge. In the meantime, we recommend establishing an assumption that 50% of the relative GLWA “common-to-all” costs are most appropriately assigned to “volume” cost pool and that 50% to the “pollutant” cost pool, without attempting to allocate to individual pollutant (BOD, TSS, etc.) categories within the “pollutant” cost pool. Once again, we believe that this recommendation is consistent with the overarching tenets of the Rate Simplification Initiative and representative of reasonable estimates of historical financial data.

√ *Applying these assumptions to the volume and pollutant Shares yields the recommended SHARES shown on Exhibit Page 4.*

We are available to discuss this matter at your convenience.

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<sup>2</sup> We recommend that the FY 2018 SHARES remain in place for a minimum of two years, pending developments of the Wastewater Master Plan and/or related technical studies.

## FY 2018 SHARE CALCULATIONS

## Volume Data Analysis - cfs

41.88

11.3%

4-Year Average Flow Contributions from FY 2013 through FY 2016									
	Total	Dry Weather			Wet	less:	Net	less:	Net
	Contributed	Total	Sanitary	DWII	Weather	Overflow	Wet Weather	NNNRW	Contributed
						4.73			
						37.15			
								0	
<b>M Customers</b>									
1a	OMID - Unadjusted	103.97	93.58	74.67	18.91	10.39			93.58
1b	Adjust for C/O Diversion	(9.96)	(7.77)	(5.50)	(2.27)	(2.19)			(7.77)
1	Adjusted OMID	94.01	85.81	69.17	16.64	8.20	(0.43)	7.77	93.57
2	Rouge Valley	87.84	70.90	45.96	24.95	16.94	(0.89)	16.05	86.95
3	Oakland GWK	80.01	52.54	32.06	20.48	27.47	(1.44)	26.03	78.57
4	Evergreen Farmington	54.46	47.03	31.63	15.40	7.43	(0.39)	7.04	54.07
5	NE Wayne Co	43.20	27.98	18.13	9.85	15.22	(0.80)	14.42	42.40
6	Allen Park	1.35	1.01	0.74	0.27	0.34	(0.02)	0.32	1.33
7	Center Line	1.57	1.16	0.91	0.25	0.41	(0.02)	0.39	1.55
8	Dearborn East & West	31.89	21.36	13.38	7.98	10.53	(0.55)	9.98	31.34
9	Farmington	1.90	1.56	0.96	0.59	0.34	(0.02)	0.32	1.88
10	Grosse Pointe Park	3.20	2.12	1.32	0.80	1.08	(0.06)	1.02	3.15
11	Melvindale	2.42	1.92	1.33	0.59	0.51	(0.03)	0.48	2.40
12	Grosse Pointe Farms	4.62	3.05	1.68	1.37	1.57	(0.08)	1.48	4.53
13	<b>M Total</b>	406.46	316.43	217.26	99.17	90.03	(4.73)	85.30	401.73
14	<b>D+</b>	396.93	282.11	89.11	193.01	114.82	(37.15)	77.67	359.79
15	<b>Subtotal</b>	803.40	598.54	306.37	292.17	204.86	(41.88)	162.98	761.52
16	<b>Z</b>	185.98	124.13		124.13	61.85		61.85	185.98
17	Net Adjusted	989.38	722.67	306.37	416.30	266.71	(41.88)	224.83	947.50
<b>Relative %</b>									
18	<b>M</b>	41.1%	43.8%	70.9%	23.8%	33.8%	11.3%	37.9%	42.4%
19	<b>D+</b>	40.1%	39.0%	29.1%	46.4%	43.1%	88.7%	34.5%	38.0%
20	<b>Z</b>	18.8%	17.2%	0.0%	29.8%	23.2%	0.0%	27.5%	19.6%
<b>Allocation %</b>									
21	<b>M</b>	50.6%	52.9%	70.9%	33.9%	44.0%	11.3%	52.3%	52.8%
22	<b>D+</b>	49.4%	47.1%	29.1%	66.1%	56.0%	88.7%	47.7%	47.2%
23	Original <b>W</b>	962.79	734.37						
24	less: OMID Diversion	(9.96)	(7.77)						
25	less: WTUA Diversion	(5.33)	(3.93)						
26	Net Adjusted <b>W</b>	947.50	722.67						
27	plus Overflow	41.88							
28	<b>Total Contributed</b>	989.38	722.67						
<b>Reported D+</b>									
29	Direct	213.25	146.28			66.97			
30	Indirect	183.68	135.84			47.85			
31	Original Total	396.93	282.11			114.82			
32	Indirect Adj Factor	100.000%	100%						
33	Adjusted Indirect	183.68	135.84						
34	Adjusted Total	396.93	282.11						
35	OMID Diversion %	9.6%	8.3%						

**FY 2018 SHARE CALCULATIONS*****Volume Data Summary - cfs***

	<u>Sanitary</u>	<u>DWII</u>	<u>Wet Weather</u>	<u>Total</u>
1 Adjusted OMID	69.17	16.64	7.77	93.57
2 Rouge Valley	45.96	24.95	16.05	86.95
3 Oakland GWK	32.06	20.48	26.03	78.57
4 Evergreen Farmington	31.63	15.40	7.04	54.07
5 NE Wayne Co	18.13	9.85	14.42	42.40
6 Allen Park	0.74	0.27	0.32	1.33
7 Center Line	0.91	0.25	0.39	1.55
8 Dearborn East & West	13.38	7.98	9.98	31.34
9 Farmington	0.96	0.59	0.32	1.88
10 Grosse Pointe Park	1.32	0.80	1.02	3.15
11 Melvindale	1.33	0.59	0.48	2.40
12 Grosse Pointe Farms	1.68	1.37	1.48	4.53
13 <b>M</b> Total	<u>217.26</u>	<u>99.17</u>	<u>85.30</u>	<u>401.73</u>
14 <b>D+</b>	89.11	193.01	77.67	359.79
15 Total Allocation Units	<u>306.37</u>	<u>292.17</u>	<u>162.98</u>	<u>761.52</u>
16 Common Units		124.13	61.85	185.98
17 Grand Total	<u>306.37</u>	<u>416.30</u>	<u>224.83</u>	<u>947.50</u>

## FY 2018 SHARE CALCULATIONS

## Calculation of Allocation Units and Shares

				BOD	TSS	PHOS	FOG		
				176,697,300	255,289,900	4,910,400	27,112,600		
<u>Weighted Adj Influent Split</u>									
1	Sanitary		9,661,500	79.9%	141,198,500	204,001,800	3,923,900	21,665,600	
2	DWII Ratio	<b>5.0%</b>	656,400	5.4%	9,593,000	13,859,800	266,600	1,472,000	
3	WW Ratio	<b>25.0%</b>	1,772,600	14.7%	25,905,800	37,428,300	719,900	3,975,000	
4	Total		12,090,500		176,697,300	255,289,900	4,910,400	27,112,600	
5	Sanitary Strength				234.2	338.4	6.5	35.9	
6	DWII Strength				11.7	16.9	0.3	1.8	
7	Wet Weather Strength				58.6	84.6	1.6	9.0	
8	Allocated Strength				111.2	160.7	3.1	17.1	
9	Total Strength				94.8	136.9	2.6	14.5	
<u>Allocation Units</u>				BOD	TSS	PHOS	FOG		
				lbs	lbs	lbs	lbs		
1	Adjusted OMID	2,181,200	524,900	244,900	2,951,000	33,155,600	47,902,800	921,400	5,087,400
2	Rouge Valley	1,449,200	786,700	506,100	2,742,000	23,603,400	34,101,800	655,900	3,621,700
3	Oakland GWK	1,011,100	645,800	820,800	2,477,700	18,247,600	26,363,800	507,100	2,799,900
4	Evergreen Farmington	997,400	485,600	222,100	1,705,100	15,742,900	22,745,100	437,500	2,415,600
5	NE Wayne Co	571,600	310,800	454,800	1,337,200	10,242,500	14,798,200	284,600	1,571,600
6	Allen Park	23,300	8,600	10,100	42,000	383,700	554,400	10,700	58,900
7	Center Line	28,700	7,800	12,400	48,900	470,400	679,700	13,100	72,200
8	Dearborn East & West	422,000	251,600	314,700	988,300	7,501,000	10,837,300	208,500	1,151,000
9	Farmington	30,400	18,700	10,100	59,200	494,800	715,000	13,800	75,900
10	Grosse Pointe Park	41,700	25,200	32,300	99,200	745,900	1,077,600	20,700	114,400
11	Melvindale	41,800	18,600	15,200	75,600	680,000	982,500	18,900	104,300
12	Grosse Pointe Farms	53,100	43,100	46,800	143,000	978,500	1,413,700	27,200	150,100
13	<b>M Total</b>	6,851,500	3,127,400	2,690,300	12,669,200	112,246,300	162,171,900	3,119,400	17,223,000
14	<b>D+</b>	2,810,000	6,086,600	2,449,500	11,346,100	54,464,000	78,688,800	1,513,500	8,357,000
15	Total Allocation Units	9,661,500	9,214,000	5,139,800	24,015,300	166,710,300	240,860,700	4,632,900	25,580,000
16	Common Flow		3,914,500	1,950,600	5,865,100	9,987,100	14,429,200	277,500	1,532,400
17	Total Flow	9,661,500	13,128,500	7,090,400	29,880,400	176,697,400	255,289,900	4,910,400	27,112,400
<u>Shares</u>									
18	Adjusted OMID	22.58%	5.70%	4.76%	<b>12.29%</b>	19.89%	19.89%	19.89%	19.89%
19	Rouge Valley	15.00%	8.54%	9.85%	<b>11.42%</b>	14.16%	14.16%	14.16%	14.16%
20	Oakland GWK	10.47%	7.01%	15.97%	<b>10.32%</b>	10.95%	10.95%	10.95%	10.95%
21	Evergreen Farmington	10.32%	5.27%	4.32%	<b>7.10%</b>	9.44%	9.44%	9.44%	9.44%
22	NE Wayne Co	5.92%	3.37%	8.85%	<b>5.57%</b>	6.14%	6.14%	6.14%	6.14%
23	Allen Park	0.24%	0.09%	0.20%	<b>0.17%</b>	0.23%	0.23%	0.23%	0.23%
24	Center Line	0.30%	0.08%	0.24%	<b>0.20%</b>	0.28%	0.28%	0.28%	0.28%
25	Dearborn East & West	4.37%	2.73%	6.12%	<b>4.12%</b>	4.50%	4.50%	4.50%	4.50%
26	Farmington	0.31%	0.20%	0.20%	<b>0.25%</b>	0.30%	0.30%	0.30%	0.30%
27	Grosse Pointe Park	0.43%	0.27%	0.63%	<b>0.41%</b>	0.45%	0.45%	0.45%	0.45%
28	Melvindale	0.43%	0.20%	0.30%	<b>0.31%</b>	0.41%	0.41%	0.41%	0.41%
29	Grosse Pointe Farms	0.55%	0.47%	0.91%	<b>0.60%</b>	0.59%	0.59%	0.59%	0.59%
30	<b>M Total</b>	70.92%	33.94%	52.34%	<b>52.75%</b>	67.33%	67.33%	67.33%	67.33%
31	<b>D+</b>	29.08%	66.06%	47.66%	<b>47.25%</b>	32.67%	32.67%	32.67%	32.67%
32	Total Allocation Units	100.00%	100.00%	100.00%	<b>100.00%</b>	100.00%	100.00%	100.00%	100.00%

## Final SHARE Calculations

	Volume Share	Pollutant Share	SHARE
Relative Cost Pool:	<b>50.0%</b>	<b>50.0%</b>	
<b>Shares</b>			
1 Adjusted OMID	12.288%	19.888%	<b>16.088%</b>
2 Rouge Valley	11.418%	14.158%	<b>12.788%</b>
3 Oakland GWK	10.317%	10.946%	<b>10.631%</b>
4 Evergreen Farmington	7.100%	9.443%	<b>8.272%</b>
5 NE Wayne Co	5.568%	6.144%	<b>5.856%</b>
6 Allen Park	0.175%	0.230%	<b>0.203%</b>
7 Center Line	0.204%	0.282%	<b>0.243%</b>
8 Dearborn East & West	4.115%	4.499%	<b>4.307%</b>
9 Farmington	0.247%	0.297%	<b>0.272%</b>
10 Grosse Pointe Park	0.413%	0.447%	<b>0.430%</b>
11 Melvindale	0.315%	0.408%	<b>0.361%</b>
12 Grosse Pointe Farms	0.595%	0.587%	<b>0.591%</b>
13 <b>M Total</b>	52.755%	67.330%	<b>60.042%</b>
14 <b>D+</b>	47.245%	32.670%	<b>39.958%</b>
15 <b>TOTAL</b>	100.000%	100.000%	<b>100.000%</b>



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### MEMORANDUM

Bad Debt Expense Treatment for FY 2018 Charges  
Suburban Wholesale Sewer Customer Class

February 12, 2017

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 2018 Sewage Disposal System Cost of Service Allocations and Service Charge schedules. This topic was discussed at length during the presentation of the FY 2017 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 2018 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.*

#### FY 2016 Bad Debt and FY 2018 Service Charges

The receivable balance for the Highland Park account continues to grow. However, Highland Park has made periodic payments. The preliminary review of the FY 2016 audit work papers indicate that FY 2016 bad debt expense attributable to Highland Park will total approximately \$2.975 million. Since the FY 2016 Sewer Service Charges assumed that no payments would be made, and included a total “projected bad debt expense” of approximately \$5.569 million in the prospective FY 2016 Charges, application of the terms of the “bad debt true-up” provision results in a credit totaling approximately \$2.594 million.

We recommend a strategy of implementing this amount on the same basis that was established last year, and effectively “netting” it against the original implementation schedule. This concept is illustrated on Line 3 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 the entire amount allocated to Highland Park, our calculations assume that collections will equal 20 percent of total billings. This assumption results in a reduction in the impact on 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 \$9.059 million in the FY 2017 Charges to approximately \$7.181 million in the FY 2018 Charges. This reduction of almost \$1.9 million results in a more moderate average charge increase than would have otherwise been experienced.

We are available to discuss this matter at your convenience.

Sewage Disposal System  
Calculation of Suburban Wholesale Bad Debt Revenue Requirement Adjustment

	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2017 - 2020 5-Year Total</u>
1 Prospective Charges	5,569,200	5,600,000	4,370,000	4,500,000	4,700,000	4,900,000	24,070,000
2 Pre-2016 Bad Debt "True-Up"	474,900	3,459,100	3,459,100	3,459,100	3,459,100	3,459,100	17,295,500
3 Future True-Up Recovery (a)	0	0	<b>(648,500)</b>	<b>(648,500)</b>	<b>(648,500)</b>	<b>(648,500)</b>	<b>(2,594,000)</b>
4 Total Included in Charges	<u>6,044,100</u>	<u>9,059,100</u>	<u>7,180,600</u>	<u>7,310,600</u>	<u>7,510,600</u>	<u>7,710,600</u>	<u>38,771,500</u>
5 Bad Debt Included in 5-Year LBA		5,785,000	FY 2016 charges "true-up" last of this adjustment				
6 Bad Debt Expense @ 6/30/2015		17,295,300					
7 Initial Recovery Strategy	<b>5</b>	3,459,100	thru FY 2021				
8 Cumulative Reserve @ 6/30/15		<b>23,080,306</b>					
9 Cumulative Reserve @ 6/30/16		<b>26,055,521</b>					
10 FY 2016 Bad Debt Expense?		<b>2,975,200</b>					
11 Amount included in Charges		5,569,200					
12 Amount due to Customers		<b>(2,594,000)</b>					
13 True-Up Strategy	<b>4</b>	<b>(648,500)</b>	thru FY 2021				
14 Allocated Highland Park Revenue Req't		5,467,600					
15 Collection Assumption		<b>20%</b>					
16 Assumed Bad Debt Expense		<b>4,370,000</b>					