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MEMORANDUM

FY 2017 Cost of Service Study and Service
Charge Recommendations

January 26, 2016

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 2017. 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 2017 is scheduled for March 2, 2016.

This is the first 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 responsibility, although reference is made to certain retail elements that are solely allocable to 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 separation of the system into GLWA (wholesale) and DWSD (retail) entities creates some presentation differences, but prior studies had always isolated the “Detroit only” cost pool of revenue requirements in the “old” DWSD.

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 2017 BUDGET depicted herein is a “bottom line” budget.
 - *The FY 2017 BUDGET included in these calculations reflects full implementation of the 4% Revenue Requirement Increase contemplated in the MOU and the Lease, applied to the original FY 2016 BUDGET approved by the DWSD Board of Water Commissioners in March 2015.*
 - *It is our understanding that the final FY 2017 BUDGET will likely contain modifications to the current version, as final arrangements related to the*

GLWA / DWSD transition are implemented, (including final staffing assignments, the shared services concept, etc.).

- *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 refunding bonds in December 2015.*
- *GLWA plans to formally update the capital financing plans for the Water Supply and Sewage Disposal Systems in conjunction with potential new money and/or refunding issues this spring or early summer.*
- *No savings associated with potential refunding are included in these assumptions.*

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 2017 BUDGET and financial plan.

- *O&M Budget for Local Facilities;*
- *Capital Improvement Program Financing Requirements for Local Facilities;*
- *Application of \$50 million Lease Payment*

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 2017 Cost of Service Study, we have applied our understanding of current estimated allocations, which for most of these items reflects the general allocation to wholesale and retail cost pools in the FY 2016 Cost of Service Study.

- *Terms of "Obligation Payable" from DWSD to GLWA (Retail 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)*

- *Allocation of the deposit to the WRAP Fund*
5. Application of bad debt expense true-up provision in Sewer service agreement(s)
- *We've applied 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 2016) service charges.

The exhibits to this memorandum contain executive summary material on:

- The determination of the PRELIMINARY FY 2017 BUDGET;
- The allocation of PRELIMINARY FY 2017 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 2017 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 are being distributed to each customer concurrent with the publishing of this memorandum at the final customer rollout meeting scheduled for January 28. In addition, we are preparing additional summary material to present to the GLWA Audit Committee on February 5 and the Full GLWA Board at their workshop on February 10.

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

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Water Service Charge Calculation Tables:

1. Illustrates the development of the comprehensive Water Supply System BUDGET for FY 2017 and FY 2018, separated into GLWA Wholesale Items (Lines 1 through 10), initial estimated DWSD Retail items (Lines 11 through 20), and for the Consolidated Systems, (Lines 21 through 30). The FY 2017 GLWA Wholesale Items on Lines 1 through 10 reflect the Wholesale Service BUDGET that is allocated to customers in this study. Of note:
 - The total FY 2017 BUDGET is determined by applying the 4% indexed increase noted in the Lease to the original FY 2016 BUDGET approved by the DWSD Board of Water Commissioners in March 2015, and the total FY 2018 BUDGET figure represents a 4% increase over the FY 2017 BUDGET. *The Cost of Service Study calculations delineated herein allocate responsibility for the “Revenue Requirement from Charges” totaling \$329.1 million on Line 10 of Column 2 of the table.*
 - The DWSD Retail Items are preliminary and provided for informational purposes only, and to support overall revenue figures for purposes of evaluation of Master Bond Ordinance compliance. *These items are not allocated to Suburban Wholesale Customers and do not impact Suburban Wholesale Service Charges.*
 - As noted in the introduction to this memorandum, for purposes of the FY 2017 Cost of Service Study, we have applied our understanding of current estimated allocations of certain items between the GLWA Wholesale and DWSD Retail systems.
 - The miscellaneous revenue projections for FYs 2017 and 2018 have been reduced by an amount roughly equivalent to expected billings to Highland Park (~ \$1.2 million).
 - The 5.3% variance shown on Line 34 represents the adjustment to existing service charge revenues necessary to produce a 4.0% increase in overall revenue requirements. *The variance is related to lower sales and revenue forecasts for FY 2017 compared to projections for FY 2016.*

2. Illustrates the projected Debt Service Coverage calculations after adjusting service charge revenues for the FY 2017 BUDGET. The Master Bond Ordinance requires minimum coverage ratios of 1.20 for senior lien bonds, 1.10 for senior lien plus second lien bonds, and 1.00 for all bonds, including SRF junior lien bonds. Current management policy sets minimum targets for each lien that are 0.15 points higher than those required by the Master Bond Ordinance. *Note that this table presents information for both the Water and Sewer systems.*

3. Allocates the FY 2017 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. We note that versions of this summary for prior years included a “Detroit Only” Cost Pool, which is not necessary since we are only allocating GLWA Wholesale Service revenue requirements.
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 the average annual sales for each customer over a recent 24 month period, in this case for the 24 months ending September 2015. ***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 as a wholesale customer for purposes of the FY 2017 Cost of Service Study. The agreement to serve Flint technically runs through the end of FY 2016.***
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.
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 each the Suburban Only Cost Pools, based on the units of service information from Table 4.
10. Applies the Suburban Only SHARES from Table 9 to the Cost Pool totals from Table 5 to allocate the Suburban Only BUDGET to individual customers.
11. Calculates the proposed wholesale service charge structure for each customer. The proposed service charge structure for FY 2017 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. The sales figures used to compute for the commodity charges for each customer represent the average annual sales for each customer over the 24 months ending September 2015. ***Note that we've not proposed service charge schedules for the two customers not currently served under a formal water service contract pending additional review and discussion.***

Sewer Service Charge Calculation Tables:

1. Illustrates the development of the comprehensive Sewage System BUDGET for FY 2017 and FY 2018, separated into GLWA Wholesale Items (Lines 1 through 10), initial estimated DWSD Retail items (Lines 11 through 20), and for the Consolidated Systems, (Lines 21 through 30). The FY 2017 GLWA Wholesale Items on Lines 1 through 10 reflect the Wholesale Service BUDGET that is allocated to customers in this study. Of note:
 - The total FY 2017 BUDGET is determined by applying the 4% indexed increase noted in the Lease to the original FY 2016 BUDGET approved by the DWSD Board of Water Commissioners in March 2015, and the total FY 2018 BUDGET figure represents a 4% increase over the FY 2017 BUDGET. ***The Cost of Service Study calculations delineated herein allocate responsibility for the "Revenue Requirement from Charges" totaling \$460.0 million on Line 10 of Column 2 of the table.***
 - The DWSD Retail Items are preliminary and provided for informational purposes only, and to support overall revenue figures for purposes of evaluation of Master Bond Ordinance compliance. ***These items are not***

allocated to Suburban Wholesale Customers and do not impact Suburban Wholesale Service Charges.

- As noted in the introduction to this memorandum, for purposes of the FY 2017 Cost of Service Study, we have applied our understanding of current estimated allocations of certain items between the GLWA Wholesale and DWSD Retail systems.
 - The 7.3% variance shown on Line 34 represents the adjustment to existing service charge revenues necessary to produce a 4.0% increase in overall revenue requirements. ***The variance is related to lower sales and revenue forecasts for FY 2017 compared to projections for FY 2016.***
2. Illustrates the projected Debt Service Coverage calculations after adjusting service charge revenues for the FY 2017 BUDGET. The Master Bond Ordinance requires minimum coverage ratios of 1.20 for senior lien bonds, 1.10 for senior lien plus second lien bonds, and 1.00 for all bonds, including SRF junior lien bonds. Current management policy sets minimum targets for each lien that are 0.15 points higher than those required by the Master Bond Ordinance. *Note that this table presents information for both the Water and Sewer systems.*
 3. Allocates the FY 2017 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. We note that versions of this summary for prior years included a “Detroit Only” Cost Pool, which is not necessary since we are only allocating GLWA Wholesale Service revenue requirements.
 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 2017. ***These SHARES are identical to the final FY 2016 SHARES.***
 6. Applies the SHARES from Table 5 to the Cost Pool totals from Table 4 to allocate the FY 2017 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 MOU and the Lease. (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. These calculations assume that no revenue will be collected from Highland Park during FY 2017. The service agreement protocol calls for these costs 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, and 2015. ***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.

Water Tables

Table 1
Water Supply System
Comprehensive Summary of FY 2017 and FY 2018 BUDGET Elements - \$ millions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	FY 2016	FY 2017	FY 2018	FY 2017 vs. FY 2016		FY 2018 vs. FY 2017	
	<i>Original Budg</i>	<i>Preliminary</i>	<i>Preliminary</i>	Variance (2) - (1)	% Variance (4) / (1)	Variance (3) - (2)	% Variance (6) / (2)
GLWA Wholesale Items							
1 Wholesale Expense O&M (GLWA) (a)	107.6	111.9	116.4	4.3	4.0%	4.5	4.0%
2 GLWA Pension Reimbursement (Operating) (b)	6.0	6.0	6.0	0.0	0.0%	0.0	0.0%
3 Debt Service (Wholesale Facilities)	151.8	162.4	157.9	10.5	6.9%	(4.5)	-2.7%
4 Non-Op Legacy Benefit Pmts (Wholesale Portion) (b)	6.0	6.0	6.0	(0.0)	0.0%	0.0	0.0%
5 WRAP Deposit (Wholesale Portion) (a)	2.0	1.6	1.7	(0.3)	-16.9%	0.1	4.0%
6 Lease Payment Deposit to Retail I&E Account	22.5	22.5	22.5	0.0	0.0%	0.0	0.0%
7 Revenue Transfer to Wholesale I&E Account (d)	22.5	20.7	33.9	(1.8)	-7.8%	13.2	63.5%
8 Total Wholesale Revenue Requirements (a)	318.5	331.2	344.5	12.7	4.0%	13.2	4.0%
9 less: Non-operating Revenue	(2.8)	(2.1)	(2.3)	0.7	-26.0%	(0.2)	11.5%
10 Subtotal Revenue Requirement from Charges	315.7	329.1	342.1	13.5	4.3%	13.0	4.0%
DWSD Retail Items							
11 Retail O&M Expense (DWSD-R) (a)	44.9	46.7	48.6	1.8	4.0%	1.9	4.0%
12 DWSD-R Pension Reimbursement (Operating) (b)	4.3	4.3	4.3	0.0	0.0%	0.0	0.0%
13 Debt Service (Retail Facilities) (c)	31.2	31.2	31.2	0.0	0.0%	0.0	0.0%
14 Non-Op Legacy Benefit Pmts (Retail Portion) (b)	4.3	4.3	4.3	0.0	0.0%	0.0	0.0%
15 Budget Stabilization Fund Deposit	0.0	1.7	1.7	1.7	NA	0.0	0.0%
16 WRAP Deposit (Retail Portion) (a)	0.0	0.4	0.4	0.4	NA	0.0	4.0%
17 Revenue Transfer to Retail I&E Account (d)	0.7	0.2	1.8	(0.5)	-78.0%	1.7	1096.8%
18 Total Retail Revenue Requirements (a)	85.3	88.7	92.3	3.4	4.0%	3.5	4.0%
19 less: Non-operating Revenue	(4.8)	(4.8)	(4.8)	0.0	0.0%	0.0	0.0%
20 Subtotal Revenue Requirement from Charges	80.6	84.0	87.5	3.4	4.2%	3.5	4.2%
CONSOLIDATED SYSTEMS							
21 O&M Expense (a)	152.5	158.6	164.9	6.1	4.0%	6.3	4.0%
22 Pension Reimbursement (Operating) (b)	10.3	10.3	10.3	0.0	0.0%	0.0	0.0%
23 Debt Service	183.1	193.6	189.1	10.5	5.8%	(4.5)	-2.3%
24 Non-Op Legacy Benefit Pmts (b)	10.3	10.3	10.3	(0.0)	0.0%	0.0	0.0%
25 Budget Stabilization Fund Deposit	0.0	1.7	1.7	1.7	NA	0.0	0.0%
26 WRAP Deposit (a)	2.0	2.1	2.2	0.1	4.8%	0.1	4.0%
27 Lease Payment Deposit to Retail I&E Account	22.5	22.5	22.5	0.0	0.0%	0.0	0.0%
28 Revenue Transfer to I&E Fund (d)	23.2	20.9	35.7	(2.3)	-9.9%	14.8	71.0%
29 Total Revenue Requirements (a)	403.8	420.0	436.7	16.2	4.0%	16.8	4.0%
30 less: Non-operating Revenue	(7.6)	(6.8)	(7.1)	0.7	-9.6%	(0.2)	3.5%
31 Subtotal Revenue Requirement from Charges	396.2	413.1	429.7	16.9	4.3%	16.6	4.0%
32 Proforma Revenue - Existing Charges	392.3	392.3					
33 Variance	4.0	20.8					
34 % Variance	1.0%	5.3%			4.3%		

(a) Assumed to increase 4.0% annually

(b) FY 2017 and FY 2018 allocation to Wholesale and Retail elements assumed @ FY 2016 levels

(c) FY 2017 and FY 2018 Retail Debt Service reflects preliminary initial amortization schedule for "Obligation Payable"

(d) Default calculation to result in overall 4.0% annual revenue requirement increase

Table 2
FY 2017 Debt Service Coverage Calculations

	(1)	(2)	(3)
	<u>Water</u>	<u>Sewer</u>	<u>Combined</u>
1 Baseline Revenue - Exist Charges	392,292,700	485,024,100	877,316,800
2 <i>Revenue Adjustment - %</i>	<i>5.3%</i>	<i>7.3%</i>	<i>6.4%</i>
3 Revenue Adjustment - \$	20,831,600	35,178,400	56,010,000
4 Projected Revenue from Charges	413,124,300	520,202,500	933,326,800
5 Misc & Non-Operating Revenue	6,827,100	9,115,200	15,942,300
6 <i>Bad Debt True-Up Recovery</i>		<i>10,962,600</i>	<i>10,962,600</i>
7 Total Projected Revenue	419,951,400	540,280,300	960,231,700
8 less: Operating Expenses	168,864,000	224,813,500	393,677,500
9 Net Revenue	251,087,400	315,466,800	566,554,200
	<u>Debt Service</u>		
10 Senior Lien	145,902,300	147,907,200	293,809,500
11 Senior Lien and Second Lien	187,944,400	196,930,300	384,874,700
12 All Bonds, Including SRF Jr. Lien	190,497,300	244,985,900	435,483,200
	<u>Debt Service Coverage</u>		
13 Senior	1.72	2.13	1.93
14 Senior Lien and Second Lien	1.34	1.60	1.47
15 All Bonds, Including SRF Jr. Lien	1.32	1.29	1.30

Table 3
Water Supply System
Allocation of FY 2017 *Wholesale Service* BUDGET to Cost Pools

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)										
												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	Outreach											
\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$											
BUDGET Elements																					
1	Operation and Maintenance Expense	111,879,200	11,086,500	39,547,200	0	5,187,500	23,178,400	6,714,300	11,589,100	11,589,100	2,090,200	896,800									
2	Operating Pension Reimbursement	6,037,100	0	3,374,900	0	473,700	651,300	613,100	325,700	325,700	190,900	81,900									
3	Debt Service	162,373,400	0	72,141,300	7,945,100	28,940,400	0	0	52,367,800	0	978,800	0									
4	Non-Operating Legacy Benefit Pmts	6,035,200	0	3,373,800	0	473,500	651,100	612,900	325,600	325,600	190,800	81,900									
5	WRAP Deposit	1,645,700	59,400	684,100	48,000	207,800	131,200	42,600	382,100	65,600	19,200	5,700									
6	Lease Payment Deposit to Retail I&E	22,500,000	812,300	9,353,600	656,500	2,841,000	1,793,800	581,800	5,224,300	896,900	262,000	77,700									
7	System Revenue Financed Major CIP	20,742,600	0	9,215,800	1,015,000	3,697,000	0	0	6,689,800	0	125,000	0									
8	Total Gross BUDGET	331,213,200	11,958,200	137,690,700	9,664,600	41,820,900	26,405,800	8,564,700	76,904,400	13,202,900	3,856,900	1,144,000									
9	less: Misc Non-Operating Income	(2,077,100)	(75,000)	(863,500)	(60,600)	(262,300)	(165,600)	(53,700)	(482,300)	(82,800)	(24,200)	(7,200)									
10	Net BUDGET Req'd from Charges	329,136,100	11,883,200	136,827,200	9,604,000	41,558,600	26,240,200	8,511,000	76,422,100	13,120,100	3,832,700	1,136,800									
Summary - BUDGET Required from Charges																					
11	Net Operating Expenses	117,916,300	11,086,500	42,922,100	0	5,661,200	23,829,700	7,327,400	11,914,800	11,914,800	2,281,100	978,700									
12	Net Capital Requirements	211,219,800	796,700	93,905,100	9,604,000	35,897,400	2,410,500	1,183,600	64,507,300	1,205,300	1,551,600	158,100									
15	Total	329,136,100	11,883,200	136,827,200	9,604,000	41,558,600	26,240,200	8,511,000	76,422,100	13,120,100	3,832,700	1,136,800									

Table 4a
Water Supply System
FY 2017 Units of Service Data

	(1)	(2)	(3)	(4)	(5)	(6)
	Units of Service Input Data					
	Volume	Max Day	Peak Hour	Distance	Elevation	Eq Mtrs
	<i>mcf</i>	<i>mgd</i>	<i>mgd</i>	<i>miles</i>	<i>feet</i>	<i>5/8" proxies</i>
1 Allen Park	138,000	5.70	8.40	21.0	602.0	961
2 Almont Village	9,000	0.44	0.44	37.9	802.0	115
3 Ash Township	40,000	1.57	2.10	29.9	635.0	160
4 Belleville	15,000	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	136,000	6.80	11.20	28.5	601.0	523
7 Bruce Twp	1,000	0.11	0.11	32.8	767.0	115
8 Canton Township	324,000	22.50	36.00	32.2	741.0	1,820
9 Center Line	34,000	1.19	1.80	18.0	623.0	155
10 Chesterfield Township	162,000	8.75	12.00	28.3	616.0	725
11 Clinton Township	398,000	21.40	26.60	22.8	607.0	1,226
12 Commerce Township	93,000	6.32	11.60	31.4	967.0	520
13 Dearborn	628,000	26.01	34.23	20.3	605.0	3
14 Dearborn Heights	218,000	9.00	13.30	22.4	624.0	617
15 Eastpointe	117,000	4.00	6.10	18.1	612.0	1,013
16 Ecorse	156,000	4.00	4.50	20.1	591.0	285
17 Farmington	47,000	2.25	2.45	27.1	760.0	358
18 Farmington Hills	363,000	22.00	22.00	27.4	787.0	2,997
19 Ferndale	66,000	3.00	3.10	18.2	643.0	568
20 Flat Rock	62,000	2.60	3.50	29.7	601.0	335
21 Fraser	65,000	3.10	4.90	21.0	617.0	334
22 Garden City	92,000	3.35	5.35	25.0	638.0	491
23 Genesee County DC	523,000	26.60	27.90	52.0	866.0	3,600
24 Gibraltar	17,000	0.94	1.45	30.9	588.0	176
25 Grosse Ile Township	43,000	2.78	4.40	27.0	584.0	400
26 Grosse Pt. Park	61,000	3.60	6.07	18.0	583.0	291
27 Grosse Pt. Shores	19,000	1.43	2.67	18.9	587.0	283
28 Grosse Pt. Woods	75,000	4.96	4.96	18.9	587.0	461
29 Hamtramck	61,000	1.67	2.44	16.7	633.0	691
30 Harper Woods	58,000	2.34	3.25	18.4	598.0	357
31 Harrison Township	93,000	4.20	4.20	24.0	587.0	465

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Table 4a
Water Supply System
FY 2017 Units of Service Data

	(1)	(2)	(3)	(4)	(5)	(6)
	Units of Service Input Data					
	Volume	Max Day	Peak Hour	Distance	Elevation	Eq Mtrs
	<i>mcf</i>	<i>mgd</i>	<i>mgd</i>	<i>miles</i>	<i>feet</i>	<i>5/8" proxies</i>
32 Hazel Park	54,000	1.70	2.44	18.1	639.0	546
33 Highland Park	110,000	3.01	4.40	16.7	633.0	691
34 Huron Township	60,000	3.00	4.19	29.9	635.0	278
35 Imlay City	40,500	1.80	2.00	45.9	908.0	155
36 Inkster	104,000	4.75	5.68	24.4	638.0	393
37 Keego Harbor	11,000	0.45	0.68	29.1	942.0	123
38 Lapeer	59,600	1.86	2.23	49.1	849.0	645
39 Lenox Township	19,000	0.49	0.78	30.5	619.0	400
40 Lincoln Park	146,000	5.50	8.00	20.4	593.0	813
41 Livonia	488,000	30.00	42.00	26.2	688.0	2,527
42 Macomb Township	297,000	25.10	36.50	26.8	622.0	1,050
43 Madison Heights	148,000	5.45	6.95	19.4	629.0	755
44 Mayfield Twp	482	0.02	0.04	48.3	839.0	155
45 Melvindale	47,000	1.70	2.30	19.9	594.0	533
46 New Haven, Village of	14,000	0.70	1.20	29.8	613.0	105
47 N O C W A	930,000	50.60	52.50	27.6	902.5	5,481
48 Northville	32,000	1.60	1.65	31.1	836.0	211
49 Northville Township	128,000	10.50	17.10	30.5	855.0	521
50 Novi	263,000	19.00	19.00	31.5	936.0	1,911
51 Oak Park	103,000	3.90	3.90	19.7	669.0	285
52 Oakland Co. Drain Comm.	9,000	0.15	0.15	20.4	617.0	115
53 Plymouth	42,000	1.81	2.62	30.8	750.0	203
54 Plymouth Township	165,000	10.00	10.00	31.3	793.0	315
55 Redford Township	173,000	7.90	11.50	22.6	635.0	1,829
56 River Rouge	58,000	1.80	2.40	19.4	585.0	431
57 Riverview	46,000	2.49	3.82	25.3	594.0	146
58 Rockwood	11,000	0.56	0.90	32.7	592.0	88
59 Romeo	6,000	0.50	0.66	32.2	789.0	155
60 Romulus	196,000	8.59	10.60	27.3	652.0	944
61 Roseville	208,000	6.70	9.50	19.0	620.0	885
62 Royal Oak Township	12,000	0.68	0.86	19.2	670.0	146

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Table 4a
Water Supply System
FY 2017 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>	
63	S O C W A	1,286,000	62.30	62.30	22.2	732.0	5,006
64	Shelby Township	396,000	25.00	44.50	26.4	694.0	1,246
65	South Rockwood	5,000	0.17	0.28	33.4	586.0	88
66	Southgate	124,000	5.20	7.40	23.7	601.0	361
67	St. Clair County-Burtchville T	9,000	0.48	0.68	47.2	620.0	105
68	St. Clair County-Greenwood	10,000	0.75	0.75	45.4	774.0	438
69	St. Clair Shores	221,000	9.50	10.00	20.2	594.0	1,239
70	Sterling Heights	617,000	38.00	58.00	22.3	632.0	3,218
71	Sumpter Township	30,000	1.12	1.75	32.9	663.0	123
72	Sylvan Lake	7,000	0.36	0.54	29.1	938.0	105
73	Taylor	286,000	12.00	16.00	23.5	616.0	1,078
74	Trenton	91,000	4.85	7.05	25.8	596.0	1,185
75	Troy	435,000	29.00	40.00	24.3	755.0	2,694
76	Utica	23,000	1.20	2.00	24.4	660.0	155
77	Van Buren Township	132,000	6.90	7.20	32.5	677.0	1,098
78	Walled Lake	31,000	1.38	1.94	31.7	959.0	123
79	Warren	723,000	31.00	35.00	18.0	623.0	2,292
80	Washington Township	66,000	5.30	9.00	29.6	754.0	278
81	Wayne	99,000	8.28	8.28	25.9	646.0	600
82	West Bloomfield Township	257,000	15.40	24.10	28.4	917.0	1,982
83	Westland	317,000	13.00	18.20	26.2	654.0	1,941
84	Wixom	64,000	5.10	5.10	33.9	944.0	155
85	Woodhaven	64,000	4.36	7.00	28.3	597.0	246
86	Ypsilanti Comm Util Auth	490,000	24.10	24.10	35.8	726.0	1,930
87	Subtotal Wholesale	13,906,582	721.51	927.61			70,900
88	Detroit Incl. Sub. Ind.	4,699,800	120.40	124.25	16.9	632.0	
89	Grand Total	18,606,382	841.91	1,051.86			70,900

Table 4b
Water Supply System
Detailed FY 2017 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	378.1	2,898,000	39.7	417.8	801.7	1,162.6	360.9	24,414.9	21.0	8,773.8	16,835.3	24,414.9	7,579.7
2 Almont Village	24.7	341,100	4.6	29.3	63.4	63.4	0.0	2,403.6	56.1	1,643.7	3,557.8	3,557.8	0.0
3 Ash Township	109.6	1,196,000	16.4	126.0	226.3	297.1	70.9	8,884.2	32.3	4,069.8	7,308.8	9,597.3	2,288.5
4 Belleville	41.1	487,500	6.6	47.7	79.9	115.3	35.4	3,746.7	38.8	1,850.8	3,098.4	4,473.0	1,374.5
5 Berlin Township	79.5	1,003,400	13.7	93.2	186.1	287.7	101.6	9,956.0	34.6	3,224.7	6,440.7	9,956.0	3,515.3
6 Brownstown Township	372.6	3,876,000	53.2	425.8	962.2	1,550.4	588.2	44,187.0	28.5	12,135.3	27,423.5	44,187.0	16,763.5
7 Bruce Twp	2.7	32,800	0.6	3.3	15.3	15.3	0.0	502.0	47.7	157.4	730.0	730.0	0.0
8 Canton Township	887.7	10,432,800	142.7	1,030.4	3,150.5	4,955.2	1,804.7	159,557.4	44.6	45,955.8	140,512.8	221,001.9	80,489.1
9 Center Line	93.2	612,000	8.4	101.6	167.5	249.0	81.5	4,482.4	19.2	1,950.7	3,215.6	4,781.3	1,565.7
10 Chesterfield Township	443.8	4,584,600	62.8	506.6	1,232.5	1,667.0	434.5	47,175.2	28.9	14,640.7	35,619.4	48,175.3	12,555.9
11 Clinton Township	1,090.4	9,074,400	124.1	1,214.5	2,984.9	3,680.0	695.1	83,904.1	22.8	27,690.6	68,054.9	83,904.1	15,849.2
12 Commerce Township	254.8	2,920,200	40.0	294.8	884.9	1,590.7	705.8	49,947.8	65.2	19,221.0	57,692.9	103,713.3	46,020.3
13 Dearborn	1,720.5	12,748,400	174.6	1,895.1	3,651.9	4,749.9	1,098.0	96,423.0	20.3	38,470.5	74,133.6	96,423.0	22,289.4
14 Dearborn Heights	597.3	4,883,200	66.8	664.1	1,269.9	1,844.8	574.8	41,322.4	23.7	15,739.2	30,097.2	43,720.6	13,623.4
15 Eastpointe	320.5	2,117,700	29.1	349.6	563.8	844.6	280.7	15,286.4	18.3	6,397.7	10,317.9	15,455.3	5,137.3
16 Ecorse	427.4	3,135,600	43.0	470.4	577.7	644.6	66.8	12,955.7	20.1	9,455.0	11,612.2	12,955.7	1,343.5
17 Farmington	128.8	1,273,700	17.5	146.3	318.3	345.0	26.7	9,350.0	41.3	6,042.2	13,145.0	14,249.2	1,104.2
18 Farmington Hills	994.5	9,946,200	136.2	1,130.7	3,077.2	3,077.2	0.0	84,314.5	44.2	49,976.9	136,011.0	136,011.0	0.0
19 Ferndale	180.8	1,201,200	16.5	197.3	417.5	430.9	13.4	7,842.6	21.3	4,202.5	8,893.6	9,178.4	284.7
20 Flat Rock	169.9	1,841,400	25.2	195.1	372.8	493.1	120.3	14,644.5	29.7	5,794.5	11,071.3	14,644.5	3,573.3
21 Fraser	178.1	1,365,000	18.6	196.7	433.0	673.6	240.6	14,146.3	21.7	4,268.4	9,396.3	14,617.9	5,221.6
22 Garden City	252.1	2,300,000	31.5	283.6	479.3	746.7	267.4	18,667.3	27.7	7,855.7	13,277.4	20,683.3	7,405.9
23 Genesee County DC	1,432.9	27,196,000	372.0	1,804.9	3,927.9	4,101.7	173.8	213,287.7	76.2	137,533.4	299,306.2	312,548.6	13,242.4
24 Gibraltar	46.6	525,300	7.1	53.7	133.0	201.3	68.3	6,220.8	30.9	1,659.3	4,109.7	6,220.8	2,111.1
25 Grosse Ile Township	117.8	1,161,000	15.9	133.7	388.1	604.1	216.1	16,311.9	27.0	3,609.9	10,477.9	16,311.9	5,834.0
26 Grosse Pt. Park	167.1	1,098,000	15.1	182.2	496.5	826.8	330.3	14,883.1	18.0	3,279.6	8,936.9	14,883.1	5,946.2
27 Grosse Pt. Shores	52.1	359,100	4.9	57.0	196.1	361.8	165.8	6,838.5	18.9	1,077.3	3,705.6	6,838.5	3,132.9
28 Grosse Pt. Woods	205.5	1,417,500	19.4	224.9	682.5	682.5	0.0	12,898.4	18.9	4,250.6	12,898.4	12,898.4	0.0
29 Hamtramck	167.1	1,018,700	14.0	181.1	237.2	340.2	102.9	5,681.0	18.9	3,422.8	4,484.0	6,429.4	1,945.5
30 Harper Woods	158.9	1,067,200	14.5	173.4	327.3	449.0	121.6	8,260.9	18.4	3,190.6	6,022.5	8,260.9	2,238.3
31 Harrison Township	254.8	2,232,000	30.4	285.2	591.9	591.9	0.0	14,204.6	24.0	6,844.8	14,204.6	14,204.6	0.0
32 Hazel Park	147.9	977,400	13.5	161.4	240.8	339.7	98.9	6,148.2	20.8	3,357.1	5,007.7	7,065.4	2,057.6
33 Highland Park	301.4	1,837,000	25.2	326.6	427.8	613.4	185.6	10,243.7	18.9	6,172.7	8,085.0	11,593.2	3,508.2
34 Huron Township	164.4	1,794,000	24.6	189.0	425.6	584.7	159.1	17,483.2	32.3	6,104.7	13,748.2	18,886.5	5,138.3
35 Imlay City	111.0	1,859,000	25.4	136.4	266.0	292.8	26.7	13,437.7	74.1	10,107.2	19,712.5	21,693.6	1,981.1
36 Inkster	284.9	2,537,600	34.8	319.7	670.1	794.5	124.5	19,386.9	27.1	8,663.9	18,159.6	21,532.2	3,372.6
37 Keego Harbor	30.1	320,100	4.4	34.5	64.6	95.3	30.7	2,773.3	60.5	2,087.3	3,905.7	5,765.8	1,860.2
38 Lapeer	163.3	2,926,400	40.0	203.3	288.6	338.1	49.5	16,601.1	71.7	14,576.6	20,695.9	24,242.3	3,546.4
39 Lenox Township	52.1	579,500	7.9	60.0	73.0	112.3	39.3	3,425.3	31.4	1,884.0	2,292.3	3,526.4	1,234.1
40 Lincoln Park	400.0	2,978,400	40.8	440.8	776.0	1,110.2	334.2	22,649.0	20.4	8,992.3	15,831.3	22,649.0	6,817.7
41 Livonia	1,337.0	12,785,600	174.8	1,511.8	4,185.2	5,789.4	1,604.2	151,681.8	33.6	50,796.5	140,623.3	194,523.3	53,900.0
42 Macomb Township	813.7	7,959,600	108.8	922.5	3,464.2	4,988.1	1,524.0	133,682.2	27.9	25,737.8	96,650.7	139,169.1	42,518.4
43 Madison Heights	405.5	2,871,200	39.2	444.7	767.8	968.3	200.5	18,784.6	21.2	9,427.6	16,276.5	20,527.5	4,251.0
44 Mayfield Twp	1.3	23,300	0.3	1.6	3.0	5.6	2.7	272.8	70.0	112.0	208.2	395.3	187.2
45 Melvindale	128.8	935,300	12.8	141.6	240.1	320.3	80.2	6,373.3	19.9	2,817.8	4,777.1	6,373.3	1,596.1
46 New Haven, Village of	38.4	417,200	5.7	44.1	99.3	166.1	66.8	4,950.3	30.1	1,327.4	2,988.2	5,000.1	2,011.9

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Table 4b
Water Supply System
Detailed FY 2017 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	N O C W A	2,547.9	25,668,000	351.3	2,899.2	7,115.5	7,369.5	254.0	203,399.0	55.3	160,325.8	393,489.1	407,534.9	14,045.8
48	Northville	87.7	995,200	13.7	101.4	227.6	234.3	6.7	7,285.9	52.5	5,323.5	11,948.4	12,299.3	350.9
49	Northville Township	350.7	3,904,000	53.4	404.1	1,457.0	2,339.3	882.3	71,349.8	53.7	21,700.2	78,243.4	125,622.4	47,379.1
50	Novi	720.5	8,284,500	113.5	834.0	2,653.4	2,653.4	0.0	83,583.1	62.4	52,041.6	165,574.1	165,574.1	0.0
51	Oak Park	282.2	2,029,100	27.7	309.9	549.1	549.1	0.0	10,816.4	25.3	7,840.5	13,891.1	13,891.1	0.0
52	Oakland Co. Drain Comm.	24.7	183,600	2.4	27.1	22.2	22.2	0.0	452.6	21.1	571.8	468.1	468.1	0.0
53	Plymouth	115.1	1,293,600	17.8	132.9	259.8	368.0	108.3	11,335.7	44.1	5,860.9	11,455.5	16,230.7	4,775.2
54	Plymouth Township	452.1	5,164,500	70.6	522.7	1,407.4	1,407.4	0.0	44,051.8	48.6	25,403.2	68,399.9	68,399.9	0.0
55	Redford Township	474.0	3,909,800	53.4	527.4	1,109.5	1,590.7	481.2	35,950.4	25.0	13,185.0	27,736.9	39,768.2	12,031.2
56	River Rouge	158.9	1,125,200	15.3	174.2	255.9	336.1	80.2	6,521.0	19.4	3,379.5	4,964.9	6,521.0	1,556.0
57	Riverview	126.0	1,163,800	15.9	141.9	348.1	527.0	178.9	13,332.6	25.3	3,590.1	8,807.3	13,332.6	4,525.3
58	Rockwood	30.1	359,700	5.0	35.1	79.9	125.3	45.5	4,097.7	32.7	1,147.8	2,611.5	4,097.7	1,486.3
59	Romeo	16.4	193,200	2.8	19.2	69.6	91.0	21.4	2,931.1	49.2	944.6	3,426.3	4,478.6	1,052.3
60	Romulus	537.0	5,350,800	73.1	610.1	1,221.4	1,490.1	268.7	40,680.1	31.3	19,096.1	38,230.3	46,640.6	8,410.2
61	Roseville	569.9	3,952,000	53.9	623.8	949.6	1,323.9	374.3	25,153.4	19.9	12,413.6	18,896.2	26,344.9	7,448.7
62	Royal Oak Township	32.9	230,400	3.3	36.2	94.2	118.3	24.1	2,270.7	24.9	901.4	2,345.6	2,944.8	599.2
63	S O C W A	3,523.3	28,549,200	390.7	3,914.0	8,719.0	8,719.0	0.0	193,561.8	33.8	132,293.2	294,702.1	294,702.1	0.0
64	Shelby Township	1,084.9	10,454,400	143.0	1,227.9	3,485.0	6,091.8	2,606.8	160,823.1	34.4	42,239.8	119,884.5	209,557.4	89,672.9
65	South Rockwood	13.7	167,000	2.2	15.9	25.5	39.5	14.0	1,318.7	33.4	531.1	850.4	1,318.7	468.4
66	Southgate	339.7	2,938,800	40.3	380.0	735.4	1,029.5	294.1	24,400.0	23.7	9,006.0	17,429.9	24,400.0	6,970.1
67	St. Clair County-Burtchville T	24.7	424,800	5.7	30.4	69.6	96.6	27.0	4,559.7	48.1	1,462.2	3,347.7	4,646.6	1,298.9
68	St. Clair County-Greenwood	27.4	454,000	6.3	33.7	107.0	107.0	0.0	4,856.0	60.9	2,052.3	6,514.0	6,514.0	0.0
69	St. Clair Shores	605.5	4,464,200	61.1	666.6	1,331.1	1,397.9	66.8	28,237.7	20.2	13,465.3	26,887.5	28,237.7	1,350.2
70	Sterling Heights	1,690.4	13,759,100	188.2	1,878.6	5,268.1	7,941.7	2,673.6	177,099.3	24.4	45,837.8	128,540.7	193,776.8	65,236.1
71	Sumpter Township	82.2	987,000	13.4	95.6	163.1	247.3	84.2	8,137.5	37.9	3,623.2	6,182.3	9,374.2	3,191.9
72	Sylvan Lake	19.2	203,700	2.7	21.9	50.8	74.9	24.1	2,179.2	60.2	1,318.4	3,059.7	4,508.2	1,448.6
73	Taylor	783.6	6,721,000	92.0	875.6	1,696.2	2,230.9	534.7	52,425.9	24.1	21,102.0	40,877.6	53,764.4	12,886.8
74	Trenton	249.3	2,347,800	32.1	281.4	679.9	973.9	294.0	25,126.6	25.8	7,260.1	17,541.0	25,126.6	7,585.6
75	Troy	1,191.8	10,570,500	144.6	1,336.4	4,021.3	5,491.8	1,470.5	133,451.3	38.0	50,783.2	152,810.8	208,689.2	55,878.5
76	Utica	63.0	561,200	7.7	70.7	168.1	275.1	106.9	6,711.5	29.1	2,057.4	4,892.2	8,004.3	3,112.1
77	Van Buren Township	361.6	4,290,000	58.7	420.3	981.1	1,021.2	40.1	33,189.0	38.8	16,307.6	38,066.5	39,622.6	1,556.0
78	Walled Lake	84.9	982,700	13.5	98.4	198.0	272.8	74.9	8,649.0	64.7	6,366.5	12,809.3	17,652.8	4,843.5
79	Warren	1,980.8	13,014,000	178.1	2,158.9	4,322.2	4,856.9	534.7	87,424.5	19.2	41,450.9	82,986.2	93,252.8	10,266.7
80	Washington Township	180.8	1,953,600	26.9	207.7	735.4	1,230.0	494.6	36,408.7	43.2	8,972.6	31,769.6	53,137.1	21,367.5
81	Wayne	271.2	2,564,100	35.1	306.3	1,142.0	1,142.0	0.0	29,577.2	29.3	8,974.6	33,459.9	33,459.9	0.0
82	West Bloomfield Township	704.1	7,298,800	99.7	803.8	2,158.4	3,321.4	1,163.0	94,327.8	57.5	46,218.5	124,106.9	190,980.6	66,873.7
83	Westland	868.5	8,305,400	113.7	982.2	1,851.5	2,546.7	695.1	66,723.2	30.4	29,858.9	56,287.0	77,419.3	21,132.2
84	Wixom	175.3	2,169,600	29.6	204.9	711.4	711.4	0.0	24,115.5	65.5	13,421.0	46,594.8	46,594.8	0.0
85	Woodhaven	175.3	1,811,200	24.7	200.0	607.5	960.5	352.9	27,181.1	28.3	5,660.0	17,193.6	27,181.1	9,987.5
86	Ypsilanti Comm Util Auth	1,342.5	17,542,000	240.0	1,582.5	3,461.7	3,461.7	0.0	123,928.9	46.8	74,061.0	162,007.6	162,007.6	0.0
87	Subtotal Wholesale	38,100.5	361,489,100	4,946.4	43,046.9	101,398.5	128,949.4	27,550.9	3,398,218.7		1,524,599.3	3,700,844.0	4,606,047.7	905,203.6
88	Detroit Incl. Sub. Ind.	12,876.2	79,426,600	1,085.2	13,961.4	17,180.4	17,695.5	515.1	299,054.0	19.0	265,266.6	326,427.6	336,214.5	9,786.9
89	Grand Total	50,976.7	440,915,700	6,031.6	57,008.3	118,578.9	146,644.9	28,066.0	3,697,272.6		1,789,865.9	4,027,271.6	4,942,262.2	914,990.5

Table 4c
Water Supply System
Consolidated FY 2017 Units of Service

(1)	(2) through (11)											
	Consolidated Units of Service											
	Common-to-All									Suburban Only		
Sales Volume	Commod	Max Day	PH Incr	PH Dist	Comm DE	MD DE	PH DE	PHI DE	Mtrs	Outreach		
Mcf	Mcf/day	Mcf/day	Mcf/day	Mcf-miles/day	Mcf-miles/day	Mcf-miles/day	Mcf-miles/day	Mcf-miles/day	eq 5/8" mtrs	Mcf/day		
1	Allen Park	138,000	417.8	801.7	360.9	24,414.9	8,773.8	16,835.3	24,414.9	7,579.7	961	417.8
2	Almont Village	9,000	29.3	63.4	0.0	2,403.6	1,643.7	3,557.8	3,557.8	0.0	115	29.3
3	Ash Township	40,000	126.0	226.3	70.9	8,884.2	4,069.8	7,308.8	9,597.3	2,288.5	160	126.0
4	Belleville	15,000	47.7	79.9	35.4	3,746.7	1,850.8	3,098.4	4,473.0	1,374.5	123	47.7
5	Berlin Township	29,000	93.2	186.1	101.6	9,956.0	3,224.7	6,440.7	9,956.0	3,515.3	211	93.2
6	Brownstown Township	136,000	425.8	962.2	588.2	44,187.0	12,135.3	27,423.5	44,187.0	16,763.5	523	425.8
7	Bruce Twp	1,000	3.3	15.3	0.0	502.0	157.4	730.0	730.0	0.0	115	3.3
8	Canton Township	324,000	1,030.4	3,150.5	1,804.7	159,557.4	45,955.8	140,512.8	221,001.9	80,489.1	1,820	1,030.4
9	Center Line	34,000	101.6	167.5	81.5	4,482.4	1,950.7	3,215.6	4,781.3	1,565.7	155	101.6
10	Chesterfield Township	162,000	506.6	1,232.5	434.5	47,175.2	14,640.7	35,619.4	48,175.3	12,555.9	725	506.6
11	Clinton Township	398,000	1,214.5	2,984.9	695.1	83,904.1	27,690.6	68,054.9	83,904.1	15,849.2	1,226	1,214.5
12	Commerce Township	93,000	294.8	884.9	705.8	49,947.8	19,221.0	57,692.9	103,713.3	46,020.3	520	294.8
13	Dearborn	628,000	1,895.1	3,651.9	1,098.0	96,423.0	38,470.5	74,133.6	96,423.0	22,289.4	3	1,895.1
14	Dearborn Heights	218,000	664.1	1,269.9	574.8	41,322.4	15,739.2	30,097.2	43,720.6	13,623.4	617	664.1
15	Eastpointe	117,000	349.6	563.8	280.7	15,286.4	6,397.7	10,317.9	15,455.3	5,137.3	1,013	349.6
16	Ecorse	156,000	470.4	577.7	66.8	12,955.7	9,455.0	11,612.2	12,955.7	1,343.5	285	470.4
17	Farmington	47,000	146.3	318.3	26.7	9,350.0	6,042.2	13,145.0	14,249.2	1,104.2	358	146.3
18	Farmington Hills	363,000	1,130.7	3,077.2	0.0	84,314.5	49,976.9	136,011.0	136,011.0	0.0	2,997	1,130.7
19	Ferndale	66,000	197.3	417.5	13.4	7,842.6	4,202.5	8,893.6	9,178.4	284.7	568	197.3
20	Flat Rock	62,000	195.1	372.8	120.3	14,644.5	5,794.5	11,071.3	14,644.5	3,573.3	335	195.1
21	Fraser	65,000	196.7	433.0	240.6	14,146.3	4,268.4	9,396.3	14,617.9	5,221.6	334	196.7
22	Garden City	92,000	283.6	479.3	267.4	18,667.3	7,855.7	13,277.4	20,683.3	7,405.9	491	283.6
23	Genesee County DC	523,000	1,804.9	3,927.9	173.8	213,287.7	137,533.4	299,306.2	312,548.6	13,242.4	3,600	1,804.9
24	Gibraltar	17,000	53.7	133.0	68.3	6,220.8	1,659.3	4,109.7	6,220.8	2,111.1	176	53.7
25	Grosse Ile Township	43,000	133.7	388.1	216.1	16,311.9	3,609.9	10,477.9	16,311.9	5,834.0	400	133.7
26	Grosse Pt. Park	61,000	182.2	496.5	330.3	14,883.1	3,279.6	8,936.9	14,883.1	5,946.2	291	182.2
27	Grosse Pt. Shores	19,000	57.0	196.1	165.8	6,838.5	1,077.3	3,705.6	6,838.5	3,132.9	283	57.0
28	Grosse Pt. Woods	75,000	224.9	682.5	0.0	12,898.4	4,250.6	12,898.4	12,898.4	0.0	461	224.9
29	Hamtramck	61,000	181.1	237.2	102.9	5,681.0	3,422.8	4,484.0	6,429.4	1,945.5	691	181.1
30	Harper Woods	58,000	173.4	327.3	121.6	8,260.9	3,190.6	6,022.5	8,260.9	2,238.3	357	173.4
31	Harrison Township	93,000	285.2	591.9	0.0	14,204.6	6,844.8	14,204.6	14,204.6	0.0	465	285.2
32	Hazel Park	54,000	161.4	240.8	98.9	6,148.2	3,357.1	5,007.7	7,065.4	2,057.6	546	161.4
33	Highland Park	110,000	326.6	427.8	185.6	10,243.7	6,172.7	8,085.0	11,593.2	3,508.2	691	326.6
34	Huron Township	60,000	189.0	425.6	159.1	17,483.2	6,104.7	13,748.2	18,886.5	5,138.3	278	189.0
35	Imlay City	40,500	136.4	266.0	26.7	13,437.7	10,107.2	19,712.5	21,693.6	1,981.1	155	136.4
36	Inkster	104,000	319.7	670.1	124.5	19,386.9	8,663.9	18,159.6	21,532.2	3,372.6	393	319.7

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THE FOSTER GROUP

Table 4c
Water Supply System
Consolidated FY 2017 Units of Service

(1)	(2) through (11)											
	Consolidated Units of Service											
	Common-to-All									Suburban Only		
Sales Volume	Commod	Max Day	PH Incr	PH Dist	Comm DE	MD DE	PH DE	PHI DE	Mtrs	Outreach		
Mcf	Mcf/day	Mcf/day	Mcf/day	Mcf-miles/day	Mcf-miles/day	Mcf-miles/day	Mcf-miles/day	Mcf-miles/day	eq 5/8" mtrs	Mcf/day		
37	Keego Harbor	11,000	34.5	64.6	30.7	2,773.3	2,087.3	3,905.7	5,765.8	1,860.2	123	34.5
38	Lapeer	59,600	203.3	288.6	49.5	16,601.1	14,576.6	20,695.9	24,242.3	3,546.4	645	203.3
39	Lenox Township	19,000	60.0	73.0	39.3	3,425.3	1,884.0	2,292.3	3,526.4	1,234.1	400	60.0
40	Lincoln Park	146,000	440.8	776.0	334.2	22,649.0	8,992.3	15,831.3	22,649.0	6,817.7	813	440.8
41	Livonia	488,000	1,511.8	4,185.2	1,604.2	151,681.8	50,796.5	140,623.3	194,523.3	53,900.0	2,527	1,511.8
42	Macomb Township	297,000	922.5	3,464.2	1,524.0	133,682.2	25,737.8	96,650.7	139,169.1	42,518.4	1,050	922.5
43	Madison Heights	148,000	444.7	767.8	200.5	18,784.6	9,427.6	16,276.5	20,527.5	4,251.0	755	444.7
44	Mayfield Twp	482	1.6	3.0	2.7	272.8	112.0	208.2	395.3	187.2	155	1.6
45	Melvindale	47,000	141.6	240.1	80.2	6,373.3	2,817.8	4,777.1	6,373.3	1,596.1	533	141.6
46	New Haven, Village of	14,000	44.1	99.3	66.8	4,950.3	1,327.4	2,988.2	5,000.1	2,011.9	105	44.1
47	N O C W A	930,000	2,899.2	7,115.5	254.0	203,399.0	160,325.8	393,489.1	407,534.9	14,045.8	5,481	2,899.2
48	Northville	32,000	101.4	227.6	6.7	7,285.9	5,323.5	11,948.4	12,299.3	350.9	211	101.4
49	Northville Township	128,000	404.1	1,457.0	882.3	71,349.8	21,700.2	78,243.4	125,622.4	47,379.1	521	404.1
50	Novi	263,000	834.0	2,653.4	0.0	83,583.1	52,041.6	165,574.1	165,574.1	0.0	1,911	834.0
51	Oak Park	103,000	309.9	549.1	0.0	10,816.4	7,840.5	13,891.1	13,891.1	0.0	285	309.9
52	Oakland Co. Drain Comm.	9,000	27.1	22.2	0.0	452.6	571.8	468.1	468.1	0.0	115	27.1
53	Plymouth	42,000	132.9	259.8	108.3	11,335.7	5,860.9	11,455.5	16,230.7	4,775.2	203	132.9
54	Plymouth Township	165,000	522.7	1,407.4	0.0	44,051.8	25,403.2	68,399.9	68,399.9	0.0	315	522.7
55	Redford Township	173,000	527.4	1,109.5	481.2	35,950.4	13,185.0	27,736.9	39,768.2	12,031.2	1,829	527.4
56	River Rouge	58,000	174.2	255.9	80.2	6,521.0	3,379.5	4,964.9	6,521.0	1,556.0	431	174.2
57	Riverview	46,000	141.9	348.1	178.9	13,332.6	3,590.1	8,807.3	13,332.6	4,525.3	146	141.9
58	Rockwood	11,000	35.1	79.9	45.5	4,097.7	1,147.8	2,611.5	4,097.7	1,486.3	88	35.1
59	Romeo	6,000	19.2	69.6	21.4	2,931.1	944.6	3,426.3	4,478.6	1,052.3	155	19.2
60	Romulus	196,000	610.1	1,221.4	268.7	40,680.1	19,096.1	38,230.3	46,640.6	8,410.2	944	610.1
61	Roseville	208,000	623.8	949.6	374.3	25,153.4	12,413.6	18,896.2	26,344.9	7,448.7	885	623.8
62	Royal Oak Township	12,000	36.2	94.2	24.1	2,270.7	901.4	2,345.6	2,944.8	599.2	146	36.2
63	S O C W A	1,286,000	3,914.0	8,719.0	0.0	193,561.8	132,293.2	294,702.1	294,702.1	0.0	5,006	3,914.0
64	Shelby Township	396,000	1,227.9	3,485.0	2,606.8	160,823.1	42,239.8	119,884.5	209,557.4	89,672.9	1,246	1,227.9
65	South Rockwood	5,000	15.9	25.5	14.0	1,318.7	531.1	850.4	1,318.7	468.4	88	15.9
66	Southgate	124,000	380.0	735.4	294.1	24,400.0	9,006.0	17,429.9	24,400.0	6,970.1	361	380.0
67	St. Clair County-Burtchville T	9,000	30.4	69.6	27.0	4,559.7	1,462.2	3,347.7	4,646.6	1,298.9	105	30.4
68	St. Clair County-Greenwood	10,000	33.7	107.0	0.0	4,856.0	2,052.3	6,514.0	6,514.0	0.0	438	33.7
69	St. Clair Shores	221,000	666.6	1,331.1	66.8	28,237.7	13,465.3	26,887.5	28,237.7	1,350.2	1,239	666.6
70	Sterling Heights	617,000	1,878.6	5,268.1	2,673.6	177,099.3	45,837.8	128,540.7	193,776.8	65,236.1	3,218	1,878.6
71	Sumpter Township	30,000	95.6	163.1	84.2	8,137.5	3,623.2	6,182.3	9,374.2	3,191.9	123	95.6
72	Sylvan Lake	7,000	21.9	50.8	24.1	2,179.2	1,318.4	3,059.7	4,508.2	1,448.6	105	21.9

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THE FOSTER GROUP

PRELIMINARY

1/26/16

Table 4c
Water Supply System
Consolidated FY 2017 Units of Service

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	
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>	<u>Outreach</u> <i>Mcf/day</i>	
73 Taylor	286,000	875.6	1,696.2	534.7	52,425.9	21,102.0	40,877.6	53,764.4	12,886.8	1,078	875.6
74 Trenton	91,000	281.4	679.9	294.0	25,126.6	7,260.1	17,541.0	25,126.6	7,585.6	1,185	281.4
75 Troy	435,000	1,336.4	4,021.3	1,470.5	133,451.3	50,783.2	152,810.8	208,689.2	55,878.5	2,694	1,336.4
76 Utica	23,000	70.7	168.1	106.9	6,711.5	2,057.4	4,892.2	8,004.3	3,112.1	155	70.7
77 Van Buren Township	132,000	420.3	981.1	40.1	33,189.0	16,307.6	38,066.5	39,622.6	1,556.0	1,098	420.3
78 Walled Lake	31,000	98.4	198.0	74.9	8,649.0	6,366.5	12,809.3	17,652.8	4,843.5	123	98.4
79 Warren	723,000	2,158.9	4,322.2	534.7	87,424.5	41,450.9	82,986.2	93,252.8	10,266.7	2,292	2,158.9
80 Washington Township	66,000	207.7	735.4	494.6	36,408.7	8,972.6	31,769.6	53,137.1	21,367.5	278	207.7
81 Wayne	99,000	306.3	1,142.0	0.0	29,577.2	8,974.6	33,459.9	33,459.9	0.0	600	306.3
82 West Bloomfield Township	257,000	803.8	2,158.4	1,163.0	94,327.8	46,218.5	124,106.9	190,980.6	66,873.7	1,982	803.8
83 Westland	317,000	982.2	1,851.5	695.1	66,723.2	29,858.9	56,287.0	77,419.3	21,132.2	1,941	982.2
84 Wixom	64,000	204.9	711.4	0.0	24,115.5	13,421.0	46,594.8	46,594.8	0.0	155	204.9
85 Woodhaven	64,000	200.0	607.5	352.9	27,181.1	5,660.0	17,193.6	27,181.1	9,987.5	246	200.0
86 Ypsilanti Comm Util Auth	490,000	1,582.5	3,461.7	0.0	123,928.9	74,061.0	162,007.6	162,007.6	0.0	1,930	1,582.5
87 Total Suburban	13,906,582	43,046.9	101,398.5	27,550.9	3,398,218.7	1,524,599.3	3,700,844.0	4,606,047.7	905,203.6	70,900	43,046.9
88 Detroit Incl. Sub. Ind.	4,699,800	13,961.4	17,180.4	515.1	299,054.0	265,266.6	326,427.6	336,214.5	9,786.9	0	0.0
89 Grand Total	18,606,382	57,008.3	118,578.9	28,066.0	3,697,272.6	1,789,865.9	4,027,271.6	4,942,262.2	914,990.5	70,900	43,046.9

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

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)										
											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 \$	Outreach \$										
<u>BUDGET Elements</u>																				
1	Net Operating Expenses	117,916,300	11,086,500	42,922,100	0	5,661,200	23,829,700	7,327,400	11,914,800	11,914,800	2,281,100	978,700								
2	Net Capital Requirements	211,219,800	796,700	93,905,100	9,604,000	35,897,400	2,410,500	1,183,600	64,507,300	1,205,300	1,551,600	158,100								
3	Total Req'd from Rates	329,136,100	11,883,200	136,827,200	9,604,000	41,558,600	26,240,200	8,511,000	76,422,100	13,120,100	3,832,700	1,136,800								
<u>Allocation %'s</u>																				
4	Suburban Wholesale Class		75.51%	85.51%	98.16%	91.91%	85.18%	91.89%	93.20%	98.93%	100.00%	100.00%								
5	Detroit Retail Class		24.49%	14.49%	1.84%	8.09%	14.82%	8.11%	6.80%	1.07%	0.00%	0.00%								
<u>Sub Wholesale Customers BUDGET</u>																				
6	Net Operating Expenses	103,461,000	8,371,400	36,703,300	0	5,203,300	20,298,000	6,733,500	11,104,300	11,787,400	2,281,100	978,700								
7	Net Capital Requirements	189,484,800	601,600	80,299,600	9,427,700	32,993,800	2,053,300	1,087,700	60,119,000	1,192,400	1,551,600	158,100								
8	Total Req'd from Rates	292,945,800	8,973,000	117,002,900	9,427,700	38,197,100	22,351,300	7,821,200	71,223,300	12,979,800	3,832,700	1,136,800								
<u>Detroit Customer Class BUDGET</u>																				
9	Net Operating Expenses	14,455,300	2,715,100	6,218,800	0	457,900	3,531,700	593,900	810,500	127,400	0	0								
10	Net Capital Requirements	21,734,800	195,100	13,605,500	176,300	2,903,600	357,200	95,900	4,388,300	12,900	0	0								
11	Total Req'd from Rates	36,190,100	2,910,200	19,824,300	176,300	3,361,500	3,888,900	689,800	5,198,800	140,300	0	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	103,461,000	14,455,300	117,916,300
2 Net Capital Requirements	189,484,800	21,734,800	211,219,600
3 Subtotal	292,945,800	36,190,100	329,135,900
4 Capital Adjustment	20,700,000	(20,700,000)	0
5 Total Req'd from Charges	313,645,800	15,490,100	329,135,900

PROPOSED

Table 7
Water Supply System
Calculation of FY 2017 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	0.636%	0.566%	0.661%	0.628%	0.645%	0.733%	0.676%	1.286%	0.660%	0.490%	0.418%	0.494%	0.828%
2 Almont Village	0.060%	0.079%	0.056%	0.058%	0.057%	0.051%	0.053%	0.000%	0.065%	0.092%	0.088%	0.072%	0.000%
3 Ash Township	0.206%	0.226%	0.190%	0.217%	0.203%	0.221%	0.191%	0.252%	0.240%	0.227%	0.181%	0.194%	0.250%
4 Belleville	0.086%	0.097%	0.068%	0.102%	0.084%	0.084%	0.067%	0.126%	0.101%	0.103%	0.077%	0.091%	0.150%
5 Berlin Township	0.199%	0.175%	0.157%	0.249%	0.203%	0.163%	0.157%	0.362%	0.269%	0.180%	0.160%	0.201%	0.384%
6 Brownstown Township	0.943%	0.700%	0.804%	1.153%	0.975%	0.747%	0.811%	2.096%	1.195%	0.678%	0.681%	0.894%	1.832%
7 Bruce Twp	0.012%	0.008%	0.013%	0.012%	0.013%	0.006%	0.013%	0.000%	0.014%	0.009%	0.018%	0.015%	0.000%
8 Canton Township	3.641%	2.331%	2.706%	4.963%	3.816%	1.807%	2.657%	6.430%	4.316%	2.568%	3.489%	4.472%	8.797%
9 Center Line	0.131%	0.131%	0.138%	0.124%	0.131%	0.178%	0.141%	0.291%	0.121%	0.109%	0.080%	0.097%	0.171%
10 Chesterfield Township	1.056%	0.840%	1.030%	1.140%	1.084%	0.889%	1.039%	1.548%	1.276%	0.818%	0.884%	0.975%	1.372%
11 Clinton Township	2.145%	1.729%	2.469%	1.923%	2.200%	2.130%	2.517%	2.477%	2.269%	1.547%	1.690%	1.698%	1.732%
12 Commerce Township	1.404%	0.901%	0.786%	2.179%	1.472%	0.517%	0.746%	2.515%	1.351%	1.074%	1.433%	2.098%	5.030%
13 Dearborn	2.653%	2.516%	3.007%	2.324%	2.671%	3.324%	3.080%	3.912%	2.608%	2.149%	1.841%	1.951%	2.436%
14 Dearborn Heights	1.058%	0.968%	1.052%	1.089%	1.070%	1.165%	1.071%	2.048%	1.118%	0.879%	0.747%	0.885%	1.489%
15 Eastpointe	0.438%	0.437%	0.463%	0.413%	0.438%	0.613%	0.475%	1.000%	0.413%	0.357%	0.256%	0.313%	0.561%
16 Ecorse	0.406%	0.621%	0.476%	0.276%	0.377%	0.825%	0.487%	0.238%	0.350%	0.528%	0.288%	0.262%	0.147%
17 Farmington	0.267%	0.312%	0.272%	0.249%	0.261%	0.257%	0.268%	0.095%	0.253%	0.338%	0.326%	0.288%	0.121%
18 Farmington Hills	2.424%	2.540%	2.641%	2.168%	2.408%	1.983%	2.595%	0.000%	2.280%	2.792%	3.377%	2.752%	0.000%
19 Ferndale	0.260%	0.269%	0.344%	0.170%	0.258%	0.346%	0.352%	0.048%	0.212%	0.235%	0.221%	0.186%	0.031%
20 Flat Rock	0.328%	0.329%	0.312%	0.344%	0.328%	0.342%	0.314%	0.429%	0.396%	0.324%	0.275%	0.296%	0.391%
21 Fraser	0.359%	0.272%	0.357%	0.385%	0.371%	0.345%	0.365%	0.857%	0.383%	0.238%	0.233%	0.296%	0.571%
22 Garden City	0.457%	0.457%	0.400%	0.517%	0.457%	0.497%	0.404%	0.953%	0.505%	0.439%	0.330%	0.418%	0.809%
23 Genesee County DC	4.639%	6.276%	3.554%	5.316%	4.421%	3.166%	3.312%	0.619%	5.769%	7.684%	7.432%	6.324%	1.447%
24 Gibraltar	0.129%	0.093%	0.112%	0.156%	0.134%	0.094%	0.112%	0.243%	0.168%	0.093%	0.102%	0.126%	0.231%
25 Grosse Ile Township	0.353%	0.212%	0.323%	0.422%	0.372%	0.235%	0.327%	0.770%	0.441%	0.202%	0.260%	0.330%	0.638%
26 Grosse Pt. Park	0.393%	0.226%	0.407%	0.423%	0.415%	0.320%	0.419%	1.177%	0.403%	0.183%	0.222%	0.301%	0.650%
27 Grosse Pt. Shores	0.168%	0.073%	0.161%	0.202%	0.181%	0.100%	0.165%	0.591%	0.185%	0.060%	0.092%	0.138%	0.342%
28 Grosse Pt. Woods	0.391%	0.286%	0.561%	0.245%	0.405%	0.395%	0.576%	0.000%	0.349%	0.237%	0.320%	0.261%	0.000%
29 Hamtramck	0.184%	0.231%	0.195%	0.161%	0.178%	0.318%	0.200%	0.367%	0.154%	0.191%	0.111%	0.130%	0.213%
30 Harper Woods	0.237%	0.217%	0.269%	0.209%	0.239%	0.304%	0.276%	0.433%	0.223%	0.178%	0.150%	0.167%	0.245%
31 Harrison Township	0.386%	0.419%	0.491%	0.270%	0.382%	0.500%	0.499%	0.000%	0.384%	0.382%	0.353%	0.287%	0.000%
32 Hazel Park	0.189%	0.217%	0.198%	0.172%	0.185%	0.283%	0.203%	0.352%	0.166%	0.188%	0.124%	0.143%	0.225%
33 Highland Park	0.332%	0.416%	0.351%	0.290%	0.321%	0.573%	0.361%	0.661%	0.277%	0.345%	0.201%	0.235%	0.383%
34 Huron Township	0.390%	0.338%	0.358%	0.438%	0.397%	0.332%	0.359%	0.567%	0.473%	0.341%	0.341%	0.382%	0.562%
35 Imlay City	0.324%	0.463%	0.240%	0.372%	0.305%	0.239%	0.224%	0.095%	0.363%	0.565%	0.489%	0.439%	0.217%
36 Inkster	0.508%	0.508%	0.558%	0.456%	0.508%	0.561%	0.565%	0.443%	0.524%	0.484%	0.451%	0.436%	0.369%
37 Keego Harbor	0.086%	0.099%	0.057%	0.112%	0.084%	0.061%	0.054%	0.110%	0.075%	0.117%	0.097%	0.117%	0.203%

Table 7
Water Supply System
Calculation of FY 2017 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 Lapeer	0.389%	0.672%	0.259%	0.447%	0.352%	0.357%	0.243%	0.176%	0.449%	0.814%	0.514%	0.491%	0.388%
39 Lenox Township	0.078%	0.105%	0.061%	0.088%	0.074%	0.105%	0.062%	0.140%	0.093%	0.105%	0.057%	0.071%	0.135%
40 Lincoln Park	0.608%	0.587%	0.639%	0.581%	0.610%	0.773%	0.654%	1.191%	0.613%	0.502%	0.393%	0.458%	0.745%
41 Livonia	3.770%	2.780%	3.527%	4.289%	3.902%	2.652%	3.529%	5.716%	4.103%	2.838%	3.492%	3.936%	5.891%
42 Macomb Township	2.948%	1.494%	2.891%	3.401%	3.142%	1.618%	2.921%	5.430%	3.616%	1.438%	2.400%	2.816%	4.647%
43 Madison Heights	0.558%	0.606%	0.633%	0.468%	0.552%	0.780%	0.647%	0.714%	0.508%	0.527%	0.404%	0.415%	0.465%
44 Mayfield Twp	0.006%	0.005%	0.003%	0.009%	0.006%	0.003%	0.003%	0.010%	0.007%	0.006%	0.005%	0.008%	0.020%
45 Melvindale	0.178%	0.186%	0.198%	0.157%	0.177%	0.248%	0.202%	0.286%	0.172%	0.157%	0.119%	0.129%	0.174%
46 New Haven, Village of	0.103%	0.075%	0.083%	0.131%	0.107%	0.077%	0.084%	0.238%	0.134%	0.074%	0.074%	0.101%	0.220%
47 N O C W A	6.439%	7.751%	6.221%	6.308%	6.264%	5.086%	6.001%	0.905%	5.501%	8.957%	9.771%	8.246%	1.535%
48 Northville	0.206%	0.260%	0.198%	0.199%	0.198%	0.178%	0.192%	0.024%	0.197%	0.297%	0.297%	0.249%	0.038%
49 Northville Township	1.843%	1.055%	1.271%	2.648%	1.948%	0.709%	1.229%	3.144%	1.930%	1.212%	1.943%	2.542%	5.178%
50 Novi	2.421%	2.457%	2.347%	2.487%	2.416%	1.463%	2.238%	0.000%	2.261%	2.908%	4.111%	3.350%	0.000%
51 Oak Park	0.364%	0.471%	0.456%	0.239%	0.349%	0.544%	0.463%	0.000%	0.293%	0.438%	0.345%	0.281%	0.000%
52 Oakland Co. Drain Comm.	0.016%	0.037%	0.018%	0.009%	0.014%	0.048%	0.019%	0.000%	0.012%	0.032%	0.012%	0.009%	0.000%
53 Plymouth	0.284%	0.298%	0.223%	0.344%	0.282%	0.233%	0.219%	0.386%	0.307%	0.327%	0.284%	0.328%	0.522%
54 Plymouth Township	1.173%	1.263%	1.217%	1.104%	1.161%	0.917%	1.187%	0.000%	1.191%	1.419%	1.698%	1.384%	0.000%
55 Redford Township	0.925%	0.795%	0.921%	0.964%	0.942%	0.925%	0.936%	1.715%	0.972%	0.737%	0.689%	0.805%	1.315%
56 River Rouge	0.190%	0.225%	0.210%	0.159%	0.185%	0.306%	0.216%	0.286%	0.176%	0.189%	0.123%	0.132%	0.170%
57 Riverview	0.304%	0.216%	0.289%	0.343%	0.316%	0.249%	0.294%	0.637%	0.361%	0.201%	0.219%	0.270%	0.495%
58 Rockwood	0.083%	0.063%	0.067%	0.104%	0.085%	0.062%	0.067%	0.162%	0.111%	0.064%	0.065%	0.083%	0.162%
59 Romeo	0.071%	0.047%	0.060%	0.089%	0.074%	0.034%	0.059%	0.076%	0.079%	0.053%	0.085%	0.091%	0.115%
60 Romulus	1.014%	1.068%	1.025%	0.989%	1.007%	1.070%	1.030%	0.957%	1.100%	1.067%	0.949%	0.944%	0.919%
61 Roseville	0.732%	0.818%	0.781%	0.657%	0.720%	1.094%	0.801%	1.334%	0.680%	0.694%	0.469%	0.533%	0.814%
62 Royal Oak Township	0.069%	0.054%	0.078%	0.062%	0.070%	0.063%	0.079%	0.086%	0.061%	0.050%	0.058%	0.060%	0.065%
63 S O C W A	6.223%	7.228%	7.351%	4.785%	6.089%	6.866%	7.353%	0.000%	5.235%	7.391%	7.318%	5.963%	0.000%
64 Shelby Township	3.818%	2.296%	2.941%	5.135%	4.021%	2.154%	2.939%	9.288%	4.350%	2.360%	2.977%	4.240%	9.800%
65 South Rockwood	0.027%	0.029%	0.021%	0.033%	0.027%	0.028%	0.021%	0.050%	0.036%	0.030%	0.021%	0.027%	0.051%
66 Southgate	0.601%	0.554%	0.609%	0.606%	0.607%	0.667%	0.620%	1.048%	0.660%	0.503%	0.433%	0.494%	0.762%
67 St. Clair County-Burtchvill	0.082%	0.073%	0.060%	0.107%	0.083%	0.053%	0.059%	0.096%	0.123%	0.082%	0.083%	0.094%	0.142%
68 St. Clair County-Greenwod	0.102%	0.097%	0.094%	0.110%	0.102%	0.059%	0.090%	0.000%	0.131%	0.115%	0.162%	0.132%	0.000%
69 St. Clair Shores	0.841%	0.882%	1.096%	0.566%	0.835%	1.169%	1.123%	0.238%	0.764%	0.752%	0.668%	0.571%	0.148%
70 Sterling Heights	4.396%	2.790%	4.369%	4.859%	4.610%	3.295%	4.443%	9.526%	4.790%	2.561%	3.192%	3.921%	7.130%
71 Sumpter Township	0.181%	0.191%	0.139%	0.221%	0.179%	0.168%	0.138%	0.300%	0.220%	0.202%	0.154%	0.190%	0.349%
72 Sylvan Lake	0.065%	0.063%	0.045%	0.088%	0.066%	0.038%	0.043%	0.086%	0.059%	0.074%	0.076%	0.091%	0.158%
73 Taylor	1.334%	1.290%	1.406%	1.271%	1.340%	1.536%	1.430%	1.905%	1.418%	1.179%	1.015%	1.088%	1.408%
74 Trenton	0.576%	0.433%	0.565%	0.626%	0.595%	0.494%	0.573%	1.048%	0.680%	0.406%	0.436%	0.508%	0.829%

Table 7
 Water Supply System
 Calculation of FY 2017 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
75 Troy	3.707%	2.684%	3.415%	4.287%	3.844%	2.344%	3.391%	5.239%	3.609%	2.837%	3.794%	4.223%	6.107%
76 Utica	0.163%	0.118%	0.141%	0.199%	0.169%	0.124%	0.142%	0.381%	0.182%	0.115%	0.121%	0.162%	0.340%
77 Van Buren Township	0.790%	0.857%	0.834%	0.726%	0.781%	0.737%	0.827%	0.143%	0.898%	0.911%	0.945%	0.802%	0.170%
78 Walled Lake	0.257%	0.299%	0.176%	0.331%	0.252%	0.173%	0.167%	0.267%	0.234%	0.356%	0.318%	0.357%	0.529%
79 Warren	2.769%	2.774%	3.552%	1.958%	2.768%	3.787%	3.645%	1.905%	2.365%	2.316%	2.061%	1.887%	1.122%
80 Washington Township	0.863%	0.459%	0.630%	1.213%	0.917%	0.364%	0.620%	1.762%	0.985%	0.501%	0.789%	1.075%	2.335%
81 Wayne	0.751%	0.513%	0.955%	0.604%	0.783%	0.537%	0.963%	0.000%	0.800%	0.501%	0.831%	0.677%	0.000%
82 West Bloomfield Township	2.767%	2.217%	1.894%	3.817%	2.840%	1.410%	1.820%	4.144%	2.551%	2.582%	3.082%	3.864%	7.309%
83 Westland	1.661%	1.685%	1.552%	1.768%	1.658%	1.723%	1.561%	2.477%	1.805%	1.668%	1.398%	1.566%	2.310%
84 Wixom	0.663%	0.628%	0.633%	0.705%	0.668%	0.359%	0.600%	0.000%	0.652%	0.750%	1.157%	0.943%	0.000%
85 Woodhaven	0.571%	0.327%	0.507%	0.703%	0.604%	0.351%	0.512%	1.257%	0.735%	0.316%	0.427%	0.550%	1.092%
86 Ypsilanti Comm Util Auth	2.977%	3.714%	2.984%	2.770%	2.879%	2.776%	2.919%	0.000%	3.352%	4.138%	4.023%	3.278%	0.000%
87 Total Suburban	88.836%	82.165%	85.885%	93.691%	89.725%	75.510%	85.511%	98.165%	91.911%	85.180%	91.895%	93.197%	98.930%
88 Detroit Customers	11.164%	17.835%	14.115%	6.309%	10.275%	24.490%	14.489%	1.835%	8.089%	14.820%	8.105%	6.803%	1.070%
89 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 2017 *Wholesale Service* BUDGET to Customers - Common Cost Pools

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
BUDGET to Allocate:		324,166,400	38,123,400	145,338,200	140,704,800	286,043,000	11,883,200	136,827,200	9,604,000	41,558,600	26,240,200	8,511,000	76,422,100	13,120,100
		Summary by Major Category				Specific Cost Categories								
ALLOCATED CTA BUDGET	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	2,060,500	215,700	960,700	884,100	1,844,800	87,100	925,100	123,500	274,400	128,600	35,600	377,500	108,700
2	Almont Village	192,900	30,200	80,700	82,000	162,700	6,100	73,200	0	27,000	24,100	7,500	55,000	0
3	Ash Township	667,800	86,000	276,500	305,300	581,800	26,300	261,100	24,200	99,900	59,700	15,400	148,400	32,800
4	Belleville	278,700	37,000	98,600	143,100	241,700	9,900	92,100	12,100	42,100	27,100	6,500	69,200	19,700
5	Berlin Township	646,100	66,700	228,400	351,000	579,400	19,400	214,800	34,800	111,900	47,300	13,600	153,900	50,400
6	Brownstown Township	3,056,700	266,700	1,168,300	1,621,700	2,790,000	88,800	1,110,300	201,300	496,700	177,900	58,000	683,300	240,400
7	Bruce Twp	39,100	3,000	19,200	16,900	36,100	700	17,700	0	5,600	2,300	1,500	11,300	0
8	Canton Township	11,803,400	888,500	3,932,400	6,982,500	10,914,900	214,800	3,635,400	617,600	1,793,500	673,700	297,000	3,417,300	1,154,100
9	Center Line	424,600	49,800	200,100	174,700	374,800	21,200	193,300	27,900	50,400	28,600	6,800	73,900	22,500
10	Chesterfield Township	3,421,600	320,200	1,497,500	1,603,900	3,101,400	105,600	1,422,200	148,700	530,300	214,600	75,300	744,900	180,000
11	Clinton Township	6,952,900	659,200	3,588,000	2,705,700	6,293,700	253,200	3,444,200	237,900	943,100	406,000	143,800	1,297,400	227,300
12	Commerce Township	4,552,700	343,300	1,142,900	3,066,500	4,209,400	61,500	1,021,000	241,500	561,400	281,800	121,900	1,603,700	659,900
13	Dearborn	8,599,700	959,000	4,370,600	3,270,100	7,640,700	395,000	4,213,900	375,700	1,083,800	564,000	156,700	1,491,000	319,600
14	Dearborn Heights	3,430,700	369,100	1,529,000	1,532,600	3,061,600	138,400	1,465,400	196,700	464,500	230,700	63,600	676,100	195,300
15	Eastpointe	1,419,700	166,700	672,400	580,600	1,253,000	72,900	650,600	96,100	171,800	93,800	21,800	239,000	73,700
16	Ecorse	1,315,900	236,700	691,100	388,100	1,079,200	98,100	666,600	22,900	145,600	138,600	24,500	200,300	19,300
17	Farmington	864,500	119,100	395,100	350,300	745,400	30,500	367,300	9,100	105,100	88,600	27,800	220,300	15,800
18	Farmington Hills	7,857,300	968,400	3,838,100	3,050,800	6,888,900	235,700	3,550,700	0	947,700	732,700	287,400	2,103,100	0
19	Ferndale	842,100	102,700	500,600	238,800	739,400	41,100	481,800	4,600	88,200	61,600	18,800	141,900	4,100
20	Flat Rock	1,062,500	125,600	453,500	483,400	936,900	40,700	430,100	41,200	164,600	84,900	23,400	226,400	51,200
21	Fraser	1,165,300	103,600	519,500	542,200	1,061,700	41,000	499,600	82,300	159,000	62,600	19,900	226,000	74,900
22	Garden City	1,482,800	174,300	581,200	727,300	1,308,500	59,100	553,100	91,500	209,800	115,200	28,100	319,800	106,200
23	Genesee County DC	15,037,100	2,392,500	5,164,900	7,479,700	12,644,600	376,200	4,532,400	59,500	2,397,400	2,016,300	632,500	4,832,900	189,900
24	Gibraltar	417,500	35,500	162,200	219,800	382,000	11,200	153,500	23,400	69,900	24,300	8,700	96,200	30,300
25	Grosse Ile Township	1,143,900	80,800	469,900	593,200	1,063,100	27,900	447,800	73,900	183,400	52,900	22,100	252,200	83,700
26	Grosse Pt. Park	1,273,600	86,100	591,800	595,700	1,187,500	38,000	572,900	113,000	167,300	48,100	18,900	230,100	85,300
27	Grosse Pt. Shores	545,900	27,700	234,000	284,200	518,200	11,900	226,200	56,700	76,900	15,800	7,800	105,700	44,900
28	Grosse Pt. Woods	1,268,400	109,200	814,800	344,400	1,159,200	46,900	787,500	0	145,000	62,300	27,300	199,400	0
29	Hamtramck	597,600	87,900	283,300	226,400	509,700	37,700	273,800	35,200	63,900	50,200	9,500	99,400	27,900
30	Harper Woods	767,600	82,900	390,400	294,300	684,700	36,100	377,700	41,600	92,900	46,800	12,700	127,700	32,100
31	Harrison Township	1,251,900	159,700	712,900	379,300	1,092,200	59,400	682,900	0	159,700	100,300	30,000	219,600	0
32	Hazel Park	613,000	82,800	288,400	241,800	530,200	33,600	277,800	33,900	69,100	49,200	10,600	109,300	29,500
33	Highland Park	1,077,500	158,600	510,700	408,200	918,900	68,100	493,600	63,500	115,100	90,500	17,100	179,300	50,300
34	Huron Township	1,265,700	128,900	520,200	616,600	1,136,800	39,400	491,100	54,400	196,500	89,500	29,100	292,000	73,700
35	Imlay City	1,049,200	176,600	348,700	523,900	872,600	28,400	307,000	9,100	151,000	148,200	41,700	335,400	28,400



Table 8
Water Supply System
Allocation of FY 2017 *Wholesale Service* BUDGET to Customers - Common Cost Pools

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
BUDGET to Allocate:	324,166,400	38,123,400	145,338,200	140,704,800	286,043,000	11,883,200	136,827,200	9,604,000	41,558,600	26,240,200	8,511,000	76,422,100	13,120,100
		Summary by Major Category				Specific Cost Categories							
ALLOCATED CTA BUDGET	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
36 Inkster	1,647,100	193,600	811,600	641,900	1,453,500	66,600	773,200	42,600	217,900	127,000	38,400	333,000	48,400
37 Keego Harbor	278,200	37,800	82,800	157,600	240,400	7,200	74,500	10,500	31,200	30,600	8,300	89,200	26,700
38 Lapeer	1,262,200	256,100	376,800	629,300	1,006,100	42,400	333,100	16,900	186,600	213,700	43,700	374,900	50,900
39 Lenox Township	253,200	40,100	89,000	124,100	213,100	12,500	84,200	13,400	38,500	27,600	4,800	54,500	17,700
40 Lincoln Park	1,969,700	223,700	929,000	817,000	1,746,000	91,900	895,500	114,400	254,600	131,800	33,500	350,200	97,800
41 Livonia	12,221,000	1,059,800	5,126,500	6,034,700	11,161,200	315,100	4,829,300	548,900	1,705,000	744,700	297,200	3,007,900	772,900
42 Macomb Township	9,557,000	569,600	4,201,600	4,785,800	8,987,400	192,300	3,997,300	521,500	1,502,600	377,300	204,300	2,152,000	609,700
43 Madison Heights	1,809,300	230,900	920,300	658,100	1,578,400	92,700	885,900	68,600	211,100	138,200	34,400	317,400	61,000
44 Mayfield Twp	18,500	1,900	3,800	12,800	16,600	300	3,400	900	3,100	1,600	400	6,100	2,700
45 Melvindale	578,400	70,800	287,100	220,500	507,600	29,500	277,000	27,400	71,600	41,300	10,100	98,600	22,900
46 New Haven, Village of	334,200	28,700	120,900	184,600	305,500	9,200	114,600	22,900	55,600	19,500	6,300	77,300	28,800
47 N O C W A	20,873,200	2,954,700	9,042,200	8,876,300	17,918,500	604,300	8,210,600	86,900	2,286,300	2,350,400	831,600	6,301,700	201,400
48 Northville	666,400	99,100	287,900	279,400	567,300	21,100	262,600	2,300	81,900	78,000	25,300	190,200	5,000
49 Northville Township	5,974,800	402,300	1,846,700	3,725,800	5,572,500	84,200	1,681,300	301,900	802,000	318,100	165,400	1,942,500	679,400
50 Novi	7,848,300	936,800	3,411,700	3,499,800	6,911,500	173,800	3,061,800	0	939,500	763,000	349,900	2,560,300	0
51 Oak Park	1,178,800	179,500	662,900	336,400	999,300	64,600	633,500	0	121,600	114,900	29,400	214,800	0
52 Oakland Co. Drain Comm.	52,900	14,000	26,600	12,300	38,900	5,600	25,600	0	5,100	8,400	1,000	7,200	0
53 Plymouth	921,500	113,600	323,900	484,000	807,900	27,700	299,700	37,100	127,400	85,900	24,200	251,000	68,500
54 Plymouth Township	3,802,900	481,400	1,768,600	1,552,900	3,321,500	109,000	1,624,000	0	495,200	372,400	144,600	1,057,700	0
55 Redford Township	2,998,200	303,200	1,338,800	1,356,200	2,695,000	109,900	1,280,200	164,700	404,100	193,300	58,600	614,900	172,500
56 River Rouge	615,400	85,800	305,800	223,800	529,600	36,300	295,300	27,400	73,300	49,500	10,500	100,800	22,300
57 Riverview	984,700	82,200	420,300	482,200	902,500	29,600	401,700	61,200	149,900	52,600	18,600	206,200	64,900
58 Rockwood	268,200	24,100	97,700	146,400	244,100	7,300	92,200	15,600	46,100	16,800	5,500	63,400	21,300
59 Romeo	230,000	17,800	87,600	124,600	212,200	4,000	80,400	7,300	32,900	13,800	7,200	69,300	15,100
60 Romulus	3,288,400	407,200	1,490,200	1,391,000	2,881,200	127,200	1,409,400	91,900	457,300	280,000	80,800	721,200	120,600
61 Roseville	2,372,600	312,000	1,135,600	925,000	2,060,600	130,000	1,095,700	128,100	282,700	182,000	39,900	407,400	106,800
62 Royal Oak Township	222,200	20,700	113,700	87,800	201,500	7,500	108,700	8,200	25,500	13,200	5,000	45,500	8,600
63 S O C W A	20,171,700	2,755,400	10,683,600	6,732,700	17,416,300	815,900	10,060,800	0	2,175,700	1,939,500	622,800	4,557,000	0
64 Shelby Township	12,375,900	875,300	4,274,700	7,225,900	11,500,600	256,000	4,021,300	892,000	1,807,700	619,300	253,400	3,240,400	1,285,800
65 South Rockwood	89,000	11,100	31,200	46,700	77,900	3,300	29,400	4,800	14,800	7,800	1,800	20,400	6,700
66 Southgate	1,948,700	211,200	885,400	852,100	1,737,500	79,200	848,600	100,600	274,300	132,000	36,800	377,300	99,900
67 St. Clair County-Burtchville	266,100	27,700	87,400	151,000	238,400	6,300	80,300	9,200	51,300	21,400	7,100	71,900	18,600
68 St. Clair County-Greenwood	329,600	37,100	137,200	155,300	292,500	7,000	123,400	0	54,600	30,100	13,800	100,700	0
69 St. Clair Shores	2,725,400	336,400	1,592,700	796,300	2,389,000	139,000	1,535,900	22,900	317,400	197,400	56,800	436,600	19,400
70 Sterling Heights	14,251,500	1,063,600	6,350,500	6,837,400	13,187,900	391,600	6,078,800	914,900	1,990,700	672,000	271,700	2,996,400	935,400

Table 8
Water Supply System
Allocation of FY 2017 *Wholesale Service* BUDGET to Customers - Common Cost Pools

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
BUDGET to Allocate:	324,166,400	38,123,400	145,338,200	140,704,800	286,043,000	11,883,200	136,827,200	9,604,000	41,558,600	26,240,200	8,511,000	76,422,100	13,120,100
		Summary by Major Category				Specific Cost Categories							
ALLOCATED CTA BUDGET	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
71 Sumpter Township	585,400	73,000	201,300	311,100	512,400	19,900	188,200	28,800	91,500	53,100	13,100	145,000	45,800
72 Sylvan Lake	212,200	23,900	65,100	123,200	188,300	4,600	58,600	8,200	24,500	19,300	6,500	69,700	20,800
73 Taylor	4,324,000	491,900	2,043,600	1,788,500	3,832,100	182,500	1,957,200	183,000	589,300	309,400	86,400	831,400	184,800
74 Trenton	1,867,000	165,100	821,600	880,300	1,701,900	58,700	784,500	100,600	282,400	106,400	37,100	388,500	108,800
75 Troy	12,017,600	1,023,100	4,963,100	6,031,400	10,994,500	278,600	4,640,200	503,200	1,500,000	744,500	322,900	3,227,000	801,200
76 Utica	529,600	44,900	204,300	280,400	484,700	14,700	194,000	36,600	75,400	30,200	10,300	123,800	44,600
77 Van Buren Township	2,561,000	326,700	1,212,500	1,021,800	2,234,300	87,600	1,132,100	13,700	373,100	239,100	80,400	612,700	22,300
78 Walled Lake	834,600	113,800	255,500	465,300	720,800	20,500	228,400	25,600	97,200	93,300	27,100	273,000	69,500
79 Warren	8,975,300	1,057,700	5,162,700	2,754,900	7,917,600	450,000	4,987,300	183,000	982,700	607,700	175,400	1,442,000	147,200
80 Washington Township	2,797,100	174,800	915,700	1,706,600	2,622,300	43,300	848,600	169,300	409,200	131,500	67,100	821,700	306,400
81 Wayne	2,433,700	195,400	1,388,400	849,900	2,238,300	63,800	1,317,700	0	332,500	131,600	70,700	517,400	0
82 West Bloomfield Township	8,968,200	845,100	2,752,800	5,370,300	8,123,100	167,500	2,490,500	398,000	1,060,300	677,600	262,300	2,953,100	958,900
83 Westland	5,385,900	642,400	2,255,500	2,488,000	4,743,500	204,700	2,136,500	237,900	750,000	437,700	119,000	1,197,100	303,000
84 Wixom	2,150,400	239,500	919,300	991,600	1,910,900	42,700	820,800	0	271,100	196,800	98,500	720,500	0
85 Woodhaven	1,851,800	124,700	737,300	989,800	1,727,100	41,700	701,000	120,800	305,500	83,000	36,300	420,300	143,200
86 Ypsilanti Comm Util Auth	9,650,600	1,415,700	4,336,800	3,898,100	8,234,900	329,900	3,994,400	0	1,393,000	1,085,800	342,400	2,505,100	0
87 Total Suburban	287,976,000	31,323,600	124,824,400	131,828,000	256,652,400	8,972,700	117,002,900	9,427,500	38,197,300	22,350,900	7,821,500	71,223,100	12,980,100
88 Detroit Customers	36,190,300	6,799,100	20,514,200	8,877,000	29,391,200	2,910,200	19,824,300	176,300	3,361,500	3,888,900	689,900	5,198,900	140,300
89 GRAND TOTAL	324,166,300	38,122,700	145,338,600	140,705,000	286,043,600	11,882,900	136,827,200	9,603,800	41,558,800	26,239,800	8,511,400	76,422,000	13,120,400

Table 9
Water Supply System
Calculation of FY 2017 SHARE's - Suburban Only Cost Pools

	(1)	(2)	(3)	(4)
SUB WHOLESAL	Allocated CTA BUDGET	Specific Cost Categories		Allocated Unadjusted BUDGET
		Wholesale Master Meters	Customer Outreach Program	
1 Allen Park	0.716%	1.355%	0.971%	0.725%
2 Almont Village	0.067%	0.162%	0.068%	0.068%
3 Ash Township	0.232%	0.226%	0.293%	0.232%
4 Belleville	0.097%	0.173%	0.111%	0.098%
5 Berlin Township	0.224%	0.298%	0.217%	0.225%
6 Brownstown Township	1.061%	0.738%	0.989%	1.057%
7 Bruce Twp	0.014%	0.162%	0.008%	0.015%
8 Canton Township	4.099%	2.567%	2.394%	4.072%
9 Center Line	0.147%	0.219%	0.236%	0.149%
10 Chesterfield Township	1.188%	1.023%	1.177%	1.186%
11 Clinton Township	2.414%	1.729%	2.821%	2.407%
12 Commerce Township	1.581%	0.733%	0.685%	1.566%
13 Dearborn	2.986%	0.004%	4.402%	2.953%
14 Dearborn Heights	1.191%	0.870%	1.543%	1.188%
15 Eastpointe	0.493%	1.429%	0.812%	0.506%
16 Ecorse	0.457%	0.402%	1.093%	0.459%
17 Farmington	0.300%	0.505%	0.340%	0.303%
18 Farmington Hills	2.728%	4.227%	2.627%	2.748%
19 Ferndale	0.292%	0.801%	0.458%	0.300%
20 Flat Rock	0.369%	0.472%	0.453%	0.371%
21 Fraser	0.405%	0.471%	0.457%	0.406%
22 Garden City	0.515%	0.693%	0.659%	0.518%
23 Genesee County DC	5.222%	5.078%	4.193%	5.216%
24 Gibraltar	0.145%	0.248%	0.125%	0.146%
25 Grosse Ile Township	0.397%	0.564%	0.311%	0.399%
26 Grosse Pt. Park	0.442%	0.410%	0.423%	0.442%
27 Grosse Pt. Shores	0.190%	0.399%	0.132%	0.192%
28 Grosse Pt. Woods	0.440%	0.650%	0.522%	0.443%
29 Hamtramck	0.208%	0.975%	0.421%	0.218%
30 Harper Woods	0.267%	0.504%	0.403%	0.270%
31 Harrison Township	0.435%	0.656%	0.663%	0.438%
32 Hazel Park	0.213%	0.770%	0.375%	0.221%
33 Highland Park	0.374%	0.975%	0.759%	0.384%
34 Huron Township	0.440%	0.392%	0.439%	0.439%
35 Imlay City	0.364%	0.219%	0.317%	0.362%
36 Inkster	0.572%	0.554%	0.743%	0.572%
37 Keego Harbor	0.097%	0.173%	0.080%	0.098%
38 Lapeer	0.438%	0.910%	0.472%	0.445%
39 Lenox Township	0.088%	0.564%	0.139%	0.094%
40 Lincoln Park	0.684%	1.147%	1.024%	0.691%
41 Livonia	4.244%	3.564%	3.512%	4.232%
42 Macomb Township	3.319%	1.481%	2.143%	3.290%
43 Madison Heights	0.628%	1.065%	1.033%	0.636%
44 Mayfield Twp	0.006%	0.219%	0.004%	0.009%

Table 9
Water Supply System
Calculation of FY 2017 SHARE's - Suburban Only Cost Pools

	(1)	(2)	(3)	(4)
	Allocated CTA BUDGET	Specific Cost Categories		Allocated Unadjusted BUDGET
SUB WHOLESAL SHAREs		Wholesale Master Meters	Customer Outreach Program	
45 Melvindale	0.201%	0.752%	0.329%	0.209%
46 New Haven, Village of	0.116%	0.148%	0.102%	0.116%
47 N O C W A	7.248%	7.731%	6.735%	7.253%
48 Northville	0.231%	0.298%	0.236%	0.232%
49 Northville Township	2.075%	0.735%	0.939%	2.053%
50 Novi	2.725%	2.695%	1.937%	2.722%
51 Oak Park	0.409%	0.402%	0.720%	0.410%
52 Oakland Co. Drain Comm.	0.018%	0.162%	0.063%	0.020%
53 Plymouth	0.320%	0.286%	0.309%	0.320%
54 Plymouth Township	1.321%	0.444%	1.214%	1.309%
55 Redford Township	1.041%	2.580%	1.225%	1.062%
56 River Rouge	0.214%	0.608%	0.405%	0.220%
57 Riverview	0.342%	0.206%	0.330%	0.340%
58 Rockwood	0.093%	0.124%	0.082%	0.093%
59 Romeo	0.080%	0.219%	0.045%	0.082%
60 Romulus	1.142%	1.331%	1.417%	1.145%
61 Roseville	0.824%	1.248%	1.449%	0.832%
62 Royal Oak Township	0.077%	0.206%	0.084%	0.079%
63 S O C W A	7.005%	7.061%	9.092%	7.013%
64 Shelby Township	4.298%	1.757%	2.852%	4.259%
65 South Rockwood	0.031%	0.124%	0.037%	0.032%
66 Southgate	0.677%	0.509%	0.883%	0.675%
67 St. Clair County-Burtchvill	0.092%	0.148%	0.071%	0.093%
68 St. Clair County-Greenwoc	0.114%	0.618%	0.078%	0.121%
69 St. Clair Shores	0.946%	1.748%	1.549%	0.959%
70 Sterling Heights	4.949%	4.539%	4.364%	4.941%
71 Sumpter Township	0.203%	0.173%	0.222%	0.203%
72 Sylvan Lake	0.074%	0.148%	0.051%	0.075%
73 Taylor	1.502%	1.520%	2.034%	1.504%
74 Trenton	0.648%	1.671%	0.654%	0.662%
75 Troy	4.173%	3.800%	3.105%	4.164%
76 Utica	0.184%	0.219%	0.164%	0.184%
77 Van Buren Township	0.889%	1.549%	0.976%	0.898%
78 Walled Lake	0.290%	0.173%	0.229%	0.288%
79 Warren	3.117%	3.233%	5.015%	3.126%
80 Washington Township	0.971%	0.392%	0.482%	0.962%
81 Wayne	0.845%	0.846%	0.712%	0.845%
82 West Bloomfield Township	3.114%	2.795%	1.867%	3.105%
83 Westland	1.870%	2.738%	2.282%	1.883%
84 Wixom	0.747%	0.219%	0.476%	0.739%
85 Woodhaven	0.643%	0.347%	0.465%	0.638%
86 Ypsilanti Comm Util Auth	3.351%	2.722%	3.676%	3.344%
87 Total Suburban	100.000%	100.000%	100.000%	100.000%

Table 10
Water Supply System
Allocation of FY 2017 BUDGET to Customers - Suburban Only Cost Pools and Adjustments

	(1)	(2)	(3)	(4)	(5)	(6)
BUDGET to Allocate:	287,976,000	3,832,700	1,136,800	292,945,500	20,700,000	
		Suburban Only Catgs				
	Allocated CTA Rev Req't	Wholesale Master Meters	Customer Outreach Program	Allocated Unadjusted BUDGET	Allocation of BUDGET Adjustment	Adjusted Allocated BUDGET
Allocated Suburban BUDGET						
1 Allen Park	2,060,500	51,900	11,000	2,123,400	150,000	2,273,400
2 Almont Village	192,900	6,200	800	199,900	14,100	214,000
3 Ash Township	667,800	8,600	3,300	679,700	48,000	727,700
4 Belleville	278,700	6,600	1,300	286,600	20,300	306,900
5 Berlin Township	646,100	11,400	2,500	660,000	46,600	706,600
6 Brownstown Township	3,056,700	28,300	11,200	3,096,200	218,800	3,315,000
7 Bruce Twp	39,100	6,200	100	45,400	3,200	48,600
8 Canton Township	11,803,400	98,400	27,200	11,929,000	842,900	12,771,900
9 Center Line	424,600	8,400	2,700	435,700	30,800	466,500
10 Chesterfield Township	3,421,600	39,200	13,400	3,474,200	245,500	3,719,700
11 Clinton Township	6,952,900	66,300	32,100	7,051,300	498,300	7,549,600
12 Commerce Township	4,552,700	28,100	7,800	4,588,600	324,200	4,912,800
13 Dearborn	8,599,700	200	50,000	8,649,900	611,200	9,261,100
14 Dearborn Heights	3,430,700	33,400	17,500	3,481,600	246,000	3,727,600
15 Eastpointe	1,419,700	54,800	9,200	1,483,700	104,800	1,588,500
16 Ecorse	1,315,900	15,400	12,400	1,343,700	94,900	1,438,600
17 Farmington	864,500	19,400	3,900	887,800	62,700	950,500
18 Farmington Hills	7,857,300	162,000	29,900	8,049,200	568,800	8,618,000
19 Ferndale	842,100	30,700	5,200	878,000	62,000	940,000
20 Flat Rock	1,062,500	18,100	5,200	1,085,800	76,700	1,162,500
21 Fraser	1,165,300	18,100	5,200	1,188,600	84,000	1,272,600
22 Garden City	1,482,800	26,500	7,500	1,516,800	107,200	1,624,000
23 Genesee County DC	15,037,100	194,600	47,700	15,279,400	1,079,700	16,359,100
24 Gibraltar	417,500	9,500	1,400	428,400	30,300	458,700
25 Grosse Ile Township	1,143,900	21,600	3,500	1,169,000	82,600	1,251,600
26 Grosse Pt. Park	1,273,600	15,700	4,800	1,294,100	91,400	1,385,500
27 Grosse Pt. Shores	545,900	15,300	1,500	562,700	39,800	602,500
28 Grosse Pt. Woods	1,268,400	24,900	5,900	1,299,200	91,800	1,391,000
29 Hamtramck	597,600	37,400	4,800	639,800	45,200	685,000
30 Harper Woods	767,600	19,300	4,600	791,500	55,900	847,400
31 Harrison Township	1,251,900	25,100	7,500	1,284,500	90,800	1,375,300
32 Hazel Park	613,000	29,500	4,300	646,800	45,700	692,500
33 Highland Park	1,077,500	37,400	8,600	1,123,500	79,400	1,202,900
34 Huron Township	1,265,700	15,000	5,000	1,285,700	90,800	1,376,500
35 Imlay City	1,049,200	8,400	3,600	1,061,200	75,000	1,136,200
36 Inkster	1,647,100	21,200	8,400	1,676,700	118,500	1,795,200
37 Keego Harbor	278,200	6,600	900	285,700	20,200	305,900
38 Lapeer	1,262,200	34,900	5,400	1,302,500	92,000	1,394,500
39 Lenox Township	253,200	21,600	1,600	276,400	19,500	295,900
40 Lincoln Park	1,969,700	43,900	11,600	2,025,200	143,100	2,168,300
41 Livonia	12,221,000	136,600	39,900	12,397,500	876,000	13,273,500
42 Macomb Township	9,557,000	56,800	24,400	9,638,200	681,100	10,319,300
43 Madison Heights	1,809,300	40,800	11,700	1,861,800	131,600	1,993,400
44 Mayfield Twp	18,500	8,400	0	26,900	1,900	28,800
45 Melvindale	578,400	28,800	3,700	610,900	43,200	654,100
46 New Haven, Village of	334,200	5,700	1,200	341,100	24,100	365,200

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Table 10
Water Supply System
Allocation of FY 2017 BUDGET to Customers - Suburban Only Cost Pools and Adjustments

	(1)	(2)	(3)	(4)	(5)	(6)
BUDGET to Allocate:	287,976,000	3,832,700	1,136,800	292,945,500	20,700,000	
		Suburban Only Catgs				
	Allocated CTA Rev Req't	Wholesale Master Meters	Customer Outreach Program	Allocated Unadjusted BUDGET	Allocation of BUDGET Adjustment	Adjusted Allocated BUDGET
Allocated Suburban BUDGET						
47 N O C W A	20,873,200	296,300	76,600	21,246,100	1,501,300	22,747,400
48 Northville	666,400	11,400	2,700	680,500	48,100	728,600
49 Northville Township	5,974,800	28,200	10,700	6,013,700	424,900	6,438,600
50 Novi	7,848,300	103,300	22,000	7,973,600	563,400	8,537,000
51 Oak Park	1,178,800	15,400	8,200	1,202,400	85,000	1,287,400
52 Oakland Co. Drain Comm.	52,900	6,200	700	59,800	4,200	64,000
53 Plymouth	921,500	11,000	3,500	936,000	66,100	1,002,100
54 Plymouth Township	3,802,900	17,000	13,800	3,833,700	270,900	4,104,600
55 Redford Township	2,998,200	98,900	13,900	3,111,000	219,800	3,330,800
56 River Rouge	615,400	23,300	4,600	643,300	45,500	688,800
57 Riverview	984,700	7,900	3,700	996,300	70,400	1,066,700
58 Rockwood	268,200	4,800	900	273,900	19,400	293,300
59 Romeo	230,000	8,400	500	238,900	16,900	255,800
60 Romulus	3,288,400	51,000	16,100	3,355,500	237,100	3,592,600
61 Roseville	2,372,600	47,800	16,500	2,436,900	172,200	2,609,100
62 Royal Oak Township	222,200	7,900	1,000	231,100	16,300	247,400
63 S O C W A	20,171,700	270,600	103,400	20,545,700	1,451,800	21,997,500
64 Shelby Township	12,375,900	67,400	32,400	12,475,700	881,600	13,357,300
65 South Rockwood	89,000	4,800	400	94,200	6,700	100,900
66 Southgate	1,948,700	19,500	10,000	1,978,200	139,800	2,118,000
67 St. Clair County-Burtchvill	266,100	5,700	800	272,600	19,300	291,900
68 St. Clair County-Greenwoc	329,600	23,700	900	354,200	25,000	379,200
69 St. Clair Shores	2,725,400	67,000	17,600	2,810,000	198,600	3,008,600
70 Sterling Heights	14,251,500	174,000	49,600	14,475,100	1,022,800	15,497,900
71 Sumpter Township	585,400	6,600	2,500	594,500	42,000	636,500
72 Sylvan Lake	212,200	5,700	600	218,500	15,400	233,900
73 Taylor	4,324,000	58,300	23,100	4,405,400	311,300	4,716,700
74 Trenton	1,867,000	64,100	7,400	1,938,500	137,000	2,075,500
75 Troy	12,017,600	145,600	35,300	12,198,500	862,000	13,060,500
76 Utica	529,600	8,400	1,900	539,900	38,200	578,100
77 Van Buren Township	2,561,000	59,400	11,100	2,631,500	185,900	2,817,400
78 Walled Lake	834,600	6,600	2,600	843,800	59,600	903,400
79 Warren	8,975,300	123,900	57,000	9,156,200	647,000	9,803,200
80 Washington Township	2,797,100	15,000	5,500	2,817,600	199,100	3,016,700
81 Wayne	2,433,700	32,400	8,100	2,474,200	174,800	2,649,000
82 West Bloomfield Township	8,968,200	107,100	21,200	9,096,500	642,800	9,739,300
83 Westland	5,385,900	104,900	25,900	5,516,700	389,800	5,906,500
84 Wixom	2,150,400	8,400	5,400	2,164,200	152,900	2,317,100
85 Woodhaven	1,851,800	13,300	5,300	1,870,400	132,200	2,002,600
86 Ypsilanti Comm Util Auth	9,650,600	104,300	41,800	9,796,700	692,300	10,489,000
87 Total Suburban	287,976,000	3,832,700	1,136,600	292,945,300	20,700,000	313,645,300
88 Detroit Customers	36,190,300	0	0	36,190,300	(20,700,000)	15,490,300
89 GRAND TOTAL	324,166,300	3,832,700	1,136,600	329,135,600	0	329,135,600

Table 11
Water Supply System
Calculation of FY 2017 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	Commodity \$/Mcf	Mcf	Fixed Mo \$/mo (2)/(12)	Commodity \$/Mcf (3)/(4)	
		60%					
1	Allen Park	2,273,400	1,364,000	909,400	138,000	113,700	6.59
2	Almont Village	214,000	128,400	85,600	9,000	10,700	9.51
3	Ash Township	727,700	436,600	291,100	40,000	36,400	7.28
4	Belleville	306,900	184,100	122,800	15,000	15,300	8.19
5	Berlin Township	706,600	424,000	282,600	29,000	35,300	9.74
6	Brownstown Township	3,315,000	1,989,000	1,326,000	136,000	165,800	9.75
7	Bruce Twp	48,600	29,200	19,400	1,000	2,400	19.40
8	Canton Township	12,771,900	7,663,100	5,108,800	324,000	638,600	15.77
9	Center Line	466,500	279,900	186,600	34,000	23,300	5.49
10	Chesterfield Township	3,719,700	2,231,800	1,487,900	162,000	186,000	9.18
11	Clinton Township	7,549,600	4,529,800	3,019,800	398,000	377,500	7.59
12	Commerce Township	4,912,800	2,947,700	1,965,100	93,000	245,600	21.13
13	Dearborn	9,261,100	5,556,700	3,704,400	628,000	463,100	5.90
14	Dearborn Heights	3,727,600	2,236,600	1,491,000	218,000	186,400	6.84
15	Eastpointe	1,588,500	953,100	635,400	117,000	79,400	5.43
16	Ecorse	1,438,600	863,200	575,400	156,000	71,900	3.69
17	Farmington	950,500	570,300	380,200	47,000	47,500	8.09
18	Farmington Hills	8,618,000	5,170,800	3,447,200	363,000	430,900	9.50
19	Ferndale	940,000	564,000	376,000	66,000	47,000	5.70
20	Flat Rock	1,162,500	697,500	465,000	62,000	58,100	7.50
21	Fraser	1,272,600	763,600	509,000	65,000	63,600	7.83
22	Garden City	1,624,000	974,400	649,600	92,000	81,200	7.06
23	Genesee County DC						
24	Gibraltar	458,700	275,200	183,500	17,000	22,900	10.79
25	Grosse Ile Township	1,251,600	751,000	500,600	43,000	62,600	11.64
26	Grosse Pt. Park	1,385,500	831,300	554,200	61,000	69,300	9.09
27	Grosse Pt. Shores	602,500	361,500	241,000	19,000	30,100	12.68
28	Grosse Pt. Woods	1,391,000	834,600	556,400	75,000	69,600	7.42
29	Hamtramck	685,000	411,000	274,000	61,000	34,300	4.49
30	Harper Woods	847,400	508,400	339,000	58,000	42,400	5.84
31	Harrison Township	1,375,300	825,200	550,100	93,000	68,800	5.92
32	Hazel Park	692,500	415,500	277,000	54,000	34,600	5.13
33	Highland Park						
34	Huron Township	1,376,500	825,900	550,600	60,000	68,800	9.18
35	Imlay City	1,136,200	681,700	454,500	40,500	56,800	11.22
36	Inkster	1,795,200	1,077,100	718,100	104,000	89,800	6.90
37	Keego Harbor	305,900	183,500	122,400	11,000	15,300	11.13
38	Lapeer	1,394,500	836,700	557,800	59,600	69,700	9.36
39	Lenox Township	295,900	177,500	118,400	19,000	14,800	6.23
40	Lincoln Park	2,168,300	1,301,000	867,300	146,000	108,400	5.94
41	Livonia	13,273,500	7,964,100	5,309,400	488,000	663,700	10.88
42	Macomb Township	10,319,300	6,191,600	4,127,700	297,000	516,000	13.90
43	Madison Heights	1,993,400	1,196,000	797,400	148,000	99,700	5.39
44	Mayfield Twp	28,800	17,300	11,500	482	1,400	23.86
45	Melvindale	654,100	392,500	261,600	47,000	32,700	5.57

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Table 11
Water Supply System
Calculation of FY 2017 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	Commodity \$/Mcf	Mcf	Fixed Mo \$/mo (2)/12	Commodity \$/Mcf (3)/(4)	
46	New Haven, Village of	365,200	219,100	146,100	14,000	18,300	10.44
47	N O C W A	22,747,400	13,648,400	9,099,000	930,000	1,137,400	9.78
48	Northville	728,600	437,200	291,400	32,000	36,400	9.11
49	Northville Township	6,438,600	3,863,200	2,575,400	128,000	321,900	20.12
50	Novi	8,537,000	5,122,200	3,414,800	263,000	426,900	12.98
51	Oak Park	1,287,400	772,400	515,000	103,000	64,400	5.00
52	Oakland Co. Drain Comm.	64,000	38,400	25,600	9,000	3,200	2.84
53	Plymouth	1,002,100	601,300	400,800	42,000	50,100	9.54
54	Plymouth Township	4,104,600	2,462,800	1,641,800	165,000	205,200	9.95
55	Redford Township	3,330,800	1,998,500	1,332,300	173,000	166,500	7.70
56	River Rouge	688,800	413,300	275,500	58,000	34,400	4.75
57	Riverview	1,066,700	640,000	426,700	46,000	53,300	9.28
58	Rockwood	293,300	176,000	117,300	11,000	14,700	10.66
59	Romeo	255,800	153,500	102,300	6,000	12,800	17.05
60	Romulus	3,592,600	2,155,600	1,437,000	196,000	179,600	7.33
61	Roseville	2,609,100	1,565,500	1,043,600	208,000	130,500	5.02
62	Royal Oak Township	247,400	148,400	99,000	12,000	12,400	8.25
63	S O C W A	21,997,500	13,198,500	8,799,000	1,286,000	1,099,900	6.84
64	Shelby Township	13,357,300	8,014,400	5,342,900	396,000	667,900	13.49
65	South Rockwood	100,900	60,500	40,400	5,000	5,000	8.08
66	Southgate	2,118,000	1,270,800	847,200	124,000	105,900	6.83
67	St. Clair County-Burtchville Twp	291,900	175,100	116,800	9,000	14,600	12.98
68	St. Clair County-Greenwood	379,200	227,500	151,700	10,000	19,000	15.17
69	St. Clair Shores	3,008,600	1,805,200	1,203,400	221,000	150,400	5.45
70	Sterling Heights	15,497,900	9,298,700	6,199,200	617,000	774,900	10.05
71	Sumpter Township	636,500	381,900	254,600	30,000	31,800	8.49
72	Sylvan Lake	233,900	140,300	93,600	7,000	11,700	13.37
73	Taylor	4,716,700	2,830,000	1,886,700	286,000	235,800	6.60
74	Trenton	2,075,500	1,245,300	830,200	91,000	103,800	9.12
75	Troy	13,060,500	7,836,300	5,224,200	435,000	653,000	12.01
76	Utica	578,100	346,900	231,200	23,000	28,900	10.05
77	Van Buren Township	2,817,400	1,690,400	1,127,000	132,000	140,900	8.54
78	Walled Lake	903,400	542,000	361,400	31,000	45,200	11.66
79	Warren	9,803,200	5,881,900	3,921,300	723,000	490,200	5.42
80	Washington Township	3,016,700	1,810,000	1,206,700	66,000	150,800	18.28
81	Wayne	2,649,000	1,589,400	1,059,600	99,000	132,500	10.70
82	West Bloomfield Township	9,739,300	5,843,600	3,895,700	257,000	487,000	15.16
83	Westland	5,906,500	3,543,900	2,362,600	317,000	295,300	7.45
84	Wixom	2,317,100	1,390,300	926,800	64,000	115,900	14.48
85	Woodhaven	2,002,600	1,201,600	801,000	64,000	100,100	12.52
86	Ypsilanti Comm Util Auth	10,489,000	6,293,400	4,195,600	490,000	524,500	8.56
86	Total Suburban	313,645,300	188,187,300	125,458,000	13,906,582	182,400	9.02

Sewer Tables

Table 1
Sewage Disposal System
Comprehensive Summary of FY 2017 and FY 2018 BUDGET Elements - \$ millions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	FY 2016	FY 2017	FY 2018	FY 2017 vs. FY 2016		FY 2018 vs. FY 2017	
	Original Budg	Preliminary	Preliminary	Variance	% Variance	Variance	% Variance
	(2) - (1)	(4) / (1)	(3) - (2)	(6) / (2)			
GLWA Wholesale Items							
1 Wholesale Expense O&M (GLWA) (a)	169.1	175.9	182.9	6.8	4.0%	7.0	4.0%
2 GLWA Pension Reimbursement (Operating) (b)	10.8	10.8	10.8	0.0	0.0%	0.0	0.0%
3 Debt Service (Wholesale Facilities)	216.9	220.0	222.4	3.1	1.4%	2.4	1.1%
4 Non-Op Legacy Benefit Pmts (Wholesale Portion) (b)	11.1	11.1	11.1	0.0	0.0%	0.0	0.0%
5 WRAP Deposit (Wholesale Portion) (a)	2.6	2.3	2.4	(0.3)	-11.9%	0.1	4.0%
6 Lease Payment Deposit to Retail I&E Account	27.5	27.5	27.5	0.0	0.0%	0.0	0.0%
7 Revenue Transfer to Wholesale I&E Account (d)	8.2	16.5	25.5	8.3	100.9%	9.1	54.9%
8 Total Wholesale Revenue Requirements (a)	446.2	464.1	482.6	17.8	4.0%	18.6	4.0%
9 less: Non-operating Revenue	(2.3)	(4.1)	(4.6)	(1.8)	80.2%	(0.5)	11.0%
10 Subtotal Revenue Requirement from Charges	443.9	460.0	478.1	16.0	3.6%	18.1	3.9%
DWSD Retail Items							
11 Retail O&M Expense (DWSD-R) (a)	33.9	35.3	36.7	1.4	4.0%	1.4	4.0%
12 DWSD-R Pension Reimbursement (Operating) (b)	2.9	2.9	2.9	0.0	0.0%	0.0	0.0%
13 Debt Service (Retail Facilities) (c)	22.6	22.6	22.6	0.0	0.0%	0.0	0.0%
14 Non-Op Legacy Benefit Pmts (Retail Portion) (b)	2.9	2.9	2.9	0.0	0.0%	0.0	0.0%
15 Budget Stabilization Fund Deposit	0.0	3.2	3.2	3.2	NA	0.0	0.0%
16 WRAP Deposit (Retail Portion) (a)	0.0	0.4	0.4	0.4	NA	0.0	4.0%
17 Revenue Transfer to Retail I&E Account (d)	0.5	(2.0)	(0.8)	(2.4)	-513.1%	1.2	-60.7%
18 Total Retail Revenue Requirements (a)	62.7	65.2	67.8	2.5	4.0%	2.6	4.0%
19 less: Non-operating Revenue	(5.0)	(5.0)	(5.0)	0.0	0.0%	0.0	0.0%
20 Subtotal Revenue Requirement from Charges	57.7	60.2	62.8	2.5	4.3%	2.6	4.3%
CONSOLIDATED SYSTEMS							
21 O&M Expense (a)	203.0	211.1	219.6	8.1	4.0%	8.4	4.0%
22 Pension Reimbursement (Operating) (b)	13.7	13.7	13.7	0.0	0.0%	0.0	0.0%
23 Debt Service	239.4	242.6	244.9	3.1	1.3%	2.4	1.0%
24 Non-Op Legacy Benefit Pmts (b)	14.0	14.0	14.0	0.0	0.0%	0.0	0.0%
25 Budget Stabilization Fund Deposit	0.0	3.2	3.2	3.2	NA	0.0	0.0%
26 WRAP Deposit (a)	2.6	2.7	2.8	0.0	1.7%	0.1	4.0%
27 Lease Payment Deposit to Retail I&E Account	27.5	27.5	27.5	0.0	0.0%	0.0	0.0%
28 Revenue Transfer to I&E Fund (d)	8.7	14.5	24.8	5.9	67.5%	10.2	70.4%
29 Total Revenue Requirements (a)	509.0	529.3	550.5	20.4	4.0%	21.2	4.0%
30 less: Non-operating Revenue	(7.3)	(9.1)	(9.6)	(1.8)	25.2%	(0.5)	5.0%
31 Subtotal Revenue Requirement from Charges	501.7	520.2	540.9	18.5	3.7%	20.7	4.0%
32 Proforma Revenue - Existing Charges	485.0	485.0					
33 Variance	16.7	35.2					
34 % Variance	3.4%	7.3%			3.8%		

(a) Assumed to increase 4.0% annually

(b) FY 2017 and FY 2018 allocation to Wholesale and Retail elements assumed @ FY 2016 levels

(c) FY 2017 and FY 2018 Retail Debt Service reflects preliminary initial amortization schedule for "Obligation Payable"

(d) Default calculation to result in overall 4.0% annual revenue requirement increase

Table 2
FY 2017 Debt Service Coverage Calculations

	(1)	(2)	(3)	
	<u>Water</u>	<u>Sewer</u>	<u>Combined</u>	
1	Baseline Revenue - Exist Charges	392,292,700	485,024,100	877,316,800
2	<i>Revenue Adjustment - %</i>	<i>5.3%</i>	<i>7.3%</i>	<i>6.4%</i>
3	Revenue Adjustment - \$	20,831,600	35,178,400	56,010,000
4	Projected Revenue from Charges	413,124,300	520,202,500	933,326,800
5	Misc & Non-Operating Revenue	6,827,100	9,115,200	15,942,300
6	<i>Bad Debt True-Up Recovery</i>		<i>10,962,600</i>	<i>10,962,600</i>
7	Total Projected Revenue	419,951,400	540,280,300	960,231,700
8	less: Operating Expenses	168,864,000	224,813,500	393,677,500
9	Net Revenue	251,087,400	315,466,800	566,554,200
	<u>Debt Service</u>			
10	Senior Lien	145,902,300	147,907,200	293,809,500
11	Senior Lien and Second Lien	187,944,400	196,930,300	384,874,700
12	All Bonds, Including SRF Jr. Lien	190,497,300	244,985,900	435,483,200
	<u>Debt Service Coverage</u>			
13	Senior	1.72	2.13	1.93
14	Senior Lien and Second Lien	1.34	1.60	1.47
15	All Bonds, Including SRF Jr. Lien	1.32	1.29	1.30

Table 3
Sewage Disposal System
Allocation of FY 2017 *Wholesale Service* BUDGET to Cost Pools

	(1) Amount to Allocate \$	(2) Common to All \$	(3) Suburban Wholesale \$	(4) OMID Specific \$	(5) CSO Facilities \$	(6) Industrial Waste Control \$	(7) TOTAL \$	(8) (9)							
								Cost Pool Allocation						Common to All (b)	
								Flow	Pollutants						
Total BUDGET															
1 Operation and Maintenance Expense	175,858,900	147,332,500	4,933,000	4,146,300	7,734,900	11,712,200	175,858,900	46,270,900	101,061,600						
2 Operating Pension Reimbursement	10,838,400	9,328,900	436,300	48,500	472,200	552,500	10,838,400	3,391,500	5,937,400						
3 Debt Service	219,986,900	181,830,800	3,643,100	2,453,000	31,574,200	485,800	219,986,900	109,929,200	71,901,600						
4 Non-Operating Legacy Benefit Pmts	11,096,500	9,551,000	446,700	49,700	483,400	565,700	11,096,500	3,472,300	6,078,800						
5 WRAP Deposit	2,299,800	1,915,300	51,500	36,400	225,800	70,700	2,299,700	907,200	1,008,100						
6 Lease Payment Deposit to Retail I&E	27,500,000	22,902,800	616,300	435,800	2,699,600	845,500	27,500,000	10,847,800	12,055,000						
7 System Revenue Financed Major CIP	16,498,000	13,636,500	273,200	184,000	2,367,900	36,400	16,498,000	8,244,200	5,392,300						
8 Total Gross BUDGET	464,078,500	386,497,800	10,400,100	7,353,700	45,558,000	14,268,800	464,078,400	183,063,100	203,434,800						
9 less: Misc Non-Operating Income	(4,115,200)	(3,401,400)	(68,200)	(45,900)	(590,600)	(9,100)	(4,115,200)	(2,056,400)	(1,345,000)						
10 Net BUDGET Req'd from Charges	459,963,300	383,096,400	10,331,900	7,307,800	44,967,400	14,259,700	459,963,200	181,006,700	202,089,800						
<i>Summary - BUDGET Required from Charges</i>															
11 Net Operating Expenses	186,697,300	156,661,400	5,369,300	4,194,800	8,207,100	12,264,700	186,697,300	49,662,400	106,999,000						
12 Net Capital Requirements	273,266,000	226,435,000	4,962,600	3,113,000	36,760,300	1,995,000	273,265,900	131,344,300	95,090,800						
13 Total	459,963,300	383,096,400	10,331,900	7,307,800	44,967,400	14,259,700	459,963,200	181,006,700	202,089,800						

Table 4
Sewage Disposal System
Adjusted and Summarized FY 2017 *Wholesale Service* BUDGET Allocation to Cost Pools

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Amount to Allocate	Cost Pool Allocation							Common to All (b)	
	Common to All	Suburban Wholesale	OMID Specific	CSO Facilities	Industrial Waste Control	TOTAL	Flow	Pollutants	
	\$	\$	\$	\$	\$	\$	\$	\$	
1 Net Operating Expenses	186,697,300	156,661,400	5,369,300	4,194,800	8,207,100	12,264,700	186,697,300	49,662,400	106,999,000
2 Net Capital Requirements	273,266,000	226,435,000	4,962,600	3,113,000	36,760,300	1,995,000	273,265,900	131,344,300	95,090,800
3 Adjusted Net Capital	273,266,000	226,435,000	4,962,600	3,113,000	36,760,300	1,995,000	273,265,900	131,344,300	95,090,800
4 Net to Recover from Charges	459,963,300	383,096,400	10,331,900	7,307,800	44,967,400	14,259,700	459,963,200	181,006,700	202,089,800
5 less: Industrial Specific (a)	(19,423,200)	(5,163,500)				(14,259,700)	(19,423,200)		(5,163,500)
6 Net BUDGET from Charges	440,540,100	377,932,900	10,331,900	7,307,800	44,967,400	0	440,540,000	181,006,700	196,926,300

(a) Industrial Surcharge Customers

(b) Relative Flow/Pollutants in CTA Cost Pool

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

2.56%
48%
52%

Table 5
Sewage Disposal System
FY 2017 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	14.670%	22.819%	100.000%	2.651%	12.916%	15.883%
2	Rouge Valley	12.922%	21.358%		2.956%	12.089%	13.500%
3	Oakland GWK	10.616%	18.254%		2.256%	10.332%	10.808%
4	Evergreen Farmington	7.526%	12.312%		1.485%	6.969%	7.912%
5	NE Wayne Co	5.600%	9.745%		1.174%	5.516%	5.649%
6	Dearborn	4.478%	7.811%		1.631%	4.421%	4.578%
7	Grosse Pointe Farms	0.576%	1.058%		0.504%	0.599%	0.559%
8	Grosse Pointe Park	0.381%	0.640%		0.062%	0.362%	0.394%
9	Melvindale	0.322%	0.526%		0.074%	0.298%	0.337%
10	Farmington	0.259%	0.428%		0.052%	0.242%	0.269%
11	Center Line	0.216%	0.339%		0.056%	0.192%	0.231%
12	Allen Park	0.157%	0.251%		0.031%	0.142%	0.167%
13	Highland Park	1.154%	2.125%		2.065%	1.203%	1.088%
14	Hamtramck	0.777%	1.732%		1.595%	0.980%	0.821%
15	Grosse Pointe	0.195%	0.410%		0.228%	0.232%	0.209%
16	Harper Woods	0.055%	0.110%		0.013%	0.062%	0.061%
17	Redford Township	0.049%	0.072%		0.133%	0.041%	0.041%
18	Wayne County #3	0.007%	0.011%		0.035%	0.006%	0.006%
19	Subtotal Suburban Wholesale	59.960%	100.000%	100.000%	17.000%	56.602%	62.513%
20	City of Detroit Customers	40.040%			83.000%	43.398%	37.487%
21	Total	100.000%	0.000%		83.000%	43.398%	37.487%

Table 6
Sewage Disposal System
Allocation of FY 2017 *Wholesale Service* BUDGET to Customers

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
	Allocation of FY 2017 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	55,442,800	2,357,600	7,307,800	1,192,200	66,300,400	1,258,900	67,559,300	1,278,000	986,500	69,823,800
2	Rouge Valley	48,836,500	2,206,700	0	1,329,100	52,372,300	1,178,100	53,550,400	1,196,000	923,500	55,669,900
3	Oakland GWK	40,121,400	1,885,900	0	1,014,400	43,021,700	1,006,900	44,028,600	1,022,200	789,200	45,840,000
4	Evergreen Farmington	28,443,200	1,272,100	0	667,800	30,383,100	679,100	31,062,200	689,500	532,400	32,284,100
5	NE Wayne Co	21,164,200	1,006,900	0	527,900	22,699,000	537,500	23,236,500	545,700	421,400	24,203,600
6	Dearborn	16,923,800	807,000	0	733,500	18,464,300	430,800	18,895,100	437,400	337,700	19,670,200
7	Grosse Pointe Farms	2,176,900	109,300	0	226,600	2,512,800	58,400	2,571,200	59,300	45,800	2,676,300
8	Grosse Pointe Park	1,439,900	66,100	0	27,800	1,533,800	35,300	1,569,100	35,800	27,700	1,632,600
9	Melvindale	1,216,900	54,400	0	33,200	1,304,500	29,000	1,333,500	29,500	22,800	1,385,800
10	Farmington	978,800	44,200	0	23,600	1,046,600	23,600	1,070,200	23,900	18,500	1,112,600
11	Center Line	816,300	35,000	0	25,000	876,300	18,700	895,000	19,000	14,700	928,700
12	Allen Park	593,400	25,900	0	13,900	633,200	13,800	647,000	14,000	10,800	671,800
13	Highland Park	4,361,300	219,600	0	928,500	5,509,400	117,200	5,626,600	119,000	91,900	5,837,500
14	Hamtramck	2,936,200	179,000	0	717,000	3,832,200	95,500	3,927,700	97,000	74,900	4,099,600
15	Grosse Pointe	737,000	42,300	0	102,600	881,900	22,600	904,500	23,000	17,700	945,200
16	Harper Woods	207,900	11,300	0	5,700	224,900	6,000	230,900	6,100	4,700	241,700
17	Redford Township	183,500	7,400	0	60,000	250,900	4,000	254,900	4,000	3,100	262,000
18	Wayne County #3	28,100	1,100	0	15,600	44,800	600	45,400	600	500	46,500
19	Subtotal Suburban Wholesale	226,608,100	10,331,800	7,307,800	7,644,400	251,892,100	5,516,000	257,408,100	5,600,000	4,323,800	267,331,900
20	City of Detroit Customers	151,324,600	0	0	37,322,900	188,647,500	(5,516,000)	183,131,500	(a)	(a)	(a)
21	Subtotal	377,932,700	10,331,800	7,307,800	44,967,300	440,539,600	0	440,539,600			
22	Industrial Waste Control					14,259,700		14,259,700			
23	Industrial Surcharges					5,163,500		5,163,500			
24	Total					459,962,800		459,962,800			

(a) Subject to design of retail rates and charges for City of Detroit Customer Class.

Table 7
Sewage Disposal System
Determination of FY 2015-16 Wholesale Service Charge Schedule

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	FY 2017 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	4,620,200	196,500	609,000	99,400	5,525,100	104,900	5,630,000	106,500	82,200	5,818,700
2 Rouge Valley	4,069,700	183,900	0	110,800	4,364,400	98,200	4,462,600	99,700	77,000	4,639,300
3 Oakland GWK	3,343,500	157,200	0	84,500	3,585,200	83,900	3,669,100	85,200	65,800	3,820,100
4 Evergreen Farmington	2,370,300	106,000	0	55,700	2,532,000	56,600	2,588,600	57,500	44,400	2,690,500
5 NE Wayne Co	1,763,700	83,900	0	44,000	1,891,600	44,800	1,936,400	45,500	35,100	2,017,000
6 Dearborn	1,410,300	67,300	0	61,100	1,538,700	35,900	1,574,600	36,500	28,100	1,639,200
7 Grosse Pointe Farms	181,400	9,100	0	18,900	209,400	4,900	214,300	4,900	3,800	223,000
8 Grosse Pointe Park	120,000	5,500	0	2,300	127,800	2,900	130,700	3,000	2,300	136,000
9 Melvindale	101,400	4,500	0	2,800	108,700	2,400	111,100	2,500	1,900	115,500
10 Farmington	81,600	3,700	0	2,000	87,300	2,000	89,300	2,000	1,500	92,800
11 Center Line	68,000	2,900	0	2,100	73,000	1,600	74,600	1,600	1,200	77,400
12 Allen Park	49,500	2,200	0	1,200	52,900	1,200	54,100	1,200	900	56,200
13 Highland Park	363,400	18,300	0	77,400	459,100	9,800	468,900	9,900	7,700	486,500
14 Hamtramck	244,700	14,900	0	59,800	319,400	8,000	327,400	8,100	6,200	341,700
15 Grosse Pointe	61,400	3,500	0	8,600	73,500	1,900	75,400	1,900	1,500	78,800
16 Harper Woods	17,300	900	0	500	18,700	500	19,200	500	400	20,100
17 Redford Township	15,300	600	0	5,000	20,900	300	21,200	300	300	21,800
18 Wayne County #3	2,300	100	0	1,300	3,700	100	3,800	100	0	3,900
19 Subtotal Suburban Wholesale	18,884,000	861,000	609,000	637,400	20,991,400	459,900	21,451,300	466,900	360,300	22,278,500



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MEMORANDUM

Bad Debt Expense Treatment for FY 2017 Charges
Suburban Wholesale Sewer Customer Class

January 22, 2016

To: Sue McCormick, Nickie Bateson

From: Bart Foster

This memorandum has been prepared to introduce the treatment of bad debt expense as we develop “revenue requirements” to be included in the proposed FY 2017 Sewage Disposal System Cost of Service Allocations and Service Charge schedules.

First a brief background:

- 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 is FY 2016. So none of the 5-year LBA will be 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 by the “4 corners” of the services agreement, bad debt expense from FYs 2013, 2014, and 2015, which have never been “trued-up” in prospective cost allocations and service charges, need to be implemented with the FY 2017 service charges.*
 - *As shown on Exhibit Page 2, a significant amount of bad debt expense (associated with Highland Park) as accrued during these fiscal years.*

While working to prepare proposed cost of service allocations and service charge schedules for FY 2017 we have modeled (in a highly simplified manner) how the bad debt “true-up” concept might impact revenue requirements for the Suburban Wholesale Sewer Customer Class over the next few years. The results of our analysis are summarized in the attached exhibit(s) and we have taken the liberty to suggest two possible implementation scenarios for meeting the intent of the Service Agreement.

1. The “4 corners” Scenario – strictly adhere to the guiding documents. True up actual **Sewer** bad debt expense via the services agreement(s). This would effectively replace the 5-year LBA with bad debt true-up adjustments during FY 2017, replacing a net \$474,000 annual look-back adjustment with a \$17.3 million bad debt “true-up” adjustment.
2. “Phased Historical Adjustment” Scenario - Recover historical bad debt true up over four years, rather than all in FY 2017. This approach would mitigate the effective increase resulting from Scenario 1, and allow for a less volatile recovery pattern, while the impact of including prospective allowances in the revenue requirement is evaluated.

The attached Exhibit Page 1 illustrates the resulting projected revenue requirements associated with each scenario under very simplified assumptions. The top portion introduces the “4 Corners” Scenario. The prospective sewer service charges for the Suburban Wholesale Sewer Customer Class currently contain estimated annual bad debt expense totaling of \$5.6 million (Line 1). *Note that for purposes of illustrating this initial evaluation we’ve assume that this amount will remain constant, and that actual bad debt expense will equal projections. We’ll explore potential variations momentarily.* The current (FY 2016) charges also include a net revenue requirement of \$474,000 (Line 2) to implement the final

segment of the 5-Year LBA¹ - for total sewer bad debt expense related revenue requirements of approximately \$6.0 million.

The projections for FY 2017 indicate maintenance of the \$5.6 million prospective bad debt expense, but the total bad debt expense related revenue requirements actually increase to \$22.9 million, due to the immediate recovery of the “pre-2016” true-up requirements, and then drop off dramatically, so long as actual bad debt experience remains constant. Since we are assuming that actual bad debt expense is equal to prospective bad debt expense, there are not any “future true-up recovery” amounts necessary on Line 3.

This presentation is duplicated for Scenario 2 – “Phased Historical Adjustment” on Lines 5 through 8. For purposes of this scenario we’ve assumed that the “pre-2016” true-up would be recovered in equal installments over the four years from FY 2017 through FY 2020. This approach also follows the simplistic assumption that bad debt expense remains constant. As noted on Line 8 of the exhibit the total bad debt expense related revenue requirements still increase for FY 2017, although much more moderately, and remain relative stable in the projections for the remainder of the period.

Now let's explore the impact of varying levels of actual bad debt expense on how the overall recovery plan. (*See Lines 9 through 12*). There are a myriad of assumptions that could be applied. We'll opt to keep it simple and illustrate the hypothetical impact of a scenario in which collections improve dramatically starting in FY 2017 and result in bad debt expense that is equivalent to 50% of projected levels.

Since service charges must be developed prospectively and actual results are not known until the prior year is closed, the impact of the FY 2017 results is not experienced until FY 2019. But such a result materially impacts all of the various elements of the bad debt expense revenue requirement.

- Based on the new experience, it would be reasonable to expect a lower projected prospective bad debt expense (Line 9).
- In accordance with the services agreement(s), the amounts included in the prospective FY 2017 charges would be eligible to potentially be credited back against the FY 2019 revenue requirement via the “true-up” mechanism (Line 11).

In this scenario, the only “net” bad debt expense included in FY 2019 revenue requirements would be that related to the “pre 2016 true-up” amounts, since customer would effectively be credited for amounts that were included in charges starting in FY 2016 and beyond, but were effectively recovered “after the fact.” This effect would continue in FY 2020 under these assumptions as well – and if we showed FY 2021 the net bad debt expense revenue

¹ The entire 5-Year LBA is not technically related to bad debt expense, but including on the “true-up” line item is appropriate since the bad debt true-up is the only “look-back” concept that remains in existence.

requirements would be zero, as the “pre 2016 true-up” amounts would be fully recovered at the end of FY 2020.

We firmly believe the each of these scenarios represent a reasonable approach to this complex matter. We also believe that there are additional scenarios worthy of consideration that reflect various aspects of the concepts introduced above. ***For purposes of developing the proposed FY 2017 service charges, we recommend implementation of Scenario 2, and we are preceding with development of proposed FY 2017 service charges assuming that Scenario 2 is the alternative of choice.***

We look forward to further discussing this matter at your convenience.

Bad Debt Expense / Budget Stabilization Fund Modeling and Calculations
Suburban Wholesale Sewer Customers

	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2016 - 2020 5-Year Total</u>	
Scenario 1 - "4 Corners"							
1	Prospective Charges	5,569,200	5,600,000	5,600,000	5,600,000	5,600,000	27,969,200
2	Pre-2016 Bad Debt "True-Up"	474,900	17,295,300	0	0	0	17,770,200
3	Future True-Up Recovery (a)	0	0	0	0	0	0
4	Total Included in Service Charges	<u>6,044,100</u>	<u>22,895,300</u>	<u>5,600,000</u>	<u>5,600,000</u>	<u>5,600,000</u>	<u>45,739,400</u>
<i>(a) Assumes actual bad debt expense = prospective bad debt expense</i>							
Scenario 2 - "Phased Historical Adjustment"							
5	Prospective Charges	5,569,200	5,600,000	5,600,000	5,600,000	5,600,000	27,969,200
6	Pre-2016 Bad Debt "True-Up"	474,900	4,323,800	4,323,800	4,323,800	4,323,800	17,770,100
7	Future True-Up Recovery (a)	0	0	0	0	0	0
8	Total Included in Service Charges	<u>6,044,100</u>	<u>9,923,800</u>	<u>9,923,800</u>	<u>9,923,800</u>	<u>9,923,800</u>	<u>45,739,300</u>
<i>(a) Assumes actual bad debt expense = prospective bad debt expense</i>							
Hypothetical Impact of Enhanced Collections							
9	Prospective Charges	5,569,200	5,600,000	5,600,000	2,800,000	2,800,000	22,369,200
10	Pre-2016 Bad Debt "True-Up"	474,900	4,323,800	4,323,800	4,323,800	4,323,800	17,770,100
11	Future True-Up Recovery (a)	0	0	0	(2,800,000)	(2,800,000)	(5,600,000)
12	Total Included in Service Charges	<u>6,044,100</u>	<u>9,923,800</u>	<u>9,923,800</u>	<u>4,323,800</u>	<u>4,323,800</u>	<u>34,539,300</u>
<i>(a) Assume actual bad debt expense = prospective bad debt expense in FY 2016, then 50% of projections</i>							

Sewage Disposal System Bad Debt Expense Summary

	Suburban Wholesale		
	Planned	Actual	Variance
2008	0	0	0
2009	0	0	0
2010	0	1,661,902	1,661,902
2011	0	1,937,745	1,937,745
2012	0	2,185,394	2,185,394
Subtotal - 5-yr LBA (a)	0	5,785,041	5,785,041
2013	0	2,114,175	2,114,175
2014	0	3,478,416	3,478,416
2015	0	11,702,674	11,702,674
Subtotal post 5-yr LBA	0	17,295,265	17,295,265
8-year Total	0	23,080,306	23,080,306
2016		5,569,200	
2017		5,600,000	

(a) Variance included in 5-year LBA adjustment, which was included in charges to customers from 2012 through 2016.