



CONNER CREEK SANITARY PUMP STATION REPLACEMENT

ITA: 1020-0449

**2027 CLEAN WATER STATE REVOLVING FUND
PROJECT PLAN SUMMARY**

MARCH 2026



Proposed Improvements

The project replaces the Conner Creek Sanitary Pump Station with a fully modernized facility designed to correct long-standing hydraulic and operational limitations, improve maintainability, and provide reliable conveyance under both dry-weather and multi-day post-storm conditions. The new station is built within a deep circular shaft and incorporates modern intake hydraulics, N+2 pumping redundancy, maintenance friendly considerations, simplified influent/discharge connections, and updated electrical and site-wide systems to ensure long-term resilience while

minimizing construction impacts along East Jefferson Avenue. Some key design elements:

- New sanitary pump station on GLWA-owned parcels east of the existing site, replacing deficient hydraulic geometry that impacts pump operation and reliability.
- 114-ft diameter, ~75-ft deep circular shaft housing dual wet wells, pump galleries, and equipment access spaces.
- Dual isolatable trench-style self-cleaning wet wells (ANSI/HI 9.8) for stable approach flow, reduced turbulence/air entrainment, solids control, and safe

wet-well isolation. Programmed wet well cleaning cycles remove debris, reduce maintenance costs, enhance pump efficiency, and extend equipment life.

- Six horizontal dry-pit submersible non-clog pumps (4 duty + 2 standby, N+2) providing ~160 MGD firm and 240 MGD total installed capacity for reliable operation.
- Single 8-ft diameter influent tunnel connection from the existing Intake Well, avoiding deep (~60-ft) open-cut 14-ft diameter sewer installation in the heavily traveled East Jefferson Avenue.
- Single discharge connection to the 9-ft diameter Detroit River Interceptor (DRI) to reduce tie-in complexity and risk.
- Electrical integration with the adjacent Storm Pump Station's 480-V primary switchgear, standby power via the existing generator system, and a portable-generator quick-connect for extended outages.
- Sitewide improvements: new access drive, yard piping, stormwater conveyance, lighting upgrades, fencing, and landscape enhancements.
- Green infrastructure: ~1.31 acres of impervious area removal, ~1,500 ft² of pervious pavers, bioswales at grading low points, and additional street/perimeter trees to improve infiltration, water quality, and site aesthetics.

Summary of Project Needs

The existing Conner Creek Sanitary Pump Station, constructed in 1956, has reached the end of its

useful life and exhibits multiple deficiencies that constrain operational reliability. The wet-well geometry generates excessive turbulence, air entrainment, and unstable pump suction conditions, resulting in vibration, cavitation risk, reduced pump efficiency, and short equipment life. Limited isolation capability prevents staff from performing safe wet-well or suction-side inspections, making routine maintenance difficult.

Systemwide sanitary flow conditions including dry-weather, multi-day post-storm dewatering, and storage-release operations, were evaluated and determined a firm pumping capacity of approximately 148 MGD is required. The existing station cannot meet this requirement, increasing the risk of upstream surcharging, wet-weather backups, and potential unpermitted discharges to receiving waters. Replacement is required to restore reliability and ensure long-term compliance with Clean Water Act objectives.

Potential Alternatives

The following alternatives were evaluated in accordance with EGLE SRF planning requirements.

- No Action – Does not address poor pump suction intake conditions caused by turbulence and significant air entrainment, severe wet-well hydraulic instability, maintenance limitations, or the required ~148 MGD firm capacity. This option carries high risk of upstream surcharging and regulatory non-compliance; eliminated.

- Optimize Existing System – Operational or control-based changes cannot resolve fundamental

design issues such as wet-well geometry, turbulence-induced air entrainment, or inadequate pump isolation. Does not address structural and end-of-life asset needs; eliminated.

- Alternative 1 – Construct a new sanitary pump station parallel to the existing facility while keeping the existing station active. Although this provides additional capacity, it retains aging assets, duplicates long-term O&M requirements, and does not fully resolve hydraulic or maintainability constraints.
- Alternative 2 – Full replacement of the Conner Creek Sanitary Pump Station with new deep interconnections between the East and West relief sewers beneath East Jefferson Avenue. This option is technically feasible but requires deep (~60-ft) large-diameter open-cut construction in a major arterial roadway, resulting in substantial traffic disruption, elevated construction risk, and extensive permitting and utility coordination.
- Alternative 3 – Construct a single combined storm-and-sanitary pumping facility consolidating both functions into one new station. This concept requires expansive wet-well structures, major new junction chambers in East Jefferson Avenue, deep connections to the 14-ft diameter relief sewers, and multiple DRI tie-ins. While operationally viable, it presents the highest construction complexity, greatest traffic impact, and significant cost escalation compared to other build alternatives.

Environmental Evaluation

Construction-phase impacts include noise from equipment, dust generation from excavation, truck traffic, and temporary localized congestion. These impacts will be mitigated using best management practices (BMPs), including temporary erosion and sedimentation control (TERS), dust suppression and street sweeping, equipment idling limits, construction fencing, proper dewatering discharge management, and a comprehensive traffic maintenance plan coordinated with the City of Detroit.

The project footprint is entirely on GLWA-owned parcels and does not encroach on wetlands, floodplains, or critical habitats. Long-term environmental benefits include reduced surcharging, minimized risk of sanitary discharges, safer operation during multi-day dewatering cycles, improved water quality protection, and reduced CSO/SSO potential.

Green infrastructure elements including bioswales, pervious pavement, tree plantings, and reduced impervious area improve infiltration capacity, slow runoff, reduce heat-island effects, and provide first-flush treatment for pollutant removal. These features align with EGLE's sustainability objectives and support regional watershed health.

Estimated Project Cost

Conner Creek Sanitary Pump Station Replacement Project Summary	
Item	Estimated Cost
Final Design/Bid & Negotiation	\$4,263,400
Construction Administration & RPR Services	\$7,200,000
Construction	\$178,536,600
TOTAL	\$190,000,000

Estimated User Cost Impact

Assuming a funding term of 20 years and a loan interest rate of 2.50 percent, the total project cost has an equivalent annual cost of \$12,187,954. According to the 2020 GLWA Wastewater Master Plan, there are approximately 2.8 million residents in the GLWA regional service area. The number of persons per household in Michigan was estimated by the U.S. Census Bureau as 2.42 between 2020 - 2024. The estimated number of households that will be impacted by this project is estimated to be 1.16 million. The per household user cost is \$10.53 per year.

Proposed Implementation Schedule

Conner Creek Sanitary Pump Station Replacement Project Schedule	
Item	Date
Notice to Proceed	October 2023
60% Design	September 2024
90% Design (Issued for Permit – EGLE Part 41)	February 2025
100% Design	March 2026
Bid Opening	October 2026
Construction Notice to Proceed	April 2027
Construction Substantial	January 2031
Construction Final Completion	April 2031



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