



## **Audit Committee**

**Friday, August 5, 2016 at 8:00 a.m.**

5th Floor Board Room, Water Board Building  
735 Randolph Street, Detroit, Michigan 48226  
*GLWater.org*

### **AGENDA**

1. CALL TO ORDER
2. ROLL CALL
3. APPROVAL OF AGENDA
4. APPROVAL OF MINUTES (Page 1)
  - A. July 1, 2016
5. PUBLIC PARTICIPATION
6. OLD BUSINESS
  - A. Presentation by Joe Kowalski, Partner, KPMG, Related to FY 2015 (Page 4)  
Audited Financial Report for the City of Detroit Water & Sewerage Department  
(Note: Audited Financial Reports presented at the GLWA Audit Committee meeting of June 17, 2016 are available online at <http://www.glwater.org/finances/audit-committee-documents/> )
  - B. Discussion: System Optimization Guidelines (Page 5)  
Proposed Action: Receive and file report. Item is scheduled for discussion at the GLWA Board Workshop on August 10, 2016.
7. NEW BUSINESS
  - A. Proposed Approval of Ordinances Amending Master Water and Sewer (Page 38)  
Bond Ordinances  
Proposed Action: Audit Committee recommends that the Great Lakes Water Authority Board approve the resolutions and ordinance amendments as presented.
  - B. Proposed approval of Series Ordinance Authorizing Issuance and Sale of (Page 56)  
Sewage Disposal System Revenue Refunding Bonds an Amount Not to Exceed \$600,000,000 (Ordinance 2016-09)  
Proposed Action: Audit Committee recommends that the Great Lakes Water Authority Board approve the resolution and ordinance as presented.
  - C. Proposed Approval of Series Ordinance Authorizing Issuance and Sale of (Page 81)  
Water Supply System Revenue and Revenue Refunding Bonds in an Amount not to Exceed \$1,134,000,000 (Ordinance 2016-08)

Proposed Action: Audit Committee recommends that the Great Lakes Water Authority Board approve the resolution and ordinance as presented.

D. Discussion: 4% Revenue Requirement Policy (Page 109)

Proposed Action: Receive and file report. Schedule consideration of a board policy at the September 2016 Audit Committee meeting.

8. REPORTS

A. Financial System Implementation Update (Page 111)

B. FY 2016 Retail and Wholesale Sewer Revenue Report- Variance (Page128)  
Analysis

C. FY 2016 Retail and Wholesale Water Revenue Report- Variance (Page130)  
Analysis

D. Wholesale Accounts Receivable Aging Report as of July 31, 2016 (Page132)

E. City of Highland Park Billings and Collections (Page 150)

F. City of Flint Billings and Collections (Page151)

G. Master Bond Ordinance and Lease Agreement Transfers to DWSD (Page152)

9. CLOSED SESSION

10. LOOK AHEAD

Next Audit Committee Meeting

September 2, 2016 at 8 am Regular Meeting

(Note: Staff is requesting to reschedule to September 9, 2016 to accommodate financing schedule)

11. INFORMATION

A. None

12. OTHER MATTERS

13. ADJOURNMENT



**Audit Committee Meeting**

**Friday, July 1, 2016 at 8:00 a.m.**

5th Floor Board Room, Water Board Building  
735 Randolph Street, Detroit, Michigan 48226  
*GLWater.org*

**MINUTES**

**1. CALL TO ORDER**

Chairman Baker called the meeting to order at 8:02 a.m.

**2. ROLL CALL**

Chairman Brian Baker, Director Robert Daddow and Director Joseph Nardone

**3. APPROVAL OF AGENDA**

Chairman Baker requested approval of the Agenda.

MOTION BY: JOSEPH NARDONE  
SUPPORT: ROBERT DADDOW  
ACTION: APPROVED

**4. APPROVAL OF MINUTES**

Chairman Baker requested approval of the Minutes of June 17, 2016.

MOTION BY: ROBERT DADDOW  
SUPPORT: JOSEPH NARDONE  
ACTION: APPROVED

**5. PUBLIC PARTICIPATION**

None

**6. OLD BUSINESS**

None

## **7. NEW BUSINESS**

- A. Proposed Resolution Authorizing Issuance and Sale of Water Supply System Revenue Bonds in an Amount not to exceed \$17,000,000.

Presenter: Jonathan Wheatley, Public Finance Manager

Action: Audit Committee recommends that the Great Lakes Water Authority Board approve the resolution as presented.

MOTION BY: ROBERT DADDOW

SUPPORT: JOSEPH NARDONE

ACTION: APPROVED

- B. Proposed Resolution Issuance and Sale of Sewage Disposal System Revenue Bonds in an Amount not to exceed \$75,000,000.

Presenter: Jonathan Wheatley, Public Finance Manager

Action: Audit Committee recommends that the Great Lakes Water Authority Board approve the resolution as presented.

MOTION BY: ROBERT DADDOW

SUPPORT: JOSEPH NARDONE

ACTION: APPROVED

- C. Discussion: System Optimization Policy

Presenter: Suzanne Coffey,

Chief Operating Officer-Wastewater Operations/Chief Systems Planning Officer

Action: None

## **8. REPORTS**

- A. Shared Services Update

Verbal Update by Nicolette Bateson, Chief Financial Officer/Treasurer

- B. 2016 Water and Sewer Refunding and New Water Bonds Timeline

Verbal Update by Nicolette Bateson, Chief Financial Officer/Treasurer

- C. Year-End Transfers

Verbal Update by Nicolette Bateson, Chief Financial Officer/Treasurer

## **9. CLOSED SESSION**

Closed Session was moved to the end of the Agenda.

## **10. LOOK AHEAD**

Next Audit Committee Meeting  
August 5, 2016 at 8 am Regular Meeting

Future Agenda Topics: KPMG Auditor Presentation and Second Review of FY 2015 DWSD Financial Statements

## **11. INFORMATION**

None

## **12. OTHER MATTERS**

### **13. CLOSED SESSION** - Entered Closed Session at 9:05 a.m.

- A) Request regarding Closed Session from William M. Wolfson pursuant to Section 8(h) of the Michigan Open Meetings Act, MCL 15.268 (h) to consider matters exempt from discussion or disclosure pursuant to state or federal statute.

Chairman Baker requested a motion to enter into closed session.

MOTION BY:	ROBERT DADDOW
SUPPORT:	JOSEPH NARDONE
ROLL CALL VOTE:	Yes: Baker, Daddow and Nardone
ACTION:	APPROVED 3/0

Chairman Baker requested a motion to return from closed session.

MOTION BY:	ROBERT DADDOW
SUPPORT:	JOSEPH NARDONE
ACTION:	APPROVED

Returned from Closed Session at 9:25 a.m.

The only matters discussed were Attorney-Client communications.

## **14. ADJOURNMENT**

Chairman Baker requested a motion to adjourn.

MOTION BY:	JOSEPH NARDONE
SUPPORT:	ROBERT DADDOW
ACTION:	APPROVED

There being no further business, the meeting was adjourned at 9:25 a.m.



## Financial Services Group Audit Committee Communication

**Date:** August 4, 2016

**To:** Great Lakes Water Authority Audit Committee

**From:** Kathy Smith-Roy, Advisor to Chief Financial Officer

**Re:** Informational Update – June 30, 2015 DWSD Pension Liability

The audited financial statements for the City of Detroit Water Fund and City of Detroit Sewage Disposal Fund for (collectively “Detroit Water & Sewerage Department” or “DWSD”) the fiscal year ended June 30, 2015 were issued on May 31, 2016 and discussed at the June 17, 2016 GLWA Audit Committee meeting. The following is additional information relating to inquiry during the discussion.

*Why is the net pension liability at June 30, 2015 significantly higher than estimated in prior communications?*

The fiscal year June 30, 2015 includes the implementation of a new accounting standard Government Accounting Standards Board (GASB) Statement No. 68, *Accounting and Financial reporting for Pensions – An Amendment of GASB 27*. The City elected a measurement date of June 30, 2014 for purposes of implementing GASB 68 to improve timeliness of financial reporting. Therefore, the June 30, 2015 net pension liability does not reflect the impact of the changes as a result of the approval of the City of Detroit’s Bankruptcy Plan approved on December 10, 2014.

For June 30, 2015 the beginning net position was restated (decreased) for a prior period adjustment in total of \$839 million (\$378.3 and \$460.5 million; for Water, Sewer, respectively), and net pension liability of \$521.6 million (\$224.3 and \$297.3 million; for Water, Sewer, respectively).

The General Retirement System of City of Detroit GASB 68 Report for June 30, 2015 is not available at this time. However, based on the impact of the bankruptcy, the GASB 67 actuary report for June 30, 2015, the net pension liability in total will decrease from \$1.786 billion as reported in the City’s June 30, 2015 audited financial statements to \$827 million<sup>1</sup>. DWSD’s net pension liability will decrease by its allocable share.

The DWSD net pension liability will also decrease by the contributions made in FY 2015 recognized on July 1, 2015. The total deferrals for these contributions are \$45.5 million (\$19.6 and \$25.9 million; for Water, Sewer, respectively).

<sup>1</sup>Reference p. 9 of Gabriel Roeder Smith & Company report for the General Retirement System of the City of Detroit – GASB Statement No. 67 Plan Reporting and Accounting Schedules of Component II June 30, 2015.



## Planning Services Area Board Communication

**Date:** August 1, 2016  
**To:** Great Lakes Water Authority Board of Directors  
**From:** Suzanne R. Coffey, Chief Planning Officer  
**Re:** ***System Optimization Recommendation***

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### Introduction

As GLWA has identified its role in the region as the water service provider of choice, we work in partnership with our customers to deliver the nation's best water and sewer services. We support public health and safety and economic development in the region. We do this through regional collaboration, innovation and by building communities' trust and integrity.

### Background

The term *System Optimization* is a broad planning-level term that encompasses matters related to making the water and wastewater systems (Systems) more effective. It is important to distinguish the challenges facing us today from those in the past where the term "system expansion" was used. Today, we seek to **balance** the systems' capabilities for the needs of the region rather than simply expanding them. As such, we are turning a corner in our naming convention to more accurately frame the initiative as *System Optimization*.

In the water system where excess capacity presently exists, we seek to match treatment capacity to the systems needs and increase the utilization to achieve this balance. Working both sides of the issue is a more productive and effective way to strike the balance than relying on working the element of reducing capacity alone to get to the optimum balance. In the wastewater system, where we have excess dry weather capacity but have yet to fully meet the Michigan Department of Environmental Quality's requirements regarding handling of wet weather flows, striking a balance requires additional analysis as well as creative and broad-thinking. The Wastewater Master Plan update initiative is underway with the charge to take up

this very complex issue and provide recommendations for a plan to move forward and achieve this balance.

Presently the Great Lakes Water Authority (GLWA) does not have a policy or a guideline associated with *System Optimization*. The purpose of this memorandum is to summarize the engagement of the Board and customers to date and to present a recommendation to the Board regarding how best to give structure to the important question of how to consider and analyze the prospect of adding new customers to the Systems.

### Collaboration To-Date

In the spirit of the commitment to collaboration evidenced in the GLWA brand, staff have introduced the topic of *System Optimization* on two different fronts in the last couple months to receive feedback before making a recommendation:

- On June 16, 2016 customers were polled at a joint Technical Advisory Committee and Wastewater Steering Committee to spur conversation and gather feedback regarding which elements of this topic were most important (results of the survey and a listing of meeting attendees are attached).
- On July 1, 2016 management introduced the Board to the topic through a family of documents at the Board's Audit Committee. Staff did not request action from the Audit Committee, rather the topic was simply introduced to initiate conversation and solicit feedback. Since that time, the information was provided to all Directors for their review and comment. The packet included an option for the GLWA Board of Directors to use a refreshed version of the 2008 Board of Water Commissioner's Capital Cost Assessment policy. This was to be augmented with a guidance memorandum. Additional materials include the result of the customer survey and a document that provided examples of financial analyses for a hypothetical water system extension. Questions from Directors were received and compiled along with answers from staff. (Board documents and a question and answer documents are attached).

As System Optimization topics are discussed again at the Audit Committee in August 5, 2016, it is expected that the topic will be added for discussion to the agenda for the Board Workshop on August 10, 2016.



## Conclusions and Recommendation

Having taken the feedback received into consideration, management has concluded that the best approach to this complex matter is to create a guideline document rather than a Board Policy. The guideline will identify elements of a thorough analysis that is to be completed during the period of consideration of a prospective new customer. The analysis would be published concurrently with staff bringing a new customer contract to the Board for its consideration. This approach directs staff to consider a prospective new customer's service through seven distinct lenses:

- 1) Impact on water quality;
- 2) Impact on service reliability;
- 3) Impact on existing customers;
- 4) Ability to leverage the use of existing system assets;
- 5) Interface or concurrence with planning documents;
- 6) Impact on long term financial stability of the Systems;
- 7) Benefits to the region.

An open approach such as this allows staff the flexibility to consider all the unique circumstances of each potential new customer and come to a conclusion based on the totality of the prospect, rather than concentrating on what is necessary to satisfy a specific quantifiable target. As such, it should produce better results for consideration by the Board and customers of the system.

A draft of the guideline, which is entitled *System Optimization Guidelines*, has been attached for your review and comment.



## Planning Services Area Guideline

**Date:** August 1, 2016  
**To:** Great Lakes Water Authority Staff  
**From:** Great Lakes Water Authority Management  
**Re:** **System Optimization Guideline**

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To ensure good strategic decision-making and provide the Board of Directors sufficient information by which to adequately assess the benefit of adding new customers to the systems, staff has developed this guideline document. It is intended to serve as a roadmap for staff to follow to ensure that appropriate steps are taken and that a very thorough analysis has been completed prior to taking specific prospects to the Board for approval.

### 1) Initial Discussions with Prospective Customers

It is understood that staff will likely engage in conversations with prospective new customers initially in a confidential manner so that facts may be exchanged and level of interest understood prior to openly discussing the prospect. It is expected at this point that a variety of technical and financial analyses may be undertaken to fully understand the feasibility of prospects. Beyond this, prospective customers may want tours, questions answered about types of service and the ability to otherwise gain an understanding of the GLWA and its service to its existing customers. Staff are encouraged to reasonably oblige potential customers in this regard until such a time as it is clear that serious interest is sustained or that water service from GLWA is not the preferred alternative for the community.

## 2) Regional Analysis and Internal Approvals

If initial discussions yield continuing interest by both parties, staff will initiate a multifaceted analysis that contains the following elements looking from a regional perspective:

1. Impact on water quality;
2. Impact on service reliability;
3. Impact on existing customers;
4. Ability to leverage the use of existing system assets;
5. Interface or concurrence with planning documents;
6. Impact on long term financial stability of the Systems;
7. Benefits to the region.

It should be noted that some of these factors are quantifiable while others are intangible and more difficult to consider from an analytical perspective. These non-quantifiable factors should be analyzed by writings which seek to identify the positive and negative qualitative elements in their respective categories. If after conducting these analyses, staff believe the prospect of adding this specific customer to the system is favorable, the analyses are to be combined into a single document and the document is to be submitted in draft form to the Chief Executive Officer (CEO) for further consideration. If the CEO finds the analyses adequate and the prospect favorable, staff will be directed to generate specific draft cost proposals for both service charges and capital improvements, if applicable. It is expected that financing options may be illustrated at this time for discussion purposes as well as prospects for cost sharing with the GLWA, if appropriate. Cost proposals at this stage are all to be clearly marked draft and it is to be openly communicated to the prospective customer that Board has final approval of all service charges and customer agreements.

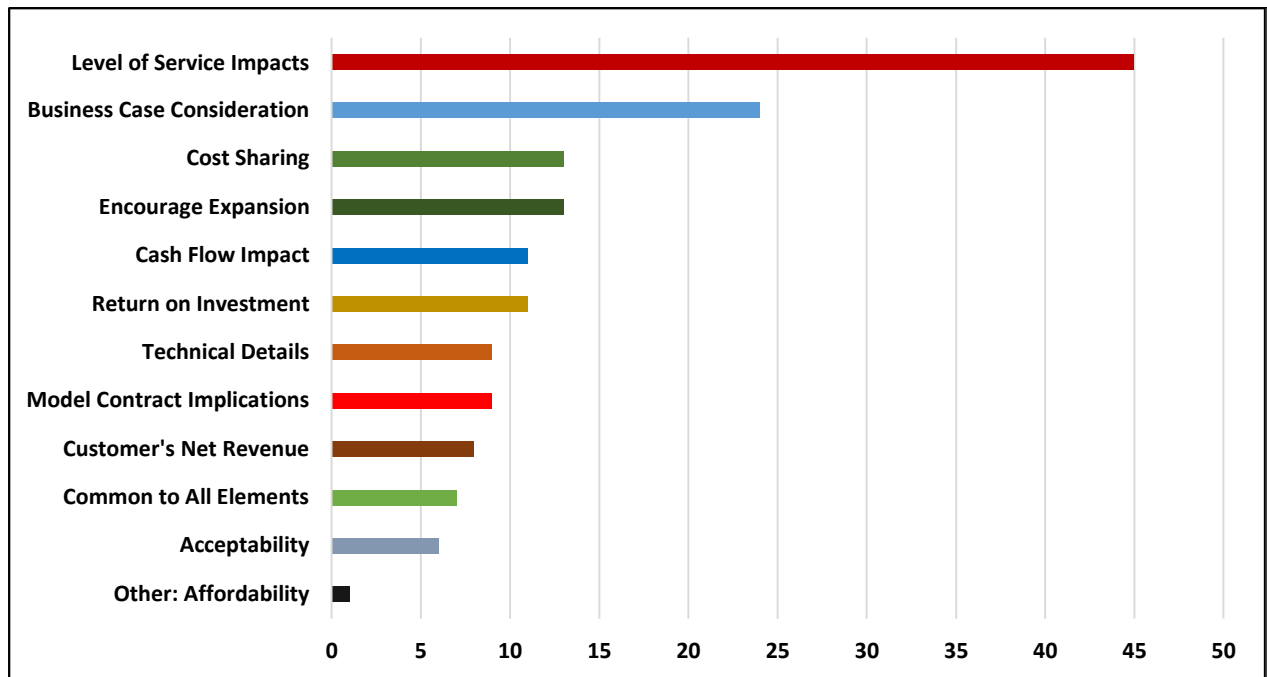
## 3) Negotiations and Board Consideration

At this stage, the CEO and appropriate staff will engage with the prospective customer to communicate the cost proposals and negotiate various elements of the prospect in a confidential manner. If the negotiations yield an acceptable agreement of terms, the CEO will direct staff to prepare a draft contract for consideration by the Board of Directors. At which time both the draft contract and the Regional Analysis document will be placed on a Board agenda for formal and public consideration. It is also expected that the prospective

customer will begin to publically engage other members of their governing body to consider the prospect.

June 16, 2016

**System Expansion Policy Results – 52 Responses**



**Comments:**

- Change name to “System Optimization Policy”
- Level of Service Impacts
  - Don’t compromise
  - Reliability
  - More components to system how will it impact service level
- Encourage Expansion
  - Pros and cons to having one WWTP
  - Or “optimization”
- Return on Investment
  - Most cost effective
- Acceptability
  - Political aspect
  - Social & environmental consequences
  - Population change
  - Economic development and demographic change
- Technical Details
  - Boundary conditions

June 16, 2016 TAC and SC Committee Meeting Sign-In Sheet

TAC	SC	Contact	Company	Phone
1		Danielle Allen	Shelby Twp.	586-731-5990
1	1	Terence Anderson	GLWA	313-378-8203
1		Sandra Barlass	Walled Lake	248-624-4847
1	1	Nickie Bateson	GLWA CFO	313-964-9225
1		LaShone Bedford	GLWA	313-297-6483
	1	Phil Brink	CDM Smith	313-963-1313
1	1	Jody Caldwell	GLWA	313-964-9304
1	1	Dave Camarda	ARCADIS	313-231-0601
1	1	Cindy Cezat	GLWA	313-964-9243
1	1	Suzanne Coffey	GLWA	313-964-9301
1		Coline Coleman	Livonia	734-466-2262
1		Carrie Cox	OCWRC	248-858-0678
1		Ben Croy	Novi	248-735-5635
1	1	Bob Daddow	GLWA Board	248-858-1650
1		Terry Daniel	GLWA	313-928-0173
1		Wayne Domine	Bloomfield Township	248-594-2800
1	1	John Dwyer	Gen. Linen/Uniform Svc	313-873-5980
1		Michele Economou-Ureste	West Bloomfield	248-451-4800
1	1	Greg Eno	GLWA	313-964-9477
1		Tim Faas	Canton Township	734-394-5160
1		Patrick Fellrath	Plymouth Twp.	734-354-3270 x7
1		Shannon Filarecki	Fazal Khan & Assoc.Inc.	586-739-8007
1	1	Charlie Fleetham	Project Innovations	248-476-7577
1	1	Curtrise Garner	GLWA	313-701-2147

June 16, 2016 TAC and SC Committee Meeting Sign-In Sheet

<b>TAC</b>	<b>SC</b>	<b>Contact</b>	<b>Company</b>	<b>Phone</b>
1	1	Eric Griffin	GLWA	313-267-1492
1	1	Mike Halwani	ARCADIS	313-324-4015
1		Chuck Hersey	Public Sector Consultants	734-890-7393
1	1	Lavonda Jackson	GLWA	313-964-9095
1	1	Rodney Johnson	Hamtramck	586-929-1503
1	1	Meghana Kamath	Greeley and Hansen	313-628-0730
1	1	Laurie Koester	GLWA	313-964-9620
1	1	Ken Kucel	Wayne County DPS	313-224-8142
1	1	Sue McCormick	GLWA	313-224-4701
1		Jeff McKeen	SOCWA	248-288-5150
1	1	Mark Michling	Auburn Hills	248-364-6931
1	1	Dave Miller	Shelby Twp.	586-731-5990
1	1	Tim Minor	OCWRC/ASI	313-567-3990
1	1	Palencia Mobley	Detroit Retail	313-212-7987
1	1	Jim Murray	Dearborn	313-943-2073
1	1	Jim Nash	OCWRC	248-858-0968
1	1	Teresa Weed Newman	Project Innovations, Inc.	248-476-7577
1	1	Trude Noble	Wade Trim	734-947-2720
1		Amy Ploof	OCWRC	248-452-2271
1	1	Katrina Powell	Hamtramck	313-876-7700 x361
1	1	Tim Prince	OCWRC	
	1	Suzanne Reel	WTUA - accountant	734-453-2793
1		Don Rohraff	Livonia	734-466-2607
1	1	Phil Sanzica	OCWRC	248-585-1031
	1	Daniel Schechter	ECT	313-999-2333

# June 16, 2016 TAC and SC Committee Meeting Sign-In Sheet

<b>TAC</b>	<b>SC</b>	<b>Contact</b>	<b>Company</b>	<b>Phone</b>
1	1	Katie Schlutow	Bloomfield Twp.	248-594-2800
1	1	Maria Sedki	FTC&H	248-324-1228
1		Nicole Selais	HRC	313-628-0730
1	1	Chandan Sood	GLWA	313-999-4494
1	1	Tom Stephens	Detroit City Council	313-224-4501
1		Jim Taylor	Van Buren Twp	734-699-8947
1	1	Mark TenBroek	CDM Smith	313-230-5615
1		Tom Trice	Bloomfield Twp.	248-433-7731
1	1	Ilene Weathers	GLWA Procurement	313-964-9448
1	1	Jon Wheatley	GLWA	313-224-4771
1	1	Madison Ziems	GLWA	313-964-9301
57	41	Totals		





**Financial Services Group**  
**Audit Committee Communication**

**ADDENDUM #1 TO MEETING BINDER for Friday, July 1, 2016 at 8:00 a.m.**

Agenda Item # 7C - System Optimization Policy

**TO:** The Honorable  
Board of Directors  
Great Lakes Water Authority

**FROM:** Sue F. McCormick, CEO  
Great Lakes Water Authority

**DATE:** July 1, 2016

**RE:** **DRAFT – SYSTEM OPTIMIZATION POLICY  
GUIDELINES FOR SYSTEM EXTENSIONS**

### **BACKGROUND**

Historically the Board of Water Commissioners (BOWC) executed policies related to system extensions. For use today by GLWA, we considering these historic discussions and those going forward as “System Optimization” opportunities. By way of example, system optimization opportunities in this context include the following:

- Potential utilization of excess capacity such extending a transmission main to add a new customer;
- Opportunities to provide increased levels of service for existing customers, such as looping to provide an additional feed; or
- Other actions that create incentives for customers to collaborate with GLWA or other customers which result in avoidance of operating or capital expenditures or otherwise maximize the use of existing infrastructure.

In November 1998 the BOWC adopted a Policy that effectively stated that “Growth Pays for Growth”. In 2004 when the Model Water Service contract was developed, there were many community meetings conducted with the customers. There was not a consensus on the definitions of growth and system extension. On May 28, 2008 the BOWC adopted a Capital Cost Assessment Policy that replaced the 1998 System Expansion Policy. The Capital Cost Assessment Policy directed proportional cost sharing of capital improvements in circumstances where the new infrastructure will be sized to accommodate both the customer making the request and other existing or potential future customers. An additional component of costing to prospective customers is the fixed and commodity charges that are developed each year. Many factors are used to develop these charges and among them are the distance from the centroid of the existing water treatment plants and elevation of the prospective customer’s service point(s). Given that addition of new customers to the system will likely occur primarily at the fringes of the service district, the ongoing charges for new customers tend to be higher than those of existing customers and in some cases make the prospect of joining the system not cost effective. From a historical perspective, the cost of various system optimization elements is considered a highly important topic to our customers.

## **WHY THIS IS PERTINENT TODAY**

As is commonly understood, a large portion operating costs of the water and sewer system (collectively “systems”) are fixed. Additionally, the recent Water System Master Plan Update has demonstrated that the water system has excess capacity and that extending the system to provide looping for customers along dead-end transmission mains is a good business practice. For these reasons, adding customers to the systems has significant potential to reduce costs to existing customers and in some cases provide increases in level of service for existing customers. Management is presently pursuing several opportunities to extend the systems and is considering options for configuration and costs of extensions. At this time, it is important for management to discuss this topic with members of the Board of Directors so as to ensure that the steps moving forward are within the preference of the Board. As such this document has been prepared to create an opportunity for discussion on the topic, receive direction regarding whether the former DWSD Capital Cost Assessment Policy should be brought forward as a GLWA System Optimization policy and if so, identify appropriate guidelines for its application to potential new customers.

## **RECOMMENDATION FOR EXTENSIONS**

It is recommended that the GLWA Board move forward using the substantive language in the former Policy, updated only to reflect the GLWA as the regional authority and the pivot from “Expansion” to “Optimization”. Additionally, it is recommended that the following principles be utilized to the extent possible, while applying the Policy to a new or existing customer:

- 1) The overarching goal of acceptability to both the System and the Customer is clear in that if both are not comfortable that the prospect is beneficial from their individual perspectives, the extension will not be made.
- 2) The following elements are to be considered when preparing cost estimates: All construction related costs including but not limited to contingencies, engineering and legal costs, right-of-way acquisition, debt service, increased operations and maintenance expenses, and increased revenue.
- 3) It is preferable for the payback period for the common-to-all portion of the project, if any, to be less than or equal to one-half of the remainder of the contract term. The goal being to provide an acceptable return on investment over a reasonable period of time.
- 4) The System’s net cash flow for the project shall remain neutral or positive through the life of the project financing. This may be accomplished in two ways:
  - a. The Customer may fund the entire project, or its portion of the entire project, initially, with payback from the GLWA for any common-to-all elements over a period of years.
  - b. The increase in the Customer’s net revenue exceeds the debt service for the project throughout the life of the debt.
- 5) If it is determined that the simple proportional cost sharing principle noted in the Policy alone does not satisfy these principles, an advancement fee may be calculated and imposed on the Customer to make the prospect acceptable to the GLWA.
- 6) All prospective cost sharing arrangements are to be specifically presented to the Board of Directors for approval prior to the drafting of a contract.

**~~DWSD Directive NO. 08—1~~**  
**~~DETROIT WATER AND SEWERAGE DEPARTMENT~~GREAT LAKES WATER AUTHORITY**  
**~~CAPITAL COST ASSESSMENT~~SYSTEM OPTIMIZATION POLICY**

It is the policy of the Board of ~~Directors of the Great Lakes Water Authority~~Water Commissioners to ensure that capital costs related to new service requests and requests for additional service be appropriately assessed. This ~~Capital Cost Assessment~~System Optimization Policy (Policy) contains criteria that the ~~Detroit Water and Sewerage Department~~Great Lakes Water Authority (~~DWSD~~DWSDGLWA) will use to evaluate requests for wholesale water and sewage services provided by ~~DWSD~~DWSD-GLWA through its water and wastewater systems (collectively, “System”). It applies to requests for service from new customers of the ~~DWSD~~DWSD-GLWA System and to requests for additional service connections from existing System customers. This Policy contains the guidelines for determining how the capital costs associated with the service request will be applied. As used in this Policy, the term “Customer” refers to both new and existing customers.

**Criteria For Evaluations of Service Request**

- The Customer must make a written request for the service it seeks from ~~DWSD~~DWSDGLWA.
- ~~The Customer must have an approved service contract with DWSD.~~
- ~~DWSD~~DWSD-GLWA must determine that granting the Customer’s request will not adversely affect ~~DWSD’s~~DWSD’s-GLWA’s ability to serve its existing customers. The Customer shall furnish all information reasonably required by ~~DWSD~~DWSD-GLWA to evaluate the service request.
- Admission to the ~~DWSD~~DWSD-GLWA water system does not guarantee admission to ~~DWSD’s~~DWSD’s-GLWA’s sewage system, and vice versa. A separate request must be made for each service desired.

**Guidelines for Assessing Capital Costs**

- A Customer shall pay all costs associated with connecting its system to ~~DWSD’s~~DWSD’s-GLWA’s System.
- If it is necessary to extend a ~~DWSD~~DWSD-GLWA water transmission main or sewage interceptor to service the Customer, the Customer shall pay the capital costs associated with the infrastructure extension. If ~~DWSD~~DWSD-GLWA determines that the infrastructure will be sized to accommodate service to additional customers, the Customer shall pay the proportional cost of the new infrastructure attributable to its anticipated use of the infrastructure.
- Any ~~DWSD~~DWSDGLWA-owned infrastructure deemed by ~~DWSD~~DWSD-GLWA to benefit other Customers of the ~~DWSD~~ System (including the cost of infrastructure referenced above that is not directly assigned to the Customer on a proportional basis) will be allocated on a “common-to-all” basis.
- Capital costs related to existing assets that will be utilized to serve the Customer will be recovered in the rates on the same basis applied to existing customers.

~~This Policy replaces the System Expansion Policy adopted in November 1998.~~

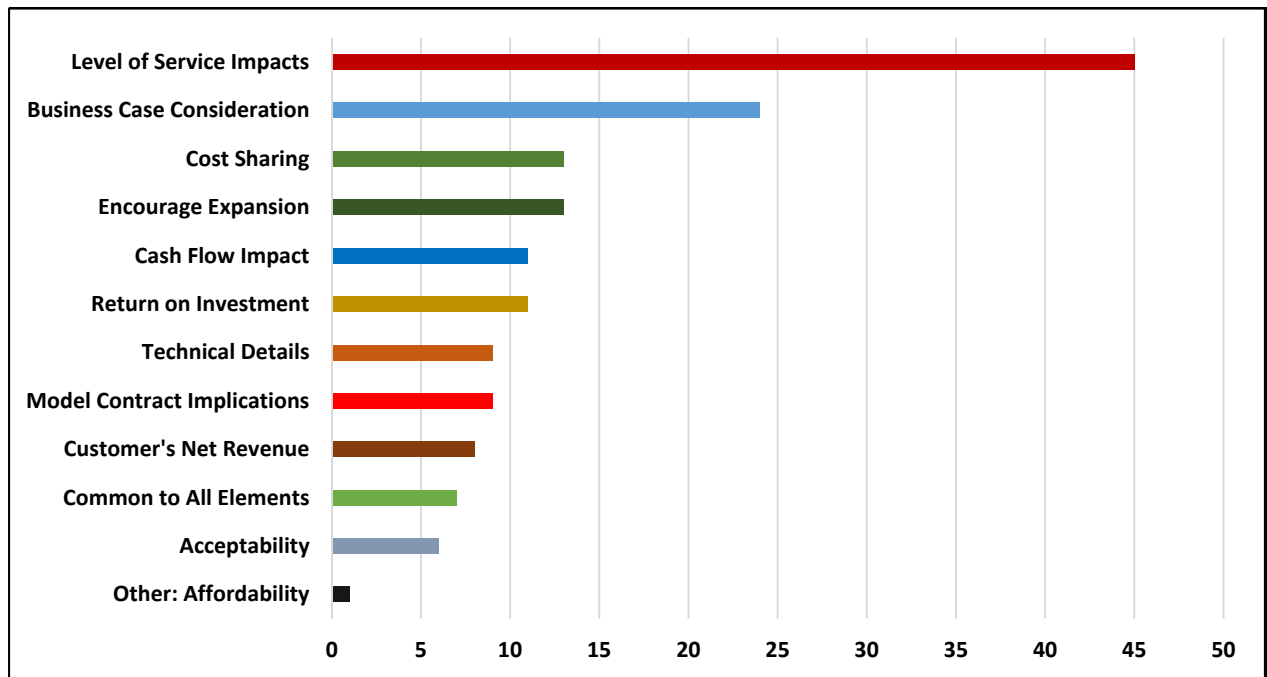
Adopted by the Great Lakes Water Authority Board of ~~Water Commissioners~~ Directors on ~~May 28, 2008~~.

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~~Victor M. Mercado, Director~~

June 16, 2016

**System Expansion Policy Results – 52 Responses**



**Comments:**

- Change name to “System Optimization Policy”
- Level of Service Impacts
  - Don’t compromise
  - Reliability
  - More components to system how will it impact service level
- Encourage Expansion
  - Pros and cons to having one WWTP
  - Or “optimization”
- Return on Investment
  - Most cost effective
- Acceptability
  - Political aspect
  - Social & environmental consequences
  - Population change
  - Economic development and demographic change
- Technical Details
  - Boundary conditions

May 13, 2016

RE: Water System Extension Alternatives

**Background:**

In order to attract new wholesale water customers to the GLWA system, management will need to determine a “best practice” approach that will extend existing infrastructure to new customers and will also take advantage of projects already in the CIP or long term master plan. GLWA will also need to develop a cost allocation methodology in which the new customer pays its proportional share of the extension of the infrastructure but is still economically feasible for the new customer.

**Regional Extension Policy:**

In 2008 a Capital Cost Assessment Policy was approved by the Board of Water Commissioners. This policy contains guidelines for how the capital costs associated with a new service request would be applied. For the purpose of this analysis, we are working within the parameters of the BOWC policy. Here are guidelines:

- *A Customer shall pay all costs associated with connecting its system to DWSD’s (GLWA’s) System.*
- *If it is necessary to extend a DWSD (GLWA) water transmission main or sewage interceptor to service the Customer, the Customer shall pay the capital costs associated with the infrastructure extension. If DWSD (GLWA) determines that the infrastructure will be sized to accommodate service to additional customers, the Customer shall pay the proportional cost of the new infrastructure attributable to its anticipated use of the infrastructure.*
- *Any DWSD (GLWA)-owned infrastructure deemed by DWSD (GLWA) to benefit other Customers of the DWSD (GLWA) System (including the cost of infrastructure referenced above that is not directly assigned to the Customer on a proportional basis) will be allocated on a “common-to-all” basis.*
- *Capital costs related to existing assets that will be utilized to serve the Customer will be recovered in the rates on the same basis applied to existing customers.*

### **Customer Assumptions:**

“Customer A” is a community on the edge of the GLWA service area. They have reached out to GLWA management to determine if service extension is possible and what the anticipated costs will be. Below are the service characteristics of Customer A:

- 3.5 MGD Max Day. 3.5 MGD Peak Hour capacity;
- 61,000 mcf annual flow;
- One 16 inch meter- average distance 33.5 miles, elevation 946 ft;
- Assumed annual revenue requirement (based on FY 2017 model): \$1,687,400, increased by 4% each year after.

### **Project Alternatives:**

In developing capital cost analysis, we have proposed two project alternatives. A graphic example of the proposed projects is attached on page 6.

**Scenario #1:** Construction of a single feed 42 inch transmission main. Pipe capacity is sized to service new customer’s current and future needs. Project cost is \$24 million.

**Scenario #2:** Construction of a 54 inch transmission main. Pipe capacity is sized to meet new customer demands and future System demands. This main may be extended in the future to provide looping to another transmission main, with benefits to the System. Project cost is \$29 million.

### **Capital Cost Allocation Methods:**

To remain consistent with the current capital assessment policy in allocating the capital cost, we need to determine the new customer’s proportionate share of each scenario above. After determining this allocation, then the appropriate financing needs to be established as well. In all of the allocation methods discussed, the pay-back provisions will not have a negative financial impact on the rest of the System customers. Furthermore, in all pay-back alternatives, the costs will be recovered over the life of the bond issue associated with the project (not over the life of the assets) and will be a direct pass through to Customer A and the common to all cost pool. All annual debt service assumptions are based on the average annual debt service payment at an assumed interest rate.

#### **Scenario #1, Alternative A:**

Since Scenario #1 is for the benefit of Customer A and does not include up-sizing for use of additional customers, all of the project costs are allocable to Customer A. Alternative A, in the included cashflow, shows no GLWA financed capital, with the estimated annual revenue requirement (net of a 10% reduction for O & M costs) from Customer A, which provide a benefit to System customers by reducing their shares of the total revenue requirement. This would be an acceptable alternative, based on the positive cashflow provided to System customers.

#### Scenario #1, Alternative B:

Alternative B, in the included cashflow, shows GLWA financed capital, payable over 15 years (half of a 30 year model contract). The costs of the project also include a 10% allowance for financing transactional costs. We have also assumed the debt service payments will be augmented by 20% to meet the MBO 1.2x coverage requirement. Additionally, the first 2 years of interest will be payable from Customer A as an initial payment to GLWA. The estimated annual revenue requirement from Customer A remain the same as Alternative A, however, the cashflow from customer A's revenue requirement is insufficient to meet the debt service on the bonds over the 15 year payback period. Given the proposed cashflow, only a bond size of \$18,000,000 could be supported. If the annual Customer A revenue shortfalls were allocated to the common to all cost pool, it would take 18 years to recover those costs.

#### Scenario #1, Alternative C:

Alternative B, in the included cashflow, shows GLWA financed capital, payable over 20 years but would require a 40 year contract term. Alternative C includes the same assumptions as Alternative B. , however, the cashflow from customer A's revenue requirement is still insufficient to meet the debt service on the bonds even with a 20 year payback period. Given the proposed cashflow, only a bond size of \$22,000,000 could be supported. If the annual Customer A revenue shortfalls were allocated to the common to all cost pool, it would take 16 years to recover those costs.

For the assumptions above, with the proposed annual revenue requirement it would take approximately 43 years to pay back a bond issue of \$26.4 million.

#### Scenario #2, Alternative A:

Scenario #2 is for the benefit of Customer A and also includes up-sizing for use of additional customers. In this scenario, only the proportional share of the project costs are allocable to Customer A with the remaining costs treated as a common to all expense. In this case, the proportional share for Customer A is determined as a percentage of the total pipe capacity, based on gallons per minute ("gpm"). Customer A has a flow rate of 5,800 gpm and the total pipe capacity of 15,000 gpm, therefore the cost of the project is allocated 38% to Customer A and 62% as common to all. In the included cashflow, shows Customer A financing their allocated share on its own and GLWA financed capital only for the common to all allocation. The cashflow shows the additional revenue from Customer A (net of a 10% reduction for O & M costs) used as an offset to the common to all debt service. It is assumed the debt service will be repaid over the life of a 30 year bond issue, which includes the 20% increase for coverage requirements. This would also be an acceptable alternative, based on the positive cashflow provided to System customers.

#### Scenario #2, Alternative B:

Alternative B includes the same assumptions as Alternative A, except it includes financing of Customer A's allocated share of the project by GLWA in addition to the common to all portion of the project. It is assumed that Customer A will repay the debt service over 15 years (half of a 30 year model contract) and it will prepay the capitalized interest as an up-front cost. The estimated annual revenue requirement from Customer A remain the same as Alternative A, however, the cashflow from customer



A's revenue requirement is insufficient to meet the debt service on the bonds over the 15 year payback period. Given the proposed cashflow, only a bond size of \$4,775,000 could be supported for the CTA share. The other item of concern in this alternative is how the capitalized interest on the common to all financing is addressed. If the annual Customer A revenue shortfalls were allocated to the common to all cost pool, it would take 25 years to recover those costs.

### **Financing Considerations:**

If GLWA sells bonds to finance any or all of this project, there are a few policy decisions that need to be considered:

- GLWA Financing of New Customer Extension: Is there a System benefit to financing a new customer extension instead of the customer financing its share of the project on its own? For the purpose of this analysis, we have looked at both alternatives, with the expectation that any financing on behalf of a new customer would not have a negative financial impact on System customers.
- Separate Bond Issue vs. Part of a Larger Issue: Should GLWA issue a separate series of bonds for new customer projects? This would increase transparency on the costs, fees allocation of debt service, however if it were financed as part of a larger transaction, the transactional costs could be reduced through the economies of scale achieved by spreading those costs to the other projects financed with the larger issue.
- Payback Period: How long will GLWA allow new customers to finance its share of a project, if at all? Our current pay-back assumption allows for a new customer to repay the cost of the extension over half the remaining term of a contract. If it is a new, 30 year contract, the payments could not be extended past 15 years. This method allows the System as a whole to realize a reasonable time period of additional revenues that have a common to all benefit.
- Capitalized Interest: It is assumed that construction for each of the scenarios would take about 24 months. During that time period there would be no revenues generated by the new customer to GLWA, however in a GLWA financing scenario, there will be interest accruing, and payments required on bonds issued for this project. If there are no revenues from the new customer, than does this expense fall to the rest of the System customers? Our assumption is to require the new customer to contribute the capitalized interest as an up-front cost.
- Coverage Requirements: Per GLWA's Master Bond Ordinance ("MBO"), GLWA must set its budgeted charges to provide 1.2 times coverage on its senior lien debt outstanding. It is our assumption that any debt issued herein would be senior lien debt, and the coverage requirement would be passed through to the new customer, for its allocable share or the Common to All cost pool, for its allocable share of bonds issued.

- Status Quo Financing of Common to All Assets: Currently, projects are financed by GLWA and recovered through the cost allocation and service charge methodology, which allocates all capital costs based on fixed asset records and over the life of the assets instead of the term of the financing. This also represents a higher cost due to how legacy fixed asset financing costs are carried under the current methodology. This could reduce the common to all annual expense, but increase the over-all cost over the life of the assets.

### **Going Forward:**

Given the proposed revenue requirement for Customer A in this analysis, it is clear the costs allocated to the new customer should be financed by the customer. In each of the alternatives presented, the cashflow which include GLWA financing the Customer A portion of the project negatively impact the System customers. If it were determined that GLWA was willing to finance Customer A's portion, we could have discussions with the customer about contractual arrangements in which they would agree to pay for those costs over and above their revenue requirement. The down side to this alternative is with the additional costs, it may make the GLWA approach less (or no longer) economically feasible.

### **Future Decisions for GLWA:**

- Does GLWA want to finance new customer portion of extension projects?
- In relation to a wholesale model contract, how long is GLWA willing to recover those costs?
- What are other ways to determine proportionality of a combined project?
- Does the current policy need to be updated?
- How will any changes to the water revenue requirement allocation methodology effect the payback assumptions?

# PROJECT ALTERNATIVES

## Scenario #1: New Customer Single Feed

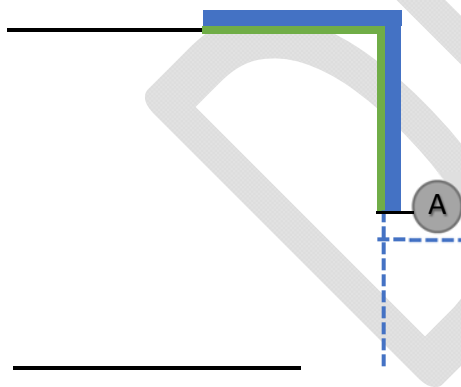


42" Transmission Main  
Total Project Cost: \$24M

Total Cost Paid by New Customer:  
\$24M

KEY	
Existing	
New Customer Paid	
Future CTA	
New CTA	
New Customer	

## Scenario #2: GLWA Upsized Loop



54" Transmission Main  
Total Cost: \$29M  
Future Cost: \$79M

New Customer Paid: \$11M  
(Based on 38% of pipe capacity)

New Common-to-All: \$18M

Total Project Cost: \$29M

# SCENARIO #1, ALTERNATIVE A

## 42" NEW CUSTOMER SINGLE FEED CUSTOMER PAYS 100% OF GREEN LINE NEW CUSTOMER FINANCES NEW LINE

Project Costs GREEN LINE- New Customer:	
Costruction Estimate	\$20,930,000
Contingency (15%)	3,140,000
Total Construction	\$24,070,000
Engineering and Legal (0%)	0
Total Project Cost	\$24,070,000
<b>Customer Share (100%)</b>	<b>\$24,070,000</b>
<b>Customer Share:</b>	
Project Cost	\$24,070,000
Allocable Financing Costs	0% (1)
Total Financing Requirement	\$24,070,000
Term (Years)	0
Interest Rate	0.00%
Average Annual Payment	\$0

Project Costs BLUE/GREEN LINE- CTA:	
Costruction Estimate	\$0
Contingency (20%)	0
Total Construction	\$0
Engineering and Legal (15%)	0
Total Project Cost	\$0
<b>Common to All Share (0%)</b>	<b>\$0</b>
<b>CTA Share:</b>	
Project Cost	\$0
Allocable Financing Costs	0% (1)
Total Financing Requirement	\$0
Term (Years)	30
Interest Rate	5.00%
Average Annual Payment	\$0

Year	BLUE/GREEN LINE								
	CUSTOMER ALLOCATION			COMMON TO ALL ALLOCATION					
	Average Annual Debt Service	(2) Customer A Est. Annual Revenues	Amount Available for CTA	Average Annual Debt Service	Customer ONLY NET Annual Revenues	(4) (Cost)/Benefit to CTA	(5) NET (Cost)/Benefit to CTA	(3) Est. Annual Billable Volume	(4) Unit Cost Increase/ (Decrease)
2017	\$0	\$0	\$0	\$0	\$0	\$0	0	13,906,600	\$0.00
2018	\$0	\$0	\$0	\$0	\$0	\$0	0	13,767,500	\$0.00
2019	\$0	\$1,687,400	\$1,687,400	\$0	\$1,687,400	\$1,687,400	1,518,660	13,629,800	(\$0.11)
2020	\$0	\$1,754,896	\$1,754,896	\$0	\$1,754,896	\$1,754,896	1,579,406	13,493,500	(\$0.12)
2021	\$0	\$1,825,092	\$1,825,092	\$0	\$1,825,092	\$1,825,092	1,642,583	13,358,600	(\$0.12)
2022	\$0	\$1,898,096	\$1,898,096	\$0	\$1,898,096	\$1,898,096	1,708,286	13,225,000	(\$0.13)
2023	\$0	\$1,974,019	\$1,974,019	\$0	\$1,974,019	\$1,974,019	1,776,617	13,092,800	(\$0.14)
2024	\$0	\$2,052,980	\$2,052,980	\$0	\$2,052,980	\$2,052,980	1,847,682	12,961,900	(\$0.14)
2025	\$0	\$2,135,099	\$2,135,099	\$0	\$2,135,099	\$2,135,099	1,921,589	12,832,300	(\$0.15)
2026	\$0	\$2,220,503	\$2,220,503	\$0	\$2,220,503	\$2,220,503	1,998,453	12,704,000	(\$0.16)
2027	\$0	\$2,309,323	\$2,309,323	\$0	\$2,309,323	\$2,309,323	2,078,391	12,704,000	(\$0.16)
2028	\$0	\$2,401,696	\$2,401,696	\$0	\$2,401,696	\$2,401,696	2,161,527	12,704,000	(\$0.17)
2029	\$0	\$2,497,764	\$2,497,764	\$0	\$2,497,764	\$2,497,764	2,247,988	12,704,000	(\$0.18)
2030	\$0	\$2,597,675	\$2,597,675	\$0	\$2,597,675	\$2,597,675	2,337,907	12,704,000	(\$0.18)
2031	\$0	\$2,701,582	\$2,701,582	\$0	\$2,701,582	\$2,701,582	2,431,424	12,704,000	(\$0.19)
2032	\$0	\$2,809,645	\$2,809,645	\$0	\$2,809,645	\$2,809,645	2,528,681	12,704,000	(\$0.20)
2033	\$0	\$2,922,031	\$2,922,031	\$0	\$2,922,031	\$2,922,031	2,629,828	12,704,000	(\$0.21)
2034	\$0	\$3,038,912	\$3,038,912	\$0	\$3,038,912	\$3,038,912	2,735,021	12,704,000	(\$0.22)
2035	\$0	\$3,160,469	\$3,160,469	\$0	\$3,160,469	\$3,160,469	2,844,422	12,704,000	(\$0.22)
2036	\$0	\$3,286,887	\$3,286,887	\$0	\$3,286,887	\$3,286,887	2,958,199	12,704,000	(\$0.23)
2037	\$0	\$3,418,363	\$3,418,363	\$0	\$3,418,363	\$3,418,363	3,076,527	12,704,000	(\$0.24)
2038	\$0	\$3,555,097	\$3,555,097	\$0	\$3,555,097	\$3,555,097	3,199,588	12,704,000	(\$0.25)
2039	\$0	\$3,697,301	\$3,697,301	\$0	\$3,697,301	\$3,697,301	3,327,571	12,704,000	(\$0.26)
2040	\$0	\$3,845,193	\$3,845,193	\$0	\$3,845,193	\$3,845,193	3,460,674	12,704,000	(\$0.27)
2041	\$0	\$3,999,001	\$3,999,001	\$0	\$3,999,001	\$3,999,001	3,599,101	12,704,000	(\$0.28)
2042	\$0	\$4,158,961	\$4,158,961	\$0	\$4,158,961	\$4,158,961	3,743,065	12,704,000	(\$0.29)
2043	\$0	\$4,325,319	\$4,325,319	\$0	\$4,325,319	\$4,325,319	3,892,788	12,704,000	(\$0.31)
2044	\$0	\$4,498,332	\$4,498,332	\$0	\$4,498,332	\$4,498,332	4,048,499	12,704,000	(\$0.32)
2045	\$0	\$4,678,266	\$4,678,266	\$0	\$4,678,266	\$4,678,266	4,210,439	12,704,000	(\$0.33)
2046	\$0	\$4,865,396	\$4,865,396	\$0	\$4,865,396	\$4,865,396	4,378,857	12,704,000	(\$0.34)
2047	\$0	\$5,060,012	\$5,060,012	\$0	\$5,060,012	\$5,060,012	4,554,011	12,704,000	(\$0.36)
2048	\$0	\$5,262,412	\$5,262,412	\$0	\$5,262,412	\$5,262,412	4,736,171	12,704,000	(\$0.37)
Total	\$0	\$94,637,724	\$94,637,724	\$0	\$94,637,724	\$94,637,724	\$85,173,952		

- (1) To support allocable bond reserve, issuance expenses, etc.  
(2) Assumes annual inflation in customer revenue requirement of: 4%  
(3) Assumes 1% decrease in annual billable volumes for the first 10 years.  
(4) After paying Customer Allocation Debt Service and CTA Debt Service  
(5) Includes 10% CTA Revenue Reduction for increased O & M expense related to new customer.

# SCENARIO #1, ALTERNATIVE B

42" NEW CUSTOMER SINGLE FEED  
CUSTOMER PAYS 100% OF GREEN LINE  
GLWA FINANCES NEW CUSTOMER LINE

Assuming 15 Year Payback/ 30 Year Contract

Project Costs GREEN LINE- New Customer:	
Costruction Estimate	\$20,930,000
Contingency (15%)	3,140,000
Total Construction	\$24,070,000
Engineering and Legal (0%)	0
Total Project Cost	\$24,070,000
<b>Customer Share (100%)</b>	<b>\$24,070,000</b>
<b>Customer Share:</b>	
Project Cost	\$24,070,000
Allocable Financing Costs	10% (1)
Total Financing Requirement	\$26,477,000
Term (Years)	17
Interest Rate	3.50%
Average Annual Payment	\$2,092,825
Average Annual Payment (1.2x)	\$2,511,390 (2)

Project Costs BLUE/GREEN LINE- CTA:	
Costruction Estimate	\$0
Contingency (20%)	0
Total Construction	\$0
Engineering and Legal (15%)	0
Total Project Cost	\$0
<b>Common to All Share (0%)</b>	<b>\$0</b>
<b>CTA Share:</b>	
Project Cost	\$0
Allocable Financing Costs	0% (1)
Total Financing Requirement	\$0
Term (Years)	30
Interest Rate	5.00%
Average Annual Payment	\$0

Year	BLUE/GREEN LINE							
	CUSTOMER ALLOCATION			COMMON TO ALL ALLOCATION				(4) Unit Cost Increase/ (Decrease)
	Average Annual Debt Service	(3) Customer A Est. Annual Revenues	Amount Available for CTA	Average Annual Debt Service	Customer ONLY NET Annual Revenues	(5) (Cost)/Benefit to CTA	NET (Cost)/Benefit to CTA	
2017	(\$2,511,390)	\$0	\$0	\$0	\$0	\$0	\$0	13,906,600 \$0.00
2018	(\$2,511,390)	\$0	\$0	\$0	\$0	\$0	\$0	13,767,500 \$0.00
2019	(\$2,511,390)	\$1,687,400	(\$823,990)	\$0	(\$823,990)	(\$823,990)	(992,730)	13,629,800 \$0.07
2020	(\$2,511,390)	\$1,754,896	(\$756,494)	\$0	(\$756,494)	(\$756,494)	(931,984)	13,493,500 \$0.07
2021	(\$2,511,390)	\$1,825,092	(\$686,298)	\$0	(\$686,298)	(\$686,298)	(868,807)	13,358,600 \$0.07
2022	(\$2,511,390)	\$1,898,096	(\$613,294)	\$0	(\$613,294)	(\$613,294)	(803,104)	13,225,000 \$0.06
2023	(\$2,511,390)	\$1,974,019	(\$537,371)	\$0	(\$537,371)	(\$537,371)	(734,773)	13,092,800 \$0.06
2024	(\$2,511,390)	\$2,052,980	(\$458,410)	\$0	(\$458,410)	(\$458,410)	(663,708)	12,961,900 \$0.05
2025	(\$2,511,390)	\$2,135,099	(\$376,291)	\$0	(\$376,291)	(\$376,291)	(589,801)	12,832,300 \$0.05
2026	(\$2,511,390)	\$2,220,503	(\$290,887)	\$0	(\$290,887)	(\$290,887)	(512,937)	12,704,000 \$0.04
2027	(\$2,511,390)	\$2,309,323	(\$202,067)	\$0	(\$202,067)	(\$202,067)	(432,999)	12,704,000 \$0.03
2028	(\$2,511,390)	\$2,401,696	(\$109,694)	\$0	(\$109,694)	(\$109,694)	(349,863)	12,704,000 \$0.03
2029	(\$2,511,390)	\$2,497,764	(\$13,626)	\$0	(\$13,626)	(\$13,626)	(263,402)	12,704,000 \$0.02
2030	(\$2,511,390)	\$2,597,675	\$86,285	\$0	\$86,285	\$86,285	(173,483)	12,704,000 \$0.01
2031	(\$2,511,390)	\$2,701,582	\$190,192	\$0	\$190,192	\$190,192	(79,966)	12,704,000 \$0.01
2032	(\$2,511,390)	\$2,809,645	\$298,255	\$0	\$298,255	\$298,255	17,291	12,704,000 (\$0.00)
2033	(\$2,511,390)	\$2,922,031	\$410,641	\$0	\$410,641	\$410,641	118,438	12,704,000 (\$0.01)
2034	\$0	\$3,038,912	\$3,038,912	\$0	\$3,038,912	\$3,038,912	2,735,021	12,704,000 (\$0.22)
2035	\$0	\$3,160,469	\$3,160,469	\$0	\$3,160,469	\$3,160,469	2,844,422	12,704,000 (\$0.22)
2036	\$0	\$3,286,887	\$3,286,887	\$0	\$3,286,887	\$3,286,887	2,958,199	12,704,000 (\$0.23)
2037	\$0	\$3,418,363	\$3,418,363	\$0	\$3,418,363	\$3,418,363	3,076,527	12,704,000 (\$0.24)
2038	\$0	\$3,555,097	\$3,555,097	\$0	\$3,555,097	\$3,555,097	3,199,588	12,704,000 (\$0.25)
2039	\$0	\$3,697,301	\$3,697,301	\$0	\$3,697,301	\$3,697,301	3,327,571	12,704,000 (\$0.26)
2040	\$0	\$3,845,193	\$3,845,193	\$0	\$3,845,193	\$3,845,193	3,460,674	12,704,000 (\$0.27)
2041	\$0	\$3,999,001	\$3,999,001	\$0	\$3,999,001	\$3,999,001	3,599,101	12,704,000 (\$0.28)
2042	\$0	\$4,158,961	\$4,158,961	\$0	\$4,158,961	\$4,158,961	3,743,065	12,704,000 (\$0.29)
2043	\$0	\$4,325,319	\$4,325,319	\$0	\$4,325,319	\$4,325,319	3,892,788	12,704,000 (\$0.31)
2044	\$0	\$4,498,332	\$4,498,332	\$0	\$4,498,332	\$4,498,332	4,048,499	12,704,000 (\$0.32)
2045	\$0	\$4,678,266	\$4,678,266	\$0	\$4,678,266	\$4,678,266	4,210,439	12,704,000 (\$0.33)
2046	\$0	\$4,865,396	\$4,865,396	\$0	\$4,865,396	\$4,865,396	4,378,857	12,704,000 (\$0.34)
2047	\$0	\$5,060,012	\$5,060,012	\$0	\$5,060,012	\$5,060,012	4,554,011	12,704,000 (\$0.36)
2048	\$0	\$5,262,412	\$5,262,412	\$0	\$5,262,412	\$5,262,412	4,736,171	12,704,000 (\$0.37)
Total	(\$42,693,630)	\$94,637,724	\$56,966,874	\$0	\$56,966,874	\$56,966,874	\$47,503,102	

Maximum Amount Supported by Cashflow: **\$18,000,000**

Rate of Return: **11.74%**  
CTA Payback Period (years): **18**

- (1) To support allocable bond reserve, issuance expenses, etc.  
(2) Assumes Senior Lien Bonds with 1.20x Coverage Requirement  
(3) Assumes annual inflation in customer revenue requirement of: 4%  
(4) Assumes 1% decrease in annual billable volumes for the first 10 years.  
(5) After paying Customer Allocation Debt Service and CTA Debt Service  
(6) Includes 10% CTA Revenue Reduction for increased O & M expense related to new customer.

# SCENARIO #1, ALTERNATIVE C

42" NEW CUSTOMER SINGLE FEED

CUSTOMER PAYS 100% OF GREEN LINE

GLWA FINANCES NEW CUSTOMER LINE

Assuming 20 Year Payback/ 40 Year Contract

Project Costs GREEN LINE- New Customer:	
Construction Estimate	\$20,930,000
Contingency (15%)	3,140,000
Total Construction	\$24,070,000
Engineering and Legal (0%)	0
Total Project Cost	\$24,070,000
<b>Customer Share (100%)</b>	<b>\$24,070,000</b>
Customer Share:	
Project Cost	\$24,070,000
Allocable Financing Costs	10% (1)
Total Financing Requirement	\$26,477,000
Term (Years)	25
Interest Rate	4.00%
Average Annual Payment	\$1,694,845
Average Annual Payment (1.2x)	\$2,033,814 (2)

Project Costs BLUE/GREEN LINE- CTA:	
Construction Estimate	\$0
Contingency (20%)	0
Total Construction	\$0
Engineering and Legal (15%)	0
Total Project Cost	\$0
<b>Common to All Share (0%)</b>	<b>\$0</b>
CTA Share:	
Project Cost	\$0
Allocable Financing Costs	0% (1)
Total Financing Requirement	\$0
Term (Years)	30
Interest Rate	5.00%
Average Annual Payment	\$0

BLUE/GREEN LINE									
CUSTOMER ALLOCATION				COMMON TO ALL ALLOCATION					
Year	Average Annual Debt Service	(3) Customer A Est. Annual Revenues	Amount Available for CTA	Average Annual Debt Service	Customer ONLY NET Annual Revenues	(5) (Cost)/Benefit to CTA	(6) NET (Cost)/Benefit to CTA	(4) Est. Annual Billable Volume	(4) Unit Cost Increase/ (Decrease)
2017	(\$2,033,814)	\$0	\$0	\$0	\$0	\$0	\$0	13,906,600	\$0.00
2018	(\$2,033,814)	\$0	\$0	\$0	\$0	\$0	\$0	13,767,500	\$0.00
2019	(\$2,033,814)	\$1,687,400	(\$346,414)	\$0	(\$346,414)	(\$346,414)	(515,154)	13,629,800	\$0.04
2020	(\$2,033,814)	\$1,754,896	(\$278,918)	\$0	(\$278,918)	(\$278,918)	(454,407)	13,493,500	\$0.03
2021	(\$2,033,814)	\$1,825,092	(\$208,722)	\$0	(\$208,722)	(\$208,722)	(391,231)	13,358,600	\$0.03
2022	(\$2,033,814)	\$1,898,096	(\$135,718)	\$0	(\$135,718)	(\$135,718)	(325,528)	13,225,000	\$0.02
2023	(\$2,033,814)	\$1,974,019	(\$59,794)	\$0	(\$59,794)	(\$59,794)	(257,196)	13,092,800	\$0.02
2024	(\$2,033,814)	\$2,052,980	\$19,166	\$0	\$19,166	\$19,166	(186,132)	12,961,900	\$0.01
2025	(\$2,033,814)	\$2,135,099	\$101,286	\$0	\$101,286	\$101,286	(112,224)	12,832,300	\$0.01
2026	(\$2,033,814)	\$2,220,503	\$186,690	\$0	\$186,690	\$186,690	(35,361)	12,704,000	\$0.00
2027	(\$2,033,814)	\$2,309,323	\$275,510	\$0	\$275,510	\$275,510	44,577	12,704,000	(\$0.00)
2028	(\$2,033,814)	\$2,401,696	\$367,883	\$0	\$367,883	\$367,883	127,713	12,704,000	(\$0.01)
2029	(\$2,033,814)	\$2,497,764	\$463,951	\$0	\$463,951	\$463,951	214,174	12,704,000	(\$0.02)
2030	(\$2,033,814)	\$2,597,675	\$563,861	\$0	\$563,861	\$563,861	304,094	12,704,000	(\$0.02)
2031	(\$2,033,814)	\$2,701,582	\$667,768	\$0	\$667,768	\$667,768	397,610	12,704,000	(\$0.03)
2032	(\$2,033,814)	\$2,809,645	\$775,831	\$0	\$775,831	\$775,831	494,867	12,704,000	(\$0.04)
2033	(\$2,033,814)	\$2,922,031	\$888,217	\$0	\$888,217	\$888,217	596,014	12,704,000	(\$0.05)
2034	(\$2,033,814)	\$3,038,912	\$1,005,098	\$0	\$1,005,098	\$1,005,098	701,207	12,704,000	(\$0.06)
2035	(\$2,033,814)	\$3,160,469	\$1,126,655	\$0	\$1,126,655	\$1,126,655	810,608	12,704,000	(\$0.06)
2036	(\$2,033,814)	\$3,286,887	\$1,253,074	\$0	\$1,253,074	\$1,253,074	924,385	12,704,000	(\$0.07)
2037	(\$2,033,814)	\$3,418,363	\$1,384,549	\$0	\$1,384,549	\$1,384,549	1,042,713	12,704,000	(\$0.08)
2038	(\$2,033,814)	\$3,555,097	\$1,521,284	\$0	\$1,521,284	\$1,521,284	1,165,774	12,704,000	(\$0.09)
2039	\$0	\$3,697,301	\$3,697,301	\$0	\$3,697,301	\$3,697,301	3,327,571	12,704,000	(\$0.26)
2040	\$0	\$3,845,193	\$3,845,193	\$0	\$3,845,193	\$3,845,193	3,460,674	12,704,000	(\$0.27)
2041	\$0	\$3,999,001	\$3,999,001	\$0	\$3,999,001	\$3,999,001	3,599,101	12,704,000	(\$0.28)
2042	\$0	\$4,158,961	\$4,158,961	\$0	\$4,158,961	\$4,158,961	3,743,065	12,704,000	(\$0.29)
2043	\$0	\$4,325,319	\$4,325,319	\$0	\$4,325,319	\$4,325,319	3,892,788	12,704,000	(\$0.31)
2044	\$0	\$4,498,332	\$4,498,332	\$0	\$4,498,332	\$4,498,332	4,048,499	12,704,000	(\$0.32)
2045	\$0	\$4,678,266	\$4,678,266	\$0	\$4,678,266	\$4,678,266	4,210,439	12,704,000	(\$0.33)
2046	\$0	\$4,865,396	\$4,865,396	\$0	\$4,865,396	\$4,865,396	4,378,857	12,704,000	(\$0.34)
2047	\$0	\$5,060,012	\$5,060,012	\$0	\$5,060,012	\$5,060,012	4,554,011	12,704,000	(\$0.36)
2048	\$0	\$5,262,412	\$5,262,412	\$0	\$5,262,412	\$5,262,412	4,736,171	12,704,000	(\$0.37)
2049	\$0	\$5,472,909	\$5,472,909	\$0	\$5,472,909	\$5,472,909	4,925,618	12,704,000	(\$0.39)
2050	\$0	\$5,691,825	\$5,691,825	\$0	\$5,691,825	\$5,691,825	5,122,643	12,704,000	(\$0.40)
2051	\$0	\$5,919,498	\$5,919,498	\$0	\$5,919,498	\$5,919,498	5,327,548	12,704,000	(\$0.42)
2052	\$0	\$6,156,278	\$6,156,278	\$0	\$6,156,278	\$6,156,278	5,540,650	12,704,000	(\$0.44)
2053	\$0	\$6,402,529	\$6,402,529	\$0	\$6,402,529	\$6,402,529	5,762,276	12,704,000	(\$0.45)
2054	\$0	\$6,658,631	\$6,658,631	\$0	\$6,658,631	\$6,658,631	5,992,768	12,704,000	(\$0.47)
2055	\$0	\$6,924,976	\$6,924,976	\$0	\$6,924,976	\$6,924,976	6,232,478	12,704,000	(\$0.49)
2056	\$0	\$7,201,975	\$7,201,975	\$0	\$7,201,975	\$7,201,975	6,481,777	12,704,000	(\$0.51)
2057	\$0	\$7,490,054	\$7,490,054	\$0	\$7,490,054	\$7,490,054	6,741,048	12,704,000	(\$0.53)
2058	\$0	\$7,789,656	\$7,789,656	\$0	\$7,789,656	\$7,789,656	7,010,690	12,704,000	(\$0.55)
Total	(\$44,743,901)	\$160,346,055	\$119,669,781	\$0	\$119,669,781	\$119,669,781	\$103,635,176		

Maximum Amount Supported by Cashflow:

\$22,000,000

Rate of Return:

17.52%

CTA Payback Period (years):

16

(1) To support allocable bond reserve, issuance expenses, etc.

(2) Assumes Senior Lien Bonds with 1.20x Coverage Requirement

(3) Assumes annual inflation in customer revenue requirement of: 4%

(4) Assumes 1% decrease in annual billable volumes for the first 10 years.

(5) After paying Customer Allocation Debt Service and CTA Debt Service

(6) Includes 10% CTA Revenue Reduction for increased O & M expense related to new customer.

# SCENARIO #2, ALTERNATIVE A

## 54" GLWA LOOP

CUSTOMER PAYS 38% OF BLUE/GREEN LINE, BASED ON PIPE CAPACITY

COMMON TO ALL PAYS 62% OF BLUE/GREEN LINE

NEW CUSTOMER FINANCES NEW LINE

Project Costs GREEN LINE- New Customer:	
Construction Estimate	\$20,930,000
Contingency (20%)	4,190,000
Total Construction	\$25,120,000
Engineering and Legal (15%)	3,770,000
Total Project Cost	\$28,890,000
<b>Customer Share (38%)</b>	<b>\$10,978,000</b>
<b>Customer Share:</b>	
Project Cost	\$10,978,000
Allocable Financing Costs	0% (1)
Total Financing Requirement	\$0
Term (Years)	17
Interest Rate	3.50%
Average Annual Payment	\$0

Project Costs BLUE/GREEN LINE- CTA:	
Construction Estimate	\$20,930,000
Contingency (20%)	4,190,000
Total Construction	\$25,120,000
Engineering and Legal (15%)	3,770,000
Total Project Cost	\$28,890,000
<b>Common to All Share (62%)</b>	<b>\$17,912,000</b>
<b>CTA Share:</b>	
Project Cost	\$17,912,000
Allocable Financing Costs	10% (1)
Total Financing Requirement	\$19,703,000
Term (Years)	32
Interest Rate	5.00%
Average Annual Payment	\$1,246,814
Average Annual Payment (1.2x)	\$1,496,177 (2)

Year	BLUE/GREEN LINE								
	CUSTOMER ALLOCATION			COMMON TO ALL ALLOCATION					
	Average Annual Debt Service	(3) Customer A Est. Annual Revenues	Amount Available for CTA	Average Annual Debt Service	Customer ONLY NET Annual Revenues	(5) (Cost)/Benefit to CTA	(6) NET (Cost)/Benefit to CTA	(4) Est. Annual Billable Volume	(4) Unit Cost Increase/ (Decrease)
2017	\$0	\$0	\$0	(\$985,150)	\$0	(\$985,150)	(985,150)	13,906,600	\$0.07
2018	\$0	\$0	\$0	(\$985,150)	\$0	(\$985,150)	(985,150)	13,767,500	\$0.07
2019	\$0	\$1,687,400	\$1,687,400	(\$1,496,177)	\$1,687,400	\$191,223	22,483	13,629,800	(\$0.00)
2020	\$0	\$1,754,896	\$1,754,896	(\$1,496,177)	\$1,754,896	\$258,719	83,229	13,493,500	(\$0.01)
2021	\$0	\$1,825,092	\$1,825,092	(\$1,496,177)	\$1,825,092	\$328,915	146,406	13,358,600	(\$0.01)
2022	\$0	\$1,898,096	\$1,898,096	(\$1,496,177)	\$1,898,096	\$401,919	212,109	13,225,000	(\$0.02)
2023	\$0	\$1,974,019	\$1,974,019	(\$1,496,177)	\$1,974,019	\$477,842	280,440	13,092,800	(\$0.02)
2024	\$0	\$2,052,980	\$2,052,980	(\$1,496,177)	\$2,052,980	\$556,803	351,505	12,961,900	(\$0.03)
2025	\$0	\$2,135,099	\$2,135,099	(\$1,496,177)	\$2,135,099	\$638,922	425,412	12,832,300	(\$0.03)
2026	\$0	\$2,220,503	\$2,220,503	(\$1,496,177)	\$2,220,503	\$724,326	502,276	12,704,000	(\$0.04)
2027	\$0	\$2,309,323	\$2,309,323	(\$1,496,177)	\$2,309,323	\$813,147	582,214	12,704,000	(\$0.05)
2028	\$0	\$2,401,696	\$2,401,696	(\$1,496,177)	\$2,401,696	\$905,519	665,350	12,704,000	(\$0.05)
2029	\$0	\$2,497,764	\$2,497,764	(\$1,496,177)	\$2,497,764	\$1,001,587	751,811	12,704,000	(\$0.06)
2030	\$0	\$2,597,675	\$2,597,675	(\$1,496,177)	\$2,597,675	\$1,101,498	841,730	12,704,000	(\$0.07)
2031	\$0	\$2,701,582	\$2,701,582	(\$1,496,177)	\$2,701,582	\$1,205,405	935,247	12,704,000	(\$0.07)
2032	\$0	\$2,809,645	\$2,809,645	(\$1,496,177)	\$2,809,645	\$1,313,468	1,032,504	12,704,000	(\$0.08)
2033	\$0	\$2,922,031	\$2,922,031	(\$1,496,177)	\$2,922,031	\$1,425,854	1,133,651	12,704,000	(\$0.09)
2034	\$0	\$3,038,912	\$3,038,912	(\$1,496,177)	\$3,038,912	\$1,542,735	1,238,844	12,704,000	(\$0.10)
2035	\$0	\$3,160,469	\$3,160,469	(\$1,496,177)	\$3,160,469	\$1,664,292	1,348,245	12,704,000	(\$0.11)
2036	\$0	\$3,286,887	\$3,286,887	(\$1,496,177)	\$3,286,887	\$1,790,710	1,462,022	12,704,000	(\$0.12)
2037	\$0	\$3,418,363	\$3,418,363	(\$1,496,177)	\$3,418,363	\$1,922,186	1,580,350	12,704,000	(\$0.12)
2038	\$0	\$3,555,097	\$3,555,097	(\$1,496,177)	\$3,555,097	\$2,058,920	1,703,411	12,704,000	(\$0.13)
2039	\$0	\$3,697,301	\$3,697,301	(\$1,496,177)	\$3,697,301	\$2,201,124	1,831,394	12,704,000	(\$0.14)
2040	\$0	\$3,845,193	\$3,845,193	(\$1,496,177)	\$3,845,193	\$2,349,016	1,964,497	12,704,000	(\$0.15)
2041	\$0	\$3,999,001	\$3,999,001	(\$1,496,177)	\$3,999,001	\$2,502,824	2,102,924	12,704,000	(\$0.17)
2042	\$0	\$4,158,961	\$4,158,961	(\$1,496,177)	\$4,158,961	\$2,662,784	2,246,888	12,704,000	(\$0.18)
2043	\$0	\$4,325,319	\$4,325,319	(\$1,496,177)	\$4,325,319	\$2,829,143	2,396,611	12,704,000	(\$0.19)
2044	\$0	\$4,498,332	\$4,498,332	(\$1,496,177)	\$4,498,332	\$3,002,155	2,552,322	12,704,000	(\$0.20)
2045	\$0	\$4,678,266	\$4,678,266	(\$1,496,177)	\$4,678,266	\$3,182,089	2,714,262	12,704,000	(\$0.21)
2046	\$0	\$4,865,396	\$4,865,396	(\$1,496,177)	\$4,865,396	\$3,369,219	2,882,680	12,704,000	(\$0.23)
2047	\$0	\$5,060,012	\$5,060,012	(\$1,496,177)	\$5,060,012	\$3,563,835	3,057,834	12,704,000	(\$0.24)
2048	\$0	\$5,262,412	\$5,262,412	(\$1,496,177)	\$5,262,412	\$3,766,236	3,239,994	12,704,000	(\$0.26)
Total	\$0	\$94,637,724	\$94,637,724	(\$46,855,607)	\$94,637,724	\$47,782,117	38,318,344		

Maximum CTA Amount Supported by Cashflow:

**\$20,000,000**

Rate of Return:

**18.81%**

CTA Payback Period (years):

**10**

(1) To support allocable bond reserve, issuance expenses, etc.

(2) Assumes Senior Lien Bonds with 1.20x Coverage Requirement

(3) Assumes annual inflation in customer revenue requirement of: 4%

(4) Assumes 1% decrease in annual billable volumes for the first 10 years.

(5) After paying Customer Allocation Debt Service and CTA Debt Service

(6) Includes 10% CTA Revenue Reduction for increased O & M expense related to new customer.



# SCENARIO #2, ALTERNATIVE B

## 54" GLWA LOOP

**CUSTOMER PAYS 38% OF BLUE/GREEN LINE, BASED ON PIPE CAPACITY  
COMMON TO ALL PAYS 62% OF BLUE/GREEN LINE  
GLWA FINANCES NEW CUSTOMER LINE**

Project Costs GREEN LINE- New Customer:	
Costruction Estimate	\$20,930,000
Contingency (20%)	4,190,000
Total Construction	\$25,120,000
Engineering and Legal (15%)	3,770,000
Total Project Cost	\$28,890,000
<b>Customer Share (38%)</b>	<b>\$10,978,000</b>
<b>Customer Share:</b>	
Project Cost	\$10,978,000
Allocable Financing Costs	10% (1)
Total Financing Requirement	\$12,076,000
Term (Years)	17
Interest Rate	3.50%
Average Annual Payment	\$954,525
Average Annual Payment (1.2x)	\$1,145,430 (2)

Project Costs BLUE/GREEN LINE- CTA:	
Costruction Estimate	\$20,930,000
Contingency (20%)	4,190,000
Total Construction	\$25,120,000
Engineering and Legal (15%)	3,770,000
Total Project Cost	\$28,890,000
<b>Common to All Share (62%)</b>	<b>\$17,912,000</b>
<b>CTA Share:</b>	
Project Cost	\$17,912,000
Allocable Financing Costs	10% (1)
Total Financing Requirement	\$19,703,000
Term (Years)	30
Interest Rate	5.00%
Average Annual Payment	\$1,281,708
Average Annual Payment (1.2x)	\$1,538,050 (2)

BLUE/GREEN LINE									
CUSTOMER ALLOCATION				COMMON TO ALL ALLOCATION					
Year	Average Annual Debt Service	Customer A Est. Annual Revenues	Amount Available for CTA	Average Annual Debt Service	Customer ONLY NET Annual Revenues	(5) (Cost)/Benefit to CTA	NET (Cost)/Benefit to CTA	(4) Est. Annual Billable Volume	(4) Unit Cost Increase/(Decrease)
2017	(\$422,660)	\$0	\$0	(\$985,150)	\$0	(\$985,150)	(985,150)	13,906,600	\$0.07
2018	(\$422,660)	\$0	\$0	(\$985,150)	\$0	(\$985,150)	(985,150)	13,767,500	\$0.07
2019	(\$1,145,430)	\$1,687,400	\$541,970	(\$1,538,050)	\$541,970	(\$996,080)	(1,164,820)	13,629,800	\$0.09
2020	(\$1,145,430)	\$1,754,896	\$609,466	(\$1,538,050)	\$609,466	(\$928,584)	(1,104,074)	13,493,500	\$0.08
2021	(\$1,145,430)	\$1,825,092	\$679,662	(\$1,538,050)	\$679,662	(\$858,388)	(1,040,897)	13,358,600	\$0.08
2022	(\$1,145,430)	\$1,898,096	\$752,666	(\$1,538,050)	\$752,666	(\$785,384)	(975,194)	13,225,000	\$0.07
2023	(\$1,145,430)	\$1,974,019	\$828,590	(\$1,538,050)	\$828,590	(\$709,461)	(906,863)	13,092,800	\$0.07
2024	(\$1,145,430)	\$2,052,980	\$907,550	(\$1,538,050)	\$907,550	(\$630,500)	(835,798)	12,961,900	\$0.06
2025	(\$1,145,430)	\$2,135,099	\$989,669	(\$1,538,050)	\$989,669	(\$548,381)	(761,891)	12,832,300	\$0.06
2026	(\$1,145,430)	\$2,220,503	\$1,075,073	(\$1,538,050)	\$1,075,073	(\$462,977)	(685,027)	12,704,000	\$0.05
2027	(\$1,145,430)	\$2,309,323	\$1,163,894	(\$1,538,050)	\$1,163,894	(\$374,157)	(605,089)	12,704,000	\$0.05
2028	(\$1,145,430)	\$2,401,696	\$1,256,267	(\$1,538,050)	\$1,256,267	(\$281,784)	(521,953)	12,704,000	\$0.04
2029	(\$1,145,430)	\$2,497,764	\$1,352,334	(\$1,538,050)	\$1,352,334	(\$185,716)	(435,492)	12,704,000	\$0.03
2030	(\$1,145,430)	\$2,597,675	\$1,452,245	(\$1,538,050)	\$1,452,245	(\$85,805)	(345,573)	12,704,000	\$0.03
2031	(\$1,145,430)	\$2,701,582	\$1,556,152	(\$1,538,050)	\$1,556,152	\$18,102	(252,056)	12,704,000	\$0.02
2032	(\$1,145,430)	\$2,809,645	\$1,664,215	(\$1,538,050)	\$1,664,215	\$126,165	(154,799)	12,704,000	\$0.01
2033	(\$1,145,430)	\$2,922,031	\$1,776,601	(\$1,538,050)	\$1,776,601	\$238,551	(53,652)	12,704,000	\$0.00
2034	\$0	\$3,038,912	\$3,038,912	(\$1,538,050)	\$3,038,912	\$1,500,862	1,196,971	12,704,000	(\$0.09)
2035	\$0	\$3,160,469	\$3,160,469	(\$1,538,050)	\$3,160,469	\$1,622,418	1,306,372	12,704,000	(\$0.10)
2036	\$0	\$3,286,887	\$3,286,887	(\$1,538,050)	\$3,286,887	\$1,748,837	1,420,148	12,704,000	(\$0.11)
2037	\$0	\$3,418,363	\$3,418,363	(\$1,538,050)	\$3,418,363	\$1,880,313	1,538,476	12,704,000	(\$0.12)
2038	\$0	\$3,555,097	\$3,555,097	(\$1,538,050)	\$3,555,097	\$2,017,047	1,661,537	12,704,000	(\$0.13)
2039	\$0	\$3,697,301	\$3,697,301	(\$1,538,050)	\$3,697,301	\$2,159,251	1,789,521	12,704,000	(\$0.14)
2040	\$0	\$3,845,193	\$3,845,193	(\$1,538,050)	\$3,845,193	\$2,307,143	1,922,624	12,704,000	(\$0.15)
2041	\$0	\$3,999,001	\$3,999,001	(\$1,538,050)	\$3,999,001	\$2,460,951	2,061,051	12,704,000	(\$0.16)
2042	\$0	\$4,158,961	\$4,158,961	(\$1,538,050)	\$4,158,961	\$2,620,911	2,205,015	12,704,000	(\$0.17)
2043	\$0	\$4,325,319	\$4,325,319	(\$1,538,050)	\$4,325,319	\$2,787,269	2,354,737	12,704,000	(\$0.19)
2044	\$0	\$4,498,332	\$4,498,332	(\$1,538,050)	\$4,498,332	\$2,960,282	2,510,449	12,704,000	(\$0.20)
2045	\$0	\$4,678,266	\$4,678,266	(\$1,538,050)	\$4,678,266	\$3,140,215	2,672,389	12,704,000	(\$0.21)
2046	\$0	\$4,865,396	\$4,865,396	(\$1,538,050)	\$4,865,396	\$3,327,346	2,840,806	12,704,000	(\$0.22)
Total	(\$18,026,767)	\$84,315,300	\$67,133,852	(\$45,035,703)	\$67,133,852	\$22,098,149	13,666,619		

Maximum CTA Amount Supported by Cashflow:

**\$4,775,000**

Rate of Return:

**4.29%**

CTA Payback Period (years):

**25**

- (1) To support allocable bond reserve, issuance expenses, etc.  
 (2) Assumes Senior Lien Bonds with 1.20x Coverage Requirement  
 (3) Assumes annual inflation in customer revenue requirement of: 4%  
 (4) Assumes 1% decrease in annual billable volumes for the first 10 years.  
 (5) After paying Customer Allocation Debt Service and CTA Debt Service  
 (6) Includes 10% CTA Revenue Reduction for increased O & M expense related to new customer.





## **Planning Services Group**

### **Office of the Chief Planning Officer**

**Date:** August 1, 2016

**From:** GLWA Management

**Re:** Cost Sharing Examples

As staff considered the prospect of potential new customers, it was thought to be prudent to consider how other large utilities are addressing cost sharing of system extensions. As such, research was conducted and the following examples were identified:

#### ***City of Cleveland, Tennessee***

- The utility's Board pays one-half the cost of waterline extensions outside the city, with the customer providing the other half.
- Sewer extensions outside the city are decided on a case-by-case basis. If approved, the developer pays the entire cost.

#### ***City of Oak Ridge, Tennessee***

- All extensions require the developers to finance.
- City expenditures for interceptors or mains must be recoverable within 10 years.
- Several methods of financing are allowed.

#### ***Charlotte-Mecklenburg Utilities (CMU) Extension Policy, North Carolina***

- Reimbursable Capital facilities which are normally provided by CMU but are not in place, may be financed by a customer in order to expedite the construction.
- Upon completion and final acceptance of the Facility, the customer is reimbursed for eligible costs of the project.
- The customer is required to enter into a contract with the City of Charlotte stating that CMU will design the requested Facility, acquire any necessary rights of way and permits and construct the facility in accordance with North Carolina General Statutes.
- The customer is required to pay a deposit at the time he or she executes the contract. The deposit amount is required to be sufficient to pay the cost of design and right of way acquisition and shall be established by CMU.

### ***Charlotte-Mecklenburg Utilities (CMU) Extension Policy, North Carolina (Cont'd)***

- Once construction cost is determined, the customer is required to make available to CMU the balance of funds to construct the project.
- There are multiple options for reimbursement:
  - 5-Year Reimbursement Program:
    - Contracting customer is reimbursed all of the eligible funds he has deposited for the project.
    - The amount reimbursed will not include any interest, carrying charges, financing costs, or other funds other than the actual face value amounts deposited by the customer.
    - The customer will receive 20% of the eligible deposited amount in each of five annual payments.
    - The first annual payment will be made one year from the date CMU accepts the total project as complete and available for activation.
    - The customer will be required to pay any acreage fees which are applicable, including those resulting from his project. Acreage fees are not eligible for reimbursement.
  - 15-Year Reimbursement Program:
    - Contracting customer is not guaranteed total reimbursement of eligible deposited funds.
    - Reimbursement payments are made annually beginning one year from the date CMU activates the total project.
    - The CMU activation date begins the 15-year reimbursement period.
    - The amount of each annual reimbursement payment will be the sum of collected acreage fees attributable to the project and 35% of sewer or water user fees which result directly from the project and are collected that year.

### ***Lincoln County Public Works Department, North Carolina***

- All extension requests shall be reviewed by the 'Department'.
- The Department prepares a feasibility study for the project, which includes cost estimates for extension of utility lines to serve the 'properties' requesting service and a payback analysis.
- The payback analysis includes project construction costs, sewer disposal and/or water supply costs and all revenue to the Department from the area to be served.
- Feasibility of a project is determined by the Board of Commissioners, based on the results of the payback analysis and/or the construction costs of the necessary improvements.
- A feasible project is to have a payback period of not less than 10 years, or revenues that total at least 50% of the cost of construction when calculating the payback period.
- Projects may be disapproved if funds are not available.

## **System Optimization Questions and Answers**

August 2016

**1) Is GLWA management suggesting a change?**

*Yes, presently GLWA does not have a policy or guideline regarding system optimization. Management is recommending the use of an internal guideline document to add structure to this topic and is seeking comment from Directors and customers on the substance of the guideline.*

**2) Are we readopting the former DWSD capital cost assessment policy or is GLWA management seeking a policy change?**

*Management is not presently recommending adopting the former Board of Water Commissioner's (BOWC) Capital Cost Assessment policy nor is it recommending a policy change. That option was put on the table in draft form in July however after receiving feedback and considering the matter further, management is recommending the use of a guideline document which prescribes a family of specific analyses to be performed and published on a case by case basis when considering the prospect of adding a new customer.*

**3) Are the six principles to be utilized new principles?**

*Yes, the six principles that were identified in the draft Guidelines for System Extensions document that was distributed in July were new thoughts. These thoughts have now been incorporated in a broader guideline document entitled System Optimization Guideline. It has been attached for your consideration.*

**4) How do these principles compare to the current policy?**

*The former BOWC policy considered only capital costs associated with new service requests. Management has broadened this idea significantly. The System Optimization Guideline prescribes that staff take a regional view and conduct a family of analyses that cover the tangible, quantifiable and intangible elements of the prospect of adding a customer.*

**5) What have other more well established utilities done?**

*Attached is a memorandum which identifies some examples of utility capital cost sharing for system extensions. In researching other utilities, we have not come across examples of prescribed guidance such as what is being suggested at this time by Management.*

**6) What/ is the impact on our current customer base that may have joined under the old policy?**

*Impacts on current community customers will vary depending on the prospect being considered. As such, the guideline requires a specific analysis for impact to current customers.*

**7) Has the new policy been developed through the Technical Advisory Committee (TAC) already?**

*Customers of the TAC have been polled to gather their input on what considerations are most important. The items that customers considered to be top priorities were folded into the seven specific elements identified in the System Optimization Guideline.*

**8) What policies do OMID, for example, use for new customers?**

*Our understanding that OMID does not have a policy related to new customers rather due to its governance, it has specific requirements regarding how and which communities are to be included in the drainage district as prescribe by the Michigan Drain Code.*

**9) Do we need a consultant to advise us?**

*Management does not believe a consultant is necessary given that it is recommending a broad set of guidelines at this time and decisions will then be made on a case by case basis. Nevertheless, if professional consultation is preferred by the Board, management will pursue that direction.*

**10) Didn't GLWA always want and encourage new customers and seek looping opportunities?**

*Whether or not to encourage or entice new customers to the join the system has been debated by staff and customer communities at different times throughout the years. Looping opportunities have always been good business practice and yes, staff has looked at system extensions for looping opportunities.*

**11) Haven't our new customers typically been at the farthest distance? What has changed?**

*Yes, typically new customers are at the fringes of the system. What has changed is the significant and likely permanent decrease in water consumption by our customers coupled with the loss of large customers in recent years. The 2015 Water Master Plan identified the patterns of water use and the system's significant excess capacity. As such the desire to add customers to the system to increase its use is more urgent today than it was five or ten years ago.*

**12) Are you suggesting we go away from the policy of growth now that we have excess capacity?**

*Yes, management sees the "growth pays for growth" model as too narrow for today's circumstance.*

**13) What about the intent to reduce 1-2 water treatment plants instead?**

*Staff is moving forward with the initiative to decrease capacity by repurposing treatment facilities. Adding customers to the system increases demands and expedites our efforts in finding a balance between capacity and demands and is also good for the long term financial stability of the System.*

**14) How would a change impact our CIP, financial forecast and master plans?**

*Using the guideline, the analyses prescribed would provide detail regarding concurrence with the planning documents as well as the long term financial stability of each prospective new customer on a case by case basis.*

**15) While new customers only add 10% to our costs, this is on a marginal basis and every existing community could make the argument that they only add on 10% costs. Slippery slope concern?**

*Presently staff is not suggesting a change to the model of water or wastewater customer charges. As such, it is not likely that the System Optimization Guideline would lead to the slippery slope concern that was raised. It should be noted that as the repurposing of the Northeast Water Treatment Plant becomes closer to a reality the distance and elevation factors in the charges model will come into question. Staff has been considering how best to engage our customers in a conversation around this topic.*

**16) How would policy change affect communities with model water contracts/favored nation's clause?**

*The answer to this question will be given on a case by case basis as the System Optimization Guideline will require an analysis on the impact to existing customers. Please note that at this time management is not considering making changes to the model service agreement or service charge model.*

**17) How does the change affect those who have recently joined?**

*The answer to this question will be given on a case by case basis as the System Optimization Guideline will require an analysis on the impact to existing customers including those who have recently joined.*

**18) Is the KWA our main competition for processed water?**

*Competition for processed water comes from KWA as well as communities who have their own water well systems or others who will request and receive permission to withdraw water from surface water bodies such as lakes and rivers.*

**19) How do we lock in KWA's most likely new customers into a long-term GLWA deal?**

*Because each individual potential customer is unique in its needs, marketing GLWA drinking water services is not a one-size fits all. As such, a marketing approach would have to be developed. As the Planning Service Area expands its staffing, it is anticipated that a specific focus will be able to be made on marketing water services.*

**20) Is it fair to offer these customers a better deal than our existing communities that have already signed long-term deals with us?**

*At present, management is not considering making a change to the model contract terms or service charge model. As such, the current negotiations with prospective customers contain the same cost elements that exist for current customers. It is however possible that attracting customers that will benefit the system in the long term may require short term special circumstances to entice them into signing a long term contract. Prospects and questions such as this have led management to developing the guideline/analyses approach. This type of broad thinking will provide the latitude to consider such prospects in their entirety at the time their details are known and for Board members to make a decision on a case by case basis considering all the factors.*

**21) How does this policy differ for water vs. sewer customers?**

*It does not.*

**22) Who are our most likely new sewer customers?**

*Most likely new sewer customers exist in the County and OMID's sewer systems as they are on the fringes of the system.*

**23) Do we have sewage over capacity?**

*We have excess dry weather capacity however we are not yet in full compliance with the MDEQ's requirements for treatment of wet weather flow. We have permit requirements that require us to make final decisions regarding our long term strategies for wet weather compliance in the next five years.*

**24) What community representatives responded to the System Expansion Survey? Was it primarily DPW Directors or Finance Directors, City Managers/Mayors?**

*Please find attached the community survey results along with a listing of the people who attended that meeting. They were primarily DPW staff members.*

**25) Is there a plan for potential new customers that would also use the upsized pipe?**

*Long terms planning for new customers beyond our present service district has not yet been undertaken. However, opportunities abound as the economy strengthens.*

**26) What does the rate of return look like for all scenarios when run for 40 years?**

*Because we have not opted to pursue the approach presented in July, staff has not updated the hypothetical examples for a 40-year duration. However, when staff complete the portion of the analyses pertaining to long term financial stability for specific new customers, we will run the rate of return out to year 40.*

**27) What is the incentive for new and existing customers?**

*Incentives vary widely depending on particular community circumstances. Some that are driving communities to inquire today about service include: improved water quality in taste, color and odor; avoided cost for local capital investment in existing water treatment*

*facilities; and avoidance of the need to run small distributed water systems which are subject to increasingly stringent regulations.*

**28) Why was the statement ‘The Customer must have an approved services contract with DWSD (i.e. now GLWA)’ removed from the document?**

*This was removed because of its placement in the document. In the context of the document, the statement was under the section entitled “Criteria for Evaluations of Service Requests”. Staff does not believe that having an approved service contract should be a prerequisite to the evaluation of the prospect. Rather, if the evaluation yields a conclusion that a new service contract is beneficial, GLWA staff would aspire to obtain an approved service contract at the end of the negotiation.*



## Financial Services Group Audit Committee Communication

**Date:** August 5, 2016

**To:** Great Lakes Water Authority Audit Committee

**From:** Jon Wheatley, Public Finance Manager

**Re:** Ordinances to Amend Master Water and Sewer Bond Ordinances

**Background:** On October 7, 2015 the Great Lakes Water Authority (“GLWA”) Board approved and adopted the Master Bond Ordinances (“MBO”) for the water and sewer systems, Ordinance No. 2015-01 and 2015-02, respectively. The proposed amendments to the MBO, included for this committee’s review, are related to

**Analysis:**

The following amendments were identified in both the water and sewer ordinances:

- **Section 101-** Substitution of the definition of “Reserve Requirement”
- **Section 201-** Adds the word Water/Sewer, respectively to designate the DWSD Bonds
- **Section 506-** Adds “Debt Service Account” of the Bond Interest and Redemption Fund
- **Section 519,** Replaces “into the Surplus Fund” with “as provided in Section 506(b)”

**Proposed Action:** Audit Committee recommends that the Great Lakes Water Authority Board approve Ordinance No. 2016-07, Ordinance to Amend Master Bond Ordinance No. 2015-02 and Ordinance No. 2016-06, Ordinance to Amend Master Bond Ordinance No. 2015-01 as presented, at its regular meeting on August 10, 2016.





## GREAT LAKES WATER AUTHORITY

### CHANGES TO GLWA MASTER BOND ORDINANCES

July 29, 2016

## RATIONALE FOR A SPRINGING AMENDMENT TO GLWA MASTER BOND ORDINANCES

In conjunction with the refunding transactions, GLWA will be incorporating a “springing amendment” in both the Water and Sewer bond ordinances related to the Debt Service Reserve Fund (“DSRF”) requirement.

- “Springing amendment” would allow GLWA the *option* to reduce the reserve requirement when:
  - Senior lien rating is in AA category or higher by two rating agencies
  - Confirmation that the reduction in the DSRF will not result in a downgrade
  - 51% of the outstanding bondholders have consented to the provision
    - New bondholders would be consenting to the provision as a part of purchasing bonds
    - 2016 refunding could provide approximately 25% and 50% of consent on the water senior and second lien, respectively, with additional consents received on the new money
    - 2016 refunding could provide approximately 3% and 45% of consent on the sewer senior and second lien, respectively
- Current DSRF requirement at lesser of:
  - Maximum annual debt service
  - 125% average annual debt service
  - 10% of par
  - Average annual debt service (Sewer Second only)
- DSRF provides an extra level of protection for investors
  - Required by investors and rating agencies at GLWA’s current rating levels
  - Not as necessary at higher rating categories

## RATIONALE FOR A SPRINGING AMENDMENT TO GLWA MASTER BOND ORDINANCES (CONT.)

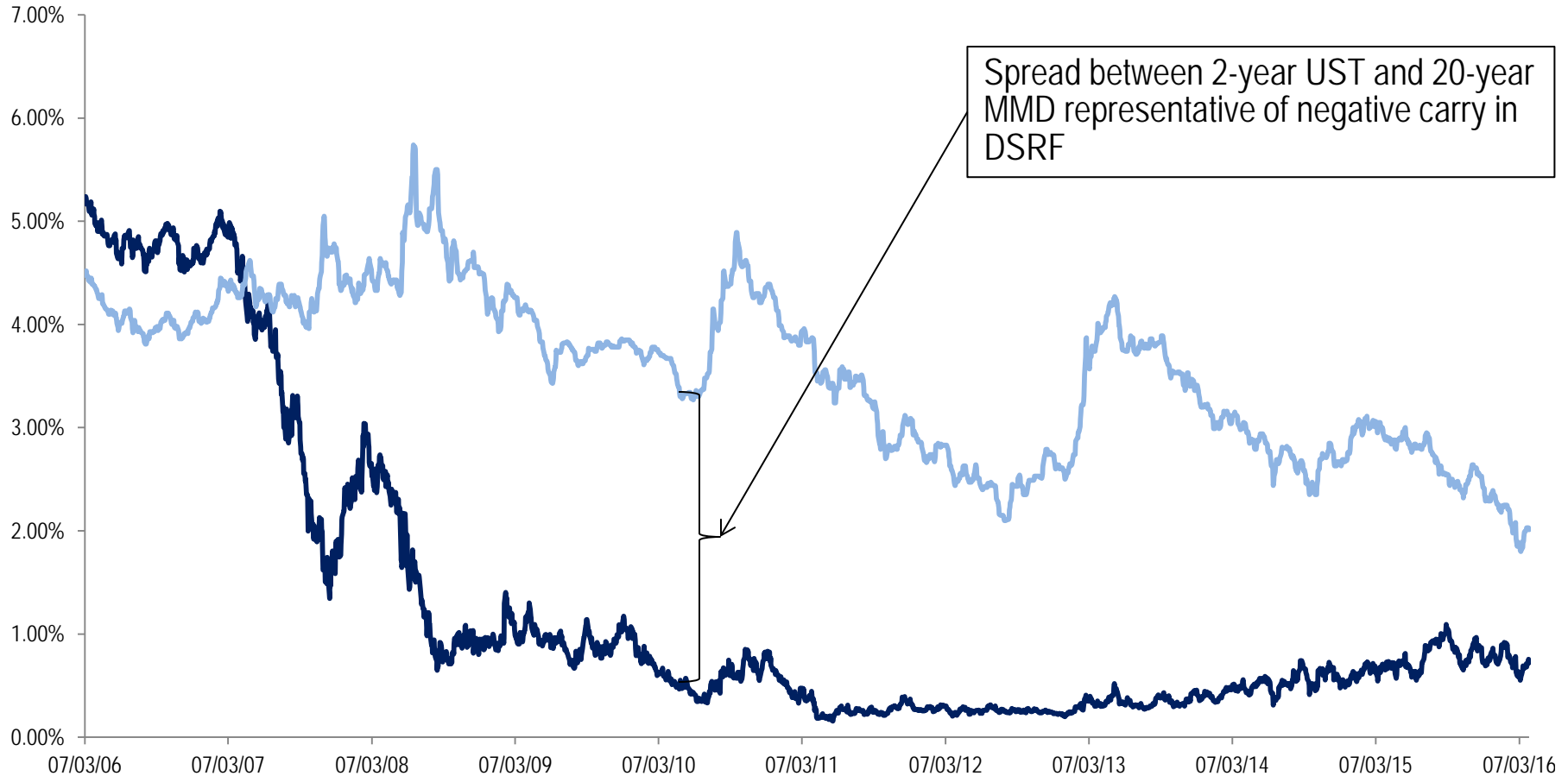
- DSRF historically funded with bond proceeds or with a surety bond by a qualified credit provider
- Cost of maintaining the DSRF is high
  - Interest rates on debt are higher than GLWA can invest the DSRF money (shown on following page)
  - Cost and availability of sureties are more onerous
- Existing sureties are scheduled to begin expiring in 2022, which may require GLWA to put in more cash to the DSRF or fund new surety policies, both at potentially higher costs
- The springing amendments could significantly reduce the cost to GLWA if it obtains AA category ratings

## SIGNIFICANT COST OF DEBT SERVICE RESERVES

2-Year UST Note vs. 20-Year AAA MMD Rates

(July 3, 2006 to July 27, 2016)

— 2-Year UST Note — 20-Year MMD



## SECURITY PROVISIONS FOR COMPARABLE NATIONAL UTILITIES

Issuer	City of Chicago	City of Cleveland	City of Philadelphia	City of Houston
Service Type	Retail sewer	Wholesale/retail water	Wholesale/retail water; Wholesale/retail sewer	Wholesale/retail water; Wholesale/retail sewer
Senior Ratings	Baa2/A+/AA+	Aa1/AA/-	A1/A/A+	Aa2/AA/AA+
Subordinate Ratings	Baa3/A/AA	Aa2/AA/-	-	Aa3/AA-/AA
Annual Operating Revenue (millions)	\$322.2	\$303.4	\$640.0	\$927.4
DSRF Requirement	<ul style="list-style-type: none"> <li>• Three prong test applied to individual senior lien series</li> <li>• Specified for each subordinate lien series; Three prong test DSRF for 2015; No DSRF for 2010, 2012, 2014 series</li> </ul>	<ul style="list-style-type: none"> <li>• Three prong test for those senior lien series that are secured by DSRF; Series 2015 not secured by DSRF</li> <li>• Specified for each subordinate lien series; No DSRF for 2012 series</li> </ul>	<ul style="list-style-type: none"> <li>• MADS for all senior lien</li> </ul>	<ul style="list-style-type: none"> <li>• Specified for each series; No DSRF for 2016B bonds</li> </ul>
Rate Covenant	<ul style="list-style-type: none"> <li>• Senior lien: 1.15x</li> <li>• Subordinate lien: 1.00x</li> </ul>	<ul style="list-style-type: none"> <li>• Senior lien: 1.25x</li> <li>• Greater of 1.25x senior lien or 1.00x senior lien and 1.10x subordinate lien</li> </ul>	<ul style="list-style-type: none"> <li>• Senior lien: 1.20x</li> <li>• Subordinate lien: 1.00x</li> </ul>	<ul style="list-style-type: none"> <li>• Senior lien: 1.20x</li> <li>• Subordinate lien: 1.10x</li> </ul>
Additional Bonds Test	<ul style="list-style-type: none"> <li>• NR for last FY <math>\geq 1.15x</math> senior lien MADS</li> <li>• NR for last FY <math>\geq 1.00x</math> senior lien and subordinate lien MADS</li> </ul>	<ul style="list-style-type: none"> <li>• NR for 12 of last 18 months <math>\geq 1.25x</math> senior lien MADS</li> <li>• Rate covenant met for last FY and next five years</li> </ul>	<ul style="list-style-type: none"> <li>• Rate covenant met using 2-year NR projections</li> <li>• Rate covenant met in prior fiscal year</li> </ul>	<ul style="list-style-type: none"> <li>• Rate covenant met for prior year using senior and subordinate lien MADS (including new issuance)</li> </ul>
SRF Loans	Subordinate lien	Third lien	Senior lien	Senior lien

## SECURITY PROVISIONS FOR COMPARABLE NATIONAL UTILITIES

Issuer	City of San Antonio	Citizens Energy Group (Indianapolis)	District of Columbia Water and Sewer Authority	Metropolitan Government of Nashville & Davidson County
Service Type	Retail water; Wholesale/retail sewer	Wholesale/retail water	Retail water; Wholesale/retail sewer	Retail water; Wholesale/retail sewer
Senior Ratings	Aa1/AA+/AA+	A2/A+/A	Aa1/AAA/AA	Aa2/AA-/-
Subordinate Ratings	Aa2/AA/AA	A3/A/A-	Aa2/AA+/AA-	Aa3/A+/-
Annual Operating Revenue (millions)	\$499.6	\$172.5	\$549.9	\$209.0
DSRF Requirement	<ul style="list-style-type: none"> <li>• MADS for all senior lien</li> <li>• AADS for all subordinate lien, but amendment made in 2012 to eliminate DSRF from future subordinate lien</li> </ul>	<ul style="list-style-type: none"> <li>• Specified for each series; No DSRF for 2014B bonds</li> </ul>	<ul style="list-style-type: none"> <li>• Specified for each series; No DSRF for 2015AB bonds</li> </ul>	<ul style="list-style-type: none"> <li>• Specified for each series; No DSRF for 2015AB bonds</li> </ul>
Rate Covenant	<ul style="list-style-type: none"> <li>• Senior lien: 1.25x</li> <li>• Subordinate lien: 1.00x</li> </ul>	<ul style="list-style-type: none"> <li>• Senior lien: 1.20x (RSF can be used for up to 20% of debt service requirement)</li> <li>• Subordinate lien: 1.10x (after payment of senior DS; RSF can be used for up to 20% of debt service requirement)</li> </ul>	<ul style="list-style-type: none"> <li>• Senior lien: 1.20x</li> <li>• Subordinate lien: 1.00x</li> </ul>	<ul style="list-style-type: none"> <li>• Senior and subordinate lien: 1.20x</li> <li>• All debt: 1.00x</li> </ul>
Additional Bonds Test	<ul style="list-style-type: none"> <li>• NR for 12 of last 18 months <math>\geq 1.25x</math> senior lien MADS</li> <li>• NR for 12 of last 18 months <math>\geq 1.00x</math> senior and subordinate lien MADS</li> </ul>	<ul style="list-style-type: none"> <li>• NR for 12 of last 18 months <math>\geq 1.10x</math> senior lien MADS</li> <li>• NR for last FY or for 12 of last 18 months <math>\geq 1.10x</math> senior and subordinate lien MADS</li> </ul>	<ul style="list-style-type: none"> <li>• Rate covenant met using senior lien MADS with current rates, or rate covenant met using 5-year NR projections</li> <li>• Rate covenant met using next FY's NR for subordinate lien</li> </ul>	<ul style="list-style-type: none"> <li>• NR for 12 of last 24 months <math>\geq 1.20x</math> senior lien and subordinate lien MADS</li> <li>• NR for 12 of last 24 months <math>\geq 1.00x</math> all debt MADS</li> </ul>
SRF Loans	Subordinate lien	None	None	Third lien

## SECURITY PROVISIONS FOR COMPARABLE NATIONAL UTILITIES

Issuer	Pittsburgh Water and Sewer Authority	San Diego
Service Type	Wholesale/retail water; Retail sewer	Wholesale/retail water
Senior Ratings	A2/AA/-	Aa2/-/AA
Subordinate Ratings	-/-	Aa3/-/AA-
Annual Operating Revenue (millions)	\$144.1	\$455.2
DSRF Requirement	<ul style="list-style-type: none"> <li>• MADS for all senior and subordinate lien</li> </ul>	<ul style="list-style-type: none"> <li>• Three prong test for those senior lien series that are secured by DSRF (DSRF for 2009A&amp;B, 2010A Bonds)</li> <li>• Three prong test for those subordinate lien series that are secured by DSRF; No DSRF for 2016A&amp;B Bonds; DSRF for series 2012A</li> </ul>
Rate Covenant	<ul style="list-style-type: none"> <li>• Senior and Subordinate lien: 1.00x or</li> <li>• Senior and Subordinate lien: 1.20x (including fund balance)</li> </ul>	<ul style="list-style-type: none"> <li>• Senior lien: 1.20x</li> <li>• Subordinate lien: 1.00x</li> </ul>
Additional Bonds Test	<ul style="list-style-type: none"> <li>• Rate covenant met for prior year using senior and subordinate lien MADS (including new issuance)</li> </ul>	<ul style="list-style-type: none"> <li>• NR for 12 of last 18 months <math>\geq 1.20x</math> senior lien MADS</li> <li>• NR for last FY or for 12 of last 18 months <math>\geq 1.00x</math> senior and subordinate lien MADS</li> </ul>
SRF Loans	Third lien	Senior & Subordinate liens

**Great Lakes Sewer Authority**

**Resolution 2016-08-03**

**RE: Approval of Ordinance Amending Master Sewer Bond Ordinance**  
**Ordinance 2016-07**

By Board Member: \_\_\_\_\_

**Whereas** There has been presented to the Board of Directors of the Great Lakes Sewer Authority (the “Authority”) an ordinance (the “2016 Second Supplemental Sewer Bond Ordinance”) that amends Master Bond Ordinance No. 2015-02 adopted by the Board of Directors on October 7, 2015, as amended on December 9, 2015 and January 27, 2016 (as amended, the “Master Sewer Bond Ordinance”).

**Whereas** The Articles of Incorporation of the Authority provide that at least 5 of the 6 members of the Authority Board must vote to approve the 2016 Second Supplemental Sewer Bond Ordinance.

**Now, Therefore Be It:**

**Resolved** That the 2016 Second Supplemental Sewer Bond Ordinance, in the form presented to this meeting, is approved and adopted, and the Chairperson and the Secretary are authorized to authenticate the 2016 Second Supplemental Sewer Bond Ordinance in the form approved; **And Be it Further**

**Resolved** That an affirmative vote of at least 5 members of the Authority Board is necessary for the passage of this Resolution.

Adopted by the Great Lakes Sewer Authority Board on: \_\_\_\_\_



GREAT LAKES WATER AUTHORITY

ORDINANCE NO. 2016-07

**AN ORDINANCE TO AMEND MASTER BOND ORDINANCE NO. 2015-02**

WHEREAS, pursuant to Resolution No. 2015-10-03 adopted by the Board of Directors of the Great Lakes Water Authority (the “Authority”) on October 7, 2015, the Authority approved and adopted Master Bond Ordinance No. 2015-02, an ordinance entitled “AN ORDINANCE TO PROVIDE FOR THE ASSUMPTION BY THE GREAT LAKES WATER AUTHORITY OF ALL OF THE OUTSTANDING SEWAGE DISPOSAL SYSTEM REVENUE BONDS AND SEWAGE DISPOSAL SYSTEM REVENUE REFUNDING BONDS ISSUED BY THE CITY OF DETROIT, COUNTY OF WAYNE, STATE OF MICHIGAN; TO PROVIDE FOR THE ACQUISITION, CONSTRUCTION AND EQUIPPING OF IMPROVEMENTS TO THE SEWAGE DISPOSAL SYSTEM OF THE GREAT LAKES WATER AUTHORITY AND THE CITY OF DETROIT; TO PROVIDE FOR THE ISSUANCE AND SALE OF REVENUE BONDS TO PAY THE COSTS THEREOF; TO PROVIDE FOR THE COLLECTION OF REVENUES FROM THE SYSTEM SUFFICIENT FOR THE PURPOSE OF PAYING THE COSTS OF OPERATION AND MAINTENANCE OF THE SYSTEM AND TO PAY THE PRINCIPAL OF AND INTEREST ON THE BONDS; TO PROVIDE FOR THE SEGREGATION AND DISTRIBUTION OF THE REVENUES; TO PROVIDE FOR THE RIGHTS OF THE HOLDERS OF THE BONDS AND THE ENFORCEMENT THEREOF; AND TO PROVIDE FOR OTHER MATTERS RELATING TO THE BONDS AND THE SYSTEM” (such ordinance as amended by Ordinance No. 2015-04 and Ordinance No. 2016-02 referred to in the next two recitals is hereinafter referred to as the “Master Sewer Bond Ordinance”); and

WHEREAS, pursuant to Resolution No. 2015-12-09 adopted by the Board of Directors of the Authority on December 9, 2015, the Authority approved and adopted Ordinance No. 2015-04, which made certain amendments to Master Bond Ordinance No. 2015-02; and

WHEREAS, pursuant to Resolution No. 2016-01-03 adopted by the Board of Directors of the Authority on January 27, 2016, the Authority approved and adopted Ordinance No. 2016-02, which made certain further amendments to Master Bond Ordinance No. 2015-02; and

WHEREAS, it is necessary to amend further the Master Sewer Bond Ordinance as hereinafter provided.

NOW, THEREFORE, BE IT ORDAINED BY THE BOARD OF DIRECTORS OF THE GREAT LAKES WATER AUTHORITY AS FOLLOWS:

Section 101. Authority for this Supplemental Ordinance. This Supplemental Ordinance (the “2016 Second Supplemental Ordinance”) is adopted pursuant to Section 1102(7) of the Master Sewer Bond Ordinance.

Section 102. Definitions. Except as otherwise provided in this 2016 Second Supplemental Ordinance, all terms which are defined in Section 101 of the Master Sewer Bond Ordinance shall have the same meanings, respectively, in this 2016 Second Supplemental Ordinance as such terms are given in the Master Sewer Bond Ordinance.

Section 103. Amendments to Section 101 of the Master Sewer Bond Ordinance.

(a) The following is substituted for and in the place of the definition of “Bond Reserve Account” in Section 101 of the Master Sewer Bond Ordinance:

“ ‘Bond Reserve Account’ or ‘Reserve Account’ means collectively, the Senior Lien Bond Reserve Account and the Second Lien Bond Reserve Account Fund created pursuant to Section 502(a).”

(b) The following is substituted for and in the place of the definition of “Reserve Requirement” in Section 101 of the Master Sewer Bond Ordinance:

“ ‘Reserve Requirement’ means, except as otherwise provided with respect to a particular Series of Bonds in the applicable Series Ordinance pursuant to Section 506(d), an amount equal to the Maximum Annual Debt Service requirements for each Series of Outstanding Senior Lien Bonds, which amount is required to be on deposit or, if permitted by law, otherwise provided for (including, but not limited to, through provision of a letter of credit, surety bond or insurance policy in the same amount and with a credit rating at the time of issuance of such Series of Bonds not less than the credit rating on such Series of Bonds) in the Senior Lien Bond Reserve Account; provided, however, that such requirement may be satisfied by a deposit of Bond proceeds at the time of issuance of a Series of Senior Lien Bonds, or by an accumulation on a scheduled basis of investment earnings or other deposits which will result in an amount equal to the Reserve Requirement for such Series of Bonds being on deposit no later than the date of the last scheduled application of all capitalized interest for such Series; provided, further, that with respect to a Series of Senior Lien Bonds which are proposed to be issued as Variable Rate Bonds, the Reserve Requirement shall be calculated utilizing the assumptions set forth under subparagraph (iii) of the definition of Debt Service; and provided that in no event shall the Reserve Requirement exceed the maximum permitted by the Code. Any Reserve Requirement with respect to one or more Series of Junior Lien Bonds shall be established by the related Series Ordinance, and if no amount is established therein, the Reserve Requirement shall be based on the average annual Debt Service requirement.”

Section 104. Amendment to Section 201 of the Master Sewer Bond Ordinance. (a) The following is substituted for and in the place of Section 201(a) and (b) of the Master Sewer Bond Ordinance:

“(a) It is hereby determined to be a necessary public purpose for the Authority to replace the City as the obligor on the DWSD Sewer Bonds and assume all of the obligations of the City related to the operation, administration and maintenance of the Regional Sewer System.

(b) To facilitate the assignment to and the assumption of the DWSD Sewer Bonds by the Authority, and the issuance of Additional Bonds by the Authority, it is also determined to be a necessary public purpose of the Authority for this Ordinance to amend, restate and supersede the

provisions of Ordinance No. 18-01 and the Indenture and to incorporate certain provisions thereof into this Ordinance as provided herein.”

Section 105. Amendment to Section 506 of the Master Sewer Bond Ordinance. The following is substituted for and in the place of Section 506(b) of the Master Sewer Bond Ordinance:

“(b) Following the annual valuation as provided in Section 519, if the amount then on deposit in or credited to a Reserve Account exceeds the Reserve Requirement for such Reserve Account, the amount of such excess shall be transferred by the Trustee into the Debt Service Account of the Bond Interest and Redemption Fund to which such Reserve Account relates if the Reserve Account was funded from proceeds of related Bonds, and if not, then to the Receiving Fund upon the direction of the Authority.”

Section 106. Amendment to Section 519 of the Master Sewer Bond Ordinance. The following is substituted for and in the place of Section 519(a) of the Master Sewer Bond Ordinance:

“(a) Investments credited to any Reserve Account shall be valued at least annually on each July 1, unless otherwise specified in the Series Ordinance providing for the issuance of such Bonds, at the market value thereof. Any funds on deposit in a Reserve Account on or as of such valuation date in excess of the Reserve Requirement shall be transferred by the Trustee as provided in Section 506(b). Any deficit in a Reserve Account shall be restored by the Trustee at the beginning of the next succeeding Fiscal Year with Funds on deposit in the Receiving Fund and Surplus Fund, in that order.”

Section 107. Publication and Recordation. This 2016 Second Supplemental Ordinance shall be published in full in the Detroit Legal News, a newspaper of general circulation within the geographic boundaries of the Authority qualified under State law to publish legal notices, promptly after its adoption, and shall be maintained in the official records of the Authority and such recording authenticated by the signatures of the Chairperson and Secretary of the Authority Board.

Section 108. Repeal. All ordinances, resolutions, indentures or orders, or parts thereof, in conflict with the provisions of this 2016 Second Supplemental Ordinance are, to the extent of such conflict, repealed.

Section 109. Effective Date. This 2016 Second Supplemental Ordinance shall be effective as of the Effective Date.

Adopted and signed on the 10<sup>th</sup> day of August, 2016.

GREAT LAKES WATER AUTHORITY

Signed \_\_\_\_\_  
Chairperson

Signed \_\_\_\_\_  
Secretary

Troy 63818-2 1651684v3

**Great Lakes Water Authority**  
**Resolution 2016-08-02**  
**RE: Approval of Ordinance Amending Master Water Bond Ordinance**  
**Ordinance 2016-06**

By Board Member: \_\_\_\_\_

**Whereas** There has been presented to the Board of Directors of the Great Lakes Water Authority (the “Authority”) an ordinance (the “2016 Second Supplemental Water Bond Ordinance”) that amends Master Bond Ordinance No. 2015-01 adopted by the Board of Directors on October 7, 2015, as amended on December 9, 2015 and January 27, 2016 (as amended, the “Master Water Bond Ordinance”).

**Whereas** The Articles of Incorporation of the Authority provide that at least 5 of the 6 members of the Authority Board must vote to approve the 2016 Second Supplemental Water Bond Ordinance.

**Now, Therefore Be It:**

**Resolved** That the 2016 Second Supplemental Water Bond Ordinance, in the form presented to this meeting, is approved and adopted, and the Chairperson and the Secretary are authorized to authenticate the 2016 Second Supplemental Water Bond Ordinance in the form approved; **And Be it Further**

**Resolved** That an affirmative vote of at least 5 members of the Authority Board is necessary for the passage of this Resolution.

Adopted by the Great Lakes Water Authority Board on: \_\_\_\_\_

GREAT LAKES WATER AUTHORITY

ORDINANCE NO. 2016-06

**AN ORDINANCE TO AMEND MASTER BOND ORDINANCE NO. 2015-01**

WHEREAS, pursuant to Resolution No. 2015-10-02 adopted by the Board of Directors of the Great Lakes Water Authority (the “Authority”) on October 7, 2015, the Authority approved and adopted Master Bond Ordinance No. 2015-01, an ordinance entitled “AN ORDINANCE TO PROVIDE FOR THE ASSUMPTION BY THE GREAT LAKES WATER AUTHORITY OF ALL OF THE OUTSTANDING WATER SUPPLY SYSTEM REVENUE BONDS AND WATER SUPPLY SYSTEM REVENUE REFUNDING BONDS ISSUED BY THE CITY OF DETROIT, COUNTY OF WAYNE, STATE OF MICHIGAN; TO PROVIDE FOR THE ACQUISITION, CONSTRUCTION AND EQUIPPING OF IMPROVEMENTS TO THE WATER SUPPLY SYSTEM OF THE GREAT LAKES WATER AUTHORITY AND THE CITY OF DETROIT; TO PROVIDE FOR THE ISSUANCE AND SALE OF REVENUE BONDS TO PAY THE COSTS THEREOF; TO PROVIDE FOR THE COLLECTION OF REVENUES FROM THE SYSTEM SUFFICIENT FOR THE PURPOSE OF PAYING THE COSTS OF OPERATION AND MAINTENANCE OF THE SYSTEM AND TO PAY THE PRINCIPAL OF AND INTEREST ON THE BONDS; TO PROVIDE FOR THE SEGREGATION AND DISTRIBUTION OF THE REVENUES; TO PROVIDE FOR THE RIGHTS OF THE HOLDERS OF THE BONDS AND THE ENFORCEMENT THEREOF; AND TO PROVIDE FOR OTHER MATTERS RELATING TO THE BONDS AND THE SYSTEM” (such ordinance as amended by Ordinance No. 2015-03 and Ordinance No. 2016-01 referred to in the next two recitals is hereinafter referred to as the “Master Water Bond Ordinance”); and

WHEREAS, pursuant to Resolution No. 2015-12-08 adopted by the Board of Directors of the Authority on December 9, 2015, the Authority approved and adopted Ordinance No. 2015-03, which made certain amendments to Master Bond Ordinance No. 2015-01; and

WHEREAS, pursuant to Resolution No. 2016-01-02 adopted by the Board of Directors of the Authority on January 27, 2016, the Authority approved and adopted Ordinance No. 2016-01, which made certain further amendments to Master Bond Ordinance No. 2015-01; and

WHEREAS, it is necessary to amend further the Master Water Bond Ordinance as hereinafter provided.

NOW, THEREFORE, BE IT ORDAINED BY THE BOARD OF DIRECTORS OF THE GREAT LAKES WATER AUTHORITY AS FOLLOWS:

Section 101. Authority for this Supplemental Ordinance. This Supplemental Ordinance (the “2016 Second Supplemental Ordinance”) is adopted pursuant to Section 1102(7) of the Master Water Bond Ordinance.

Section 102. Definitions. Except as otherwise provided in this 2016 Second Supplemental Ordinance, all terms which are defined in Section 101 of the Master Water Bond Ordinance shall have the same meanings, respectively, in this 2016 Second Supplemental Ordinance as such terms are given in the Master Water Bond Ordinance.

Section 103. Amendments to Section 101 of the Master Water Bond Ordinance.

(a) The following is substituted for and in the place of the definition of “Bond Reserve Account” in Section 101 of the Master Water Bond Ordinance:

“ ‘Bond Reserve Account’ or ‘Reserve Account’ means collectively, the Senior Lien Bond Reserve Account and the Second Lien Bond Reserve Account Fund created pursuant to Section 502(a).”

(b) The following is substituted for and in the place of the definition of “Reserve Requirement” in Section 101 of the Master Water Bond Ordinance:

“ ‘Reserve Requirement’ means, except as otherwise provided with respect to a particular Series of Bonds in the applicable Series Ordinance pursuant to Section 506(d), an amount equal to the Maximum Annual Debt Service requirements for each Series of Outstanding Senior Lien Bonds, which amount is required to be on deposit or, if permitted by law, otherwise provided for (including, but not limited to, through provision of a letter of credit, surety bond or insurance policy in the same amount and with a credit rating at the time of issuance of such Series of Bonds not less than the credit rating on such Series of Bonds) in the Senior Lien Bond Reserve Account; provided, however, that such requirement may be satisfied by a deposit of Bond proceeds at the time of issuance of a Series of Senior Lien Bonds, or by an accumulation on a scheduled basis of investment earnings or other deposits which will result in an amount equal to the Reserve Requirement for such Series of Bonds being on deposit no later than the date of the last scheduled application of all capitalized interest for such Series; provided, further, that with respect to a Series of Senior Lien Bonds which are proposed to be issued as Variable Rate Bonds, the Reserve Requirement shall be calculated utilizing the assumptions set forth under subparagraph (iii) of the definition of Debt Service; and provided that in no event shall the Reserve Requirement exceed the maximum permitted by the Code. Any Reserve Requirement with respect to one or more Series of Junior Lien Bonds shall be established by the related Series Ordinance, and if no amount is established therein, the Reserve Requirement shall be based on the Maximum Annual Debt Service requirement.”

Section 104. Amendment to Section 201 of the Master Water Bond Ordinance. (a) The following is substituted for and in the place of Section 201(a) and (b) of the Master Water Bond Ordinance:

“(a) It is hereby determined to be a necessary public purpose for the Authority to replace the City as the obligor on the DWSD Water Bonds and assume all of the obligations of the City related to the operation, administration and maintenance of the Regional Water System.

(b) To facilitate the assignment to and the assumption of the DWSD Water Bonds by the Authority, and the issuance of Additional Bonds by the Authority, it is also determined to be a necessary public purpose of the Authority for this Ordinance to amend, restate and supersede the

provisions of Ordinance No. 01-05 and the Indenture and to incorporate certain provisions thereof into this Ordinance as provided herein.”

Section 105. Amendment to Section 506 of the Master Water Bond Ordinance. The following is substituted for and in the place of Section 506(b) of the Master Water Bond Ordinance:

“(b) Following the annual valuation as provided in Section 519, if the amount then on deposit in or credited to a Reserve Account exceeds the Reserve Requirement for such Reserve Account, the amount of such excess shall be transferred by the Trustee into the Debt Service Account of the Bond Interest and Redemption Fund to which such Reserve Account relates if the Reserve Account was funded from proceeds of related Bonds, and if not, then to the Receiving Fund upon the direction of the Authority.”

Section 106. Amendment to Section 519 of the Master Water Bond Ordinance. The following is substituted for and in the place of Section 519(a) of the Master Water Bond Ordinance:

“(a) Investments credited to any Reserve Account shall be valued at least annually on each July 1, unless otherwise specified in the Series Ordinance providing for the issuance of such Bonds, at the market value thereof. Any funds on deposit in a Reserve Account on or as of such valuation date in excess of the Reserve Requirement shall be transferred by the Trustee as provided in Section 506(b). Any deficit in a Reserve Account shall be restored by the Trustee at the beginning of the next succeeding Fiscal Year with Funds on deposit in the Receiving Fund and Surplus Fund, in that order.”

Section 107. Publication and Recordation. This 2016 Second Supplemental Ordinance shall be published in full in the Detroit Legal News, a newspaper of general circulation within the geographic boundaries of the Authority qualified under State law to publish legal notices, promptly after its adoption, and shall be maintained in the official records of the Authority and such recording authenticated by the signatures of the Chairperson and Secretary of the Authority Board.

Section 108. Repeal. All ordinances, resolutions, indentures or orders, or parts thereof, in conflict with the provisions of this 2016 Second Supplemental Ordinance are, to the extent of such conflict, repealed.

Section 109. Effective Date. This 2016 Second Supplemental Ordinance shall be effective as of the Effective Date.

Adopted and signed on the 10<sup>th</sup> day of August, 2016.



GREAT LAKES WATER AUTHORITY

Signed \_\_\_\_\_  
Chairperson

Signed \_\_\_\_\_  
Secretary

Troy 63818-2 1651612v4



## Financial Services Group Audit Committee Communication

**Date:** August 5, 2016

**To:** Great Lakes Water Authority Audit Committee

**From:** Jon Wheatley, Public Finance Manager

**Re:** Resolution Regarding Approval of Series Ordinance Authorizing Issuance and Sale of Sewage Disposal System Revenue Refunding Bonds an Amount Not to Exceed \$600,000,000 (Ordinance 2016-09)

**Background:** In order for the Great Lakes Water Authority ("GLWA") to proceed with the refunding of various sewer outstanding bonds for the purpose of achieving annual debt service savings, the GLWA Board must approve the included resolution approving the Series Ordinance. There is not new money as part of this sewer refunding bond issue.

The Series Ordinance sets forth the guidelines for the Refunding Bonds and authorizes the Chief Executive Officer of the Chief Financial Officer to execute the final terms of the Bonds, paying issuance costs and signing of the Bond Purchase Agreement, within the parameters set forth in the Series Ordinance. The final par amount of the Refunding Bonds will be determined at the time of pricing and is based on current bond market pricing levels, issuance costs and the par amount of the bonds to be refunded as determined by the savings level achieved. *While the approval of the resolution gives GLWA the authorization to issue refunding bonds, GLWA does not have to proceed with the refunding if market conditions become less favorable when it comes time to price the bonds.*

**Key Provisions:** Includes the following.

- Not to Exceed Par Amount: \$600 million
- Maximum Coupon Rate: 5.75%
- Minimum Purchase Price: 99% of principal amount of bonds
- Maximum Underwriter Discount: 0.35% of principal amount of bonds
- Present Value Savings: Equal to or greater than 7.00% of principal amount of bonds to be refunded

**Additional Provisions:** New to the Sewer Series Ordinance No. 2016-09 is Section 21-*Amendments to Ordinance*. As noted on page 20, this section provides for a “springing amendment” dealing with the ability of GLWA to reduce or eliminate the bond reserve requirement for the senior lien bonds when at least 2 of the 3 national rating agencies rate the senior lien bonds in the AA category, provided that the reduction in the reserve requirement would not negatively affect the outstanding ratings. The amendments will become effective upon the deemed consent of at least 51% of the holders of the outstanding senior lien bonds. GLWA will add this springing amendment to each future series ordinance to obtain the 51% consent level.

The reduction or elimination of the bond reserve requirement would free up some or all of the cash in those funds (currently about \$89.3 million combined senior and second lien reserves) that can be transferred to the Receiving Fund or the Surplus Fund, as directed by GLWA.

**Proposed Action:** Audit Committee recommends that the Great Lakes Water Authority Board approve the resolution Approval of Series Ordinance Authorizing Issuance and Sale of Sewage Disposal System Revenue Refunding Bonds an Amount Not to Exceed \$600,000,000 as presented, at its regular meeting on August 10, 2016.

**Great Lakes Water Authority**

**Resolution 2016-08-05**

**RE: Approval of Series Ordinance Authorizing Issuance and Sale of Sewage Disposal  
System Revenue Refunding Bonds in an Amount not to Exceed \$600,000,000  
Ordinance 2016-09**

By Board Member: \_\_\_\_\_

**Whereas** There has been presented to the Board of Directors of the Great Lakes Water Authority (the “Authority”) an ordinance entitled “Series Ordinance Authorizing the Issuance and Sale of Sewage Disposal System Revenue Refunding Bonds in an Amount not to Exceed \$600,000,000” (the “2016 Sewer Series Ordinance”), which ordinance is a Series Ordinance as defined and described in Master Bond Ordinance No. 2015-02 adopted by the Board of Directors on October 7, 2015, as amended on December 9, 2015, January 27, 2016 and August 10, 2016 (as amended, the “Master Water Bond Ordinance”).

**Whereas** The Articles of Incorporation of the Authority provide that at least 5 of the 6 members of the Authority Board must vote to approve the 2016 Sewer Series Ordinance.

**Now, Therefore Be It:**

**Resolved** That the 2016 Sewer Series Ordinance, in the form presented to this meeting, is approved and adopted, and the Chairperson and the Secretary are authorized to authenticate the 2016 Sewer Series Ordinance in the form approved; **And Be it Further**

**Resolved** That an affirmative vote of at least 5 members of the Authority Board is necessary for the passage of this Resolution.

Adopted by the Great Lakes Water Authority Board on: \_\_\_\_\_

GREAT LAKES WATER AUTHORITY  
ORDINANCE NO. 2016-09

**SERIES ORDINANCE AUTHORIZING ISSUANCE AND SALE OF  
SEWAGE DISPOSAL SYSTEM REVENUE REFUNDING BONDS  
IN A PRINCIPAL AMOUNT NOT TO EXCEED \$600,000,000**

WHEREAS, pursuant to Resolution No. 2015-10-03 adopted by the Board of Directors of the Great Lakes Water Authority (the “Authority”) on October 7, 2015, the Authority Board approved and adopted Master Bond Ordinance No. 2015-02 (as subsequently amended through the date hereof, the “Ordinance”), which authorizes the issuance by the Authority of Sewage Disposal System Revenue Bonds; and

WHEREAS, the Ordinance authorizes the issuance of such Sewage Disposal System Revenue Bonds in one or more Series pursuant to a Series Ordinance authorizing the issuance and sale of such Series; and

WHEREAS, the Authority Board has determined that it is necessary to authorize at this time one or more Series of Bonds (the “2016 Refunding Bonds”) to provide moneys to refund a portion of the Outstanding DWSD Sewer Bonds (the “Bonds To Be Refunded”) and cause the Bonds To Be Refunded to be defeased in accordance with the Ordinance.

NOW, THEREFORE, BE IT ORDAINED BY THE BOARD OF DIRECTORS OF THE GREAT LAKES WATER AUTHORITY AS FOLLOWS:

Section 1. Authority for this Series Ordinance. This Series Ordinance (the “2016 Series Ordinance”) is adopted pursuant to Section 1102(1) of the Ordinance.

Section 2. Definitions. Except as otherwise provided in this 2016 Series Ordinance, all terms which are defined in Section 101 of the Ordinance shall have the same meanings, respectively, in this 2016 Series Ordinance as such terms are given in the Ordinance. In addition, the following terms shall have the following meanings unless the context shall clearly indicate some other meaning:

(a) “2016 Refunding Bonds” means the Bonds authorized by Section 3 of this 2016 Series Ordinance.”

(b) “2016 Reserve Requirement” means the sum of the 2016 Senior Lien Reserve Requirement and the 2016 Second Lien Reserve Requirement.

(c) “2016 Second Lien Refunding Bonds” means those 2016 Refunding Bonds, if any, issued as Second Lien Bonds as provided in this 2016 Series Ordinance.

(d) “2016 Second Lien Reserve Requirement” means such amount, if any, as is determined in the Sale Order to be the amount necessary to make the amount on deposit in the Second Lien Bond Reserve Account at least equal to the Reserve Requirement for the Second Lien Bond Reserve Account immediately upon the issuance of the 2016 Second Lien Refunding Bonds

after taking into consideration such provision as is made for the Reserve Requirement from proceeds of the 2016 Second Lien Refunding Bonds and other funds and Credit Facilities on deposit or to be deposited in the Second Lien Bond Reserve Account.

(e) “2016 Senior Lien Refunding Bonds” means those 2016 Refunding Bonds, if any, issued as Senior Lien Bonds as provided in this 2016 Series Ordinance.

(f) “2016 Senior Lien Reserve Requirement” means such amount, if any, as is determined in the Sale Order to be the amount necessary to make the amount on deposit in the Senior Lien Bond Reserve Account at least equal to the Reserve Requirement for the Senior Lien Bond Reserve Account immediately upon the issuance of the 2016 Senior Lien Refunding Bonds after taking into consideration such provision as is made for the Reserve Requirement from proceeds of the 2016 Senior Lien Refunding Bonds and other funds and Credit Facilities on deposit or to be deposited in the Senior Lien Bond Reserve Account.

(g) “Authorized Denomination” any denomination as determined by an Authorized Officer in the Sale Order.

(h) “Authorized Officer” means either the Chief Executive Officer or the Chief Financial Officer.

(i) “Continuing Disclosure Undertaking” means the continuing disclosure undertaking or undertakings with respect to the 2016 Refunding Bonds to be entered into by the Authority pursuant to the Rule.

(j) “Escrow Agreement” shall have the meaning set forth in Section 10 of this 2016 Series Ordinance.

(k) “Escrow Deposit” means cash or Government Obligations, or a combination of cash and Government Obligations, at least sufficient to discharge the lien of the Pledged Assets securing the Bonds To Be Refunded in accordance with Section 1001 of the Ordinance.

(l) “Fitch” means Fitch Ratings, Inc., and any successor rating agency.

(m) “Interest Payment Date” means except as otherwise determined in the Sale Order each January 1 and July 1, or such other dates and commencing as set forth in the Sale Order.

(n) “Maturity Date” means such dates of maturity of the 2016 Refunding Bonds as determined in the Sale Order.

(o) “Moody’s” means Moody’s Investors Service, Inc., and any successor rating agency.

(p) “Official Statement” means the final disclosure document with respect to the 2016 Refunding Bonds.

(q) “Person” means any natural person, association, corporation, trust, partnership, joint venture, joint-stock company, municipal corporation, public body or other entity, however organized.

(r) “Preliminary Official Statement” means the preliminary disclosure document with respect to the 2016 Refunding Bonds.

(s) “Purchase Agreement” means the bond purchase agreement between the Authority and the Underwriter providing for the sale of the 2016 Refunding Bonds.

(t) “Refunding Costs” means the costs of refunding the Bonds To Be Refunded, including, to the extent authorized in the Sale Order, the amount of the Escrow Deposit, and funding the 2016 Reserve Requirement and Issuance Costs.

(u) “Regular Record Date” means the fifteenth day of the calendar month immediately preceding an Interest Payment Date.

(v) “Rule” means Rule 15c2-12 promulgated by the United States Securities and Exchange Commission under the Securities and Exchange Act of 1934, as amended.

(w) “S&P” means S&P Global Ratings, and any successor rating agency.

(x) “Sale Order” means any one or more Sale Orders of an Authorized Officer authorizing acts consistent with the Ordinance and this 2016 Series Ordinance necessary and appropriate to complete the sale, execution and delivery of the 2016 Refunding Bonds and to complete the other transactions contemplated herein.

(y) “Securities Depository” means (i) The Depository Trust Company and its successors and assigns, if any, or (ii) any other securities depository which agrees to follow the procedures required to be followed by a securities depository in connection with the 2016 Refunding Bonds and which is selected by the Authority as provided in Section 6.

(z) “Taxable 2016 Refunding Bonds” means any 2016 Refunding Bonds other than Tax-Exempt 2016 Refunding Bonds.

(aa) “Tax-Exempt 2016 Refunding Bonds” means any 2016 Refunding Bonds that are Tax-Exempt Bonds.

(bb) “Underwriter” means Citigroup Global Markets Inc., on behalf of itself and such underwriters as may be named in the Purchase Agreement.

### Section 3. Authorization of 2016 Refunding Bonds.

(a) Authorization of Borrowing. The Authority may borrow an aggregate principal amount not in excess of \$600,000,000, as is finally determined in the Sale Order, and issue 2016 Refunding Bonds at one or more times and in one or more Series, all to evidence such borrowing pursuant to Act 233, Act 94 and the Ordinance, as 2016 Senior Lien Refunding Bonds and/or 2016 Second Lien Refunding Bonds, all as finally determined in the Sale Order.

(b) Purpose of 2016 Refunding Bonds. The 2016 Refunding Bonds shall be issued as Additional Bonds for the purpose of refunding the Bonds To Be Refunded and paying, reimbursing and/or funding Refunding Costs.

(c) Limitation on Issuance of 2016 Refunding Bonds. No 2016 Refunding Bonds shall be issued unless:

- (1) The proceeds thereof (exclusive of accrued interest), together with other moneys available to the Authority under the Ordinance, are sufficient to provide the Escrow Deposit after payment of the Issuance Costs set forth in the Sale Order.
- (2) Concurrently with or prior to the delivery of the 2016 Refunding Bonds, an Authorized Officer gives notice to the Trustee to call for redemption at the applicable redemption price all of the Bonds To Be Refunded on the dates set forth in the Escrow Agreement. In such notice, an Authorized Officer may direct that the notice of redemption to be given by the Trustee to the Holders of the Bonds To Be Refunded pursuant to Section 303 of the Ordinance shall be given prior to the delivery of the 2016 Refunding Bonds and that such notice of redemption be conditioned upon the delivery of the 2016 Refunding Bonds and the funding of the Escrow Deposit. As provided in Section 303 of the Ordinance, if such conditions in the notice of redemption are not satisfied on or before the date fixed for redemption, then the notice of redemption shall be canceled and of no further force or effect.

(d) Priority of Lien. The 2016 Refunding Bonds shall be issued as Senior Lien Bonds and/or Junior Lien Bonds, as set forth in the Sale Order.

(e) Separate Series. The 2016 Refunding Bonds are issuable at one or more times and as one or more separate Series of Bonds in such amounts as determined in the Sale Order.

(f) Taxable and Tax-Exempt 2016 Refunding Bonds. The 2016 Refunding Bonds may be issued as Taxable 2016 Refunding Bonds or Tax-Exempt 2016 Refunding Bonds, or as separate Series of both, as determined in the Sale Order.

(g) Source of Payment and Security. The 2016 Refunding Bonds shall be payable and secured as provided in Section 5.

(h) Applicability of Ordinance. Except as otherwise provided in this 2016 Series Ordinance or the Sale Order, all of the provisions of the Ordinance shall apply to the 2016 Refunding Bonds as if set forth in full in this 2016 Series Ordinance, the purpose of this 2016 Series Ordinance being to supplement the Ordinance to authorize the issuance of 2016 Refunding Bonds for the purposes set forth herein.

#### Section 4. 2016 Refunding Bond Details.

(a) Designation.



- (1) The 2016 Refunding Bonds shall bear the designations Sewage Disposal System Revenue Refunding [Senior Lien] [Second Lien] Bonds, Series 2016A [B/C] and shall include the Series designation and such other designations, including, without limitation, designations for multiple Series or subseries, as determined by an Authorized Officer as shall be set forth in the Sale Order and not inconsistent with the Ordinance or this 2016 Series Ordinance.
- (2) If the 2016 Refunding Bonds are not issued in 2016, an Authorized Officer is authorized in her discretion to re-designate the year and Series designation of the 2016 Refunding Bonds and the various funds and accounts established hereunder to correspond with the year of issuance of the 2016 Refunding Bonds. Furthermore, an Authorized Officer is authorized to establish designations within the various funds and accounts established hereunder if necessary in order to differentiate such funds and accounts from other similarly named funds and accounts related to other Bonds.

(b) Numbering. 2016 Refunding Bonds shall be numbered in such manner as shall be determined in the Sale Order.

(c) Principal. 2016 Refunding Bonds shall be issued in the form of Serial Bonds or Term Bonds, or any combination of Serial Bonds and Term Bonds, in any Authorized Denomination, and the principal thereof shall mature on July 1, or such other date as set forth in a Sale Order, in such years and amounts, and shall be or not be subject to redemption prior to maturity, all as shall be determined in the Sale Order subject to the following limitations:

- (1) No 2016 Refunding Bonds shall mature later than 40 years after the date of issuance thereof.
- (2) 2016 Refunding Bonds shall only be issued with principal and interest installments permitted by the Ordinance, including Section 207 thereof.

(d) Interest. 2016 Refunding Bonds or portions thereof shall bear interest at such fixed rate or rates as determined in the Sale Order not in excess of the maximum rate permitted by law. Interest on 2016 Refunding Bonds shall be payable on each Interest Payment Date.

(e) Payment of Principal and Interest. The principal of, premium, if any, and interest on the 2016 Refunding Bonds shall be payable in lawful money of the United States. The principal of and premium, if any, on the 2016 Refunding Bonds are payable upon the surrender thereof at the corporate trust office of the Trustee and the interest is payable by check or draft drawn on the Trustee and mailed to the registered owners as of the immediately preceding Regular Record Date at their address shown on the registration books of the Authority maintained by the Trustee.

(f) Dating. The 2016 Refunding Bonds shall be dated such date or dates as determined in the Sale Order.

(g) Reserve Requirement. The 2016 Reserve Requirement, if any, with respect to each Series of the 2016 Refunding Bonds shall be satisfied by a deposit into the appropriate Bond Reserve Account of a portion of the proceeds of such Series of 2016 Refunding Bonds, funds already on deposit in the appropriate Bond Reserve Account or the provision of a Credit Facility in the same amount and with a credit rating at the time of issuance of such Series of 2016 Refunding Bonds not less than the credit rating of such Series of 2016 Refunding Bonds, or any combination of the foregoing. The amounts, if any, required to be deposited in the Senior Lien Bond Reserve Account and the Second Lien Bond Reserve Account to cause the amounts on deposit therein to be at least equal to the Reserve Requirement for the Senior Lien Bonds and the Reserve Requirement for the Second Lien Bonds, respectively, shall be set forth in the Sale Order.

(h) Exchange. The registered owner of any 2016 Refunding Bond may exchange such 2016 Refunding Bond for a new 2016 Refunding Bond or Bonds of the same Series, interest rate, maturity and Priority of Lien in an equal aggregate principal amount in one or more of the Authorized Denominations by surrendering such 2016 Refunding Bond to be exchanged at the designated office of the Trustee together with an assignment duly executed by the registered owner thereof or his attorney or legal representative in such form as shall be satisfactory to the Trustee. As provided in Section 206 of the Ordinance, the Trustee shall be responsible for the registration, transfer and exchange of 2016 Refunding Bonds and shall indicate its acceptance of such duties by a document filed with an Authorized Officer concurrently with the delivery of the 2016 Refunding Bonds.

(i) Execution and Delivery of 2016 Refunding Bonds. The 2016 Refunding Bonds shall be executed in the name of the Authority by manual or facsimile signature of the Chief Executive Officer of the Authority and countersigned by the manual or facsimile signature of the Secretary of the Authority Board, and shall have the Authority's seal, or facsimile thereof, affixed or printed thereon. The Chief Financial Officer is authorized to deliver the 2016 Refunding Bonds to the Underwriter upon receiving the purchase price therefor in lawful money of the United States.

(j) Form of 2016 Refunding Bonds. The 2016 Refunding Bonds shall be in substantially the following form, subject to such changes, additions or deletions as determined by an Authorized Officer within the parameters of this 2016 Series Ordinance:

R-\_\_

**UNITED STATES OF AMERICA  
STATE OF MICHIGAN  
COUNTIES OF MACOMB, OAKLAND AND WAYNE  
GREAT LAKES WATER AUTHORITY**

**SEWAGE DISPOSAL SYSTEM REVENUE REFUNDING  
[SENIOR LIEN] [SECOND LIEN] BOND, SERIES 2016\_\_**

REGISTERED OWNER:

PRINCIPAL AMOUNT:     \$\_\_\_\_\_

INTEREST RATE:     \_\_\_\_\_%

ORIGINAL ISSUE DATE:

The Great Lakes Water Authority, Counties of Macomb, Oakland and Wayne, State of Michigan (the “Issuer”), upon authorization from the Board of Directors of the Issuer (the “Board”), has issued this Bond. The Issuer, for value received, promises to pay, but only from the Pledged Assets (as defined below), to the Registered Owner named above, or registered assigns, the Principal Amount stated above in lawful money of the United States of America. Interest on this Bond shall accrue from the Original Issue Date set forth above at the Interest Rate per annum set forth above, and shall be payable on \_\_\_\_\_ 1, 201\_ and semiannually on each July 1 and January 1 thereafter (each an “Interest Payment Date”) in lawful money of the United States of America.

Principal of this Bond is payable upon presentation and surrender at the designated office of U.S. Bank National Association, as Trustee under the Bond Ordinance (as defined below) or such other trustee as the Issuer may hereafter designate by notice mailed to the registered owner not less than 60 days prior to any Interest Payment Date (the “Trustee”).

Interest on this Bond is payable to the registered owner of record as of the close of business on the 15th day of the month immediately preceding any Interest Payment Date as shown on the registration books kept by the Trustee by check or draft mailed by the Trustee to the registered owner at the registered address. Interest on this Bond shall be computed on the basis of a 360-day year comprised of twelve 30-day months.

This Bond is one of a series of bonds designated “Sewage Disposal System Revenue Refunding [Senior Lien] [Second Lien] Bonds, Series 2016\_\_” and is issued pursuant to the provisions of (i) Act 233, Public Acts of Michigan, 1955, as amended (“Act 233”), and Act 94, Public Acts of Michigan, 1933, as amended (“Act 94”), (ii) Master Bond Ordinance No. 2015-02 adopted by the Board on October 7, 2015, as amended (the “Bond Ordinance”), (iii) the Series

Ordinance Authorizing Issuance and Sale of Sewage Disposal System Revenue Refunding Bonds in a Principal Amount not to Exceed \$600,000,000, adopted by the Board on August 10, 2016 (the "Series Ordinance"), and (vi) a Sale Order of an Authorized Officer of the Issuer dated \_\_\_\_\_, 2016 (the "Sale Order," and, collectively with the Bond Ordinance and the Series Ordinance, the "Ordinance"). This Bond is issued for the purposes set forth in the Series Ordinance and the Sale Order.

For the prompt payment of the principal of and interest on this Bond, and other bonds issued by the Issuer pursuant to the Bond Ordinance, the Issuer has irrevocably pledged the revenues of the Sewer System (as defined in the Bond Ordinance), after provision is made for reasonable and necessary expenses of operation, maintenance and administration of the Sewer System (the "Net Revenues"), and a statutory lien on the Net Revenues and Pledged Assets (as defined in the Bond Ordinance) (the "Pledged Assets") is hereby recognized and acknowledged. Such lien is a [first] [second] lien[, subject to obligations heretofore and hereafter issued or incurred under the Bond Ordinance secured by a first lien on the Pledged Assets]. This Bond is of equal standing on a parity with all other obligations heretofore and hereafter issued or incurred under the Bond Ordinance and secured by a [first] [second] lien on the Pledged Assets.

For a complete statement of the revenues from which and the conditions under which this Bond is payable, a statement of the conditions under which Additional Bonds (as defined in the Bond Ordinance) of senior or equal standing and Additional Bonds of junior standing may hereafter be issued and the general covenants and provisions pursuant to which this Bond is issued, reference is made to the Bond Ordinance.

This Bond is subject to redemption prior to maturity to the extent, and as provided in, the Sale Order.

**THIS BOND IS ISSUED UNDER ACT 233 AND ACT 94. IT IS A SELF-LIQUIDATING BOND AND IS NOT A GENERAL OBLIGATION OF THE ISSUER AND DOES NOT CONSTITUTE AN INDEBTEDNESS OF THE ISSUER WITHIN ANY CONSTITUTIONAL OR STATUTORY LIMITATION, BUT IS PAYABLE, BOTH AS TO PRINCIPAL AND INTEREST SOLELY FROM THE PLEDGED ASSETS OF THE SEWER SYSTEM. THE PAYMENT OF THE PRINCIPAL OF AND INTEREST ON THIS BOND ARE SECURED BY A STATUTORY LIEN ON THE PLEDGED ASSETS AS DESCRIBED HEREIN.**

The Issuer has covenanted and agreed, and hereby covenants and agrees, to fix and maintain, or cause to be fixed and maintained, at all times while any bonds payable from the Pledged Assets of the Sewer System shall be outstanding, such rates for service furnished by the Sewer System as shall be sufficient to provide for payment of the interest upon and the principal of this Bond and all other Bonds (as defined in the Bond Ordinance) assumed or issued and to be issued under the Bond Ordinance as and when the same shall become due and payable, to create and maintain a bond redemption fund therefor, including a bond reserve, to provide for the payment of expenses of administration and operation and such expenses for maintenance of the System as are necessary to preserve the same in good repair and working order, and to provide for such other expenditures and funds for the Sewer System, all as are required by the Bond Ordinance.

This Bond is transferable only upon the books of the Issuer kept for that purpose at the office of the Trustee by the registered owner hereof in person, or by his attorney duly authorized in writing, upon the surrender of this Bond together with a written instrument of transfer satisfactory to the Trustee duly executed by the registered owner or his attorney duly authorized in writing, and thereupon a new registered bond or bonds of the same type, in the same aggregate principal amount and of the same maturity shall be issued to the transferee in exchange therefor as provided in the Ordinance and upon the payment of the charges, if any, therein prescribed.

It is hereby certified and recited that all acts, conditions and things required by law precedent to and in the issuance of this Bond have been done and performed by regular and due time and form as required by law.

This Bond is not valid or obligatory for any purpose until the Trustee's Certificate of Authentication hereon has been executed by the Trustee.

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IN WITNESS WHEREOF, the Great Lakes Water Authority, Counties of Macomb, Oakland and Wayne, State of Michigan, has caused this Bond to be signed in its name by the facsimile signatures of its Chief Executive Officer and its Secretary of the Board, and its corporate seal to be printed, impressed or otherwise reproduced hereon, all as of the Original Issue Date.

GREAT LAKES WATER AUTHORITY

By: \_\_\_\_\_  
Chief Executive Officer

Countersigned:

By: \_\_\_\_\_  
Secretary, Board of Directors

[Seal]

## **CERTIFICATE OF AUTHENTICATION**

This Bond is authenticated one of the bonds designated by the Issuer as “Sewage Disposal System Revenue Refunding [Senior Lien] [Second Lien] Bonds, Series 2016\_\_”.

U.S. Bank National Association,  
Trustee

By:\_\_\_\_\_

Date of Authentication: \_\_\_\_\_, 2016

## ASSIGNMENT

For value received, the undersigned sells, assigns and transfers unto \_\_\_\_\_ this Bond and all rights hereunder and hereby irrevocably appoints \_\_\_\_\_ attorney to transfer this Bond on the books kept for registration thereof with full power of substitution in the premises.

Dated: \_\_\_\_\_

Signature

**NOTICE:** The signature to this assignment must correspond with the name as it appears on the face of this Bond in every particular.

END OF BOND FORM



Section 5. Payment of 2016 Refunding Bonds; Confirmation of Statutory Lien.

(a) The 2016 Refunding Bonds and the interest thereon shall be payable solely from the Pledged Assets.

(b) To secure payment of the 2016 Refunding Bonds, the statutory lien upon the whole of the Pledged Assets established by Act 94 and the pledge created in Section 501 of the Ordinance is hereby confirmed in favor of the 2016 Refunding Bonds as follows:

- (1) Such lien in favor of the 2016 Senior Lien Refunding Bonds shall be a first lien of equal standing and Priority of Lien with all issued, to be issued and outstanding Senior Lien Bonds.
- (2) Such lien in favor of the 2016 Second Lien Refunding Bonds shall be a second lien of equal standing and Priority of Lien with all issued, to be issued and outstanding Second Lien Bonds.

Section 6. Concerning the Securities Depository.

(a) As used herein:

“Beneficial Owner” means any Person who indirectly owns 2016 Refunding Bonds pursuant to the indirect ownership system maintained by the Securities Depository and its Participants, commonly known as the “Book-Entry Only System.”

“Participant” means any Person whose ownership of 2016 Refunding Bonds is shown on books of the Securities Depository.

(b) Initially, one fully-registered bond for each maturity of each Series of 2016 Refunding Bonds, in the aggregate principal amount of such maturity, shall be issued in the name of Cede & Co., as nominee of the Securities Depository, for the benefit of the Participants in the Book-Entry Only System. While the 2016 Refunding Bonds are registered in the name of a Securities Depository or its nominee, neither the Authority nor the Trustee shall have any responsibility or obligation to any Participant or to any Beneficial Owner with respect to any matter, including the following:

- (1) the accuracy of the records of the Securities Depository, its nominee or any Participant with respect to any ownership interest in 2016 Refunding Bonds,
- (2) the delivery to any Participant, Beneficial Owner or any other Person other than the Securities Depository of any notice with respect to any 2016 Refunding Bonds, including any notice of redemption, or
- (3) the payment to any Participant, Beneficial Owner or any other Person, other than the Securities Depository of any amount with respect to the principal (and premium, if any) of or interest on any 2016 Refunding Bonds.

(c) The Trustee shall pay all principal (and premium, if any) of and interest on the 2016 Refunding Bonds only to or upon the order of the Securities Depository, and all such payments shall be valid and effective fully to satisfy and discharge the Authority's obligations with respect to the principal (and premium, if any) of, and interest on such 2016 Refunding Bonds to the extent of the sum or sums so paid.

(d) If (1) the Authority receives a written notice from the Securities Depository to the effect the Securities Depository is unable or unwilling to discharge its responsibilities or (2) the Authority determines that it is in the best interests of the Beneficial Owners of 2016 Refunding Bonds that they be able to obtain 2016 Refunding Bonds in certificated form, then, in either event, the Authority shall notify the Trustee and, in the case of clause, (2), the Securities Depository.

(e) Upon discontinuance of the use of the Book-Entry Only System maintained by the Securities Depository pursuant to subsection (d) above and upon receipt of notice from the Securities Depository containing sufficient information, the Authority shall execute and the Trustee shall authenticate and deliver 2016 Refunding Bonds in certificated form to Beneficial Owners in exchange for the beneficial interests of such Beneficial Owners in corresponding principal amounts and in any Authorized Denominations.

(f) Notwithstanding any other provision of this 2016 Series Ordinance to the contrary, so long as any 2016 Refunding Bond is registered in the name of the Securities Depository or its nominee:

- (1) all payments with respect to the principal, premium, if any, and interest on such 2016 Refunding Bond and all notices of redemption, tender and otherwise with respect to such 2016 Refunding Bond shall be made and given, respectively, to the Securities Depository as provided in the blanket issuer letter of representations between the Authority and the Securities Depository;
- (2) if less than all of the 2016 Refunding Bonds of the same type of any maturity are to be redeemed, then the particular 2016 Refunding Bonds or portions of 2016 Refunding Bonds of such type and maturity to be redeemed shall be selected by the Securities Depository in any such manner as the Securities Depository may determine;
- (3) all payments with respect to principal of the 2016 Refunding Bonds and premium, if any and interest on the 2016 Refunding Bonds shall be made in such manner as shall be prescribed by the Securities Depository; and
- (4) if a 2016 Refunding Bond is redeemed or tendered in part, then all amounts payable in respect of such redemption or tender shall be paid without presentation and surrender of such 2016 Refunding Bond pursuant to the procedures of the Securities Depository.

Section 7. Credit Facility.

(a) An Authorized Officer is authorized to negotiate and obtain a Credit Facility with respect to the 2016 Refunding Bonds, if the Authorized Officer determines that it is in the best interest of the Authority. An Authorized Officer is further authorized to renegotiate the terms of any outstanding Credit Facility, if the Authorized Officer determines that it is in the best interest of the Authority.

(b) An Authorized Officer is authorized to pay the cost of any such Credit Facility from the proceeds of the 2016 Refunding Bonds or any other funds of the Sewer System legally available therefor.

(c) An Authorized Officer is authorized to make such covenants and agreements of the Authority as shall be necessary or appropriate in any agreement with the Credit Entity providing such Credit Facility.

Section 8. Funds and Accounts; Flow of Funds. Except as otherwise provided in this 2016 Series Ordinance, all of the provisions relative to funds and accounts, their maintenance, the flow of funds and other details relative thereto, shall remain as specifically set forth in the Ordinance.

Section 9. Disposition of Proceeds.

(a) 2016 Senior Lien Refunding Bonds.

- (1) Disposition of Accrued Interest: From the proceeds of the sale of the 2016 Senior Lien Refunding Bonds there shall be immediately deposited in the Senior Lien Bond and Interest Redemption Fund an amount equal to any accrued interest received on the delivery of the 2016 Senior Lien Refunding Bonds, and the Authority may take credit for the amount so deposited against the amount required to be deposited in the Senior Lien Bond and Interest Redemption Fund for payment of the next maturing interest payment on the 2016 Senior Lien Refunding Bonds.
- (2) Senior Lien Bond Reserve Account Deposit. If required as provided in Section 4(g) of this 2016 Series Ordinance, from the proceeds of the 2016 Senior Lien Refunding Bonds, there shall next be applied an amount as set forth in the Sale Order to be deposited to the Senior Lien Bond Reserve Account at least equal to the 2016 Senior Lien Reserve Requirement after taking into account any Credit Facility or Credit Facilities to be acquired with the proceeds of the 2016 Senior Lien Refunding Bonds or any other funds legally available therefor.
- (3) Issuance Costs: As provided in the Sale Order, a portion of the proceeds from the sale of the 2016 Senior Lien Refunding Bonds shall be applied to the payment of Issuance Costs upon submission of proper documentation to an Authorized Officer.
- (4) Escrow Deposit: As provided in the Sale Order, the balance of the proceeds from the sale of the 2016 Senior Lien Refunding Bonds shall be used to

acquire Government Obligations, which together with any remaining balance of such proceeds in the form of cash, shall constitute all or part of the Escrow Deposit to be held in the Escrow Fund.

(b) 2016 Second Lien Refunding Bonds.

- (1) Disposition of Accrued Interest: From the proceeds of the sale of the 2016 Second Lien Refunding Bonds there shall be immediately deposited in the Second Lien Bond and Interest Redemption Fund an amount equal to any accrued interest received on the delivery of the 2016 Second Lien Bonds, and the Authority may take credit for the amount so deposited against the amount required to be deposited in the Second Lien Bond and Interest Redemption Fund for payment of the next maturing interest payment on the 2016 Second Lien Refunding Bonds.
- (2) Second Lien Bond Reserve Account Deposit. If required as provided in Section 4(g) of this 2016 Series Ordinance, from the proceeds of the 2016 Second Lien Refunding Bonds, there shall next be applied an amount as set forth in the Sale Order to be deposited to the Second Lien Bond Reserve Account at least equal to the 2016 Second Lien Reserve Requirement after taking into account any Credit Facility or Credit Facilities to be acquired with the proceeds of the 2016 Second Lien Refunding Bonds or any other funds legally available therefor.
- (3) Issuance Costs: As provided in the Sale Order, a portion of the proceeds from the sale of the 2016 Second Lien Refunding Bonds shall be applied to the payment of Issuance Costs upon submission of proper documentation to an Authorized Officer.
- (4) Escrow Deposit: As provided in the Sale Order, the balance of the proceeds from the sale of the 2016 Second Lien Refunding Bonds shall be used to acquire Government Obligations, which together with any remaining balance of such proceeds in the form of cash, shall constitute all or part of the Escrow Deposit to be held in the Escrow Fund.

Section 10. Escrow Fund; Escrow Agreement.

(a) Establishment of Escrow Fund. The Escrow Deposit shall be held in or credited to an account designated as the “Great Lakes Water Authority Sewage Disposal System Revenue Bonds Series 2016 Refunding Bonds Escrow Fund” (the “Escrow Fund”) pursuant to an escrow agreement (the “Escrow Agreement”).

(b) Escrow Agreement.

- (1) An Authorized Officer is authorized to enter into the Escrow Agreement on behalf of the Authority with U.S. Bank National Association as “Escrow Trustee.”

(2) The Escrow Agreement:

- a) shall be in the form and substance customary for refunding escrow agreements;
- b) may permit any balance after paying the principal (and premium, if any) and interest on the Bonds To Be Refunded to be applied to any lawful purpose of the Sewer System if such use will not, in the opinion of Bond Counsel, impair the exclusion of interest on the Tax-Exempt 2016 Refunding Bonds from gross income for federal income tax purposes; and
- c) shall otherwise be in the best interests of the Authority as determined by an Authorized Officer, as conclusively established by her execution of the Escrow Agreement.

Section 11. Tax Covenant.

(a) The Authority hereby covenants and represents with the registered owners of the Tax-Exempt 2016 Refunding Bonds that so long as any of the Tax-Exempt 2016 Refunding Bonds remain outstanding and unpaid as to either principal or interest, the Authority shall, to the extent permitted by law, take all actions within its control to maintain and will refrain from taking any action which would impair the exclusion of the interest on the Tax-Exempt 2016 Refunding Bonds from gross income for federal income tax purposes under the Code.

(b) The actions referred to in subsection (a) above include, but are not limited to, actions relating to any required rebate of arbitrage earnings and the expenditure and investment of proceeds of Tax-Exempt 2016 Refunding Bonds and moneys deemed to be proceeds of Tax-Exempt 2016 Refunding Bonds, and to prevent the Tax-Exempt 2016 Refunding Bonds from being or becoming “private activity bonds” as that term is used in the Code.

Section 12. Preliminary and Final Official Statements.

(a) An Authorized Officer shall assist in the preparation of the Preliminary Official Statement and is authorized to deem the portions of Preliminary Official Statement relating to the 2016 Refunding Bonds and the Authority “final” for purposes of the Rule.

(b) The Preliminary Official Statement with such changes and additions as an Authorized Officer shall approve shall constitute the final Official Statement, and an Authorized Officer is authorized to execute the final Official Statement on behalf of the Authority approved by her with such changes as the Authorized Officer may authorize.

(c) Such final Preliminary Official Statement and final Official Statement and other offering materials satisfactory to an Authorized Officer are authorized to be distributed by the Underwriter in conjunction with the offering and sale of the 2016 Refunding Bonds.

Section 13. Continuing Disclosure. Unless otherwise set forth in the Sale Order because of an exemption from the Rule, the 2016 Refunding Bonds shall be subject to the Rule, and an

Authorized Officer is authorized to execute and deliver the Continuing Disclosure Undertaking in form and substance customary for continuing disclosure undertakings entered into pursuant to the Rule.

Section 14. Sale of 2016 Refunding Bonds; Purchase Agreement.

(a) The 2016 Refunding Bonds shall be sold by negotiated sale to the Underwriter pursuant to a Purchase Agreement or Agreements in customary form with such changes thereto as an Authorized Officer shall determine are in the best interests of the Authority, within the parameters established by this 2016 Series Ordinance. Such determination shall be conclusively established by the Authorized Officer's execution of the Purchase Agreement or Agreements.

(b) The Authority Board hereby determines that the sale of the 2016 Refunding Bonds by negotiated sale as described in subsection (a) is in the best interests of the Authority and will allow the 2016 Refunding Bonds to be sold in the most efficient manner so as to result in the lowest possible borrowing costs to the Authority.

(c) An Authorized Officer is authorized to accept, on behalf of the Authority, an offer from the Underwriter to purchase the 2016 Refunding Bonds subject to the following limitations:

- (1) The interest rate coupon with respect to the 2016 Refunding Bonds shall not exceed 5.75%.
- (2) The purchase price of the 2016 Refunding Bonds shall not be less than 99% of the principal amount thereof.
- (3) The Underwriter's discount with respect to the 2016 Refunding Bonds or the compensation to be paid to the Underwriter shall not exceed 0.35% of the principal amount of the 2016 Refunding Bonds.
- (4) The present value of the savings (net of Issuance Costs) to be realized by the issuance of the 2016 Refunding Bonds shall be equal to or greater than 7% of the principal amount of the Bonds To Be Refunded.

(d) An Authorized Officer is authorized to determine if the Purchase Agreement shall provide for liquidated damages and if so, the amount thereof, and if the purchaser of the 2016 Refunding Bonds is required to provide a good faith check and if so, the amount thereof.

Section 15. Delegation of Authority to and Authorization of Actions of Authorized Officers.

(a) An Authorized Officer shall make all determinations herein provided to be made in the Sale Order and shall make all such determinations in accordance with the best interests of the Authority within the parameters of this 2016 Series Ordinance.

(b) In addition to determinations authorized elsewhere in this 2016 Series Ordinance, an Authorized Officer shall determine the Bonds To Be Refunded (from the Outstanding DWSD Sewer Bonds) and aggregate principal amount of 2016 Refunding Bonds to be issued, but not in

excess of the aggregate principal amount authorized by this 2016 Series Ordinance. An Authorized Officer shall also determine and establish, in accordance with this 2016 Series Ordinance, the maturities of the 2016 Refunding Bonds, whether such maturities shall be serial or term maturities and the Mandatory Redemption Requirements for any term maturities, and the redemption provisions for the 2016 Refunding Bonds.

(c) An Authorized Officer is authorized to file applications and to pay the related fees, if any, to the Michigan Department of Treasury at her discretion under Act 34 for one or more orders of approval to issue all or a portion of the 2016 Refunding Bonds, and such waivers or other Treasury approvals as necessary to implement the sale, delivery and security for the 2016 Refunding Bonds as authorized herein, and as required by the Michigan Department of Treasury or Act 34.

(d) An Authorized Officer shall determine in the Sale Order that the requirements set forth in Section 207 of the Ordinance with respect to the issuance of the 2016 Refunding Bonds as Additional Bonds have been satisfied.

(e) An Authorized Officer is hereby authorized and directed to do and perform any and all other acts and things with respect to the 2016 Refunding Bonds which are necessary or appropriate to carry into effect, consistent with the Ordinance and this 2016 Series Ordinance, the authorizations therein and herein contained including without limitation the securing of ratings by bond rating agencies, and the incurring of reasonable fees costs and expenses incidental to the foregoing, for and on behalf of the Authority.

Section 16. Ratification. All determinations and decisions of an Authorized Officer heretofore taken with respect to the issuance and sale of the 2016 Refunding Bonds as permitted or required by the Ordinance or law are hereby ratified, confirmed and approved.

Section 17. Additional Authorization. The Chief Executive Officer, the Chief Financial Officer and the Chief Administrative and Compliance Officer/General Counsel of the Authority, any such officials acting in an interim or acting capacity to such officers, their deputies and staff, or any of them, are hereby authorized to execute and deliver such certificates, letters of representation, documents, instruments, opinions and other papers as may be deemed necessary or appropriate to complete the sale, execution and delivery of the 2016 Refunding Bonds and otherwise give effect to the transactions contemplated by this 2016 Series Ordinance, as determined by such officials executing and delivering the foregoing items.

Section 18. 2016 Series Ordinance a Contract. The provisions of this 2016 Series Ordinance shall constitute a contract between the Authority and each registered owner of an outstanding 2016 Refunding Bond.

Section 19. Professional Services.

(a) Dickinson Wright PLLC is hereby appointed as Bond Counsel for the 2016 Refunding Bonds, notwithstanding the periodic representation by Dickinson Wright PLLC in unrelated matters of other parties and potential parties to the issuance of the 2016 Refunding Bonds.

(b) Public Financial Management, Inc. is hereby appointed as Financial Advisor for the 2016 Refunding Bonds, notwithstanding the periodic representation by Public Financial Management, Inc. in unrelated matters of other parties and potential parties to the issuance of the 2016 Refunding Bonds.

(c) The fees and expenses of Dickinson Wright PLLC and Public Financial Management, Inc. shall be payable as an Issuance Cost from the proceeds of the 2016 Refunding Bonds or other available funds.

(d) An Authorized Officer is authorized to engage other consultants, including, without limitation, verification agents or other parties as she deems necessary or appropriate in connection with the sale, issuance and delivery of the 2016 Refunding Bonds and to pay the fees and expenses thereof from the proceeds of the 2016 Refunding Bonds or other available funds.

Section 20. Severability; Headings; and Conflict. If any section, paragraph, clause or provision of this 2016 Series Ordinance shall be held invalid, the invalidity of such section, paragraph, clause or provision shall not affect any of the other provisions of this 2016 Series Ordinance. The section and paragraph headings in this 2016 Series Ordinance are furnished for convenience of reference only and shall not be considered to be part of this 2016 Series Ordinance.

Section 21. Amendments to Ordinance.

(a) Pursuant to Section 1103 of the Ordinance, the Ordinance is amended as follows:

(1) The definition of “Reserve Requirement” in Section 101 of the Ordinance is hereby amended by adding the following to the end of that definition:

“Notwithstanding the foregoing, (i) in the case of Senior Lien Bonds secured by the Senior Lien Bond Reserve Account, upon satisfaction of the conditions set forth in Section 506(e) of this Ordinance, the Reserve Requirement for all Outstanding Senior Lien Bonds secured by the Senior Lien Bond Reserve Account, regardless of when issued, at the election of the Authority set forth in a written notice to the Trustee, may be reduced or eliminated, and if reduced, the reduced Reserve Requirement in no event to be in excess of the maximum permitted by the Code, and (ii) in the case of Second Lien Bonds secured by the Second Lien Bond Reserve Account, upon the satisfaction of the conditions set forth in Section 506(f) of this Ordinance, the Reserve Requirement for all Outstanding Second Lien Bonds secured by the Second Lien Bond Reserve Account, regardless of when issued, at the election of the Authority set forth in a written notice to the Trustee, may be reduced or eliminated, and if reduced, the reduced Reserve Requirement in no event to be in excess of the maximum permitted by the Code.”

(2) A new subsection (e) of Section 506 is added to the Ordinance to read as follows:

“(e) The Authority may elect to reduce or eliminate the Reserve Requirement for all Outstanding Senior Lien Bonds secured by the Senior Lien Bond Reserve Account in accordance with the last sentence of the definition of Reserve Requirement in Section 101 at such time as the Authority shall have provided evidence to the Trustee that the Senior Lien Bonds are rated at least Aa3, AA- or AA- by at least two of Moody’s, S&P, and Fitch, respectively, and that neither of



such ratings will be reduced solely as a result of the change in the Reserve Requirement for such Senior Lien Bonds. Such election shall be set forth in a written notice to the Trustee and shall be effective on the date of delivery of such notice to the Trustee. Following such election by the Authority, notwithstanding any other provision of this Ordinance, amounts on deposit in the Senior Lien Bond Reserve Account in excess of the Reserve Requirement for the Outstanding Senior Lien Bonds secured by the Senior Lien Bond Reserve Account shall be transferred by the Trustee into the Senior Lien Debt Service Account, the Receiving Fund and/or the Surplus Fund, as directed by the Authority.”

- (3) A new subsection (f) of Section 506 is added to the Ordinance to read as follows:

“(f) The Authority may elect to reduce or eliminate the Reserve Requirement for all Outstanding Second Lien Bonds secured by the Second Lien Bond Reserve Account in accordance with the last sentence of the definition of Reserve Requirement in Section 101 at such time as the Authority shall have provided evidence to the Trustee that the Senior Lien Bonds are rated at least Aa3, AA- or AA- by at least two of Moody’s, S&P, and Fitch, respectively, and that neither of such ratings will be reduced solely as a result of the change in the Reserve Requirement for such Second Lien Bonds. Such election shall be set forth in a written notice to the Trustee and shall be effective on the date of delivery of such notice to the Trustee. Following such election by the Authority, notwithstanding any other provision of this Ordinance, amounts on deposit in the Second Lien Bond Reserve Account in excess of the Reserve Requirement for the Outstanding Second Lien Bonds secured by the Second Lien Bond Reserve Account shall be transferred by the Trustee into the Second Lien Debt Service Account, the Receiving Fund and/or the Surplus Fund, as directed by the Authority.”

(b) Pursuant to Section 1103 of the Ordinance, the amendments set forth in this Section 21 shall become effective only upon, (1) in the case of Senior Lien Bonds secured by the Senior Lien Bond Reserve Account, the consent or deemed consent (by purchasing such Senior Lien Bonds after the date of this Series Ordinance where the offering document with respect to such Bonds contains a description of the amendments in paragraphs (1) and (2) of subsection (a) of this Section 21) of the Holders of at least 51% of such Outstanding Senior Lien Bonds, and (2) in the case of Second Lien Bonds secured by the Second Lien Bond Reserve Account, the consent or deemed consent (by purchasing such Second Lien Bonds after the date of this Series Ordinance where the offering document with respect to such Bonds contains a description of the amendments in paragraphs (1) and (3) of subsection (a) of this Section 21) of the Holders of at least 51% of such Outstanding Second Lien Bonds,.

Section 22. Publication and Recordation. This 2016 Series Ordinance shall be published in full in the Detroit Legal News, a newspaper of general circulation within the geographic boundaries of the Authority qualified under State law to publish legal notices, promptly after its adoption, and shall be maintained in the official records of the Authority and such recording authenticated by the signatures of the Chairperson and Secretary of the Authority Board.

Section 23. Repeal. All ordinances, resolutions, indentures or orders, or parts thereof, in conflict with the provisions of this 2016 Series Ordinance are, to the extent of such conflict, repealed.

Section 24. Effective Date. This 2016 Series Ordinance shall be effective upon adoption.

Adopted and signed on the 10<sup>th</sup> day of August, 2016.

GREAT LAKES WATER AUTHORITY

Signed \_\_\_\_\_  
Chairperson

Signed \_\_\_\_\_  
Secretary

Troy 63818-7 1592476v4



## Financial Services Group Audit Committee Communication

**Date:** August 5, 2016

**To:** Great Lakes Water Authority Audit Committee

**From:** Jon Wheatley, Public Finance Manager

**Re:** Resolution Regarding Approval of Series Ordinance Authorizing Issuance and Sale of Water Supply System Revenue and Revenue Refunding Bonds an Amount Not to Exceed \$1,134,000,000 (Ordinance 2016-08)

**Background:** In order for the Great Lakes Water Authority ("GLWA") to proceed with issuance of new water supply system bonds and the refunding of various outstanding water bonds for the purpose of achieving annual debt service savings, the GLWA Board must approve the included resolution approving the Series Ordinance. The Series Ordinance sets forth the guidelines for the New Money and Refunding Bonds and authorizes the Chief Executive Officer or the Chief Financial Officer to execute the final terms of the Bonds, paying issuance costs and signing of the Bond Purchase Agreement, within the parameters set forth in the Series Ordinance.

New Money Portion - The authorized amount for the New Money Bonds in Section 3, page 4 is for an aggregate principal amount not to exceed \$284,000,000. As you will recall, the Board authorized a Notice of Intent at its February 10, 2016 meeting which set the borrow limit for GLWA at \$300 million. At its previous meeting, the GLWA Board adopted Series Ordinance 2016-05, which authorized up to \$17 million in DWRF Bonds, of which almost \$16 million is anticipated to be spent based on bid prices received. The remaining \$284 million in of the Notice of Intent amount will be dedicated to these New Money Bonds. GLWA and DWSD are finalizing the final allocation of these amounts, based on the respective capital improvement plans (CIP) needs for the next two years and it is anticipated that the full amount of New Money Bonds will be issued.

Refunding Portion - The authorized amount for the Refunding Bonds in Section 3, page 4 is for an aggregate principal amount of not to exceed \$850,000,000. The final par amount of the Refunding Bonds will be determined at the time of pricing and is based on current bond market pricing levels, issuance costs and the par amount of the bonds to be refunded as determined by

the savings level achieved. *While the approval of the resolution gives GLWA the authorization to issue refunding bonds, GLWA does not have to proceed with the refunding if market conditions become less favorable when it comes time to price the bonds.*

**Key Provisions:**

- Not to Exceed Par Amount: \$1,134,000,000 (Combined)
- Maximum Coupon Rate: 5.75%
- Minimum Purchase Price: 99% of principal amount of bonds
- Maximum Underwriter Discount: 0.35% of principal amount of bonds
- Present Value Savings: Equal to or greater than 7.00% of principal amount of bonds to be refunded

**Additional Provisions:** New to the Water Series Ordinance No. 2016-08 is Section 23-*Amendments to Ordinance*. As noted on page 23, this section provides for a “springing amendment” dealing with the ability of GLWA to reduce or eliminate the bond reserve requirement for the senior lien bonds when at least 2 of the 3 national rating agencies rate the senior lien bonds in the AA category, provided that the reduction in the reserve requirement would not negatively affect the outstanding ratings. The amendments will become effective upon the deemed consent of at least 51% of the holders of the outstanding senior lien bonds. GLWA will add this springing amendment to each future series ordinance to obtain the 51% consent level.

The reduction or elimination of the bond reserve requirement would free up some or all of the cash in those funds (currently about \$46.5 million combined senior and second lien reserves) that can be transferred to the Receiving Fund or the Surplus Fund, as directed by GLWA.

**Proposed Action:** Audit Committee recommends that the Great Lakes Water Authority Board approve the resolution Approval of Series Ordinance Authorizing Issuance and Sale of Water Supply System Revenue and Revenue Refunding Bonds an Amount Not to Exceed \$1,134,000,000 as presented, at its regular meeting on August 10, 2016.

**Great Lakes Water Authority**

**Resolution 2016-08-04**

**RE: Approval of Series Ordinance Authorizing Issuance and Sale of Water Supply System  
Revenue and Revenue Refunding Bonds in an Amount not to Exceed \$1,134,000,000  
Ordinance 2016-08**

By Board Member: \_\_\_\_\_

**Whereas** There has been presented to the Board of Directors of the Great Lakes Water Authority (the “Authority”) an ordinance entitled “Series Ordinance Authorizing the Issuance and Sale of Water Supply System Revenue Refunding Bonds in an Amount not to Exceed \$1,134,000,000” (the “2016 Water Series Ordinance”), which ordinance is a Series Ordinance as defined and described in Master Bond Ordinance No. 2015-01 adopted by the Board of Directors on October 7, 2015, as amended on December 9, 2015, January 27, 2016 and August 10, 2016 (as amended, the “Master Water Bond Ordinance”).

**Whereas** The Articles of Incorporation of the Authority provide that at least 5 of the 6 members of the Authority Board must vote to approve the 2016 Water Series Ordinance.

**Now, Therefore Be It:**

**Resolved** That the 2016 Water Series Ordinance, in the form presented to this meeting, is approved and adopted, and the Chairperson and the Secretary are authorized to authenticate the 2016 Water Series Ordinance in the form approved; **And Be it Further**

**Resolved** That an affirmative vote of at least 5 members of the Authority Board is necessary for the passage of this Resolution.

Adopted by the Great Lakes Water Authority Board on: \_\_\_\_\_

GREAT LAKES WATER AUTHORITY  
ORDINANCE NO. 2016-08

**SERIES ORDINANCE AUTHORIZING ISSUANCE AND SALE OF  
WATER SUPPLY SYSTEM REVENUE AND REVENUE REFUNDING  
BONDS IN A PRINCIPAL AMOUNT NOT TO EXCEED \$1,134,000,000**

WHEREAS, pursuant to Resolution No. 2015-10-02 adopted by the Board of Directors of the Great Lakes Water Authority (the “Authority”) on October 7, 2015, the Authority Board approved and adopted Master Bond Ordinance No. 2015-01 (as subsequently amended through the date hereof, the “Ordinance”), which authorizes the issuance by the Authority of Water Supply System Revenue Bonds; and

WHEREAS, the Ordinance authorizes the issuance of such Water Supply System Revenue Bonds in one or more Series pursuant to a Series Ordinance authorizing the issuance and sale of such Series; and

WHEREAS, the Authority Board has determined that it is necessary to authorize at this time one or more Series of Bonds (the “2016 Bonds”) to provide moneys (i) to refund a portion of the Outstanding DWSD Water Bonds (the “Bonds To Be Refunded”) and cause the Bonds To Be Refunded to be defeased in accordance with the Ordinance and (ii) to pay all or part of the costs of the hereinafter described improvements, enlargements, extensions and repairs to the [Regional] Water System (the “2016 Project”).

NOW, THEREFORE, BE IT ORDAINED BY THE BOARD OF DIRECTORS OF THE GREAT LAKES WATER AUTHORITY AS FOLLOWS:

Section 1. Authority for this Series Ordinance. This Series Ordinance (the “2016 Series Ordinance”) is adopted pursuant to Section 1102(1) of the Ordinance.

Section 2. Definitions. Except as otherwise provided in this 2016 Series Ordinance, all terms which are defined in Section 101 of the Ordinance shall have the same meanings, respectively, in this 2016 Series Ordinance as such terms are given in the Ordinance. In addition, the following terms shall have the following meanings unless the context shall clearly indicate some other meaning:

(a) “2016 Bonds” means, collectively, the 2016 New Money Bonds and the 2016 Refunding Bonds authorized by Section 3 of this 2016 Series Ordinance.

(b) “2016 New Money Bonds” means those 2016 Bonds issued for the purpose of paying, reimbursing and/or refinancing Project Costs.

(c) “2016 Project” means, collectively, improvements to the [Regional] Water System, including but not limited to \_\_\_\_\_, as more fully described in the Sale Order.

(d) “2016 Refunding Bonds” means those 2016 Bonds issued for the purpose of refunding the Bonds To Be Refunded and paying Refunding Costs.

(e) “2016 Reserve Requirement” means the sum of the 2016 Senior Lien Reserve Requirement and the 2016 Second Lien Reserve Requirement.

(f) “2016 Second Lien Bonds” means collectively, the 2016 Second Lien New Money Bonds and the 2016 Second Lien Refunding Bonds.

(g) “2016 Second Lien New Money Bonds” means those 2016 New Money Bonds, if any, issued as Second Lien Bonds as provided in this 2016 Series Ordinance.

(h) “2016 Second Lien Refunding Bonds” means those 2016 Refunding Bonds, if any, issued as Second Lien Bonds as provided in this 2016 Series Ordinance.

(i) “2016 Second Lien Reserve Requirement” means such amount, if any, as is determined in the Sale Order to be the amount necessary to make the amount on deposit in the Second Lien Bond Reserve Account at least equal to the Reserve Requirement for the Second Lien Bond Reserve Account immediately upon the issuance of the 2016 Second Lien Bonds after taking into consideration such provision as is made for the Reserve Requirement from proceeds of the 2016 Second Lien Bonds and other funds and Credit Facilities on deposit or to be deposited in the Second Lien Bond Reserve Account.

(j) “2016 Senior Lien Bonds” means collectively, the 2016 Senior Lien New Money Bonds and the 2016 Senior Lien Refunding Bonds.

(k) “2016 Senior Lien New Money Bonds” means those 2016 New Money Bonds, if any, issued as Senior Lien Bonds as provided in this 2016 Series Ordinance.

(l) “2016 Senior Lien Refunding Bonds” means those 2016 Refunding Bonds, if any, issued as Senior Lien Bonds as provided in this 2016 Series Ordinance.

(m) “2016 Senior Lien Reserve Requirement” means such amount, if any, as is determined in the Sale Order to be the amount necessary to make the amount on deposit in the Senior Lien Bond Reserve Account at least equal to the Reserve Requirement for the Senior Lien Bond Reserve Account immediately upon the issuance of the 2016 Senior Lien Bonds after taking into consideration such provision as is made for the Reserve Requirement from proceeds of the 2016 Senior Lien Bonds and other funds and Credit Facilities on deposit or to be deposited in the Senior Lien Bond Reserve Account.

(n) “Authorized Denomination” any denomination as determined by an Authorized Officer in the Sale Order.

(o) “Authorized Officer” means either the Chief Executive Officer or the Chief Financial Officer.

(p) “Continuing Disclosure Undertaking” means the continuing disclosure undertaking or undertakings with respect to the 2016 Bonds to be entered into by the Authority pursuant to the Rule.

(q) “Escrow Agreement” shall have the meaning set forth in Section 11 of this 2016 Series Ordinance.

(r) “Escrow Deposit” means cash or Government Obligations, or a combination of cash and Government Obligations, at least sufficient to discharge the lien of the Pledged Assets securing the Bonds To Be Refunded in accordance with Section 1001 of the Ordinance.

(s) “Fitch” means Fitch Ratings, Inc., and any successor rating agency.

(t) “Interest Payment Date” means except as otherwise determined in the Sale Order each January 1 and July 1, or such other dates and commencing as set forth in the Sale Order.

(u) “Maturity Date” means such dates of maturity of the 2016 Bonds as determined in the Sale Order.

(v) “Moody’s” means Moody’s Investors Service, Inc., and any successor rating agency.

(w) “Official Statement” means the final disclosure document with respect to the 2016 Bonds.

(x) “Person” means any natural person, association, corporation, trust, partnership, joint venture, joint-stock company, municipal corporation, public body or other entity, however organized.

(y) “Preliminary Official Statement” means the preliminary disclosure document with respect to the 2016 Bonds.

(z) “Project Costs” means the costs of acquiring, constructing, equipping, installing and financing the 2016 Project, including Issuance Costs relating to the 2016 New Money Bonds.

(aa) “Purchase Agreement” means the bond purchase agreement between the Authority and the Underwriter providing for the sale of the 2016 Bonds.

(bb) “Refunding Costs” means the costs of refunding the Bonds To Be Refunded, including, to the extent authorized in the Sale Order, the amount of the Escrow Deposit, and funding the 2016 Reserve Requirement and Issuance Costs.

(cc) “Regular Record Date” means the fifteenth day of the calendar month immediately preceding an Interest Payment Date.

(dd) “Rule” means Rule 15c2-12 promulgated by the United States Securities and Exchange Commission under the Securities and Exchange Act of 1934, as amended.

(ee) “S&P” means S&P Global Ratings, and any successor rating agency.

(ff) “Sale Order” means any one or more Sale Orders of an Authorized Officer authorizing acts consistent with the Ordinance and this 2016 Series Ordinance necessary and



appropriate to complete the sale, execution and delivery of the 2016 Bonds and to complete the other transactions contemplated herein.

(gg) “Securities Depository” means (i) The Depository Trust Company and its successors and assigns, if any, or (ii) any other securities depository which agrees to follow the procedures required to be followed by a securities depository in connection with the 2016 Refunding Bonds and which is selected by the Authority as provided in Section 6.

(hh) “Taxable 2016 Bonds” means any 2016 Bonds other than Tax-Exempt 2016 Refunding Bonds.

(ii) “Tax-Exempt 2016 Bonds” means any 2016 Bonds that are Tax-Exempt Bonds.

(jj) “Underwriter” means Citigroup Global Markets Inc., on behalf of itself and such underwriters as may be named in the Purchase Agreement.

### Section 3. Authorization of 2016 Bonds.

#### (a) Authorization of Borrowing.

(1) The Authority may borrow (A) an aggregate principal amount not in excess of \$850,000,000, in the case of 2016 Refunding Bonds, and (B) an aggregate principal amount not in excess of \$284,000,000, in the case of 2016 New Money Bonds, all as is finally determined in the Sale Order, and issue 2016 Bonds at one or more times and in one or more Series, all to evidence such borrowing pursuant to Act 233, Act 94 and the Ordinance, as 2016 Senior Lien Bonds and/or 2016 Second Lien Bonds, all as finally determined in the Sale Order.

(2) The amount of the 2016 New Money Bonds authorized in (1) above shall include the amount of the net original issue premium, if any.

(b) Purpose of 2016 Bonds. The 2016 Bonds shall be issued as Additional Bonds for the purpose of (1) in the case of 2016 Refunding Bonds, refunding the Bonds To Be Refunded and paying Refunding Costs and (2) in the case of 2016 New Money Bonds, paying, reimbursing and/or refinancing Project Costs, and may in each case include amounts necessary to satisfy the 2016 Reserve Requirement and paying the costs of a Credit Facility.

(c) Limitation on Issuance of 2016 Refunding Bonds. No 2016 Refunding Bonds shall be issued unless:

(1) The proceeds thereof (exclusive of accrued interest), together with other moneys available to the Authority under the Ordinance, are sufficient to provide the Escrow Deposit after payment of the Issuance Costs set forth in the Sale Order.

(2) Concurrently with or prior to the delivery of the 2016 Refunding Bonds, an Authorized Officer gives notice to the Trustee to call for redemption at the

applicable redemption price all of the Bonds To Be Refunded on the dates set forth in the Escrow Agreement. In such notice, an Authorized Officer may direct that the notice of redemption to be given by the Trustee to the Holders of the Bonds To Be Refunded pursuant to Section 303 of the Ordinance shall be given prior to the delivery of the 2016 Refunding Bonds and that such notice of redemption be conditioned upon the delivery of the 2016 Refunding Bonds and the funding of the Escrow Deposit. As provided in Section 303 of the Ordinance, if such conditions in the notice of redemption are not satisfied on or before the date fixed for redemption, then the notice of redemption shall be canceled and of no further force or effect.

(d) Insufficient Proceeds. To the extent that proceeds of the 2016 New Money Bonds are insufficient to pay Project Costs, the insufficiency shall be paid from the proceeds of future Additional Bonds, if any, and/or moneys of the Water System on hand and legally available therefor, as determined by the Authority Board.

(e) Priority of Lien. The 2016 Bonds shall be issued as Senior Lien Bonds and/or Junior Lien Bonds, as set forth in the Sale Order.

(f) Separate Series. The 2016 Bonds are issuable at one or more times and as one or more separate Series of Bonds in such amounts as determined in the Sale Order. The 2016 Refunding Bonds and the 2016 New Money Bonds shall not be included in the same Series and shall be issued as separate Series.

(g) Taxable and Tax-Exempt 2016 Bonds. The 2016 Bonds may be issued as Taxable 2016 Bonds or Tax-Exempt 2016 Bonds, or as separate Series of both, as determined in the Sale Order.

(h) Source of Payment and Security. The Refunding Bonds shall be payable and secured as provided in Section 5.

(i) Applicability of Ordinance. Except as otherwise provided in this 2016 Series Ordinance or the Sale Order, all of the provisions of the Ordinance shall apply to the 2016 Bonds as if set forth in full in this 2016 Series Ordinance, the purpose of this 2016 Series Ordinance being to supplement the Ordinance to authorize the issuance of 2016 Bonds for the purposes set forth herein.

#### Section 4. 2016 Bond Details.

(a) Designation.

- (1) The 2016 Bonds shall bear the designations Water Supply System [Revenue] [Revenue Refunding] [Senior Lien] [Second Lien] Bonds, Series 2016[A/B/C] and shall include the Series designation and such other designations, including, without limitation, designations for multiple Series or subseries, as determined by an Authorized Officer as shall be set forth in the Sale Order and not inconsistent with the Ordinance or this 2016 Series Ordinance.

- (2) If the 2016 Bonds are not issued in 2016, an Authorized Officer is authorized in her discretion to re-designate the year and Series designation of the 2016 Bonds and the various funds and accounts established hereunder to correspond with the year of issuance of the 2016 Bonds. Furthermore, an Authorized Officer is authorized to establish designations within the various funds and accounts established hereunder if necessary in order to differentiate such funds and accounts from other similarly named funds and accounts related to other Bonds.

(b) Numbering. 2016 Bonds shall be numbered in such manner as shall be determined in the Sale Order.

(c) Principal. 2016 Bonds shall be issued in the form of Serial Bonds or Term Bonds, or any combination of Serial Bonds and Term Bonds, in any Authorized Denomination, and the principal thereof shall mature on July 1, or such other date as set forth in a Sale Order, in such years and amounts, and shall be or not be subject to redemption prior to maturity, all as shall be determined in the Sale Order subject to the following limitations:

- (1) No 2016 Bonds shall mature later than 40 years after the date of issuance thereof.
- (2) 2016 Bonds shall only be issued with principal and interest installments permitted by the Ordinance, including Section 207 thereof.

(d) Interest. 2016 Bonds or portions thereof shall bear interest at such fixed rate or rates as determined in the Sale Order not in excess of the maximum rate permitted by law. Interest on 2016 Bonds shall be payable on each Interest Payment Date.

(e) Payment of Principal and Interest. The principal of, premium, if any, and interest on the 2016 Bonds shall be payable in lawful money of the United States. The principal of and premium, if any, on the 2016 Bonds are payable upon the surrender thereof at the corporate trust office of the Trustee and the interest is payable by check or draft drawn on the Trustee and mailed to the registered owners as of the immediately preceding Regular Record Date at their address shown on the registration books of the Authority maintained by the Trustee.

(f) Dating. The 2016 Bonds shall be dated such date or dates as determined in the Sale Order.

(g) Reserve Requirement. The 2016 Reserve Requirement, if any, with respect to each Series of the 2016 Bonds shall be satisfied by a deposit into the appropriate Bond Reserve Account of a portion of the proceeds of such Series of 2016 Bonds, funds already on deposit in the appropriate Bond Reserve Account or the provision of a Credit Facility in the same amount and with a credit rating at the time of issuance of such Series of 2016 Bonds not less than the credit rating of such Series of 2016 Bonds, or any combination of the foregoing. The amounts, if any, required to be deposited in the Senior Lien Bond Reserve Account and the Second Lien Bond Reserve Account to cause the amounts on deposit therein to be at least equal to the Reserve Requirement for the Senior Lien Bonds and the Reserve Requirement for the Second Lien Bonds, respectively, shall be set forth in the Sale Order.

(h) Exchange. The registered owner of any 2016 Bond may exchange such 2016 Bond for a new 2016 Bond or Bonds of the same Series, interest rate, maturity and Priority of Lien in an equal aggregate principal amount in one or more of the Authorized Denominations by surrendering such 2016 Bond to be exchanged at the designated office of the Trustee together with an assignment duly executed by the registered owner thereof or his attorney or legal representative in such form as shall be satisfactory to the Trustee. As provided in Section 206 of the Ordinance, the Trustee shall be responsible for the registration, transfer and exchange of 2016 Bonds and shall indicate its acceptance of such duties by a document filed with an Authorized Officer concurrently with the delivery of the 2016 Bonds.

(i) Execution and Delivery of 2016 Bonds. The 2016 Bonds shall be executed in the name of the Authority by manual or facsimile signature of the Chief Executive Officer of the Authority and countersigned by the manual or facsimile signature of the Secretary of the Authority Board, and shall have the Authority's seal, or facsimile thereof, affixed or printed thereon. The Chief Financial Officer is authorized to deliver the 2016 Bonds to the Underwriter upon receiving the purchase price therefor in lawful money of the United States.

(j) Form of 2016 Bonds. The 2016 Bonds shall be in substantially the following form, subject to such changes, additions or deletions as determined by an Authorized Officer within the parameters of this 2016 Series Ordinance:

R-\_\_

**UNITED STATES OF AMERICA  
STATE OF MICHIGAN  
COUNTIES OF MACOMB, OAKLAND AND WAYNE  
GREAT LAKES WATER AUTHORITY**

**WATER SUPPLY SYSTEM [REVENUE] [REVENUE REFUNDING]  
[SENIOR LIEN] [SECOND LIEN] BOND, SERIES 2016\_\_**

REGISTERED OWNER:

PRINCIPAL AMOUNT:     \$\_\_\_\_\_

INTEREST RATE:     \_\_\_\_\_%

ORIGINAL ISSUE DATE:

The Great Lakes Water Authority, Counties of Macomb, Oakland and Wayne, State of Michigan (the “Issuer”), upon authorization from the Board of Directors of the Issuer (the “Board”), has issued this Bond. The Issuer, for value received, promises to pay, but only from the Pledged Assets (as defined below), to the Registered Owner named above, or registered assigns, the Principal Amount stated above in lawful money of the United States of America. Interest on this Bond shall accrue from the Original Issue Date set forth above at the Interest Rate per annum set forth above, and shall be payable on \_\_\_\_\_ 1, 201\_ and semiannually on each July 1 and January 1 thereafter (each an “Interest Payment Date”) in lawful money of the United States of America.

Principal of this Bond is payable upon presentation and surrender at the designated office of U.S. Bank National Association, as Trustee under the Bond Ordinance (as defined below) or such other trustee as the Issuer may hereafter designate by notice mailed to the registered owner not less than 60 days prior to any Interest Payment Date (the “Trustee”).

Interest on this Bond is payable to the registered owner of record as of the close of business on the 15th day of the month immediately preceding any Interest Payment Date as shown on the registration books kept by the Trustee by check or draft mailed by the Trustee to the registered owner at the registered address. Interest on this Bond shall be computed on the basis of a 360-day year comprised of twelve 30-day months.

This Bond is one of a series of bonds designated “Water Supply System Revenue [and Revenue Refunding] [Senior Lien] [Second Lien] Bonds, Series 2016\_\_” and is issued pursuant to the provisions of (i) Act 233, Public Acts of Michigan, 1955, as amended (“Act 233”), and Act 94, Public Acts of Michigan, 1933, as amended (“Act 94”), (ii) Master Bond Ordinance No. 2015-01 adopted by the Board on October 7, 2015, as amended (the “Bond Ordinance”), (iii) the Series

Ordinance Authorizing Issuance and Sale of Water Supply System Revenue and Revenue Refunding Bonds in a Principal Amount not to Exceed \$1,134,000,000, adopted by the Board on August 10, 2016 (the “Series Ordinance”), and (vi) a Sale Order of an Authorized Officer of the Issuer dated \_\_\_\_\_, 2016 (the “Sale Order,” and, collectively with the Bond Ordinance and the Series Ordinance, the “Ordinance”). This Bond is issued for the purposes set forth in the Series Ordinance and the Sale Order.

For the prompt payment of the principal of and interest on this Bond, and other bonds issued by the Issuer pursuant to the Bond Ordinance, the Issuer has irrevocably pledged the revenues of the Water System (as defined in the Bond Ordinance), after provision is made for reasonable and necessary expenses of operation, maintenance and administration of the Water System (the “Net Revenues”), and a statutory lien on the Net Revenues and Pledged Assets (as defined in the Bond Ordinance) (the “Pledged Assets”) is hereby recognized and acknowledged. Such lien is a [first] [second] lien[, subject to obligations heretofore and hereafter issued or incurred under the Bond Ordinance secured by a first lien on the Pledged Assets]. This Bond is of equal standing on a parity with all other obligations heretofore and hereafter issued or incurred under the Bond Ordinance and secured by a [first] [second] lien on the Pledged Assets.

For a complete statement of the revenues from which and the conditions under which this Bond is payable, a statement of the conditions under which Additional Bonds (as defined in the Bond Ordinance) of senior or equal standing and Additional Bonds of junior standing may hereafter be issued and the general covenants and provisions pursuant to which this Bond is issued, reference is made to the Bond Ordinance.

This Bond is subject to redemption prior to maturity to the extent, and as provided in, the Sale Order.

**THIS BOND IS ISSUED UNDER ACT 233 AND ACT 94. IT IS A SELF-LIQUIDATING BOND AND IS NOT A GENERAL OBLIGATION OF THE ISSUER AND DOES NOT CONSTITUTE AN INDEBTEDNESS OF THE ISSUER WITHIN ANY CONSTITUTIONAL OR STATUTORY LIMITATION, BUT IS PAYABLE, BOTH AS TO PRINCIPAL AND INTEREST SOLELY FROM THE PLEDGED ASSETS OF THE WATER SYSTEM. THE PAYMENT OF THE PRINCIPAL OF AND INTEREST ON THIS BOND ARE SECURED BY A STATUTORY LIEN ON THE PLEDGED ASSETS AS DESCRIBED HEREIN.**

The Issuer has covenanted and agreed, and hereby covenants and agrees, to fix and maintain, or cause to be fixed and maintained, at all times while any bonds payable from the Pledged Assets of the Water System shall be outstanding, such rates for service furnished by the Water System as shall be sufficient to provide for payment of the interest upon and the principal of this Bond and all other Bonds (as defined in the Bond Ordinance) assumed or issued and to be issued under the Bond Ordinance as and when the same shall become due and payable, to create and maintain a bond redemption fund therefor, including a bond reserve, to provide for the payment of expenses of administration and operation and such expenses for maintenance of the System as are necessary to preserve the same in good repair and working order, and to provide for such other expenditures and funds for the Water System, all as are required by the Bond Ordinance.

This Bond is transferable only upon the books of the Issuer kept for that purpose at the office of the Trustee by the registered owner hereof in person, or by his attorney duly authorized in writing, upon the surrender of this Bond together with a written instrument of transfer satisfactory to the Trustee duly executed by the registered owner or his attorney duly authorized in writing, and thereupon a new registered bond or bonds of the same type, in the same aggregate principal amount and of the same maturity shall be issued to the transferee in exchange therefor as provided in the Ordinance and upon the payment of the charges, if any, therein prescribed.

It is hereby certified and recited that all acts, conditions and things required by law precedent to and in the issuance of this Bond have been done and performed by regular and due time and form as required by law.

This Bond is not valid or obligatory for any purpose until the Trustee's Certificate of Authentication hereon has been executed by the Trustee.

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IN WITNESS WHEREOF, the Great Lakes Water Authority, Counties of Macomb, Oakland and Wayne, State of Michigan, has caused this Bond to be signed in its name by the facsimile signatures of its Chief Executive Officer and its Secretary of the Board, and its corporate seal to be printed, impressed or otherwise reproduced hereon, all as of the Original Issue Date.

GREAT LAKES WATER AUTHORITY

By: \_\_\_\_\_  
Chief Executive Officer

Countersigned:

By: \_\_\_\_\_  
Secretary, Board of Directors

[Seal]



## **CERTIFICATE OF AUTHENTICATION**

This Bond is authenticated one of the bonds designated by the Issuer as “Water Supply System [Revenue] [Revenue Refunding] [Senior Lien] [Second Lien] Bonds, Series 2016\_\_”.

U.S. Bank National Association,  
Trustee

By: \_\_\_\_\_

Date of Authentication: \_\_\_\_\_, 2016

## ASSIGNMENT

For value received, the undersigned sells, assigns and transfers unto \_\_\_\_\_ this Bond and all rights hereunder and hereby irrevocably appoints \_\_\_\_\_ attorney to transfer this Bond on the books kept for registration thereof with full power of substitution in the premises.

Dated: \_\_\_\_\_

Signature

**NOTICE:** The signature to this assignment must correspond with the name as it appears on the face of this Bond in every particular.

END OF BOND FORM

Section 5. Payment of 2016 Bonds; Confirmation of Statutory Lien.

(a) The 2016 Bonds and the interest thereon shall be payable solely from the Pledged Assets.

(b) To secure payment of the 2016 Bonds, the statutory lien upon the whole of the Pledged Assets established by Act 94 and the pledge created in Section 501 of the Ordinance is hereby confirmed in favor of the 2016 Bonds as follows:

- (1) Such lien in favor of the 2016 Senior Lien Bonds shall be a first lien of equal standing and Priority of Lien with all issued, to be issued and outstanding Senior Lien Bonds.
- (2) Such lien in favor of the 2016 Second Lien Bonds shall be a second lien of equal standing and Priority of Lien with all issued, to be issued and outstanding Second Lien Bonds.

Section 6. Concerning the Securities Depository.

(a) As used herein:

“Beneficial Owner” means any Person who indirectly owns 2016 Bonds pursuant to the indirect ownership system maintained by the Securities Depository and its Participants, commonly known as the “Book-Entry Only System.”

“Participant” means any Person whose ownership of 2016 Bonds is shown on books of the Securities Depository.

(b) Initially, one fully-registered bond for each maturity of each Series of 2016 Bonds, in the aggregate principal amount of such maturity, shall be issued in the name of Cede & Co., as nominee of the Securities Depository, for the benefit of the Participants in the Book-Entry Only System. While the 2016 Bonds are registered in the name of a Securities Depository or its nominee, neither the Authority nor the Trustee shall have any responsibility or obligation to any Participant or to any Beneficial Owner with respect to any matter, including the following:

- (1) the accuracy of the records of the Securities Depository, its nominee or any Participant with respect to any ownership interest in 2016 Bonds,
- (2) the delivery to any Participant, Beneficial Owner or any other Person other than the Securities Depository of any notice with respect to any 2016 Bonds, including any notice of redemption, or
- (3) the payment to any Participant, Beneficial Owner or any other Person, other than the Securities Depository of any amount with respect to the principal (and premium, if any) of or interest on any 2016 Bonds.

(c) The Trustee shall pay all principal (and premium, if any) of and interest on the 2016 Bonds only to or upon the order of the Securities Depository, and all such payments shall be valid

and effective fully to satisfy and discharge the Authority's obligations with respect to the principal (and premium, if any) of, and interest on such 2016 Bonds to the extent of the sum or sums so paid.

(d) If (1) the Authority receives a written notice from the Securities Depository to the effect the Securities Depository is unable or unwilling to discharge its responsibilities or (2) the Authority determines that it is in the best interests of the Beneficial Owners of 2016 Bonds that they be able to obtain 2016 Refunding Bonds in certificated form, then, in either event, the Authority shall notify the Trustee and, in the case of clause, (2), the Securities Depository.

(e) Upon discontinuance of the use of the Book-Entry Only System maintained by the Securities Depository pursuant to subsection (d) above and upon receipt of notice from the Securities Depository containing sufficient information, the Authority shall execute and the Trustee shall authenticate and deliver 2016 Bonds in certificated form to Beneficial Owners in exchange for the beneficial interests of such Beneficial Owners in corresponding principal amounts and in any Authorized Denominations.

(f) Notwithstanding any other provision of this 2016 Series Ordinance to the contrary, so long as any 2016 Bond is registered in the name of the Securities Depository or its nominee:

- (1) all payments with respect to the principal, premium, if any, and interest on such 2016 Bond and all notices of redemption, tender and otherwise with respect to such 2016 Bond shall be made and given, respectively, to the Securities Depository as provided in the blanket issuer letter of representations between the Authority and the Securities Depository;
- (2) if less than all of the 2016 Bonds of the same type of any maturity are to be redeemed, then the particular 2016 Bonds or portions of 2016 Bonds of such type and maturity to be redeemed shall be selected by the Securities Depository in any such manner as the Securities Depository may determine;
- (3) all payments with respect to principal of the 2016 Bonds and premium, if any and interest on the 2016 Bonds shall be made in such manner as shall be prescribed by the Securities Depository; and
- (4) if a 2016 Bond is redeemed or tendered in part, then all amounts payable in respect of such redemption or tender shall be paid without presentation and surrender of such 2016 Bond pursuant to the procedures of the Securities Depository.

#### Section 7. Credit Facility.

(a) An Authorized Officer is authorized to negotiate and obtain a Credit Facility with respect to the 2016 Refunding Bonds, if the Authorized Officer determines that it is in the best interest of the Authority. An Authorized Officer is further authorized to renegotiate the terms of any outstanding Credit Facility, if the Authorized Officer determines that it is in the best interest of the Authority.

(b) An Authorized Officer is authorized to pay the cost of any such Credit Facility from the proceeds of the 2016 Bonds or any other funds legally available therefor.

(c) An Authorized Officer is authorized to make such covenants and agreements of the Authority as shall be necessary or appropriate in any agreement with the Credit Entity providing such Credit Facility.

Section 8. Funds and Accounts; Flow of Funds. Except as otherwise provided in this 2016 Series Ordinance, all of the provisions relative to funds and accounts, their maintenance, the flow of funds and other details relative thereto, shall remain as specifically set forth in the Ordinance.

Section 9. Disposition of Proceeds.

(a) 2016 Senior Lien New Money Bonds.

- (1) Disposition of Accrued Interest [and Capitalized Interest]. From the proceeds of the sale of the 2016 Senior Lien New Money Bonds there shall be immediately deposited in the Senior Lien Debt Service Account, an amount equal to any accrued interest received on the delivery of the 2016 Senior Lien New Money Bonds [and any capitalized interest on the 2016 Senior Lien New Money Bonds], and the Authority may take credit for the amount so deposited against the amount required to be deposited in the Senior Lien Debt Service Account for payment of the next maturing interest payment on the 2016 Senior Lien New Money Bonds.
- (2) Senior Lien Bond Reserve Account Deposit. If required as provided in Section 4(g) of this 2016 Series Ordinance, from the proceeds of the 2016 Senior Lien New Money Bonds, there shall next be applied an amount as set forth in the Sale Order to be deposited to the Senior Lien Bond Reserve Account at least equal to the 2016 Senior Lien Reserve Requirement after taking into account any Credit Facility or Credit Facilities to be acquired with the proceeds of the 2016 Senior Lien New Money Bonds or any other funds legally available therefor.
- (3) Construction Fund. The balance of the proceeds of the 2016 Senior Lien New Money Bonds shall be deposited in the Construction Fund, Series 2016 and used to pay Project Costs as provided in Section 10.

(b) 2016 Second Lien New Money Bonds.

- (1) Disposition of Accrued Interest [and Capitalized Interest]. From the proceeds of the sale of the 2016 Second Lien New Money Bonds there shall be immediately deposited in the Second Lien Debt Service Account, an amount equal to any accrued interest received on the delivery of the 2016 Second Lien New Money Bonds [and any capitalized interest on the 2016 Second Lien New Money Bonds], and the Authority may take credit for the amount so deposited against the amount required to be deposited in the

Second Lien Debt Service Account for payment of the next maturing interest payment on the 2016 Second Lien New Money Bonds.

- (2) Second Lien Bond Reserve Account Deposit. If required as provided in Section 4(g) of this 2016 Series Ordinance, from the proceeds of the 2016 Second Lien New Money Bonds, there shall next be applied an amount as set forth in the Sale Order to be deposited to the Second Lien Bond Reserve Account at least equal to the 2016 Second Lien Reserve Requirement after taking into account any Credit Facility or Credit Facilities to be acquired with the proceeds of the 2016 Second Lien New Money Bonds or any other funds legally available therefor.
- (3) Construction Fund. The balance of the proceeds of the 2016 Second Lien New Money Bonds shall be deposited in the Construction Fund, Series 2016 and used to pay Project Costs as provided in Section 10.

(c) 2016 Senior Lien Refunding Bonds.

- (1) Disposition of Accrued Interest: From the proceeds of the sale of the 2016 Senior Lien Refunding Bonds there shall be immediately deposited in the Senior Lien Bond and Interest Redemption Fund an amount equal to any accrued interest received on the delivery of the 2016 Senior Lien Refunding Bonds, and the Authority may take credit for the amount so deposited against the amount required to be deposited in the Senior Lien Bond and Interest Redemption Fund for payment of the next maturing interest payment on the 2016 Senior Lien Refunding Bonds.
- (2) Senior Lien Bond Reserve Account Deposit. If required as provided in Section 4(g) of this 2016 Series Ordinance, from the proceeds of the 2016 Senior Lien Refunding Bonds, there shall next be applied an amount as set forth in the Sale Order to be deposited to the Senior Lien Bond Reserve Account at least equal to the 2016 Senior Lien Reserve Requirement after taking into account any Credit Facility or Credit Facilities to be acquired with the proceeds of the 2016 Senior Lien Refunding Bonds or any other funds legally available therefor.
- (3) Issuance Costs: As provided in the Sale Order, a portion of the proceeds from the sale of the 2016 Senior Lien Refunding Bonds shall be applied to the payment of Issuance Costs upon submission of proper documentation to an Authorized Officer.
- (4) Escrow Deposit: As provided in the Sale Order, the balance of the proceeds from the sale of the 2016 Senior Lien Refunding Bonds shall be used to acquire Government Obligations, which together with any remaining balance of such proceeds in the form of cash, shall constitute all or part of the Escrow Deposit to be held in the Escrow Fund.

(d) 2016 Second Lien Refunding Bonds.

- (1) Disposition of Accrued Interest: From the proceeds of the sale of the 2016 Second Lien Refunding Bonds there shall be immediately deposited in the Second Lien Bond and Interest Redemption Fund an amount equal to any accrued interest received on the delivery of the 2016 Second Lien Bonds, and the Authority may take credit for the amount so deposited against the amount required to be deposited in the Second Lien Bond and Interest Redemption Fund for payment of the next maturing interest payment on the 2016 Second Lien Refunding Bonds.
- (2) Second Lien Bond Reserve Account Deposit. If required as provided in Section 4(g) of this 2016 Series Ordinance, from the proceeds of the 2016 Second Lien Refunding Bonds, there shall next be applied an amount as set forth in the Sale Order to be deposited to the Second Lien Bond Reserve Account at least equal to the 2016 Second Lien Reserve Requirement after taking into account any Credit Facility or Credit Facilities to be acquired with the proceeds of the 2016 Second Lien Refunding Bonds or any other funds legally available therefor.
- (3) Issuance Costs: As provided in the Sale Order, a portion of the proceeds from the sale of the 2016 Second Lien Refunding Bonds shall be applied to the payment of Issuance Costs upon submission of proper documentation to an Authorized Officer.
- (4) Escrow Deposit: As provided in the Sale Order, the balance of the proceeds from the sale of the 2016 Second Lien Refunding Bonds shall be used to acquire Government Obligations, which together with any remaining balance of such proceeds in the form of cash, shall constitute all or part of the Escrow Deposit to be held in the Escrow Fund.

Section 10. Construction Fund. A subaccount of the Authority Regional Construction Account of the Construction Fund established by the Ordinance shall be established for the 2016 New Money Bonds and designated the "Construction Fund, Series 2016," and shall be established and maintained as a separate depository account with a Custodian as designated by the Chief Financial Officer.

(a) Moneys in the Construction Fund, Series 2016 shall be applied solely to payment of Project Costs (or to the reimbursement of Project Costs paid by the Authority from other funds prior to the issuance of the 2016 New Money Bonds).

- (1) Payments or reimbursement for Project Costs for construction, either on account or otherwise, shall not be made unless the registered engineer in charge of such work shall file with an Authorized Officer a signed statement to the effect that the work has been completed in accordance with the plans and specifications therefor, that it was done pursuant to and in accordance with the contract therefor, that such work is satisfactory and that such work has not been previously paid for.

- (2) Payment or reimbursement for Project Costs consisting of Issuance Costs and engineering, legal and financial costs shall be made upon submission of appropriate documentation to an Authorized Officer.

Section 11. Escrow Fund; Escrow Agreement.

(a) Establishment of Escrow Fund. The Escrow Deposit shall be held in or credited to an account designated as the “Great Lakes Water Authority Water Supply System Revenue Bonds Series 2016 Refunding Bonds Escrow Fund” (the “Escrow Fund”) pursuant to an escrow agreement (the “Escrow Agreement”).

(b) Escrow Agreement.

- (1) An Authorized Officer is authorized to enter into the Escrow Agreement on behalf of the Authority with U.S. Bank National Association as “Escrow Trustee.”
- (2) The Escrow Agreement:
  - a) shall be in the form and substance customary for refunding escrow agreements;
  - b) may permit any balance after paying the principal (and premium, if any) and interest on the Bonds To Be Refunded to be applied to any lawful purpose of the Water System if such use will not, in the opinion of Bond Counsel, impair the exclusion of interest on the 2016 Refunding Bonds that are Tax-Exempt 2016 Bonds from gross income for federal income tax purposes; and
  - c) shall otherwise be in the best interests of the Authority as determined by an Authorized Officer, as conclusively established by her execution of the Escrow Agreement.

Section 12. Tax Covenant.

(a) The Authority hereby covenants and represents with the registered owners of the Tax-Exempt 2016 Bonds that so long as any of the Tax-Exempt 2016 Bonds remain outstanding and unpaid as to either principal or interest, the Authority shall, to the extent permitted by law, take all actions within its control to maintain and will refrain from taking any action which would impair the exclusion of the interest on the Tax-Exempt 2016 Bonds from gross income for federal income tax purposes under the Code.

(b) The actions referred to in subsection (a) above include, but are not limited to, actions relating to any required rebate of arbitrage earnings and the expenditure and investment of proceeds of Tax-Exempt 2016 Bonds and moneys deemed to be proceeds of Tax-Exempt 2016 Bonds, and to prevent the Tax-Exempt 2016 Bonds from being or becoming “private activity bonds” as that term is used in the Code.



Section 13. Preliminary and Final Official Statements.

(a) An Authorized Officer shall assist in the preparation of the Preliminary Official Statement and is authorized to deem the portions of Preliminary Official Statement relating to the 2016 Bonds and the Authority “final” for purposes of the Rule.

(b) The Preliminary Official Statement with such changes and additions as an Authorized Officer shall approve shall constitute the final Official Statement, and an Authorized Officer is authorized to execute the final Official Statement on behalf of the Authority approved by her with such changes as the Authorized Officer may authorize.

(c) Such final Preliminary Official Statement and final Official Statement and other offering materials satisfactory to an Authorized Officer are authorized to be distributed by the Underwriter in conjunction with the offering and sale of the 2016 Bonds.

Section 14. Continuing Disclosure. Unless otherwise set forth in the Sale Order because of an exemption from the Rule, the 2016 Bonds shall be subject to the Rule, and an Authorized Officer is authorized to execute and deliver the Continuing Disclosure Undertaking in form and substance customary for continuing disclosure undertakings entered into pursuant to the Rule.

Section 15. Sale of 2016 Bonds; Purchase Agreement.

(a) The 2016 Bonds shall be sold by negotiated sale to the Underwriter pursuant to a Purchase Agreement or Agreements in customary form with such changes thereto as an Authorized Officer shall determine are in the best interests of the Authority, within the parameters established by this 2016 Series Ordinance. Such determination shall be conclusively established by the Authorized Officer’s execution of the Purchase Agreement or Agreements.

(b) The Authority Board hereby determines that the sale of the 2016 Bonds by negotiated sale as described in subsection (a) is in the best interests of the Authority and will allow the 2016 Bonds to be sold in the most efficient manner so as to result in the lowest possible borrowing costs to the Authority.

(c) An Authorized Officer is authorized to accept, on behalf of the Authority, an offer from the Underwriter to purchase the 2016 Bonds subject to the following limitations:

- (1) The interest rate coupon with respect to the 2016 Bonds shall not exceed 5.75%.
- (2) The purchase price of the 2016 Bonds shall not be less than 99% of the principal amount thereof.
- (3) The Underwriter’s discount with respect to the 2016 Bonds or the compensation to be paid to the Underwriter shall not exceed 0.35% of the principal amount of the 2016 Bonds.

- (4) The present value of the savings (net of Issuance Costs) to be realized by the issuance of the 2016 Refunding Bonds shall be equal to or greater than 7% of the principal amount of the Bonds To Be Refunded.

(d) An Authorized Officer is authorized to determine if the Purchase Agreement shall provide for liquidated damages and if so, the amount thereof, and if the purchaser of the 2016 Bonds is required to provide a good faith check and if so, the amount thereof.

(e) An Authorized Officer shall confirm in the Sale Order that there was no petition meeting the requirements of Section 33 of Act 94 that was filed with the Secretary of the Authority Board within 45 days of the date of publication of the notice of intent to issue bonds with respect to the 2016 New Money Bonds as required by Section 33 of Act 94.

Section 16. Delegation of Authority to and Authorization of Actions of Authorized Officers.

(a) An Authorized Officer shall make all determinations herein provided to be made in the Sale Order and shall make all such determinations in accordance with the best interests of the Authority within the parameters of this 2016 Series Ordinance.

(b) In addition to determinations authorized elsewhere in this 2016 Series Ordinance, an Authorized Officer shall determine the Bonds To Be Refunded (from the Outstanding DWSD Water Bonds) and aggregate principal amount of 2016 Refunding Bonds to be issued, but not in excess of the aggregate principal amount authorized by this 2016 Series Ordinance. An Authorized Officer shall also determine and establish, in accordance with this 2016 Series Ordinance, the maturities of the 2016 Bonds, whether such maturities shall be serial or term maturities and the Mandatory Redemption Requirements for any term maturities, and the redemption provisions for the 2016 Bonds.

(c) In addition to determinations authorized elsewhere in this 2016 Series Ordinance, an Authorized Officer shall determine the aggregate principal amount of 2016 New Money Bonds to be issued, but not in excess of the aggregate principal amount authorized by this 2016 Series Ordinance, on the basis of her evaluation of the maximum amount of 2016 New Money Bonds which can be sold, given anticipated interest rates and the revenue coverage requirements with respect to the 2016 New Money Bonds and for any other reasons the Authorized Officer deems appropriate.

- (1) Such determination shall also include the type or types of 2016 New Money Bonds to be issued, whether to issue the 2016 New Money Bonds as Senior Lien Bonds or Second Lien Bonds and if in one or more Series, and the redemption provisions for the 2016 New Money Bonds.
- (2) An Authorized Officer shall also determine and establish, in accordance with this 2016 Series Ordinance, the maturities of the 2016 New Money Bonds, whether such maturities shall be serial or term maturities and the Mandatory Redemption Requirements for any term maturities.

(d) An Authorized Officer is authorized to file applications and to pay the related fees, if any, to the Michigan Department of Treasury at her discretion under Act 34 for one or more orders of approval to issue all or a portion of the 2016 Bonds, and such waivers or other Treasury approvals as necessary to implement the sale, delivery and security for the 2016 Bonds as authorized herein, and as required by the Michigan Department of Treasury or Act 34.

(e) An Authorized Officer shall determine in the Sale Order that the requirements set forth in Section 207 of the Ordinance with respect to the issuance of the 2016 Bonds as Additional Bonds have been satisfied.

(f) An Authorized Officer is hereby authorized and directed to do and perform any and all other acts and things with respect to the 2016 Bonds which are necessary or appropriate to carry into effect, consistent with the Ordinance and this 2016 Series Ordinance, the authorizations therein and herein contained including without limitation the securing of ratings by bond rating agencies, and the incurring of reasonable fees costs and expenses incidental to the foregoing, for and on behalf of the Authority.

Section 17. Advancement of Project Costs. At the direction of an Authorized Officer, the Authority may advance certain Project Costs from the Authority's funds prior to the issuance of the 2016 New Money Bonds to the extent that such costs are expenditures appropriate for reimbursement under applicable law, including the Code.

Section 18. Ratification. All determinations and decisions of an Authorized Officer heretofore taken with respect to the issuance and sale of the 2016 Bonds as permitted or required by the Ordinance or law are hereby ratified, confirmed and approved.

Section 19. Additional Authorization. The Chief Executive Officer, the Chief Financial Officer and the Chief Administrative and Compliance Officer/General Counsel of the Authority, any such officials acting in an interim or acting capacity to such officers, their deputies and staff, or any of them, are hereby authorized to execute and deliver such certificates, letters of representation, documents, instruments, opinions and other papers as may be deemed necessary or appropriate to complete the sale, execution and delivery of the 2016 Bonds and otherwise give effect to the transactions contemplated by this 2016 Series Ordinance, as determined by such officials executing and delivering the foregoing items.

Section 20. 2016 Series Ordinance a Contract. The provisions of this 2016 Series Ordinance shall constitute a contract between the Authority and each registered owner of an outstanding 2016 Bond.

Section 21. Professional Services.

(a) Dickinson Wright PLLC is hereby appointed as Bond Counsel for the 2016 Bonds, notwithstanding the periodic representation by Dickinson Wright PLLC in unrelated matters of other parties and potential parties to the issuance of the 2016 Bonds.

(b) Public Financial Management, Inc. is hereby appointed as Financial Advisor for the 2016 Bonds, notwithstanding the periodic representation by Public Financial Management, Inc. in unrelated matters of other parties and potential parties to the issuance of the 2016 Bonds.

(c) The fees and expenses of Dickinson Wright PLLC and Public Financial Management, Inc. shall be payable as an Issuance Cost from the proceeds of the 2016 Bonds or other available funds.

(d) An Authorized Officer is authorized to engage other consultants, including, without limitation, verification agents or other parties as she deems necessary or appropriate in connection with the sale, issuance and delivery of the 2016 Bonds and to pay the fees and expenses thereof from the proceeds of the 2016 Bonds or other available funds.

Section 22. Severability; Headings; and Conflict. If any section, paragraph, clause or provision of this 2016 Series Ordinance shall be held invalid, the invalidity of such section, paragraph, clause or provision shall not affect any of the other provisions of this 2016 Series Ordinance. The section and paragraph headings in this 2016 Series Ordinance are furnished for convenience of reference only and shall not be considered to be part of this 2016 Series Ordinance.

Section 23. Amendments to Ordinance.

(a) Pursuant to Section 1103 of the Ordinance, the Ordinance is amended as follows:

(1) The definition of “Reserve Requirement” in Section 101 of the Ordinance is hereby amended by adding the following to the end of that definition:

“Notwithstanding the foregoing, (i) in the case of Senior Lien Bonds secured by the Senior Lien Bond Reserve Account, upon satisfaction of the conditions set forth in Section 506(e) of this Ordinance, the Reserve Requirement for all Outstanding Senior Lien Bonds secured by the Senior Lien Bond Reserve Account, regardless of when issued, at the election of the Authority set forth in a written notice to the Trustee, may be reduced or eliminated, and if reduced, the reduced Reserve Requirement in no event to be in excess of the maximum permitted by the Code, and (ii) in the case of Second Lien Bonds secured by the Second Lien Bond Reserve Account, upon the satisfaction of the conditions set forth in Section 506(f) of this Ordinance, the Reserve Requirement for all Outstanding Second Lien Bonds secured by the Second Lien Bond Reserve Account, regardless of when issued, at the election of the Authority set forth in a written notice to the Trustee, may be reduced or eliminated, and if reduced, the reduced Reserve Requirement in no event to be in excess of the maximum permitted by the Code.”

(2) A new subsection (e) of Section 506 is added to the Ordinance to read as follows:

“(e) The Authority may elect to reduce or eliminate the Reserve Requirement for all Outstanding Senior Lien Bonds secured by the Senior Lien Bond Reserve Account in accordance with the last sentence of the definition of Reserve Requirement in Section 101 at such time as the Authority shall have provided evidence to the Trustee that the Senior Lien Bonds are rated at least Aa3, AA- or AA- by at least two of Moody’s, S&P, and Fitch, respectively, and that neither of such ratings will be reduced solely as a result of the change in the Reserve Requirement for such Senior Lien Bonds. Such election shall be set forth in a written notice to the Trustee and shall be effective on the date of delivery of such notice to the Trustee. Following such election by the Authority, notwithstanding any other provision of this Ordinance, amounts on deposit in the Senior Lien Bond Reserve Account in excess of the Reserve Requirement for the Outstanding Senior Lien

Bonds secured by the Senior Lien Bond Reserve Account shall be transferred by the Trustee into the Senior Lien Debt Service Account, the Receiving Fund and/or the Surplus Fund, as directed by the Authority.”

- (3) A new subsection (f) of Section 506 is added to the Ordinance to read as follows:

“(f) The Authority may elect to reduce or eliminate the Reserve Requirement for all Outstanding Second Lien Bonds secured by the Second Lien Bond Reserve Account in accordance with the last sentence of the definition of Reserve Requirement in Section 101 at such time as the Authority shall have provided evidence to the Trustee that the Senior Lien Bonds are rated at least Aa3, AA- or AA- by at least two of Moody’s, S&P, and Fitch, respectively, and that neither of such ratings will be reduced solely as a result of the change in the Reserve Requirement for such Second Lien Bonds. Such election shall be set forth in a written notice to the Trustee and shall be effective on the date of delivery of such notice to the Trustee. Following such election by the Authority, notwithstanding any other provision of this Ordinance, amounts on deposit in the Second Lien Bond Reserve Account in excess of the Reserve Requirement for the Outstanding Second Lien Bonds secured by the Second Lien Bond Reserve Account shall be transferred by the Trustee into the Second Lien Debt Service Account, the Receiving Fund and/or the Surplus Fund, as directed by the Authority.”

(b) Pursuant to Section 1103 of the Ordinance, the amendments set forth in this Section 23 shall become effective only upon, (1) in the case of Senior Lien Bonds secured by the Senior Lien Bond Reserve Account, the consent or deemed consent (by purchasing such Senior Lien Bonds after the date of this Series Ordinance where the offering document with respect to such Bonds contains a description of the amendments in paragraphs (1) and (2) of subsection (a) of this Section 23) of the Holders of at least 51% of such Outstanding Senior Lien Bonds, and (2) in the case of Second Lien Bonds secured by the Second Lien Bond Reserve Account, the consent or deemed consent (by purchasing such Second Lien Bonds after the date of this Series Ordinance where the offering document with respect to such Bonds contains a description of the amendments in paragraphs (1) and (3) of subsection (a) of this Section 23) of the Holders of at least 51% of such Outstanding Second Lien Bonds,.

Section 24. Publication and Recordation. This 2016 Series Ordinance shall be published in full in the Detroit Legal News, a newspaper of general circulation within the geographic boundaries of the Authority qualified under State law to publish legal notices, promptly after its adoption, and shall be maintained in the official records of the Authority and such recording authenticated by the signatures of the Chairperson and Secretary of the Authority Board.

Section 25. Repeal. All ordinances, resolutions, indentures or orders, or parts thereof, in conflict with the provisions of this 2016 Series Ordinance are, to the extent of such conflict, repealed.

Section 26. Effective Date. This 2016 Series Ordinance shall be effective upon adoption.

Adopted and signed on the 10<sup>th</sup> day of August, 2016.

GREAT LAKES WATER AUTHORITY

Signed \_\_\_\_\_  
Chairperson

Signed \_\_\_\_\_  
Secretary

Troy 63818-8 1621633v4



## Financial Services Group Audit Committee Communication

**Date:** August 5, 2016

**To:** Great Lakes Water Authority Audit Committee

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

**Re:** Discussion: Application of the 4% Revenue Requirement Provision in the *Memorandum of Understanding Regarding the Formation of the Great Lakes Water Authority*

**Background:** The *Memorandum of Understanding Regarding the Formation of the Great Lakes Water Authority (MOU)*, executed on September 9, 2014, included the following provision.

*Each System, as a whole, is assumed to experience revenue requirement increases of not more than 4% for each of the first ten years under Authority management.*

A few items of note related to this language.

1. Within the context of the MOU, “system” refers to the water and sewer system.
2. “Revenue Requirement”, in general, is the sum of a) operations and maintenance expense, b) debt service, c) reserve funds, and less other non-operating revenue.
3. A source of the 4% is that it represented the pledge of the management team, since 2012, to operate the systems more efficiently through ongoing optimization. A goal of the optimization effort was to limit the increase in the revenue requirement to no more than 4%. This feasibility of this pledge was validated through a number of independent financial forecasts during the formation of the Authority. The foundation of those forecasts was applying a simple base year plus 4% per year for each year thereafter.

**Analysis:** As we begin to effectuate new financial opportunities that a regional authority presents, namely debt refunding savings, the need to define how to apply the 4% revenue requirement becomes evident. If the 4% is applied as an annual “year-to-year” ceiling, then there are some unintended consequences that could lead to alter preferred financial decisions. This became evident when evaluating how best to structure refunding savings. If savings are structured with a higher amount in early years (to offset revenue losses, for example), then the year to year approach, produces an overall artificial savings pattern. This is because refunding

savings opportunities are on multiple year cycles. The overly simplified table below attempts to portray this mathematical challenge.

**Table 1: Demonstration of Year-to-Year vs. Cumulative Interpretation of the 4% Revenue Requirement Ceiling**

Revenue Requirement Elements	Base Year Budget	Year Two Budget (Base Year Plus 4 %)	Year Three Budget (Refunding Savings; O&M at 3%)	Decision Point: Year Four Ceiling
Operations & Maintenance	40.00	41.60	42.85	Allocation among the elements produces potential unintended consequences
Debt Service	50.00	52.00	48.00	
Reserves	10.00	10.40	10.82	
<b>Scenario 1: Revenue Requirement Ceiling based on Year to Year Fluctuation</b>				
	100.00	104.00	101.66	105.73
<b>Variance</b>		4.00	(2.34)	
<b>Scenario 2: Revenue Requirement Ceiling based on 4% Cumulative</b>				
	100.00	104.00	108.16	112.49

In *Scenario 1: Revenue Requirement Ceiling based on Year to Year Fluctuation*, the refunding savings are shown in year three. The conundrum for year four is the impact of a material positive variance in one of the elements from year three, placing a mathematical downward pressure on year four. One downside would be pressure to restructure the savings to artificially preserve a higher revenue requirement when the optimal solution is increased allocation of refunding savings to accelerate the improvement of financial performance.

In *Scenario 2: Revenue Requirement Ceiling based on 4% Cumulative*, a ceiling is established based on 4% over time. The difference between the base year plus 4% annually and actual revenue requirement provides a clear measure of the GLWA's financial performance over time. That delta can be viewed as a quantifiable measure of the Authority achieving its intended financial purpose.

This matter has been reviewed with GLWA's bond counsel and feasibility consultant. Bond counsel will be present at the Audit Committee for this discussion and the feasibility consultant will have presentation materials. The consensus is that a 4% cumulative ceiling is consistent with the intent of the MOU and analysis prepared in support of the creation of the Authority. Subject to discussion with the Audit Committee, staff proposes that practices already in place and subsequent clarifications should be formalized in a policy. Other topics to include in that policy include FY 2016 Revenue Requirements as the base year, define revenue requirement consistent with other documents, quantify the 4% applied to the ten year period in the MOU and describe non-budgetary revenue variances.

**Proposed Action:** Receive and file report. Schedule consideration of a board policy at the September 2016 Audit Committee meeting.



# BS&A Update

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*Audit Committee*  
*August 5, 2016*



# Agenda

- BS&A Overview
- Embracing Change
- Timing and Structure
- Bonfires

# BS&A Overview

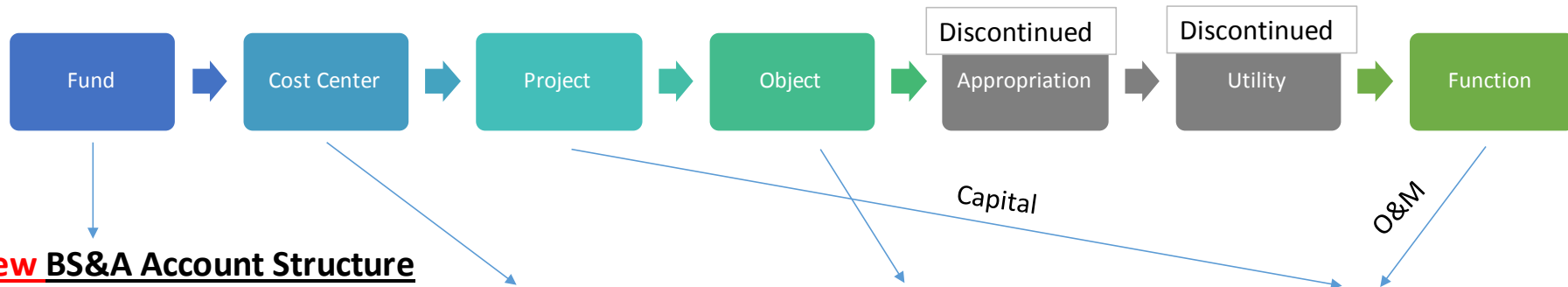


# What is BS&A?

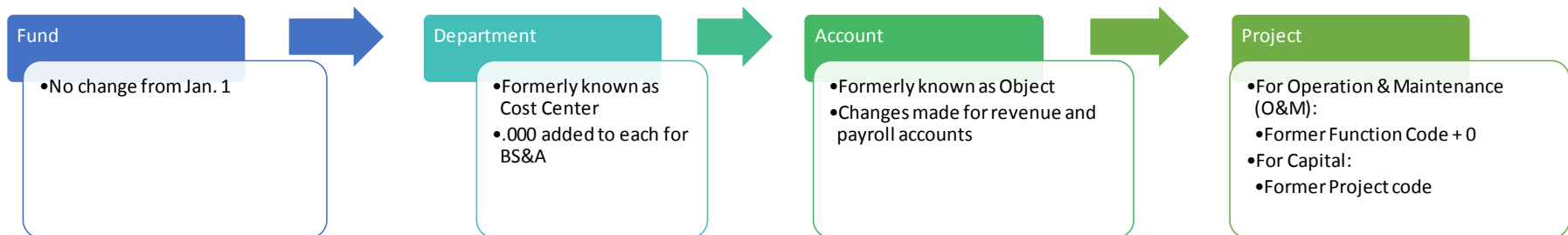
- GLWA's new financial software system
  - General Ledger, Accounts Payable, Purchasing, Fixed Assets, Wholesale Billing, Workflow Approval Processes
- Michigan-based company
- Well established municipal and utility software
- Many built-in best practice processes
- User-friendly software design
- Personal technical support located in Michigan

# GLWA Chart of Account Structure

## Prior DRMS Account Structure



## New BS&A Account Structure

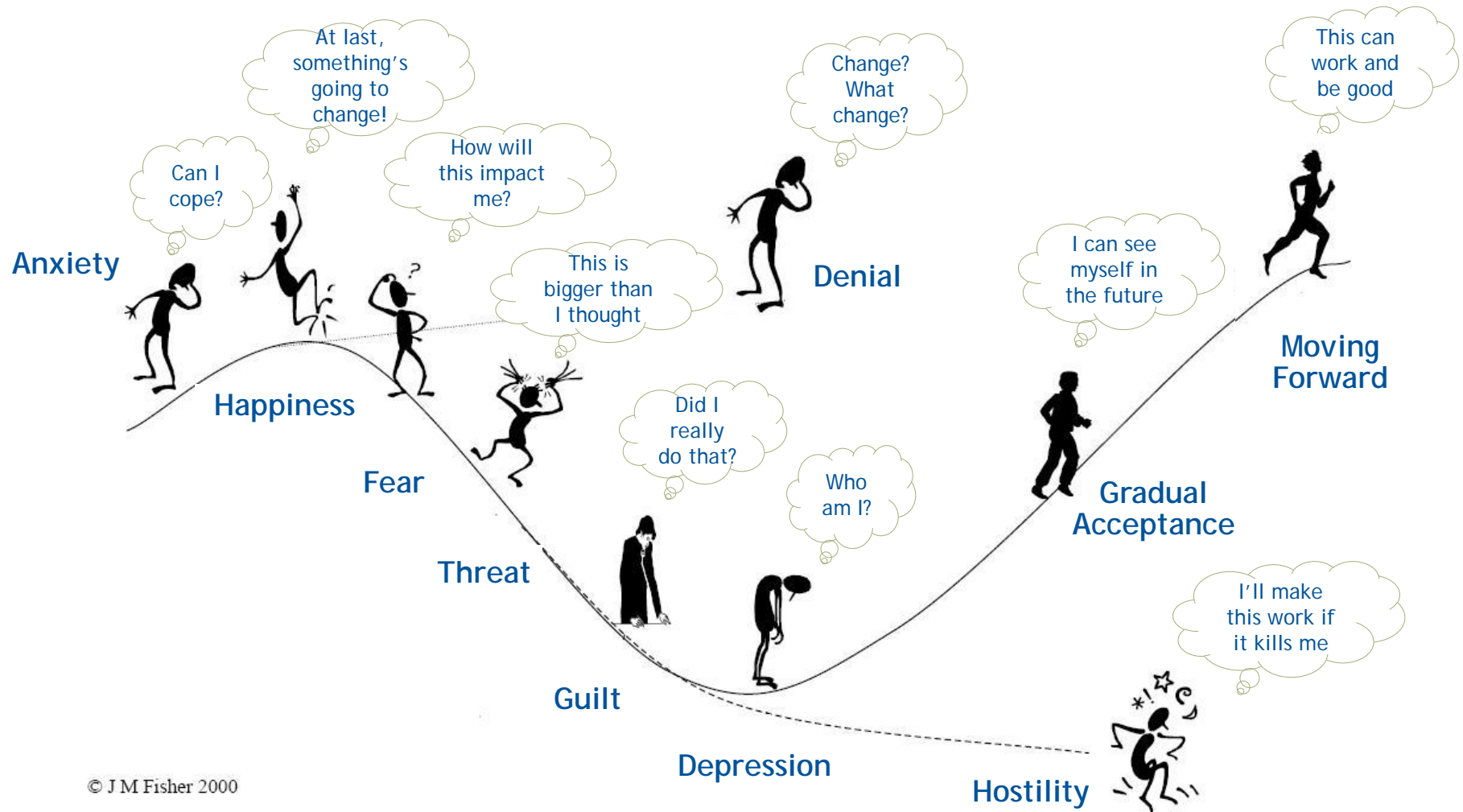


Note that the descriptions for some of the individual segments have been slightly updated within BS&A. The intent of each has stayed the same.

# Embracing Change



# The Process of Transition



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# Critical Success Factors

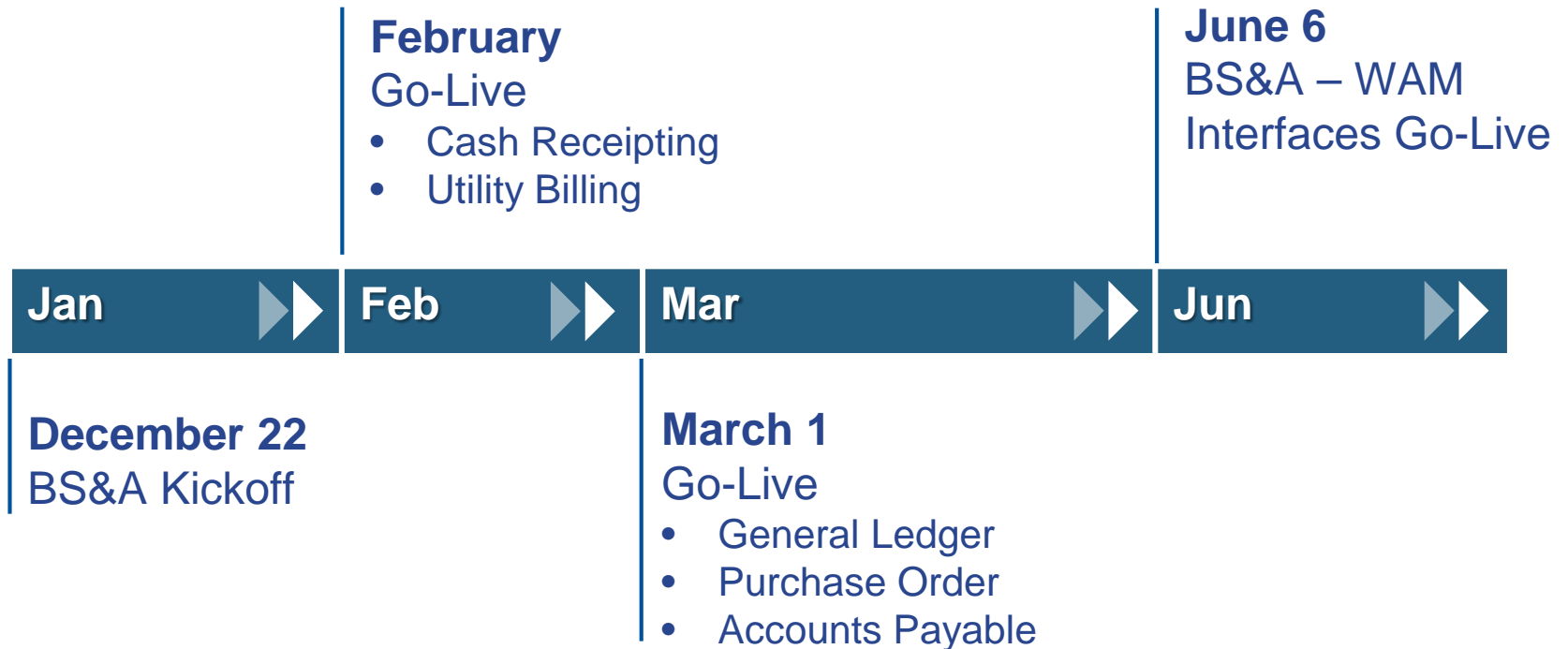
- Welcoming new ideas
  - “Yes, and...”
- Contributing ideas
- Owning business processes
- Listening and seeking to understand
- Identifying “win/win/win” opportunities
- Collaborating and teamwork
- Proactive communications
- Providing effective and ongoing support and training
- Establishing a framework for new processes and transparency
- Other (\_\_\_)



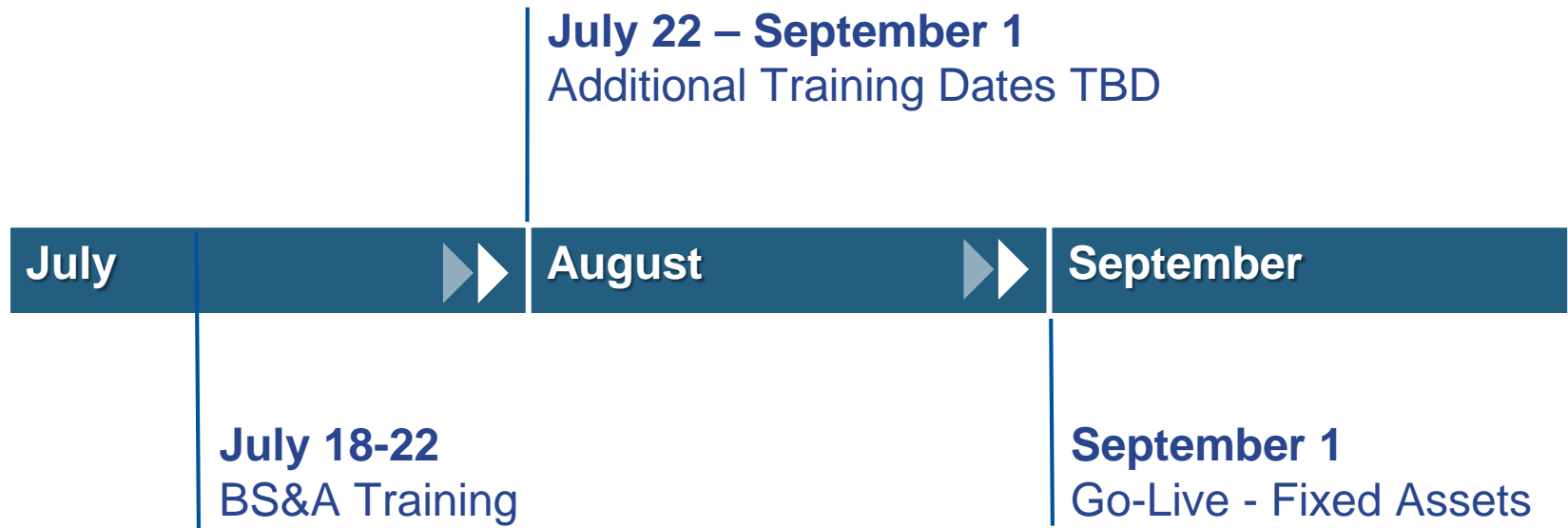
# Timing and Structure



# BS&A Key Dates – Past to Present



# BS&A Key Dates – Upcoming



# BS&A Organization Chart

## Executive Sponsors

Nickie Bateson  
CFO

### Legend

- Reporting Relationship
- Point of Contact

## Application Ownership

Mike Huber  
Functional Governance

Mike Mamros  
Line of Business Applications

Jenny Casler  
Application Governance

## Core Team

Module Owners

Project Management

Functional Experts

Department Support

Application Support

Infrastructure & Server Support

Service Desk Support

IT Security Support

# Bonfires



# Purpose

## What is a “BS&A Bonfire”?

- Regroup with stakeholders to share experiences and feedback

## Why have a “BS&A Bonfire”?

- Improve employee effectiveness
- Improve customer service
- Improve communications regarding progress

# Theme of Our First Bonfire

## “Mitosis”

- The process in which a cell splits apart and creates new cells

## Why have a “BS&A Mitosis”?

- Split our action items into new smaller projects
- Maintain momentum on BS&A implementation and post go-live support
- Manage the many tasks and many people involved
- Utilize resources more efficiently
- Focus meeting topics to improve productivity

# “Mitosis” Subprojects

1. Fixed Assets Module
2. Beginning Balances
3. Stock Checkout Requests
4. Invoice Approval Workflows
5. P-Card Imports
6. Bank Reconciliation
7. Ceridian Journal Entries
8. Manual Journal Entries
9. Budget Rollout





**GLWA**

*Great Lakes Water Authority*



## Financial Services Group Audit Committee Communication

**Date:** August 5, 2016

**To:** Great Lakes Water Authority Audit Committee

**From:** Jon Wheatley, Public Finance Manager

**Re:** FY 2016 Retail and Wholesale Sewer Revenue Report- Variance Analysis

**Background:** The included table summarize the unaudited FY 2016 wholesale customer sewer revenues billed by the Great Lakes Water Authority (“GLWA”) and the retail sewer revenues billed by the Detroit Water and Sewerage Department (“DWSD”). Please note these are billed revenues and do not reflect collections of those revenues. It should also be noted that the revenues are shown in the month that the billed flow was recorded and not the following month when the bills are usually sent out.

**DWSD Retail Billings:** The top portion of the table includes the billed volume and revenues for the DWSD retail customers for FY 2016. These numbers were provided by DWSD staff and includes only DWSD revenues from its commodity, fixed charge and service charge revenues, which is consistent with how retail revenues have historically been tracked. It should be noted, the FY 2016 numbers include an estimate of June 2016 volume and revenue (highlighted in yellow) as they were not available at the time of this report. As can be seen from the table, ***the FY 2016 billed volume is at 90.9% of budget and billed revenue at 96.8% of budget.***

**Wholesale Customer Billings:** The middle section of the table includes the billed volume and revenues for the wholesales customer class for the completed FY 2016. As a result of the sewer rate simplification which was designed to create a more stable revenue stream, the wholesale sewer customers are billed a fixed monthly fee which is not dependent on sewer usage. The results of this effort can be seen as ***the billed volume is at 100.0% of budget and billed revenue at 100.0% of budget.***

**Combined Billings:** The bottom section of the table includes the combined billed volume and revenues for FY 2016 for both DWSD retail and GLWA wholesale customers. As can be seen from the table, ***the total billed revenue is at 98.3% of budget.***

**Sewage Disposal System Revenue Analysis (Unaudited)**  
**Goal vs. Actual**

**RETAIL CUSTOMERS**

Month	FY 2016 - Goal		FY 2016 - Actual (1)		Variance	
	<u>Volume</u>	<u>Revenue</u>	<u>Volume</u>	<u>Revenue</u>	<u>Volume</u>	<u>Revenue</u>
	Mcf		Mcf		Mcf	
July	301,000	26,201,700	279,974	25,073,146	(21,026)	(1,128,554)
August	287,600	25,797,900	275,664	25,042,627	(11,936)	(755,273)
September	257,200	25,963,800	230,050	22,490,618	(27,150)	(3,473,182)
October	244,300	20,878,700	220,490	21,933,986	(23,810)	1,055,286
November	222,400	23,614,200	201,960	21,134,302	(20,440)	(2,479,898)
December	234,000	22,292,000	216,605	21,810,646	(17,395)	(481,354)
January	255,500	22,951,200	200,985	21,015,402	(54,515)	(1,935,798)
February	237,100	21,771,600	222,352	22,635,046	(14,748)	863,446
March	236,900	22,688,100	208,452	21,384,417	(28,448)	(1,303,683)
April	227,900	22,214,000	189,271	20,423,342	(38,629)	(1,790,658)
May	251,400	22,654,400	234,743	22,650,960	(16,657)	(3,440)
June	269,700	22,217,800	270,000 (2)	24,636,000 (2)	300	2,418,200
Total	3,025,000	279,245,400	2,750,546	270,230,492	(274,454)	(9,014,908)
Subtotals ytd	3,025,000	279,245,400	2,750,546	270,230,492	(274,454)	(9,014,908)
Achievement of Goal			90.9%	96.8%		

(1) Retail billed volume and billed revenue provided by DWSD Chief Financial Officer

(2) Estimated, final data not available.

**WHOLESALE CUSTOMERS**

Month	FY 2016 - Goal		FY 2016 - Actual		Variance	
	<u>Volume*</u>	<u>Revenue</u>	<u>Volume*</u>	<u>Revenue</u>	<u>Volume*</u>	<u>Revenue</u>
	Mcf		Mcf		Mcf	
July	N/A	21,177,000	N/A	21,237,360	N/A	60,360
August	N/A	21,177,000	N/A	21,177,000	N/A	0
September	N/A	21,177,000	N/A	21,177,000	N/A	0
October	N/A	21,177,000	N/A	21,177,000	N/A	0
November	N/A	21,177,000	N/A	21,177,000	N/A	0
December	N/A	21,177,000	N/A	21,177,000	N/A	0
January	N/A	21,177,000	N/A	21,177,000	N/A	0
February	N/A	21,177,000	N/A	21,177,000	N/A	0
March	N/A	21,177,000	N/A	21,177,000	N/A	0
April	N/A	21,177,000	N/A	21,177,000	N/A	0
May	N/A	21,177,000	N/A	21,177,000	N/A	0
June	N/A	21,177,000	N/A	21,177,000	N/A	0
Total		254,124,000		254,184,360		60,360
Subtotals ytd		254,124,000		254,184,360		60,360
Achievement of Goal				100.0%		

\* Not tracked as part of the wholesale sewer charges

**TOTAL - ALL CUSTOMERS**

Month	FY 2016 - Goal		FY 2016 - Actual		Variance	
	<u>Volume</u>	<u>Revenue</u>	<u>Volume</u>	<u>Revenue</u>	<u>Volume</u>	<u>Revenue</u>
	Mcf		Mcf		Mcf	
July	301,000	47,378,700	279,974	46,310,506	(21,026)	(1,068,194)
August	287,600	46,974,900	275,664	46,219,627	(11,936)	(755,273)
September	257,200	47,140,800	230,050	43,667,618	(27,150)	(3,473,182)
October	244,300	42,055,700	220,490	43,110,986	(23,810)	1,055,286
November	222,400	44,791,200	201,960	42,311,302	(20,440)	(2,479,898)
December	234,000	43,469,000	216,605	42,987,646	(17,395)	(481,354)
January	255,500	44,128,200	200,985	42,192,402	(54,515)	(1,935,798)
February	237,100	42,948,600	222,352	43,812,046	(14,748)	863,446
March	236,900	43,865,100	208,452	42,561,417	(28,448)	(1,303,683)
April	227,900	43,391,000	189,271	41,600,342	(38,629)	(1,790,658)
May	251,400	43,831,400	234,743	43,827,960	(16,657)	(3,440)
June	269,700	43,394,800	270,000	45,813,000	300	2,418,200
Total	3,025,000	533,369,400	2,750,546	524,414,852	(274,454)	(8,954,548)
Subtotals ytd	3,025,000	533,369,400	2,750,546	524,414,852	(274,454)	(8,954,548)
Achievement of Goal			90.9%	98.3%		

\* Figures are stated as "Service Months"; i.e. July figures represent bills issued in August, etc.



## Financial Services Group Audit Committee Communication

**Date:** August 5, 2016

**To:** Great Lakes Water Authority Audit Committee

**From:** Jon Wheatley, Public Finance Manager

**Re:** FY 2016 Retail and Wholesale Water Revenue Report- Variance Analysis

**Background:** The included table summarize the unaudited FY 2016 wholesale customer water revenues billed by the Great Lakes Water Authority (“GLWA”) and the retail water revenues billed by the Detroit Water and Sewerage Department (“DWSD”). Please note these are billed revenues and do not reflect collections of those revenues. It should also be noted that the revenues are shown in the month that the billed flow was recorded and not the following month when the bills are usually sent out.

**DWSD Retail Billings:** The top portion of the table includes the billed volume and revenues for the DWSD retail customers for FY 2016. These numbers were provided by DWSD staff and includes only DWSD revenues from its commodity, fixed charge and service charge revenues, which is consistent with how retail revenues have historically been tracked. It should be noted, the FY 2016 numbers include an estimate of June 2016 volume and revenue (highlighted in yellow) as they were not available at the time of this report. As can be seen from the table, ***the FY 2016 billed volume is at 93.3% of budget and billed revenue at 93.3% of budget.***

**Wholesale Customer Billings:** The middle section of the table includes the billed volume and revenues for the wholesales customer class for the completed FY 2016. As can be seen from the table, ***the billed volume is at 101.2% of budget and billed revenue at 100.8% of budget.***

Also included for your review is a report, by community, of the year to date budget vs actual analysis by customer community and a comparison of FY 2016 to FY 2015 performance.

**Combined Billings:** The bottom section of the table includes the combined billed volume and revenues for FY 2016 for both DWSD retail and GLWA wholesale customers. As can be seen from the table, ***the total billed volume is at 99.7% of budget and billed revenue at 98.8% of budget.***

**Water Supply System Revenue Analysis (Unaudited)**  
**Goal vs. Actual**

**RETAIL CUSTOMERS**

Month	FY 2016 - Goal			FY 2016 - Actual (1)			Variance	
	Volume	Revenue	Unit	Volume	Revenue	Unit	Volume	Revenue
	Mcf		\$/Mcf	Mcf		\$/Mcf	Mcf	
July	330,600	10,406,100	31.48	307,733	9,421,699	30.62	(22,867)	(984,401)
August	312,500	9,993,300	31.98	314,145	9,624,597	30.64	1,645	(368,703)
September	280,400	9,261,200	33.03	239,938	8,173,527	34.07	(40,462)	(1,087,673)
October	262,100	8,843,800	33.74	250,171	8,129,877	32.50	(11,929)	(713,923)
November	242,000	8,385,400	34.65	225,393	7,660,364	33.99	(16,607)	(725,036)
December	255,300	8,688,700	34.03	245,305	8,010,617	32.66	(9,995)	(678,083)
January	274,600	9,128,900	33.24	229,113	7,589,830	33.13	(45,487)	(1,539,070)
February	258,300	8,757,100	33.90	243,071	8,181,979	33.66	(15,229)	(575,121)
March	258,500	8,761,700	33.89	240,603	7,872,538	32.72	(17,897)	(889,162)
April	252,900	8,634,000	34.14	216,238	7,349,561	33.99	(36,662)	(1,284,439)
May	277,000	9,183,600	33.15	268,640	9,606,085	35.76	(8,360)	422,485
June	295,800	9,612,400	32.50	300,000 (2)	10,727,500 (2)	35.76	4,200	1,115,100
Total	3,300,000	109,656,200	33.23	3,080,350	102,348,174	33.23	(219,650)	(7,308,026)
Subtotals ytd	3,300,000	109,656,200	33.23	3,080,350	102,348,174	33.23	(219,650)	(7,308,026)
Achievement of Goal				93.3%		93.3%		

(1) Retail billed volume and billed revenue provided by DWSD Chief Financial Officer.

(2) Estimated, final data not available.

**WHOLESALE CUSTOMERS**

Month	FY 2016 - Goal			FY 2016 - Actual			Variance	
	Volume	Revenue	Unit	Volume	Revenue	Unit	Volume	Revenue
	Mcf		Revenue \$/Mcf	Mcf		Revenue \$/Mcf	Mcf	
July	1,485,130	28,452,200	19.16	1,484,928	27,991,867	18.85	(202)	(460,333)
August	1,445,540	28,220,700	19.52	1,525,278	29,144,269	19.11	79,738	923,569
September	1,289,730	26,407,400	20.48	1,406,260	27,637,331	19.65	116,530	1,229,931
October	1,130,720	24,931,200	22.05	1,135,048	25,028,541	22.05	4,328	97,341
November	966,910	23,566,700	24.37	935,394	23,304,814	24.91	(31,516)	(261,886)
December	1,056,610	24,218,700	22.92	989,529	23,615,719	23.87	(67,081)	(602,981)
January	1,087,910	24,532,600	22.55	1,013,414	23,883,542	23.57	(74,496)	(649,058)
February	987,500	23,671,400	23.97	918,834	23,146,909	25.19	(68,666)	(524,491)
March	1,078,300	24,465,700	22.69	1,001,069	23,791,579	23.77	(77,231)	(674,121)
April	1,003,640	23,812,900	23.73	970,919	23,557,087	24.26	(32,721)	(255,813)
May	1,181,850	25,608,700	21.67	1,173,546	25,657,605	0.00	(8,304)	48,905
June	1,407,010	27,611,700	19.62	1,739,652	31,164,158	0.00	332,642	3,552,458
Total	14,120,850	305,499,900	21.63	14,293,872	307,923,422	21.54	173,022	2,423,522
Subtotals ytd	14,120,850	305,499,900	21.63	14,293,872	307,923,422	21.54	173,022	2,423,522
Achievement of Goal				101.2%	100.8%	100%		

**TOTAL - ALL CUSTOMERS**

Month	FY 2016 - Goal			FY 2016 - Actual			Variance	
	Volume	Revenue	Unit	Volume	Revenue	Unit	Volume	Revenue
	Mcf		\$/Mcf	Mcf		\$/Mcf	Mcf	
July	1,815,730	38,858,300	21.40	1,792,661	37,413,566	20.87	(23,069)	(1,444,734)
August	1,758,040	38,214,000	21.74	1,839,423	38,768,866	21.08	81,383	554,866
September	1,570,130	35,668,600	22.72	1,646,198	35,810,858	21.75	76,068	142,258
October	1,392,820	33,775,000	24.25	1,385,220	33,158,418	23.94	(7,600)	(616,582)
November	1,208,910	31,952,100	26.43	1,160,787	30,965,178	26.68	(48,123)	(986,922)
December	1,311,910	32,907,400	25.08	1,234,834	31,626,336	25.61	(77,076)	(1,281,064)
January	1,362,510	33,661,500	24.71	1,242,527	31,473,372	25.33	(119,983)	(2,188,128)
February	1,245,800	32,428,500	26.03	1,161,905	31,328,888	26.96	(83,895)	(1,099,612)
March	1,336,800	33,227,400	24.86	1,241,673	31,664,117	25.50	(95,127)	(1,563,283)
April	1,256,540	32,446,900	25.82	1,187,157	30,906,648	26.03	(69,383)	(1,540,252)
May	1,458,850	34,792,300	23.85	1,442,186	35,263,691	24.45	(16,664)	471,391
June	1,702,810	37,224,100	21.86	2,039,652	41,891,658	20.54	336,842	4,667,558
Total	17,420,850	415,156,100	23.83	17,374,222	410,271,596	23.61	(46,628)	(4,884,504)
Subtotals ytd	17,420,850	415,156,100	23.83	17,374,222	410,271,596	23.61	(46,628)	(4,884,504)
Achievement of Goal				99.7%		98.8%		

\* Figures are stated as "Service Months"; i.e. July figures represent bills issued in August, etc.



## Financial Services Group Audit Committee Communication

**Date:** August 5, 2016  
**To:** Great Lakes Water Authority Audit Committee  
**From:** Jon Wheatley, Public Finance Manager  
 Cindy Cezat, Financial Management Professional  
**Re:** Wholesale Accounts Receivable Aging Report

### **Monthly Analysis- As of July 31, 2016**

The first page of the report is a summary of total, current and non-current receivables by category. The bottom of the page shows the summary of the City of Highland Park receivables and what the aging report would look like without the past due balances of the City of Highland Park. The pages that follow are the detailed aging reports for each customer category.

**Water Accounts-** The total receivables were \$39,613,281 with current receivables of \$35,121,944 and past due receivables of \$4,491,337, of which \$353,735 was received from the City of Taylor on August 2, 2016 and \$541,923 related to a billing dispute with NOCWA to which GLWA proposed a settlement on July 20, 2016. All receivables over 75 days are related to the City of Highland Park, which is a combined \$3,493,582.

**Sewer Accounts-** The total receivables were \$46,529,858 with current receivables of \$20,429,800. The City of Highland Park represents almost all of the non-current past due balances with \$26,055,521 past due.

**IWC (Industrial Waste Charge) Accounts-** The total receivables were \$2,310,929 with current receivables of \$873,184 and past due receivables of \$1,437,745. The City of Highland Park represents \$1,433,133 of the receivables over 75 days.

**Pollutant Surcharge Accounts-** The total receivables were \$883,554 with current receivables of \$603,196 and past due receivables of \$280,359. There are still several accounts that represent a majority of the past due amount (over 105 days). They represent \$256,458 of the \$261,765 over 105 days and have been contacted for payment or referred to the legal department.

**Miscellaneous Accounts-** The total receivables were \$4,814,187 with current receivables of \$796,608 and past due receivables of \$4,017,579. The receivables greater than 75 days are related to the Shared Services Agreement with the City of Detroit Water & Sewerage Department (DWSD) for \$3,941,289. The latter is subject to a first-time true-up process underway where amounts are also owed by GLWA to DWSD for shared services.

**GLWA Aged Accounts Receivable-Summary**  
**Balances as of July 31, 2016**

<b>All Accounts</b>					
	<b>Total</b>		<b>Current</b>		<b>Non-Current</b>
Water	\$ 39,613,280.60	\$	35,121,943.53	\$	4,491,337.07
Sewer	\$ 46,529,858.04	\$	20,429,800.00	\$	26,100,058.04
IWC	\$ 2,310,928.88	\$	873,183.69	\$	1,437,745.19
Pollutant Surcharge	\$ 883,554.36	\$	603,195.75	\$	280,358.61
Miscellaneous	\$ 4,814,186.69	\$	796,608.18	\$	4,017,578.51
<b>Total All Accounts</b>	<b>\$ 94,151,808.57</b>	<b>\$</b>	<b>57,824,731.15</b>	<b>\$</b>	<b>36,327,077.42</b>

<b>Highland Park</b>					
Water	\$ 3,689,311.75	\$	195,729.99	\$	3,493,581.76
Sewer	\$ 26,523,620.84	\$	468,100.00	\$	26,055,520.84
IWC	\$ 1,449,968.94	\$	16,835.50	\$	1,433,133.44
<b>Total Highland Park</b>	<b>\$ 31,662,901.53</b>	<b>\$</b>	<b>680,665.49</b>	<b>\$</b>	<b>30,982,236.04</b>

<b>All Accounts without Highland Park</b>					
Water	\$ 35,923,968.85	\$	34,926,213.54	\$	997,755.31
Sewer	\$ 20,006,237.20	\$	19,961,700.00	\$	44,537.20
IWC	\$ 860,959.94	\$	856,348.19	\$	4,611.75
Pollutant Surcharge	\$ 883,554.36	\$	603,195.75	\$	280,358.61
Miscellaneous	\$ 4,814,186.69	\$	796,608.18	\$	4,017,578.51
<b>Total All Accounts without Highland Park</b>	<b>\$ 62,488,907.04</b>	<b>\$</b>	<b>57,144,065.66</b>	<b>\$</b>	<b>5,344,841.38</b>

# GLWA Aged Accounts Receivable- Water Accounts

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Balances as of 7/31/2016

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
ALLEN PARK	\$383,376.41	\$383,326.41	\$50.00	\$0.00	\$0.00
ASH TOWNSHIP	\$64,959.72	\$64,959.72	\$0.00	\$0.00	\$0.00
BELLEVILLE	\$23,463.14	\$23,463.14	\$0.00	\$0.00	\$0.00
BERLIN TOWNSHIP	\$65,264.89	\$65,264.89	\$0.00	\$0.00	\$0.00
BROWNSTOWN TOWNSHIP	\$325,996.25	\$325,996.25	\$0.00	\$0.00	\$0.00
BRUCE TOWNSHIP	\$9,334.21	\$9,334.21	\$0.00	\$0.00	\$0.00
BURTCHVILLE TOWNSHIP	\$26,438.44	\$26,438.44	\$0.00	\$0.00	\$0.00
CANTON TOWNSHIP	\$2,330,073.63	\$2,330,073.63	\$0.00	\$0.00	\$0.00
CENTER LINE	\$109,894.87	\$74,835.21	\$34,715.96	\$343.70	\$0.00
CHESTERFIELD TOWNSHIP	\$687,330.08	\$687,330.08	\$0.00	\$0.00	\$0.00
CLINTON TOWNSHIP	\$1,350,798.53	\$1,350,798.53	\$0.00	\$0.00	\$0.00
COMMERCE TOWNSHIP	\$546,899.14	\$546,899.14	\$0.00	\$0.00	\$0.00
DEARBORN	\$860,984.81	\$860,984.81	\$0.00	\$0.00	\$0.00
DEARBORN HEIGHTS	\$315,269.91	\$315,269.91	\$0.00	\$0.00	\$0.00
EASTPOINTE	\$134,916.91	\$134,916.91	\$0.00	\$0.00	\$0.00
ECORSE	\$107,706.72	\$107,706.72	\$0.00	\$0.00	\$0.00
FARMINGTON	\$87,379.78	\$87,379.78	\$0.00	\$0.00	\$0.00
FARMINGTON HILLS	\$842,760.99	\$842,760.99	\$0.00	\$0.00	\$0.00
FERNDAL	\$9,166.52	\$9,166.52	\$0.00	\$0.00	\$0.00
FLAT ROCK	\$110,897.06	\$110,897.06	\$0.00	\$0.00	\$0.00
FLINT	\$ (6,401,964.92)	\$ (6,401,964.92)	\$0.00	\$0.00	\$0.00
FRASER	\$116,259.55	\$116,259.55	\$0.00	\$0.00	\$0.00
GARDEN CITY	\$267,278.09	\$267,278.09	\$0.00	\$0.00	\$0.00



**GLWA Aged Accounts Receivable- Water Accounts**

**Balances as of 7/31/2016**

<b>Customer Name</b>	<b>Total Due</b>	<b>Current</b>	<b>46 - 74 Days</b>	<b>75 - 104 Days</b>	<b>&gt;105 Days</b>
GENESEE COUNTY DRAIN COMM	\$1,637,106.05	\$1,637,106.05	\$0.00	\$0.00	\$0.00
GIBRALTER	\$39,751.69	\$39,751.69	\$0.00	\$0.00	\$0.00
GREATER LAPEER CUA	\$236,000.83	\$236,000.83	\$0.00	\$0.00	\$0.00
GREENWOOD TOWNSHIP	\$39,762.38	\$39,762.38	\$0.00	\$0.00	\$0.00
GROSSE ILE TOWNSHIP	\$119,686.02	\$119,686.02	\$0.00	\$0.00	\$0.00
GROSSE POINTE PARK	\$138,499.33	\$138,499.33	\$0.00	\$0.00	\$0.00
GROSSE POINTE SHORES	\$76,740.53	\$76,740.53	\$0.00	\$0.00	\$0.00
GROSSE POINTE WOODS	\$133,096.76	\$133,096.76	\$0.00	\$0.00	\$0.00
HAMTRAMCK	\$53,731.31	\$53,731.31	\$0.00	\$0.00	\$0.00
HARPER WOODS	\$139,401.57	\$139,401.57	\$0.00	\$0.00	\$0.00
HARRISON TWP	\$244,493.75	\$244,493.75	\$0.00	\$0.00	\$0.00
HAZEL PARK	\$54,309.79	\$54,309.79	\$0.00	\$0.00	\$0.00
HIGHLAND PARK	\$3,689,311.75	\$195,729.99	\$91,863.45	\$93,908.18	\$3,307,810.13
HURON TOWNSHIP	\$130,514.95	\$130,514.95	\$0.00	\$0.00	\$0.00
INKSTER	\$135,636.51	\$135,636.51	\$0.00	\$0.00	\$0.00
KEEGO HARBOR	\$26,466.40	\$26,466.40	\$0.00	\$0.00	\$0.00
LENOX TOWNSHIP	\$45,418.10	\$45,418.10	\$0.00	\$0.00	\$0.00
LINCOLN PARK	\$372,492.74	\$372,492.74	\$0.00	\$0.00	\$0.00
LIVONIA	\$1,274,412.79	\$1,274,412.79	\$0.00	\$0.00	\$0.00
MACOMB TWP	\$1,238,905.87	\$1,238,905.87	\$0.00	\$0.00	\$0.00
MADISON HEIGHTS	\$160,970.96	\$160,970.96	\$0.00	\$0.00	\$0.00
MELVINDALE	\$102,269.86	\$102,269.86	\$0.00	\$0.00	\$0.00

# GLWA Aged Accounts Receivable- Water Accounts

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Balances as of 7/31/2016

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
NEW HAVEN	\$58,125.97	\$58,125.97	\$0.00	\$0.00	\$0.00
NOCWA	\$4,722,714.64	\$4,180,792.09	\$541,922.55	\$0.00	\$0.00
NORTHVILLE	\$128,007.56	\$128,007.56	\$0.00	\$0.00	\$0.00
NORTHVILLE TOWNSHIP	\$1,211,508.87	\$1,211,508.87	\$0.00	\$0.00	\$0.00
NOVI	\$1,253,466.56	\$1,253,466.56	\$0.00	\$0.00	\$0.00
OAK PARK	\$106,505.62	\$106,505.62	\$0.00	\$0.00	\$0.00
OAKLAND CO DR COM	\$5,605.68	\$5,605.68	\$0.00	\$0.00	\$0.00
PLYMOUTH	\$92,692.60	\$92,692.60	\$0.00	\$0.00	\$0.00
PLYMOUTH TOWNSHIP	\$437,547.00	\$437,547.00	\$0.00	\$0.00	\$0.00
REDFORD TOWNSHIP	\$554,011.59	\$554,011.59	\$0.00	\$0.00	\$0.00
RIVER ROUGE	\$49,604.84	\$49,604.84	\$0.00	\$0.00	\$0.00
RIVERVIEW	\$89,323.21	\$89,323.21	\$0.00	\$0.00	\$0.00
ROCKWOOD	\$26,002.18	\$26,002.18	\$0.00	\$0.00	\$0.00
ROMEO	\$21,066.14	\$21,066.14	\$0.00	\$0.00	\$0.00
ROMULUS	\$608,907.29	\$608,907.29	\$0.00	\$0.00	\$0.00
ROSEVILLE	\$211,111.55	\$211,111.55	\$0.00	\$0.00	\$0.00
ROYAL OAK TOWNSHIP	\$19,409.13	\$19,409.13	\$0.00	\$0.00	\$0.00
SHELBY TOWNSHIP	\$1,447,225.02	\$1,447,225.02	\$0.00	\$0.00	\$0.00
SOCWA	\$4,199,555.15	\$4,199,555.15	\$0.00	\$0.00	\$0.00
SOUTH ROCKWOOD	\$8,618.35	\$8,618.35	\$0.00	\$0.00	\$0.00
SOUTHGATE	\$191,853.02	\$191,853.02	\$0.00	\$0.00	\$0.00
ST. CLAIR SHORES	\$228,785.99	\$228,785.99	\$0.00	\$0.00	\$0.00
STERLING HEIGHTS	\$1,556,290.22	\$1,556,290.22	\$0.00	\$0.00	\$0.00

# GLWA Aged Accounts Receivable- Water Accounts

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Balances as of 7/31/2016

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
SUMPTER TOWNSHIP	\$54,020.97	\$54,020.97	\$0.00	\$0.00	\$0.00
SYLVAN LAKE	\$39,777.55	\$39,777.55	\$0.00	\$0.00	\$0.00
TAYLOR	\$1,143,698.91	\$789,963.58	\$353,735.33	\$0.00	\$0.00
TRENTON	\$362,848.60	\$362,848.60	\$0.00	\$0.00	\$0.00
TROY (SEOC)	\$1,343,857.89	\$1,343,857.89	\$0.00	\$0.00	\$0.00
UTICA	\$58,011.97	\$58,011.97	\$0.00	\$0.00	\$0.00
VAN BUREN TOWNSHIP	\$460,208.21	\$460,208.21	\$0.00	\$0.00	\$0.00
VILLAGE OF ALMONT	\$18,760.93	\$18,760.93	\$0.00	\$0.00	\$0.00
WALLED LAKE	\$216,207.40	\$149,220.16	\$66,987.24	\$0.00	\$0.00
WARREN	\$907,490.57	\$907,490.57	\$0.00	\$0.00	\$0.00
WASHINGTON TOWNSHIP	\$368,244.23	\$368,244.23	\$0.00	\$0.00	\$0.00
WAYNE	\$216,656.45	\$216,656.45	\$0.00	\$0.00	\$0.00
WEST BLOOMFIELD TWP (C-O)	\$1,775,553.19	\$1,775,553.19	\$0.00	\$0.00	\$0.00
WESTLAND	\$997,608.75	\$997,608.75	\$0.00	\$0.00	\$0.00
WIXOM	\$258,154.49	\$258,154.49	\$0.00	\$0.00	\$0.00
WOODHAVEN	\$ (90,031.26)	\$ (90,031.26)	\$0.00	\$0.00	\$0.00
YCUA	\$1,790,808.90	\$1,790,808.37	\$0.53	\$0.00	\$0.00
<b>TOTAL Water Accounts</b>	<b>\$39,613,280.60</b>	<b>\$35,121,943.53</b>	<b>\$1,089,275.06</b>	<b>\$94,251.88</b>	<b>\$3,307,810.13</b>

## GLWA Aged Accounts Receivable- Sewer Accounts

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Balances as of 7/31/2016

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
ALLEN PARK	\$54,800.00	\$54,800.00	\$0.00	\$0.00	\$0.00
CENTER LINE	\$118,437.20	\$73,900.00	\$44,537.20	\$0.00	\$0.00
DEARBORN EAST	\$72,900.00	\$72,900.00	\$0.00	\$0.00	\$0.00
DEARBORN EAST & WEST	\$1,341,500.00	\$1,341,500.00	\$0.00	\$0.00	\$0.00
DEARBORN N.E.	\$116,900.00	\$116,900.00	\$0.00	\$0.00	\$0.00
EVERGREEN-FARMINGTON	\$2,515,700.00	\$2,515,700.00	\$0.00	\$0.00	\$0.00
FARMINGTON	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
GROSSE POINTE	\$70,700.00	\$70,700.00	\$0.00	\$0.00	\$0.00
GROSSE POINTE FARMS	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
GROSSE POINTE PARK	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
HAMTRAMCK	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
HARPER WOODS	\$21,100.00	\$21,100.00	\$0.00	\$0.00	\$0.00
HIGHLAND PARK	\$26,523,620.84	\$468,100.00	\$468,100.00	\$468,100.00	\$25,119,320.84
MELVINDALE	\$109,600.00	\$109,600.00	\$0.00	\$0.00	\$0.00
OAKLAND COUNTY GWK DD	\$3,568,400.00	\$3,568,400.00	\$0.00	\$0.00	\$0.00
OMID	\$5,756,900.00	\$5,756,900.00	\$0.00	\$0.00	\$0.00
REDFORD TOWNSHIP	\$9,700.00	\$9,700.00	\$0.00	\$0.00	\$0.00
REDFORD TOWNSHIP - AREA #6	\$11,000.00	\$11,000.00	\$0.00	\$0.00	\$0.00
ROUGE VALLEY	\$4,316,900.00	\$4,316,900.00	\$0.00	\$0.00	\$0.00
WAYNE COUNTY N.E.	\$1,916,900.00	\$1,916,900.00	\$0.00	\$0.00	\$0.00
WAYNE COUNTY-AREA #3	\$4,800.00	\$4,800.00	\$0.00	\$0.00	\$0.00
<b>TOTAL Sewer Accounts</b>	<b>\$46,529,858.04</b>	<b>\$20,429,800.00</b>	<b>\$512,637.20</b>	<b>\$468,100.00</b>	<b>\$25,119,320.84</b>

# GLWA Aged Accounts Receivable- IWC Accounts

Balances as of 7/31/2016

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
ALLEN PARK	\$2,494.25	\$2,494.25	\$0.00	\$0.00	\$0.00
AUBURN HILLS (C-O)	\$28,575.25	\$28,575.25	\$0.00	\$0.00	\$0.00
AUBURN HILLS (E-F)	\$552.75	\$552.75	\$0.00	\$0.00	\$0.00
BERKLEY	\$4,485.25	\$4,485.25	\$0.00	\$0.00	\$0.00
BEVERLY HILLS	\$1,545.50	\$1,545.50	\$0.00	\$0.00	\$0.00
BINGHAM FARMS	\$1,710.50	\$1,680.25	\$0.00	\$30.25	\$0.00
BIRMINGHAM (E-F)	\$5,700.75	\$5,700.75	\$0.00	\$0.00	\$0.00
BIRMINGHAM (SEOC)	\$12,556.50	\$12,512.50	\$0.00	\$44.00	\$0.00
BLOOMFIELD HILLS	\$2,337.50	\$2,337.50	\$0.00	\$0.00	\$0.00
BLOOMFIELD TOWNSHIP	\$10,568.25	\$10,719.50	\$363.00	\$ (143.00)	\$ (371.25)
CANTON TOWNSHIP	\$28,886.00	\$28,886.00	\$0.00	\$0.00	\$0.00
CENTER LINE	\$5,698.00	\$5,698.00	\$0.00	\$0.00	\$0.00
CHESTERFIELD TOWNSHIP	\$18,103.25	\$18,103.25	\$0.00	\$0.00	\$0.00
CITY OF FARMINGTON (E-F)	\$431.75	\$431.75	\$0.00	\$0.00	\$0.00
CITY OF ROCHESTER	\$5,761.25	\$5,761.25	\$0.00	\$0.00	\$0.00
CLARKSTON	\$475.75	\$475.75	\$0.00	\$0.00	\$0.00
CLAWSON	\$4,273.50	\$4,273.50	\$0.00	\$0.00	\$0.00
CLINTON TOWNSHIP	\$38,475.25	\$38,475.25	\$0.00	\$0.00	\$0.00
DEARBORN	\$56,509.75	\$56,509.75	\$0.00	\$0.00	\$0.00
DEARBORN HEIGHTS	\$14,654.75	\$14,654.75	\$0.00	\$0.00	\$0.00
DETROIT METRO WC AIRPORT	\$330.00	\$330.00	\$0.00	\$0.00	\$0.00
EASTPOINTE	\$9,927.50	\$9,927.50	\$0.00	\$0.00	\$0.00
FARMINGTON	\$5,071.79	\$5,071.79	\$0.00	\$0.00	\$0.00

**GLWA Aged Accounts Receivable- IWC Accounts**

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**Balances as of 7/31/2016**

<b>Customer Name</b>	<b>Total Due</b>	<b>Current</b>	<b>46 - 74 Days</b>	<b>75 - 104 Days</b>	<b>&gt;105 Days</b>
FARMINGTON HILLS	\$36,855.50	\$36,652.00	\$0.00	\$203.50	\$0.00
FERNDALE	\$13,777.50	\$13,777.50	\$0.00	\$0.00	\$0.00
FRASER	\$7,672.50	\$7,672.50	\$0.00	\$0.00	\$0.00
GARDEN CITY	\$15,466.00	\$15,466.00	\$0.00	\$0.00	\$0.00
GROSSE POINTE	\$2,444.75	\$2,444.75	\$0.00	\$0.00	\$0.00
GROSSE POINTE FARMS	\$2,799.50	\$2,799.50	\$0.00	\$0.00	\$0.00
GROSSE POINTE PARK	\$3,657.50	\$3,657.50	\$0.00	\$0.00	\$0.00
GROSSE POINTE SHORES	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
GROSSE POINTE WOODS	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
HAMTRAMCK	\$6,880.50	\$6,880.50	\$0.00	\$0.00	\$0.00
HARPER WOODS	\$2,725.25	\$2,725.25	\$0.00	\$0.00	\$0.00
HARRISON TWP	\$12,306.25	\$8,068.50	\$0.00	\$4,237.75	\$0.00
HAZEL PARK	\$4,969.25	\$4,969.25	\$0.00	\$0.00	\$0.00
HIGHLAND PARK	\$1,449,968.94	\$16,835.50	\$0.00	\$8,417.75	\$1,424,715.69
HUNTINGTON WOODS	\$442.75	\$442.75	\$0.00	\$0.00	\$0.00
INDEPENDENCE	\$ (3,415.50)	\$ (3,415.50)	\$0.00	\$0.00	\$0.00
INKSTER	\$8,602.00	\$8,602.00	\$0.00	\$0.00	\$0.00
KEEGO HARBOR	\$1,061.50	\$1,061.50	\$0.00	\$0.00	\$0.00
LAKE ORION	\$1,262.25	\$1,262.25	\$0.00	\$0.00	\$0.00
LATHRUP	\$2,175.25	\$2,175.25	\$0.00	\$0.00	\$0.00
LENOX TOWNSHIP	\$275.00	\$275.00	\$0.00	\$0.00	\$0.00
LIVONIA	\$61,811.75	\$61,811.75	\$0.00	\$0.00	\$0.00

**GLWA Aged Accounts Receivable- IWC Accounts**

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**Balances as of 7/31/2016**

<b>Customer Name</b>	<b>Total Due</b>	<b>Current</b>	<b>46 - 74 Days</b>	<b>75 - 104 Days</b>	<b>&gt;105 Days</b>
MACOMB TWP	\$319.00	\$319.00	\$0.00	\$0.00	\$0.00
MADISON HEIGHTS	\$ (1,119.10)	\$ (1,119.10)	\$0.00	\$0.00	\$0.00
MELVINDALE	\$11,467.50	\$11,467.50	\$0.00	\$0.00	\$0.00
NEW HAVEN	\$1,237.50	\$1,237.50	\$0.00	\$0.00	\$0.00
NORTHVILLE	\$2,854.50	\$2,758.25	\$0.00	\$96.25	\$0.00
NORTHVILLE TOWNSHIP	\$7,059.25	\$7,059.25	\$0.00	\$0.00	\$0.00
NOVI	\$26,152.50	\$26,152.50	\$0.00	\$0.00	\$0.00
OAK PARK	\$9,715.75	\$9,715.75	\$0.00	\$0.00	\$0.00
OAKLAND TOWNSHIP	\$704.00	\$704.00	\$0.00	\$0.00	\$0.00
ORCHARD LAKE VILLAGE	\$649.00	\$638.00	\$0.00	\$11.00	\$0.00
ORION TOWNSHIP (C-O)	\$2,323.75	\$2,323.75	\$0.00	\$0.00	\$0.00
OXFORD TOWNSHIP	\$1,534.50	\$1,534.50	\$0.00	\$0.00	\$0.00
OXFORD VILLAGE	\$1,947.00	\$1,947.00	\$0.00	\$0.00	\$0.00
PLEASANT RIDGE	\$418.00	\$418.00	\$0.00	\$0.00	\$0.00
PLYMOUTH	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
PLYMOUTH TOWNSHIP	\$19,574.50	\$19,574.50	\$0.00	\$0.00	\$0.00
REDFORD TOWNSHIP	\$38,205.75	\$38,065.50	\$0.00	\$140.25	\$0.00
ROCHESTER HILLS	\$27,266.25	\$27,266.25	\$0.00	\$0.00	\$0.00
ROMULUS	\$1,432.75	\$1,432.75	\$0.00	\$0.00	\$0.00
ROSEVILLE	\$22,187.00	\$22,187.00	\$0.00	\$0.00	\$0.00
ROYAL OAK	\$338.25	\$338.25	\$0.00	\$0.00	\$0.00
ROYAL OAK TOWNSHIP	\$1,498.75	\$1,498.75	\$0.00	\$0.00	\$0.00
SHELBY TOWNSHIP	\$17,597.25	\$17,597.25	\$0.00	\$0.00	\$0.00

# GLWA Aged Accounts Receivable- IWC Accounts

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Balances as of 7/31/2016

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
SOUTHFIELD (E-F)	\$43,667.25	\$43,667.25	\$0.00	\$0.00	\$0.00
SOUTHFIELD (SEOC)	\$5,458.75	\$5,458.75	\$0.00	\$0.00	\$0.00
ST. CLAIR SHORES	\$18,697.25	\$18,697.25	\$0.00	\$0.00	\$0.00
STERLING HEIGHTS	\$22,748.00	\$22,748.00	\$0.00	\$0.00	\$0.00
TROY (E-F)	\$594.00	\$594.00	\$0.00	\$0.00	\$0.00
TROY (SEOC)	\$55,621.50	\$55,621.50	\$0.00	\$0.00	\$0.00
UTICA	\$3,231.25	\$3,231.25	\$0.00	\$0.00	\$0.00
VAN BUREN TOWNSHIP	\$533.50	\$533.50	\$0.00	\$0.00	\$0.00
VILLAGE OF FRANKLIN	\$101.75	\$101.75	\$0.00	\$0.00	\$0.00
WASHINGTON TOWNSHIP	\$2,180.75	\$2,180.75	\$0.00	\$0.00	\$0.00
WATERFORD TOWNSHIP	\$18,845.75	\$18,845.75	\$0.00	\$0.00	\$0.00
WAYNE	\$7,763.25	\$7,763.25	\$0.00	\$0.00	\$0.00
WEST BLOOMFIELD TWP (C-O)	\$1,446.50	\$1,446.50	\$0.00	\$0.00	\$0.00
WEST BLOOMFIELD TWP (E-F)	\$9,614.00	\$9,614.00	\$0.00	\$0.00	\$0.00
WESTLAND	\$36,198.25	\$36,198.25	\$0.00	\$0.00	\$0.00
<b>TOTAL IWC Accounts</b>	<b>\$2,310,928.88</b>	<b>\$873,183.69</b>	<b>\$363.00</b>	<b>\$13,037.75</b>	<b>\$1,424,344.44</b>



**GLWA Aged Accounts Receivable- Pollutant Surcharge Accounts**

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**Balances as of 7/31/2016**

<b>Customer Name</b>	<b>Total Due</b>	<b>Current</b>	<b>46 - 74 Days</b>	<b>75 - 104 Days</b>	<b>&gt;105 Days</b>
A & R PACKING	\$4,008.88	\$4,008.88	\$0.00	\$0.00	\$0.00
AACTRON	\$2,219.71	\$1,088.15	\$1,131.56	\$0.00	\$0.00
ACADEMY PACKING CO.	\$198.75	\$198.75	\$0.00	\$0.00	\$0.00
ACME RUSTPROOF	\$106.24	\$76.10	\$30.14	\$0.00	\$0.00
ADVANCE ENGINEERING COMPANY	\$ (574.43)	\$0.00	\$0.00	\$0.00	\$ (574.43)
ADVANCE RESOURCE RECOVERY	\$366.18	\$366.18	\$0.00	\$0.00	\$0.00
AEVITAS SPECIALITY SERVICES	\$25,042.88	\$10,648.73	\$5,541.39	\$6,879.72	\$1,973.04
ALEXANDER & HORNUNG	\$4,004.54	\$4,004.54	\$0.00	\$0.00	\$0.00
ALEXANDER & HORNUNG	\$16,922.95	\$16,922.95	\$0.00	\$0.00	\$0.00
ALEXANDER & HORNUNG	\$720.48	\$720.48	\$0.00	\$0.00	\$0.00
ALGAL SCIENTIFIC CORPORATION	\$927.96	\$927.96	\$0.00	\$0.00	\$0.00
ALL CHEM CORP	\$27.16	\$0.00	\$0.00	\$0.00	\$27.16
ALLWASTE CONTAINER SERVICE	\$1,649.74	\$1,649.74	\$0.00	\$0.00	\$0.00
ALPHA STAMPING COMPANY	\$416.51	\$416.51	\$0.00	\$0.00	\$0.00
AMERICAN WASTE TECH INC.	\$1,393.97	\$0.00	\$0.00	\$0.00	\$1,393.97
AUTOMOTIVE FINISH	\$14.69	\$14.69	\$0.00	\$0.00	\$0.00
BARTZ BAKERY	\$82.82	\$82.82	\$0.00	\$0.00	\$0.00
BAYS MICHIGAN CORPORATION	\$800.08	\$800.08	\$0.00	\$0.00	\$0.00
BEIRUT BAKERY, INC.	\$128.14	\$53.13	\$0.00	\$0.00	\$75.01
BETTER MADE SNACK FOOD	\$18,881.75	\$18,881.75	\$0.00	\$0.00	\$0.00
BOZEK'S MARKET	\$102.15	\$102.15	\$0.00	\$0.00	\$0.00
BROADWAY MKT CORNED BEEF	\$11.04	\$11.04	\$0.00	\$0.00	\$0.00
CAPITAL REPRODUCTIONS	\$5.07	\$2.40	\$2.67	\$0.00	\$0.00

## GLWA Aged Accounts Receivable- Pollutant Surcharge Accounts

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Balances as of 7/31/2016

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
CF BURGER CREAMERY	\$12,485.29	\$12,485.29	\$0.00	\$0.00	\$0.00
CHILANGO'S BAKERY	\$1,885.87	\$0.00	\$0.00	\$28.13	\$1,857.74
CINTAS CORP. - MACOMB TWP.	\$47,709.57	\$47,709.57	\$0.00	\$0.00	\$0.00
CINTAS CORPORATION	\$23,434.84	\$23,434.84	\$0.00	\$0.00	\$0.00
CINTAS CORPORATION	\$10,728.01	\$10,728.01	\$0.00	\$0.00	\$0.00
CITY LAUNDRY, INC.	\$47.54	\$20.90	\$8.31	\$9.74	\$8.59
CLASSIC CONTAINER CORP.	\$517.33	\$517.33	\$0.00	\$0.00	\$0.00
COTSCO WHOLESALE STORE	\$4,005.35	\$4,005.35	\$0.00	\$0.00	\$0.00
COTSCO WHOLESALE STORE	\$505.69	\$505.69	\$0.00	\$0.00	\$0.00
COTSCO WHOLESALE STORE	\$5,685.32	\$5,685.32	\$0.00	\$0.00	\$0.00
COUNTRY FRESH DAIRY CO.	\$19,831.80	\$19,831.80	\$0.00	\$0.00	\$0.00
CROSS CHEMICAL COMPANY, INC.	\$515.92	\$515.92	\$0.00	\$0.00	\$0.00
DA STUART COMPANY	\$1,686.20	\$1,686.20	\$0.00	\$0.00	\$0.00
DA STUART COMPANY	\$1,509.48	\$1,509.48	\$0.00	\$0.00	\$0.00
DA STUART COMPANY	\$3,195.69	\$3,195.69	\$0.00	\$0.00	\$0.00
DARLING & CO.	\$12,064.28	\$12,064.28	\$0.00	\$0.00	\$0.00
DAVE'S SAUSAGE/ROTUNDA PACKI	\$442.25	\$442.25	\$0.00	\$0.00	\$0.00
DEARBORN SAUSAGE	\$2,936.24	\$2,936.24	\$0.00	\$0.00	\$0.00
DEARBORN SAUSAGE CO., INC.	\$2,888.11	\$2,888.11	\$0.00	\$0.00	\$0.00
DETROIT COCO-COLA BOTT	\$4,074.54	\$4,074.54	\$0.00	\$0.00	\$0.00
DETROIT SAUSAGES CO INC	\$57.97	\$41.41	\$8.28	\$8.28	\$0.00
DIFCO LABORATORIES	\$16,090.07	\$16,090.07	\$0.00	\$0.00	\$0.00

**GLWA Aged Accounts Receivable- Pollutant Surcharge Accounts**

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**Balances as of 7/31/2016**

<b>Customer Name</b>	<b>Total Due</b>	<b>Current</b>	<b>46 - 74 Days</b>	<b>75 - 104 Days</b>	<b>&gt;105 Days</b>
DIVERSIFIED CHEM TECH. INC.	\$22.68	\$22.68	\$0.00	\$0.00	\$0.00
DOMESTIC LINEN SUPPLY	\$1,053.61	\$1,053.61	\$0.00	\$0.00	\$0.00
DOMESTIC LINEN SUPPLY	\$1,691.98	\$1,691.98	\$0.00	\$0.00	\$0.00
E.W. GROBBEL'S SONS, INC.	\$2,100.92	\$2,100.92	\$0.00	\$0.00	\$0.00
EAGLE OTTAWA ROCHESTER HILLS	\$49,484.12	\$6,461.18	\$4,662.11	\$0.00	\$38,360.83
ENVIROSOLIDS, L.L.C.	\$69,426.70	\$36,783.48	\$0.00	\$0.00	\$32,643.22
EQ DETROIT, INC.	\$14,089.46	\$14,089.46	\$0.00	\$0.00	\$0.00
EQ DETROIT, INC.	\$5,628.73	\$5,628.73	\$0.00	\$0.00	\$0.00
EQ DETROIT, INC.	\$ (3,849.81)	\$0.00	\$ (3,849.81)	\$0.00	\$0.00
EQ DETROIT, INC.	\$15.11	\$15.11	\$0.00	\$0.00	\$0.00
EQ DETROIT, INC.	\$3,058.98	\$3,058.98	\$0.00	\$0.00	\$0.00
EXTRUDEHODE	\$6,777.64	\$3,356.03	\$0.00	\$0.00	\$3,421.61
FAYGO BEVERAGES, INC.	\$23,929.49	\$23,929.49	\$0.00	\$0.00	\$0.00
FITZGERALD PLATING	\$37.62	\$37.62	\$0.00	\$0.00	\$0.00
FORD NEW MODEL PROGRAM	\$253.92	\$253.92	\$0.00	\$0.00	\$0.00
FRESH-PAK	\$11,962.61	\$11,962.61	\$0.00	\$0.00	\$0.00
FRESH-PAK	\$1,379.92	\$1,379.92	\$0.00	\$0.00	\$0.00
GENERAL LINEN SUPPLY CO.	\$8,406.10	\$7,936.23	\$469.87	\$0.00	\$0.00
GLOBAL TITANIUM, INC.	\$377.42	\$377.42	\$0.00	\$0.00	\$0.00
GLOBAL TITANIUM, INC.	\$261.56	\$261.56	\$0.00	\$0.00	\$0.00
HACIENDA MEXICAN FOODS	\$4,505.69	\$2,089.70	\$949.87	\$757.14	\$708.98
HENKEL CORPORATION	\$289.09	\$180.82	\$108.27	\$0.00	\$0.00
HOME STYLE	\$55.21	\$55.21	\$0.00	\$0.00	\$0.00

**GLWA Aged Accounts Receivable- Pollutant Surcharge Accounts**

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**Balances as of 7/31/2016**

<b>Customer Name</b>	<b>Total Due</b>	<b>Current</b>	<b>46 - 74 Days</b>	<b>75 - 104 Days</b>	<b>&gt;105 Days</b>
HOOD CLEANERS	\$31.56	\$21.04	\$10.52	\$0.00	\$0.00
HUNTINGTON CLEANERS	\$664.51	\$664.51	\$0.00	\$0.00	\$0.00
ISLAMIC SLAUGHTERHOUSE	\$2,439.65	\$2,439.65	\$0.00	\$0.00	\$0.00
ITALIAN BUTTER BREAD STICKS	\$10.94	\$10.94	\$0.00	\$0.00	\$0.00
J & G FOOD PRODUCTS, INC.	\$63.49	\$63.49	\$0.00	\$0.00	\$0.00
KAR NUT PRODUCTS	\$4,455.85	\$2,915.14	\$1,540.71	\$0.00	\$0.00
KOWALSKI SAUSAGES, CO.	\$2,962.27	\$2,962.27	\$0.00	\$0.00	\$0.00
KUBISCH SAUSAGE CO.	\$767.47	\$358.89	\$0.00	\$0.00	\$408.58
KVF TROY CORPORATION	\$ (6,749.52)	\$0.00	\$0.00	\$0.00	\$ (6,749.52)
LA JALISCIENSE, INC.	\$212.71	\$212.71	\$0.00	\$0.00	\$0.00
LA MICHICOANA TORTILLA	\$1,175.64	\$1,175.64	\$0.00	\$0.00	\$0.00
LA MICHOACANA FLOUR TORTILLA	\$126.65	\$126.65	\$0.00	\$0.00	\$0.00
MACDERMID WESTERN	\$823.42	\$823.42	\$0.00	\$0.00	\$0.00
MCNICHOLS POLISHING & ANODIZ	\$60.50	\$32.03	\$0.00	\$0.00	\$28.47
METROPOLITAN BAKERY	\$406.29	\$406.29	\$0.00	\$0.00	\$0.00
MICHIGAN DAIRY	\$48,877.90	\$48,877.90	\$0.00	\$0.00	\$0.00
MICHIGAN PROD. MACHINING	\$1,986.31	\$1,986.31	\$0.00	\$0.00	\$0.00
MICHIGAN SOY PRODUCTS CO.	\$534.13	\$534.13	\$0.00	\$0.00	\$0.00
MILANO BAKERY	\$3,566.92	\$3,566.92	\$0.00	\$0.00	\$0.00
MILTON CHILI CO.	\$ (17.51)	\$ (17.51)	\$0.00	\$0.00	\$0.00
MINNIE MARIE BAKERS, INC	\$1,702.63	\$1,702.63	\$0.00	\$0.00	\$0.00
MISTER UNIFORM & MAT RENTALS	\$54.07	\$54.07	\$0.00	\$0.00	\$0.00

**GLWA Aged Accounts Receivable- Pollutant Surcharge Accounts**

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**Balances as of 7/31/2016**

<b>Customer Name</b>	<b>Total Due</b>	<b>Current</b>	<b>46 - 74 Days</b>	<b>75 - 104 Days</b>	<b>&gt;105 Days</b>
NATIONAL CHILI COMPANY	\$338.03	\$338.03	\$0.00	\$0.00	\$0.00
NATIONAL CHILI COMPANY	\$100.16	\$100.16	\$0.00	\$0.00	\$0.00
NORTHERN LAKES SEAFOOD	\$84.57	\$84.57	\$0.00	\$0.00	\$0.00
NUCOTE, INC.	\$82.21	\$82.21	\$0.00	\$0.00	\$0.00
OAKWOOD BAKERY	\$158.54	\$158.54	\$0.00	\$0.00	\$0.00
PELLERITO FOODS INC.	\$1,265.87	\$1,265.87	\$0.00	\$0.00	\$0.00
PEPSI COLA, INC.	\$35,083.49	\$35,083.49	\$0.00	\$0.00	\$0.00
PETRO ENVIRON TECH, INC.	\$185,454.35	\$0.00	\$0.00	\$0.00	\$185,454.35
PLATING SPEC	\$229.55	\$114.33	\$115.22	\$0.00	\$0.00
PRODUCTION SPRING, LLC.	\$113.26	\$113.26	\$0.00	\$0.00	\$0.00
RAY'S ICE CREAM CO.	\$79.23	\$79.23	\$0.00	\$0.00	\$0.00
RED SPOT PAINT #409139	\$ (23.97)	\$0.00	\$0.00	\$ (23.97)	\$0.00
RTT	\$2,727.85	\$0.00	\$0.00	\$0.00	\$2,727.85
SEAFARE FOODS, INC.	\$104.62	\$104.62	\$0.00	\$0.00	\$0.00
SPRAYTEK, INC.	\$ (168.84)	\$ (168.84)	\$0.00	\$0.00	\$0.00
SWEETHEART BAKERY, INC.	\$289.22	\$174.94	\$114.28	\$0.00	\$0.00
TOM LAUNDRY CLEANERS	\$8.61	\$8.61	\$0.00	\$0.00	\$0.00
TURRI'S ITALIAN FOODS	\$10,008.49	\$10,008.49	\$0.00	\$0.00	\$0.00
U-METCO, INC.	\$1,302.22	\$1,302.22	\$0.00	\$0.00	\$0.00
UNCLE RAYS SNACKS, LLC	\$31,301.33	\$31,301.33	\$0.00	\$0.00	\$0.00
UNCLE RAYS SNACKS, LLC	\$1,298.67	\$1,298.67	\$0.00	\$0.00	\$0.00
UNIQUE LINEN SERVICES, INC.	\$243.24	\$152.51	\$90.73	\$0.00	\$0.00
UNITED FISH DISTRIBUTORS	\$7.88	\$7.88	\$0.00	\$0.00	\$0.00

**GLWA Aged Accounts Receivable- Pollutant Surcharge Accounts**

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**Balances as of 7/31/2016**

<b>Customer Name</b>	<b>Total Due</b>	<b>Current</b>	<b>46 - 74 Days</b>	<b>75 - 104 Days</b>	<b>&gt;105 Days</b>
UNITED MEAT & DELI	\$521.78	\$521.78	\$0.00	\$0.00	\$0.00
US ECOLOGY MICHIGAN	\$9,037.47	\$9,037.47	\$0.00	\$0.00	\$0.00
USHER OIL SERVICES	\$38,184.86	\$38,184.86	\$0.00	\$0.00	\$0.00
VERN DALE PRODUCTS, INC.	\$6,952.11	\$6,952.11	\$0.00	\$0.00	\$0.00
VERNE DALE PRODUCTS	\$22,574.82	\$22,574.82	\$0.00	\$0.00	\$0.00
VERNOR FOOD PRODUCTS	\$38.54	\$38.54	\$0.00	\$0.00	\$0.00
WIGLEY'S MEAT PROCESS	\$289.88	\$289.88	\$0.00	\$0.00	\$0.00
WINTER SAUSAGE	\$833.74	\$833.74	\$0.00	\$0.00	\$0.00
WINTER SAUSAGE	\$190.49	\$190.49	\$0.00	\$0.00	\$0.00
WOLVERINE PACKING CO	\$13,915.80	\$13,915.80	\$0.00	\$0.00	\$0.00
WOLVERINE PACKING CO.	\$6,057.04	\$6,057.04	\$0.00	\$0.00	\$0.00
<b>TOTAL Pollutant Surcharge Accounts</b>	<b>\$883,554.36</b>	<b>\$603,195.75</b>	<b>\$10,934.12</b>	<b>\$7,659.04</b>	<b>\$261,765.45</b>

# GLWA Aged Accounts Receivable- Miscellaneous Accounts

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Balances as of 7/31/2016

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
AEVITAS SPECIALITY SERVICES	\$10,750.00	\$10,750.00	\$0.00	\$0.00	\$0.00
CANTON TOWNSHIP	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
DEARBORN HEIGHTS	\$8,576.00	\$0.00	\$8,576.00	\$0.00	\$0.00
DETROIT - SSW	\$4,731,452.69	\$785,858.18	\$4,305.29	\$802,889.22	\$3,138,400.00
REDFORD TOWNSHIP	\$29,880.00	\$0.00	\$29,880.00	\$0.00	\$0.00
SUPREME GEAR COMPANY	\$33,528.00	\$0.00	\$33,528.00	\$0.00	\$0.00
<b>TOTAL Miscellaneous Accounts</b>	<b>\$4,814,186.69</b>	<b>\$796,608.18</b>	<b>\$76,289.29</b>	<b>\$802,889.22</b>	<b>\$3,138,400.00</b>



## Financial Services Group Audit Committee Communication

**Date:** August 5, 2016

**To:** Great Lakes Water Authority Audit Committee

**From:** Jon Wheatley, Public Finance Manager

**Re:** Informational Update – City of Highland Park Billings and Collections

### Background:

As of June 30, 2016, Highland Park had a delinquent balance of over \$31.1 million, including over \$26.1 million for wastewater treatment services, approximately \$1.4 million for industrial waste control services, and over \$3.6 million for water supply services. Included is a billing and collection history for Highland Park, from June 30, 2012 to June 30, 2016. **No payments were received from Highland Park during the month of June 2016.**

	<u>Water</u>	<u>Sewer</u>	<u>IWC</u>
June 30, 2012 Balance	\$ -	\$ 10,207,956	\$ 852,987
FY 2013 Billings	485,887	4,987,635	154,444
FY 2013 Payments	(65,652)	(2,206,211)	-
June 30, 2013 Balance	\$ 420,235	\$ 12,989,380	\$ 1,007,431
FY 2014 Billings	1,004,357	6,980,442	161,951
FY 2014 Payments	-	(1,612,633)	-
June 30, 2014 Balance	\$ 1,424,592	\$ 18,357,189	\$ 1,169,382
FY 2015 Billings	1,008,032	5,553,123	165,739
FY 2015 Payments	-	(1,444,623)	-
June 30, 2015 Balance	\$ 2,432,625	\$ 22,465,689	\$ 1,335,120
FY 2016 Billings (12 months)	1,157,178	5,612,167	106,431
FY 2016 Payments (12 months)	-	(2,022,335)	-
<b>Balance as of June 30, 2016</b>	<b>\$ 3,589,803</b>	<b>\$ 26,055,521</b>	<b>\$ 1,441,551</b>

Note: Water billing began in January 2013.





## Financial Services Group Audit Committee Communication

**Date:** August 5, 2016

**To:** Great Lakes Water Authority Audit Committee

**From:** Jon Wheatley, Public Finance Manager

**Re:** Informational Update – City of Flint Billings & Collections

On October 16, 2015, the City of Flint (“City”) re-joined the regional water system. At that time, the City’s account was established with a deposit of \$10 million. The table below identifies the balance remaining as of the most recent billing date of July 26, 2016.

On July 11, 2016, the City of Flint signed a Letter of Agreement with GLWA to extend water services until June 30, 2017. Per this agreement, two transfers are to be deposited into the Prepayment Fund. To date, \$5.9 million was received on July 13, 2016.

### CITY OF FLINT PREPAYMENT FUND RECONCILIATION

Invoice Month	Previous Month Usage	Commodity Charge	Fixed Charge	Total Billing	Prepayment Fund Balance
					\$10,000,000.00
November	26,875.0	\$8.93	\$341,729.00	\$581,722.75	\$9,418,277.25
December	47,576.9	\$8.93	\$662,100.00	\$1,086,961.72	\$8,331,315.53
January	48,067.4	\$8.93	\$662,100.00	\$1,091,341.88	\$7,239,973.65
February	52,606.4	\$8.93	\$662,100.00	\$1,131,875.15	\$6,108,098.50
March	51,787.4	\$8.93	\$662,100.00	\$1,124,561.84	\$4,983,536.66
April	51,490.5	\$8.93	\$662,100.00	\$1,121,910.52	\$3,861,626.14
May	48,496.8	\$8.93	\$662,100.00	\$1,095,176.07	\$2,766,450.07
June	51,410.7	\$8.93	\$662,100.00	\$1,121,197.82	\$1,645,252.25
July	53,884.4	\$8.93	\$662,100.00	\$1,143,287.33	\$6,401,964.92 *
				<u>\$9,498,035.08</u>	

\* Includes transfers to the Prepayment Fund in the amount of \$5,900,000.

Cash Transferred to DWSD

	Water			Sewer			Total	Notes
	Operations & Maintenance	Pension	Lease Payment (I&E Fund)	Operations & Maintenance	Pension	Lease Payment (I&E Fund)		
<b>FY 2016</b>								
January 2016	\$ 3,740,800	\$ 2,486,700	\$ 11,767,600	\$ 2,824,900	\$ 1,669,300	\$ 4,380,000	\$ 26,869,300	Lease and pension are for 7 months (Jul - Jan)
February 2016	3,740,800	355,200	1,681,100	2,824,900	238,500	625,700	9,466,200	Regular monthly transfer
February 2016	3,740,800			2,824,900			6,565,700	Extra one month of O&M per Lease 4.4(a)(ii)
March 2016	3,740,800	355,200	1,681,100	2,824,900	238,500	625,700	9,466,200	Regular monthly transfer
April 2016	3,740,800	355,200	1,681,100	2,824,900	238,500	625,700	9,466,200	Regular monthly transfer
May 2016	3,740,800	355,200	1,681,100	2,824,900	238,500	625,700	9,466,200	Regular monthly transfer
June 2016	3,740,800	355,200	1,681,100	2,824,900	238,500	625,700	9,466,200	Regular monthly transfer
<b>Total FY 2016</b>	<b>\$ 26,185,600</b>	<b>\$ 4,262,700</b>	<b>\$ 20,173,100</b>	<b>\$ 19,774,300</b>	<b>\$ 2,861,800</b>	<b>\$ 7,508,500</b>	<b>\$ 80,766,000</b>	
<b>FY 2017</b>								
July 2016	\$ 2,799,700	\$ 355,200	\$ 1,875,000	\$ 3,461,300	\$ 238,500	\$ 2,291,700	\$ 11,021,400	Regular monthly transfer
August 2016	2,799,700	355,200	1,875,000	3,461,300	238,500	2,291,700	11,021,400	Regular monthly transfer
<b>Total FY 2017</b>	<b>\$ 5,599,400</b>	<b>\$ 710,400</b>	<b>\$ 3,750,000</b>	<b>\$ 6,922,600</b>	<b>\$ 477,000</b>	<b>\$ 4,583,400</b>	<b>\$ 22,042,800</b>	
<b>Total Cumulative Transfers</b>	<b>\$ 31,785,000</b>	<b>\$ 4,973,100</b>	<b>\$ 23,923,100</b>	<b>\$ 26,696,900</b>	<b>\$ 3,338,800</b>	<b>\$ 12,091,900</b>	<b>\$ 102,808,800</b>	

Note: Per Section 3.5 of the Lease, the Lease Payment may be used for: (a) bond principal and interest for Local System Improvements, (b) bond principal and interest for the City's share of common-to-all System Improvements, and © Local System improvements paid from the lease payment deposited to the Improvement & Extension (I&E) Fund. The lease payment in FY 2016 is net of debt service allocation established by City during its rate setting for FY 2016.

## Budget Stabilization Fund Transfer History

<b><u>FY 2016</u></b>	<b>Water</b>	<b>Sewer</b>	<b>Total</b>	<b>Notes</b>
<b>January 2016</b>	\$ 1,357,400	\$ 3,261,700	\$ 4,619,100	7 months (Jul - Jan)
<b>February 2016</b>	193,900	466,000	659,900	Regular monthly transfer
<b>March 2016</b>	193,900	466,000	659,900	Regular monthly transfer
<b>April 2016</b>	193,900	466,000	659,900	Regular monthly transfer
<b>May 2016</b>	193,900	466,000	659,900	Regular monthly transfer
<b>June 2016</b>	193,900	466,000	659,900	Regular monthly transfer
<b><i>Total FY 2016</i></b>	<b><u><u>\$ 2,326,900</u></u></b>	<b><u><u>\$ 5,591,700</u></u></b>	<b><u><u>\$ 7,918,600</u></u></b>	
<b><u>FY 2017</u></b>				
<b>July 2016</b>	\$ 30,000	\$ 221,200	\$ 251,200	Regular monthly transfer
<b>August 2016</b>	30,000	221,200	251,200	Regular monthly transfer
<b><i>Total FY 2017</i></b>	<b><u><u>\$ 60,000</u></u></b>	<b><u><u>\$ 442,400</u></u></b>	<b><u><u>\$ 502,400</u></u></b>	
<b><i>Total Cumulative Transfers</i></b>	<b><u><u>\$ 2,386,900</u></u></b>	<b><u><u>\$ 6,034,100</u></u></b>	<b><u><u>\$ 8,421,000</u></u></b>	



**Financial Services Group**  
**Audit Committee Communication**

**Date:** August 5, 2016

**To:** Great Lakes Water Authority Audit Committee

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

**Re:** Discussion: Application of the 4% Revenue Requirement Provision in the *Memorandum of Understanding Regarding the Formation of the Great Lakes Water Authority*

**Additional materials for this discussion are attached.**

Great Lakes Water Authority  
Audit Committee of August 5, 2016  
Addendum to Agenda Item 7D - Application of the 4% Revenue Requirement

Table 1: Demonstration of Year-to-Year vs. Cumulative Interpretation of the 4% Revenue Requirement Ceiling

Revenue Requirement Elements	Base Year Budget	Year Two Budget (Base Year Plus 4 %)	Year Three Budget (Refunding Savings; O&M at 3%)	Defining the Decision Point: Year Four Ceiling	Year 4A (4% Applied to each Element)	Year 4B (Managing "Total" vs. "Elements")
Operations & Maintenance	40.00	41.60	42.85	<i>Allocation among the elements or in total</i>	44.56	44.13 3%
Debt Service	50.00	52.00	48.00		49.92	48.96 2%
Reserves	10.00	10.40	10.82		11.25	12.64 17%
<b>Scenario 1: Revenue Requirement Ceiling based on Year to Year Fluctuation</b>	100.00	104.00	101.66	105.73	105.73	105.73 4%
<b>Variance</b>		4.00	(2.34)			
<b>Scenario 2: Revenue Requirement Ceiling based on 4% Cumulative</b>	100.00	104.00	108.16	112.49	<div>Policy should also define Revenue Requirement, Budget, &amp; Amended Budget</div>	

**Table 1**  
**Water Supply System**  
**Sales, Revenue, and Total BUDGET Analysis - \$ millions**

		Scenario		
		1 - Original FY 2014-15 Budget	2 - FY 2014-15 Bond Sale Projections	
1	FY 2014-15 Rates Designed ( <i>and Expected</i> ) to Produce:	396.8	379.9	
	<u>Subsequent Developments Impacting Expected Revenues for FY 2015-16</u>			
2	Flint Leaves the Water System Earlier than Expected	(12.5)		
3	Rate Schedule Modified for Genesee County Drain Commission	1.9		
4	Projected Suburban Wholesale Water Sales Modified to Reflect Recent Experience	(15.6)	(15.6)	
5	Detroit Retail Sales and Bad Debt Expense Projections Modified	(8.2)	(1.8)	
6	Subtotal Net Reduction in Expected SALES Revenue	(34.4)	(17.4)	
7	Projected Miscellaneous and Non-Operating Revenue Projections Modified	(0.7)	(0.7)	
8	Net Reduction in Total Expected Revenue	(35.1)	(18.2)	
9	Unadjusted, Current Rates are Projected to Produce FY 2015-16 Revenues of:	362.4	362.4	
10	In Order to Meet FY 2014-15 Revenue Expectations, Revenues Must be Adjusted:	9.7%	5.0%	- Ln 8 / Ln 9
	<u>Baseline BUDGET Calculations</u>			
11	Projected Sales Revenue	396.8	379.9	Ln 1
12	Projected Miscellaneous & Non-Operating Revenue	8.5	8.4	
13	Total Revenue = Total FY 2014-15 BUDGET	405.4	388.3	
14	Indexed Adjustment	4.0%	4.0%	
15	BUDGET Adjustment	16.2	15.5	Ln 13 x Ln 14
16	FY 2015-16 BUDGET	421.6	403.8	
17	Total Additional Revenue Needed from Rates	51.3	33.7	- Ln 8 + Ln 15
18	Additional Revenue Needed as a % of Expected Revenue	14.2%	9.3%	Ln 17 / Ln 9

**tFg**  
**THE FOSTER GROUP**

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

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

MEMORANDUM

Illustration of the 4% Commitment Implementation

August 4, 2016

To: Nickie Bateson

From: Bart Foster

You have asked for commentary and observations regarding potential implementation policies and strategies to honor the commitment in the Memorandum and the Lease(s) that *“the (Water and/or Sewer) System is assumed to experience annual increases in the Authority Revenue Requirement of not more than 4%”* – which we refer to herein as the **“4% Commitment”**.

**Background**

In our opinion, the origin of the **4% Commitment** can be traced back to the appointment of Sue McCormick as DWSD Director in January 2012. At that time, DWSD was in the midst of issuing Water and Sewer Revenue Bonds, disclosure for which indicated forecasted annual increases in water and sewer charges of approximately 8 percent each year for the five year planning period starting with FY 2014. (Charges for FY 2013 were already proposed and in the approval stage when Ms. McCormick assumed the role as Director.) Ms. McCormick introduced a strategic initiative designed to optimize system operations, reduce operating costs, apply portions of the savings to finance capital improvements from revenues (and thereby reduce the reliance on debt), improve the financial position of the utilities, all while cutting the forecasted increases in revenues from charges in half. The DWSD Board of Water Commissioners embraced the overall philosophy and strategic optimization plan that supported it.

The core philosophy clearly indicated a commitment to limit the annual increases to the “controllable” elements of the financial plan, or the total budgeted revenue requirements. That philosophy did not apply to items that were not directly controllable by management, including revenues from water sales and sewage disposal services that were subject to declining usage being experienced nationwide. As such, the **4% Commitment** applied to the overall annual budgeted revenue requirements not the “unit charge” necessary to produce the increased revenues. In other words, the commitment was to limit the increase in the numerator in the “unit charge” equation to 4%, irrespective of changes in the denominator.

This fundamental principle was originally enacted in charges developed for both FY 2014 and FY 2015, for which annual increases in the “unit charge” were limited to 4%, despite decreases in projected usage volumes.

By the time the FY 2015 charges took effect, negotiations towards establishing the MOU and the subsequent Lease(s) were underway. The principle of maintaining the 4% limitation while assessing the feasibility of the Lease Payment and the separation of the DWSD system into wholesale and retail service organizations was fundamental to the success of the negotiations, and led to the inclusion of the **4% Commitment** into the documents. The language was carefully crafted to emphasize that it applied to increases in budgeted revenue requirements, not increases in unit charges (or “rates”).

FY 2016 was the first year for which the **4% Commitment** was “officially” applied in annual financial plans and budgets. Initially, one would presume that application of a uniform guideline would seem to be a fairly straightforward process – simply increase the FY 2015 overall budgeted revenue requirements to establish an “upper limit” for the FY 2016 overall budgeted revenue requirements. However, the dynamic nature of the DWSD organization produced many complications, including:

- Immediately following approval of the FY 2015 budget and user charges, Flint announced that it was leaving the Water System prior to the beginning of FY 2015. This resulted in a revised expected level of revenues, and therefore revenue requirements associated with anticipated deposits to the I&E Fund;
- Similarly, it became readily apparent that sales and collections from other customers were perhaps overstated in the FY 2015 budget;
- The City of Detroit’s bankruptcy proceedings began to indicate preliminary restructured revenue requirements associated with employee benefit costs at levels that were not consistent with the approved FY 2015 budget;
- The bankruptcy proceedings also resulted in a major **tender** of existing DWSD outstanding revenue bonds, which resulted in materially lower debt service payments than were included in the FY 2015 budget.

While DWSD did not formally amend its official budget to reflect these factors, the **forecast** for FY 2015 financial activity that was included in the documents supporting the tender transaction that closed in September 2014 did reflect them. So when planning for the FY 2016 Budget was initiated in the fall of 2014, the DWSD Board was faced with a policy decision: to which version of the FY 2015 “budgeted revenue requirement” does the **4% Commitment** apply? The original approved budget? Or the revised forecast? After much consideration the **4% Commitment** was ultimately applied to the revised forecast.

A similar dilemma arose during planning for FY 2017 budget and financial plan. The DWSD Board approved a FY 2016 Budget in March 2015 that reflected the old “consolidated” DWSD organization. While that budget contemplated certain of the separation concepts that



were being considered in the final Lease negotiations, it could not fully anticipate the final result of those negotiations. Following adoption of the DWSD budget for FY 2016, the Lease negotiations were finalized and resulted in changes to the originally approved amounts. These changes, which had the effect of reducing and “reconfiguring” the original FY 2016 budget, while not resulting in a formal budget amendment included:

- Establishment of the Budget Stabilization Fund, which was not contemplated during development of the FY 2015 Budget;
- Decisions by the City of Detroit regarding application of a portion of the Lease Payment to debt service, rather than depositing all of it to the Local I&E Account;
- An overall system reduction in total revenues and revenue requirements associated with each of the above two elements;
- Efforts to “bifurcate” the FY 2016 Budget into wholesale and retail elements, including establishment of dual resources for certain management functions for both entities and incorporation of a shared services concept;
- The necessity to establish “stub year” budgets – based on the decision to implement the separation on January 1, 2016.

Once again, management and board members were faced with a policy decision: from which depiction of the FY 2016 “Budget” and financial plan should the **4% Commitment** apply for purposes of establishing the FY 2017 budgeted revenue requirements? Only this time the policy decision rested with GLWA principals. Given the complexities of the FY 2016 Budget, GLWA management proposed, and the GLWA Board approved, application of the **4% Commitment** to the originally approved DWSD Budget for FY 2016.

While it is perhaps convenient to presume that each of these years were “non-recurring exceptions” in the normal course of business, we submit that it is likely that similar “exceptions” will occur on a fairly routine basis in the future - particularly given the stated intent of GLWA management and Board to embrace budget amendments and/or fiscal note concepts. As such we believe it is prudent to consider possible implementation guidelines and policies when interpreting the **4% Commitment**.

#### **Preliminary Recommendation and Discussion**

First, we acknowledge that the “Preliminary Recommendation” set forth herein is actually your concept, which we consider to be a quite elegant approach to codify a complex concept. You have suggested that the **4% Commitment** is most appropriately evaluated, implemented, and measured, by:

- Establishing a baseline “budgeted revenue requirements” representation;
- Applying annual 4% increases to the baseline year to establish a “benchmark” forecast of future revenue requirements, which effectively represent the forecasted

cumulative impact of annual 4% revenue requirement increases, and against which to evaluate future “actual budgeted” revenue requirements;

- Evaluating future budgeted revenue requirements against the benchmark projection, and;
- Interpreting the **4% Commitment** as having been met so long as the budgeted annual revenue requirements for any year do not exceed the projected benchmark established via application of the annual 4% vs. the original benchmark.

We believe that your concept is very sound, particularly since future revenue requirements are likely to be materially impacted by various factors which (while arguably not as dramatic as those experienced recently related to the bankruptcy and bifurcation) could include:

- Revenue fluctuations associated with customer exits and additions;
- Debt service savings associated with upcoming refunding opportunities;
- Potential cost impacts of modifications to current understanding regarding shared services and related allocations.

We believe the appropriate baseline for purposes of evaluating this approach is FY 2016, which was the first year for which GLWA principals controlled budget decisions. We further believe that the most appropriate depiction of FY 2016 is the original budget, prior to final modifications related to the Lease negotiations. We have modeled the forecasted financial performance of applying the concept introduced above, and applied annual 4% increases to the baseline year to establish a “benchmark” projection. The preliminary results (for the Water System for illustrative purposes) are depicted on the first page of the attached exhibits.

In the Baseline Condition, we’ve assumed that the total revenue requirement will increase 4% annually, and established that as the “benchmark” measured by the red line. We’ve also assumed 4% annual increases in the O&M budget and modeled the preliminary debt service projections from long term CIP planning. The Lease Payment is fixed, and the pension reimbursement is fixed through FY 2023 (we’ve assumed complete removal in FY 2024 for purposes of this illustration). Since overall revenue requirements increase 4% annually, and since there are fixed elements amongst some of the non-operating expenses, the amounts available to the I&E Fund (to fund capital improvements) and/or reserves steadily grows, as does the debt service coverage ratio. This “trajectory” illustrates the basic philosophy originally established via Ms. McCormick’s optimization plan.

Exhibit Page 2 illustrates a *hypothetical* alternative scenario in FY 2020 in which we assume:

- A “flat” O&M budget – no change from FY 2019;
- Refunding savings to reduce debt service by 5%;
- Maintaining the overall 4% revenue requirement increase.

In this scenario, revenues that were formerly targeted to O&M and debt service are applied to enhanced contributions to the I&E Fund (to fund capital improvements) and/or reserves, and more material increases in the debt service coverage ratio.

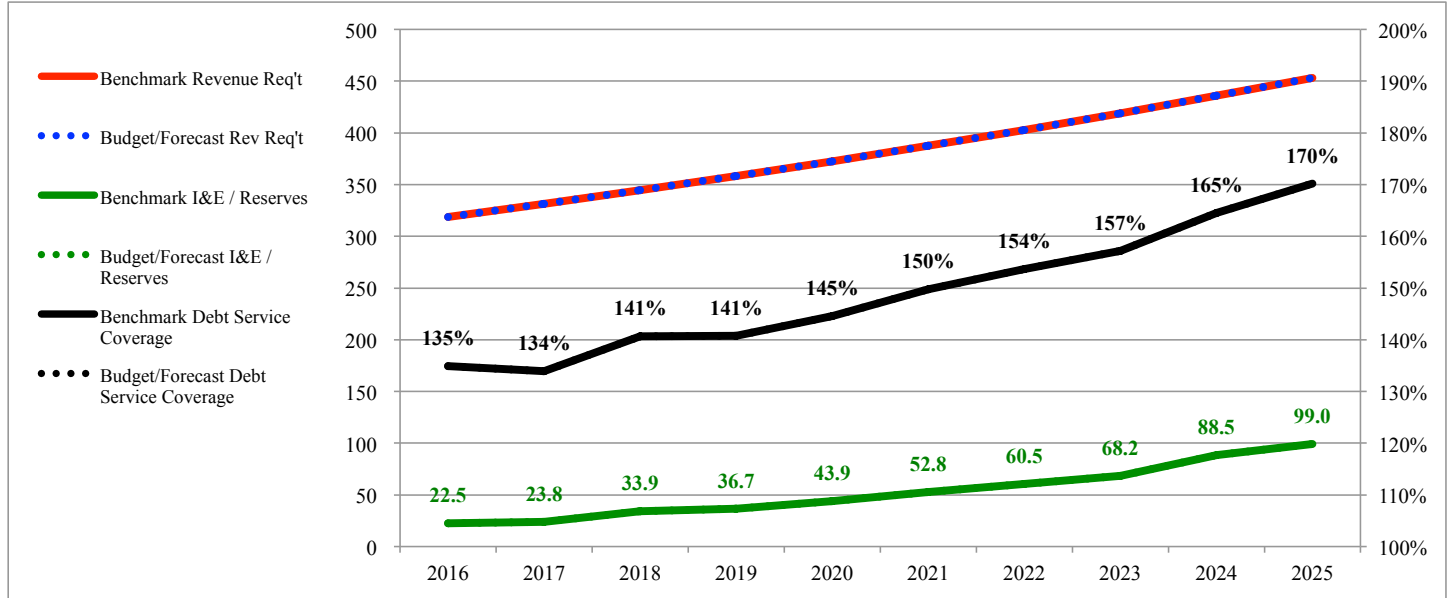
Next, we've introduced a second scenario, in which the O&M and debt service budget savings from Alternative Scenario 1 are maintained, and in which the overall 4% is NOT implemented. In effect, this *hypothetical* Alternative Scenario 2 applies the budget savings from individual budget elements to forgo the need to increase charges to customers for FY 2020. Compared to the Baseline Condition, the forecasted reserve amounts and debt service coverage ratios still represent improvements, although to a lesser degree. Importantly, the overall revenue requirement is now below the benchmark **4% Commitment**.

Finally, let's illustrate the overall concept with an Alternative Scenario 3. In this *hypothetical* circumstance regulatory pressures have resulted in the need to increase the FY 2022 O&M budget by more than 4%, and revenue shortfalls in a prior year have pressured actual reserve balances. GLWA management proposes a 6% increase in the overall revenue requirement in order to address these unique occurrences. The resulting metrics are still positive related to the Baseline Condition, and – most importantly – the overall cumulative revenue requirement is still lower than the benchmark, and the **4% Commitment** continues to be honored under the interpretation you have suggested.

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

**Illustration of the 4% Commitment Implementation - \$ millions**  
**WATER GLWA Wholesale Only - Baseline Condition**

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Annual Revenue Req't Benchmark	318.5	331.2	344.5	358.2	372.6	387.5	403.0	419.1	435.9	453.3
Budget/Forecast Rev Req't	318.5	331.2	344.5	358.2	372.6	387.5	403.0	419.1	435.9	453.3



Annual Increase - Benchmark	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
Cumulative Increase - Benchmark	4.0%	8.2%	12.5%	17.0%	21.7%	26.5%	31.6%	36.9%	42.3%
Annual Increase - "Actual"	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
Cumulative Increase - "Actual"	4.0%	8.2%	12.5%	17.0%	21.7%	26.5%	31.6%	36.9%	42.3%

**WATER**

**GLWA Wholesale Only**

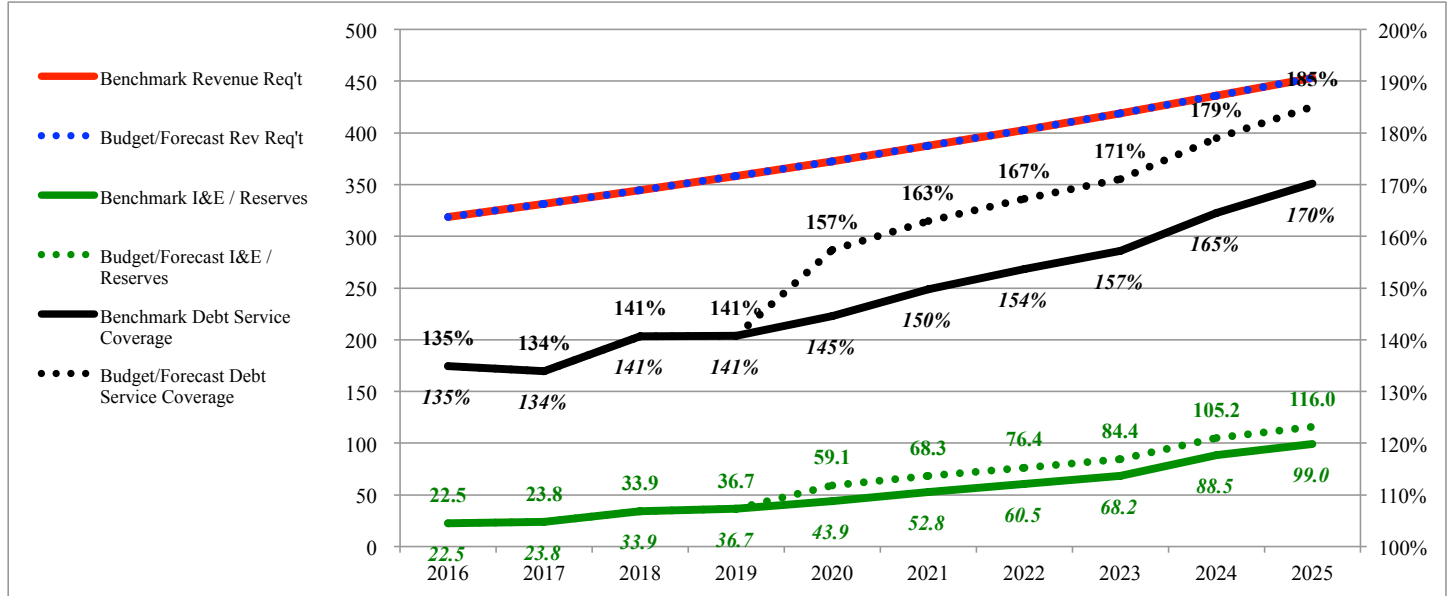
1	Annual O&M Budget	107.6	111.9	116.4	121.0	125.8	130.9	136.1	141.6	147.2	153.1
2	O&M Pension Reimbursement	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	0.0	0.0
3	Debt Service	151.8	159.3	157.9	164.2	166.4	167.3	169.7	172.7	175.4	176.4
4	Non-Operating Pension Reim	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	0.0	0.0
5	WRAP Fund	2.0	1.6	1.7	1.8	1.9	1.9	2.0	2.1	2.2	2.3
6	Budget Stabilization Fund	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	Lease Payment	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
8	<b>System I&amp;E / Reserves</b>	<b>22.5</b>	<b>23.8</b>	<b>33.9</b>	<b>36.7</b>	<b>43.9</b>	<b>52.8</b>	<b>60.5</b>	<b>68.2</b>	<b>88.5</b>	<b>99.0</b>
9	Gross Revenue Req'ts	318.5	331.2	344.5	358.2	372.6	387.5	403.0	419.1	435.9	453.3
10	Debt Service Coverage	135%	134%	141%	141%	145%	150%	154%	157%	165%	170%

**Forecast Assumptions**

11	Total Revenue Req't Increase	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
12	Annual O&M Budget	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
13	O&M Pension Reimbursement	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-100.0%	0.0%
14	Debt Service	4.0%	4.0%	1.3%	0.5%	1.4%	1.8%	1.6%	0.6%	
15	Non-Operating Pension Reim	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-100.0%	0.0%	
16	WRAP Fund	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	
17	Budget Stabilization Fund	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	
18	Lease Payment	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
19	System I&E / Reserves Results	42.3%	8.1%	19.7%	20.3%	14.8%	12.6%	29.9%	11.8%	

**Illustration of the 4% Commitment Implementation - \$ millions**  
**WATER GLWA Wholesale Only - Alternative Scenario 1**

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Annual Revenue Req't Benchmark	318.5	331.2	344.5	358.2	372.6	387.5	403.0	419.1	435.9	453.3
Budget/Forecast Rev Req't	318.5	331.2	344.5	358.2	372.6	387.5	403.0	419.1	435.9	453.3



Annual Increase - Benchmark	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
Cumulative Increase - Benchmark	4.0%	8.2%	12.5%	17.0%	21.7%	26.5%	31.6%	36.9%	42.3%
Annual Increase - "Actual"	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
Cumulative Increase - "Actual"	4.0%	8.2%	12.5%	17.0%	21.7%	26.5%	31.6%	36.9%	42.3%

**WATER**

GLWA Wholesale Only

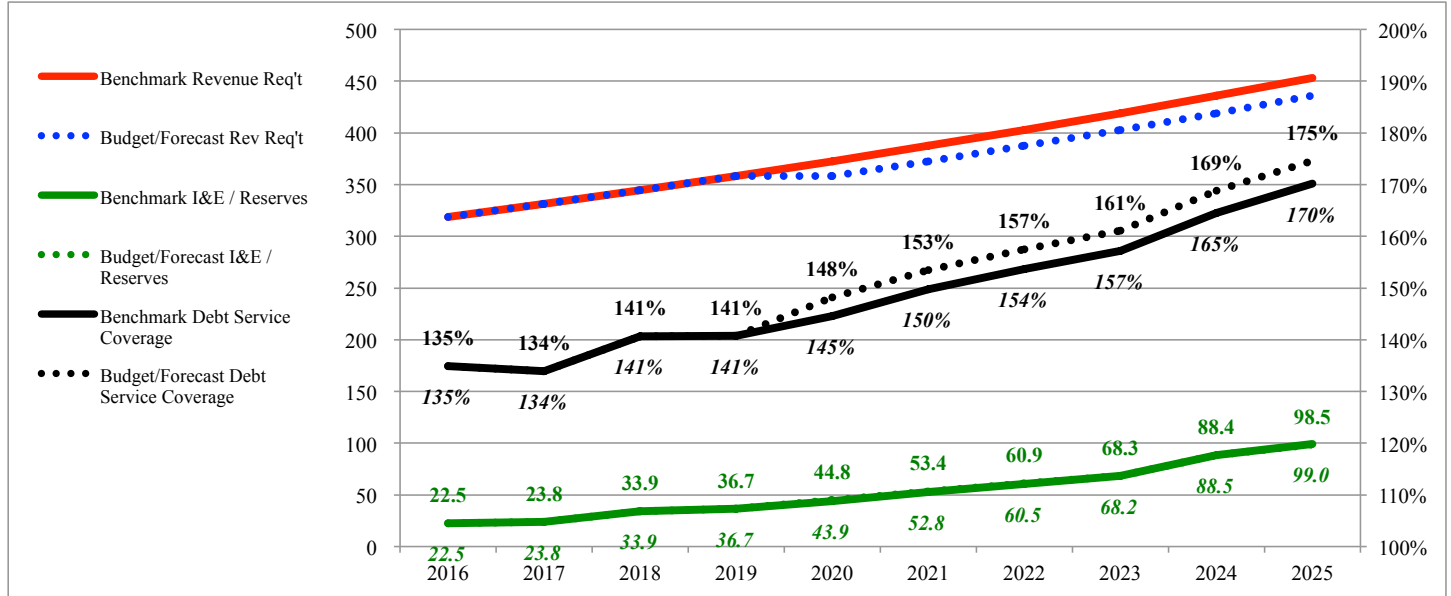
1	Annual O&M Budget	107.6	111.9	116.4	121.0	121.0	125.8	130.9	136.1	141.6	147.2
2	O&M Pension Reimbursement	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	0.0	0.0
3	Debt Service	151.8	159.3	157.9	164.2	156.0	156.9	159.1	161.9	164.4	165.4
4	Non-Operating Pension Reim	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	0.0	0.0
5	WRAP Fund	2.0	1.6	1.7	1.8	1.9	1.9	2.0	2.1	2.2	2.3
6	Budget Stabilization Fund	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	Lease Payment	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
8	<b>System I&amp;E / Reserves</b>	<b>22.5</b>	<b>23.8</b>	<b>33.9</b>	<b>36.7</b>	<b>59.1</b>	<b>68.3</b>	<b>76.4</b>	<b>84.4</b>	<b>105.2</b>	<b>116.0</b>
9	Gross Revenue Req'ts	318.5	331.2	344.5	358.2	372.6	387.5	403.0	419.1	435.9	453.3
10	Debt Service Coverage	135%	134%	141%	141%	157%	163%	167%	171%	179%	185%

**Forecast Assumptions**

11	Total Revenue Req't Increase	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
12	Annual O&M Budget	4.0%	4.0%	0.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
13	O&M Pension Reimbursement	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-100.0%	0.0%
14	Debt Service	4.0%	4.0%	-5.0%	0.5%	1.4%	1.8%	1.6%	0.6%	
15	Non-Operating Pension Reim	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-100.0%	0.0%	
16	WRAP Fund	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
17	Budget Stabilization Fund	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
18	Lease Payment	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
19	System I&E / Reserves Results	42.3%	8.1%	61.3%	15.5%	11.9%	10.5%	24.6%	10.2%	

**Illustration of the 4% Commitment Implementation - \$ millions**  
**WATER GLWA Wholesale Only - Alternative Scenario 2**

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Annual Revenue Req't Benchmark	318.5	331.2	344.5	358.2	372.6	387.5	403.0	419.1	435.9	453.3
Budget/Forecast Rev Req't	318.5	331.2	344.5	358.2	358.2	372.6	387.5	403.0	419.1	435.9



Annual Increase - Benchmark	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
Cumulative Increase - Benchmark	4.0%	8.2%	12.5%	17.0%	21.7%	26.5%	31.6%	36.9%	42.3%
Annual Increase - "Actual"	4.0%	4.0%	4.0%	0.0%	4.0%	4.0%	4.0%	4.0%	4.0%
Cumulative Increase - "Actual"	4.0%	8.2%	12.5%	12.5%	17.0%	21.7%	26.5%	31.6%	36.9%

**WATER**

GLWA Wholesale Only

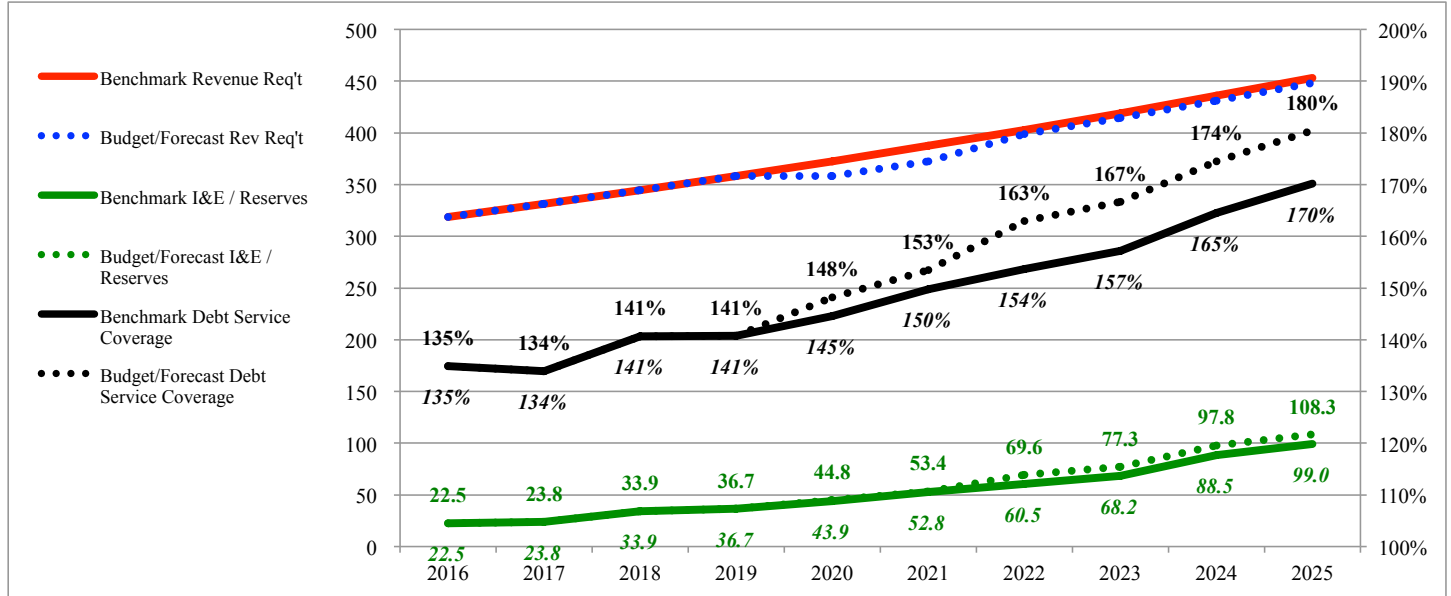
1	Annual O&M Budget	107.6	111.9	116.4	121.0	121.0	125.8	130.9	136.1	141.6	147.2
2	O&M Pension Reimbursement	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	0.0	0.0
3	Debt Service	151.8	159.3	157.9	164.2	156.0	156.9	159.1	161.9	164.4	165.4
4	Non-Operating Pension Reim	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	0.0	0.0
5	WRAP Fund	2.0	1.6	1.7	1.8	1.9	1.9	2.0	2.1	2.2	2.3
6	Budget Stabilization Fund	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	Lease Payment	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
8	<b>System I&amp;E / Reserves</b>	<b>22.5</b>	<b>23.8</b>	<b>33.9</b>	<b>36.7</b>	<b>44.8</b>	<b>53.4</b>	<b>60.9</b>	<b>68.3</b>	<b>88.4</b>	<b>98.5</b>
9	Gross Revenue Req'ts	318.5	331.2	344.5	358.2	358.2	372.6	387.5	403.0	419.1	435.9
10	Debt Service Coverage	135%	134%	141%	141%	148%	153%	157%	161%	169%	175%

**Forecast Assumptions**

11	Total Revenue Req't Increase	4.0%	4.0%	0.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
12	Annual O&M Budget	4.0%	4.0%	0.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
13	O&M Pension Reimbursement	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-100.0%	0.0%
14	Debt Service	4.0%	4.0%	-5.0%	0.5%	1.4%	1.8%	1.6%	0.6%	
15	Non-Operating Pension Reim	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-100.0%	0.0%	
16	WRAP Fund	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
17	Budget Stabilization Fund	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
18	Lease Payment	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
19	System I&E / Reserves Results	42.3%	8.1%	22.2%	19.1%	14.1%	12.1%	29.5%	11.4%	

**Illustration of the 4% Commitment Implementation - \$ millions**  
**WATER GLWA Wholesale Only - Alternative Scenario 3**

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Annual Revenue Req't Benchmark	318.5	331.2	344.5	358.2	372.6	387.5	403.0	419.1	435.9	453.3
Budget/Forecast Rev Req't	318.5	331.2	344.5	358.2	358.2	372.6	398.6	414.6	431.2	448.4



Annual Increase - Benchmark	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
Cumulative Increase - Benchmark	4.0%	8.2%	12.5%	17.0%	21.7%	26.5%	31.6%	36.9%	42.3%	
Annual Increase - "Actual"	4.0%	4.0%	4.0%	0.0%	4.0%	7.0%	4.0%	4.0%	4.0%	4.0%
Cumulative Increase - "Actual"	4.0%	8.2%	12.5%	12.5%	17.0%	25.2%	30.2%	35.4%	40.8%	

**WATER**

**GLWA Wholesale Only**

1	Annual O&M Budget	107.6	111.9	116.4	121.0	121.0	125.8	133.4	138.7	144.3	150.1
2	O&M Pension Reimbursement	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	0.0	0.0
3	Debt Service	151.8	159.3	157.9	164.2	156.0	156.9	159.1	161.9	164.4	165.4
4	Non-Operating Pension Reim	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	0.0	0.0
5	WRAP Fund	2.0	1.6	1.7	1.8	1.9	1.9	2.0	2.1	2.2	2.3
6	Budget Stabilization Fund	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	Lease Payment	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
8	<b>System I&amp;E / Reserves</b>	<b>22.5</b>	<b>23.8</b>	<b>33.9</b>	<b>36.7</b>	<b>44.8</b>	<b>53.4</b>	<b>69.6</b>	<b>77.3</b>	<b>97.8</b>	<b>108.3</b>
9	Gross Revenue Req'ts	318.5	331.2	344.5	358.2	358.2	372.6	398.6	414.6	431.2	448.4
10	Debt Service Coverage	135%	134%	141%	141%	148%	153%	163%	167%	174%	180%

**Forecast Assumptions**

11	Total Revenue Req't Increase	4.0%	4.0%	0.0%	4.0%	7.0%	4.0%	4.0%	4.0%	4.0%
12	Annual O&M Budget	4.0%	4.0%	0.0%	4.0%	6.0%	4.0%	4.0%	4.0%	4.0%
13	O&M Pension Reimbursement	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-100.0%	0.0%	0.0%
14	Debt Service	4.0%	4.0%	-5.0%	0.5%	1.4%	1.8%	1.6%	0.6%	0.6%
15	Non-Operating Pension Reim	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-100.0%	0.0%	0.0%
16	WRAP Fund	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
17	Budget Stabilization Fund	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
18	Lease Payment	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
19	System I&E / Reserves Results	42.3%	8.1%	22.2%	19.1%	30.4%	11.1%	26.5%	10.7%	

## **Audit Team (with you today)**

Joe Kowalski, KPMG Engagement Partner

Jen Lyons, KPMG Senior Manager

## **Audit Results**

### ■ **Opinions**

- Unmodified – May 31, 2016
  - Governmental Activities
  - Business-Type Activities
  - General Fund
  - General Retirement Service Corporation
  - Police and Fire Retirement Service Corporation
  - **Sewage Disposal Fund**
  - **Water Fund**
  - Department of Transportation
  - Automobile Parking Fund
  - Aggregate Remaining Fund Information
  - Aggregate Discretely Presented Component Units
- Emphasis of Matters – Bankruptcy Exit, Adoption of GASB 68; Alternative Investments Valuation

### ■ **Areas of Significant Audit Focus**

- Cash and Investments
- Accounts Receivable
- Capital Assets and Depreciation
- CWIP
- Pensions
- Accounts Payable
- Long-term Debt
- Revenues and Expenses
- Bankruptcy Accounting
- Net Position and Fund Balances
- Required Note Disclosures
- Financial reporting including review of internal controls related to journal entries

### ■ **Control Deficiencies – Reported in Separate Letter**

## **Required Communications**

- Our responsibilities under professional standards
- Responsibilities of management and those charged with governance
- Other information in documents containing audited financial statements – Supplementary Information and Other Supplementary Information
- Accounting practices and alternative treatments
  - Significant accounting policies – Note 1; GASB 68, GASB 71 (Note 1 (s))
  - Significant or Unusual Transactions
    - Bankruptcy Accounting (Note 1(t))
    - Attribution Period of Frozen Pension Plan
  - Qualitative aspects of accounting practices
- Management judgments and accounting estimates – Self Insurance Liabilities, Allowance for Doubtful Accounts, Net Pension Asset, Depreciation, Derivatives
- Uncorrected and corrected misstatements – See attached
- Disagreements with Management – None
- Management’s consultation with other accountants – None Noted
- Significant issues discussed, or subject to correspondence, with management
  - Major issues discussed with management prior to retention – None
  - Material written communications – See attached management representation letters
- Significant difficulties encountered during the audit – delays in certain client provided reconciliations and closing entries

## **Other Matters**

- Upcoming Issues
  - GASB 72 Fair Value Measurements\*
  - GASB 77 Tax Abatement Disclosures
- Independence