



Wastewater Charges National Symposium

Day Two Agenda

June 28, 2018 – 8:30 a.m. to 2:00 p.m.

Summit on the Park: 46000 Summit Pkwy, Canton

Time	Topic
8:30 a.m.	Refreshments available
9:00 a.m.	Welcome, agenda review, desired outcomes – Kerry Sheldon, Bridgeport Consulting <ul style="list-style-type: none"> ▪ Desired outcomes: <ul style="list-style-type: none"> ○ Confirm and reflect upon key takeaways from Day One of the Symposium ○ Develop clarity on potential changes to explore with regard to GLWA wastewater charges for FY 2021 and beyond
9:30 a.m.	Opening remarks – Sue McCormick, GLWA
9:40 a.m.	Major GLWA takeaways from Day One – Bart Foster, Jon Wheatley
10:00 a.m.	Major member takeaways from Day One – Facilitated by Kerry Sheldon <ul style="list-style-type: none"> ▪ Table discussion <ul style="list-style-type: none"> ○ What key insights did you take away from Day One? ○ Which peer utility's charge methodology did you find most intriguing? Why? ▪ Report-out and discussion
10:30 a.m.	Ten-minute break
10:40 a.m.	Changes to consider – Kerry Sheldon <i>Purpose: To generate a comprehensive list of potential options to explore</i> <ul style="list-style-type: none"> ▪ Quick poll: Is GLWA's <u>current</u> methodology too simple, too complex, or just right? ▪ Table discussion: <ul style="list-style-type: none"> ○ Given what we learned from our peer utilities, what would you propose we explore in terms of potential 1) additions, 2) modifications, and 3) deletions from the GLWA wastewater charge methodology? What's your reasoning? ▪ Report-out and discussion
11:30 a.m.	Review and prioritization – Kerry Sheldon <i>Purpose: To converge on a manageable set of elements to explore changing</i>
12:30 p.m.	Lunch

Time	Topic
1:05 p.m.	The path forward <i>Purpose: To develop the key milestones and accountability for advancing the exploration</i> <ul style="list-style-type: none"> ▪ What information are we gathering? ▪ What are the key milestones by which we need to gather that information? ▪ What setting(s) should we use to advance this work – WATF, Charges Work Group, a smaller technical committee, a third-party consultant?
1:50 p.m.	Meeting recap – Kerry Sheldon
1:55 p.m.	Closing remarks – Sue McCormick
2:00 p.m.	Adjourn



Great Lakes Water Authority

Profile

The Great Lakes Water Authority (GLWA) is a regional water and wastewater authority, encompassing 988 square miles in southeast Michigan, serving approximately 2.8 million people, nearly 30 percent of the population in the state.

System Overview

GLWA provides wholesale water and wastewater services to 76 communities, via 18 wholesale service contracts and a separate Water and Sewer Services Agreement with the City of Detroit. System assets and characteristics include:

- 1 Water Resource Recovery Facility (WRRF), the largest single-site wastewater treatment plant in the U.S.;
- 5 pump stations;
- 8 CSO facilities, including 5 retention treatment basins and 3 flow-through type facilities;
- Conveyance system with 181 miles of trunk sewers and interceptors; 28,500 miles of sewer pipe leading to major interceptors;
- Service area includes combined sewer (about 30 percent of land area) and separated sewer systems



The system dates back to 1836 when the first sewer was constructed to drain directly into the Detroit River. By 1910, over 600 miles of sewer had been constructed to serve the City of Detroit.



Great Lakes Water Authority

Existing Charge Methodology Components

GLWA uses a proportional cost allocation methodology, aggregating components of the wastewater system and its operations and charging all members for a share of those costs.

Annual Revenue Requirements for the system are assigned to Cost Pools. Those include:

- ***Common-to-All (CTA) Shares-*** Allocated to All Wastewater Customers
 - Water Resource Recovery Facility, Interceptors, Lift Stations
- ***Suburban Wholesale Only-*** Allocated to Suburban Customers Only
 - Master Meter Facilities and Programs
- ***Combined Sewer Overflow (CSO) Facilities-*** The allocation of CSO costs among customers was established in 1999 after a court-ordered facilitation process (the forerunner to the present customer outreach process). The costs of the long term CSO control program were allocated 83% to Detroit and 17% to wholesale sewer customers. The wholesale customers allocated the 17% among themselves.
- ***Oakland Macomb Interceptor District (OMID) specific facilities-*** Some of the GLWA leased assets serve only the OMID and based on the wastewater services agreement with OMID, the related operating and capital costs are allocated to OMID as a separate cost pool.
- ***Industrial Waste Control (IWC) Program***
- ***City of Detroit Local Costs-*** Any local system-specific costs related to service to the City of Detroit are removed before cost allocation.

Common To All Costs (CTA):

The GLWA methodology for assigning most Sewer System revenue requirements embraces a “Rate Simplification Initiative” adopted with the FY 2015 Sewer Charges. Under this initiative, all 19 Customers (18 suburban wholesale contracts, and the City of Detroit Customer Class) are assigned a “SHARE” of the common to all costs. Allocated revenue requirements are recovered via a fixed monthly charge – which does not vary during the year. Member shares of system costs are set for three years to support charge stability objectives.

How are SHARES determined? In general, the methodology acknowledges that certain costs should be proportionally allocated to Member Customers based on the amount of annual wastewater ***volume*** they contribute to the system and that other costs should be proportionally allocated to Member Customers based on the amount of wastewater ***pollutant loadings*** they contribute. GLWA computes the relative volume Share and relative pollutant Share for each Member Customer, and then applies the appropriate cost weighting to arrive at the overall SHARE.



How does GLWA establish which costs should be allocated based on flow and which costs should be allocated based on pollutants? A 1979 study allocated costs for many of the processes that existed at that time. The intent was to allocate costs based on cost causation. As new facilities have been brought on-line, GLWA followed the 1979 principles when allocating these costs. The methodology established by the 1979 study may need to be adjusted as: 1) the facilities have changed and extrapolation of the 1979 principles to new facilities is uncertain and 2) the cost causation for existing and new facilities needs to be reviewed in the context of modern operation and regulations. GLWA intends to update this study and hopes to gain valuable insight from peer organizations to inform this update.

GLWA evaluates detailed operating budgets and fixed asset data to assign operating and capital costs to the volume and pollutant cost pools in alignment with the general established by the cost allocation methodology. Currently, 50% of the Common to All costs are assigned to the **Volume Cost Pool**, and the remaining 50% of the costs are assigned to the various **Pollutant Cost Pools**.

$(Volume\ Share * Volume\ Cost\ Pool\ \%) + (Pollutant\ Share * Pollutant\ Cost\ Pool\ \%) = SHARE$

How does GLWA measure wastewater volumes from each Member Customer?

Wastewater volumes contributed by the majority of the suburban wholesale Member Customers are measured by master wastewater meters, which were formerly referred to as “billing meters”. These customers are often referred to as the “**M**” Customer class in reports summarizing SHARE calculations.

Wastewater volumes contributed by the City of Detroit and certain other Member Customers were never measured by “billing meters”, but rather estimated via “system meters” and related analyses. These customers are often referred to as the “**D+**” Customer class in reports summarizing SHARE calculations.

GLWA uses the meter data and technical evaluations to estimate wastewater contributions from each Member Customer, separated into three “flow types”:

- ***Sanitary volumes:*** Sanitary flow or any water containing human waste sent through the system to the Water Resource Recovery Facility (WRRF), as estimated from water sales.
- ***Dry Weather Infiltration and Inflow (DWII):*** Water that enters the system through broken pipes, defective joints or illicit connections, as estimated from dry weather wastewater flows and water sales.
- ***Wet Weather volumes (WW):*** Stormwater flow or water generated during rain or snowmelt in both combined and sanitary systems.



Great Lakes Water Authority

How does GLWA estimate pollutant loadings from each Member Customer? This is where the term “strength of flow” (SOF) emerges. The methodology assumes that the relative pollutant loadings carried in DWII and wet weather flows are lower than the relative pollutant loadings carried in sanitary volumes. These assumptions result in a relative pollutant concentration for each flow type, which is assumed to be uniform across the GLWA system. The methodology then applies these assumptions to the relative flow contributions from each Member Customer to determine the pollutant loadings contributed by each Member Customer.

(Sanitary flow * Sanitary SOF = Sanitary Loadings) + (DWII flow * DWII SOF = DWII Loadings) + (Wet Weather flow * Wet Weather SOF = Wet Weather Loadings) = Total Pollutant Loadings

- The current loading categories are:
 - BOD – Biochemical Oxygen Demand:
 - TSS – Total Suspended Solids:
 - PHOS – Phosphorus:
 - FOG – Fats, Oils, and Grease:
- The current loading ratios, expressed as a percentage of sanitary strength of flow, for each flow component are:

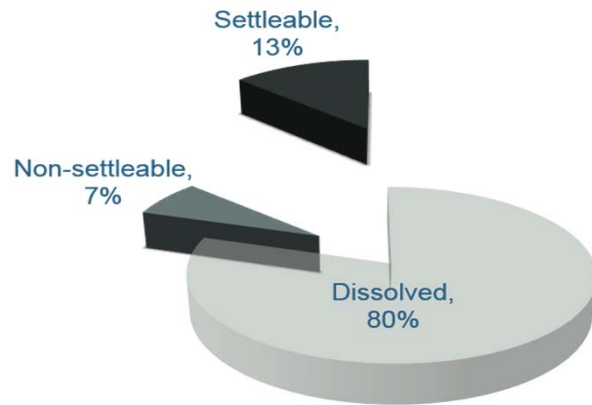
Parameter	Sanitary	DWII	WW
BOD	100%	2.4%	5.3%
TSS	100%	2.1%	39.0%
Phosphorus	100%	4.0%	2.5%
FOG	100%	0.0%	40.0%



WATER RESOURCE RECOVERY FACILITY PLANT PROCESS SUMMARY



GLWA WATER RESOURCE RECOVERY SYSTEM



Preliminary & Primary Treatment: Removes heavy Settleable solids

Secondary Treatment: Removes organic matter both Non-settleable and Dissolved

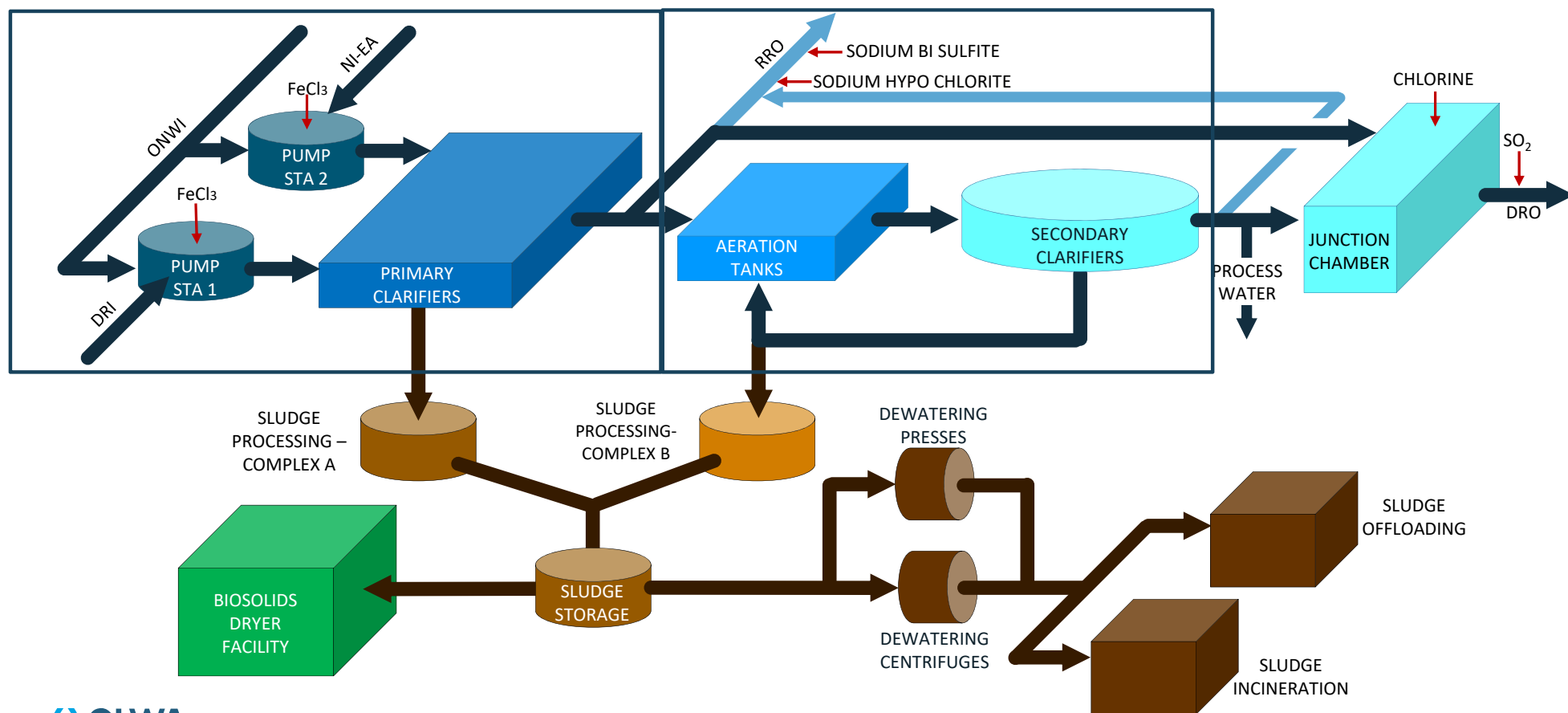
Disinfection: Kills disease-causing (pathogenic) organisms



Dewatering: Removing water from solids to reduce volume before disposal

Residuals Disposal: Removal/reuse of solids removed from the wastewater

WATER RESOURCE RECOVERY FACILITY (WRRF) OVERVIEW

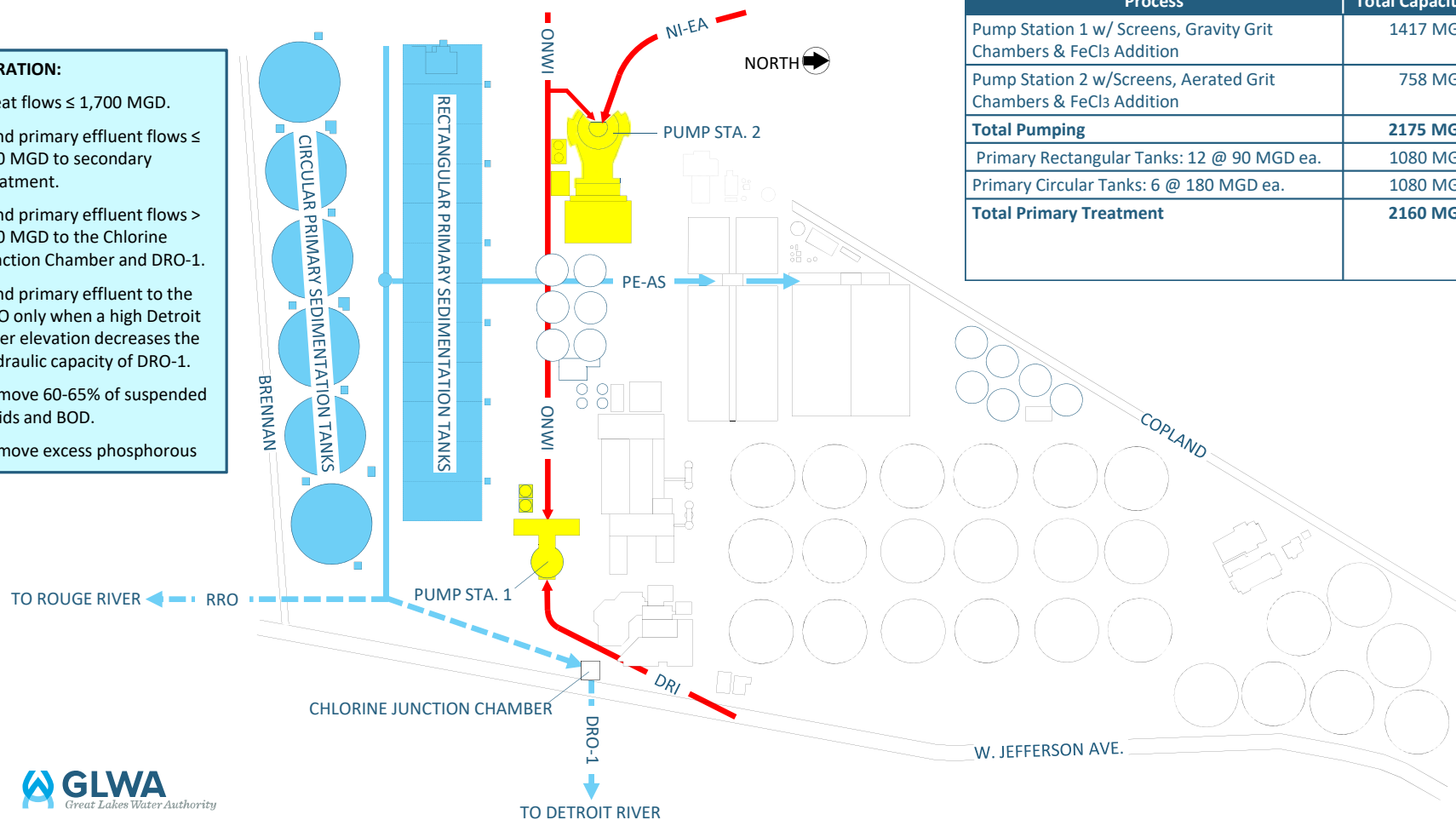


PRELIMINARY AND PRIMARY TREATMENT PROCESSES

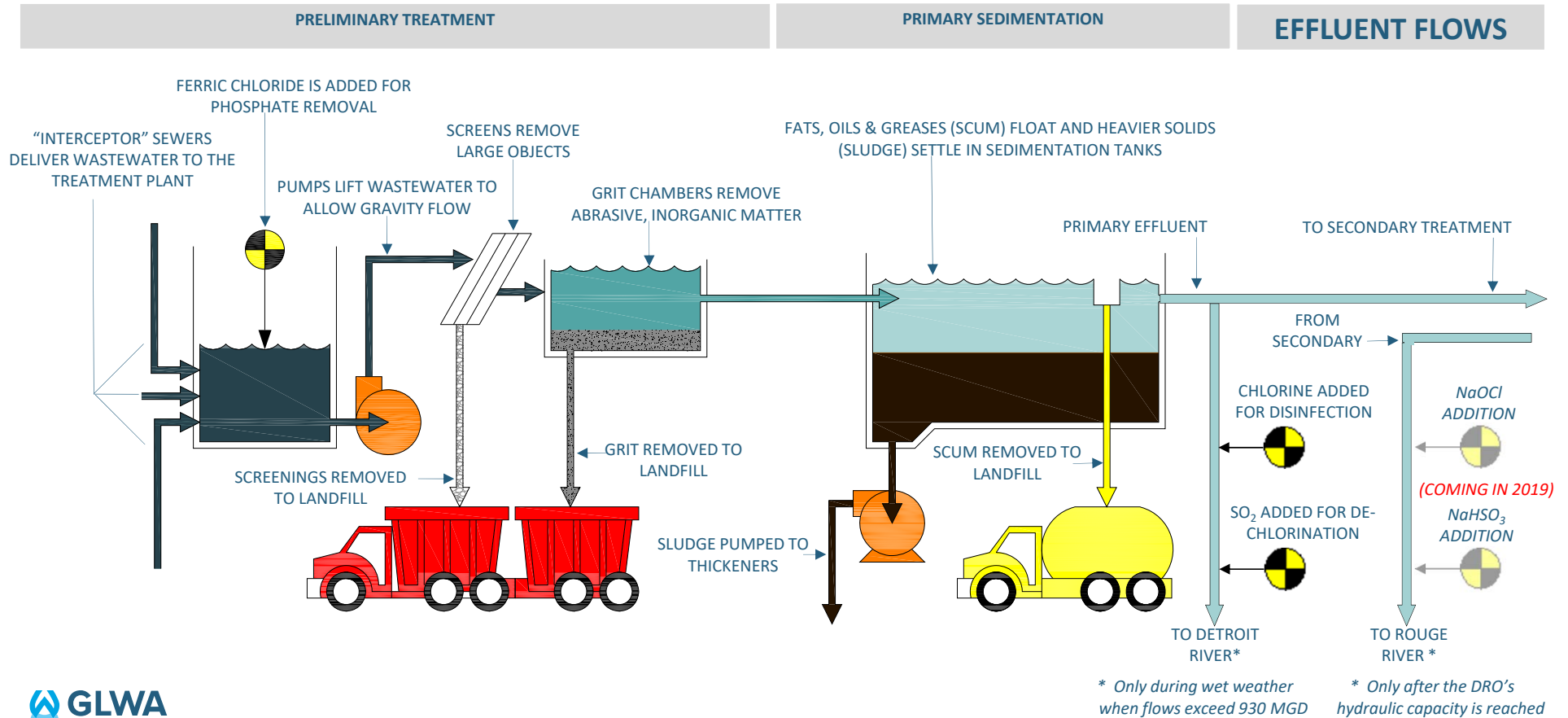
OPERATION:

- Treat flows $\leq 1,700$ MGD.
- Send primary effluent flows ≤ 930 MGD to secondary treatment.
- Send primary effluent flows > 930 MGD to the Chlorine Junction Chamber and DRO-1.
- Send primary effluent to the RRO only when a high Detroit River elevation decreases the hydraulic capacity of DRO-1.
- Remove 60-65% of suspended solids and BOD.
- Remove excess phosphorous

Process	Total Capacity	Firm Capacity
Pump Station 1 w/ Screens, Gravity Grit Chambers & FeCl ₃ Addition	1417 MGD	1188 MGD (based on largest pump OOS)
Pump Station 2 w/Screens, Aerated Grit Chambers & FeCl ₃ Addition	758 MGD	653 MGD (based on largest pump OOS)
Total Pumping	2175 MGD	1841 MGD
Primary Rectangular Tanks: 12 @ 90 MGD ea.	1080 MGD	
Primary Circular Tanks: 6 @ 180 MGD ea.	1080 MGD	
Total Primary Treatment	2160 MGD	1800 MGD (based on two rectangular and one circular tank OOS for maintenance)



PRELIMINARY AND PRIMARY TREATMENT PROCESSES



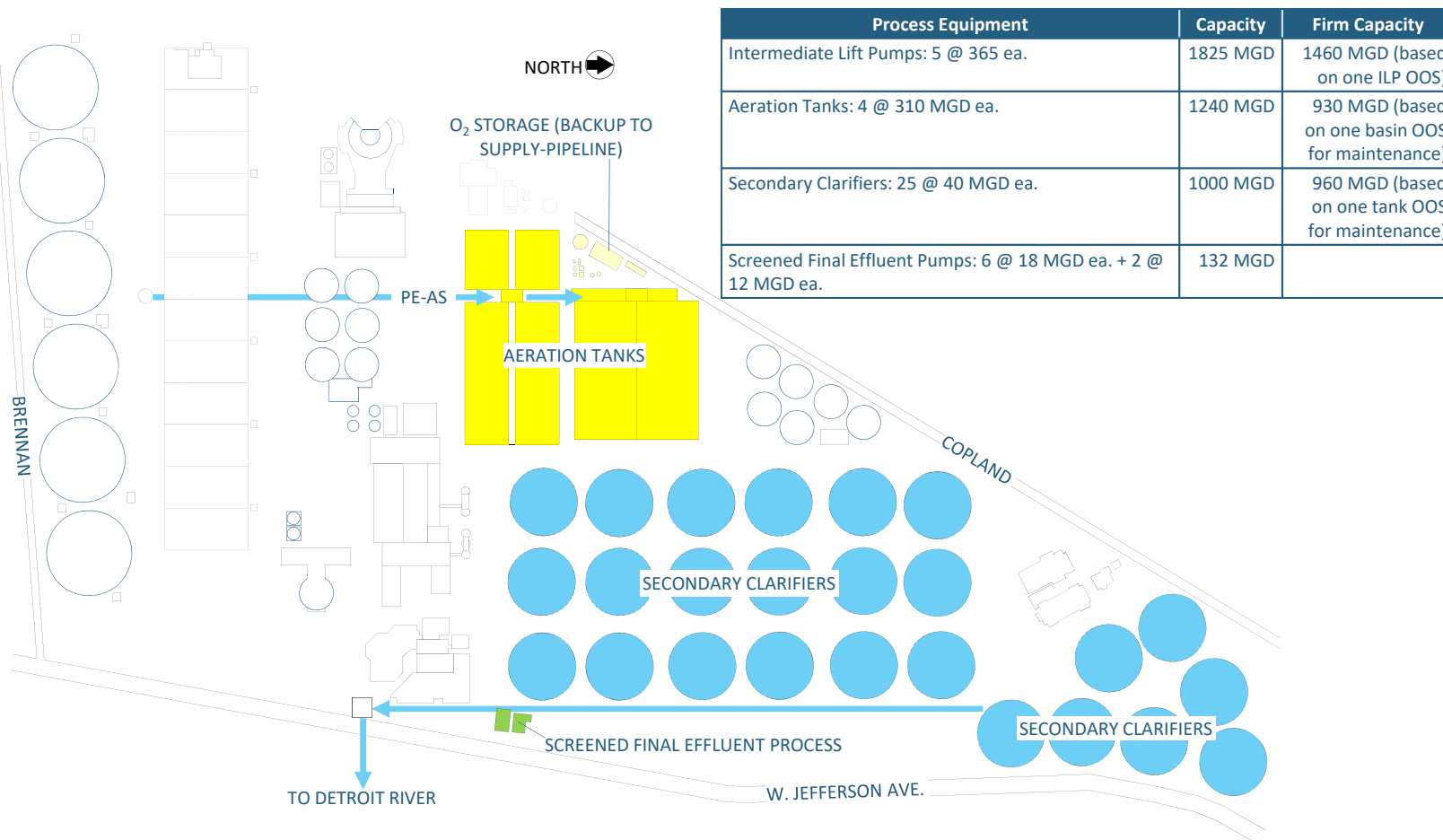
PRELIMINARY AND PRIMARY TREATMENT PROCESSES



SECONDARY TREATMENT

OPERATING TARGETS:

- Provide Dissolved Oxygen for microorganisms...
- Keep the microorganism population stable.
- Allow time for microorganisms to settle.
- Remove nearly all remaining suspended solids.
- Remove nearly all remaining phosphorous
- Removal nearly all remaining organic matter (BOD).

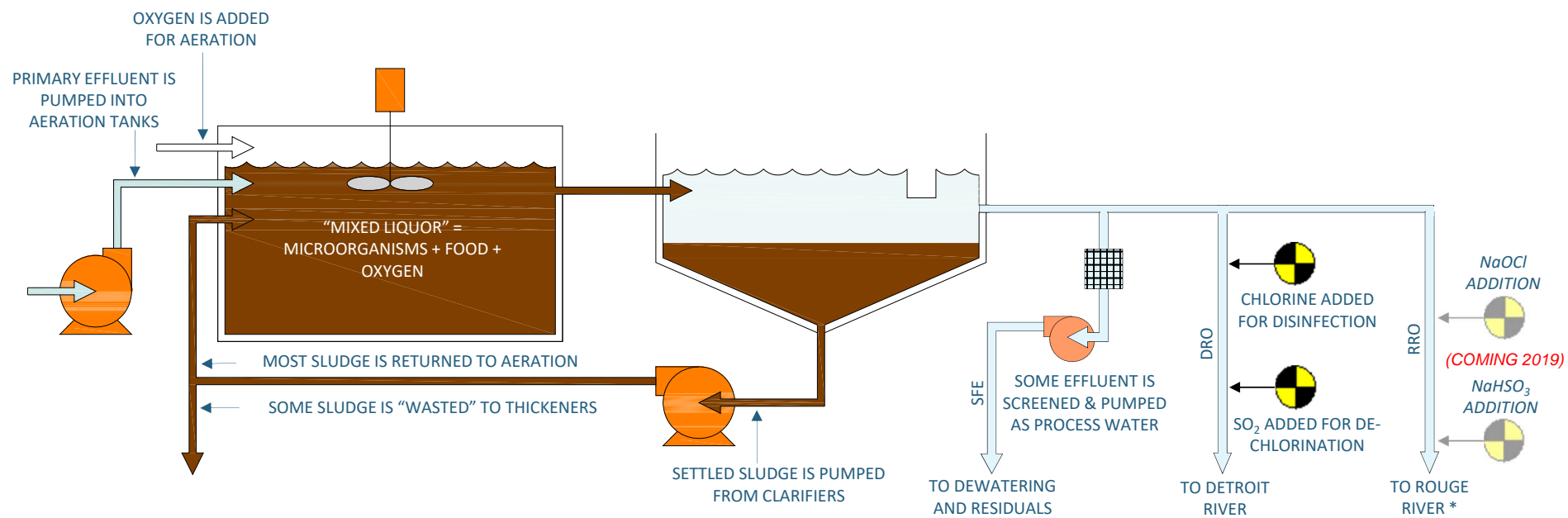


SECONDARY TREATMENT AND DISINFECTION

SECONDARY AERATION & CLARIFICATION

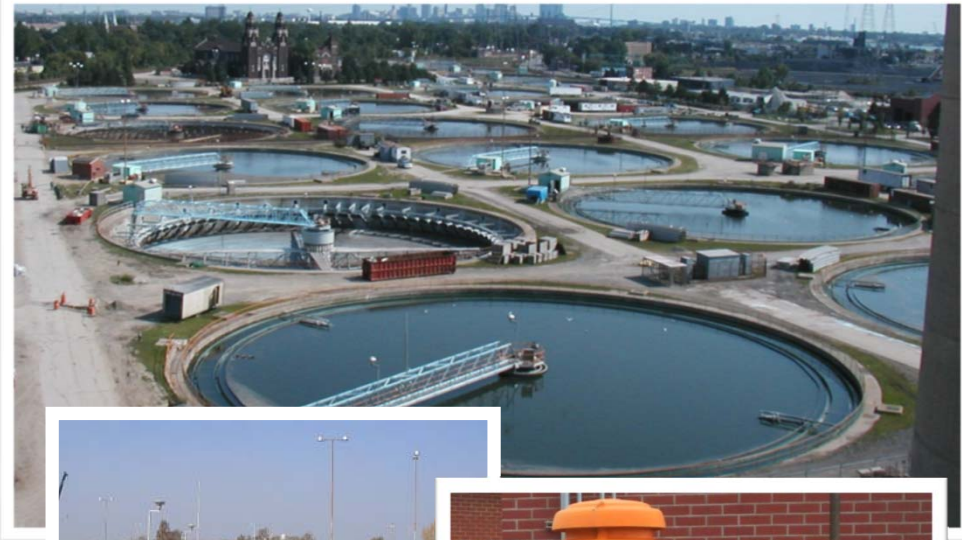
PROCESS WATER

DISINFECTION



* Only after the DRO's hydraulic capacity is reached

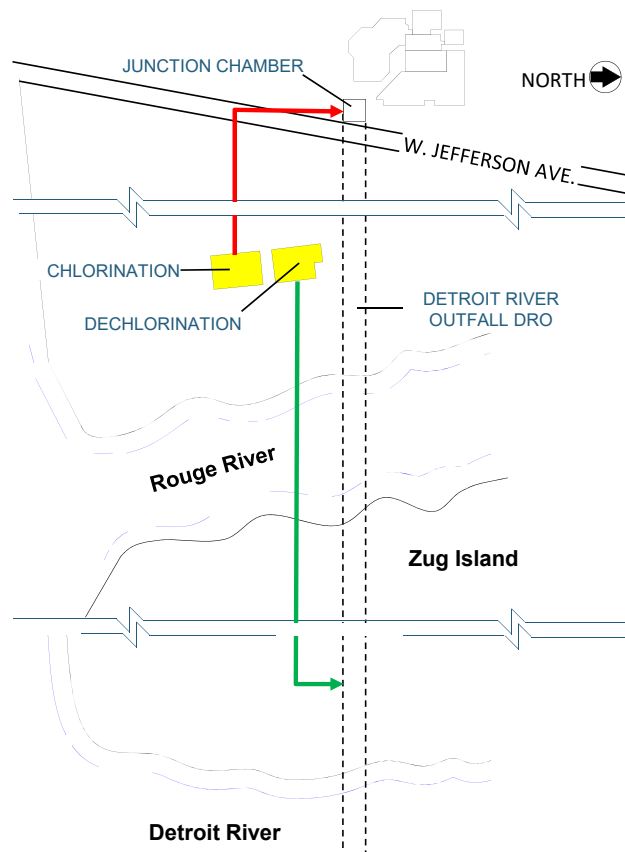
SECONDARY TREATMENT



DISINFECTION

OPERATION:

- Add enough chlorine to kill pathogens...
- Add enough sulfur dioxide to remove any remaining chlorine after disinfection...

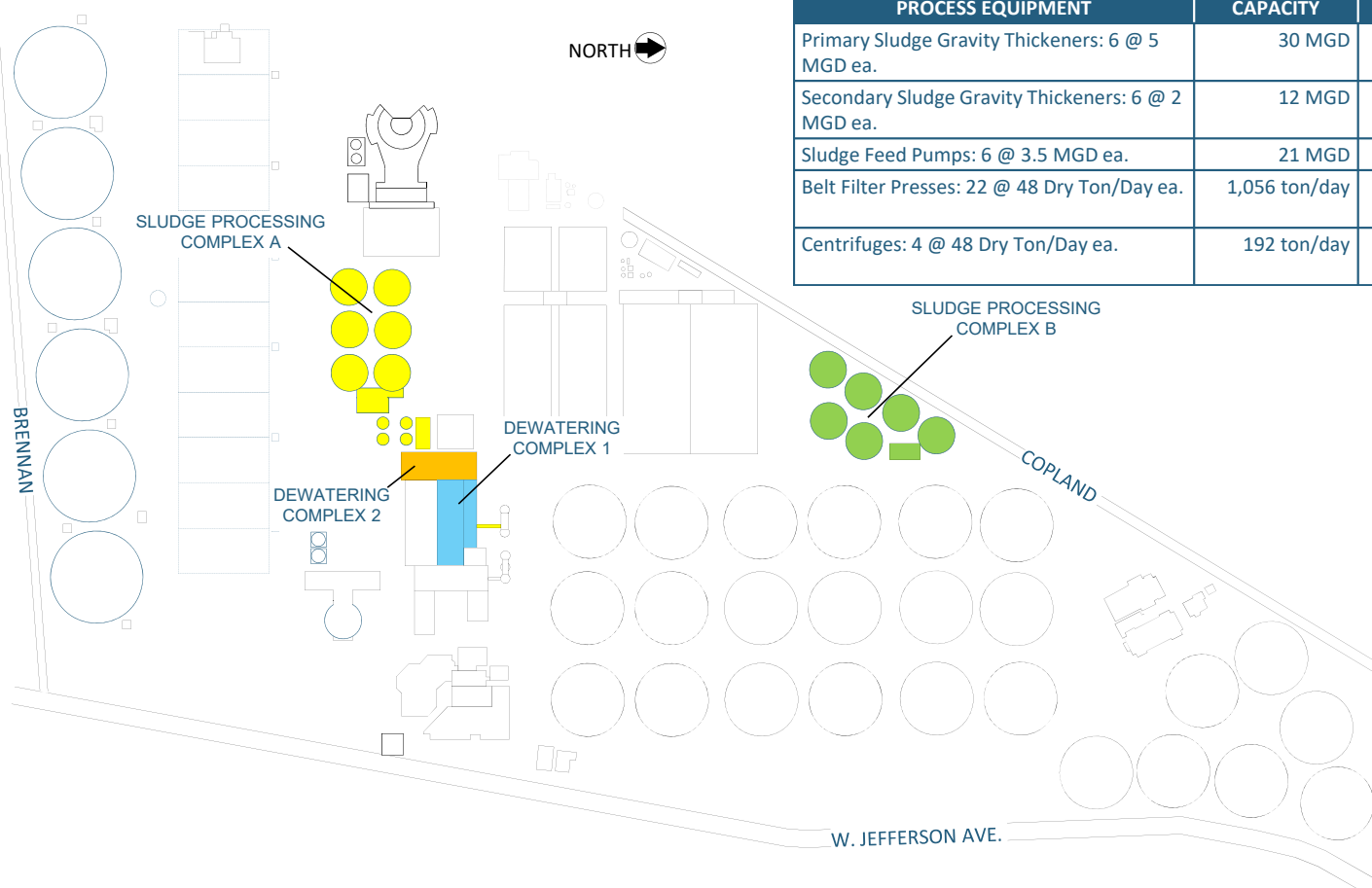


PROCESS EQUIPMENT	CAPACITY	FIRM CAPACITY
Chlorinators: 16 @ 8,000 lb/day	128,000 lbs/day	112,000 lbs/day (based on 14 of 16 chlorinators in service)
Sulfonators: 14 @ 7,600 lb/day	106,400 lbs/day	91,200 lbs/day (based on 12 of 14 sulfonators in service)

SLUDGE PROCESSING & DEWATERING

OPERATION:

- Allow time for sludge to thicken...
- Send thickened sludge to the BDF first.
- Dewater the remaining sludge.
- Use enough polymer to improve dewatering...
- Dewater with BFPs whenever possible.
- Dewater with centrifuges only if needed.

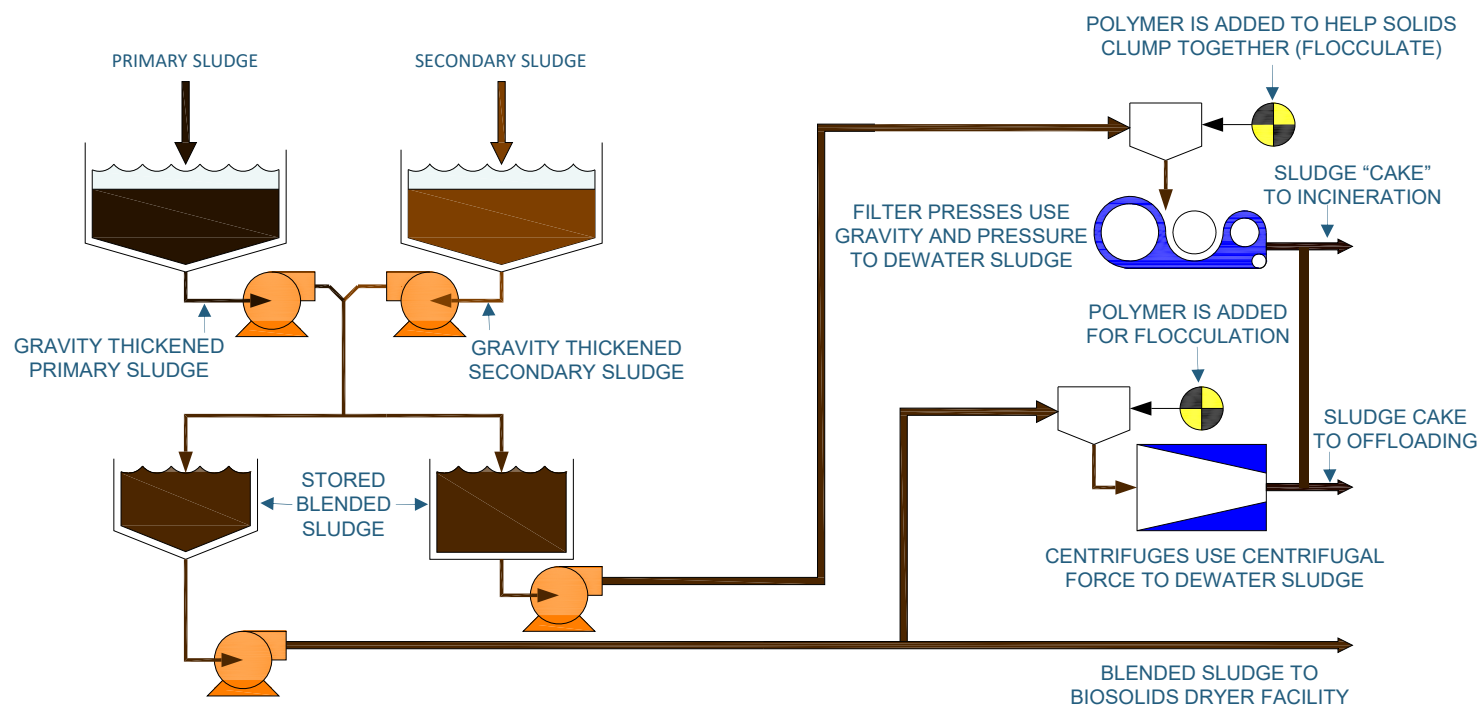


PROCESS EQUIPMENT	CAPACITY	FIRM CAPACITY
Primary Sludge Gravity Thickeners: 6 @ 5 MGD ea.	30 MGD	
Secondary Sludge Gravity Thickeners: 6 @ 2 MGD ea.	12 MGD	
Sludge Feed Pumps: 6 @ 3.5 MGD ea.	21 MGD	
Belt Filter Presses: 22 @ 48 Dry Ton/Day ea.	1,056 ton/day	696ton/day (based on 14.5 BFPs of 22 in service)
Centrifuges: 4 @ 48 Dry Ton/Day ea.	192 ton/day	144 ton/day (based on 3 of 4 centrifuges in service)

SLUDGE PROCESSING & DEWATERING

SLUDGE PROCESSING

SLUDGE DEWATERING



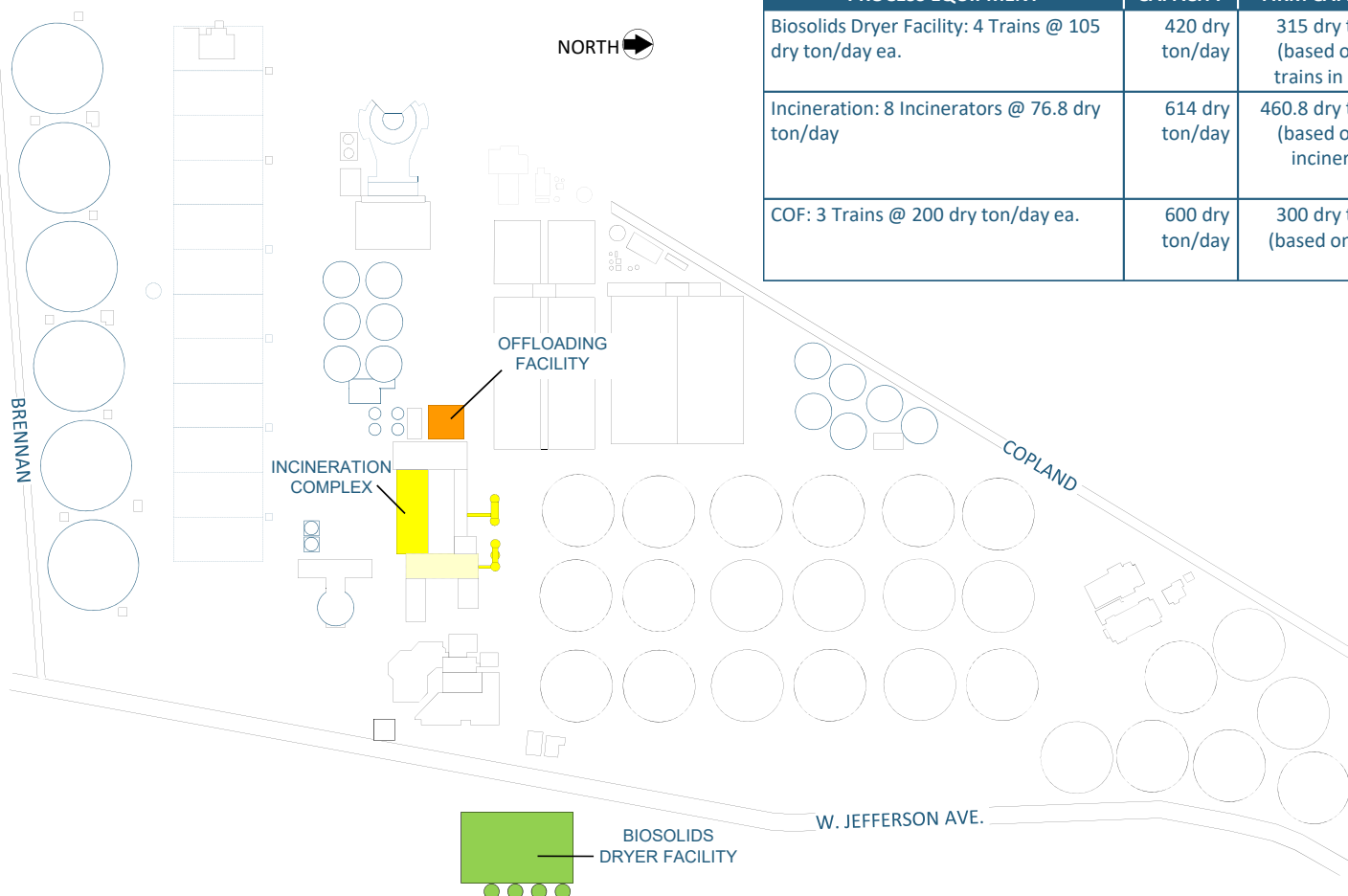
SLUDGE PROCESSING & DEWATERING



RESIDUALS DISPOSAL

NOTES:

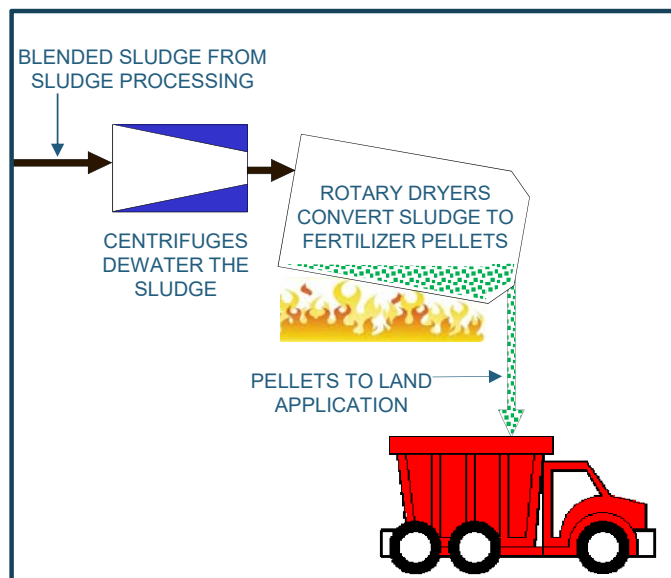
- Turn as much sludge as possible to pellets.
- Incinerate as much remaining sludge as possible.
- Use as little gas as possible.
- Keep exhaust gases cool and clean.
- Send any excess sludge to offloading.
- Use enough lime to stabilize sludge...



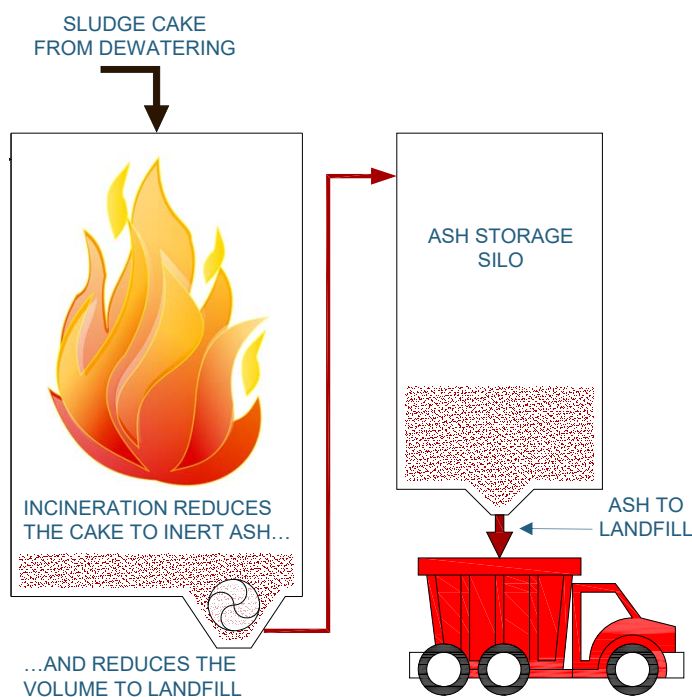
PROCESS EQUIPMENT	CAPACITY	FIRM CAPACITY
Biosolids Dryer Facility: 4 Trains @ 105 dry ton/day ea.	420 dry ton/day	315 dry ton/day (based on 3 of 4 trains in service)
Incineration: 8 Incinerators @ 76.8 dry ton/day	614 dry ton/day	460.8 dry ton/day (based on 6 of 8 incinerators in service)
COF: 3 Trains @ 200 dry ton/day ea.	600 dry ton/day	300 dry ton/day (based on 50% in service)

RESIDUALS DISPOSAL

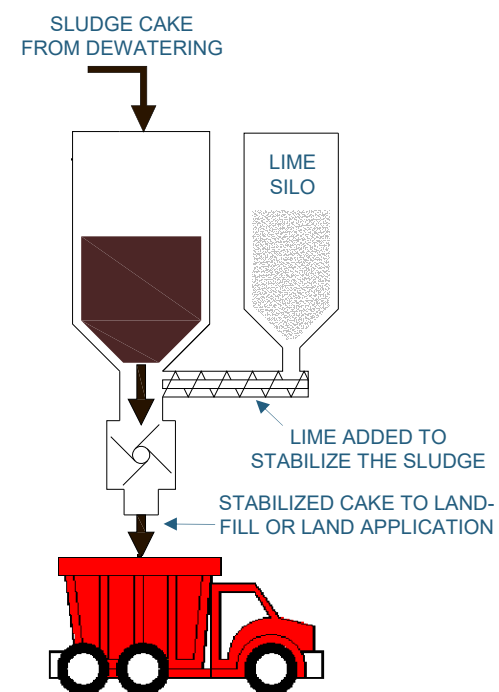
BIOSOLIDS DRYER FACILITY



INCINERATION & ASH DISPOSAL



CENTRAL OFFLOADING



RESIDUALS DISPOSAL



WRRF Summary

WRRF/Wastewater Treatment Plant - CAPACITIES					
PRIMARY TREATMENT			RESIDUALS		
Primary Pumping			Complex I - Dewatering		
Pump Station No. 1		Pump Station No. 2	C-I Dewatering Unit Capacity	48	³ DTPD ea
MLP No. 1 = 229	MGD	MLP No. 9 = 95	All 10 BFP's Capacity	480	DTPD
MLP No. 2 = 174	MGD	MLP No. 10 = 105	Firm C-I Dewatering Capacity	312	DTPD
MLP No. 3 = 180	MGD	MLP No. 11 = 89	(based on 6.5 of 10 BFP's in service)		
MLP No. 4 = 140	MGD	MLP No. 12 = 95	Complex II - Lower Level Dewatering		
MLP No. 5 = 135	MGD	MLP No. 13 = 95	C-II LL Dewatering Unit Capacity	48	DTPD ea
MLP No. 6 = 179	MGD	MLP No. 14 = 89	All 4 Centrifuges Capacity	192	DTPD
MLP No. 7 = 182	MGD	MLP No. 15 = 95	Firm C-II LL Dewatering Capacity	144	DTPD
MLP No. 8 = 198	MGD	MLP No. 16 = 95	(based on 3 of 4 Centrifuges in service)		
TOTAL = 1417	MGD	TOTAL = 758	Complex II- Upper Level Dewatering		
Total for both Pump Stations		2175	C-II UL Dewatering Unit Capacity	48	DTPD ea
Firm Cap = 1188	MGD	Firm Cap = 653	All 12 BFP's Capacity	576	DTPD
(based on largest pump OOS for maintenance)			Firm C-II UL Dewatering Capacity	384	DTPD
Firm *Capacity for both Pump Stations		1841 MGD	(based on 8 of 12 BFPs in service)		
Primary Process			Total Firm Dewatering Capacity		
Rectangular Tanks 1 thru 12	90 MGD	ea	Firm C-I Dewatering Capacity	312	DTPD
Circular Clarifiers No. 13 thru 18	180 MGD	ea	Firm C-II LL Dewatering Capacity	144	DTPD
Total Rectangular Tank Capacity	1080 MGD		Firm C-II UL Dewatering Capacity	384	DTPD
Total Circular Tank Capacity	1080 MGD		TOTAL	840	DTPD
Total Primary Capacity	2160 MGD		Central Off-Loading Facility (COF)		
Firm Treatment Capacity	1800 MGD		Trucking (COF)	300	DTPD
(Two Rectangular and one circular tank OOS for maintenance)			Biosolids Drying Facility (BDF)		
SECONDARY			8 Centrifuges Capacity	528	DTPD
Intermediate Lift Pump (ILP) and Deck Capacity			4 Dryers Capacity	421	DTPD
ILP No. 1 thru 7	365 MGD	ea	BDF Total Capacity	460.8	DTPD
Total 5 ILP Capacity	1825 MGD		Complex II- Incineration		
Firm ILP Capacity	1460 MGD		C-II Incineration Unit Capacity	76.8	DTPD ea
(One ILP OOS for maintenance)			All 8 Incinerator's Capacity	614.4	DTPD
Aeration Decks			Firm C-II Incineration Capacity	460.8	DTPD
Aeration Decks 1 thru 4	310 MGD	ea	(based on 6 of 8 Incinerators in service)		
Total 4 Aeration Deck Capacity	1240 MGD		NOTES:		
(Based on all Aeration Basins Being In Service)			1. Million gallons per day		
Secondary Clarifier Capacity			2. Pounds per day		
All Secondary Clarifiers (25)	40 MGD	ea	3. Dry tons per day		
Total Capacity Secondary Clarifiers	1000 MGD		4. The maximum production capability of a unit/area . □		
Firm Capacity for Secondary Clarifiers	960 MGD				
(One Secondary Clarifier OOS for Maintenance)					
Chlorination Capacity					
Chlorinators	8,000	³ lb/day ea			
All 16 Chlorinators	128,000	lbs/day			
Firm Chlorination Capacity	112,000 lbs/day				
(based on 14 of 16 chlorinators in service)					
Dechlorination Capacity					
Dechlorinators	7,600	lb/day ea			
All 14 DeChlorinators	106,400	lbs/day			
Firm DeChlorination Capacity	91,200 lbs/day				
(based on 12 of 14 dechlorinators in service)					



GLWA
Great Lakes Water Authority



Meeting Highlights and Discussions

1. Welcome, Agenda Review, Desired Outcomes – Kerry Sheldon, Bridgeport Consulting

- Confirm and reflect on key takeaways from Day One of the Symposium
- Develop clarity on potential changes to explore with regard to GLWA wastewater charges for FY 2021 and beyond
- Icebreaker: What stuck with you from Day One?
 - Milwaukee's Kevin Shafer's advice to avoid sewer wars at all costs because even the winners lose
 - Interest among members in peak flow
 - CSO allocations were regional
 - Shafer seemed to have a vision for Milwaukee area and the system
 - Struck that King County's approach is to build their facilities bigger rather than assign responsibility within local systems
 - "Illusion of precision"

2. Opening Remarks – Sue McCormick, GLWA

- In Day One, we reviewed the range of initiatives around wastewater charges. Noted among panelists a vision of equity and stability, acknowledging that equity is subjective. For GLWA, fixed charges are the most stable.
- In a perfect world, if GLWA demonstrates good cost control, innovation, savings, and investment in infrastructure, the benefit to members would be that when GLWA revenue goes up by 1% or down by 1%, everyone shares in those increases or decreases equally. To do that, we must have a stable methodology. How do we get to that point as quickly as we can?
- We are all in this together, and share the benefits of what we can accomplish through collaboration. As we engage in planning for the region, we have five outcomes that we're striving to achieve through the Wastewater Master Plan that's currently under development:
 - Protect public health and safety
 - Preserve natural resources and a healthy environment
 - Maintain reliable, high-quality service
 - Assure value of investment
 - Contribute to economic prosperity
- The decisions we make today will have consequences for tomorrow. We need to think about what incentives/disincentives get us to our desired future.
- We want to think expansively about equity and reliability, but also be mindful of the five outcomes that will create a sustainable future for the region.

3. Major GLWA takeaways from Day One - Bart Foster, The Foster Group

See presentation slides.

- Bart notes that his observations here are related to wastewater charges, though he was very interested to hear about non-charge related initiatives, such as green infrastructure.
- Peers are largely similar, though with some differences (there are no “twin sisters” out there). All serve over a million people. GLWA is the only authority served by a single WRRF. Utilities vary by formation, governance, methodology, responsive to their respective desires and policies.
- Common considerations include simplicity vs. complexity on the cost of service continuum. There are ranges of the scale that you can target: equitability, complexity, predictability. Each decision comes with intended and unintended consequences.
- The southeast Michigan region has had its own sewer wars and legal settlement agreements that led to the current methodology.
 - The pursuit of precision led to high complexity and low predictability.
 - In 2012-2013, a rate simplification initiative was pursued and initially took effect for 2015 charges, and was updated for the 2018 charges.
- The Wastewater Charge Comparison Matrix (handout; slide 8 in presentation) focuses on how user charges are determined for wholesale customer communities by GLWA and the various “peer” entities participating in the Symposium.
- Wastewater charge comparison matrix

Utility:	GLWA	MMSD	MCES	MWRD	WTD	MWRA
Region:	SE Michigan	Milwaukee	Minneapolis/St. Paul	Denver	Seattle	Boston
User Charges Funding?	Yes	Yes	Yes	Yes	Yes	Yes
Property Tax Funding?	No	Yes - Capital	No	No	No	No
Availability / Capacity Charge for New Development?	No	No	Yes	Yes	Yes	Yes
General Basis for User Charge Allocations to Customer Communities	Average Flow Volumes and Strength of Flow	Estimated Contributed Volume	Average Flow Volumes	Average Flow Volumes and Strength of Flow	Estimated Contributed Volume	Average Flow Volumes, Population, Maximum Monthly Flow
Are Wastewater Volumes Contributed by Customer Communities Measured?	Yes	No - Estimated based on ERU	Yes	Yes	No - Estimated based on REU	Yes
Are Wastewater Pollutant Contributions (Strength of Flow) Utilized?	Yes	No	No	Yes	No	No
Are Individual Communities Monitored for Strength of Flow?	No	N/A	N/A	Yes	N/A	N/A
Are "Units of Service" Averaged?	Yes	No	No	No	N/A	Yes - 3-year average
Frequency of Changes in Charges	Annual	Annual	Annual	Annual +	Every 2 years	Annual
True-Up Process?	Eliminated 2012	No	Eliminated 1998	Yes - 2x each year	No	No
Detailed Functional Cost Allocation to Parameters?	Yes	Yes	Yes	Yes	Yes	Yes
Combined Sewer System?	Yes	Yes	Yes	No	Yes	Yes
Portion of System Combined?	?	?	?	N/A	60%	40%
Alternative Basis for Allocating CSO Costs?	Yes	No	No	N/A	No	No

- Bart's observations on the matrix:
 - Noted that only one uses property tax, MMSD. This funding source is not uncommon with respect to other “peers”.
 - All but GLWA and MMSD use a capacity charge for new development. Member communities may have charges, but DWSD / GLWA has not had such a policy.
 - General basis for User Charge to customer communities varies - but all include some aspect of estimated average flow contributions.

- Wastewater Volume measurement – MMSD and WTD estimate based on ERU, REU (different terms that mean the same thing - equivalent residential units). GLWA, MCES, Denver, MWRA all meter contributed volumes from customer communities.
- Denver and GLWA are the only systems that monitor for strength of flow. Denver samples every community for contributions and charges. GLWA had considered sampling, but tabled that consideration.
- Are Units of Service Averaged? GLWA, MWRA desire to avoid using one data point to stabilize fluctuation.
- Only Denver has a true-up process and they'd like to eliminate it.
- Functional cost allocations to parameters; all the Symposium systems' CSO facilities were funded by federal grants, which require an industrial cost surcharge.
- MWRA assumes all flow is uniform strength. The only entities that do community based strength of flow are GLWA and Denver. In updating 1979 study, it would be interesting to look at peer systems and how they assign costs to various strength of flow (SOF) components (for customer communities in Denver and for purposes of establishing industrial surcharges in the others).
- All peer systems - except Denver - include some portion of combined systems, but percentages/proportions for each were not readily available.
- CSO allocation: GLWA is the only system using an alternative basis for allocating costs.
- Historically, no peer does instantaneous peak flows for cost allocation, except GLWA. The 83/17 allocation was the result of a rate settlement agreement, not the result of best available technical data. Technical opinions varied on an accurate allocation. Important to note that GLWA's methodology already includes a peaking component. With the CSOs already accounting for peak flow rates (since 83/17 is already a directly allocated cost) what impact could peak flow rate already have? Great question for the group to evaluate. Peaks get complicated quickly.
- Potential focus areas for discussion:
 - Are we on the right track as far as core methodology? Current methodology evolved from legal settlements, collaboratively agreed to by all parties.
 - The functional allocation of cost components in GLWA's charge methodology go back to 1979 study. Bart believes the basics are still valid, but could be worth revisiting/validating/updating.
 - Is the level of effort to monitor contributed volumes and loadings worthwhile?

Comments and Questions for Bart Foster

- **Question 1:** The peak flow rate is already accounted for in the CSO allocation of 83/17. If we were to explore peak flow rate what's the sensitivity potential? How is the plant being operated now? What peak demands are being placed on the system? What are the resulting costs?
 - Response: We don't know; the topic would need to be studied. The study would look at the way the WRRF has been constructed / modified and the current operating protocols. One of the core objectives of the Master Plan is to enhance the ability to manage the flow regionally with non-GLWA facilities.

- **Comment:** Don't have a good feel for what we do with all this. There are peers that are more comparable, those that have more similar economic histories. Other communities that do things still differently. How does this further inform what we might want to do?
- **Question 2:** Agree with Bart's description of 83/17; we heard from peers that they deal with the CSOs regionally. It's time to take a look at revisiting the issue.
- **Comment:** Let's separate the issues; we are operating just fine in dry weather. It's in wet weather that we have huge costs to deal with. The characterization of what was done at the plant was based on communities that are separated but wet. Recommend doing some modeling to determine how flows might be moved around. There is capacity in some of the local communities, but the amount sent to the plant exceeds plant capacity. Consider implementing CMOMs to send responsibility back to the communities. Do we want to change how we operate? Maybe not in dry weather, but yes in wet weather. Leverage the regional nature of the system to use the capacity we have.
- **Question 3:** Strength of flow is referring to two different things - pollutant loading and wet vs. dry weather. We are only using half of the study, which benefits some communities and not others. The 1979 study states using a design flow, but GLWA does not use that.
 - Response: The '79 study also uses average annual flow. Flow has never had application using design flow. That's what CDM wrote in the report, but that's not what they applied. When CSOs came under scrutiny, many of the pre-Judge Cox contracts (non model) had capacity limitations in the contract, however there has never been any purchase of capacity. Long ago, there was a penalty for exceeding capacity in local systems, but the amounts were de minimis. Notes that King County tracks contract exceedances but does not enact financial penalties, instead putting the local municipality on a work plan to reduce flows.
- **Comment:** How much money are we willing to throw at this? (Metering, for example.)
- **Comment:** Given the age of the 1979 study, the demographic shifts, and the new authority, it's time to engage in a new study.
- **Comment:** When the Board approved SHARES, they directed customers to come up with new ways of allocating costs. A rate consultant pointed to "cost causation." The CDM study took into account design flow. Once you have cost causation, you should have units of service that align. We've missed 2/5 of the time to pursue an updated units of service to determine cost drivers in the system, both design and O&M. Want to leave today with a go forward plan to determine and allocate those costs.

4. Major member takeaways from Day One – Kerry Sheldon

Table discussion questions:

Q. What key insights did you take away from Day One?

Q. Which peer utility's charge methodology did you find most intriguing? Why?

- Discussed incentives to dry up the system. How do we incentivize doing the right thing?
- GLWA is unique, but all utilities have complex history. Denver is intriguing, but what is the cost of sampling? Would have liked to hear more from Boston.
- On the incentivizing theme; not just on peaking, but about Livonia's I/I removal using footing drain disconnections. Charge methodologies using strength of flow seem to disincentivize customers from reducing their own flow.

- New tap connection charges for new developments is interesting. Updating 1979 study with the wastewater master plan results to determine true cost to run. Would like to know if there's a standard to sample against, a baseline.
- Talked about peak flows and capacity. Keeping end goal in mind (waste out of rivers), how do we think regionally? What if we had one permit? Suggests incentivizing rather than penalizing for I/I removal.
- Population considerations; don't let the perfect be the enemy of the good. Focus on the quick wins, storage solutions available.
- The existing rate model creates challenges for customers that manage other systems.
- Is it feasible to open the 83/17 allocation? Should we update 1979 study or start from scratch? What would it take to get to the place of measuring all flow?
- Believes that cost causation should be placed into context. Quotes WEF Manual which advises recognizing historical system development in the development of regional systems and factoring that into charge methodology. Notes that Atlanta uses sales tax to allocate the cost.

5. Changes to consider - Kerry Sheldon

Kerry synthesizes the themes heard from participants:

- Reality is complex
- Be mindful of unintended consequences
- Revisit 1979 study - conditions have changed, cost causation/allocation matters AND historic system development must also be considered
- Incentivize the right things
- Leverage existing infrastructure, have a charges structure that aligns with regional operating plan

Potential lines of inquiry:

- 83/17 CSO direct cost allocation
- Peaking, specifically peak loading
- 1979 study update
- Connection charge
- Strength of flow
- Incentives
- Means to an end
 - o Sampling
 - o Metering
 - o Operational controls and infrastructure

To frame the discussion: What is our vision for the next 25-30 years? What are the outcomes we want to achieve on that broader timeframe and what are the incremental steps we can take to move us closer to that vision in the near term?

Comments and Questions:

- How do we shape the lowest cost regional system, inclusive of local system costs? Let's focus on how to make the smallest pie rather than solely on how to divvy up the pie.
- Note that there may be other avenues than charges to get to the outcomes.

- Focus on the 5 outcomes and define the parameters of those outcomes. E.g. a system with less debt, fewer overflows. Look at the drivers that reflect system operation and system investment and then develop financial strategies that move in that direction.
- People are bringing different perspectives. Similar to when we were trying to do the CSO allocations and not getting anywhere. What helped change that was that we began to learn about each other's systems, each other's assumptions. It's the same today. We're not ready to move to solutions; we need to take time to understand each other's perspectives to find commonality. As an example: this plant has a very low peaking factor. Because we have a combined system we have a less expensive treatment process. Assumptions may be leading us down the wrong path.
- What Vyto is asking for is cost causation. I have a hard time recommending any approach without knowing where the costs are coming from. Don't change the rate methodology without knowing the current costs. We don't know how the system works as well on the wastewater side. Is the regional system the best place to achieve our outcomes, or is it the local systems?
- There's a sense of putting the cart before the horse.

6. After a sidebar discussion with GLWA leadership, attendees agree to postpone prioritizing charge elements to change.

As a step forward, GLWA proposes hiring a 3rd party consultant to look at the applicability of the 1979 study to determine appropriate cost allocations. This would include (at a minimum) quarterly check-ins on progress. Notes that D+ metering is progressing, which will provide additional data. Gathering this additional information to impact 2021 charges is doable. The current SHARES allocation is in effect through 2020. Anything that we learn as part of the Wastewater Master Plan (WWMP) can inform charges as well.

Comments and Questions:

- Why do we need a 3rd party to tell us how the plant is operating now? Don't we have internal GLWA staff that can provide us with this information? We've lost a year already and with a 3rd party consultant, we won't have the opportunity to ask questions. Quarterly check-ins are not frequent enough.
 - Response: Charges work group is a great place to report out, but that's not the only place engagement would happen. GLWA is proposing a 3rd party, not because GLWA lacks expertise, but to provide an independent review of cost buckets. GLWA welcomes discussion about dividing the work between staff and/or 3rd party.

6. The path forward - Kerry Sheldon

Proposed next steps: To look at the applicability of the 1979 study with regard to the developments since that time, so we can make sure that our cost allocations are appropriate and that charge methodology aligns with future operations expectations, including those to be articulated in the WWMP.

Questions for the group to consider:

What do you like about this proposed path forward?

What concerns do you have?

Third party or GLWA to conduct the study?

Feedback:

- We discussed doing it in house vs. contractually. It may be cheaper to do in house, but there's a concern about asking GLWA staff to take on another large initiative without resources.
- Check ins through the WATF would give people a chance to participate and avoid exacerbating meeting fatigue.
- Overall like the proposal.
- Quarterly is not often enough; want monthly/biweekly involvement; revive the sewer shares subcommittee. It's more than updating the numbers: add peaking, add strength of flow; determining the scope of the RFP. Timing: if sampling needs to be done; can it be done?
- External consultant
- Yes, review the study. Timeline is a concern. How to implement study results? Will there be agreement, disagreement?
- Propose compromise between 3rd party and internal; use regional embedded expertise to help present the historical and local perspectives, charrette style.
- Wonders what our goals were for the Symposium. As a system it's to operate the plant without violations, meet contractual obligations, charge equitably and fairly, and prevent basement flooding.
- Don't want to wait for a consultant to get on board. Create a parallel track with internal staff explaining to members how things were designed.
- Wants to focus on getting common ground and understanding of each other's perspectives. Suggest facilitated discussions among the member partners to learn how the systems are operating.
- Re: Bart's cost allocation slides, notes that previously cost accounting was not available, but now Nickie's team has developed robust processes. Suggests that the reviewing process changes may not make a significant financial impact.
- To scope the effort, don't look backward to modify the 1979 study, but prospectively to allocate costs in a way to achieve larger regional goals. Focus on regional system optimization goals.
- Agrees with previous suggestion, notes that Sue suggested that we take a blank slate approach to move toward our long-term goals. But also, don't try to achieve a perfect 30-year solution by the next charge period. Honor the Board's request that we review this, particularly with peaking in mind, so that we've done what was asked.

7. Announcement

Sue informed the attendees of the passing of William Westrick. Mr. Westrick served as the Macomb County representative on the DWSD Board and was a founding member of civil engineering firm, Anderson, Eckstein, and Westrick (AEW.)

8. Next Steps

Convening a special charges workgroup to meet July 18th, 1:30 p.m. – 3:00 p.m. at Water Works Park.

Meeting topics:

- Giving input on a scope for a new/updated cost of service study
- Determining the best way to share system information among constituents.

Look for the Day Two evaluation form, which will ask for RSVPs for the 7/18 meeting. Updates will be provided to all members, regardless of attendance.

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