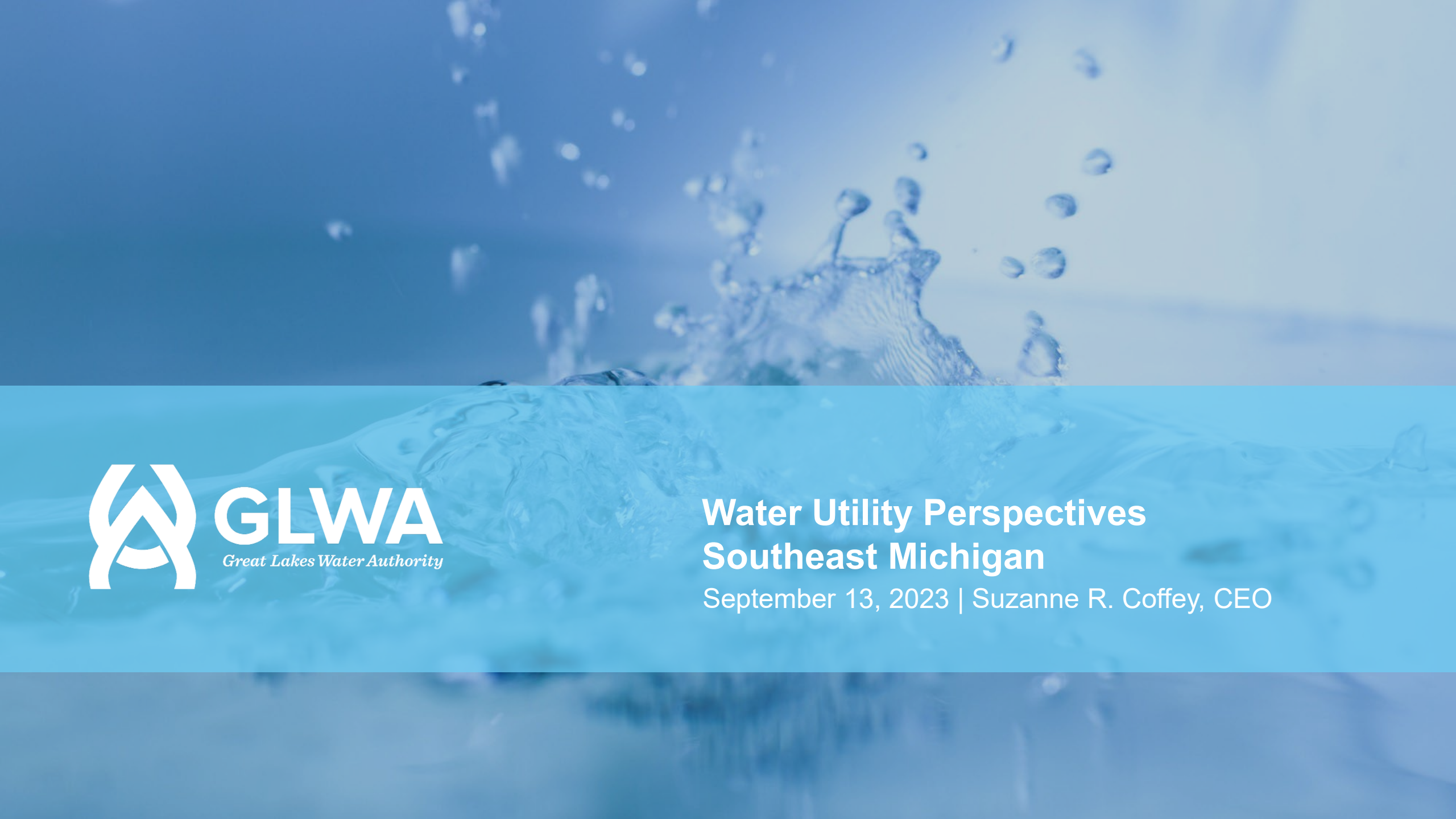


GLWA
Great Lakes Water Authority

Water Utility Perspectives
Southeast Michigan

September 13, 2023 | Suzanne R. Coffey, CEO

Agenda

Brief Introduction

Our Biggest Challenges

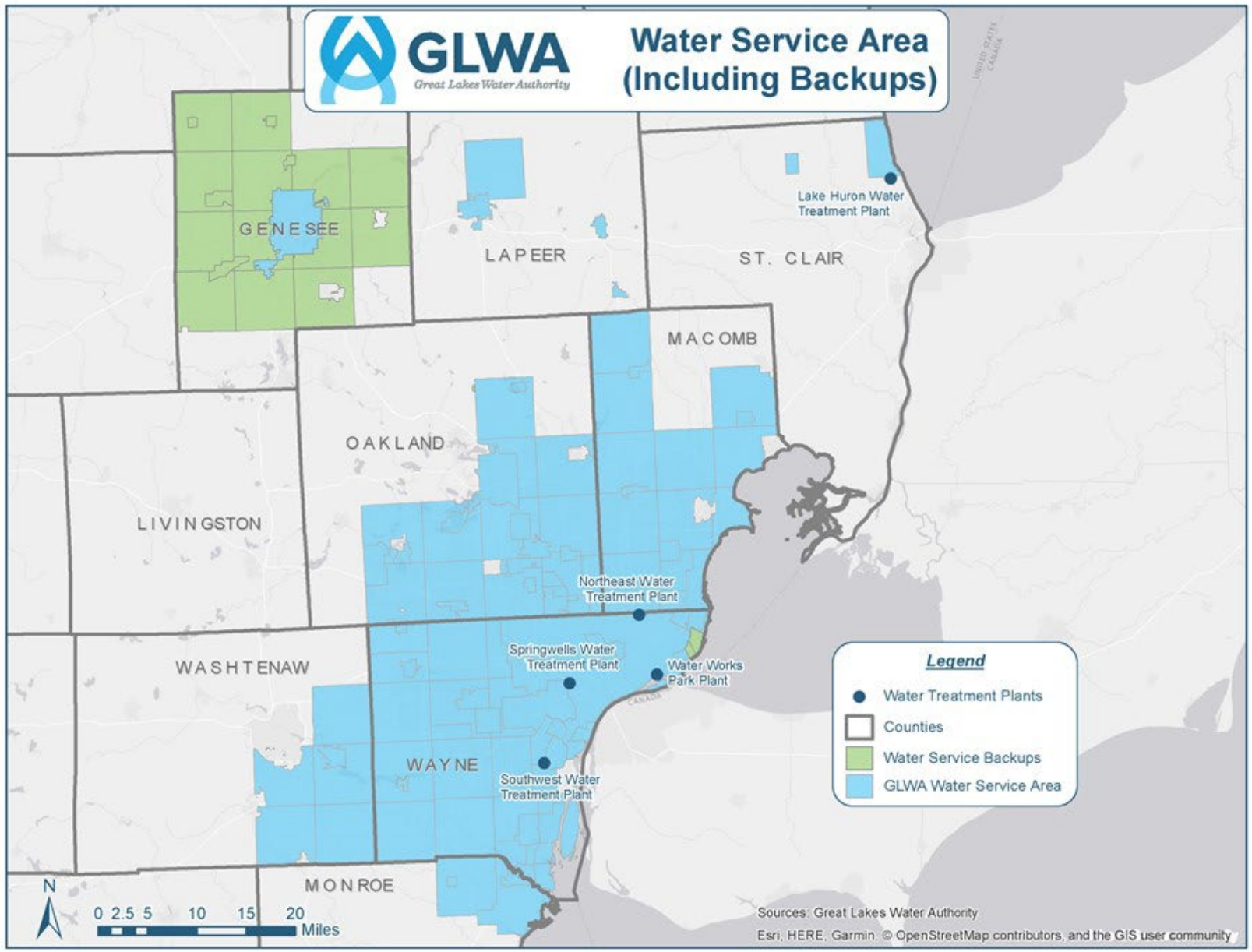
Our Biggest Opportunity

Forward Look

GLWA
Great Lakes Water Authority

Who Is GLWA?

GLWA
Great Lakes Water Authority



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Water System

5 Treatment Plants

816 miles of transmission main

3.8 MILLION PEOPLE SERVED

88 Member Partners across **112** communities

Treatment capacity of **1,720** million gallons per day

3 Water Intakes

19 BOOSTER PUMP STATIONS

1,698 SQ. MILE service area

MISSION: *To exceed our customer's expectations by utilizing best practices in the treatment and transmission of water and wastewater, while promoting health communities and economic growth.*

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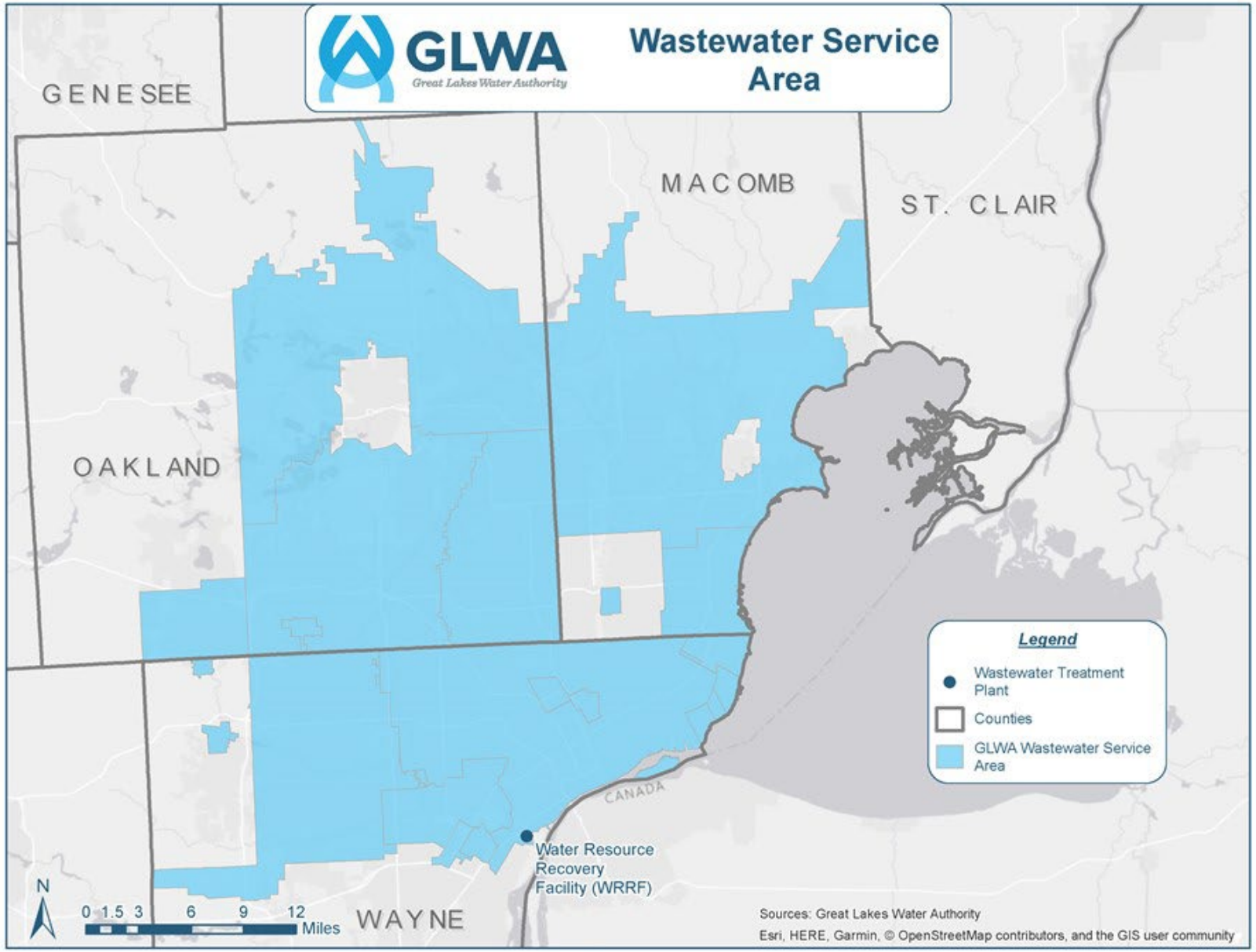

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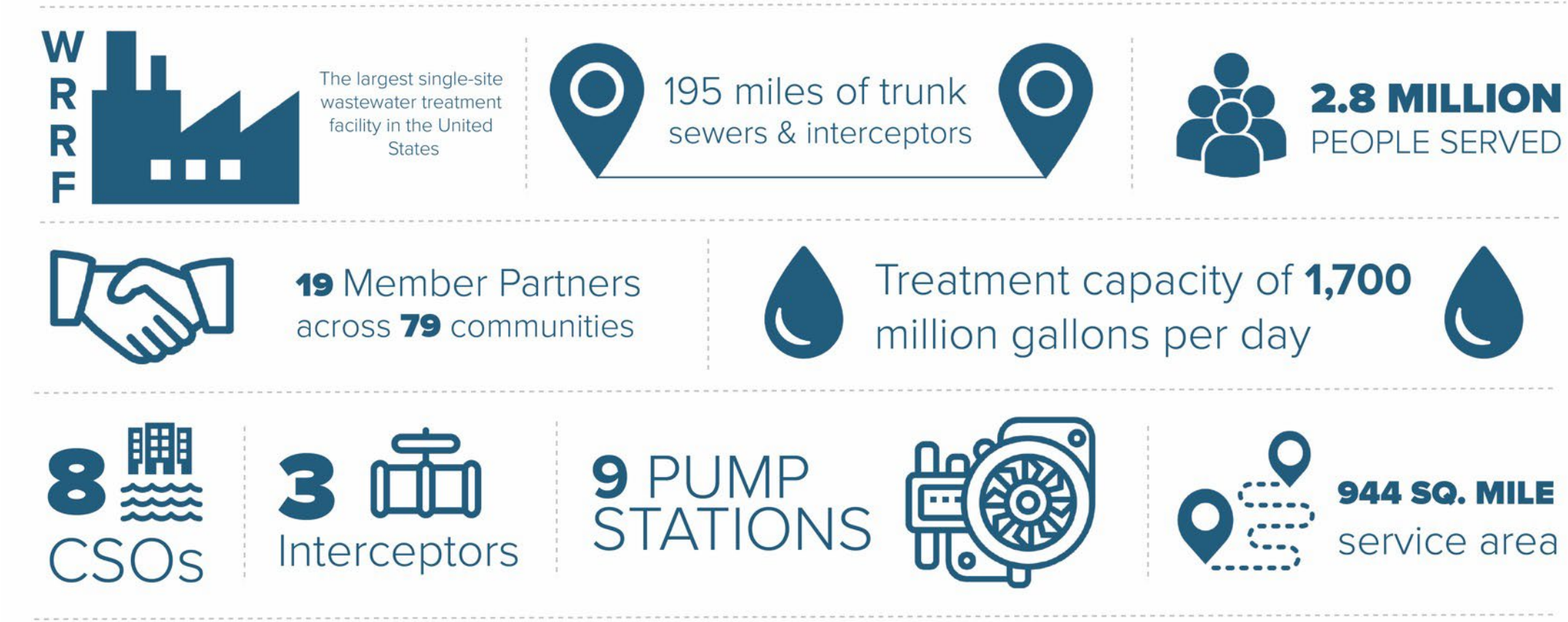
Wastewater System



VISION: *Through regional collaboration, GLWA strives to be the provider of choice, dedicated to efficiently and effectively delivering the nation's best water and sewer services in partnership with our member partners.*

GLWA Great Lakes Water Authority

Biggest Challenges
Asset Age, Condition, Funding

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Michigan Water Utility Challenges

1. Need for infrastructure renewals and improvements continues to be significant, even with the influx of recent federal infrastructure funding (one time influx)
2. Water Infrastructure has been systemically underfunded for the last half century
3. Currently, regional water utilities in Michigan have two methods to maintain and replace water infrastructure:
   - Customer charges
   - Low interest loans (CWSRF and DWSRF) under the Clean Water Act
4. These methods pose affordability challenges for Michigan as we contemplate future large-scale system asset renewal

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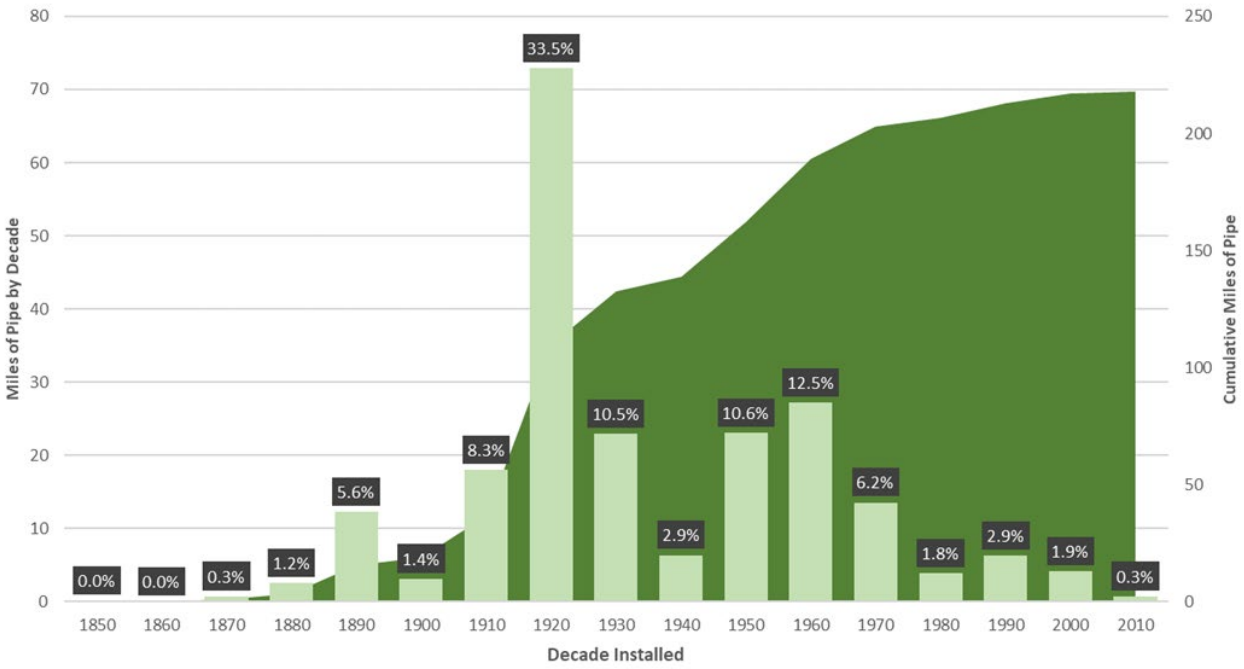
GLWA's Liner System

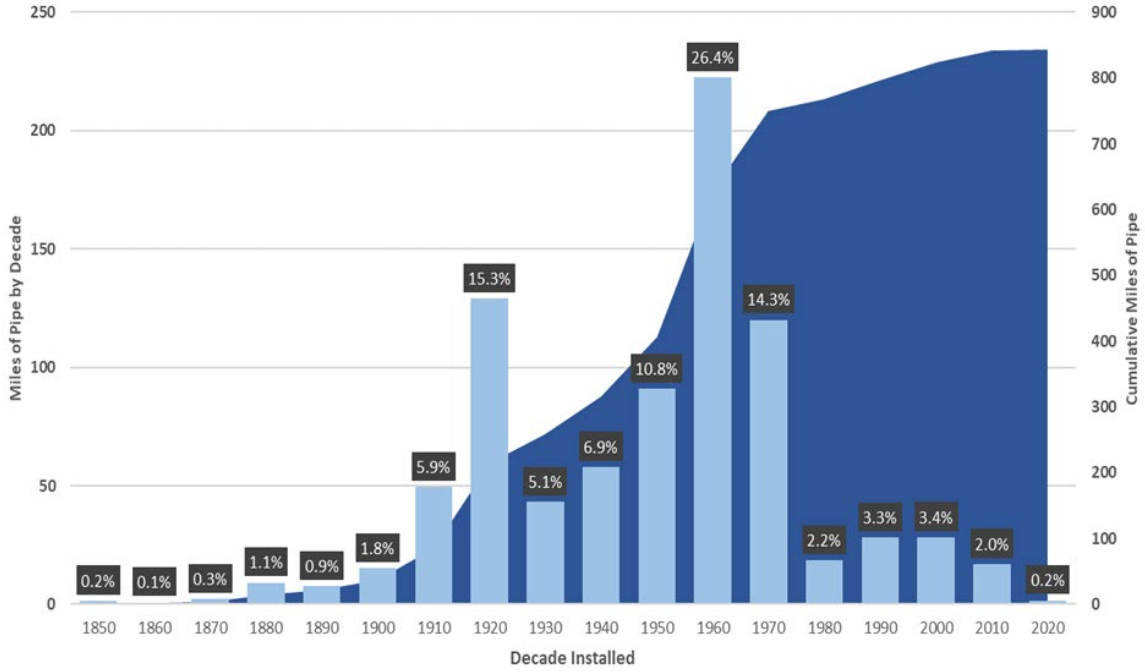
Wastewater Collection System

- More than 195 Miles



Water Transmission System

- More than 800 Miles



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Short and Long-Term Affordability

Short-Term Affordability

- Focus: end-use assistance
- Prospective bill payment assistance
- Payment arrearage assistance
- Conservation assistance
- We address this need through GLWA's WRAP program (0.5% of GLWA revenues annually); Near full utilization of available funds

Long-Term Affordability

- Focus: System Resiliency to support affordability
- Assets fail
- Likelihood of asset failure increases with age
- Cost of maintaining a water system is less than the cost of repairing that system
- Average life of water system assets are approximately 70-100 years
- Most of the regional assets in SEMI are 50 -70 years old

Addressing Long-Term Affordability

- Focus: Prompt, coordinated action (many projects take 10-15 years)
- Targeted grants
- Utilization of emerging technologies to support system resiliency
- Asset Management

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Biggest Opportunity
Excess Water Capacity

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Drinking Water System
Excess Capacity

- In Michigan, we have an ***abundance*** of high-quality drinking water
  - As a source from the Great Lakes, AND
  - As already installed treated drinking water in the communities
  - We are using less than half of the capacity of the pipes and treatment works that are in place now. We are actively downsizing.
- In arid states, ***water scarcity*** is real and is at or near crisis levels

OPPORTUNITY

Southeast Michigan is uniquely positioned for increased economic development and population growth

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Forward Look
Wastewater & Stormwater Resiliency

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Wastewater and Stormwater Systems Upsizing is Needed

- Increased intensities of storms are causing challenges for the wastewater and stormwater conveyance systems
- Without upsizing we will see more negative public health and environmental impacts
  - Basement Backups, Surface Flooding, Discharges to Lakes, Rivers & Streams
- Today's Rain Causes Tough Choices
  - Operators have to choose public health and safety or water quality
- Increased investment in these systems is crucial to support the existing and future population

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System Resiliency is Critical

- Steps GLWA is taking toward resiliency
  - New Resiliency Office
  - Adding Staff to Address Multiple Concurrent Emergency Circumstances
  - Increased our Regional Collaboration
- Partnering with U.S. Army Corps of Engineers
  - Southeast Michigan Flood Mitigation Study
  - Comprehensive Review of Region
  - Reexamine Design Standards

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Integrated Concept for Flood and Water Quality Protection for Detroit and Southeast Michigan

The Need for Additional Flood Control Solutions

- Southeast Michigan is experiencing increasingly larger rain events -- several have occurred since 2014, and more extreme events are forecast by climate models.
- Great Lakes and Detroit River water levels are increasing.
- Continuing land development imposes greater stormwater flows on the region's aging infrastructure.



THREE KEY ELEMENTS

1 PRIVATE PROPERTY SOLUTIONS

New measures to reduce the risk of basement flooding in lowest elevation areas.

There are multiple methods to protect basements. One method is illustrated.

Priority Basement Flood Protection

2 FLOW CONTROL STRATEGIES

Strategic sewer separation, strategic pumping, and other projects recommended in the Governor's Office Planning Work Group Report for Southeast Michigan dated September 13, 2021.

Local systems will need investments to meet a new resiliency standard.

- Sewer Separation Area
- CSO Control Area
- Sewer Separation or CSO Control Area
- Green Stormwater Infrastructure (GSI)
- GLWA Project for Flow Control
- MDOT Project to Remove Stormwater from Regional Collection System

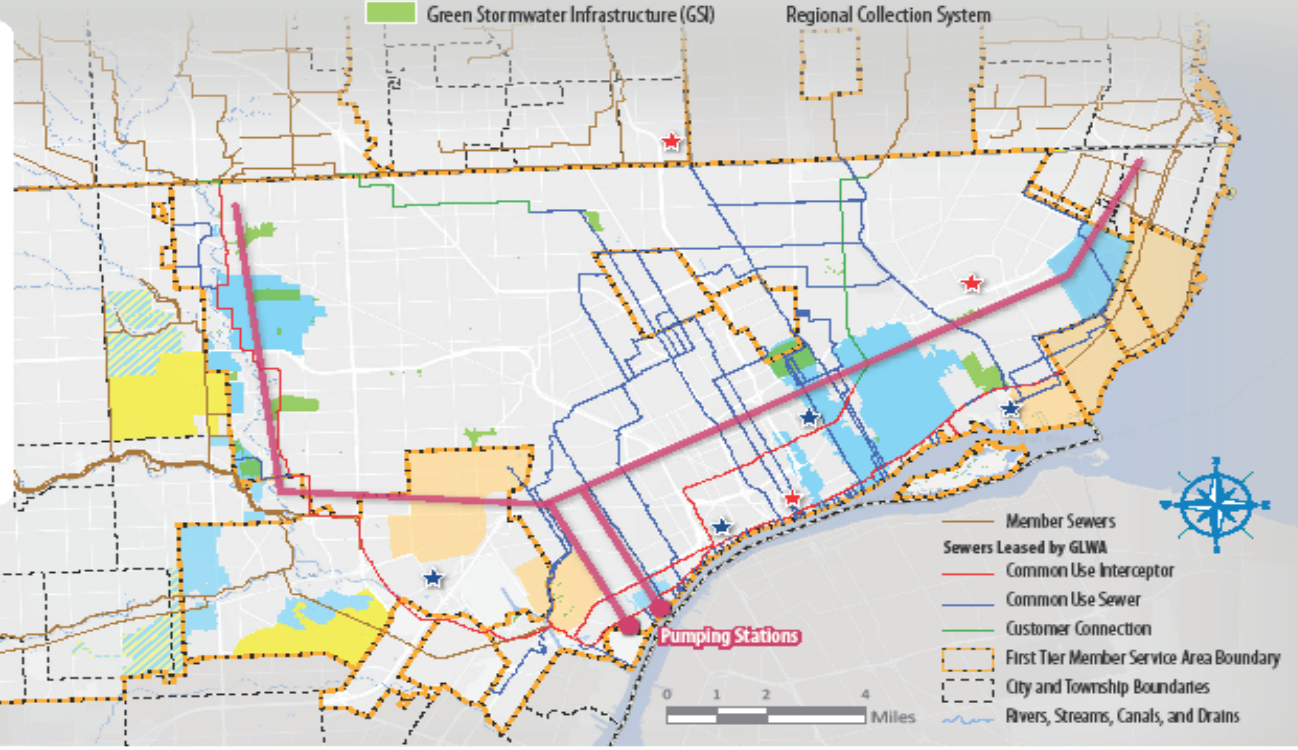
3 CLIMATE RESILIENCY TUNNELS

Convey more water away from developed areas with new large capacity tunnels deep below the ground surface. The tunnels will receive stormwater and combined sewage through a series of drop shafts and near surface collector sewers. The tunnels will discharge to the Detroit River during large storms that pose the risk of basement back-ups.

Climate Resiliency Tunnel

Implementation Via Regional Partnerships

- The three key elements outlined above will be implemented in collaboration with DWSD, EGLE, MDOT, SEMCOG and GLWA Member Partners.
- Proposed infrastructure and operating practices will be coordinated with GLWA Members through the Regional Operating Plan for the regional wastewater collection system.
- Collectively, the three key elements have the goal to provide property protection for a 100-year frequency storm, or in other words, to reduce the risk of flood damage to 1 percent annually.



GLWA

Water & Sewerage Department DETROIT

Climate Resiliency Projects will Build on GLWA's Mission of Water Quality Protection

- Integrated planning and adaptive management strategies for NPDES permit compliance.
- Meet Michigan Water Quality Standards through a phased approach with targets for each phase.
- 5-year assessments of water quality progress and near term priorities.
- Continue to reduce combined sewer overflows and protect basements from flooding.

Estimated Costs

Conceptual planning for climate resiliency has resulted in a preliminary cost estimate of $5 billion to $7 billion to mitigate flooding in the low elevation areas of the GLWA service area. In addition, the September 2021 report by the Governor's Office Planning Work Group proposes over $1 billion of projects for water quality protection and flood control, including sewer separation, strategic pumping, and protection of basements in the lowest lying areas. Michigan DOT is also planning highway improvement projects that will remove stormwater from existing combined sewers. Spending by MDOT will be in addition to the costs cited above.

Continued collaboration with MDOT and other partners will leverage transportation funding and other funding sources to remove stormwater from the collection system and improve climate resiliency.

Questions

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