

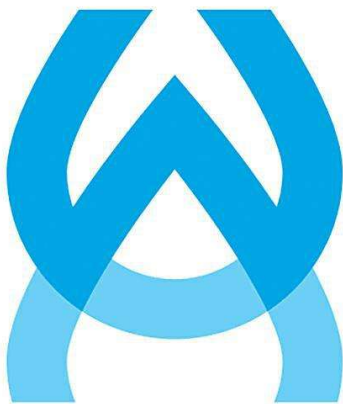
Great Lakes Water Authority

Conner Creek Sanitary Pump Station Replacement

State Revolving Fund (SRF)

Project Plan - DRAFT

May 2026



GLWA
Great Lakes Water Authority

Conner Creek Sanitary Pump Station Replacement Project Plan

State Revolving Fund Project Plan

May 1, 2026

Prepared By:

Arcadis of Michigan, LLC
607 Shelby Street, Suite 400
Detroit
Michigan
Phone: 313 965 8436

Prepared For:

Paul H. Ransom
Life Cycle Project Manager
Great Lakes Water Authority
9300 West Jefferson
Detroit, Michigan 48209

Our Ref:

30047524

Fredrick J. Simmons, PE
Senior Water Engineer

Jeffrey J. Swartz, PE
Project Manager

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Contents

Acronyms and Abbreviations.....	5
Executive Summary	7
1 Background	9
1.1 Study and Service Areas	9
1.2 Existing System Context	9
1.3 Existing Facility Deficiencies	10
1.4 Population.....	11
1.5 Existing Environment Evaluation	1
1.5.1 Historical and Archaeological Sites	1
1.5.2 Air Quality.....	1
1.5.3 Wetlands.....	1
1.5.4 Great Lakes Shorelands, Coastal Zones, and Coastal Management Areas.....	1
1.5.5 Floodplains.....	1
1.5.6 Natural or Wild and Scenic Rivers	2
1.5.7 Major Surface Waters	2
1.5.8 Topography.....	2
1.5.9 Soils and Geology	2
1.5.10 Agricultural Resources	2
1.5.11 Fauna and Flora	2
1.6 Existing System.....	3
1.7 Need for the Project	3
1.7.1 Operational Deficiencies Impacting Reliability.....	3
1.7.2 Maintainability Limitations and Unsafe Access Conditions	4
1.7.3 Insufficient Operability for the Required Flow Range.....	4
1.7.4 Long-Term System Capacity and Compliance Needs	4
1.7.5 Evaluation of Rehabilitation Alternatives	4
1.7.6 Summary of Need for the Project	5
1.8 Projected Future Needs.....	5
2 Analysis of Alternatives.....	6
2.1 No Action	6
2.2 Optimize Existing System	6
2.3 Construct a New Sanitary Pump Station Operating in Parallel with the Existing Station – Alternative 1.....	6
2.4 Construct a New Sanitary Pump Station to Replace the Existing Station – Alternative 2	7
2.5 Combined Storm and Sanitary Pump Station – Alternative 3.....	9

3	Environmental Evaluation	10
3.1	No Action	11
3.2	Optimum Performance of Existing System	11
3.3	Construct a New Sanitary Pump Station Operating in Parallel with the Existing Station – Alternative 1.....	11
3.4	Construct a New Sanitary Pump Station to Replace the Existing Station – Alternative 2	11
3.5	Combined Storm and Sanitary Pump Station – Alternative 3	11
3.6	Selected Alternative – Conner Creek Sanitary Pump Station Replacement.....	12
4	Selected Alternative.....	12
4.1	Substructure and Shaft	15
4.2	Wet-Well Configuration and Equipment	15
4.3	Power and Standby.....	15
4.4	Discharge and Downstream Structures	16
4.5	Construction Sequencing.....	16
4.6	Environmental, Resilience, and Community Benefits	19
4.7	Useful Life	19
4.8	Monetary Evaluation	20
4.8.1	Capital Expenditures	20
4.8.2	Operation and Maintenance.....	20
4.8.3	Financing and User Cost Impact.....	20
4.9	Project Maps	21
4.10	Water and Energy Efficiency and Green Infrastructure.....	21
4.10.1	Water Efficiency Measures	21
4.10.2	Installing High Efficiency LED Lighting in Place of Standard Lighting Options.....	22
4.10.3	Street Trees and Bioswales	22
4.10.4	Site Impervious Area Reduction and Associated Benefits	22
4.11	Schedule for Design and Construction.....	23
4.12	Cost Summary	23
4.13	Implementability	24
5	Environmental and Public Health Impacts	24
5.1	Direct Impacts	24
5.2	Indirect Impacts.....	24
5.3	Cumulative impacts	24
6	Mitigation	25
6.1	General	25
6.2	Mitigation of Short-Term Impacts.....	25
6.3	Mitigation of Long-Term Impacts.....	25

6.3.1	Siting Decision	26
6.3.2	Operational Impacts	26
6.4	Mitigation of Indirect Impacts	26
7	Public Participation	27
7.1	Community Engagement	27
7.2	Public Meeting	27
7.2.1	Public Meeting Advertisement	27
7.2.2	Public Hearing Transcript	27
7.2.3	Public Hearing Comments Received and Answered	27
7.3	Adoption of the Project Planning Document	27

Tables

Table 1:	Population Projections for the Study Area	1
Table 2:	User Cost Impact for the Conner Creek Sanitary Pump Station Replacement Project	21
Table 3:	Conner Creek Sanitary Pump Station Replacement Project Design and Construction Schedule	23
Table 4:	Estimated Cost Summary for the Conner Creek Sanitary Pump Station Replacement	24

Figures

Figure 1:	Existing Facility	10
Figure 2:	Population Served	11
Figure 3:	New Sanitary Pump Station Alternative 1	7
Figure 4:	New Sanitary Pump Station Alternative 2	8
Figure 5:	Combined Storm and Sanitary Pump Station Alternative 3	10
Figure 6:	Conner Creek Sanitary Pump Station Replacement	13
Figure 7:	Rendered Conner Creek Sanitary Pump Station Replacement	14
Figure 8:	Flow Diagram – Phase 1	16
Figure 9:	Flow Diagram – Phase 2	17
Figure 10:	Flow Diagram – Phase 3	17
Figure 11:	Flow Diagram – Phase 4	18
Figure 12:	Flow Diagram – Phase 5	18
Figure 13:	Flow Diagram – Phase 6	19

Appendices

- A Archaeological Literature Review and Assessment for the Conner Creek Sanitary Pump Station Replacement Project
- B Above-Ground Resources Literature Review for the Conner Creek Sanitary Pump Station Replacement Project
- C FEMA Floodplain Map
- D Topographic Survey

Conner Creek Sanitary Pump Station Replacement
State Revolving Fund Project Plan

- E Geotechnical Exploration Services, New Sanitary Pump Station – Phased Conner Creek Storm and Sanitary Pump Station Improvements Report
- F Applied Science Inc. Flow Data Analysis Report
- G GLWA CIP Report Board Approved FY 2026 – 2032
- H Basis of Design Memos
- I Great Lakes Water Authority Conner Creek Sanitary Pump Station Physical Hydraulic Model Study, April 2025
- J Project Maps
- K Landscape Plan
- L GLWA Community Engagement Plan
- M Public Hearing Notice
- N Public Hearing Transcript
- O GLWA Board Resolution

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Acronyms and Abbreviations

AE (FEMA Zone)	Areas with a 1% annual chance flood; base flood elevations provided
AQI	Air Quality Index
AWWA	American Water Works Association
BMP	Best Management Practice
BOD (memos)	Basis-of-Design memoranda
CCPS	Conner Creek Pump Station
CCSPS	Conner Creek Sanitary Pump Station
CIP	Capital Improvement Plan
CSO	Combined Sewer Overflow
CWSRF	Clean Water State Revolving Fund
DRI	Detroit River Interceptor
DWSD	Detroit Water and Sewerage Department
EAC	Equivalent Annual Cost
EGLE	Michigan Department of Environment, Great Lakes, and Energy
EJRS	East Jefferson Relief Sewers
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FPS	Freud Pump Station
FRP	Fiber Reinforced Plastic
GLWA	Great Lakes Water Authority
gpcd	gallons per capita per day
HI	Hydraulic Institute
HVAC	Heating, Ventilation, and Air Conditioning
LED	Light-Emitting Diode
LID	Low-Impact Development
MGD	million gallons per day
$\mu\text{g}/\text{m}^3$	micrograms per cubic meter
N+2	Redundancy with two standby units beyond the firm duty units
NFPA	National Fire Protection Association
NPSH	Net Positive Suction Head
O&M	Operations and Maintenance

Conner Creek Sanitary Pump Station Replacement
State Revolving Fund Project Plan

OM&R	Operations, Maintenance, and Replacement
OPCC	Opinion of Probable Construction Cost
PM2.5	Particulate Matter with diameter of 2.5 micrometers or less
POR	Preferred Operating Region (pump)
PS	Pump Station
PVC	Polyvinyl Chloride
PW (economic)	Present Worth
ROW	Right-of-Way
RPR	Resident Project Representative
SCADA	Supervisory Control and Data Acquisition
SFHA	Special Flood Hazard Area
SRF	State Revolving Fund
TERS	Temporary Earth Retention System
TMP	Traffic Maintenance Plan
VFD	Variable Frequency Drive
WRRF	Water Resource Recovery Facility

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Executive Summary

The Conner Creek Sanitary Pump Station (CCSPS) Replacement Project Plan outlines the full replacement of the aging 1956 sanitary pumping facility with a modern, reliable, and maintainable station designed to meet current and future conveyance requirements for GLWA's eastside wastewater collection system. The existing station suffers from severe hydraulic deficiencies; including turbulence, air entrainment, and unstable pump suction conditions, that compromise pump efficiency, accelerate equipment wear, and reduce the ability of the facility to maintain required firm capacity during both dry-weather operation (~53 MGD) and prolonged post-storm dewatering periods (~148 MGD). Structural constraints, unsafe maintenance access, and lack of proper suction and discharge isolation further limit the long-term operability of the existing facility. Full replacement is the only viable approach to sustain reliable service over the 20-year CWSRF planning horizon.

Several project options were developed and evaluated in accordance with EGLE CWSRF planning requirements:

- No Action – Fails to meet performance and reliability needs,
- Optimize the Existing System – Cannot resolve hydraulic and structural deficiencies inherent to the station,
- Alternative 1 – Constructing a parallel station while retaining the existing, which introduces long-term O&M duplication,
- Alternative 2 – Full replacement of the sanitary pump station requiring deep open-cut interconnections through East Jefferson Avenue, and
- Alternative 3 – Constructing a single facility consolidating both storm and sanitary pump stations, requiring large trench-style wet wells and major interconnections in East Jefferson Avenue, resulting in extensive excavation, significant traffic disruption, and substantially higher construction complexity and cost.

The selected project is a modified Alternative 2 but eliminates the need for deep open-cut construction across East Jefferson Avenue. The selected alternative constructs a new sanitary pump station on GLWA-owned parcels at 12400 East Jefferson Avenue and 1001 Clairpointe Avenue. Unlike the original Alternative 2, which required interconnection of the East and West Jefferson Relief Sewers via deep (~60-ft) open-cut construction in East Jefferson Avenue, the selected alternative avoids this disruption by connecting the new facility directly to the existing on-site Intake Well via a single 8-ft diameter influent pipe and a single discharge to the 9-ft Detroit River Interceptor (DRI). This approach significantly reduces construction complexity, cost, community disruption, and the multi-agency permitting burden associated with long-duration lane closures on a major thoroughfare (East Jefferson Ave.).

The new sanitary pump station will provide a firm capacity of 160 MGD (240 MGD installed) using six horizontal dry-pit submersible pumps configured as N+2 redundancy. This configuration provides two standby units for maintenance rotation, ensures stable pumping during high-intensity storms, and distributes run time evenly across all pumps to extend asset life. Dual, fully isolatable trench-style wet wells—designed in accordance with modern hydraulic best practices—improve intake conditions, promote self-cleaning, and facilitate safe maintenance access. The facility also incorporates a modern 114-ft internal-diameter substructure extending approximately 75 feet below grade, with an above-grade building footprint of approximately 8,100 square feet. Standby electrical power is provided through the existing generator system at the adjacent Conner Creek Storm Water Pump Station, eliminating the need for new on-site generators while maintaining full operational reliability.

The Project Plan incorporates water- and energy-efficiency measures that reduce operational costs and environmental impacts. As an unmanned facility, the building uses low-flow flow fixtures, a dedicated water meter for monitoring, and high-efficiency LED lighting throughout the interior and exterior. The 6.26-acre site will undergo substantial stormwater and landscape improvements, including the addition of street trees, perimeter plantings, bioswales, and approximately 1,500 square feet of pervious interlocking concrete pavers. These measures reduce impervious surface area by approximately 1.31 acres, increase infiltration, mitigate runoff, improve water quality, and enhance visual buffering for the surrounding community.

Conner Creek Sanitary Pump Station Replacement State Revolving Fund Project Plan

The estimated capital cost of the selected alternative is \$190 million, including engineering, construction, construction administration and RPR services. Financing is anticipated through the State Revolving Fund (SRF) at an estimated 2.5% interest rate over 20 years. The annualized cost is approximately \$12.19 million, resulting in an estimated household impact of \$10.53 per year across GLWA's regional service area. A multi-phase construction approach will maintain sanitary conveyance and storm operations throughout the project, with major milestones including 100% design (March 2026), construction Notice to Proceed (December 2026), construction start (May 2027), substantial completion (November 2030), and final completion (February 2031).

GLWA has coordinated extensively with the City of Detroit, member communities, and public stakeholders through community engagement meetings, public notices, and a formal public hearing held on April 22, 2026 (INSERT SUMMARY OF PUBLIC COMMENTS RECEIVED). With GLWA Board approval and adoption of the Project Plan, the authority is positioned to proceed with SRF submittal and project implementation.

In summary, the Conner Creek Sanitary Pump Station Replacement Project provides a resilient, future-ready solution that restores reliable, long-term sanitary conveyance for the GLWA eastside system while directly addressing the hydraulic, structural, and operational deficiencies of the 1956 facility. The new station delivers modern pumping capacity with N+2 redundancy, dual isolatable trench-style wet wells, and improved intake hydraulics that stabilize performance during both dry-weather flow conditions and extended post-storm dewatering events, significantly reducing the risk of surcharging, backups, and emergency bypasses. By selecting the modified Alternative 2 configuration, connecting to the existing Intake Well via a single 8-ft influent pipe and discharging through a single connection to the 9-ft DRI, the project achieves the benefits of complete station replacement while avoiding the deep, large-diameter open-cut interconnections under East Jefferson Avenue, thereby minimizing construction risk, traffic disruption, utility conflicts, permitting complexity, and construction cost.

The design incorporates sustainability, water and energy efficiency measures, and green-infrastructure enhancements, including bioswales, street trees, perimeter landscaping, and pervious pavers. This project will reduce impervious areas by approximately 1.31 acres, improve infiltration, enhance water quality, and strengthen the site's environmental and community value. Supported by SRF financing, a transparent community engagement process, and a phased construction plan that maintains continuous sanitary service, the project represents a cost-effective, community-focused investment that improves public health protection, reduces long-term environmental risk, enhances system resilience, and ensures reliable performance for decades to come.

1 Background

1.1 Study and Service Areas

The study area for this Project Plan includes the portion of the GLWA eastside wastewater collection system that contributes flow to, or is hydraulically influenced by, the Conner Creek Sanitary Pump Station (PS). Principal features include the 14-ft diameter East Jefferson Relief Sewer east and west arms, the Fox Creek Enclosure and associated 16-ft diameter relief sewers (e.g., Mack Avenue, Ashland), and the hydraulic interfaces with the Bluehill and Freud pump stations. Downstream conveyance from Conner Creek Sanitary PS is to the 9-ft diameter Detroit River Interceptor (DRI) and then to Fairview PS and ultimately to the Detroit Water Resource Recovery Facility (WRRF). The service area for the proposed improvements is the tributary system conveyed through Conner Creek Sanitary PS under both dry-weather operations and multi-day post-storm dewatering conditions.

1.2 Existing System Context

The Conner Creek Sanitary Pump Station provides a firm capacity of approximately 145 MGD and experiences high runtimes and heavy usage, particularly during system dewatering when flows can rise to approximately 148 MGD. Average dry-weather flows are around 53 MGD. This operational range underscores the critical function of Conner Creek PS within the broader GLWA system. Combined sewage is conveyed to the pump station via two (2) 14-ft diameter East Jefferson Relief Sewers. Diversion weirs redirect low flow via 5-ft diameter sewers on each end of the wet well. Conner Sanitary Pump Station handles the low flow while the Conner Storm Pump Station conveys up to 2,226 MGD to the Conner Creek CSO Treatment Facility. See Figure 1 for the existing pump station site.

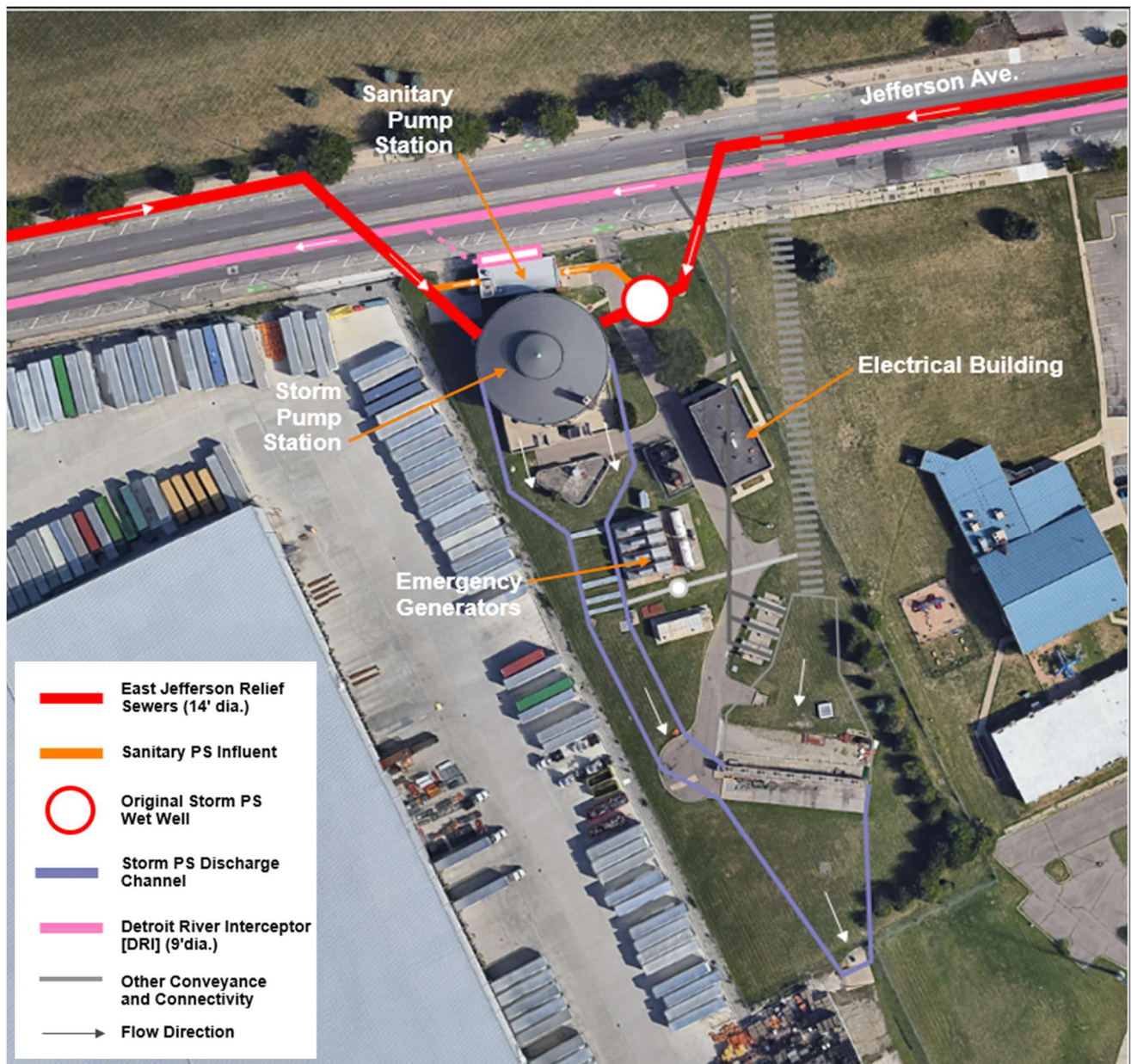


Figure 1: Existing Facility

1.3 Existing Facility Deficiencies

The existing pump sanitary station suffers from extreme turbulence and air entrainment due to small wet well and influent flow path design issues. The 5-ft diameter pipes entering the manholes on each side of the wet well are significantly higher than the pipes entering the wet well resulting in free-falling conditions that entrain significant amounts of air in the flow regime. These hydraulic conditions cause reduced pump efficiency and increased wear on the four (4) existing pumps. The facility also lacks proper pump suction isolation; retrofitted knife gates are installed horizontally in the dry well, complicating maintenance and limiting access. Basket strainers with 12-inch openings were added in the drop manholes on each side of the wet well to protect the pumps from large debris. However, these have proven to be problematic as the baskets have blinded at times. The pumps are not equipped with check valves or discharge isolation valves making

Conner Creek Sanitary Pump Station Replacement State Revolving Fund Project Plan

maintenance and pump removal/reinstallation more challenging. These deficiencies result in reliability and operational challenges.

1.4 Population

The GLWA currently provides wholesale water services to eight southeast Michigan communities including Grosse Pointe, Grosse Pointe Park, Grosse Pointe Farms, Grosse Pointe Woods, Harper Woods, Eastpointe, Roseville, and St. Clair Shores. The existing population served is approximately 263,400.

The existing population served as depicted in Figure 2 (provided by EGLE), is approximately 234,953

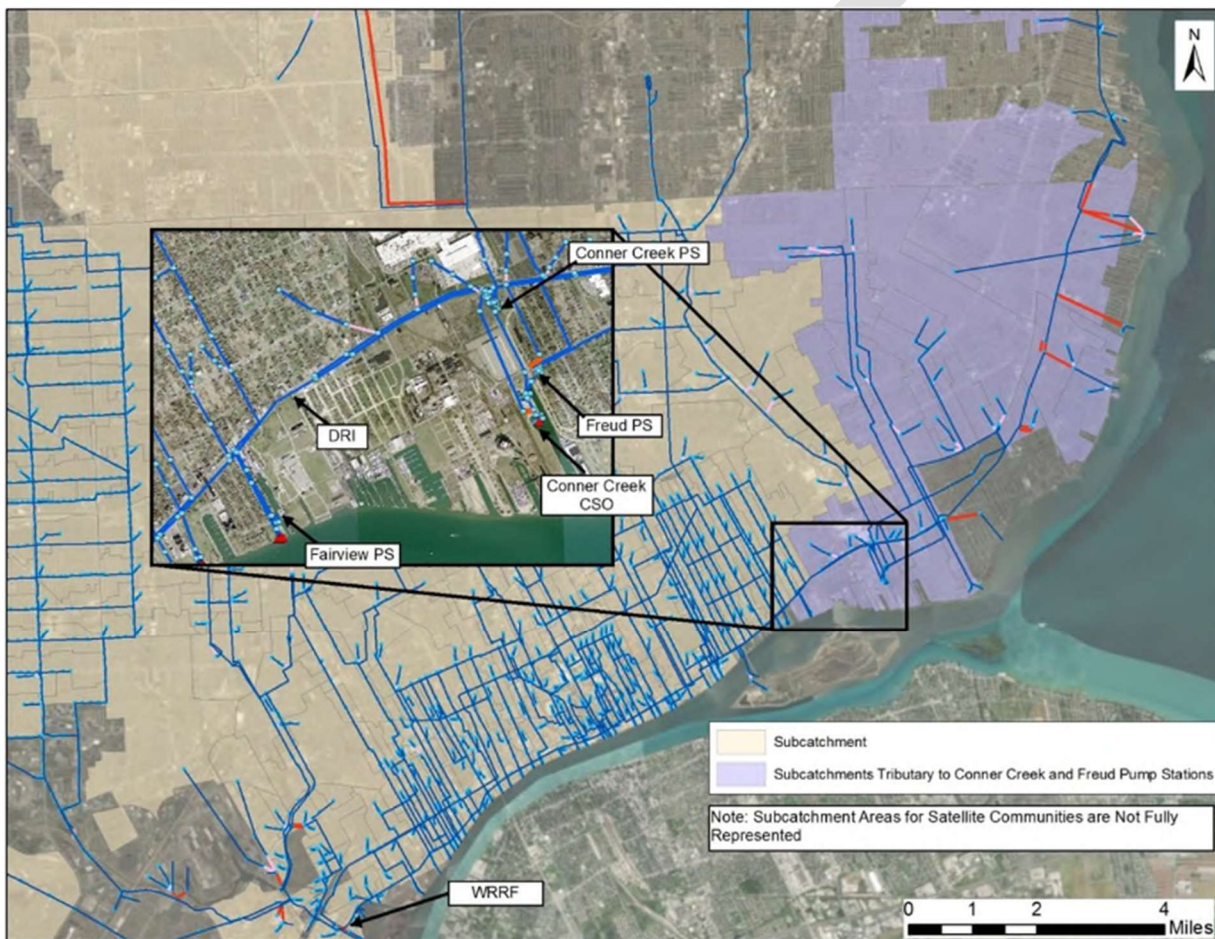


Figure 2: Population Served

- A. The current and future population to be served by the proposed project.

The served population is approximately 234,953 people. The serviced population will remain the same in the future. The population is highly based around residential use.

- B. Population projections for the study area for the next 5, 10, and 20 years.

Conner Creek Sanitary Pump Station Replacement
State Revolving Fund Project Plan

GLWA has performed calculated population projections for the study area through 2060 in the Wastewater Master Plan (Table 1).

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Conner Creek Sanitary Pump Station Replacement
State Revolving Fund Project Plan

Table 1: Population Projections for the Study Area

First and Second Tier Member	Population Type	Existing 2018	Projection								
		2018	2020	2025	2030	2035	2040	2045	2050	2055	2060
Allen Park	Total	28,804	26,971	26,493	26,386	26,517	26,881	27,045	26,263	26,082	25,901
	GLWA	2,650	2,465	2,437	2,428	2,440	2,473	2,488	2,503	2,518	2,533
	Member Comments:	No Comments Provided									
Center Line	Total & GLWA	9,046	8,983	9,000	9,032	9,066	9,100	9,114	9,121	9,139	9,156
	Member Comments:	No Significant Changes Projected									
Dearborn	Total	101,785	101,185	100,886	101,248	101,938	102,644	103,684	104,724	105,764	106,804
	GLWA	92,624	92,078	91,806	92,136	92,764	93,406	94,352	95,299	96,245	97,192
	Member Comments:	Based on 7/10/18 Meeting: "Use Higher of the two Projections for the 2050 to 2060 time period"									
Detroit	Total & GLWA	657,119	638,140	631,668	640,533	657,136	675,608	694,812	714,016	733,220	752,424
	Member Comments:										
Farmington	Total	10,220	10,402	10,420	10,471	10,589	10,764	10,795	10,826	10,857	10,888
	GLWA	8,730	8,886	8,901	8,945	9,045	9,195	9,221	9,248	9,274	9,301
	Member Comments:	2015 - 2030: In fill and redevelopment					2035 - 2060: No predicted in fill or redevelopment				
Grosse Pointe	Total & GLWA	5,326	5,274	5,249	5,257	5,192	5,179	5,194	5,147	5,124	5,101
	Member Comments:	Survey was not Received									
Grosse Pointe Farms	Total & GLWA	9,476	9,248	9,058	9,031	9,112	9,062	9,111	8,955	8,905	8,854
	Member Comments:	No Comments Provided									
Grosse Pointe Park	Total & GLWA	11,555	12,183	12,095	12,024	12,017	12,094	12,201	12,308	12,415	12,522
	Member Comments:	2015 time Period: "fully developed land, estimated from 2010"									
Hamtramck	Total & GLWA	22,902	23,463	22,879	23,038	23,135	23,186	23,349	23,512	23,675	23,838
	Member Comments:	2025 time period: Wayne County Jail might close									
Highland Park	Total & GLWA	11,398	11,512	11,628	11,745	11,862	11,981	12,102	12,223	12,346	12,470
	Member Comments:	2020 through 2060: Projecting Conservative 0.2% growth due to redevelopment									
Melvindale	Total & GLWA	10,160	9,826	9,543	9,584	9,710	9,772	9,830	9,888	9,946	10,004
	Member Comments:	Not Provided									

Conner Creek Sanitary Pump Station Replacement
State Revolving Fund Project Plan

First and Second Tier Member		Population Type	Existing 2018	Projection								
Evergreen Farmington Sewerage Disposal System (EFDS)	Auburn Hills	Total	24,732	26,081	27,123	27,294	27,524	27,838	28,084	28,330	28,576	28,822
		GLWA	1,270	1,339	1,392	1,401	1,413	1,429	1,442	1,454	1,467	1,479
		Member Comments:	No Comments Provided									
	Beverly Hills	Total	10,320	10,121	9,960	9,949	9,949	9,959	10,029	10,099	10,169	10,239
		GLWA	8,812	8,642	8,505	8,495	8,495	8,504	8,564	8,623	8,683	8,743
		Member Comments:	No Comments Provided									
	Bingham Farms Bloomfield Hills	Total & GLWA	1,049	1,026	1,028	1,013	1,041	1,069	1,080	1,080	1,080	1,080
		Member Comments:	No Comments Provided									
		Total & GLWA	4,091	4,037	4,015	4,036	4,082	4,189	4,266	4,343	4,420	4,497
	Bloomfield Township	Member Comments:	No Comments Provided									
		Total & GLWA	41,364	41,192	41,340	41,212	41,446	41,917	42,188	42,459	42,730	43,001
		Member Comments:	No Comments Provided									
	Birmingham	Total	20,516	21,162	21,525	21,732	22,000	22,261	22,251	22,241	22,231	22,221
		GLWA	14,715	15,178	15,439	15,587	15,779	15,967	15,959	16,325	16,527	16,728
		Member Comments:	Redevelopment 2050-2060									
	Farmington	Total	10,220	10,402	10,420	10,471	10,589	10,764	10,795	10,826	10,857	10,888
		GLWA	1,490	1,516	1,519	1,526	1,544	1,569	1,574	1,578	1,583	1,587
		Member Comments:	No Comments Provided									
	Farmington Hills	Total & GLWA	80,033	80,442	81,290	82,283	83,452	84,448	85,200	85,200	85,200	85,200
		Member Comments:	No Comments Provided									
Franklin Village	Total & GLWA	3,009	2,904	2,889	2,873	2,849	2,925	2,972	3,100	3,200	3,300	
	Member Comments:	No Comments Provided										
Keego Harbor	Total & GLWA	3,039	3,094	3,069	3,078	3,116	3,092	3,148	3,204	3,260	3,316	
	Member Comments:	No Comments Provided										
Lathrup Village	Total & GLWA	3,982	3,949	3,881	3,850	3,852	3,887	3,803	3,719	3,635	3,551	
	Member Comments:	No Comments Provided										
Orchard Lake Village	Total & GLWA	2,353	2,228	2,235	2,231	2,300	2,269	2,263	2,263	2,263	2,263	
	Member Comments:	No Comments Provided										
Southfield	Total	77,859	81,229	81,895	82,092	82,606	83,000	83,816	84,632	85,448	86,264	
	GLWA	70,603	73,659	74,263	74,441	74,907	75,265	76,005	76,745	77,484	78,224	
	Member Comments:	No Comments Provided										
Troy	Total	85,299	84,164	83,561	83,409	83,586	83,880	83,911	83,942	83,973	84,004	
	GLWA	15,235	15,032	14,925	14,897	14,929	14,982	14,987	14,993	14,998	15,004	
	Member Comments:	No Comments Provided										
West Bloomfield Township	Total	65,847	66,660	65,992	66,953	68,631	69,763	69,854	69,945	70,036	70,127	
	GLWA	44,906	45,461	45,005	45,661	46,805	47,577	47,639	47,701	47,763	47,825	
	Member Comments:	No Comments Provided										

Conner Creek Sanitary Pump Station Replacement
State Revolving Fund Project Plan

First and Second Tier Member		Population Type	Existing 2018	32,706								
Southeast Macomb Sanitary District (SEMISD)	Eastpointe	Total & GLWA	32,706	32,884	31,378	30,555	30,499	30,729	30,843	29,837	29,455	31,185
		Member Comments:	No Comments Provided									
	Roseville	Total & GLWA	47,892	47,525	47,304	46,850	46,697	46,924	46,995	46,527	46,366	46,205
		Member Comments:	No Comments Provided									
	St. Clair Shores	Total & GLWA	60,208	60,986	61,936	62,734	62,595	63,308	63,276	63,244	63,212	63,180
		Member Comments:	No Comments Provided									
	Harper Woods	Total	15,108	14,598	14,387	14,368	14,400	14,602	14,682	14,762	14,842	14,922
		GLWA	14,100	13,624	13,427	13,410	13,439	13,628	13,703	13,777	13,852	13,927
		Member Comments:	No Comments Provided									
	Grosse Pointe Shores	Total & GLWA	2,532	2,447	2,409	2,440	2,499	2,539	2,555	2,571	2,587	2,603
		Member Comments:	No Comments Provided									
	Grosse Pointe Woods	Total & GLWA	15,721	15,262	15,132	15,004	14,948	14,870	15,077	14,731	14,627	14,523
Member Comments:		No Comments Provided										
Oakland Macomb Interceptor Drain Drainage District Malcomb Interceptor Drain Drainage District (OMIDD-MIDD)	Chesterfield Township	Total	44,986	48,356	50,892	53,011	54,034	54,674	54,721	54,768	54,815	54,862
		GLWA	42,737	45,938	48,347	50,360	51,332	51,940	51,985	52,030	52,074	52,119
		Member Comments:	No Comments Provided									
	Clinton Township	Total & GLWA	98,523	105,493	108,546	109,376	110,395	111,416	111,937	112,459	112,980	113,501
		Member Comments:	No Comments Provided									
	Fraser	Total & GLWA	14,741	15,001	15,009	15,017	15,025	15,033	15,049	15,065	15,081	15,097
		Member Comments:	No Comments Provided									
	Harrison Township	Total	25,702	26,623	26,765	26,907	27,509	28,111	29,074	30,037	31,000	31,963
		GLWA	23,623	24,544	24,686	26,907	27,509	28,111	29,074	30,037	31,000	31,963
		Member Comments:	No Comments Provided									
	Lenox Township	Total & GLWA:	5,463	5,522	5,913	6,647	7,258	7,359	7,322	8,011	8,390	8,768
		Member Comments:	No Comments Provided									
	Macomb Township	Total	88,223	90,124	93,733	96,320	98,779	98,779	97,427	101,908	103,692	105,477
		GLWA	80,000	83,000	87,200	90,100	92,900	94,850	95,000	99,636	102,293	104,950
		Member Comments:	No Comments Provided									
	New Haven	Total & GLWA	4,966	5,044	4,895	4,867	4,884	4,841	4,692	4,707	4,663	4,619
		Member Comments:	No Comments Provided									
	Shelby Township	Total	73,647	78,129	81,801	82,566	83,237	83,228	83,354	83,480	83,606	83,732
		GLWA	41,629	44,498	47,880	48,601	48,998	48,992	49,066	49,140	49,214	49,288
		Member Comments:	No Comments Provided									
	Sterling Heights	Total & GLWA	133,847	134,714	136,619	138,617	139,504	140,123	141,021	141,919	142,817	143,715
		Member Comments:	No Comments Provided									
	Utica	Total	4,565	4,883	5,133	5,205	5,278	5,188	5,290	5,392	5,494	5,596
		GLWA	4,815	5,133	5,383	5,455	5,528	5,438	5,540	5,642	5,744	5,846
Member Comments:		No Comments Provided										
Washington Township	Total	26,447	30,460	31,694	35,119	36,969	37,314	37,227	40,936	42,769	44,602	
	GLWA	19,347	22,283	23,085	25,312	26,515	26,740	26,683	29,188	30,415	31,642	
	Member Comments:	No Comments Provided										

Conner Creek Sanitary Pump Station Replacement
State Revolving Fund Project Plan

First and Second Tier Member	Population Type	Existing 2018	Projection									
Oakland Macomb Interceptor Drain Drainage District Clinton-Oakland Sewage Disposal District (OMID- COSDOS)	Auburn Hills	Total	24,732	26,081	27,123	27,294	27,524	27,838	28,084	28,330	28,576	28,822
		GLWA	23,463	24,743	25,731	25,893	26,111	26,409	26,643	26,876	27,109	27,343
		Member Comments:	No Comments Provided									
	Clarkston Village	Total & GLWA	876	847	871	875	909	911	919	927	935	943
		Member Comments:	No Comments Provided									
		Total	35,074	36,918	37,471	38,298	39,174	39,782	39,922	40,062	40,202	40,342
	Independence Township	GLWA	17,823	18,760	19,041	19,461	19,907	20,216	20,287	20,358	20,429	20,500
		Member Comments:	No Comments Provided									
		Total	300	301	304	295	295	285	290	295	300	305
	Lake Angelus	GLWA	0	0	0	0	0	0	0	0	0	300
		Member Comments:	No Comments Provided									
		Total	2,830	3,044	3,086	3,130	3,203	3,236	3,295	3,354	3,413	3,472
Lake Orion Village	GLWA	2,491	2,680	2,717	2,755	2,820	2,849	2,901	2,900	2,900	2,900	
	Member Comments:	No Comments Provided										
	Total	18,176	21,032	21,822	23,887	24,858	26,004	25,924	25,844	25,764	25,684	
Oakland Charter Township	GLWA	9,083	10,510	10,905	11,937	12,422	12,995	12,955	12,915	12,875	12,835	
	Member Comments:	No Comments Provided										
	Total	35,287	34,815	34,925	35,409	36,570	37,269	37,032	36,795	36,558	36,321	
Orion Township	GLWA	32,950	32,509	32,612	33,064	34,148	34,801	34,580	34,358	34,137	33,916	
	Member Comments:	No Comments Provided										
	Total	3,077	2,837	2,885	2,941	2,953	2,943	2,890	2,837	2,784	2,731	
Oxford Village	GLWA	2,554	2,355	2,395	2,441	2,451	2,443	2,399	2,401	2,500	2,600	
	Member Comments:	No Comments Provided										
	Total	16,772	17,720	17,640	18,761	18,976	19,409	19,449	19,489	19,529	19,569	
Oxford Township	GLWA	8,076	8,532	8,494	9,033	9,137	9,345	9,365	9,384	9,403	9,422	
	Member Comments:	No Comments Provided										
	Total & GLWA	13,181	14,164	14,424	14,423	14,454	14,584	14,657	15,026	15,216	15,405	
Rochester	Member Comments:	No Comments Provided										
	Total	73,706	75,288	76,940	77,382	78,711	79,399	79,709	80,019	80,329	80,639	
	GLWA	69,904	71,404	72,971	73,390	74,651	75,303	75,597	75,891	76,185	76,479	
Rochester Hills	Member Comments:	No Comments Provided										
	Total	74,656	72,080	72,389	72,729	73,020	73,539	74,059	74,579	75,099	75,619	
	GLWA	74,656	72,080	72,389	72,729	73,020	73,539	74,000	74,000	74,000	74,000	
Waterford Township	Member Comments:	No Comments Provided										
	Total	65,847	66,660	65,992	66,953	68,631	69,763	69,854	69,945	70,036	70,127	
	GLWA	20,941	21,199	20,987	21,292	21,826	22,186	22,215	22,244	22,273	22,302	
West Bloomfield Township	Member Comments:	No Comments Provided										

Conner Creek Sanitary Pump Station Replacement
State Revolving Fund Project Plan

First and Second Tier Member		Population Type	Existing 2018	Projection								
Rouge Valley (RVDS)	Canton Township	Total	92,521	99,462	101,086	106,261	110,226	112,102	114,119	116,136	118,153	120,170
		GLWA	3,945	4,241	4,310	4,531	4,700	4,780	4,866	4,952	5,038	5,124
		Member Comments:	Survey was not Received									
	Dearborn Heights	Total	59,371	61,070	60,865	61,472	62,132	62,246	62,542	62,838	63,134	63,430
		GLWA	39,790	40,929	40,792	41,198	41,641	41,717	41,916	42,114	42,312	42,511
		Member Comments:	Survey was not Received									
	Garden City	Total & GLWA	26,994	26,058	26,049	26,394	26,555	26,647	26,764	26,881	26,998	27,115
		Member Comments:	Survey was not Received									
	Inkster	Total	25,760	25,385	24,808	24,366	24,259	24,263	24,420	24,577	24,734	24,891
		GLWA	25,631	25,258	24,684	24,244	24,138	24,142	24,298	24,454	24,610	24,766
		Member Comments:	Survey was not Received									
	Livonia	Total & GLWA	94,159	92,342	91,997	92,415	92,923	93,665	94,228	94,791	95,354	95,917
		Member Comments:	Survey was not Received									
	Northville	Total	5,828	5,765	5,798	5,888	6,005	6,113	6,183	6,253	6,323	6,393
		GLWA	5,657	5,596	5,628	5,715	5,829	5,934	6,002	6,070	6,138	6,206
		Member Comments:	Survey was not Received									
	Northville Township	Total	30,306	33,921	34,771	35,292	36,157	36,282	36,886	37,490	38,094	38,698
		GLWA	171	191	196	199	204	205	208	212	215	218
		Member Comments:	Survey was not Received									
	Novi	Total & GLWA	60,458	63,966	64,801	65,638	66,609	67,061	67,417	67,773	68,129	68,485
GLWA		54,026	57,161	57,907	58,655	59,523	59,927	60,245	60,563	60,881	61,199	
Member Comments:		Survey was not Received										
Plymouth	Total & GLWA	8,872	9,090	9,341	9,468	9,534	9,592	9,786	9,980	10,174	10,368	
	Member Comments:	Survey was not Received										
Plymouth Township	Total	27,440	28,843	29,130	29,622	30,121	30,598	30,649	30,700	30,751	30,802	
	GLWA	1,105	1,161	1,173	1,192	1,213	1,232	1,234	1,236	1,238	1,240	
	Member Comments:	Survey was not Received										
Redford	Total	47,880	45,349	44,719	44,758	44,772	45,064	45,277	45,490	45,703	45,916	
	GLWA	46,571	44,109	43,497	43,535	43,548	43,832	44,039	44,247	44,454	44,661	
	Member Comments:	Survey was not Received										
Romulus	Total	24,010	23,918	24,425	24,706	24,836	25,818	26,330	26,842	27,354	27,866	
	GLWA	2,364	2,355	2,405	2,433	2,445	2,542	2,592	2,643	2,693	2,744	
	Member Comments:	Survey was not Received										
Van Buren Township	Total	29,274	30,773	31,898	33,163	34,064	35,398	35,966	36,534	37,102	37,670	
	GLWA	7,047	7,408	7,679	7,983	8,200	8,521	8,658	8,795	8,931	9,068	
	Member Comments:	Survey was not Received										
Wayne	Total & GLWA	17,010	16,189	15,867	15,995	15,737	15,810	15,910	16,010	16,110	16,210	
	Member Comments:	Survey was not Received										
Westland	Total & GLWA	83,452	83,455	83,475	83,405	83,841	84,462	85,427	86,392	87,357	88,322	
	Member Comments:	Survey was not Received										

Conner Creek Sanitary Pump Station Replacement
State Revolving Fund Project Plan

First and Second Tier Member		Population Type	Existing 2018	Projection								
S.E. Oakland (GWK)	Berkley	Total & GLWA	15,166	14,592	14,807	14,889	14,997	14,913	14,964	15,015	15,066	15,117
		Member Comments:	No Comments Provided									
	Beverly Hills	Total	10,320	10,121	9,960	9,949	9,949	9,959	10,029	10,099	10,169	10,239
		GLWA	1,508	1,479	1,455	1,454	1,454	1,455	1,465	1,476	1,486	1,496
		Member Comments:	No Comments Provided									
	Birmingham	Total	20,516	21,162	21,525	21,732	22,000	22,261	22,251	22,241	22,231	22,221
		GLWA	5,801	5,984	6,086	6,145	6,221	6,294	6,292	6,436	6,515	6,595
		Member Comments:	No Comments Provided									
	Clawson	Total & GLWA	11,661	11,494	11,674	11,647	11,736	11,834	11,935	12,036	12,137	12,238
		Member Comments:	No Comments Provided									
	Ferndale	Total & GLWA	20,428	20,173	20,635	20,793	20,942	21,164	21,069	20,974	20,879	20,784
		Member Comments:	No Comments Provided									
	Hazel Park	Total & GLWA	16,016	14,886	14,817	14,604	14,532	14,550	14,448	14,500	14,500	14,500
		Member Comments:	No Comments Provided									
	Huntington Woods	Total & GLWA	6,230	6,247	6,246	6,222	6,267	6,257	6,247	6,237	6,227	6,217
		Member Comments:	No Comments Provided									
	Madison Heights	Total & GLWA	30,749	29,275	29,614	29,520	29,456	29,672	29,757	29,800	29,800	29,800
		Member Comments:	No Comments Provided									
	Oak Park	Total & GLWA	30,837	30,186	29,919	29,539	29,380	29,291	29,129	28,967	28,805	28,643
		Member Comments:	No Comments Provided									
Pleasant Ridge	Total & GLWA	2,489	2,395	2,447	2,462	2,468	2,449	2,518	2,600	2,650	2,775	
	Member Comments:	No Comments Provided										
Royal Oak	Total & GLWA	59,510	59,930	60,556	60,838	60,665	61,112	61,612	62,000	62,000	62,000	
	Member Comments:	No Comments Provided										
Royal Oak Township	Total & GLWA	2,378	2,449	2,407	2,368	2,333	2,343	2,313	2,283	2,253	2,223	
	Member Comments:	No Comments Provided										
Southfield	Total	77,859	81,229	81,895	82,092	82,606	83,000	83,816	84,632	85,448	86,264	
	GLWA	7,256	7,570	7,632	7,651	7,699	7,735	7,811	7,887	7,964	8,040	
	Member Comments:	No Comments Provided										
Troy	Total	85,299	84,164	83,561	83,409	83,586	83,880	83,911	83,942	83,973	84,004	
	GLWA	70,064	69,132	68,636	68,512	68,657	68,898	68,924	68,949	68,975	69,000	
	Member Comments:	No Comments Provided										
Summation	Total	3,109,514	3,130,187	3,147,597	3,186,284	3,231,476	3,272,637	3,305,482	3,345,047	3,380,862	3,418,865	
	GLWA	2,752,672	2,756,773	2,769,676	2,799,893	2,836,706	2,873,542	2,903,855	2,939,306	2,971,592	3,006,367	

1.5 Existing Environment Evaluation

1.5.1 Historical and Archaeological Sites

An archaeological literature review and assessment, and an above-ground historic resource literature review for the Conner Creek Sanitary Pump Station Replacement Project were completed by the 106 Group (St. Paul, Minnesota). The literature review and assessment reports have been included as Appendix A (Archaeological Literature Review and Assessment for the Conner Creek Sanitary Pump Station Replacement Project), and Appendix B (Above-Ground Resources Literature Review for the Conner Creek Sanitary Pump Station Replacement Project).

1.5.2 Air Quality

Current air quality conditions in the Detroit Michigan area are generally classified within the Good to Moderate range under typical weather patterns, with real-time Air Quality Index (AQI) values frequently observed between AQI 20–60. Recent monitoring showed AQI \approx 29 (Good) with ozone as the primary monitored pollutant at the time of measurement (Refs: AirNow/Detroit current conditions).

Short-duration particulate matter (PM_{2.5}) episodes do occur during stagnant winter atmospheric conditions. For example, on February 16, 2026, Southeast Michigan experienced an AQI of \approx 153 (Unhealthy) driven by PM_{2.5} under a strong surface inversion, prompting an EGLE air quality advisory; conditions improved later that day as the front passed. [Refs: EGLE MiAir advisory/analysis].

Long-term trends for the Detroit area indicate continued improvement. EPA/EGLE reporting notes pollutant concentrations have declined over the last two decades, and the city's recent annual PM_{2.5} concentration has been reported near 8–9 $\mu\text{g}/\text{m}^3$ (AQI \approx 47 – Good), (Refs: EPA AirData; EGLE/EPA Detroit Air Quality Report 2024).

The proposed project is not expected to adversely affect long-term air quality. Construction may cause temporary, localized dust and diesel emissions (TERS installation, excavation, traffic), which will be mitigated using dust suppression, equipment idling limits, erosion/sediment controls, and proper handling of spoils. Operation of the completed facility does not include any new permanent industrial air emission sources beyond routine building HVAC and typical utility use; no long-term air quality impacts are anticipated.

1.5.3 Wetlands

This section is not applicable to the proposed project.

1.5.4 Great Lakes Shorelands, Coastal Zones, and Coastal Management Areas

This section is not applicable to the proposed project.

1.5.5 Floodplains

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), Map Number 26163C0302F, effective October 21, 2021 (Appendix C), confirms that the Conner Creek Sanitary Pump Station (PS) site is located outside the Special Flood Hazard Area (SFHA). The project site lies within Zone X (unshaded), indicating areas determined to be outside the 1% annual chance (100-year) and 0.2% annual chance (500-year) floodplains. Nearby shoreline and marina basins to the south and east are mapped as Zone AE; however, these areas do not overlap the project footprint. No construction activities are proposed within or adjacent to the mapped floodplain. Based on FEMA mapping and existing

topography, the proposed project will not impact designated floodplain areas, will not alter floodplain boundaries, and will not require additional floodplain permitting or mitigation measures.

1.5.6 Natural or Wild and Scenic Rivers

This section is not applicable to the proposed project.

1.5.7 Major Surface Waters

This section is not applicable to the proposed project.

1.5.8 Topography

The project site is located within a relatively flat area of the City of Detroit. A topographic survey was completed at the project site by Nederveld (Ann Arbor, Michigan) in 2021 (Appendix D). Based on the surveyed contours shown on the site plan, ground elevations across the pump station parcel generally range from approximately 101.00 feet to 104.00 feet (City of Detroit datum). The terrain exhibits only minor elevation variation, with gentle, uniform slopes that drain toward existing paved and landscaped areas.

The lack of significant grade change indicates that no steep slopes, abrupt elevation breaks, or geotechnically sensitive topographic features are present within the project footprint. As a result, site grading needs for the proposed improvements are expected to be minimal and limited to routine shaping to support building foundations, access drives, and utility installation.

This topographic condition is typical of developed urban parcels along the East Jefferson Avenue corridor and does not pose construction constraints or environmental concerns related to erosion, slope stability, or changes to natural landforms.

1.5.9 Soils and Geology

A geotechnical report of the project area was completed on December 13, 2024 by NTH (Detroit, Michigan). See Appendix E for the Geotechnical Exploration Services, New Sanitary Pump Station – Phased Conner Creek Storm and Sanitary Pump Station Improvements Report.

1.5.10 Agricultural Resources

This section is not applicable to the proposed project.

1.5.11 Fauna and Flora

As many as 50 species of mammals are estimated to inhabit areas within the City of Detroit. Listed as threatened species by the State of Michigan are the least shrew, southern bog lemming, and pine vole. Rare or scarce species include Thompson's pygmy shrew, horny bat, and badger. The evening bat, eastern pipistrelle, and prairie vole are listed as peripheral species.

Surveys conducted by the Audubon Society from 1954 to 1965 recorded a total of 305 species of birds in the Detroit-Windsor area. At least three (3) million waterfowl migrate annually into and through the area.

The Detroit River is an important wintering area for ducks because the United States side of the river rarely freezes due to warm water discharges. An average of 51,000 ducks occupy the river, with counts varying from a high of 155,000 to a low of 21,000. Whistling swans also frequent the area each spring. As many as 18,000 of the birds have been observed at one

time, but the average number is about 10,000. These counts may represent as much as 14 percent of the total population of whistling swans in eastern North America.

Two bird species are designated as endangered in Michigan. They are the Peregrine Falcon (*Falco peregrinus*) and Kirtland's Warbler (*Dendroica kirtlandii*). Only the Peregrine Falcon is known to exist in the Study Area, where it is making a comeback. Six threatened species may also be present in the Study Area. They are Cooper's Hawk (*Accipiter cooperi*, Bonaparte); Redshouldered Hawk (*Buteo lineatus*, Gmelin); Marsh Hawk (*Circus cyaneus*, Linnaeus); Piping Plover (*Charadrius melodia*, Ord); Barn Owl (*Tyto alba*, Scopoli); and Loggerhead Shrike (*Lanius ludovicianus*, Ord).

There are 28 species of reptiles that may be present in the Study Area, none of which is listed as endangered. Threatened reptiles include the Eastern Box Turtle, Kirtland's Water Snake, and the Black Rat Snake. Rare species are the Wood Turtle, Spotted Turtle, Eastern Spiny Softshell Turtle, and the Fivelined Skink.

There are 19 amphibians that may inhabit the Study Area. There are no amphibians considered endangered in Michigan. The Small mouthed Salamander is the only threatened species that is likely to occur in the Study Area. The Four-toed Salamander is a rare species that likely inhabits the Study Area.

This project is not expected to have any negative impact on the species identified.

1.6 Existing System

The Conner Creek PS consists of separate sanitary and storm pumping facilities. The sanitary station conveys EJRS flows toward the DRI which flows to Fairview PS and ultimately to the Detroit WRRF. Conner Sanitary PS currently provides a firm capacity of approximately 145 MGD (with one spare) and routinely experiences high runtimes and heavy usage, particularly during post-storm dewatering, when average daily sanitary conveyance requirements can approach ~148 MGD for multiple days. Average dry-weather flow conveyed at Conner Creek PS is approximately 53 MGD. These operational ranges underscore the station's central role in the eastside collection system (detailed flow tables and operating envelopes are provided in the technical appendix).

Documented Operational/Constructability Constraints. The existing hydraulic configuration, specifically the small wet well and influent approach geometry, produces extreme turbulence and air entrainment at pump suctions, leading to erratic pump performance, reduced efficiency, and increased wear. Additionally, the original station lacked suction-side isolation; subsequently installed knife gate valves are oriented horizontally on the dry-well floor, limiting safe access and complicating maintenance, with longer outages required for pump isolation and pull-out. The existing pumps are not equipped with discharge isolation valves or check valves. These conditions impair reliability, maintainability, and operability during both dry-weather operations and prolonged dewatering events.

Planning Context. Multiple corrective concepts have been reviewed (e.g., wet-well reconfiguration to reduce entrainment, suction header/valving improvements, and staged rehabilitation). Given the magnitude of entrained air, physical constraints within the existing station envelope, and the need to maintain service during multi-day dewatering, the project team determined that construction of a new sanitary pump station provides the most effective long-term solution to meet the 20-year planning horizon. This Project Plan therefore advances a replacement facility that can provide modernized approach hydraulics, true suction isolation and maintainable valve arrangements, dual wet wells, and operational flexibility consistent with the required duty range.

1.7 Need for the Project

1.7.1 Operational Deficiencies Impacting Reliability

The Conner Creek Sanitary Pump Station (PS) is a critical component of the GLWA eastside wastewater collection system, responsible for conveying flows from the East Jefferson Relief Sewer (EJRS) to the Detroit River Interceptor (DRI) and ultimately the Fairview Pump Station (PS). The station must reliably manage flows ranging from approximately 53 MGD

during average dry-weather periods to nearly 148 MGD during multi-day post-storm dewatering. However, existing wet well geometry and influent hydraulics cause extreme turbulence and air entrainment at the pump suctions, resulting in vibration and erratic pump operation, reduced efficiency, cavitation risk, and accelerated mechanical wear. These conditions compromise the station's ability to sustain required firm capacity and increase the likelihood of operational failures during peak demand periods.

1.7.2 Maintainability Limitations and Unsafe Access Conditions

The station was originally constructed without suction-side isolation valves, preventing operators from isolating pumps from the wet well. Knife gates were later added but installed horizontally on the dry-well floor, creating significant access challenges and safety concerns. The existing pumps are not equipped with discharge isolation valves or check valves. Pump removal requires extensive shutdown procedures and increases maintenance duration and cost. High runtime hours during both dry-weather and dewatering operations further strain equipment, resulting in more frequent maintenance interventions. These deficiencies are inconsistent with EGLE expectations for safe and sustainable infrastructure maintenance practices.

1.7.3 Insufficient Operability for the Required Flow Range

The existing hydraulic configuration limits the station's ability to operate effectively across its required flow envelope. Turbulence impairs low-flow operation, while air entrainment and unstable intake conditions reduce the station's reliability under high-flow conditions. During major storm dewatering, when reliable pumping is most critical, these operability constraints pose risks of upstream surcharging, system bottlenecks, and degraded overall performance of the eastside collection system.

1.7.4 Long-Term System Capacity and Compliance Needs

Applied Science, Inc. (Southfield Michigan), completed a detailed flow data analysis on August 31, 2023 (Appendix F), evaluating dry-weather, dewatering, and storage-release operating conditions across the eastside wastewater collection system. The analysis determined that the Conner Creek Sanitary Pump Station must reliably convey approximately 148 MGD under long-term conditions to manage both average flows and multi-day post-storm dewatering demands.

The existing station cannot provide this level of service due to inadequate capacity, wet well turbulence and air entrainment and resulting in pump reliability issues, and pump maintenance limitations. Inability to meet these required capacities increases the risk of upstream surcharging, unpermitted discharges, and non-compliance with Clean Water Act objectives. These performance and regulatory risks clearly demonstrate the need for reinvestment to restore reliable conveyance and protect public health and water quality.

1.7.5 Evaluation of Rehabilitation Alternatives

Multiple rehabilitation options were explored, including wet well modifications, operational changes, suction piping reconfiguration, and isolation valve upgrades. However, the existing station's structural constraints prevent effective correction of turbulence, air entrainment, and maintenance access issues. Because rehabilitation cannot correct the root causes of hydraulic instability or limited maintainability, replacement of the station is the only viable option to ensure long-term performance, resilience, and compliance with EGLE expectations.

GLWA hosted a workshop in September 2022 with industry experts to review and discuss improvement options for the Conner Creek Storm and Sanitary Pump Stations. During this workshop several alternatives were developed and discussed with the recommendation to replace the sanitary pump station. During the summer of 2023, GLWA assembled a team of subject matter experts to review and further develop the sanitary pump station replacement alternatives as well as options to improve the storm water pump station. This was accomplished in a series of six separate workshops. At these

workshops, it was decided to connect to an existing structure on the East Jefferson Relief Sewer at the adjacent Conner Creek Storm Pump Station site instead of new infrastructure in the East Jefferson right-of-way.

1.7.6 Summary of Need for the Project

The Conner Creek Sanitary Pump Station requires full replacement to address its hydraulic, structural, maintenance, and operability limitations. The existing facility cannot reliably provide the required firm capacity, cannot be maintained safely or efficiently, and cannot support modern operational standards. The proposed new facility directly advances the project goals of improving reliability, maintainability, and operability to meet current and future system needs.

1.8 Projected Future Needs

This section summarizes long-term projected needs for the Conner Creek sanitary service area in accordance with EGLE CWSRF guidance. While GLWA publishes a five-year Capital Improvement Plan (CIP), the published CIP and associated planning documents identify multi-phase wastewater pumping investments that extend beyond five years. As referenced in Appendix G, CIP 232002, Conner Creek Pump Station Improvements – is the primary vehicle documenting long-term sanitary pumping needs at the Conner Creek Pump Station. The CIP shows \$146.7M planned during FY26–30 and a further \$147.7M in FY31–35, demonstrating a sustained, multi-year program that aligns with a 20-year CWSRF planning horizon. Related projects and programs (e.g., Freud Pump Station Improvements, CIP 232005; Pump Station Assets Updates, CIP 260702; Conveyance System Infrastructure Improvements, CIP 260701; Conveyance System Engineering Services for the Conner Creek system, CIP 260204) provide additional system context and support to ensure reliable sanitary conveyance over the full planning period.

GLWA’s CIP scoring emphasizes condition, performance/reliability, regulatory compliance, O&M, health and safety, public benefit, financial considerations, and efficiency/innovation. Conner Creek Pump Station Improvements carries a high review-committee score and is listed among the largest wastewater investments, reflecting priority for renewal, redundancy, and risk reduction at a regionally significant sanitary pumping asset.

For residential wastewater flow projections within the Conner Creek tributary area, the plan applies the EGLE guidance default of 70 gallons per capita per day (gpcd) unless a different figure is justified by metered water use or dry-weather sewer flow records. Industrial, commercial, and institutional (ICI) contributions will be documented using available flow records or letters of intent where applicable; projections will reflect realistic economic expectations.

Improvements at Conner Creek are planned and phased to maintain conveyance under increased storm intensity and variable lake/river levels. The programmatic scope, including pumping, electrical, HVAC, controls, and structural rehabilitation improve redundancy and operational flexibility while enabling safe isolation and maintenance of wet-well and appurtenances. Related CSO facility work at Conner Creek (controls, flushing, HVAC) further supports reliable operations that protect public health and receiving waters during extreme conditions.

Referencing Appendix G (GLWA CIP FY26–30), Conner Creek Pump Station Improvements (CIP 232002) and companion programs establish a credible, budgeted pathway for modernizing the Conner Creek sanitary pumping system through and beyond the 20-year planning horizon. This portfolio addresses aging infrastructure, provides redundancy, and supports compliance with current and future regulatory requirements, satisfying the EGLE CWSRF requirement to examine and prioritize needs over the planning period.

2 Analysis of Alternatives

2.1 No Action

This alternative is not feasible for the Conner Creek Sanitary Pump Station because the existing conditions present significant operational deficiencies that directly threaten the reliability of the GLWA eastside wastewater collection system. As documented in Section 1.7.1 (Operational Deficiencies Impacting Reliability), the wet well geometry and influent hydraulics currently create severe turbulence and air entrainment at the pump suction, resulting in erratic pump performance, reduced efficiency, cavitation risks, and accelerated mechanical wear. Leaving the station in its current condition would jeopardize its ability to consistently convey flows ranging from 53 MGD during dry weather to nearly 148 MGD during extended post-storm dewatering events. These deficiencies impair the station's ability to maintain firm capacity and increase the likelihood of mechanical or operational failure during peak flow periods. Because the existing system cannot reliably meet current or future performance needs, nor ensure continued compliance with permitting and service requirements, the No Action alternative does not meet the project objectives and is therefore not a viable option.

Cost Consideration: The No Action alternative does not warrant full monetary evaluation because it fails to meet minimum performance, reliability, and regulatory requirements. While it would avoid initial capital expense, it would lead to escalating operations and maintenance (O&M) costs driven by continued pump damage, reduced efficiency, emergency repairs, and unplanned outages. These recurring and emergency costs would exceed the value of deferred capital investment and do not represent a cost-effective or sustainable long-term solution.

2.2 Optimize Existing System

An evaluation of the Conner Creek Sanitary Pump Station indicates that operational adjustments, additional staffing, or enhanced monitoring alone cannot resolve the core deficiencies limiting the station's performance. While incremental efficiency gains might be achieved through updated operating procedures or improved process controls, these measures do not address the fundamental issues caused by the existing wet well geometry and severe turbulence at the pump intakes. The resulting air entrainment, cavitation risks, and erratic pump operation are driven by physical design constraints—not by operational practices, meaning the system cannot be optimized to reliably convey flows ranging from average dry-weather conditions to extended post-storm dewatering events. Additionally, the age, condition, and declining reliability of the existing equipment limit the effectiveness and longevity of any optimization strategy.

Consequently, no operational or procedural improvements can elevate the existing facility to a level that ensures consistent conveyance of required flows or compliance with current performance and reliability expectations. As documented in Section 1.7.6 (Summary of Need for Project), the existing station cannot provide the required firm capacity, cannot be maintained safely or efficiently, and cannot meet modern operational standards, reinforcing that full replacement is necessary to meet current and future system demands.

Cost Consideration. This alternative would increase annual O&M spending (operator oversight, monitoring, and maintenance interventions), yet such costs cannot correct the design-driven hydraulic deficiencies (turbulence/air entrainment/cavitation). Because additional operating expense would not restore reliable firm capacity or extend useful life in a meaningful way, a full present-worth cost analysis is not warranted. Any calculated costs would be short-term expenditures that do not achieve project objectives.

2.3 Construct a New Sanitary Pump Station Operating in Parallel with the Existing Station – Alternative 1

Under this option, a new sanitary pump station would be constructed on GLWA-owned property east of the existing Conner Creek PS, while the existing 1956 sanitary pump station remains in operation. The new pump station would convey the

majority of dry-weather and dewatering flows originating from the East Reach of the Jefferson Relief Sewer, while the existing station would continue serving the West Reach (Figure 3). This parallel arrangement reduces the existing station’s hydraulic loading and improves pump suction conditions. However, it retains the aging station, the drop shaft air entrainment flow configuration, associated maintenance needs, and operational constraints. A two-station configuration also introduces longer-term staffing, access, and operational complexity.

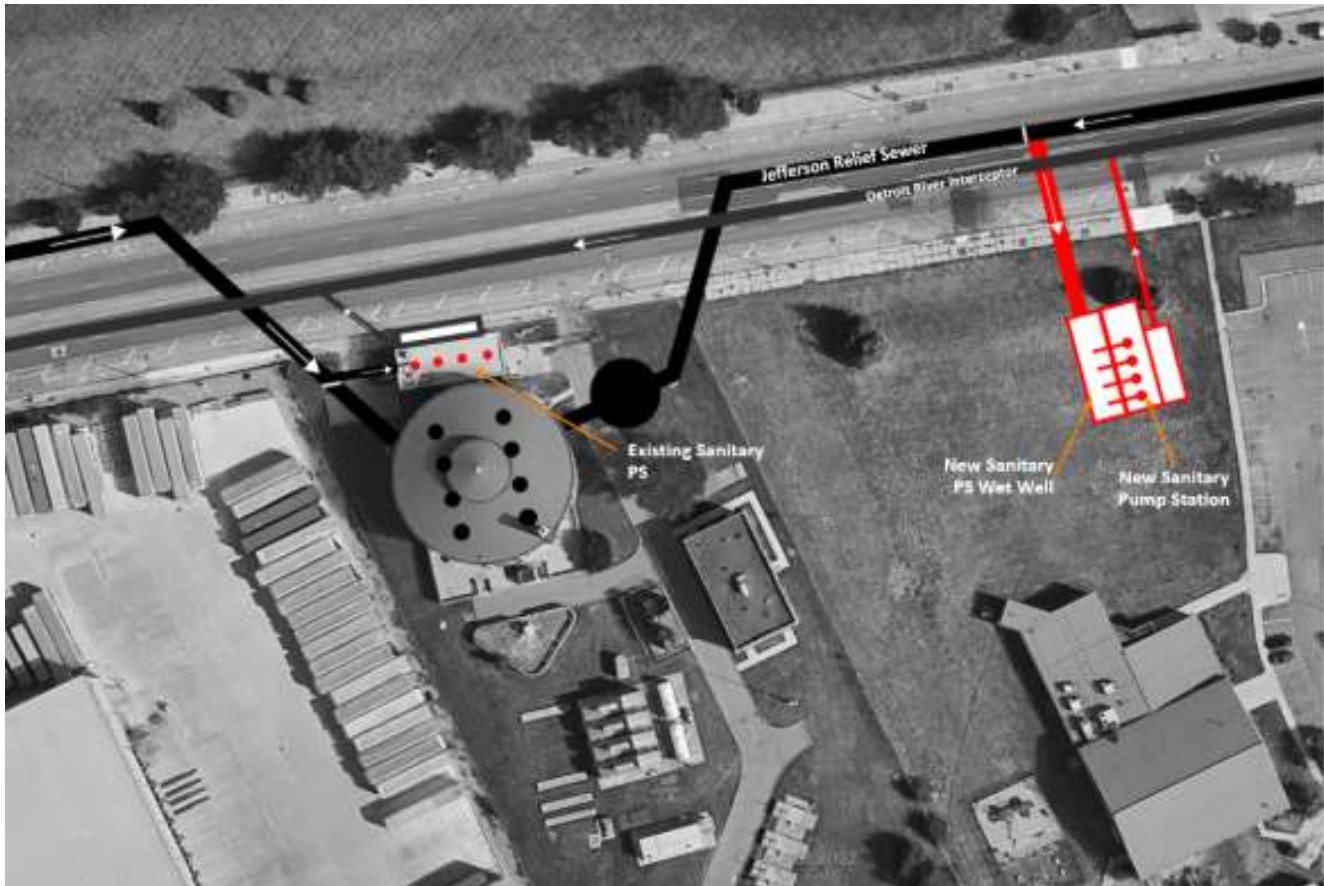


Figure 3: New Sanitary Pump Station Alternative 1

Cost Consideration: Constructing a new sanitary pump station while retaining the existing facility requires ongoing investment in operations, maintenance, and rehabilitation of aging infrastructure. Although the new station would improve overall system reliability, operating and maintaining two stations increases long-term life-cycle costs due to continued renewal needs at the legacy facility and duplication of some operational efforts.

2.4 Construct a New Sanitary Pump Station to Replace the Existing Station – Alternative 2

This option consists of constructing a new sanitary pump station on the adjacent GLWA parcel and fully decommissioning the existing 1956 station. All sanitary flows from both the East and West Reaches of the Jefferson Relief Sewer would be directed to the new facility through a new interconnection (Figure 4). This approach eliminates long-standing hydraulic and operational deficiencies at the existing station—such as turbulence, air entrainment, limited isolation, and constrained maintenance access—and consolidates sanitary pumping into a single modern, maintainable facility with dual isolatable trench-style wet wells and six dry-pit submersible pumps sized for a firm capacity of approximately 160 MGD.

Conner Creek Sanitary Pump Station Replacement
State Revolving Fund Project Plan

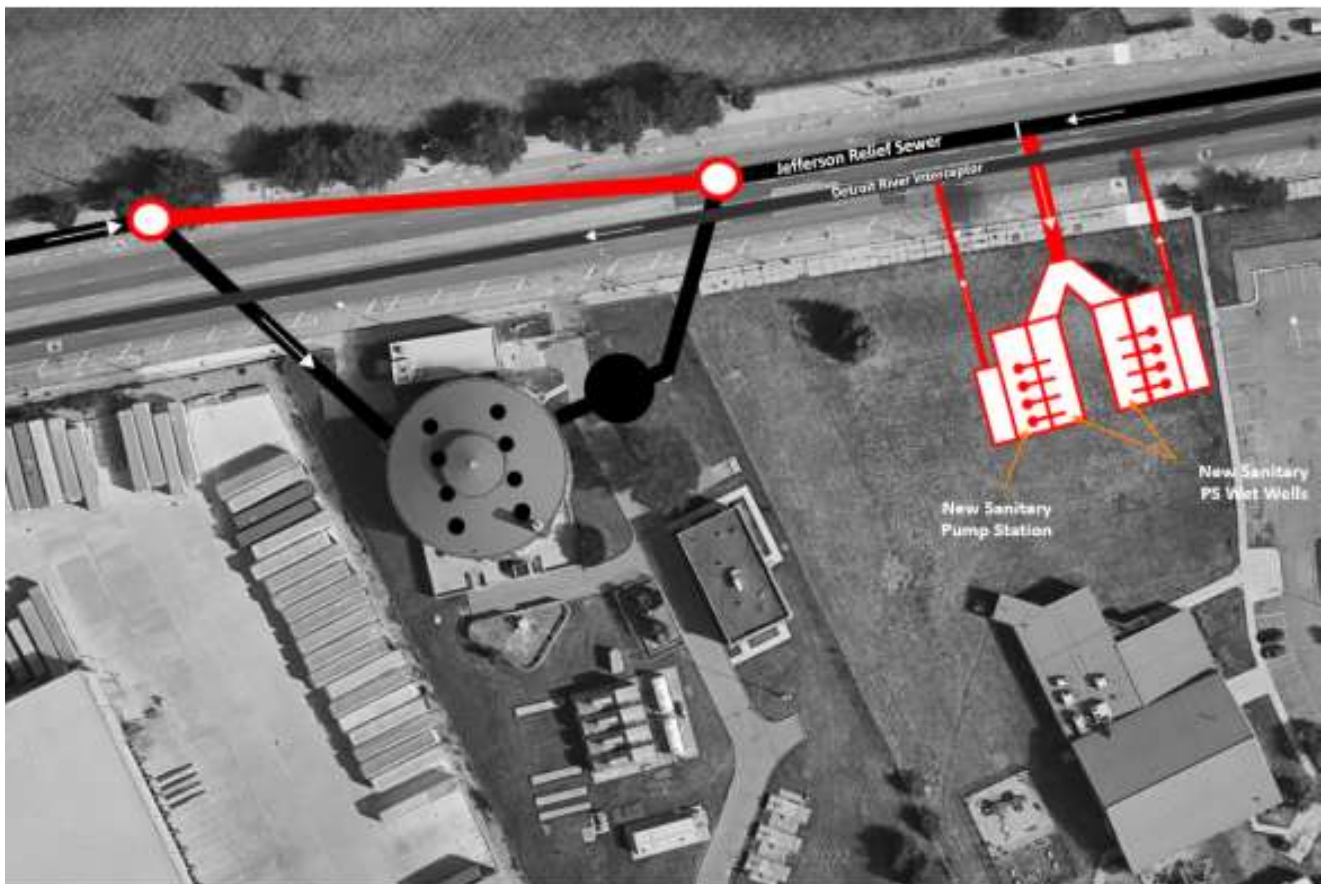


Figure 4: New Sanitary Pump Station Alternative 2

Cost Consideration: The deep, large-diameter interconnection drives substantial construction cost due to:

- Need for wide, 60-ft deep by 400-ft long open-cut excavations for a 14-ft diameter sewer in the existing East Jefferson Ave. right-of-way and traffic impacts,
- Open cut for three separate connections within East Jefferson Ave. right-of-way (East Reach, and two at the DRI),
- Extensive temporary earth retention systems and utility relocations/support,
- Prolonged traffic maintenance and staging on a regional thoroughfare,
- Longer schedules with higher contractor overheads and risk contingencies, and
- Extensive City of Detroit permitting and coordination would be required to close East Jefferson Ave., a major regional thoroughfare. Securing approvals for long-duration right-of-way closure, traffic control plans, utility coordination, and deep excavation activities would involve multiple agencies and result in a prolonged review and approval process, significantly increasing project duration and overall cost.

While consolidating pumping into a single modern facility lowers long-term O&M at the sanitary station, the capital premium and community/traffic impacts associated with the deep, 14-ft diameter sewer extension substantially increase total project cost and reduce cost-effectiveness compared to approaches that avoid long runs of deep open-cut construction in East Jefferson Avenue.

2.5 Combined Storm and Sanitary Pump Station – Alternative 3

Construct a single combined storm and sanitary pump station facility on GLWA-owned parcels east of the existing station that consolidates the existing stations (Figure 5). The concept uses dual self-cleaning trench-style wet wells (separate sanitary and storm), horizontal dry-pit submersible sanitary pumps (e.g., six duty with standby for ~160 MGD firm, 240 MGD installed), and vertical storm pumps rated at 2,226 MGD firm capacity to match the existing firm capacity. A new junction chamber within East Jefferson Avenue would collect flow from the 14-ft diameter East and West Jefferson Relief Sewers and direct combined influent to the new station, with provisions for wet-well isolation and space for future mechanical screening. Two new chambers would be constructed on the 9-ft diameter DRI to receive flow from the new sanitary station. Construction sequencing would maintain operation of the existing station while the new facility and interconnections are built.

Cost Consideration. Alternative 3 concentrates investment into a single consolidated facility and can reduce long-term O&M by eliminating legacy assets and simplifying operations. However, similar issues and costs are associated with alternative as discussed in Section 2.4 but scaled up to accommodate a combined station. The combined station drives substantial construction cost due to:

- This alternative includes a new 2,226 MGD storm water pump station while the other alternatives do not,
- Increased station construction complexity and footprint with the main facility measuring approximately 412-ft long by 207-ft wide,
- Need for significant structure within East Jefferson Avenue right-of-way to divert all flow to the new pumping facility and traffic impacts,
- Need for two separate discharge connections to the existing DRI and traffic impacts,
- Extensive temporary earth retention systems and utility relocations/support,
- Prolonged traffic maintenance and staging on a regional thoroughfare,
- Longer schedules with higher contractor overheads and risk contingencies, and
- Extensive City of Detroit permitting and coordination would be required to close East Jefferson Ave., a major regional thoroughfare. Securing approvals for long-duration right-of-way closure, traffic control plans, utility coordination, and deep excavation activities would involve multiple agencies and result in a prolonged review and approval process, significantly increasing project duration and overall cost.

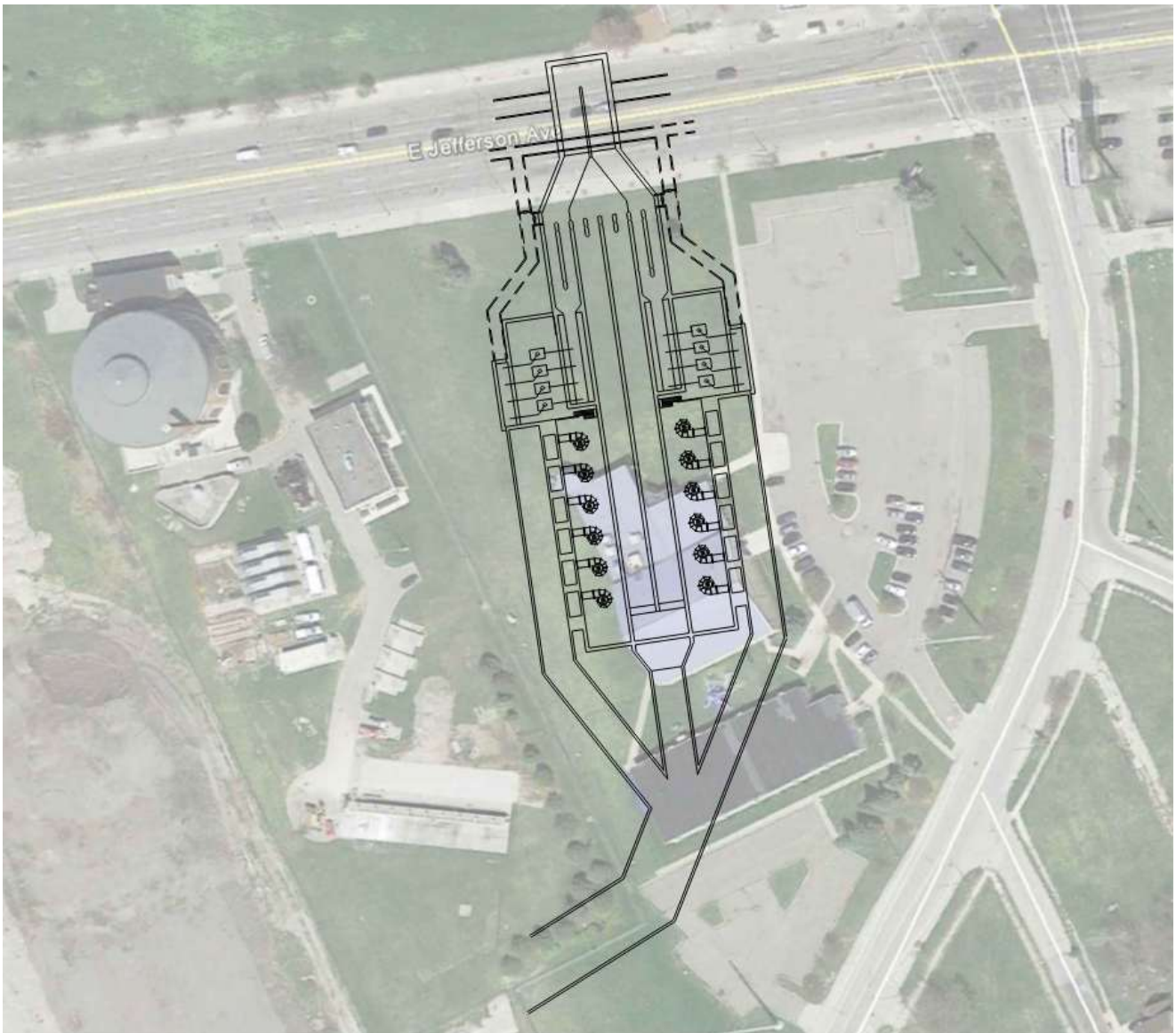


Figure 5: Combined Storm and Sanitary Pump Station Alternative 3

3 Environmental Evaluation

The environmental impacts associated with each alternative were evaluated and compared in terms of scope, duration, and intensity, consistent with EGLE CWSRF Project Planning Document requirements. The evaluation considered physical, ecological, social, and operational impacts, as well as any environmental benefits that would be precluded by eliminating an alternative.

3.1 No Action

No construction-related impacts would occur; however, the existing deficiencies would persist, increasing the likelihood of sanitary sewer backups, emergency bypassing, equipment failures, and unplanned releases that could adversely affect surface water quality, public health, and the surrounding community. Because this alternative does not meet the project purpose and increases environmental risk over time, it is not considered viable.

3.2 Optimum Performance of Existing System

This alternative would avoid major excavation and therefore minimize short-term construction impacts. However, operational adjustments cannot correct the underlying hydraulic deficiencies (air entrainment, turbulence, cavitation risk) as previously discussed in sections above; as a result, long-term environmental risks associated with pump failure or bypass conditions persist during wet-weather events. Environmental impacts are similar in scope and intensity to No Action and do not provide meaningful long-term benefit.

3.3 Construct a New Sanitary Pump Station Operating in Parallel with the Existing Station – Alternative 1

Construction would result in temporary, localized environmental impacts including noise, dust, construction traffic, utility connections, and permitted dewatering discharges. Because the existing sanitary pump station remains in service, construction phasing would limit bypass risk; however, short-term traffic control and limited lane shifts may still be required near tie-in locations. Operationally, parallel pumping reduces hydraulic loading at the existing station and may lessen the likelihood of failure-related discharges. Conversely, maintaining two stations increases long-term maintenance activities and vehicle trips compared to a single consolidated facility. Mitigation measures include TERS installation, erosion and sedimentation controls, noise/dust suppression, permitted dewatering management, and full restoration of disturbed areas.

3.4 Construct a New Sanitary Pump Station to Replace the Existing Station – Alternative 2

This alternative would result in typical pump station construction impacts (noise, dust, dewatering, excavation) but would also require extending and interconnecting the West Reach with the East Reach to feed the new station. These sewers are approximately 14-feet in diameter and located about 60 feet below grade, requiring deep open-cut construction. To complete the interconnection, major segments of East Jefferson Avenue—a heavily traveled corridor—would need to be excavated, causing long-duration lane closures, detours, and substantial community disruption. Operationally, replacing the legacy station would eliminate existing hydraulic and reliability issues, consolidating all pumping into a modern facility. Mitigation includes detailed traffic maintenance planning, deep excavation support, utility protection, noise and dust control, erosion and sedimentation controls, and restoration of Jefferson Avenue and adjacent surfaces.

3.5 Combined Storm and Sanitary Pump Station – Alternative 3

A combined storm and sanitary pump station would generate broader construction impacts due to the scale of excavation, the number of required junction structures within East Jefferson Avenue, and extensive utility coordination and relocation. Construction would require long work windows, complex staging, and sustained traffic impacts. Temporary effects include dust, noise, dewatering discharges, construction traffic, and partial roadway realignments. Operationally, the combined facility could reduce long-term O&M by consolidating assets and eliminating the aging storm and sanitary stations; however, the magnitude of site development and roadway work results in higher short-term disturbance. Mitigation

includes phased construction, traffic maintenance plans, erosion and sedimentation controls, dust/noise suppression, permitted dewatering management, and post-construction site restoration including landscape buffering and bioswales for on-site stormwater retention.

3.6 Selected Alternative – Conner Creek Sanitary Pump Station Replacement

Construction will cause temporary, localized impacts related to excavation (noise, dust), traffic control, dewatering discharges, and soil management. Mitigation measures include use of a temporary earth retention system (TERS), erosion and sedimentation controls, dewatering management under applicable permits, noise/dust suppression, traffic maintenance of Jefferson Avenue, and proper handling/disposal of spoils. In operation, the alternative reduces long-term environmental risk by improving hydraulic stability and pump reliability, enabling isolation of wet wells for maintenance, and providing redundancy and standby power to maintain conveyance during extreme events. The site landscape plan will add perimeter tree plantings, screening, and bioswales to improve water quality and restore the site following construction.

4 Selected Alternative

The selected alternative consists of constructing a new sanitary pump station that will replace the existing 1956 Conner Creek Sanitary Pump Station with a modern, purpose-built facility located on GLWA-owned parcels (12400 East Jefferson Ave. and 1001 Clairpointe Ave), immediately east of the current station. The selected alternative is a modified form of Alternative 2. Rather than interconnecting the East and West reaches of the East Jefferson Relief Sewers, the project avoids deep open-cut excavation across East Jefferson Avenue and existing utilities impacts by connecting the new sanitary pump station to the existing on-site Intake Well (original pump station) via a single 8-ft diameter influent pipe, with one discharge pipe to the DRI, thereby reducing traffic disruption, construction risk, and cost while delivering the same sanitary conveyance function.

The combined project area encompasses approximately 6.26 acres, which is currently in the process of being rezoned from Planned Development (PD) Church to PD Utility Major through the City of Detroit City Planning Commission. The rezoning application was submitted by GLWA on **March XX, 2026 (WILL UPDATED ONCE APPLICATION IS SUBMITTED)**.

The selected location avoids new property acquisition and limits long-term impacts to areas previously developed or disturbed. See Figure 6 and the rendered image in Figure 7.

Conner Creek Sanitary Pump Station Replacement
State Revolving Fund Project Plan

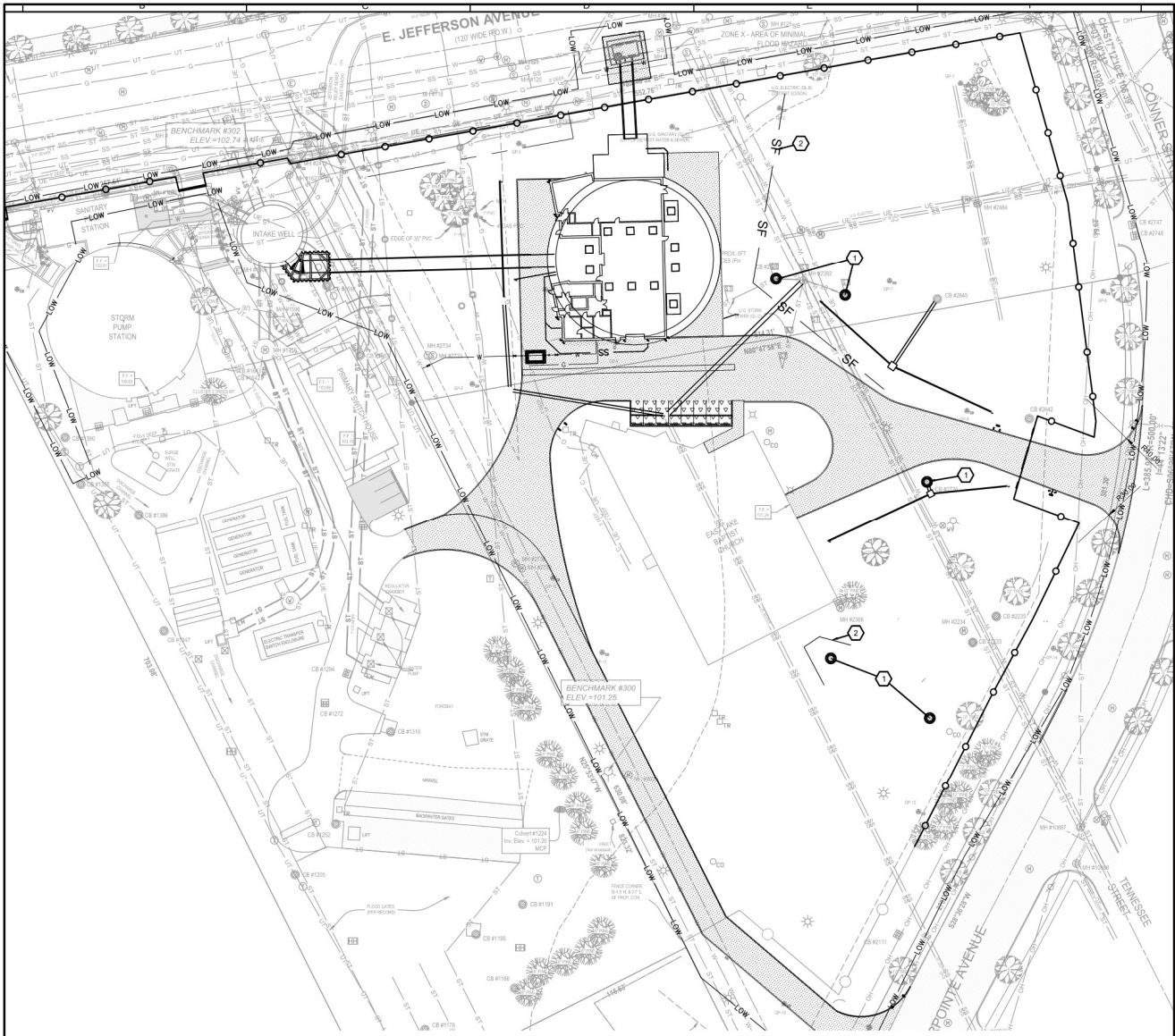


Figure 6: Conner Creek Sanitary Pump Station Replacement

Conner Creek Sanitary Pump Station Replacement
State Revolving Fund Project Plan



Figure 7: Rendered Conner Creek Sanitary Pump Station Replacement

The new station will provide a firm pumping capacity of 160 million gallons per day (MGD), with a total installed pumping capacity of 240 MGD, using six horizontal dry-pit submersible pumps discharging to the 9-ft diameter Detroit River Interceptor (DRI). For improved reliability, the design includes “N=2” or two spare pumps. The facility includes two trench-type, self-cleaning wet wells with full flow-control and isolation capabilities. Flow will be conveyed from the existing Intake Well Structure on the East Jefferson Relief Sewer to the new station through an 8-ft diameter gravity tunnel. The primary below-grade structure will be constructed within a 114-ft internal diameter circular substructure extending approximately 75-ft deep.

The above-grade pump station building will have an approximate ground coverage of 140 ft × 150 ft and a total floor area of roughly 8,100 ft², with a roof height of approximately 28 ft. The existing church structure on the parcel (approximately 16,400 ft² and 24 ft tall) will remain, resulting in a total combined building area of about 24,500 ft² across the site. Parking needs are minimal; a total of seven (7) off-street parking spaces are proposed, all surface parking, within an area of roughly 41,000 ft² including access drives. No structured parking or expanded impervious areas are required.

This project replaces the aging Conner Creek Sanitary Pump Station and directly addresses the hydraulic and operational deficiencies identified in Section 1.7, including wet-well hydraulic instability, air entrainment, cavitation risk, lack of pump isolation, and declining reliability. The new station restores firm sanitary conveyance capacity, improves maintainability and operational flexibility, and fully integrates with GLWA’s regional conveyance and CSO control systems.

The design is based on the Basis-of-Design (BOD) memos prepared for the project and submitted to MI EGLE in support of the Part 41 permit application (November 14, 2025). These memos, which include detailed hydraulic, structural, electrical, mechanical, and architectural criteria, are included in Appendix H of this Project Plan. MI EGLE issued Permit No. P41005765 v.1 for construction of the improvements on January 16, 2026.

4.1 Substructure and Shaft

The station will utilize a circular substructure with an internal diameter of approximately 114-feet. A temporary earth retention system (TERS) will be employed for excavation. The substructure top slab is currently planned at EL 104-feet (Detroit datum), which is similar to the natural grade around the site, and the foundation at approximately EL 40-feet, yielding a substructure depth of 64-feet.

4.2 Wet-Well Configuration and Equipment

The sanitary pump station utilizes two (2) trench-style, self-cleaning wet wells that can be isolated and were designed in accordance with ANSI/HI 9.8 pump intake principles. Instead of a large, open wet-well chamber, each wet well is configured as a long, narrow trench that promotes stable, uniform approach flow to the pump suction. Each trench can be isolated independently using stop logs, allowing one side to be drained, inspected, or cleaned while the other remains in service, maintaining full sanitary conveyance throughout maintenance activities (Appendix H).

The self-cleaning capability is achieved through a shaped influent drop and an ogee-style ramp located at the trench entrance. During programmed cleaning cycles, the wet-well water level is lowered so that incoming flow passes over the ogee ramp at a high velocity, forming a hydraulic jump within the trench. This controlled hydraulic action scours the trench floor, mobilizes settled solids and debris, and pushes floatable material toward the active pump inlets for removal. As a result, debris accumulation is minimized, manual cleanouts are reduced and confined-space entry is significantly less frequent compared to a traditional wet-well configuration.

The trench geometry, including width, depth, pump submergence, and spacing, follows Hydraulic Institute 9.8 guidance to minimize air entrainment, surface or floor vortices, and pre-swirl at the pump bell. These improvements directly address the hydraulic instability problems at the existing Conner Creek Sanitary Pump Station, where air entrainment and turbulence have historically reduced pump efficiency, increased vibration, and shortened equipment life. As required by Hydraulic Institute for pump stations this size, a physical model of the station was completed by Verdantas (Anderson, South Carolina) and the findings were incorporated into the final design (Appendix I).

Each trench includes suction piping for three (3) horizontal dry-pit submersible, non-clog centrifugal pumps (Flygt CZ2800 series). The pumps are arranged as four (4) duty and two (2) standby units (N+2 redundancy), providing a firm capacity of approximately 160 MGD and an installed capacity of 240 MGD. The N+2 configuration allows continuous operation during pump maintenance or failure and enables balanced runtime distribution across all six (6) units to extend asset life.

A key benefit of the selected pumps is the service-cart/sled system, which allows the motor and drive end to be withdrawn from the pump casing without removing the entire pump assembly or entering the wet well. This feature improves maintainability, enhances operator safety, and shortens maintenance outage durations. GLWA's preference for constant-speed pump operation and remote supervisory control is accommodated through the design's active storage volume and pump-start rotation strategy, limiting short-cycling and maintaining stable hydraulic performance across dry- and wet-weather operating conditions.

4.3 Power and Standby

The new sanitary pump station will be served by 480-V electrical power from the existing primary switchgear at the adjacent Conner Creek Storm Water Pump Station. No new emergency generators are proposed; standby power for the sanitary pump station is provided through the existing generator system that supplies the primary switchgear. The electrical one-line, service feeder routing, and automatic transfer scheme are detailed in the BOD memos (Appendix H).

In addition, the sanitary pump station will be equipped with a generator quick-connect station located outside the building to allow connection of a temporary, portable generator in the event of an extended power outage or emergency situation.

4.4 Discharge and Downstream Structures

Each sanitary pump has a dedicated discharge pipe and all six pipes convey flow to a common chamber. Wastewater will then be conveyed in an 8-ft diameter gravity sewer that connects to a new structure on the existing 9-ft diameter Detroit River Interceptor (DRI) within the East Jefferson Avenue right-of-way.

4.5 Construction Sequencing

Construction of the new Conner Creek Sanitary Pump Station is organized into a series of carefully planned phases that ensure continuous sanitary conveyance throughout the full duration of the project, including both routine dry-weather flows and elevated wet-weather/post-storm dewatering flows. The selected layout enables the existing sanitary and storm pump stations to remain fully operational while major components of the new facility, including the 114-ft diameter shaft, dual isolatable wet wells, and dry-pit submersible pump configuration are constructed. Sequencing is structured so that each phase maintains uninterrupted system operations, allows safe access and isolation for construction activities, and supports the transition of daily flow once the new station is ready for service. From a high-level perspective, the work will proceed through the six (6) phases outlined below and as depicted in Figures 8 – 13.

- Phase 1 – Project Start
- Phase 2 – Sanitary Pump Station Construction and Intake Well Modifications
- Phase 3 – Sanitary Pump Station Start-Up and Testing. Existing Sanitary Pump Station Remains in Service to Convey West Jefferson Flow
- Phase 4 – Sanitary Pump Station in Service. West Jefferson Flow Through Storm Station Wet Well During Demolition of Existing Sanitary Pump Station
- Phase 5 – Sanitary Pump Station in Service. West Jefferson Flow Through Storm Pump Station Wet Well During Installation of the 5-FT Diameter Through Pipe
- Phase 6 – Project End

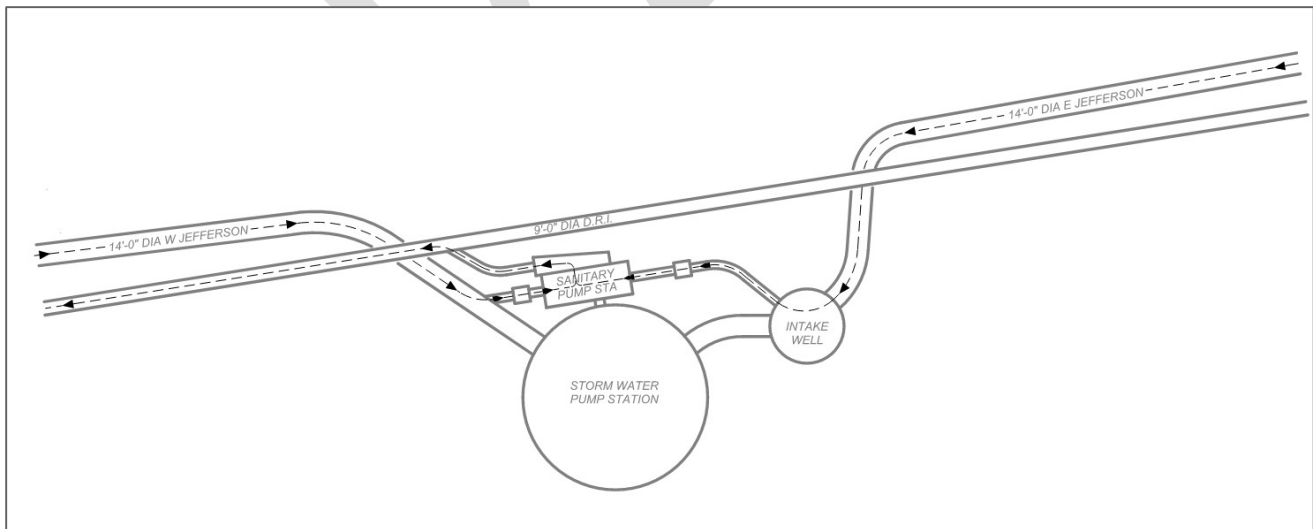


Figure 8: Flow Diagram – Phase 1

Conner Creek Sanitary Pump Station Replacement
State Revolving Fund Project Plan

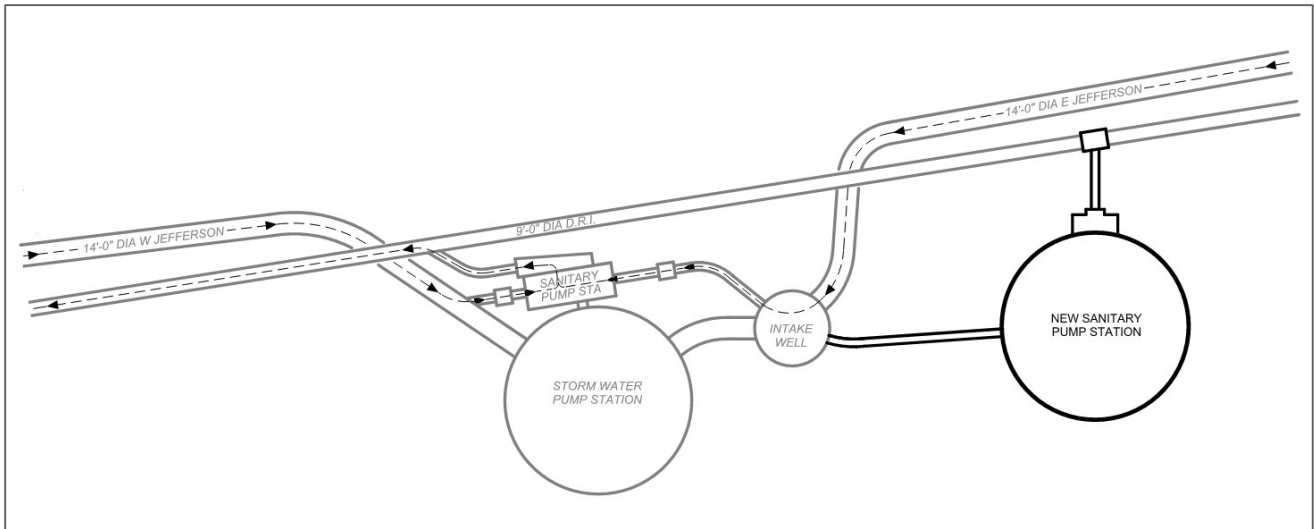


Figure 9: Flow Diagram – Phase 2

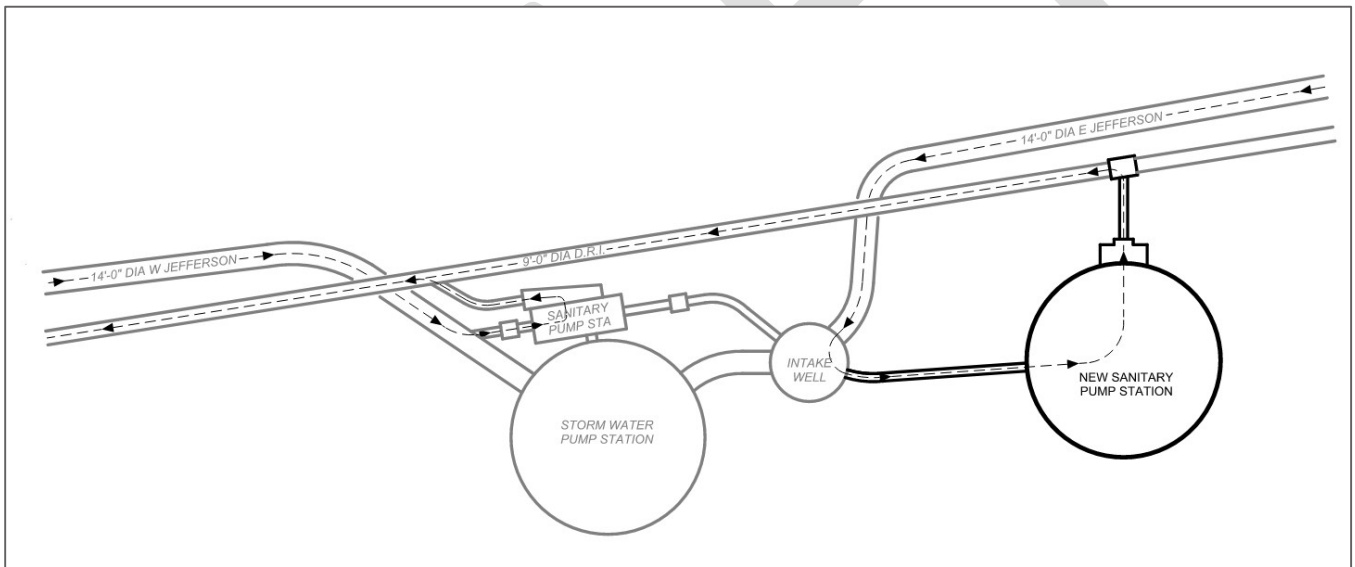


Figure 10: Flow Diagram – Phase 3

Conner Creek Sanitary Pump Station Replacement
State Revolving Fund Project Plan

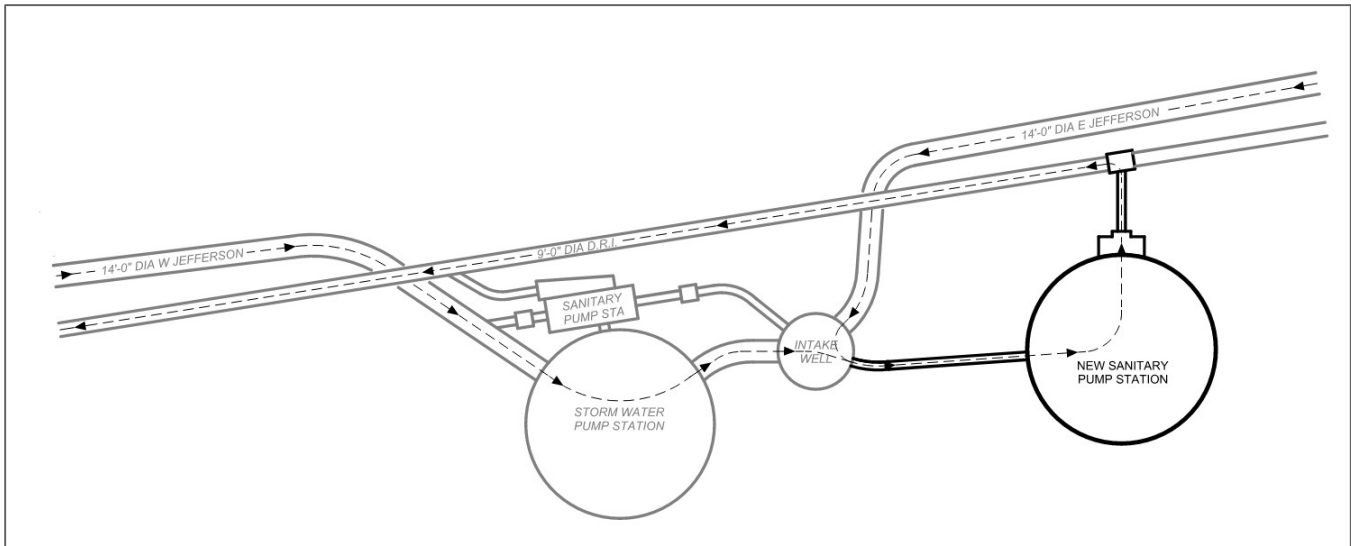


Figure 11: Flow Diagram – Phase 4

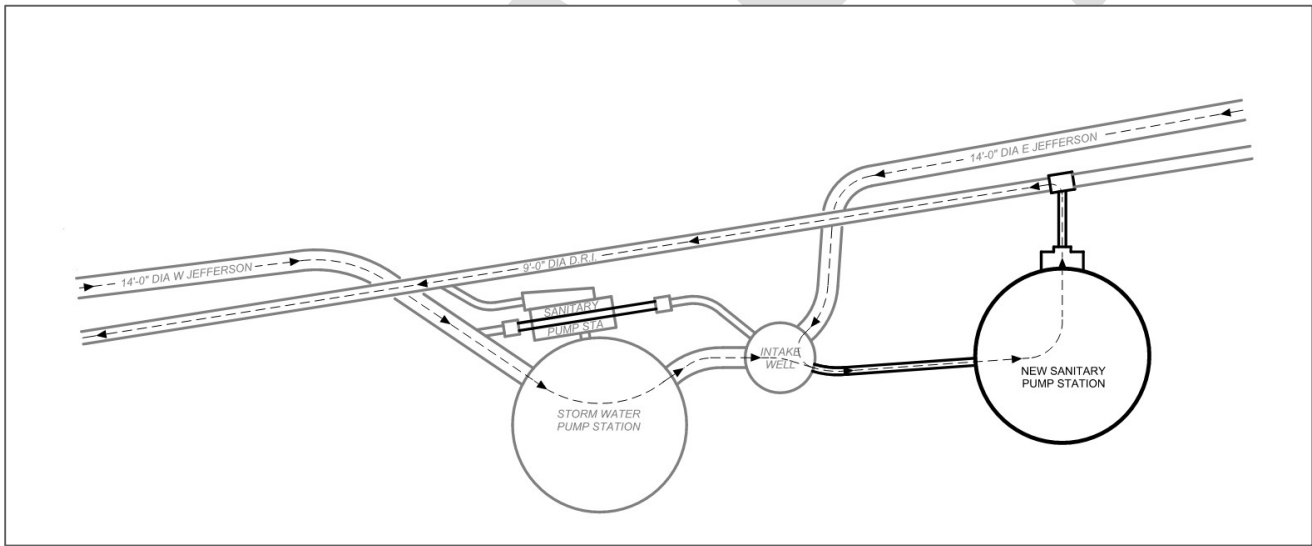


Figure 12: Flow Diagram – Phase 5

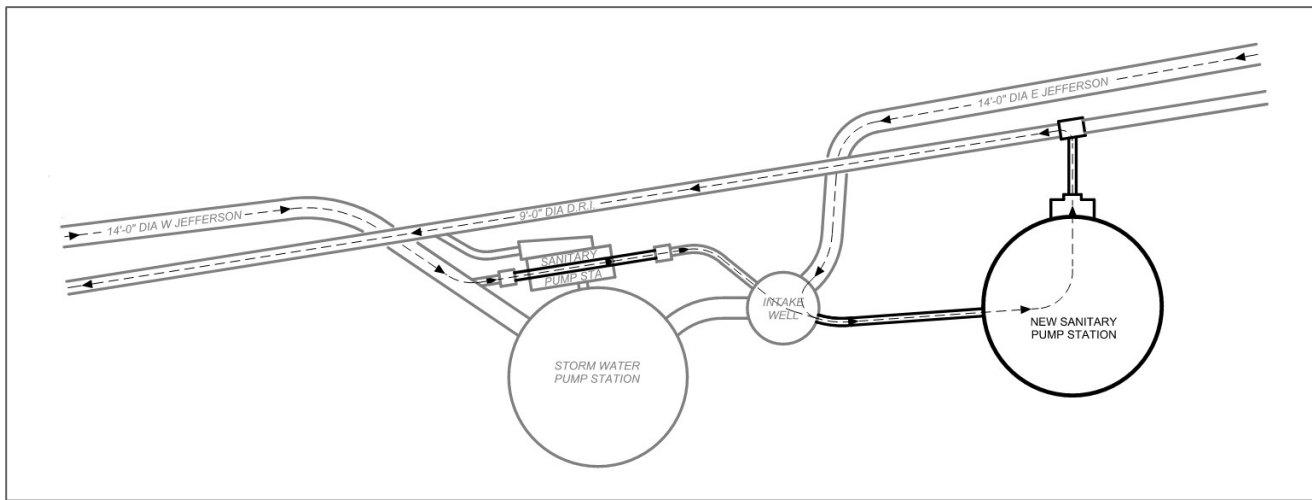


Figure 13: Flow Diagram – Phase 6

4.6 Environmental, Resilience, and Community Benefits

Resilience: Pump were selected and sized based on the final hydraulic design criteria, improved intake hydraulics, dual wet-well isolation, and reliable standby power improve station performance during both dry-weather operations and high-intensity storm/extended dewatering conditions. The selected configuration provides N+2 redundancy, maintaining conveyance when a unit is out of service and limiting single-point failures.

Environmental Protection: Stable, redundant pumping reduces the risk of system surcharging and combined sewage backups, thereby lowering the likelihood of sanitary overflows, emergency bypasses, and related impacts to receiving waters and neighborhoods.

Safety and Maintainability: Dry-pit submersible pumps, improved ventilation/HVAC, and full isolation capability reduce confined-space hazards and allow scheduled maintenance without station shutdown, supporting safer, more predictable O&M.

Public Health and Community Benefit. Sanitary pump stations are critical infrastructure that protect public health and the environment by reliably conveying wastewater for treatment prior to final discharge to a receiving water body. By modernizing hydraulics, adding redundancy, and strengthening operability across a range of conditions, this project provides durable community benefits while minimizing long-term environmental risk.

4.7 Useful Life

The existing Conner Creek Sanitary Pump Station was constructed in 1958 and has exceeded its original design life by several decades. The structural, mechanical, and electrical components of the station have deteriorated beyond the point where rehabilitation can reliably restore long-term performance. Equipment failures, hydraulic inefficiencies, and operational challenges documented in Section 1.7 reflect the limitations of a facility operating nearly 70 years beyond its initial installation. As a result, the remaining useful life of the existing pump station is effectively zero.

The proposed replacement pump station will consist of new structural components, pumping equipment, electrical systems, HVAC, and controls with expected useful life durations supported by manufacturer recommendations and standard engineering practice. These values will be used to determine the weighted useful life of the overall project, ensuring that the CWSRF loan term does not exceed the project's functional lifespan. The replacement facility will provide sufficient longevity to meet current and future service needs within GLWA's regional conveyance system.

4.8 Monetary Evaluation

The project cost variables for the selected alternative include the following components:

4.8.1 Capital Expenditures

Capital costs include all construction, structural, mechanical, electrical, site work, and related improvements required to replace the Conner Creek Sanitary Pump Station. The probable capital cost for the recommended project is \$190,000,000 based on the current Engineer’s Opinion of Probable Construction Costs, design and construction administration and resident project representative (RPR) services.

4.8.2 Operation and Maintenance

The replacement of the existing facility with a new sanitary pump station will improve long-term reliability, maintainability, and operational flexibility. While the new station will require routine operation and maintenance comparable to other GLWA pumping facilities, the design has been coordinated with GLWA Operations to minimize O&M effort and improve maintainability over the life of the facility.

At this stage of planning, O&M costs are expected to be similar to or slightly higher than current conditions, reflecting a modernized facility with improved equipment, safety features, and control systems. Final O&M costs will be established during detailed design in coordination with GLWA.

4.8.3 Financing and User Cost Impact

The Conner Creek Sanitary Pump Station Replacement project is intended to be financed through the State Revolving Fund (SRF) program, subject to annual appropriation and project ranking by EGLE. Repayment of the SRF loan will occur through annual debt retirement and will be incorporated into GLWA’s regional wastewater rates.

Repayment of the SRF loan through annual debt retirement payments will impact the customer rates resulting in increased user costs. The impact to customer rates is generally determined by dividing the additional expenses among the users in the service area as summarized in Table 2. The annualized cost of the project was calculated using the conversion factor 0.0641 and the following formula:

$$A = PW \times \frac{i(1+i)^n}{(1+i)^n - 1}$$

Where:

A = Equivalent Annual Cost

PW = Present Worth

i = Interest Rate through SRF Loan (2.5%)

n = Number of Years (20)

$$\frac{i(1+i)^n}{(1+i)^n - 1} = \text{Conversion Factor}$$

Table 2: User Cost Impact for the Conner Creek Sanitary Pump Station Replacement Project

Item	Improvements
Total Cost of Project	\$190,000,000
Annualized Cost of Project (assuming SRF interest rate of 2.5% over 20 years)*	\$12,187,954
Residents in the GLWA Regional Service Area	2,800,000
Number of Residents per Household in Michigan**	2.42
Service Area Households	1,157,025
Estimated Household User Cost	~\$10.53/ household / year

* Fiscal Year 2026 Interest Rate for Standard Applicant

** Estimated by the U.S. Census Bureau between 2020 – 2024

4.9 Project Maps

See Appendix J (Design Drawings C-01-101, C-01-103, C-01-104, G-00-006, and G-00-007) for a site plan of the Conner Creek Sanitary Pump Station Replacement.

4.10 Water and Energy Efficiency and Green Infrastructure

4.10.1 Water Efficiency Measures

The new sanitary pump station incorporates several water-efficiency features consistent with EPA WaterSense principles and industry best practices. Because this facility is unmanned and has minimal domestic water needs, the overall design prioritizes low-consumption fixtures, efficient metering, and reduced potable water demand. Water service to the station will be equipped with a dedicated water meter (provided by the City of Detroit Water and Sewerage Department) to track usage and support future water efficiency evaluations as needed.

All plumbing fixtures installed in the building, such as faucets and toilets, will be high-efficiency, low-flow models designed to minimize potable water consumption. These fixtures significantly reduce water use for routine building functions compared to conventional fixtures. Because the station is unmanned, daily water use will be limited primarily to periodic maintenance needs, cleaning activities, and infrequent restroom use, further decreasing overall water demand.

The use of low-flow fixtures and water metering reduces both operational costs and the environmental impact associated with potable water delivery and wastewater generation. Although opportunities for reuse and recapture are limited in an unmanned pumping facility with minimal process-water requirements, the selected alternative maximizes water efficiency to the extent practicable, consistent with the project’s purpose and the facility’s functional needs.

4.10.2 Installing High Efficiency LED Lighting in Place of Standard Lighting Options

The new sanitary pump station will be equipped throughout with high-efficiency LED lighting systems for both interior and exterior illumination. Because this facility is entirely new construction, LED fixtures are incorporated from the outset to ensure optimal energy performance and compliance with current lighting standards. LED technology provides substantially higher luminous efficacy than conventional fluorescent or standard lighting options, reducing electrical consumption for equivalent illumination levels and lowering overall utility demand at the station.

LED fixtures also offer a much longer operating life, which significantly reduces the frequency of lamp replacements and associated maintenance activities. This is particularly beneficial in a pump station environment where many fixtures are installed above process equipment, in high-bay areas, or in locations requiring specialized access. By decreasing maintenance frequency, LED lighting lowers operational costs and minimizes disruptions to routine station activities.

In addition to energy and maintenance benefits, LED systems provide instant-on capability, improved lighting quality (uniformity and color rendering), lower fixture heat output, and better resilience to vibration—enhancing visibility and safety for operations and maintenance personnel. Incorporating LED lighting into the pump station design therefore improves energy efficiency, occupational safety, and overall life-cycle cost-effectiveness for the new facility.

4.10.3 Street Trees and Bioswales

The 6.26-acre site will be enhanced with a coordinated system of street trees, perimeter plantings, and on-site bioswales as shown on the attached landscape plan (Appendix K). Street trees are placed in a continuous pattern along East Jefferson Avenue to establish a visual buffer and shade the public edge, while additional trees and clustered plantings are located along the south and east property lines to enhance site screening and reduce visibility of facility operations from surrounding areas. Within the site, bioswales are aligned with drive aisles and low points in the grading to capture, slow, and infiltrate stormwater prior to discharge. These green-infrastructure elements work together with the overall reduction in imperviousness (–1.31 acres) to improve on-site hydrology and reduce off-site runoff.

Street trees intercept rainfall on canopies and leaf surfaces, promote evapotranspiration, and reduce effective impervious area, thereby lowering peak runoff that would otherwise enter the collection system. Bioswales provide shallow, vegetated conveyance that decreases runoff velocity and encourages infiltration of the “first flush,” removing sediments and nutrients through soil filtration and plant uptake. During larger storms, the bioswales convey flows at reduced velocities to downstream structures, improving water quality and lessening hydraulic stress on the stormwater network and receiving waters.

Areas designated for trees and vegetation employ hardy, low-maintenance species suitable for roadside and utility corridor conditions (salt-tolerant street trees, native/ornamental understory trees, and perennial/grass mixes within bioswales). Soil profiles in bioswales include amended topsoil over free-draining base to support infiltration; check dams/stone weirs are placed as needed to increase residence time and manage slopes. Curb cuts and inlets direct sheet flow from pavements into swales, and overflow structures return excess flows to the storm network during extreme events. Mulch and dense herbaceous cover reduce erosion and maintenance frequency.

The integrated tree and bioswale system improves site appearance, increases shade and urban heat-island mitigation, and provides habitat value within an urban corridor. Hydrologically, the measures reduce runoff volume and peak rates, lower the risk of system surcharging and combined sewage backups, and improve downstream water quality by attenuating and filtering stormwater at the source. These outcomes align with low-impact development practices and support the Project Plan’s objectives for resilience and environmental protection.

4.10.4 Site Impervious Area Reduction and Associated Benefits

The project site encompasses approximately 6.26 acres. As part of the construction of the new sanitary pump station and associated site improvements, the overall impervious area on the parcel will be reduced by roughly 1.31 acres. This

reduction is achieved through intentional site planning, incorporation of landscaped areas, installation of bioswales for stormwater retention and infiltration, and removal of excess paved surfaces that are no longer required for operations.

Reducing impervious surfaces provides multiple environmental and operational benefits. Increased pervious area allows more stormwater to infiltrate naturally into the ground, decreasing runoff volume and reducing the hydraulic load on the stormwater and combined sewer systems during rainfall events. This helps mitigate localized flooding, reduces the likelihood of system surcharging, and improves downstream water quality by promoting filtration of pollutants through vegetated soils. The expanded green areas, including new tree plantings and perimeter landscaping, also enhance site aesthetics, improve urban heat island conditions, and provide habitat value within the developed corridor.

In addition to reducing the overall impervious area, the project will install approximately 1,500 square feet of pervious interlocking concrete pavers within the parking and access areas. The pervious paver system includes a permeable surface layer, bedding and reservoir layers, filter media, and an underdrain, enabling stormwater to pass through the pavement surface and temporarily store within the subsurface layers. This reduces surface runoff, supports infiltration, and improves water quality by allowing sediments and pollutants to settle out before water reaches the drainage system. The pervious paver area functions as an additional low-impact development (LID) feature that complements the site’s bioswales and landscaped stormwater elements, further reducing overall imperviousness and enhancing stormwater management performance on the site.

Overall, this reduction in impervious area supports the project’s environmental objectives, strengthens site sustainability, and aligns with current best practices for low-impact development and stormwater management.

4.11 Schedule for Design and Construction

The Conner Creek Sanitary Pump Station Replacement Project Design and Construction schedule is provided in Table 3.

Table 3: Conner Creek Sanitary Pump Station Replacement Project Design and Construction 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	December 2026
Start Construction	May 2027
Construction Substantial Completion	November 2030
Construction Final Completion	February 2031

4.12 Cost Summary

The estimated cost summary for the Conner Creek Sanitary Pump Station Replacement is provided in Table 4.

Table 4: Estimated Cost Summary for the Conner Creek Sanitary Pump Station Replacement

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

4.13 Implementability

GLWA has the legal authority, capability, and willingness to plan, finance, build, operate, and maintain the facilities associated with this project. While GLWA has the authority to advance the project, GLWA has also solicited input, feedback, and buy-in from DWSD, GLWA Member Communities, and a separate Value Engineering Technical Team.

Constructability is feasible because the replacement station can be built on or adjacent to the existing site while maintaining uninterrupted sanitary service. GLWA has established capital planning, construction management capability, and the financial capacity to support the project through the CWSRF program. With clear legal authority, manageable construction requirements, and adequate financial resources, the selected alternative is fully implementable and represents the most reliable long-term solution for the system.

5 Environmental and Public Health Impacts

5.1 Direct Impacts

Construction of the proposed project is not expected to have an adverse effect on historical, archaeological, geographic, or cultural areas, as the construction activities will occur in the areas within the project boundaries. The proposed project will not detrimentally affect the water quality of the area, wetlands, endangered species, wild and scenic rivers, or unique agricultural lands.

Construction activities will be normally conducted during the weekday, daylight hours. Once construction is complete, the normal operation of the new Sanitary Pump Station will have negligible impact on the surrounding residents. Coordination with the City of Detroit departments has been conducted and input has been incorporated into the design.

5.2 Indirect Impacts

It is not anticipated that the proposed project will alter the ongoing pattern of growth and development in the study area. Growth patterns in the service area are subject to local use and zoning plans, thus providing further opportunity to minimize indirect impacts.

5.3 Cumulative impacts

Providing improvements to the existing collection system, especially improving pumping reliability, will provide an overall positive cumulative impact over time. Public confidence is expected to build over time.

6 Mitigation

6.1 General

Where adverse impacts cannot be avoided, mitigation methods will be implemented. Mitigating measures for the projects such as soil erosion control, if required, will be utilized as necessary and in accordance with applicable laws. Details will be further specified in the construction contract documents used for the project.

6.2 Mitigation of Short-Term Impacts

Short-term impacts due to construction activities such as noise, dust, minor traffic disruption, and deep construction activities cannot be avoided. However, efforts will be made to minimize the adverse impacts by use of thorough design and well-planned construction sequencing. Site restoration will minimize the adverse impacts of construction, and adherence to the Soil Erosion and Sedimentation Act will minimize the impacts due to disturbance of the soil structure, if such disturbance is found to be necessary. Specific techniques will be specified in the construction contract documents.

6.3 Mitigation of Long-Term Impacts

Every effort has been made to avoid potential long-term or irreversible adverse impacts associated with the Conner Creek Sanitary Pump Station Replacement Project. The selected site is located on GLWA-owned parcels immediately east of the existing station and totals approximately 6.26 acres, allowing all work to occur on property already dedicated to public utility use. The new sanitary pump station building has an approximate ground coverage of 140 ft × 150 ft. This avoids new property acquisition and prevents disturbance to parks, wetlands, residential areas, or other environmentally sensitive features.

The project footprint has been consolidated to minimize permanent disturbance. Above-grade structures include the following:

- New sanitary pump station building (approximately 8,100 ft²; one story; 28 ft height),
- Existing church building retained on site (approximately 16,400 ft²; one story; 24 ft height),
- Total area of approximately 24,500 ft² of combined building area on the 6.26-acre parcel.

Subgrade elements, including the sanitary shaft, dry-well and dual trench-style wet-wells, and the influent tunnel connection are located within the GLWA parcel to keep the work zone compact and to limit the extent of permanent impacts.

A landscape architecture firm was retained to develop a comprehensive site-wide landscape plan enhancing screening and visual buffering around the facility. The plan incorporates additional tree plantings and perimeter landscaping along the property boundaries to improve compatibility with surrounding land uses. Multiple bioswales have been integrated throughout the site to provide on-site stormwater retention, infiltration, and water-quality benefits. With the selected layout, the majority of the parcel will function as open, landscaped space following construction, with disturbed areas restored and improved through coordinated grading, turf establishment, and native plantings.

Existing utilities cannot be fully avoided, the design incorporates protective measures including clearly defined construction limits, temporary earth retention systems (TERS), utility protection, and post-construction surface restoration. impact while still meeting the project's hydraulic performance, reliability, and site-access requirements. Using an existing GLWA utility

parcel, increasing the pervious surface, and consolidating both above- and below-grade structures into a compact footprint ensures that no long-term or irreversible environmental impacts are anticipated from the project.

6.3.1 Siting Decision

The location of the new sanitary pump station is permanent and was selected to avoid impacts to sensitive environmental features while maintaining operational continuity with GLWA's existing conveyance system. The selected site places the facility within GLWA-owned parcels already used for utility infrastructure and avoids greenfield development. Power and emergency power are supplied from the existing primary switchgear located at the adjacent Storm Water Pump Station. If any limited features are unavoidably affected during construction, restoration or replacement will be performed in coordination with the appropriate permitting and review authorities.

6.3.2 Operational Impacts

Operational impacts from the new facility are expected to be minimal and fully mitigable. The station does not introduce new process emissions or chemical discharges, and routine operation will be limited to enclosed pumping equipment, ventilation systems, and typical building utilities. Odors, aerosols, and noise will be controlled through enclosed equipment rooms, appropriate ventilation/odor control systems, and mechanical design features that reduce vibration and sound transmission. Emergency power, pump isolation, and dual-well operation reduce the risk of overflows or accidental releases.

Any construction-related impacts, such as dust, exhaust, noise, or dewatering, will be temporary and mitigated through best management practices (BMPs), including dust suppression, equipment idling limits, sedimentation controls, noise abatement measures, and proper handling and disposal of spoils. The project does not involve effluent discharge; however, all dewatering will comply with applicable permits to prevent impacts to surface waters, groundwater, or nearby vegetation.

6.4 Mitigation of Indirect Impacts

In general, indirect impacts are not anticipated for the recommended improvements included in this Project Plan. The Conner Creek Sanitary Pump Station Replacement Project is utilizing existing sanitary infrastructure located on GLWA-owned parcels already used for utility purposes. The project does not extend service boundaries, expand sewer availability into unserved areas, or alter existing land use patterns. While the project upgrades infrastructure, it does not expand system capacity or service boundaries and therefore does not encourage or induce development outside areas already served by GLWA.

The surrounding area is fully developed and urbanized, and no agricultural land, natural areas, or culturally sensitive resources are located within the project footprint. The project will not create new access, utilities, or infrastructure that could indirectly influence redevelopment or expand development pressure. Furthermore, no new outfalls or changes to wastewater conveyance are proposed that would affect hydrologic conditions or encourage changes in land use. Therefore, indirect impacts are not expected to be a significant concern for these improvements, and no additional mitigation measures are required.

7 Public Participation

7.1 Community Engagement

GLWA recognizes the importance of community engagement and has a structured approach to inform, educate, explain the need for this project and gain support from the stakeholders. Project details and benefits are explained to the community and feedback is sought to influence the project.

GLWA has presented this project at multiple community engagement meetings to date beginning in December 2024. Meetings are hosted quarterly at nearby churches and will continue to be held throughout the project. Informational flyers are distributed to all residents within a 0.5-mile radius within 2-weeks of each meeting. Community engagement activities are summarized in Appendix L (WILL NEED TO INCLUDE IN FINAL PROJECT PLAN).

7.2 Public Meeting

7.2.1 Public Meeting Advertisement

A Public Hearing Notice was published to alert parties interested in this Project Plan and request input prior to its adoption (Appendix M). In addition, a direct mail notification was sent to the potentially interested parties included on a mailing list provided by GLWA. This direct mail notice included an invitation to comment. No comments were received to-date (WILL UPDATE IF NEEDED).

7.2.2 Public Hearing Transcript

A formal public hearing on the draft Project Plan was held before the GLWA Board of Water Commissioners on April 22, 2026. The hearing included a presentation on the project, as well as an opportunity for public comment and questions. The hearing transcript and a copy of the visual aids (Project Plan Summary) used during the presentation are included in Appendix N. There were no public comments from the Board member or public requiring revisions of the Project Plan (WILL UPDATE IF NEEDED).

7.2.3 Public Hearing Comments Received and Answered

There were no comments from the public during the Public Hearing (WILL UPDATE IF NEEDED).

7.3 Adoption of the Project Planning Document

The Project Plan was approved by the GLWA Board of Directors and adopted a Resolution (2026-XXX) at its meeting on April 22, 2026, authorizing GLWA to proceed with official filing of the Project Plan for purposes of securing low interest loan assistance under the SRF Program. An executed copy of the Board of Water Commissioners' Resolution approval for the Project Plan is included in Appendix O of this Project Plan.

Tables

Figures

Appendix A

Archaeological Literature Review and Assessment for the Conner Creek
Sanitary Pump Station Replacement Project

Appendix B

Above-Ground Resources Literature Review for the Conner Creek Sanitary Pump Station Replacement Project

Appendix C

FEMA Floodplain Map

Appendix D

Topographic Survey

Appendix E

Geotechnical Exploration Services, New Sanitary Pump Station – Phased
Conner Creek Storm and Sanitary Pump Station Improvements Report

Appendix F

Applied Science Inc. Flow Data Analysis Report

Appendix G

GLWA CIP Report Board Approved FY 2026 – 2032

Appendix H

Basis of Design Memos

Appendix I

Great Lakes Water Authority Conner Creek Sanitary Pump Station
Physical Hydraulic Model Study, April 2025

Appendix J

Project Maps

Appendix K

Landscape Plan

Appendix L

GLWA Community Engagement Plan

Appendix M

Public Hearing Notice

Appendix N

Public Hearing Transcript

Appendix O

GLWA Board Resolution

Prepared By:

Arcadis of Michigan, LLC
607 Shelby Street, Suite 400
Detroit
Michigan
Phone: 313 965 8436
www.arcadis.com