



Wastewater Master Plan

Board of Directors Meeting

March 28, 2018



Agenda

- Background
- Work Completed in 2017
 - Member Involvement
 - Desired Outcomes
 - Modeling and Analysis
- Efforts in 2018
- Planned for 2018 and 2019



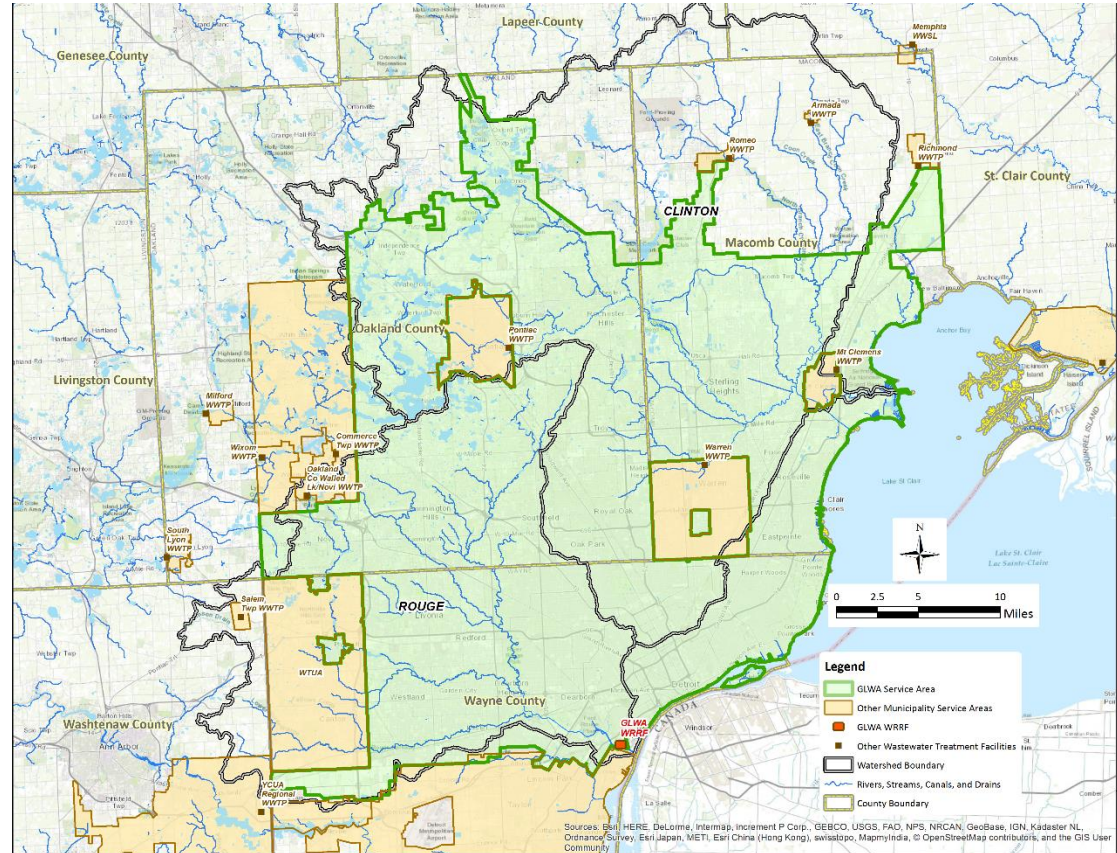
Background

Contract CS-036: Comprehensive Regional Wastewater Master Plan

- Scope of work developed with input from GLWA Members
- 40-year planning horizon: 2020 to 2060
- Major objectives:
 - Comprehensive regional solutions for GLWA and its Members
 - Optimize the regional collection system
 - Regulatory compliance
 - Increase resource recovery at the WRRF
 - Capital planning for renewal and replacement
 - Create new models for GLWA for collection system and WRRF
- Extensive Member involvement in the planning process
- Presented CS-036 to the Board for approval on March 29, 2017

Planning Area Considers Sewer Service Area and Watershed Limits

Members	Municipalities Served
Macomb County	16
Oakland County	39
Wayne County	26
Total	81



Project Schedule





Work Completed in 2017

Steering Team Roster

Monthly meetings of Steering Team occurred from April to December 2017

Allen Park*

Center Line

Dearborn*

DWSD*

City of Farmington

Grosse Pointe

Grosse Pointe Farms

Grosse Pointe Park

Hamtramck

Harper Woods

**Consistently participate*

Highland Park*

Macomb County*

Melvindale*

Oakland County*

Redford Township

Southeast Macomb Sanitary District

Wayne County*

Michigan Department of
Environmental Quality*

Michigan Department of
Transportation

GLWA – Key Team Members*

Stakeholder Outreach

In addition to the Steering Team, the work scope includes outreach to non-Member regional stakeholders. Meetings were held to engage and establish communication with the following groups:

- Southeast Michigan Council of Governments (SEMCOG)
- Alliance of Rouge Communities
- Watershed Groups
 - Clinton River Watershed Council
 - Friends of the Rouge
- Research & Innovation Projects with Universities

Developed an Outcome-Based Planning Process

Desired Outcomes for Master Plan

- 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

21st Century Infrastructure Report

- Healthy Environment
- Reliable, High Quality Service
- Value for Investment
- Economic Prosperity

Desired Outcome: Protect Public Health and Safety

A high level priority will be to consider actions that **minimize threats to public health and safety**, and damage to property.

Example: Protection from basement flooding



Desired Outcome: Preserve Natural Resources and a Healthy Environment

Recognizing that **quality of life for customers** is partly defined by the environmental condition of their community including **access to recreation**; the analyses for evaluating the merits of various actions will include **benefits to natural resources** and the environment.

Example: Fishable and swimmable waters



Desired Outcome: Maintain Reliable, High Quality Service

Long term fiscal sustainability relies upon a **customer base willing to support the cost of service**. Meeting customer expectations for reliable, high quality service hinges on recruiting and **maintaining qualified employees** to operate and manage the complex GLWA system.

Example: Prompt field repairs



Desired Outcome: Assure Value of Investment

Maintaining **public support for paying rates** that reflect the full cost of service is accompanied by a fiscal obligation for managers of the system to **assure that costs are optimized.**

Example: Real time sewer system controls



Desired Outcome: Contribute to Economic Prosperity

Leveraging needed infrastructure investments to encourage maintenance or enhancement of **residential property values** and/or job producing private investments through public/private partnerships that support **coordinated and integrated planning** as well as contributions to new construction, and operation and maintenance costs.

Example: Green infrastructure and placemaking



Performed Modeling and Analysis

Integration with Ongoing Efforts

- West Side Model
- Interim Wet Weather Operating Plan (IWOP)
- Regulatory Compliance
- Condition Assessment

New Models

- East and Central District Collection System Model
- Updated Member Collection System Models
- WRRF Models
- Receiving Water Quality Model

New Analyses

- Green Stormwater Infrastructure Baseline
- WRRF Process Performance Evaluation
- New East and Central District Collection System and D+ Metering
- Member Survey on Level of Service

SUSTAINING OUR WASTEWATER SYSTEM IN THE 21ST CENTURY

GLWA MISSION

Exceed customer expectations by utilizing best practices in the treatment and transmission of water and wastewater while promoting healthy communities and economic growth.

Interim Wet Weather Operations Plan (IWOP)

- Maximize use of existing facilities to minimize discharges to rivers.
- Technical support to NPDES permit negotiators.
- Update GDRSS model.
- Deliver IWOP.

TARGET DATE:
April 2018

West Side Model

- Develop calibrated model addressing CSO controls for 17 outfalls in Upper Main Rouge.
- Accurately identify and report on the occurrence, duration, volume and frequency of CSO discharges.
- Support NPDES Negotiating Effort.

TARGET DATE:
August 2018

Regulatory Compliance and Collaboration

GLWA /DWSD/MDEQ discussions on Adaptive Management Approach to controlling 56 untreated CSO outfalls and to increase understanding of collection system assets, operations, and performance.

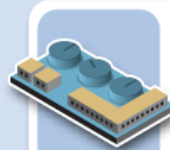
April 2018
NPDES Permit Renewal

Comprehensive Regional Wastewater Master Plan

- Project Timeline: April 2017 to September 2019
- Key Strategies:
 - Collaboration with members, MDEQ, and regional stakeholders.
 - Optimize results by integrating our modeling efforts.
 - Focus on creativity and innovation in wet weather operations.
 - Needs Assessment to support GLWA Asset Management

One Model

Coverage: 40 years 2020 to 2060



WATER RESOURCE RECOVERY FACILITY TASKS

- Hydraulic, process, and clarifier models.
- Energy and resource management.
- Long term needs and supporting investment strategies.

THE 5 OUTCOMES

- 1 PROTECT PUBLIC HEALTH and SAFETY
- 2 PRESERVE NATURAL RESOURCES and A HEALTHY ENVIRONMENT
- 3 MAINTAIN RELIABLE, HIGH-QUALITY SERVICE
- 4 ASSURE VALUE OF INVESTMENT
- 5 CONTRIBUTE TO ECONOMIC PROSPERITY

Opportunities to Leverage

- 21st Century Infrastructure Commission Report
- EPA integrated planning.
- MDOT Mega-Projects.



- Stormwater best management practices.
- City of Detroit Green Infrastructure projects.
- Integrated smart /real-time operations of WRRF & collection system.
- One Region /One Operating Plan.



Efforts in 2018

Planning Approach Based on Benefits to Receiving Water Quality

- Development of a regional strategy
- Evaluate and prioritize the most pressing water quality improvement needs
- Consistent with the US EPA Integrated Planning Framework of 2012
- New Regional Wastewater Collection System Model

Emerging Components of Regional Optimization and Compliance

- Rouge River Outfall disinfection by April 2019
- Interim Wet Weather Operating Plan to maximize flow to the WRRF during wet weather
- Regional solutions to assist Members with SSO correction
- Regional water quality strategy for CSO control
- Transition from Interim Wet Weather Operating Plan to Regional Operating Plan
- Regional water quality monitoring program
- Long term biosolids management plan
- Long term disinfection alternatives
- Long term regional phosphorus reduction strategies

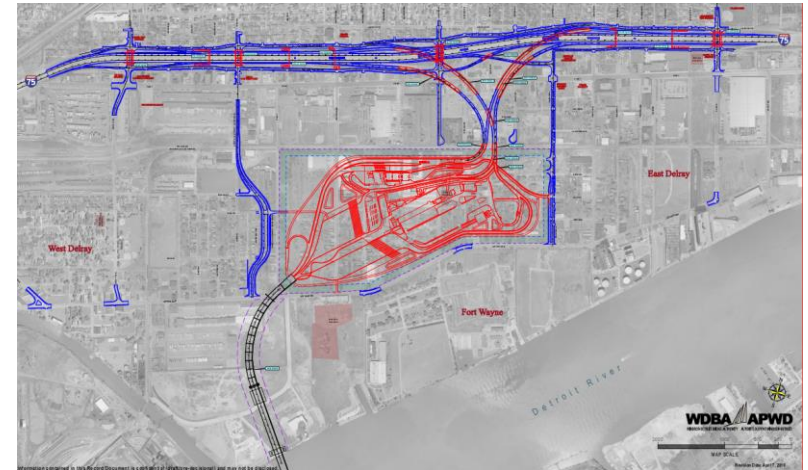
Asset Management

- Integrating information on condition assessment of existing facilities
- Anticipated renewal and replacement needs over the next 40 years
- Impact of increasing cost of land, space requirements for expansion of existing facilities and for new GLWA facilities



MDOT Projects -- Opportunities to Partner on Stormwater Management

- MDOT annual flow to GLWA is 1.5 billion gallons per year
- 3.5 sq. miles drainage area
- New mega-projects include I-75, I-375, I-94 and Gordie Howe International Bridge
- Cost reduction opportunities for joint infrastructure projects





Planned for 2018 and 2019

Planned for 2018 and 2019

- Complete technical investigations to allow time for financial analysis
- Integrate with GLWA charge modeling team
- Devote major effort to discussion of cost allocation, financial impacts, and implementation schedules
- Iterative process with alternatives and financial analysis
- Draft and final master plan reports



GLWA

Great Lakes Water Authority

Questions?