

Wastewater Master Plan

Board of Directors Briefing

January 8, 2020



GLWA
Great Lakes Water Authority

Presentation Overview

- Why Is a Master Plan Needed?
- How Did Regional Stakeholders Work Together to Reach a Shared Vision?
 - The 5 Desired Outcomes
 - Cost Optimizing Regional Collection System Needs
- Collection System and WRRF Priorities Focus on Maximizing the Use of Existing Assets First
- Successful Implementation Depends on Regional Partnerships and GLWA Hub Utility Leadership

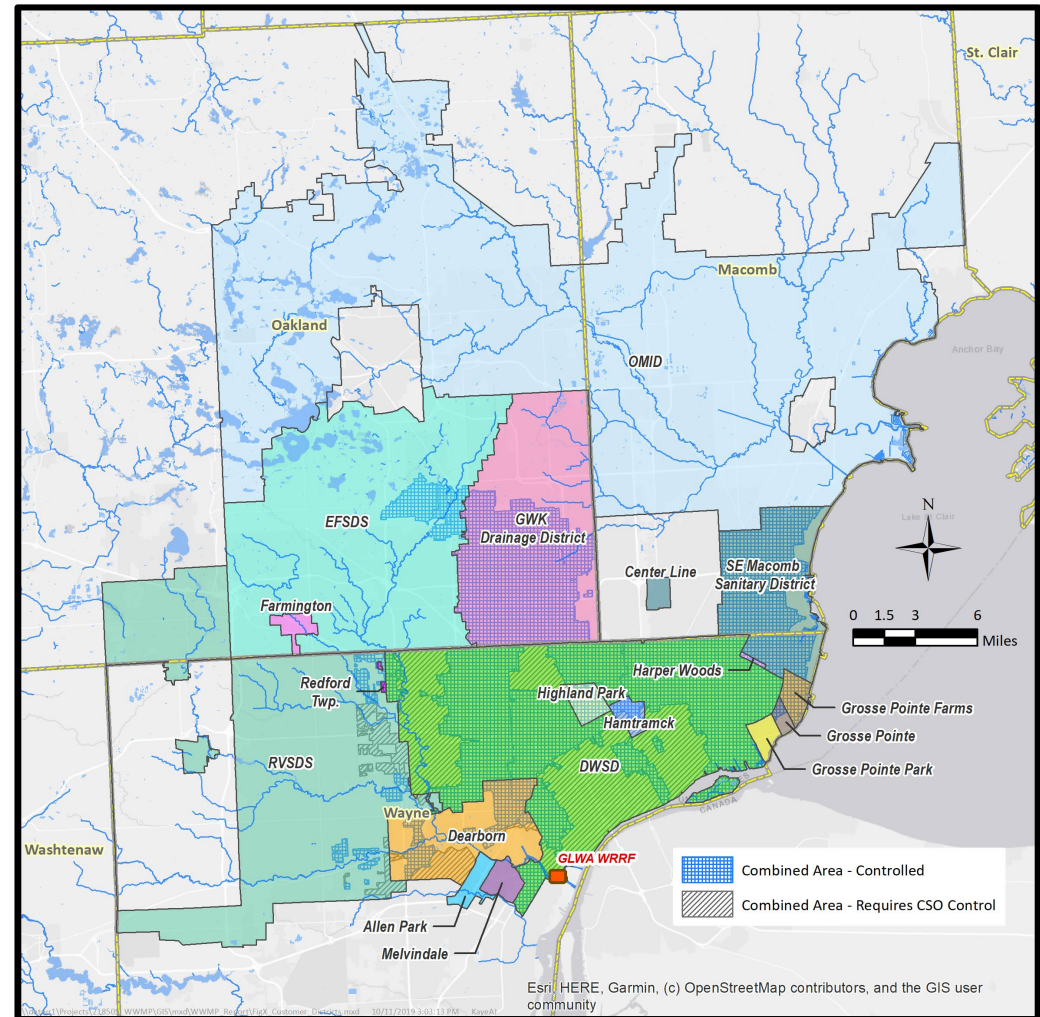




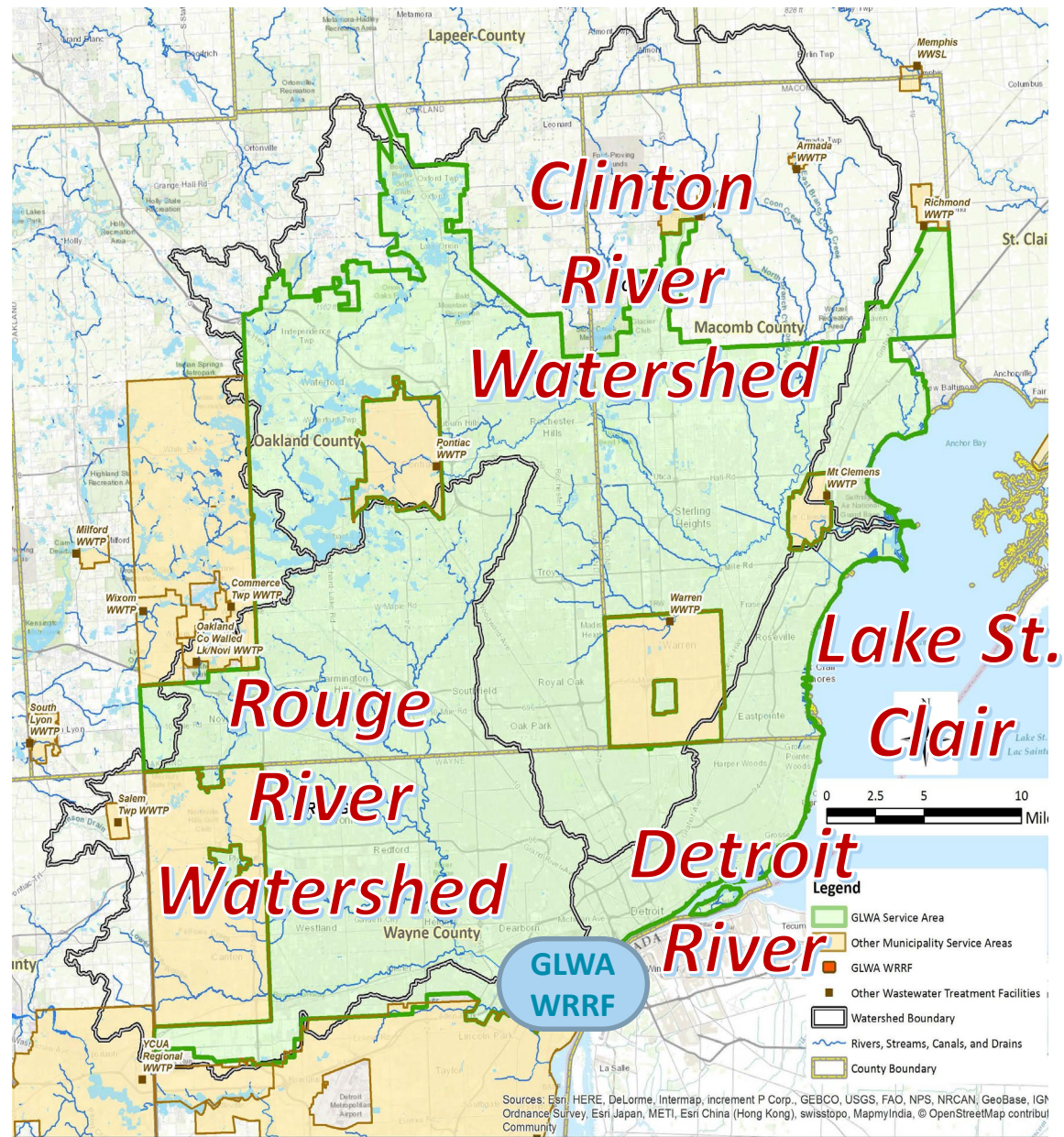
Why Is a Master Plan Needed?

GLWA Collects and Treats Wastewater Generated across Southeastern Michigan

- Member Partners include 78 cities, villages and townships
- 944 square mile service area
- 25% of the service area has combined sewers
- 2.8 million residents served by GLWA
- 8% projected population growth by 2060



GLWA and its
Member Partners
are responsible for
protecting
water quality
by controlling
wastewater and
stormwater
discharges



The Region Has Achieved Substantial Water Quality Progress in 50 Years

From

- Rouge River Fire in 1969
- Great Lakes Agreement and Clean Water Act



To

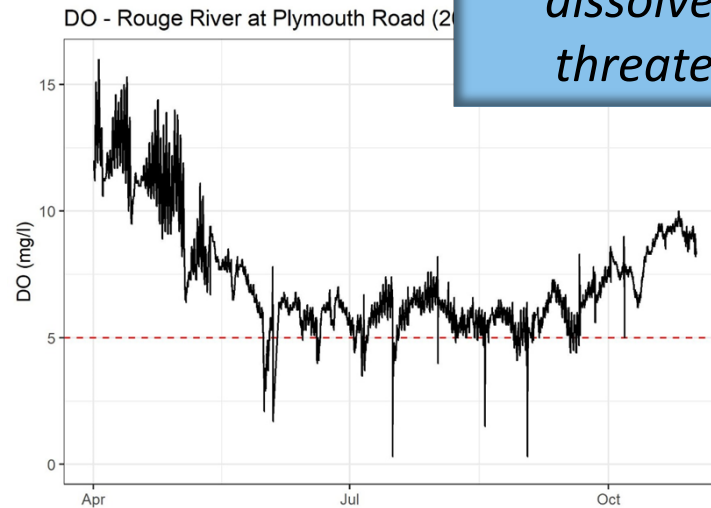
- 95% reduction in untreated combined sewer overflows from 1995 to present
- Treatment for 97% of all wastewater flow (WRRF and CSO facilities)
- Metropolitan Beach opened 98% of the time in 2018 and 2019



More Improvements are Needed to Protect Water Quality

- Currently ~2 billion gallons of untreated combined sewer overflows during a typical year (varies with rainfall)
- Water quality impairments still limit recreation and aquatic life uses

Sewer overflows cause low dissolved oxygen and threaten aquatic life



Water contact recreation standards are not fully realized



More Improvements are Needed to Protect Aging Infrastructure

- Aging sewers need rehabilitation
 - Over 13,000 miles
 - Some 150 years old
- Combined Sewer Overflow treatment facilities built in the 1990s require upgrades to renew equipment service life
- GLWA's WRRF processes can be further improved and optimized

Aging sewers are at ever increasing risk of failure without persistent asset management programs





How Did Regional Stakeholders Work Together to Reach a Shared Vision?

GLWA, Member Partners, and Key Stakeholders Worked Together to Reach a Shared Vision



The Steering Team Established the 5 Desired Outcomes

- Focused the planning process for the WRRF, biosolids, regional operations planning, and control of remaining SSOs and CSOs
- The process incorporated cost optimization and “Triple Bottom Line” criteria



Meeting Michigan Water Quality Standards Will Support a Growing Blue Economy

- Michigan's fresh water resources are unmatched across the globe and support economic vitality
- Michigan's standards are among the most stringent in the nation for sewer overflow control
- Stakeholder collaboration produced a regionally integrated water quality benefit focused plan



MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY



**WATER,
MICHIGAN**

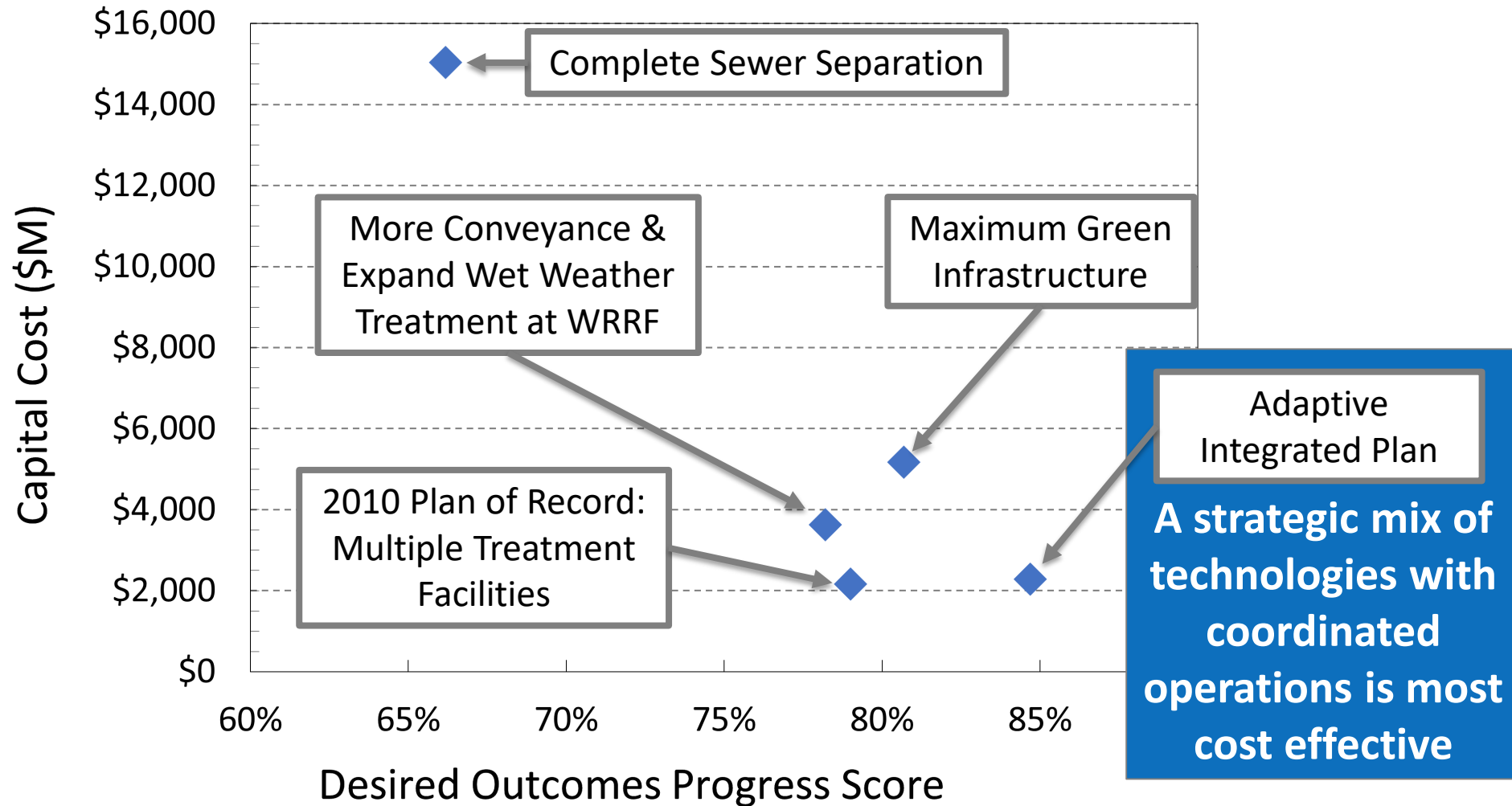
AND THE

G R O W I N G

**“BLUE
ECONOMY”**

Multiple Ways to Achieve the Desired Outcomes

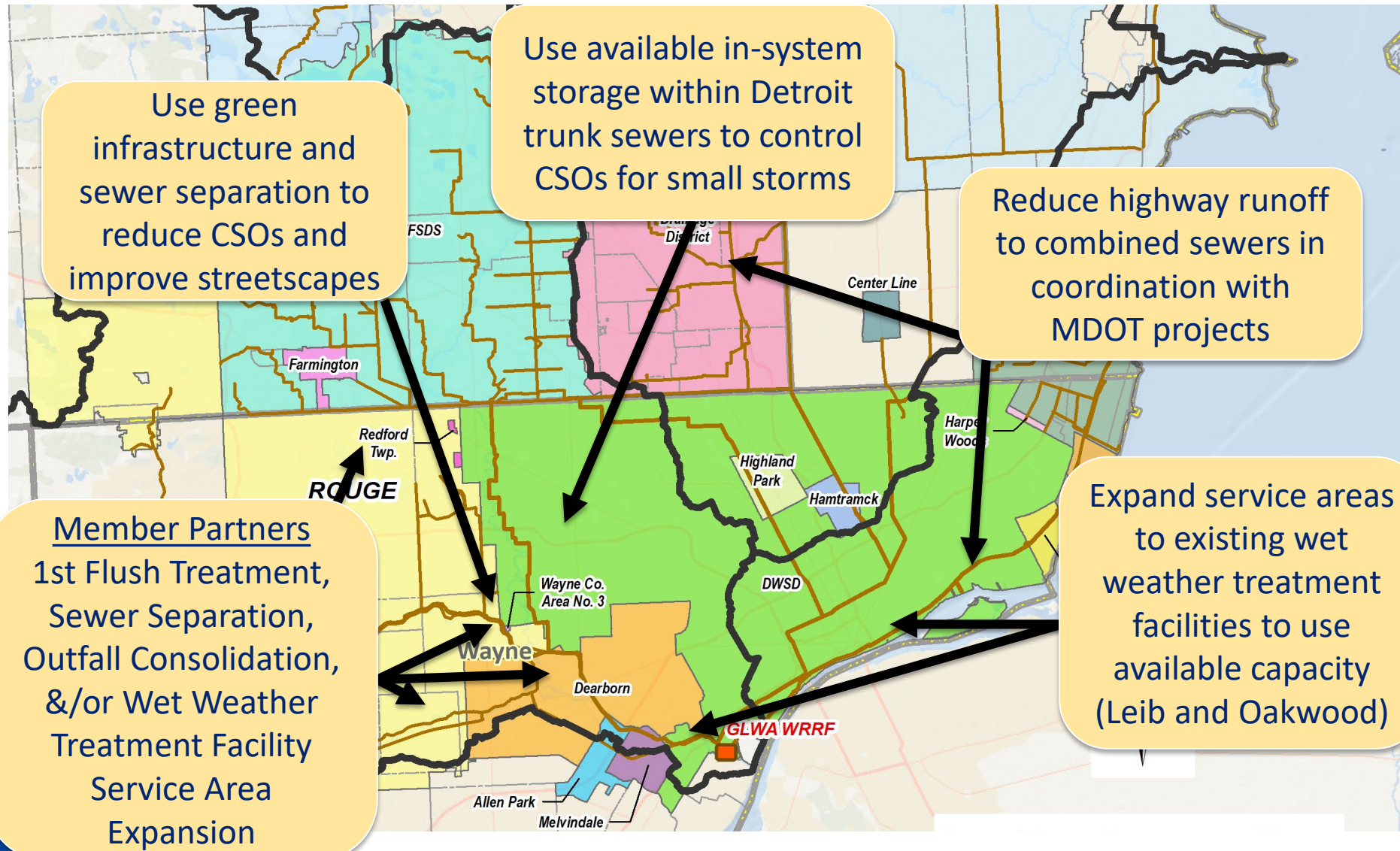
Value for Investment Analysis*





Collection System Priorities

Priorities Focus on Optimizing Existing Facilities and Opportunistic Green Projects & Partnerships



Regionally Coordinated Programs

Optimize System Performance

- Regional Collection System Model applies Integrated Planning Strategies
- Regional Operating Plan optimizes system performance
- Regional Water Quality Monitoring supports adaptive prioritization of investments
- Coordinated Member Partner best practices and reporting:
 - Collection system inspection and maintenance
 - Stormwater management





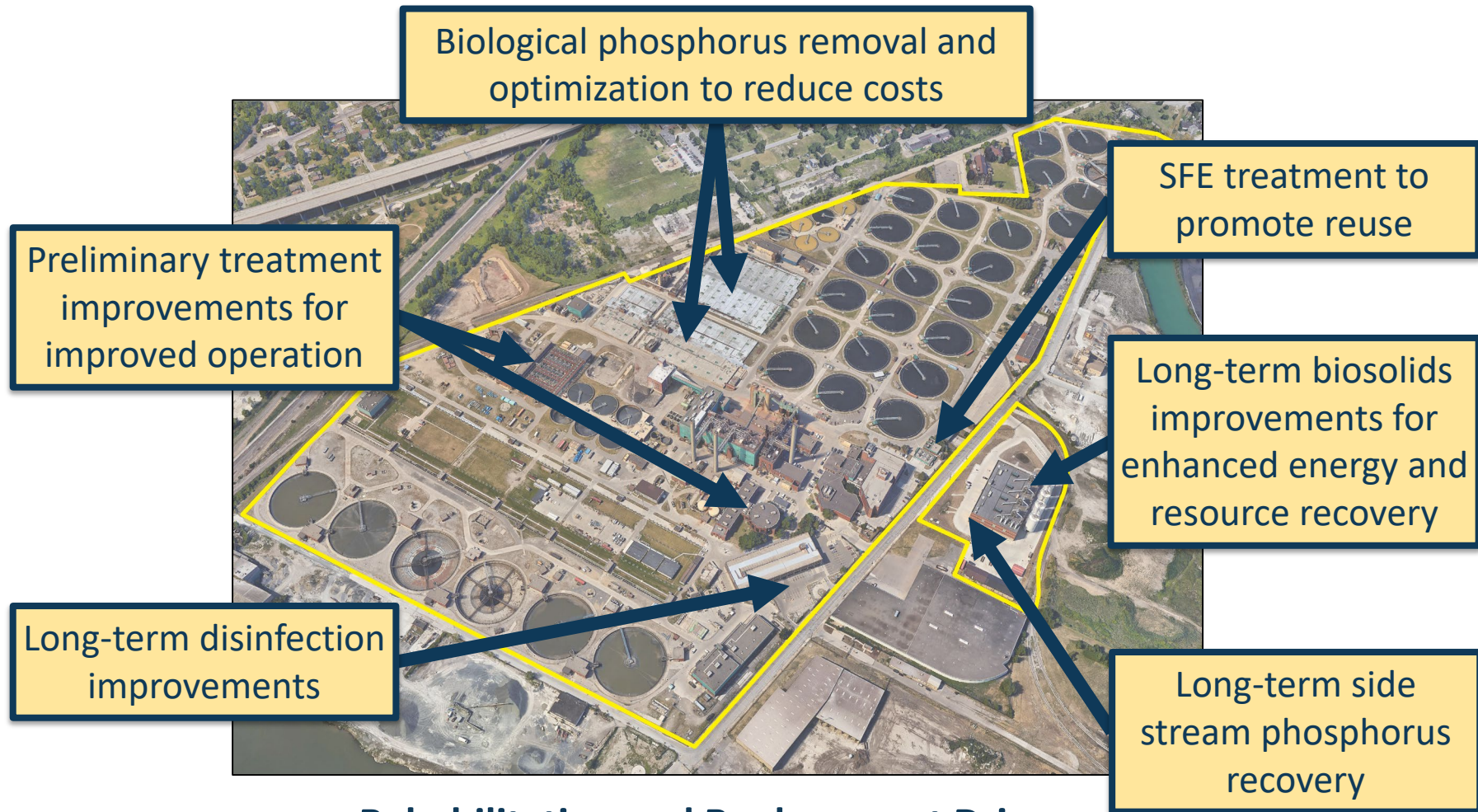
WRRF: Utility of the Future

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- The Plan prioritizes investment in maintenance of long-term assets to balance transformative investments
- The Master Planning Process has developed an implementation plan that melds:
 - **Near-Term, Cost-Savings Measures;**
 - **Ongoing Asset Management; and**
 - **Larger-Scale, Transformative Projects**
- The Plan dovetails with ongoing initiatives



Highlights of Recommended Improvements



**Rehabilitation and Replacement Driven
by Asset Management**



Implementation Plan

Cost Optimization Requires Regional Collaboration

- GLWA provides wastewater service to 78 cities, villages and townships
- Multiple regional and state agencies share jurisdiction, operational and regulatory compliance responsibilities
- Sewer system interacts with the regional transportation system, which delivers 30% of the wet weather flow
- **Pipes Don't Know Boundaries:
We can accomplish more for less if we work together!**



The Adaptive Integrated Plan Leverages GLWA Hub Utility Leadership and Regional Partnerships

IMPLEMENTATION PATHWAYS

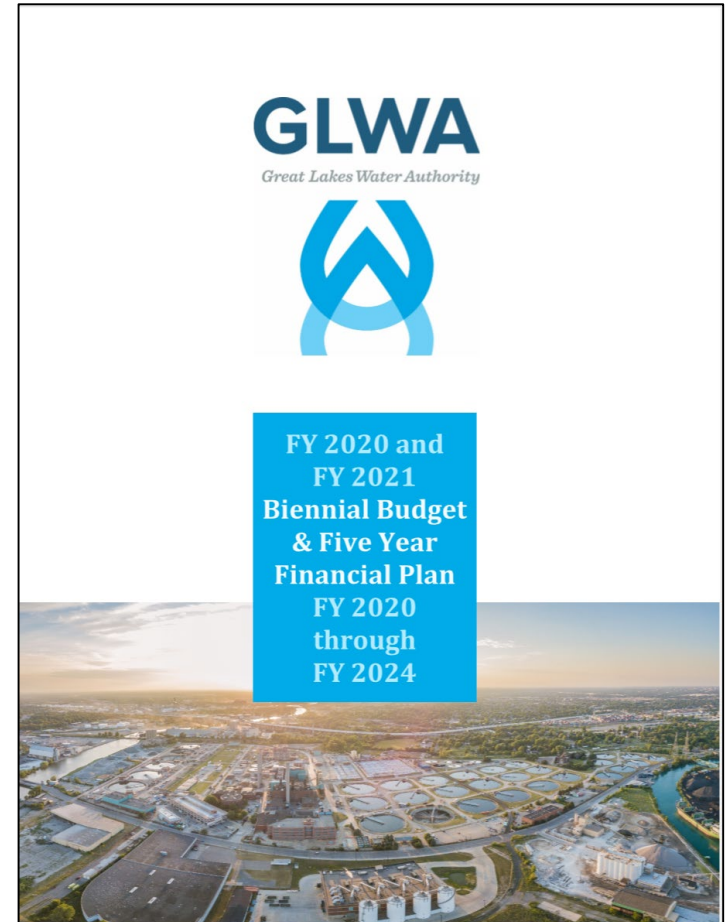
- Member Committed Projects
- Asset Management
- System Optimization
- WRRF Improvements
- Long Term CSO Control Plan
- Green Infrastructure
- Sewer Separation
- Regionally Integrated Planning

GLWA Hub Will Integrate Regional Activities and Guide Adaptive Management

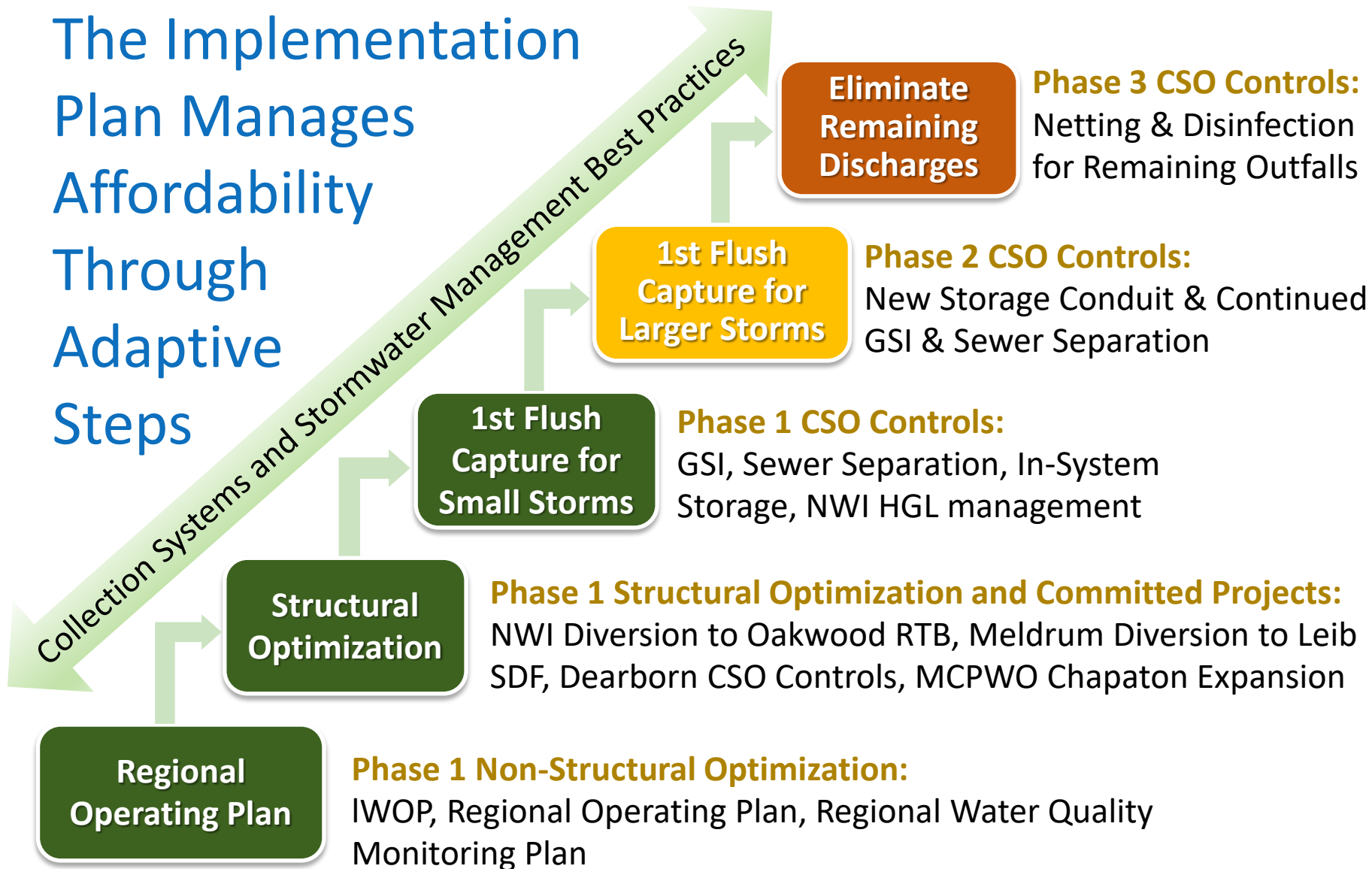


Master Planning Cost Projections Align with GLWA's 10-Year Financial Forecast

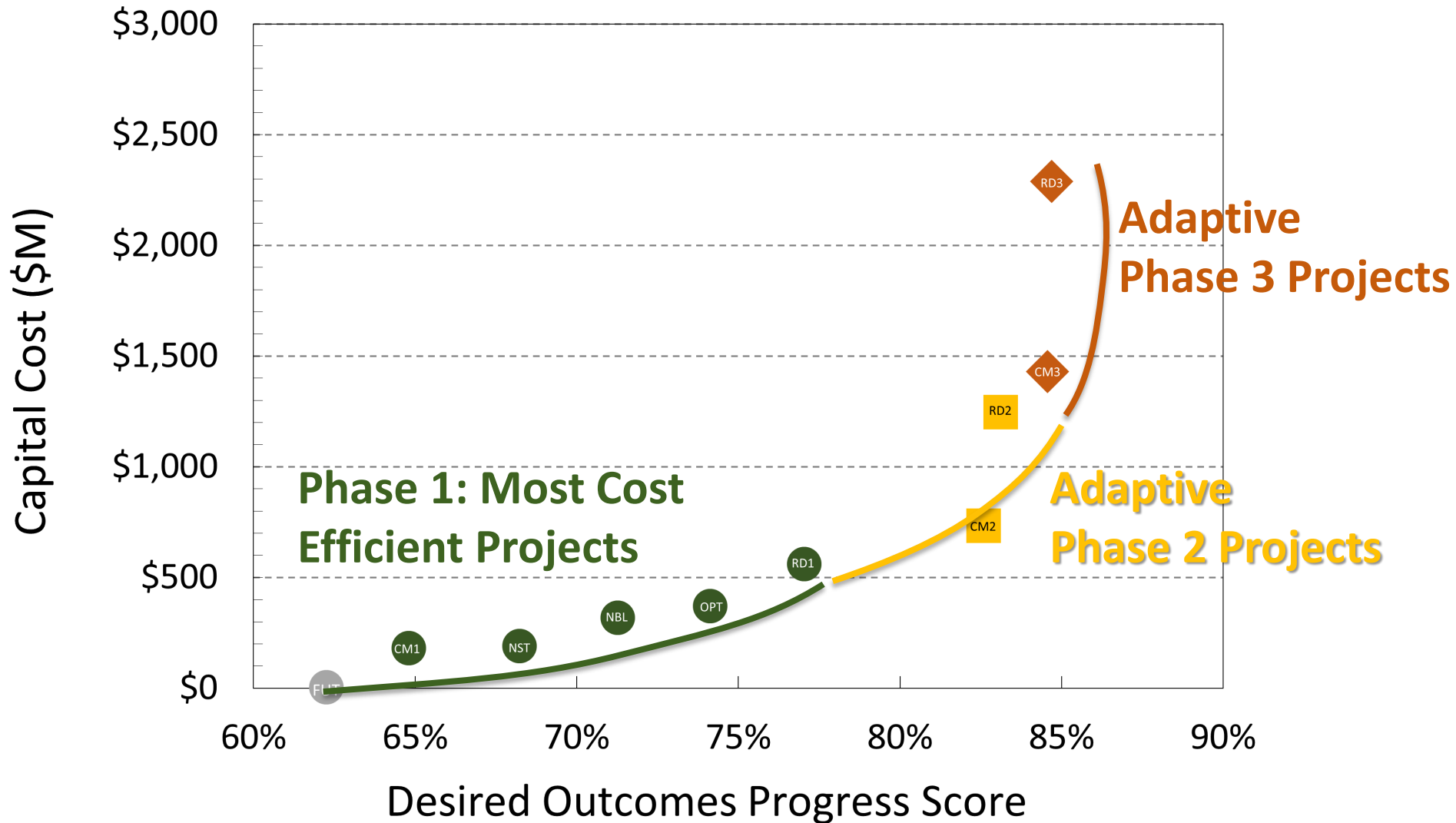
- Coordinated with GLWA Financial Services
 - 20-year capital planning budget projections
 - Detailed input to FY2021 CIP
- 10-Year Financial Forecast (October 2019 draft) aligned with recommendations
- \$1.7 billion FY2020 to FY2030 (already in the draft CIP)



The Implementation Plan Manages Affordability Through Adaptive Steps



The Adaptive Phases Are Sequenced by Value for Investment



The Wastewater Master Plan Provides a Cost Managed Roadmap to the 5 Outcomes

- Most affordable and cost effective projects first
- Larger projects are phased in based on financial capability
- Projects approved annually in GLWA and Member CIP budgets
- Affordability evaluated with each 5-year regulatory permit update
- Phased approach allows time to reassess and re-prioritize upcoming investments



Questions ?

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