



CSO FACILITIES IMPROVEMENTS II

CIP: 270006

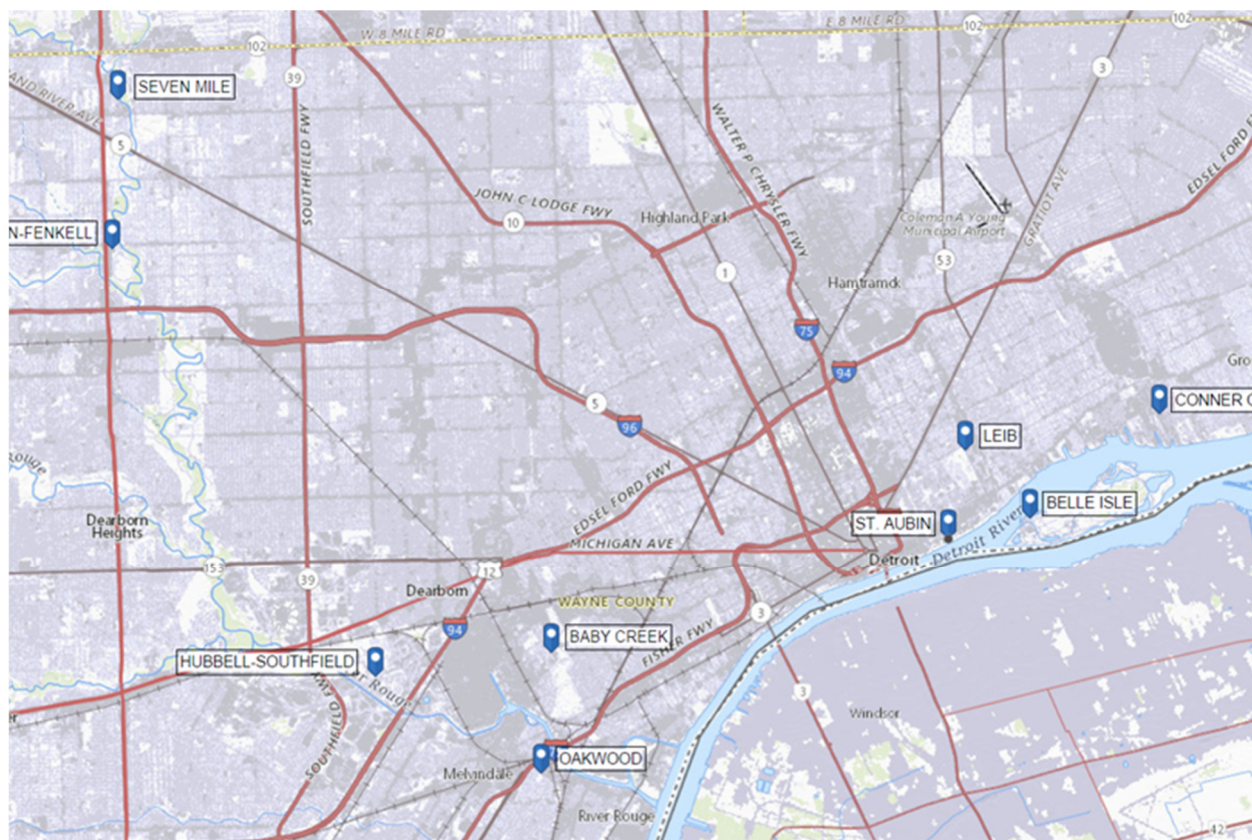
ITA: 1024-1225

**2026 CLEAN WATER STATE REVOLVING FUND
PROJECT PLAN SUMMARY**

APRIL 2025

Hazen





Proposed Improvements

The Great Lakes Water Authority (GLWA) collects and treats most of the sanitary sewage in southeast Michigan. It operates the Water Resource Recovery Facility (WRRF) located at 9300 W Jefferson Ave, Detroit, MI 48209, and nine Combined Sewer Overflow (CSO) facilities:

1. Seven Mile CSO (19272 Shiawassee Dr, Detroit, MI 48219)
2. Puritan-Fenkell CSO (23673 Fenkell Ave, Detroit, MI 48223)
3. Leib SDF (2188 Mt Elliott St, Detroit, MI 48207)
4. Conner Creek CSO (11900 Freud St, Detroit, MI 48215)
5. Belle Isle CSO (2 Pleasure Dr, Detroit, MI 48207)
6. St. Aubin SDF (2200 Atwater St, Detroit, MI 48207)
7. Baby Creek SDF (9524 Dix Ave, Dearborn, MI 48120)
8. Hubbell-Southfield CSO (16540 Rotunda Dr, Dearborn, MI 48120)
9. Oakwood CSO (12082 Pleasant St, Detroit, MI 48217)

CSO facilities are implemented to reduce pollution during wet weather events that exceed the capacity of the sanitary sewer systems. To continue to provide safe, efficient, and reliable operation of the CSO facilities, GLWA has prioritized the CSO Facilities Improvements II Project. The scope of this project has been divided into three parts:

St. Aubin SDF – Disinfection, Screening, and Misc. Improvements Project includes:

- Chemical feed system improvements
- Chemical storage and mixing system improvements
- Screen system improvements
- Select HVAC improvements
- Electrical power improvements
- Lighting, and building system improvements
- Instrumentation and controls (I&C) standardization improvements

- Access hatch improvements; and
- Incorporation of storage space within the Control Building

These improvements will maintain the long-term reliability of this critical SDF.

CSO Facility Safety Improvements and Building Rehabilitation Project addresses the safety and architectural deficiencies previously identified. Examples of improvements include but are not limited to extending guardrails, reorienting hatches, relocating ladders, and installing swing gates to reduce falling risk. Removing tripping hazards is also a focus of safety improvements to the facilities.

Control System Upgrades at Baby Creek and Belle Isle CSO Facilities Project implements a series of lighting and I&C system improvements needed at GLWA's Belle Isle CSO and Baby Creek CSO.

Summary of Project Needs

The CSO facilities provide treatment of overflow water and provide safer water quality levels for the public and the environment. The majority of the CSO facilities began operating in the 1990s and early 2000s. Due to age, they require system upgrades, rehabilitation, and maintenance. GLWA's Capital Improvement Plan (CIP) includes several projects with the following overarching goals:

- Improve operational efficiency through standardized CSO systems and equipment by coordinating with other ongoing GLWA CSO projects.
- Incorporate RCM/RCD (Reliability Centered Maintenance/Reliability Centered Design) into the design to reduce life-cycle costs and mitigate O&M difficulties.

- Provide safer facilities through fall protection, emergency eyewash improvements, and the removal of trip hazards.
- Rehabilitate buildings to address current architectural, electrical, and HVAC/plumbing deficiencies.

Consultants reviewed and evaluated the building and process components of the nine CSO facilities for deficiencies in the safety, structure/architecture, and process.

Potential Alternatives

Alternatives were evaluated for St. Aubin CSO's Screening System Improvements and St. Aubin's Mixing Chamber Optimization. The alternatives were evaluated with the following goals:

- Long-term system reliability
- Simplified operations and maintenance (O&M)
- Improve operational efficiency through standardized parts and systems across all GLWA CSO facilities, where practical.

The approach considers the long-term impacts of the improvements. Improvements related to safety, architectural repairs, plumbing maintenance, and controls standardization are considered "base improvements" and need to be completed regardless of the selected alternative. Phrased differently, "base improvements" are included as part of every alternative because they are not dependent on the alternative selection, they are necessary, and they do not require alternative analysis.

No Action and Regional Alternatives

The "No Action" alternatives would not address the safety, reliability, control systems, and

operations and maintenance needs experienced at the facilities. Not addressing the problems would erode the facility's reliability and ability of GLWA to meet current OSHA requirements and NPDES permit requirements. Postponing the improvements risks further degradation of the systems and potential negative environmental impacts. For the improvements discussed above, the "No Action" alternative is not considered viable, and it is not pursued further.

The Regional Alternative is not applicable because GLWA already operates a regional system, of which the CSOs are an integral part.

St. Aubin Screening System Improvement Alternatives

Five screening improvement alternatives were considered. Two of the alternatives focused on rehabilitating the screens, one with improved cross-flow characteristics. Three other alternatives evaluated the applicability of perforated plate and perforated trough technologies. The selected alternative included rehabilitating the existing Romag screens and installing an automatic water flushing system to prevent screen buildup. This alternative was the most cost-effective solution while also achieving the desired screening efficiency.

St. Aubin Mixing Chamber Optimization Alternatives

Three mixing chamber alternatives were considered:

- Alternative 1 – Improved Pre-Chlorination Mixing and Reduce Mixer Power from 7.5 HP to 5 HP Each
- Alternative 2 – Two 10 HP Mixers Per Chamber Shifted Upstream

- Alternative 3 – Single 20 HP Mixer Per Chamber Sized for Sufficient Mixing

CFD Modeling revealed that Alternative 1 achieved the desired mixing results, included redundancy, required less power, and avoided structural modifications to the basin.

Environmental Evaluation

Short-term impacts, such as equipment noise and dust, cannot be avoided during the construction of these proposed projects. However, thoroughly designed and well-planned construction sequencing should minimize impacts. Equipment noise impacts to surrounding areas can be minimized by controlling hours of work. Dust and soil deposits will be controlled through frequent watering and pavement sweeping. Soil erosion control measures will also be implemented as needed to reduce unwanted soil runoff. Specific techniques will be specified in the construction contract documents for each project.

A state historic resource evaluation and an endangered species and habitat review are underway. There are no known cases of conflict with the projects. Each project will be closely monitored, and any conflict will halt the project until the correct course of action is determined and steps are taken for proper mitigation.

Estimated Project Costs

The estimated total project cost of \$23,578,000 will be incorporated into the regional system revenue requirement and allocated to all member partners through the Sewer charges methodology process. GLWA serves approximately 2.8 million residents in approximately 1.2 million households.

On a per household basis, this would equate to approximately \$1.37 per year.

Estimated Project Cost Impact for the SRF CSO Facilities Improvements II Project	
Cost Category	Value
Estimated Construction Cost	\$17,183,000
Contingency	\$1,718,000
Engineering and Const. Admin.	\$4,677,000
Total Cost of Project	\$23,578,000
Total Present Worth	\$26,835,000
Annualized Cost of Project (assuming SRF discount rate of 2.0% over 20 years)	\$1,641,000
Service Area Households (City of Detroit and surrounding communities)	1,200,000
Illustrated, Estimated End User Impact	~ \$1.37 per household basis per year

Proposed Implementation Schedule

The proposed schedule for the project is presented in the table below.

Proposed Project Schedule	
Milestone	Date
Notice to Proceed	Q4 2025
Construction Begins	Q4 2025
Final Completion	Q1 2028