



Financial Services Audit Committee Communication

Date: April 24, 2019

To: Great Lakes Water Authority Audit Committee

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

Re: CFO Updates

For discussion: See materials attached related to sewer shares methodology discussion with member partners.



Presentation Topics

1. Brief Overview of Current SHARES Methodology
2. Data Developments Potentially Impacting FY 2021 SHARES
3. Brief Summary of Technically Driven Methodology Considerations
4. Introduction of a different “*Path Forward*” for Stakeholder Consideration

Presentation Notes . . .

- **This material is designed to provide information of a conceptual nature.**
 - ✓ *Example cost allocations to Customers are indicated based on assumptions noted, but . . .*
 - ✓ *This material is not intended to represent any recommended charges, etc.*
 - ✓ *The potential “Path Forward” embraces notions grounded in principles to improve regional water quality at the lowest possible costs.*
- This material focusses on the GLWA Sewer Revenue Requirement that is allocated to ALL Wholesale Customers and the City of Detroit Customer Class
 - ✓ *Excludes OMID specific and Industrial Specific Cost Pools*



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Brief Overview of Current SHAREs



The Current “SHAREs” Approach Implements a Methodology that:

- Assigns Budget to Cost Pools
- Allocates Cost Pool Budget to Customers Based on Measure of Use
 - ✓ *CSO Facilities – 83/17 via 1999 Rate Settlement Agreement*
 - ✓ *Master Meters – Exclude Detroit*
 - ✓ *All Other Costs:*
 - 50% based on estimated contributed annual volume
 - 50% based on estimated (based on strength of flow assumptions) contributed annual pollutants



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Current “SHAREs” Approach Illustration

Cost Pool:	CSO Facilities	Suburban Only	Volume SHAREs	Pollutant SHAREs	TOTAL
FY 2020 Operating (\$ millions)	\$18.02	\$3.61	\$50.24	\$111.96	\$183.83
FY 2020 Capital (\$ millions)	\$43.07	\$6.08	\$139.01	\$77.30	\$265.46
FY 2020 Revenue Req't (\$ millions)	\$61.10	\$9.68	\$189.26	\$189.26	\$449.30
FY 2020 Revenue Requirement %	13.6%	2.2%	42.1%	42.1%	100.0%
Assigned to Customers Via:	83/17 Rate Settlement Agreement	Average Annual Contributed Volume, Excluding Detroit	Average Annual Contributed Volume	Estimated Pollutant Contributions, based on Strength of Flow Assumptions	

- Current SHAREs utilize contributed volume data from FY 2013 - 2016



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*Data Developments
Potentially Impacting FY 2021
SHAREs*



Two Ongoing Technical Studies

- Updated Strength of Flow Opinions
 - ✓ *Data from March 2019 Draft CDM Study Report*
- Updated Contributed Volume / Flow Balance Data
 - ✓ *Master Metered Communities*
 - Need updated data for FY 2017 - FY 2019
 - ✓ *D+ Communities*
 - Subject to ongoing analyses – target date of June 2019



Potential Impact of Data Updates

- Updated Strength of Flow Opinions
 - ✓ Result = "Non Sanitary" strengths are lower than indicated by prior opinions
 - ✓ Implementing new opinions would moderately increase cost allocations to Customers with high relative sanitary contributions
 - ✓ See Hypothetical Impact Analysis - Handout 1
- Updated Contributed Volume / Flow Balance Data
 - ✓ TBD



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*Brief Summary of Technically
Driven Methodology
Considerations*



Methodology Considerations: 2017 Board of Directors Resolution

“As a part of its budget deliberations, the Board of Directors (Board) of the Great Lakes Water Authority (GLWA) notes that the Budget reflects an adjustment to the weighting of certain strength of flow factors in the methodology for determining sewer shares, that the sewer shares and sewer shares factors will be next adjusted by the Board for Fiscal Year 2021, that GLWA is actively engaging its customers regarding the factors to be considered as a part of any Fiscal Year 2021 adjustment, and that ***in addition to any other factors suggested by customers for consideration in that process, the Board requests that peaking be included in the factors considered*** as a part of the Fiscal Year 2021 determination of what, if any, adjustment should be made to sewer shares and sewer share factors.”



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Methodology Considerations: Peaking – A Status Report

- The “Small SHARES” work group has initiated detailed discussions of how peaking could be incorporated into the charges methodology
- Investigation has included:
 - ✓ *How peaking impacts specific asset categories;*
 - ✓ *How peak contributions might be measured;*
 - ✓ *Historical review of how the existing methodology emerged*
- The investigation is ongoing, with no completion date established



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Methodology Considerations: Potential Other Factors

- While they have not received detailed investigation, consideration of other factors have been mentioned:
 - ✓ *Different Wet Weather Flow Balance approaches for separated and combined systems;*
 - ✓ *Reflection of “level of treatment” for different flow types at the WRRF*
 - i.e. not all wet weather contributions receive Secondary Treatment

Methodology Considerations: Potential Other Factors (*continued*)

- While they have not received detailed investigation, consideration of other factors have been mentioned:
 - ✓ *Recognition of historical System development*
 - ✓ *Affordability considerations*
 - ✓ *Other methods introduced at the 2018 Symposium*
 - ✓ *Public policy objectives*
 - ✓ *Other approaches to meet equity and stability goals*

Methodology Considerations: Things I've Heard in the SHAREs Process . . .

- We need to dump strength of flow and go back to volume
- The basic results of the current methodology are fair – but we need to simplify the methodology
- The methodology needs to provide incentives for taking flow out of the System
- We'll never reach a consensus on peaking – particularly not for FY 2021
- All of this is premature pending the outcomes of the Master Plan Study
- This level of complexity is crazy – no one does this



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*Introduction of a different
"Path Forward" for
Stakeholder Consideration*



What if . . .

- We eliminated cost pools
 - ✓ *Simplifies cost tracking and avoids disagreement on how to allocate certain costs*
- We no longer assigned pollutant concentrations by strength of flow estimates
 - ✓ *Eliminates confusion / technical challenges to strength opinions*
 - ✓ *Provides flow based incentives*
- We included population as an allocation factor
 - ✓ *Recognition of historical perspectives – everyone benefits from water quality improvements provided by GLWA Sewer System*



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What if . . .

- We primarily allocated ALL costs based on contributed volumes
- We utilized different measurements of volume
 - ✓ *Sanitary – recognizes that wastewater treatment costs are largely driven by sanitary wastewater*
 - ✓ *Peak or wet weather – recognizes that peak volume contributions impact facility sizing (including CSO facilities) and therefore costs*
 - ✓ *Average – recognizes that some transport and treatment costs are uniform irrespective of flow type*



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What if . . .

- We established some simple, policy driven weightings to each of these factors, and applied them separately to:
 - ✓ *Operating revenue requirements;*
 - ✓ *Capital revenue requirements*

Simplified Methodology for Consideration

- The accompanying exhibits illustrate what this simplified approach might look like
- We've offered 3 alternative scenarios reflecting different policy assumptions
- We've used existing volume estimates (average of FY 2013 – FY 2016)
- We've developed VERY preliminary estimates of peak flow volumes – assuming that a peak monthly volume metric would be used for allocation purposes
- Analyses should be considered preliminary, and we again encourage stakeholders to focus on logic and structure rather than the assumptions and results

Simplified Methodology for Consideration – Sample Scenarios

Allocation Factor:	Population	Sanitary Volume	Total Volume	Peak Volume	TOTAL
Operating Budget	0.0%	50.0%	25.0%	25.0%	100.0%
Capital Budget					
Scenario 1	15.0%	15.0%	20.0%	50.0%	100.0%
Scenario 2	25.0%	0.0%	0.0%	75.0%	100.0%
Scenario 3	33.3%	0.0%	33.3%	33.3%	100.0%
Assigned to Customers Via:	Population Statistics	Average Annual Sanitary Volume	Average Annual Contributed Volume	Estimated Peak Monthly Volume	

- For purposes of illustrating the concept, we've established 3 alternative "weighting assumption" scenarios
- See accompanying material for hypothetical cost allocations of these 3 Scenarios

Closing Comments

- Implementing some aspect of this concept arguably . . .
 - ✓ Provides incentives for Member Partners to remove flows from the System, resulting in lower future investment requirements for ALL
 - ✓ Makes charges easier to understand / explain
 - ✓ Allows GLWA and its Member Partners to focus on more strategic initiatives

Closing Comments (*taken from 2013 Rate Simplification Initiative*)

- Implementing some aspect of this concept arguably . . .
 - ✓ *Further aligns Charge development with reality*
 - Efforts to get precise estimates of wastewater volume and pollutant contributions are (and will continue to be) fruitless
 - ✓ *Eliminates waste – unnecessary oversight and analytical work*
 - ✓ *Reduces costs for legal / consulting / engineering support*
 - Allows resources to focus on higher value added initiatives



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Hypothetical Alternative Allocation of FY 2020 GLWA Sewage Disposal System Costs
Scenario Comparison

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
		Alternative SOF Opinions			Alternative D+ Flow Balance			Both		
	<u>Current</u>	<u>Rev Req</u>	<u>Variance</u>	<u>% Variance</u>	<u>Rev Req</u>	<u>Variance</u>	<u>% Variance</u>	<u>Rev Req</u>	<u>Variance</u>	<u>% Variance</u>
<u>Allocated Rev Req'ts</u>										
1 OMID	65,980,200	67,111,300	1,131,100	1.7%						
2 Rouge Valley	52,579,300	52,939,000	359,700	0.7%						
3 Oakland GWK	43,814,600	43,617,900	(196,700)	-0.4%						
4 Evergreen Farmington	33,849,600	34,220,800	371,200	1.1%						
5 SE Macomb San Dist	24,057,000	23,965,400	(91,600)	-0.4%						
6 Dearborn	18,876,100	18,786,100	(90,000)	-0.5%						
7 Grosse Pointe Farms	2,666,800	2,651,300	(15,500)	-0.6%						
8 Grosse Pointe Park	1,755,200	1,748,800	(6,400)	-0.4%						
9 Melvindale	1,489,000	1,499,500	10,500	0.7%						
10 Farmington	1,117,200	1,124,900	7,700	0.7%						
11 Center Line	1,004,500	1,011,000	6,500	0.6%						
12 Allen Park	828,200	832,900	4,700	0.6%						
13 Highland Park	5,500,700	5,460,500	(40,200)	-0.7%						
14 Hamtramck	3,858,600	3,831,200	(27,400)	-0.7%						
15 Grosse Pointe	859,400	852,400	(7,000)	-0.8%						
16 Harper Woods	210,300	208,400	(1,900)	-0.9%						
17 Redford Township	258,000	256,400	(1,600)	-0.6%						
18 Wayne County #3	48,200	48,100	(100)	-0.2%						
19 Subtotal Suburban Wholesale	258,752,900	260,165,900	1,413,000	0.5%						
20 Detroit Customers	190,544,800	189,131,800	(1,413,000)	-0.7%						
21 Total	449,297,700	449,297,700	0	0.0%						
22 M Subtotal	248,017,700	249,508,900	1,491,200	0.6%						
23 D+ Subtotal	201,280,000	199,788,800	(1,491,200)	-0.7%						
<u>High Level Summary</u>										
24 OMID	65,980,200	67,111,300	1,131,100	1.7%						
25 Rouge Valley	52,579,300	52,939,000	359,700	0.7%						
26 Oakland GWK	43,814,600	43,617,900	(196,700)	-0.4%						
27 Evergreen Farmington	33,849,600	34,220,800	371,200	1.1%						
28 SE Macomb San Dist	24,057,000	23,965,400	(91,600)	-0.4%						
29 Dearborn	18,876,100	18,786,100	(90,000)	-0.5%						
30 Other "M" Customers	8,860,900	8,868,400	7,500	0.1%						
31 D+	201,280,000	199,788,800	(1,491,200)	-0.7%						
32 Total	449,297,700	449,297,700	0	0.0%						

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Hypothetical Alternative Allocation of FY 2020 GLWA Sewage Disposal System Costs

A - Possible Allocation Factors

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	<u>Population</u>	<u>Sanitary Vol</u>	<u>Dry Vol</u>	<u>DWII</u>	<u>Wet Vol</u>	<u>Avg Vol</u>	<u>Peak Factor</u>	<u>Peak Vol</u>	<u>Pollutants</u>	<u>CSO</u>	<u>Sub Only</u>
							<u>Prelim Concept</u>				
							(a)	(3) * (7)			
<u>Customer Units</u>											
1 OMID	691,270	2,181,200	2,706,100	524,900	244,900	2,951,000	1.37	3,707,400	20.415%	2.651%	22.182%
2 Rouge Valley	454,492	1,449,200	2,200,700	751,500	506,200	2,706,900	2.09	4,599,500	14.361%	2.956%	20.347%
3 Oakland GWK	292,577	1,011,100	1,656,900	645,800	820,900	2,477,800	2.66	4,407,400	11.011%	2.256%	18.625%
4 Evergreen Farmington	287,967	997,400	1,469,900	472,500	222,100	1,692,000	1.72	2,528,200	9.613%	1.485%	12.718%
5 SE Macomb San Dist	167,983	571,600	878,100	306,500	454,900	1,333,000	2.62	2,300,600	6.193%	1.174%	10.020%
6 Dearborn	101,584	420,200	706,900	286,700	346,200	1,053,100	2.89	2,042,900	4.590%	1.631%	8.048%
7 Other "M" Customers	52,856	219,000	341,000	122,000	126,900	467,900	2.83	963,900	2.276%	0.778%	3.517%
8 M Customer Subtotal	2,048,729	6,849,700	9,959,600	3,109,900	2,722,100	12,681,700	2.06	20,549,900	68.459%	12.931%	95.458%
9 D+ Customers	699,843	2,784,300	8,582,100	5,797,800	2,427,000	11,009,100	3.49	29,992,900	31.541%	87.069%	4.542%
10 Total	2,748,572	9,634,000	18,541,700	8,907,700	5,149,100	23,690,800	2.73	50,542,800	100.000%	100.000%	100.000%
<u>Customer Share</u>											
1 OMID	25.150%	22.641%	14.595%	5.893%	4.756%	12.456%		7.335%	20.415%	2.651%	22.182%
2 Rouge Valley	16.536%	15.043%	11.869%	8.437%	9.831%	11.426%		9.100%	14.361%	2.956%	20.347%
3 Oakland GWK	10.645%	10.495%	8.936%	7.250%	15.943%	10.459%		8.720%	11.011%	2.256%	18.625%
4 Evergreen Farmington	10.477%	10.353%	7.928%	5.304%	4.313%	7.142%		5.002%	9.613%	1.485%	12.718%
5 SE Macomb San Dist	6.112%	5.933%	4.736%	3.441%	8.835%	5.627%		4.552%	6.193%	1.174%	10.020%
6 Dearborn	3.696%	4.362%	3.812%	3.219%	6.724%	4.445%		4.042%	4.590%	1.631%	8.048%
7 Other "M" Customers	1.923%	2.273%	1.839%	1.370%	2.465%	1.975%		1.907%	2.276%	0.778%	3.517%
8 M Customer Subtotal	74.538%	71.099%	53.715%	34.912%	52.866%	53.530%		40.658%	68.459%	12.931%	95.458%
9 D+ Customers	25.462%	28.901%	46.285%	65.088%	47.134%	46.470%		59.342%	31.541%	87.069%	4.542%
10 Total	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%		100.000%	100.000%	100.000%	100.000%

(a) Peak Volume in this demonstration reflects peak monthly data based on a review of recent data. Peak Factor reflects maximum month during FYs 2016 - 2018 divided by average dry weather monthly volume.

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Hypothetical Alternative Allocation of FY 2020 GLWA Sewage Disposal System Costs

B - Revenue Requirement Allocation - **Current Methodology**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	<u>Population</u>	<u>Sanitary Vol</u>	<u>Dry Vol</u>	<u>Wet Vol</u>	<u>Avg Vol</u>	<u>Peak Vol</u>	<u>Pollutants</u>	<u>CSO</u>	<u>Sub Only</u>	<u>TOTAL</u>	<u>~ SHARE</u>
<u>Cost Pool Allocation Factors</u>											
1 Operating Revenue Req't	0.0%	0.0%	0.0%	0.0%	27.3%	0.0%	60.9%	9.8%	2.0%	100.0%	
2 Capital Revenue Req't	0.0%	0.0%	0.0%	0.0%	52.4%	0.0%	29.1%	16.2%	2.3%	100.0%	
3 Total Revenue Requirement	0.0%	0.0%	0.0%	0.0%	42.1%	0.0%	42.1%	13.6%	2.2%	100.0%	
<u>Cost Pool Allocation</u>											
4 Operating Revenue Req't	0	0	0	0	50,244,500	0	111,956,900	18,024,600	3,607,300	183,833,300	
5 Capital Revenue Req't	0	0	0	0	139,014,200	0	77,301,700	43,073,200	6,075,300	265,464,400	
6 Total Revenue Requirement	0	0	0	0	189,258,700	0	189,258,600	61,097,800	9,682,600	449,297,700	
<u>Allocated Rev Req'ts</u>											
7 OMID	0	0	0	0	23,574,700	0	38,637,900	1,619,800	2,147,800	65,980,200	14.685%
8 Rouge Valley	0	0	0	0	21,624,600	0	27,178,700	1,805,900	1,970,100	52,579,300	11.703%
9 Oakland GWK	0	0	0	0	19,794,400	0	20,838,500	1,378,300	1,803,400	43,814,600	9.752%
10 Evergreen Farmington	0	0	0	0	13,516,900	0	18,193,900	907,300	1,231,500	33,849,600	7.534%
11 SE Macomb San Dist	0	0	0	0	10,648,900	0	11,720,600	717,300	970,200	24,057,000	5.354%
12 Dearborn	0	0	0	0	8,412,900	0	8,687,400	996,500	779,300	18,876,100	4.201%
13 Other "M" Customers	0	0	0	0	3,737,900	0	4,307,000	475,600	340,500	8,861,000	1.972%
14 M Customer Subtotal	0	0	0	0	101,310,300	0	129,564,000	7,900,700	9,242,800	248,017,800	55.201%
15 D+ Customers	0	0	0	0	87,948,400	0	59,694,700	53,197,000	439,800	201,279,900	44.799%
16 Total	0	0	0	0	189,258,700	0	189,258,700	61,097,700	9,682,600	449,297,700	100.000%

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Hypothetical Alternative Allocation of FY 2020 GLWA Sewage Disposal System Costs

B1 - Hypothetical Revenue Requirement Allocation - **Scenario 1**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	<u>Population</u>	<u>Sanitary Vol</u>	<u>Dry Vol</u>	<u>Wet Vol</u>	<u>Avg Vol</u>	<u>Peak Vol</u>	<u>Pollutants</u>	<u>CSO</u>	<u>Sub Only</u>	<u>TOTAL</u>	<u>~ SHARE</u>
<u>Cost Pool Allocation Factors</u>											
1 Operating Revenue Req't	0.0%	50.0%	0.0%	0.0%	25.0%	25.0%	0.0%	0.0%	0.0%	100.0%	
2 Capital Revenue Req't	15.0%	15.0%	0.0%	0.0%	20.0%	50.0%	0.0%	0.0%	0.0%	100.0%	
3 Total Revenue Requirement	8.9%	29.3%	0.0%	0.0%	22.0%	39.8%	0.0%	0.0%	0.0%	100.0%	
<u>Cost Pool Allocation</u>											
4 Operating Revenue Req't	0	91,916,700	0	0	45,958,300	45,958,300	0	0	0	183,833,300	
5 Capital Revenue Req't	39,819,700	39,819,700	0	0	53,092,900	132,732,200	0	0	0	265,464,500	
6 Total Revenue Requirement	39,819,700	131,736,400	0	0	99,051,200	178,690,500	0	0	0	449,297,800	
<u>Allocated Rev Req'ts</u>											
7 OMID	10,014,700	29,826,000	0	0	12,338,100	13,107,300	0	0	0	65,286,100	14.531%
8 Rouge Valley	6,584,400	19,816,500	0	0	11,317,500	16,261,200	0	0	0	53,979,600	12.014%
9 Oakland GWK	4,238,700	13,825,900	0	0	10,359,700	15,582,100	0	0	0	44,006,400	9.794%
10 Evergreen Farmington	4,171,900	13,638,600	0	0	7,074,200	8,938,300	0	0	0	33,823,000	7.528%
11 SE Macomb San Dist	2,433,600	7,816,100	0	0	5,573,300	8,133,600	0	0	0	23,956,600	5.332%
12 Dearborn	1,471,700	5,745,900	0	0	4,403,000	7,222,500	0	0	0	18,843,100	4.194%
13 Other "M" Customers	765,700	2,994,600	0	0	1,956,300	3,407,800	0	0	0	9,124,400	2.031%
14 M Customer Subtotal	29,680,700	93,663,600	0	0	53,022,100	72,652,800	0	0	0	249,019,200	55.424%
15 D+ Customers	10,138,900	38,072,800	0	0	46,029,000	106,037,800	0	0	0	200,278,500	44.576%
16 Total	39,819,600	131,736,400	0	0	99,051,100	178,690,600	0	0	0	449,297,700	100.000%

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Hypothetical Alternative Allocation of FY 2020 GLWA Sewage Disposal System Costs

B2 - Hypothetical Revenue Requirement Allocation - **Scenario 2**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	<u>Population</u>	<u>Sanitary Vol</u>	<u>Dry Vol</u>	<u>Wet Vol</u>	<u>Avg Vol</u>	<u>Peak Vol</u>	<u>Pollutants</u>	<u>CSO</u>	<u>Sub Only</u>	<u>TOTAL</u>	<u>~ SHARE</u>
<u>Cost Pool Allocation Factors</u>											
1 Operating Revenue Req't	0.0%	50.0%	0.0%	0.0%	25.0%	25.0%	0.0%	0.0%	0.0%	100.0%	
2 Capital Revenue Req't	25.0%	0.0%	0.0%	0.0%	0.0%	75.0%	0.0%	0.0%	0.0%	100.0%	
3 Total Revenue Requirement	14.8%	20.5%	0.0%	0.0%	10.2%	54.5%	0.0%	0.0%	0.0%	100.0%	
<u>Cost Pool Allocation</u>											
4 Operating Revenue Req't	0	91,916,700	0	0	45,958,300	45,958,300	0	0	0	183,833,300	
5 Capital Revenue Req't	66,366,100	0	0	0	0	199,098,300	0	0	0	265,464,400	
6 Total Revenue Requirement	66,366,100	91,916,700	0	0	45,958,300	245,056,600	0	0	0	449,297,700	
<u>Allocated Rev Req'ts</u>											
7 OMID	16,691,200	20,810,500	0	0	5,724,700	17,975,300	0	0	0	61,201,700	13.622%
8 Rouge Valley	10,974,000	13,826,600	0	0	5,251,200	22,300,700	0	0	0	52,352,500	11.652%
9 Oakland GWK	7,064,500	9,646,800	0	0	4,806,700	21,369,300	0	0	0	42,887,300	9.545%
10 Evergreen Farmington	6,953,200	9,516,100	0	0	3,282,300	12,258,000	0	0	0	32,009,600	7.124%
11 SE Macomb San Dist	4,056,100	5,453,600	0	0	2,585,900	11,154,500	0	0	0	23,250,100	5.175%
12 Dearborn	2,452,800	4,009,100	0	0	2,042,900	9,905,000	0	0	0	18,409,800	4.097%
13 Other "M" Customers	1,276,200	2,089,400	0	0	907,700	4,673,500	0	0	0	8,946,800	1.991%
14 M Customer Subtotal	49,468,000	65,352,100	0	0	24,601,400	99,636,300	0	0	0	239,057,800	53.207%
15 D+ Customers	16,898,200	26,564,600	0	0	21,356,800	145,420,500	0	0	0	210,240,100	46.793%
16 Total	66,366,200	91,916,700	0	0	45,958,200	245,056,800	0	0	0	449,297,900	100.000%

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Hypothetical Alternative Allocation of FY 2020 GLWA Sewage Disposal System Costs
B3 - Hypothetical Revenue Requirement Allocation - Scenario 3

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	<u>Population</u>	<u>Sanitary Vol</u>	<u>Dry Vol</u>	<u>Wet Vol</u>	<u>Avg Vol</u>	<u>Peak Vol</u>	<u>Pollutants</u>	<u>CSO</u>	<u>Sub Only</u>	<u>TOTAL</u>	<u>~ SHARE</u>
<u>Cost Pool Allocation Factors</u>											
1 Operating Revenue Req't	0.0%	50.0%	0.0%	0.0%	25.0%	25.0%	0.0%	0.0%	0.0%	100.0%	
2 Capital Revenue Req't	33.3%	0.0%	0.0%	0.0%	33.3%	33.3%	0.0%	0.0%	0.0%	100.0%	
3 Total Revenue Requirement	19.7%	20.5%	0.0%	0.0%	29.9%	29.9%	0.0%	0.0%	0.0%	100.0%	
<u>Cost Pool Allocation</u>											
4 Operating Revenue Req't	0	91,916,700	0	0	45,958,300	45,958,300	0	0	0	183,833,300	
5 Capital Revenue Req't	88,479,300	0	0	0	88,505,800	88,479,300	0	0	0	265,464,400	
6 Total Revenue Requirement	88,479,300	91,916,700	0	0	134,464,100	134,437,600	0	0	0	449,297,700	
<u>Allocated Rev Req'ts</u>											
7 OMID	22,252,700	20,810,500	0	0	16,749,300	9,861,200	0	0	0	69,673,700	15.507%
8 Rouge Valley	14,630,600	13,826,600	0	0	15,363,800	12,234,100	0	0	0	56,055,100	12.476%
9 Oakland GWK	9,418,300	9,646,800	0	0	14,063,500	11,723,100	0	0	0	44,851,700	9.983%
10 Evergreen Farmington	9,269,900	9,516,100	0	0	9,603,400	6,724,700	0	0	0	35,114,100	7.815%
11 SE Macomb San Dist	5,407,500	5,453,600	0	0	7,565,800	6,119,300	0	0	0	24,546,200	5.463%
12 Dearborn	3,270,100	4,009,100	0	0	5,977,200	5,433,900	0	0	0	18,690,300	4.160%
13 Other "M" Customers	1,701,500	2,089,400	0	0	2,655,700	2,563,900	0	0	0	9,010,500	2.005%
14 M Customer Subtotal	65,950,600	65,352,100	0	0	71,978,700	54,660,200	0	0	0	257,941,600	57.410%
15 D+ Customers	22,528,700	26,564,600	0	0	62,485,400	79,777,400	0	0	0	191,356,100	42.590%
16 Total	88,479,300	91,916,700	0	0	134,464,100	134,437,600	0	0	0	449,297,700	100.000%

Hypothetical Alternative Allocation of FY 2020 GLWA Sewage Disposal System Costs
Scenario Summary

	(1)	(2)	(3)	(4)
	<u>Current</u>	<u>Scenario 1</u>	<u>Scenario 2</u>	<u>Scenario 3</u>
<u>Operating Cost Pool Factors</u>				
1 Sanitary Vol	-	50.0%	50.0%	50.0%
2 Dry Vol	-	-	-	-
3 Wet Vol	-	-	-	-
4 Avg Vol	27.3%	25.0%	25.0%	25.0%
5 Peak Vol	-	25.0%	25.0%	25.0%
6 Pollutants	60.9%	-	-	-
7 Population	-	-	-	-
8 CSO	9.8%	-	-	-
9 Sub Only	2.0%	-	-	-
<u>Capital Cost Pool Factors</u>				
10 Sanitary Vol	-	15.0%	-	-
11 Dry Vol	-	-	-	-
12 Wet Vol	-	-	-	-
13 Avg Vol	52.4%	20.0%	-	33.3%
14 Peak Vol	-	50.0%	75.0%	33.3%
15 Pollutants	29.1%	-	-	-
16 Population	-	15.0%	25.0%	33.3%
17 CSO	16.2%	-	-	-
18 Sub Only	2.3%	-	-	-
<u>Effective Combined Cost Pool Factors</u>				
19 Sanitary Vol	-	29.3%	20.5%	20.5%
20 Dry Vol	-	-	-	-
21 Wet Vol	-	-	-	-
22 Avg Vol	42.1%	22.0%	10.2%	29.9%
23 Peak Vol	-	39.8%	54.5%	29.9%
24 Pollutants	42.1%	-	-	-
25 Population	-	8.9%	14.8%	19.7%
26 CSO	13.6%	-	-	-
27 Sub Only	2.2%	-	-	-

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Hypothetical Alternative Allocation of FY 2020 GLWA Sewage Disposal System Costs
Scenario Comparison

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
		Scenario 1			Scenario 2			Scenario 3		
	<u>Current</u>	<u>Rev Req't</u>	<u>Variance</u>	<u>% Variance</u>	<u>Rev Req't</u>	<u>Variance</u>	<u>% Variance</u>	<u>Rev Req't</u>	<u>Variance</u>	<u>% Variance</u>
<u>Allocated Rev Req'ts</u>										
1 OMID	65,980,200	65,286,100	(694,100)	-1.1%	61,201,700	(4,778,500)	-7.2%	69,673,700	3,693,500	5.6%
2 Rouge Valley	52,579,300	53,979,600	1,400,300	2.7%	52,352,500	(226,800)	-0.4%	56,055,100	3,475,800	6.6%
3 Oakland GWK	43,814,600	44,006,400	191,800	0.4%	42,887,300	(927,300)	-2.1%	44,851,700	1,037,100	2.4%
4 Evergreen Farmington	33,849,600	33,823,000	(26,600)	-0.1%	32,009,600	(1,840,000)	-5.4%	35,114,100	1,264,500	3.7%
5 SE Macomb San Dist	24,057,000	23,956,600	(100,400)	-0.4%	23,250,100	(806,900)	-3.4%	24,546,200	489,200	2.0%
6 Dearborn	18,876,100	18,843,100	(33,000)	-0.2%	18,409,800	(466,300)	-2.5%	18,690,300	(185,800)	-1.0%
7 Other "M" Customers	8,860,900	9,124,700	263,800	3.0%	8,946,800	85,900	1.0%	9,010,400	149,500	1.7%
8 M Customer Subtotal	248,017,700	249,019,500	1,001,800	0.4%	239,057,800	(8,959,900)	-3.6%	257,941,500	9,923,800	4.0%
8 D+ Customers	201,280,000	200,278,300	(1,001,700)	-0.5%	210,239,900	8,959,900	4.5%	191,356,200	(9,923,800)	-4.9%
9 Total	449,297,700	449,297,800	100	0.0%	449,297,700	0	0.0%	449,297,700	0	0.0%

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