

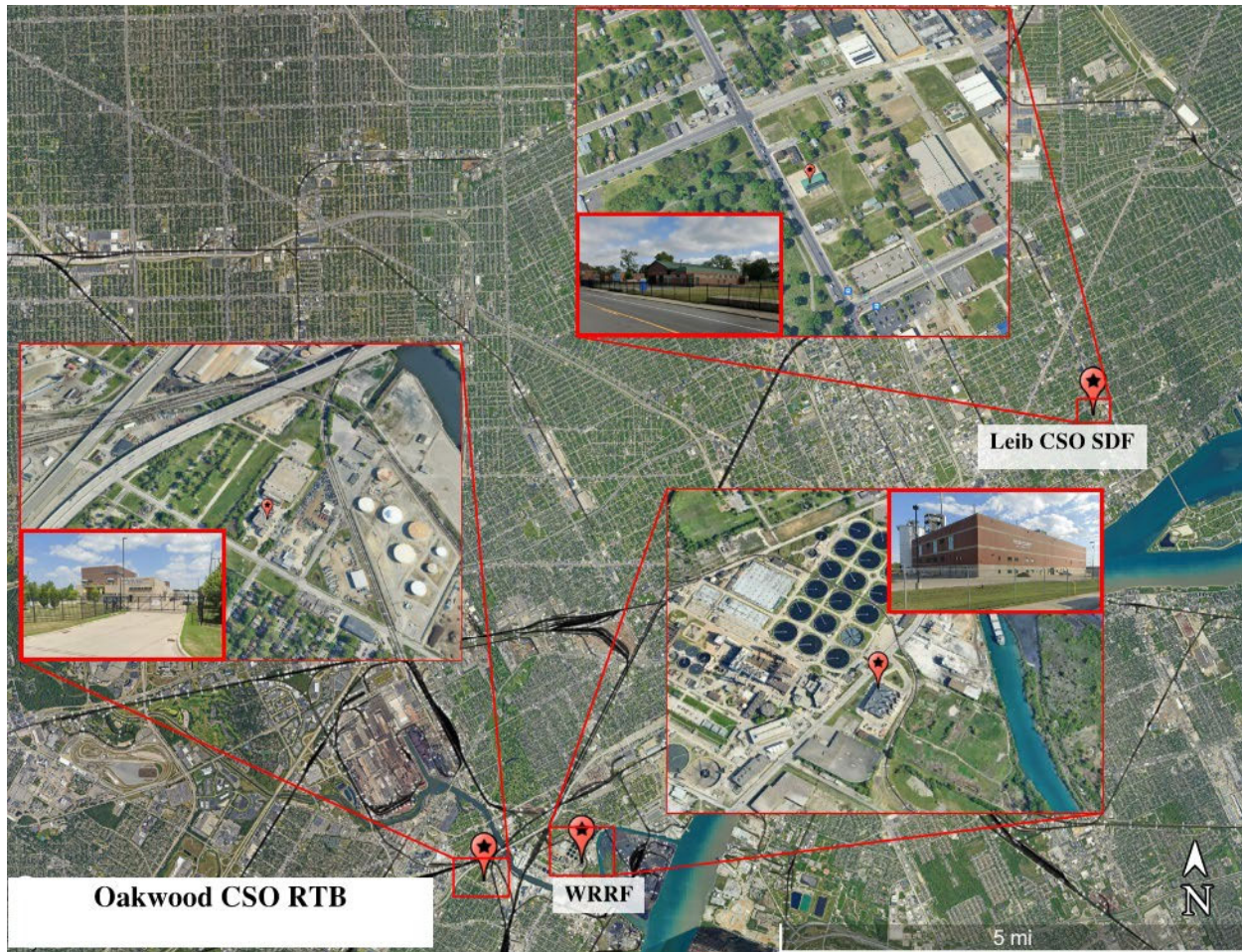
GREAT LAKES WATER AUTHORITY

Oakwood and Leib CSO Facilities Improvement Project

Project Plan Summary

April 24, 2024





Facilities Description

The Oakwood Combined Sewage Overflow (CSO) Retention Treatment Basin (RTB) and Leib CSO Screening and Disinfection Facility (SDF) are critical components of the Great Lakes Water Authority's (GLWA) sewage collection system, preventing backups of combined sewage into residential basements and discharges of untreated combined sewage into the Detroit and Rouge rivers. The Oakwood CSO RTB provides 9 million gallons of storage of combined sewage that is diverted from the Detroit Water Resource Recovery Facility (WRRF) during wet weather flow events, whenever the WRRF is overloaded, and the Oakwood RTB has available capacity. The Oakwood RTB can treat up to 1,660 cubic feet per second (cfs) with screening and disinfection. The Leib SDF does not retain flow

like the Oakwood RTB, but can treat up to 1,550 cfs with screening and disinfection through a nearly 1-mile-long effluent conduit, and hydraulically pass up to 2,000 cfs that would otherwise flow to the WRRF or cause backups of the sewage collection system. Both facilities use sodium hypochlorite as a chemical disinfectant, requiring the use of on-site storage facilities and chemical shipments.

Summary of Project Needs

This project will support planned increases in the utilization/peak flow at both facilities where there is planned diverted flows from the Northwest Interceptor (NWI) to Oakwood and Meldrum sewer to Leib. As a result, the volume of stormwater entering each facility will be significantly increased compared to the existing operations. To address these concerns and improve reliability of the treatment capacity, the disinfection systems will be

upgraded as a part of this work. Upgrades to the disinfection system include replacement of the storage system, feed system, and sampling system.

The overall purpose of the CSO Facility Improvements Project is to improve reliability, enhance operability and to accommodate the increased loading rates associated with new diversions to each facility. These improvements are critical for the facilities to be able to meet/exceed their current permit requirements. By optimizing pump operation and chemical dosing and monitoring, improving post-storm flushing capabilities, and providing mechanical redundancy will provide the operational flexibility and long-term improvements needed to maintain water quality standards.

Proposed Improvements

At the Oakwood CSO RTB, the proposed improvements include:

- Storm Pump Modifications
- Improved storm wet well flushing systems
- New grease lubrication system for storm pumps
- Improvements to the storm wet well and CSO basin flushing systems
- Changes to the storm pump system and sanitary pump system operation strategies
- Improvements to the screenings screw conveyor drainage
- Plumbing improvements, including replacement of damaged secondary water pipe and storm pump station sump pumps
- Vibration monitoring for the storm water pumps
- Cleaning of the storm and sanitary wet wells and influent tunnels

At the Leib CSO SDF, the proposed improvements:

- Replacement of all horizontally-mounted COPA screens with new vertically-mounted Romag screens, and rehabilitation of existing Romag screens
- New flushing system at upstream ends of screenings collection channel

At both facilities, proposed improvements include:

- Replacement of the sodium hypochlorite storage and feed systems
- Replacement of existing sampling pumps and associated monitoring and controls
- Site civil and security improvements, including repairing of damaged concrete, site drainage improvements, and traffic-related improvements e.g., new roadways and security gates
- Structural and architectural modifications
- Electrical improvements
- Integration of new field instruments, process equipment, and control panels with existing Emerson Ovation DCS platform

Potential Alternatives

Extensive alternatives assessments for the CSO improvements projects were performed as part of the development of the *CS-299 CSO Facilities Assessment* in April 2021 and documented thoroughly therein. Select alternatives included “status quo” or “do-nothing” alternatives, in-kind equipment replacement or rehabilitation, and alternative technology or control selections. In addition, the CDM Smith conducted a study to confirm the alternatives documented in the February 2024 Basis of Design Report.

Environmental Evaluation

Short-term and long-term impacts due to construction activities such as noise, dust, and traffic disruption cannot be avoided.

Where above-ground construction activities are anticipated, adverse environmental impacts will be made through thoroughly designed and well-planned construction sequencing. This will limit the hours of operation for noisy equipment. Dust and soil deposits on the streets will be controlled through watering and frequent street sweeping. Construction area footprints will be minimized, but traffic control measures during construction activities are unavoidable. Site restoration will minimize the adverse impacts of construction, and the implementation of a Soil Erosion and Sedimentation Control program will minimize the

impacts due to ground disturbance, when such disturbance is found to be necessary. Specific techniques will be specified in the construction contract documents.

Estimated Project Cost

Item	Estimated Cost (\$)
Design	\$7,000,000
Construction Admin	\$1,700,000
Construction	\$46,800,000
Total	\$55,500,000

Estimated User Cost Impact

The proposed project is anticipated to directly or indirectly impact 640,510 wastewater customers in the GLWA service area. The estimated total project cost of \$55,500,000 will be incorporated into the regional system revenue requirement and allocated to all member partners through the Sewer charges methodology process. GLWA serves approximately 2.9 million residents in approximately 1.16 million households. The estimated cost per household has been determined to be approximately \$2.36 per year.

Proposed Implementation Schedule

Item	Date
Design Notice to Proceed	September 2022
Design Complete	December 2024
Bid Opening	May 2025
Construction Notice to Proceed	October 2025
Construction Substantial Completion	February 2030
Construction Final Completion	April 2030