CIP

CAPITAL IMPROVEMENT PLAN

2021 - 2025

Appendix B - Wastewater Projects

GLWA
Great Lakes Water Authority

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

211001 CIP#

WRRF Rehabilitation of Primary Clarifiers Rectangular Tanks, Drain Lines,

- ☐ Innovation
- ☐ Conceptual WW MP
- ☐ Water MP Right Sizing
- ☑ Reliability/Redundancy
- ☐ NEWTP Repurposing

Project Status Active

CIP Type Project

☐ **Project New To CIP**

Pipe Gallery

Budget Wastewater
Class Lvl 1 Wastewater
Class Lvl 2 WRRF
Class Lvl 3 Primary Treatment
Location City of Detroit
Fund and Cost Center Wastewater - 5421-892211

Project Engineer/Manager Nicolas Nicolas
Director Philip Kora
Managing Dept WW Construction Eng
Date Original Business Case Prepared 6/23/2005
Year Project Added to CIP 1999

Problem Statement	Rehabilitation for meeting NPDES Permit and NEC requirements
Scope of Work / Project Alternatives	The work to be completed under this project will include installing ventilation and atmospheric control for the pipe gallery; providing new lights and emergency lights, etc.. This work also includes rehabilitation of 12 drain lines from rectangular clarifiers 3-12, circular clarifiers 16 and 16, installation of large manhole with sump pumps to collect drainage and discharge to clarifier, and concrete crack repairs, and rehabilitation work in Electrical/Mechanical Building.
Other Important Info	Challenges: N/A - Active
Primary Driver	N/A - Active
Driver Explanation	N/A - Active

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

211001 CIP#

WRRF Rehabilitation of Primary Clarifiers Rectangular Tanks, Drain Lines,

Phase Construction Assistance **Contract** CS-1484 **Status** Active

Title CS-1484 Construction Assistance

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

	Cost Est. Class
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY19-	$299			2021CIP
Engineering Services	FY20	$51			2021CIP
Engineering Services	FY21	$46			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
299	51	46	0	0	0	0	0	396	46

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Project Execution	7/18/2016	12/31/2020	1627

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

211001 CIP#

WRRF Rehabilitation of Primary Clarifiers Rectangular Tanks, Drain Lines,

Phase Construction **Contract** PC-757 **Status** Active

Title PC-757 Rehabilitation of Primary Clarifiers Rectangular Tanks, Drain Lines, Electrical/Mechanical Building and Pipe Gallery

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Federal Loan Programs
Start Date	7/18/2016	**Fund**	Improvement & Extension Fun
End Date	5/18/2020	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
	Cost Est. Date
Contract	**Cost Est. Source**
PMA	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY19-	$32,409			2021CIP
Construction	FY20	$6,092			2021CIP
Construction	FY21	$3,695			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
32,409	6,092	3,695	0	0	0	0	0	42,196	3,695

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Project Execution	7/18/2016	3/31/2020	1352
Project Closeout	4/1/2020	11/30/2020	243

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

211001 CIP#

WRRF Rehabilitation of Primary Clarifiers Rectangular Tanks, Drain Lines,

Phase not applicable **Contract** NA **Status** Closed Out

Title Prior Year Actual Expenses

FY 2018 Transfers Out of CWIP $1,702K

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Closed Out	**Funding Source**	
Start Date		**Fund**	
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
n/a	FY19-	$11,974			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
11,974	0	0	0	0	0	0	0	11,974	0

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

211001 CIP#

WRRF Rehabilitation of Primary Clarifiers Rectangular Tanks, Drain Lines,

Phase GLWA Employees Project management **Contract** NA **Status** Active

Title GLWA Salaries

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Federal Loan Programs
Start Date		**Fund**	Improvement & Extension Fun
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

3	**Cost Est. Class**
7/31/2019	**Cost Est. Date**
	Cost Est. Source
PMA	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2021	FY19-	$387			2021CIP
GLWA Salaries CIP2021	FY20	$82			2021CIP
GLWA Salaries CIP2021	FY21	$34			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
387	82	34	0	0	0	0	0	503	34

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

211001 CIP#

WRRF Rehabilitation of Primary Clarifiers Rectangular Tanks, Drain Lines,

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	45,069	6,225	3,775	0	0	0	0	0	55,069	3,775
2020	0	0	25,098	18,724	7,982	3,054	0	0	0	0	0	54,858	11,036
2019	0	10,243	12,983	16,107	8,671	6,033				0	0	54,037	30,811
2018		10,848	12,097	20,990	7,968				0	0	0	51,903	41,055

Description of CIP Changes The construction cash flow projection was adjusted based on the latest schedule update/actual progress of work.

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF PS No. 2 Pumping Improvements - Phase 1

211002 CIP#

- ☐ Innovation
- ☐ Conceptual WW MP
- ☐ Water MP Right Sizing
- ☑ Reliability/Redundancy
- ☐ NEWTP Repurposing

Project Status Active

CIP Type Project

☐ **Project New To CIP**

Pump Station 2

Budget Wastewater
Class Lvl 1 Wastewater
Class Lvl 2 WRRF
Class Lvl 3 Primary Treatment
Location City of Detroit
Fund and Cost Center Wastewater - 5421-892211

Project Engineer/Manager Vinod Sharma
Director Philip Kora
Managing Dept WW Construction Eng
Date Original Business Case Prepared 4/30/2003
Year Project Added to CIP 2003

Problem Statement	Correct drifting issues of pumps and meet long term wet weather capacity needs
Scope of Work / Project Alternatives	This project involves evaluating and recommending alternatives for providing more reliable pumping capacity at Pump Station No. 2 for Pumps Nos. 11 and 14.
Other Important Info	Challenges: N/A - Active
Primary Driver	N/A - Active
Driver Explanation	N/A - Active

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF PS No. 2 Pumping Improvements - Phase 1

211002 CIP#

Phase Study and Design and Construction Assistance **Contract** CS-1444 **Status** Active

Title CS-1444 Pump Station No. 2 Pumping Improvements

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date	7/20/2010	**Fund**	Construction Bond Fund
End Date	6/20/2019	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

2	**Cost Est. Class**
10/2/2017	**Cost Est. Date**
	Cost Est. Source
Ali Khraizat	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Todd King
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY19-	$126			2021CIP
Engineering Services	FY20	$66			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
126	66	0	0	0	0	0	0	192	0

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Project Execution	7/20/2010	6/20/2020	3623

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF PS No. 2 Pumping Improvements - Phase 1

211002 CIP#

Phase Construction **Contract** PC-795 **Status** Active

Title PC-795, Pump Station No. 2 Pumping Improvements

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Federal Loan Programs
Start Date	10/17/2016	**Fund**	Improvement & Extension Fun
End Date	6/20/2019	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
7/31/2019	**Cost Est. Date**
Contract	**Cost Est. Source**
PMA	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY19-	$1,599			2021CIP
Construction	FY20	$1,676			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
1,599	1,676	0	0	0	0	0	0	3,275	0

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Project Execution	10/17/2016	11/15/2019	1124
Project Closeout	11/16/2019	6/20/2020	217

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF PS No. 2 Pumping Improvements - Phase 1

211002 CIP#

Phase not applicable **Contract** NA **Status** Closed Out

Title Prior Year Actual Expenses

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Closed Out	**Funding Source**	
Start Date		**Fund**	
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
n/a	FY19-	$108			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
108	0	0	0	0	0	0	0	108	0

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF PS No. 2 Pumping Improvements - Phase 1

211002 CIP#

Phase GLWA Employees Project management **Contract** NA **Status** Active

Title GLWA Salaries

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

3	**Cost Est. Class**
9/17/2018	**Cost Est. Date**
	Cost Est. Source
P. Kora	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2021	FY19-	$79			2021CIP
GLWA Salaries CIP2021	FY20	$118			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
79	118	0	0	0	0	0	0	197	0

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF PS No. 2 Pumping Improvements - Phase 1

211002 CIP#

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	1,912	1,860	0	0	0	0	0	0	3,772	0
2020	0	0	322	2,268	1,222	0	0	0	0	0	0	3,812	1,222
2019	0	109	599	2,454	621					0	0	3,783	3,075
2018	456	1,157	1,304	616					0	0	0	3,533	1,920

Description of CIP Changes The project is delayed because of the CFD modeling and shop testing issues.

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

211004 CIP#

WRRF PS #1 Rack & Grit and MPI Sampling Station 1 Improvements

- ☐ Innovation
- ☐ Conceptual WW MP
- ☐ Water MP Right Sizing
- ☑ Reliability/Redundancy
- ☐ NEWTP Repurposing

Project Status Active

CIP Type Project

☐ **Project New To CIP**

Rack and Grit

Budget Wastewater
Class Lvl 1 Wastewater
Class Lvl 2 WRRF
Class Lvl 3 Primary Treatment
Location City of Detroit
Fund and Cost Center Wastewater - 5421-892211

Project Engineer/Manager Partho Ghosh
Director Philip Kora
Managing Dept WW Construction Eng
Date Original Business Case Prepared 3/17/2008
Year Project Added to CIP 2008

Problem Statement	Rehabilitate aging rack and grit system for efficient removal of grit to reduce loading on downstream process areas
Scope of Work / Project Alternatives	The scope of work includes modifications and improvements of the existing grit and screening handling system at Pump Station 1 and MPI Sampling Station 1.
Other Important Info	Challenges: N/A - Active
Primary Driver	N/A - Active
Driver Explanation	N/A - Active

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF PS #1 Rack & Grit and MPI Sampling Station 1 Improvements

211004 CIP#

Phase not applicable **Contract** NA **Status** Closed Out

Title Prior Year Actual Expenses

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Closed Out	**Funding Source**	
Start Date		**Fund**	
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
n/a	FY19-	$20,962			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
20,962	0	0	0	0	0	0	0	20,962	0

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

211004 CIP#

WRRF PS #1 Rack & Grit and MPI Sampling Station 1 Improvements

Phase GLWA Employees Project management **Contract** NA **Status** Active

Title GLWA Salaries

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

3	**Cost Est. Class**
9/17/2018	**Cost Est. Date**
	Cost Est. Source
P. Kora	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2021	FY19-	$429			2021CIP
GLWA Salaries CIP2021	FY20	$37			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
429	37	0	0	0	0	0	0	466	0

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

211004 CIP#

WRRF PS #1 Rack & Grit and MPI Sampling Station 1 Improvements

Phase Construction Assistance **Contract** NA **Status** Active

Title construction Asistance

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

	Cost Est. Class
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY19-	$216			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
216	0	0	0	0	0	0	0	216	0

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

211004 CIP#

WRRF PS #1 Rack & Grit and MPI Sampling Station 1 Improvements

Phase Construction **Contract** PC-789 **Status** Active

Title PC-789 Pump Station 1 Rack & Grit and MPI Sampling Station 1 Improvements

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date	11/18/2013	**Fund**	Construction Bond Fund
End Date	7/30/2017	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
7/31/2019	**Cost Est. Date**
Contract	**Cost Est. Source**
PMA	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY19-	$4,895			2021CIP
Construction	FY20	$1,734			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
4,895	1,734	0	0	0	0	0	0	6,629	0

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Project Execution	11/18/2013	6/10/2019	2030
Project Closeout	6/11/2019	3/20/2020	283

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

211004 CIP#

WRRF PS #1 Rack & Grit and MPI Sampling Station 1 Improvements

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	26,502	1,771	0	0	0	0	0	0	28,273	0
2020	0	0	24,505	1,824	869	0	0	0	0	0	0	27,198	869
2019	0	20,944	3,648	2,752	303					0	0	27,647	3,055
2018	13887	2,303	2,652	2,652					0	0	0	21,494	5,304

Description of CIP Changes

GLWA has decided to delete the grit system rehab work of channels 2 and 3 from the project. And the anticipated credit amount is reflected in the revised cash flow projection. Final completion date will be extended by 6 months to address the fire alarm changes resulted from the deletion of work.

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
WRRF PS No. 2 Improvements Phase II

211005 CIP#

- ☐ Innovation
- ☐ Conceptual WW MP
- ☐ Water MP Right Sizing
- ☑ Reliability/Redundancy
- ☐ NEWTP Repurposing

Project Status Future Planned

CIP Type Project

☐ **Project New To CIP**

Main Raw Sewage Pumps at Pump Station 2

Project Engineer/Manager Alfredo Lava
Director Dan Alford
Managing Dept WW Design Eng
Date Original Business Case Prepared 7/27/2016
Year Project Added to CIP 2014

Budget Wastewater
Class Lvl 1 Wastewater
Class Lvl 2 WRRF
Class Lvl 3 Primary Treatment
Location City of Detroit
Fund and Cost Center Wastewater - 5421-892211

Problem Statement

This project will improve the pump reliability of PS-2 to meet the NPDES permit flow capacity requirements.

Scope of Work / Project Alternatives

The preliminary scope of this project is to provide basis of design (study) report for rehabilitation/rebuilding plan for existing pump and its control and any associated equipment. The study will look into the addition of VFD to the three constant speed pumps. The study will not be limited to increasing the capacity of existing pumps to meet the long-term goal for wet weather capacity. The Scope also include: Provide engineering design for rehabilitation/rebuilding of the pumps, replacement of HVAC System, I&C Improvements (i.e. automation, etc.), structural, architectural and electrical improvement, provide design for any recommendation made by the study report. The services during construction is: provide construction assistance, such as review of shop drawings, response to RFIs, attending progress meetings, verifying and assisting GLWA for any changes requested by the contractor, etc.

Construction will follow after the completion of design.

Other Important Info

Challenges: Shutdowns of the pumps to be rehabilitated will require co-ordination with operations and careful planning to meet NPDES permit requirements for the flow capacity during the construction phase.

Project History: Pump Station No. 2 was built in 1994. Seven out of eight pumps were running since 1994. These pumps never attained the design capacity due to an unidentified drifting problem. The eighth pump (Pump No. 10) was installed under PC-740 with a modified suction elbow that provided better pumping capacity. The VFDs for five (5) pumps were also replaced in 2005 under PC-744 contract.
A new impeller was installed on Pump No. 9 and a rebuilt impeller was installed on Pump No. 16 in 2008, which

	provided sufficient improvements in pumping capacity. To mitigate the declining of pumping capacity, DWSD initiated a CS-1444/PC-795 PS-2 Pumping Improvements project to rehabilitate Pump No. 11 and Pump No. 14 to solidify the long-term wet weather capacity of 1700 MGD. It was recommended to rehabilitate the remaining pumps with energy efficient, and more reliable control systems that require less maintenance.
Related Project	The work shall start in accordance with the completion of PC-795, PS-2 Pumping Improvements and Rehabilitation of Pump Station No. 2 Rack and Grit Improvements.
Primary Driver	2 - Performance
Driver Explanation	The advantage of rehabilitating Pump Station No. 2 is to increase the long-term rated capacity, operational efficiency, and reliability of the pumping system. Replacement of the existing VFDs and adding new VFDs to constant speed pumps would also provid

WRRF PS No. 2 Improvements Phase II

PM Weighted Score
78.6

Criteria	Score	Comment
Condition	5	Replacement or major rehab needed immedi
Performance (Service Level/Reliability)	4	High Risk of Performance Failures
Regulatory (Environmental/Legal)	4	Risk of non compliance in near term
Operations and Maintenance	3	Project will alleviate most ongoing O&M issues
Public Health and Safety	4	Project will have significant positive impact on
Public Benefit	3	Project part of GLWA strategic plan
Financial	4	Project will likely result in avoidance of fines
Efficiency and Innovation	4	Significant Operational efficiency

RC Weighted Score
72.8

Criteria	Score	Comment
Condition	5	
Performance (Service Level/Reliability)	4	
Regulatory (Environmental/Legal)	4	
Operations and Maintenance	3	
Public Health and Safety	4	
Public Benefit	3	
Financial	2	
Efficiency and Innovation	3	

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF PS No. 2 Improvements Phase II

211005 CIP#

Phase Study and Design and Construction Assistance **Contract** TBD **Status** Future Planned Start

Title CS-130 Pump Station No. 2 Improvements Phase II at Wastewater Treatment Plant (WRRF)

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

4	**Cost Est. Class**
10/2/2017	**Cost Est. Date**
	Cost Est. Source
Ali Khraizat	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY23	$385			2021CIP
Engineering Services	FY24	$2,159			2021CIP
Engineering Services	FY25	$253			2021CIP
Engineering Services	FY26+	$652			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	0	385	2,159	253	652	3,449	2,797

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Pre-Procurement	7/1/2022	8/11/2022	41
Procurement	8/12/2022	2/7/2023	179
Project Execution	2/8/2023	3/18/2028	1865

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF PS No. 2 Improvements Phase II

211005 CIP#

Phase Construction **Contract** NA **Status** Future Planned Start

Title Pump Station No. 2 Improvements Phase II at Wastewater Treatment Plant (WRRF)

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

4	**Cost Est. Class**
10/2/2017	**Cost Est. Date**
	Cost Est. Source
Ali Khraizat	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY25	$596			2021CIP
Construction	FY26+	$29,404			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	0	0	0	596	29,404	30,000	596

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Procurement	8/6/2024	2/1/2025	179
Project Execution	2/2/2025	1/18/2028	1080
Project Closeout	1/19/2028	3/18/2028	59

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF PS No. 2 Improvements Phase II

211005 CIP#

Phase GLWA Employees Project management **Contract** NA **Status** Future Planned Start

Title GLWA Salaries

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

3	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2021	FY19-	$1			2021CIP
GLWA Salaries CIP2021	FY23	$86			2021CIP
GLWA Salaries CIP2021	FY24	$86			2021CIP
GLWA Salaries CIP2021	FY25	$100			2021CIP
GLWA Salaries CIP2021	FY26+	$328			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
1	0	0	0	86	86	100	328	601	272

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

211005 CIP#

WRRF PS No. 2 Improvements Phase II

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	1	0	0	0	471	2,245	949	30,384	34,050	3,665
2020	0	0	0	0	0	684	711	611	8,668	10,925	0	21,599	10,674
2019	0		7		515	115	9,294	9,101	3,055	0	0	22,087	19,025
2018			600	1,700	4,800	3,700			0	0	0	10,800	10,800

Description of CIP Changes

Engineering services fee was increased ~$1.5 million - previous estimate was not accurate. Schedule was delayed by 1 FY to reallocate funding for CIP 232002 and account for overlap with PS No.1 construction.

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
WRRF PS No. 1 Improvements

211006 CIP#

- [x] Innovation
- [ ] Conceptual WW MP
- [ ] Water MP Right Sizing
- [x] Reliability/Redundancy
- [ ] NEWTP Repurposing

Project Status Active

CIP Type Project

- [ ] **Project New To CIP**

Pump Station 1 Interior

Project Engineer/Manager Jason Williams
Director Dan Alford
Managing Dept WW Design Eng
Date Original Business Case Prepared 4/13/2017
Year Project Added to CIP 2016

Budget Wastewater
Class Lvl 1 Wastewater
Class Lvl 2 WRRF
Class Lvl 3 Primary Treatment
Location City of Detroit
Fund and Cost Center Wastewater - 5421-892211

Problem Statement	Condition assessment and rehabiliation of all pumps at Pump Station No. 1 to increase efficiency and reliability.
Scope of Work / Project Alternatives	The study/design work will identify all major parts including impellers and wear rings to be refurbished for each pump and all related appurtenances. The construction services will provide rehabilitation and/or replacement as determined in the study and design along with the sequencing of pump shutdown throughout the rehabilitation period. Investigation and evaluation of all the inlet gates, outlet gates and associated actuators, Motor Control Centers (MCCs) and other related equipment, HVAC system, Control System and provide recommendation and design for rehabilitation or replacement are also part of the scope.
Other Important Info	Challenges: Maintaining the adequate pumping capacity during construction. Project History: GLWA operate two raw sewage pumping stations: PS-1 and PS-2, at the Water Resources Recovery Facility. Raw wastewater (influent) from the collection system flows to the Influent Pumping Station through the Detroit River Interceptor (16 feet in diameter), Oakwood Interceptor (12.5 feet in diameter) and North Interceptor East Arm (NIEA). The main Influent Pumping Station No. 1 (PS-1) was constructed in the 1930s. PS-1 has eight constant speed pumps of various capacities (six were installed in the 1940s and two more were added in 1956) and has a Firm Capacity (largest pump out of service) of 1,225 MGD during wet weather event. The Influent Pumping Station No. 2 (PS-2) has eight raw sewage pumps (combination of variable and constant speed pumps) with a Firm Capacity of 805 MGD during wet weather event. The pumps at PS-1 were rehabilitated in 2004 and 2005 under PC-744 project (DWP 1007).

WRRF PS No. 1 Improvements

Related Project	PC-757 – Rehabilitation of Primary Clarifiers Tanks, Drain Lines, Electrical/Mechanical Building and Pipe Gallery. PC 789 – Pump Station No. 1 Rack & Grit Building, MPI 1, and JSS Improvements. PC-795 – Pump Station No. 2 Pumping Improvements.
Primary Driver	1 - Condition

WRRF PS No. 1 Improvements

PM Weighted Score
80.8

Criteria	Score	Comment
Operations and Maintenance	4	Project will alleviate most ongoing O&M issues
Public Health and Safety	4	Project will have significant positive impact or
Financial	4	Project will likely result in avoidance of fines
Performance (Service Level/Reliability)	4	High Risk of Performance Failures
Efficiency and Innovation	4	Significant Operational efficiency
Regulatory (Environmental/Legal)	4	Risk of non compliance in near term
Public Benefit	3	Project part of GLWA strategic plan
Condition	5	Replacement or major rehab needed immedi

RC Weighted Score
75

Criteria	Score	Comment
Condition	5	
Performance (Service Level/Reliability)	4	
Regulatory (Environmental/Legal)	4	
Operations and Maintenance	4	
Public Health and Safety	4	
Public Benefit	3	
Financial	2	
Efficiency and Innovation	3	

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF PS No. 1 Improvements

211006 CIP#

Phase Study and Design and Construction Assistance **Contract** NA **Status** Future Planned Start

Title Rehabilitation of Main Lift Pumps at Pump Station No. 1

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date	6/11/2018	**Fund**	Construction Bond Fund
End Date	7/18/2023	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

4	**Cost Est. Class**
10/1/2017	**Cost Est. Date**
	Cost Est. Source
Ali Khraizat	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY20	$843			2021CIP
Engineering Services	FY21	$559			2021CIP
Engineering Services	FY22	$148			2021CIP
Engineering Services	FY23	$220			2021CIP
Engineering Services	FY24	$220			2021CIP
Engineering Services	FY25	$174			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	843	559	148	220	220	174	0	2,164	1,321

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Project Execution	5/31/2019	4/14/2025	2145

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF PS No. 1 Improvements

211006 CIP#

Phase Construction **Contract** NA **Status** Future Planned Start

Title Rehabilitation of Main Lift Pumps at Pump Station No. 1

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date	8/2/2020	**Fund**	Construction Bond Fund
End Date	7/18/2023	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

3	**Cost Est. Class**
	Cost Est. Date
Contract	**Cost Est. Source**
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY22	$305			2021CIP
Construction	FY23	$8,191			2021CIP
Construction	FY24	$12,432			2021CIP
Construction	FY25	$3,072			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	305	8,191	12,432	3,072	0	24,000	24,000

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Procurement	9/2/2021	2/28/2022	179
Project Execution	3/1/2022	2/13/2025	1080
Project Closeout	2/14/2025	4/14/2025	59

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF PS No. 1 Improvements

211006 CIP#

Phase GLWA Employees Project management **Contract** NA **Status** Future Planned Start

Title GLWA Salaries

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

3	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2021	FY19-	$6			2021CIP
GLWA Salaries CIP2021	FY20	$86			2021CIP
GLWA Salaries CIP2021	FY21	$86			2021CIP
GLWA Salaries CIP2021	FY22	$98			2021CIP
GLWA Salaries CIP2021	FY23	$121			2021CIP
GLWA Salaries CIP2021	FY24	$120			2021CIP
GLWA Salaries CIP2021	FY25	$95			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
6	86	86	98	121	120	95	0	612	520

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF PS No. 1 Improvements

211006 CIP#

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	6	929	645	551	8,532	12,772	3,341	0	26,776	25,841
2020	0	0		498	1,803	2,325	8,424	8,370	811	84	0	22,315	21,733
2019	0			500	1,800	2,462	9,394	9,245	719	0	0	24,120	23,401
2018			600	5,350	5,125	2,054			0	0	0	13,129	13,129

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

211007 CIP#

WRRF PS #2 Bar Racks Replacements and Grit Collection System Improvements

- [x] Innovation
- [ ] Conceptual WW MP
- [ ] Water MP Right Sizing
- [x] Reliability/Redundancy
- [ ] NEWTP Repurposing

Project Status Active

CIP Type Project

- [ ] **Project New To CIP**

WRRF Pumping Station 2: Bar Racks and Grit Collection System

Project Engineer/Manager Jason Williams

Director Dan Alford

Managing Dept WW Design Eng

Date Original Business Case Prepared 10/12/2016

Year Project Added to CIP 2016

Budget Wastewater

Class Lvl 1 Wastewater

Class Lvl 2 WRRF

Class Lvl 3 Primary Treatment

Location City of Detroit

Fund and Cost Center Wastewater - 5421-892211

Problem Statement	Replacement of all bar racks and associated equipment and addition of fine screens (1/4 inch) for more reliable and efficient screenings removal. Addition of screenings washing and compaction to reduce truck traffic and cost of disposal. Improvement of grit collection system with more efficient, state-of-the-art, grit collection and pumping system, and grit washing and classification to reduce truck traffic and cost of disposal. Improvements to the grit screenings and grit removal and handling systems will improve the performance of all downstream processes, reduce maintenance costs and increase life of downstream equipment.
Scope of Work / Project Alternatives	The work consists of evaluation, design and construction of the replacement of the existing bar racks and ancillary equipment and gates, addition of new fine screens (1/4 inch) downstream of the bar racks, addition of screenings washing and compaction, inclusion of stacked tray grit removal or other technology within the aerated grit tank and grit washing and/or classification. Work also includes the upgrade and expansion as necessary of the existing building that houses the screens and the screenings and grit handling and load out, including all lighting, HVAC, plumbing, electrical, and architectural work. New instrumentation and controls for operations and monitoring will also be provided. System shall be designed to meet long-term wet weather capacity requirements at PS2.
Other Important Info	*Innovation note: Include new grit removal equipment rather than replacement in kind (cyclonic). The CIP Project Proposal – CIP 1314 – "Replacement of Bar Racks at Pump Station No. 2" and CIP Project Proposal – CIP 1223 – "Rehabilitation of Grit and Screening System at PS-2 and Rehabilitation of Sampling Sites at WWTP" are combined into one project under CIP 1314. That combined new budget for CIP 1314 (CIP 1223 and 1314) has a total amount of $11,617,000. The design of "Rehabilitation of Sampling Sites" is completed and will be bid separately for construction. The previous design for Bar Rack System by Sigma under As Needed Engineering

	Services Contact task order will not proceed for construction as designed. An engineering decision to have a fresh look and start new study, design and construction project through this CIP project will proceed. The original budget for CIP-1314 is $3.667M. The $6.0M CIP budget transfer was made from CIP-1223. The new revised CIP-1314 budget is $9.667 Challenges: Maintaining the MDEQ-NPDES required capacity during the construction phase of the project. Project History: The Pump Station No. 2 Rack and Grit Collection system have been in service for almost twenty years. The equipment are near the end of its useful life. Improper transport of collected screenings has been ongoing problem and rags and other floatable materials are not screened thoroughly. The condition and reliability of the Pump Station No. 2 Grit System was inspected and the grit crane was upgraded in 2002 by PC-744/DWP-1006. □ The HVAC system was found in good condition but needs some rehabilitation due to its ending life cycle. □ Modifications are needed to the existing Grit removal system because of the draining issues. Grit Chambers cannot be emptied due to clogged drains. □ Grit carry over cause deterioration of the downstream process and equipment □ Rehabilitation/Replacement of screening belt since the equipment is nearing to its useful life. □ Rehabilitation of Grit Channel Drain Gate stems. The bar screen foundations, screen frames, and conveyance chutes in PS-2 have been in service for approximately twenty years.
Related Project	PC-757: Rehabilitation of Primary Clarifiers & Pipe Gallery PC 789 – Pump Station No. 1 Rack and Grit Building, MPI and JSS Improvements PC 795 – Pump Station No. 2 Improvements
Primary Driver	2 - Performance
Driver Explanation	Plant operations report on the failure of shear pins and accelerated wearing and tearing of the bar racks causing downtime for the maintenance and violation of the permit

WRRF PS #2 Bar Racks Replacements and Grit Collection System Improvements

PM Weighted Score
73.4

Criteria	Score	Comment
Condition	4	Replacement or major rehab needed immed
Performance (Service Level/Reliability)	4	Project will have a significant positive impact
Regulatory (Environmental/Legal)	4	Relatively high, but not imminent risk
Operations and Maintenance	4	Project will have significant positive impact or
Public Health and Safety	3	Failure not catastophic, moderate chance of
Public Benefit	2	Additional Savings in O&M
Financial	4	Project will likely result in avoidance of fines
Efficiency and Innovation	4	Project will have a positive impact on Wear &

RC Weighted Score
65.2

Criteria	Score	Comment
Condition	3	
Performance (Service Level/Reliability)	4	
Regulatory (Environmental/Legal)	4	
Operations and Maintenance	4	
Public Health and Safety	3	
Public Benefit	3	
Financial	3	
Efficiency and Innovation	1	

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

211007 CIP#

WRRF PS #2 Bar Racks Replacements and Grit Collection System Improvements

Phase GLWA Employees Project management **Contract** NA **Status** Future Planned Start

Title GLWA Salaries

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

4	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2021	FY19-	$1			2021CIP
GLWA Salaries CIP2021	FY20	$86			2021CIP
GLWA Salaries CIP2021	FY21	$86			2021CIP
GLWA Salaries CIP2021	FY22	$86			2021CIP
GLWA Salaries CIP2021	FY23	$96			2021CIP
GLWA Salaries CIP2021	FY24	$120			2021CIP
GLWA Salaries CIP2021	FY25	$121			2021CIP
GLWA Salaries CIP2021	FY26+	$100			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
1	86	86	86	96	120	121	100	696	509

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

211007 CIP#

WRRF PS #2 Bar Racks Replacements and Grit Collection System Improvements

Phase Study and Design and Construction Assistance **Contract** NA **Status** Future Planned Start

Title Replacement of Bar Racks at Pump Station No.2

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date	12/8/2018	**Fund**	Construction Bond Fund
End Date	1/14/2024	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

4	**Cost Est. Class**
10/2/2017	**Cost Est. Date**
	Cost Est. Source
Ali Khraizat	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY20	$170			2021CIP
Engineering Services	FY21	$3,012			2021CIP
Engineering Services	FY22	$7,460			2021CIP
Engineering Services	FY23	$1,463			2021CIP
Engineering Services	FY24	$1,202			2021CIP
Engineering Services	FY25	$1,199			2021CIP
Engineering Services	FY26+	$995			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	170	3,012	7,460	1,463	1,202	1,199	995	15,501	14,336

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Pre-Procurement	4/1/2019	9/30/2019	182

WRRF PS #2 Bar Racks Replacements and Grit Collection System Improvements

Phase Task Name	Start Date	End Date	Duration
Procurement	10/1/2019	3/28/2020	179
Project Execution	3/29/2020	4/29/2026	2222

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

211007 CIP#

WRRF PS #2 Bar Racks Replacements and Grit Collection System Improvements

Phase Construction **Contract** NA **Status** Future Planned Start

Title Replacement of Bar Racks at Pump Station No.2

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date	1/29/2021	**Fund**	Construction Bond Fund
End Date	1/14/2024	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

4	**Cost Est. Class**
10/2/2017	**Cost Est. Date**
	Cost Est. Source
Ali Khraizat	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY23	$561			2021CIP
Construction	FY24	$19,577			2021CIP
Construction	FY25	$32,714			2021CIP
Construction	FY26+	$7,547			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	0	561	19,577	32,714	7,547	60,399	52,852

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Procurement	9/15/2022	3/14/2023	180
Project Execution	3/15/2023	2/27/2026	1080
Project Closeout	2/28/2026	4/29/2026	60

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

211007 CIP#

WRRF PS #2 Bar Racks Replacements and Grit Collection System Improvements

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	1	256	3,098	7,546	2,120	20,899	34,034	8,642	76,596	67,697
2020	0	0		6	269	1,329	2,039	6,306	7,838	49	0	17,836	17,781
2019	0			7	402	1,980	2,404	6,956	8,814	0	0	20,563	11,749
2018			650	2,900	3,300	2,817			0	0	0	9,667	9,667

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

211008 CIP#

WRRF Rehabilitation of Ferric Chloride Feed System in PS-1 and Complex B Sludge Lines

- [x] Innovation
- [ ] Conceptual WW MP
- [ ] Water MP Right Sizing
- [x] Reliability/Redundancy
- [ ] NEWTP Repurposing

Project Status Active

CIP Type Project

☐ **Project New To CIP**

Ferric Chloride Tanks at Pump Station 1

Project Engineer/Manager Ravi Yelamanchi
Director Dan Alford
Managing Dept WW Design Eng
Date Original Business Case Prepared 7/27/2016
Year Project Added to CIP 2017

Budget Wastewater
Class Lvl 1 Wastewater
Class Lvl 2 WRRF
Class Lvl 3 Primary Treatment
Location City of Detroit
Fund and Cost Center Wastewater - 5421-892211

Problem Statement	The Ferric Chloride Systems at PS-1 is used to reduce phosphorus to the required permit levels. The system, which include chemical storage tanks, secondary containment, valves and piping is in need of rehabilitation. The Complex B sludge lines are clogged due to Struvite and need rehabilitation/replacement.
Scope of Work / Project Alternatives	The scope of work will include study design and construction for the ferric chloride feed system at PS-1. Specifically it will include: a study to evaluate alternative locations for application of ferric chloride, a pilot study to test alternative application points, and inspection of the existing chemical feed systems, a study to provide recommendations for system modifications and improvements, design of recommended system improvements, and construction of chemical feed system improvements. Evaluation and recommended design and construction of the sludge lines in Complex B is also included in the scope.
Other Important Info	*Innovation note: Align sizing & design with U of M phosphorus & enhanced carbon capture studies, as well as improved mixing of the ferric with primary influent. Challenges: Maintaining capacity of the existing feed system during construction will be a challenge. Also, determining the simplest system that will meet current and future phosphorous limits for both primary and secondary effluent will be a challenge. Project History: There are phosphorous effluent permit limits for both primary effluent (during wet weather) and for secondary effluent. Effluent limits for phosphorous were lowered again in 2016 and now stand at 1.5 mg/l for primary effluent and 0.7 mg/l (October – March) and 0.6 mg/l (April – September) for secondary effluent. GLWA has historically been able to meet the phosphorous limits for both primary and secondary effluent by adding ferric

	chloride to the primary clarifier influent. The physical/chemical removal in the primary clarifiers lowered the phosphorous concentrations to meet the primary effluent limits. However, GLWA has begun to experience some difficulty with the settling of the secondary biomass in the final clarifiers. Preliminary investigations have indicated that this settling ability issue could be caused by low phosphorous concentrations in the secondary influent wastewater. This is because the biomass in the secondary system requires a certain ratio of carbon (CBOD), nitrogen, and phosphorous to reduce the pollutant concentrations and then settle in the final clarifiers. As such, in addition to rehabilitating the ferric chloride system at PS-1, there also needs to be a study and possibly pilot test conducted to review the best location for ferric chloride addition to the wastewater.
Related Project	Rehabilitation of Pump Station – 2 Ferric Chloride Feed System is currently in design stage and construction will start soon.
Primary Driver	1 - Condition
Driver Explanation	The current chemical feed systems at PS-1 has deteriorated to the point where this need to be rehabilitated.

WRRF Rehabilitation of Ferric Chloride Feed System in PS-1 and Complex B Sludge Lines

PM Weighted Score
73.4

Criteria	Score	Comment
Condition	4	Shows abnormal wear. Replacement or major
Performance (Service Level/Reliability)	4	High Risk of Performance Failures
Regulatory (Environmental/Legal)	4	Risk of non compliance in near term
Operations and Maintenance	4	Project will have significant positive impact or
Public Health and Safety	3	Project likely to address hazard issues
Public Benefit	2	Mostly require new infrastructure
Financial	4	Project will likely result in avoidance of fines
Efficiency and Innovation	4	Right sizing system will have significant operati

RC Weighted Score
74.2

Criteria	Score	Comment
Condition	4	
Performance (Service Level/Reliability)	4	
Regulatory (Environmental/Legal)	4	
Operations and Maintenance	3	
Public Health and Safety	4	
Public Benefit	3	
Financial	3	
Efficiency and Innovation	4	

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

211008 CIP#

WRRF Rehabilitation of Ferric Chloride Feed System in PS-1 and Complex B Sludge Lines

Phase GLWA Employees Project management **Contract** NA **Status** Active

Title GLWA Salaries

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

4	**Cost Est. Class**
10/1/2017	**Cost Est. Date**
	Cost Est. Source
Ali Khraizat	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2021	FY19-	$18			2021CIP
GLWA Salaries CIP2021	FY20	$86			2021CIP
GLWA Salaries CIP2021	FY21	$115			2021CIP
GLWA Salaries CIP2021	FY22	$109			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
18	86	115	109	0	0	0	0	328	224

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

211008 CIP#

WRRF Rehabilitation of Ferric Chloride Feed System in PS-1 and Complex B Sludge Lines

Phase Study and Design and Construction Assistance **Contract** NA **Status** Future Planned Start

Title Rehabilitation of Ferric Chloride Feed Systems

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date	6/10/2019	**Fund**	Construction Bond Fund
End Date	12/24/2022	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

4	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY19-	$160			2021CIP
Engineering Services	FY20	$1,153			2021CIP
Engineering Services	FY21	$270			2021CIP
Engineering Services	FY22	$280			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
160	1,153	270	280	0	0	0	0	1,863	550

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Project Execution	5/23/2019	5/28/2022	1101

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

211008 CIP#

WRRF Rehabilitation of Ferric Chloride Feed System in PS-1 and Complex B Sludge Lines

Phase Construction **Contract** NA **Status** Future Planned Start

Title Rehabilitation of Ferric Chloride Feed Systems

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date	1/3/2021	**Fund**	Construction Bond Fund
End Date	12/24/2022	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

4	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY21	$5,137			2021CIP
Construction	FY22	$3,497			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	5,137	3,497	0	0	0	0	8,634	8,634

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Procurement	2/28/2020	8/25/2020	179
Project Execution	8/26/2020	2/26/2022	549
Project Closeout	2/27/2022	5/28/2022	90

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

211008 CIP#

WRRF Rehabilitation of Ferric Chloride Feed System in PS-1 and Complex B Sludge Lines

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	178	1,239	5,522	3,886	0	0	0	0	10,825	9,408
2020	0	0	12	1,021	2,950	4,983	1,600	0	0	0	0	10,566	9,533
2019	0			7	115	1,259	2,732	5,537	2,363	0	0	12,013	9,650
2018			400	1,400	5,200	2,000	633		0	0	0	9,633	9,633

Description of CIP Changes This project was moved forward due to SRF funding Source to begin in FY 2019.

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

211009 CIP#

WRRF Rehabilitation of the Circular Primary Clarifier Scum Removal System

- [x] Innovation
- [ ] Conceptual WW MP
- [ ] Water MP Right Sizing
- [x] Reliability/Redundancy
- [ ] NEWTP Repurposing

Project Status Future Planned

CIP Type Project

☐ **Project New To CIP**

The existing scum system is complicated to operate and difficult to maintain, equipment remains out of service for extended period. The scum beaches need better enclosure and heating system, during extreme cold conditions scum collection system get frozen

Project Engineer/Manager TBD
Director Dan Alford
Managing Dept WW Design Eng
Date Original Business Case Prepared 7/27/2016
Year Project Added to CIP 2017

Budget Wastewater
Class Lvl 1 Wastewater
Class Lvl 2 WRRF
Class Lvl 3 Primary Treatment
Location City of Detroit
Fund and Cost Center Wastewater - 5421-892211

Problem Statement	The circular clarifiers scum removal system is over 10 years old and need to be rehabilitated. They will help protect the secondary treatment process by preventing scum from entering the aeration tanks.
Scope of Work / Project Alternatives	This project will provide for the study, design and construction of new scum equipment in the Scum Buildings for the circular clarifiers . The study will consist of an evaluation of the existing process and simplified alternative systems for scum removal including the scum removal from the buildings. Future alternatives for scum disposal, such as addition to an anaerobic digestion process, will be considered. All alternatives will be evaluated for energy efficiency (reduction of electrical usage). The scum removal system at the rectangular PCs will also be evaluated to determine which aspects can be applied to the circular SBs. Design and construction services will be included for the selected scum removal system.
Other Important Info	*Innovation note: See project write-up -- evaluate alternatives for energy efficiency. Project History: There are 12 rectangular PCs (1-12) and 6 circular PCs (13-18) clarifiers at the WRRF. PCs remove TSS, BOD, and phosphorous through a chemically enhanced settling process. The clarifiers also remove fats, oils,

	and grease (FOG or scum) by skimming the surface of the clarifiers and transporting the scum to a SB where it can be concentrated and pumped again to be hauled off site. The SBs for the rectangular clarifiers were recently rehabilitated. They have a fairly simple system and appear to be operating well. The SBs for the circular clarifiers utilize a somewhat complex transport and concentration system. New SBs were installed for PCs 17 and 18 when they were constructed. Since their installation, the equipment in the circular clarifier SBs has been complicated to operate and difficult to maintain. Much of the equipment is out of service for extended periods of time. Challenges: Each of the scum removal facility serves two circular clarifiers, so two circular clarifiers at a given time needs to be out of services during rehabilitation, this will limit the primary capacity to minimum to meet NPDES permit requirements.
Related Project	This project will need to be closely coordinated with other ongoing PC rehabilitation projects. Especially PC-757 which will be limiting primary capacity due to taking multiple primary clarifiers out of service for rehabilitation.
Primary Driver	1 - Condition
Driver Explanation	The condition of the existing equipment is old and complicated, this results in significant down time and maintenance challenges.

WRRF Rehabilitation of the Circular Primary Clarifier Scum Removal System

PM Weighted Score
52.8

Criteria	Score	Comment
Condition	3	11/28/18 - Khraizat & Caldwell modified priorit
Performance (Service Level/Reliability)	3	11/28/18 - Khraizat & Caldwell modified priorit
Regulatory (Environmental/Legal)	3	11/28/18 - Khraizat & Caldwell modified priorit
Operations and Maintenance	2	11/28/18 - Khraizat & Caldwell modified priorit
Public Health and Safety	2	11/28/18 - Khraizat & Caldwell modified priorit
Public Benefit	2	11/28/18 - Khraizat & Caldwell modified priorit
Financial	3	11/28/18 - Khraizat & Caldwell modified priorit
Efficiency and Innovation	3	11/28/18 - Khraizat & Caldwell modified priorit

RC Weighted Score
61.2

Criteria	Score	Comment
Condition	4	updated
Performance (Service Level/Reliability)	5	updated
Regulatory (Environmental/Legal)	3	11/28/18 - Khraizat & Caldwell modified prioritiz
Operations and Maintenance	2	11/28/18 - Khraizat & Caldwell modified prioritiz
Public Health and Safety	2	11/28/18 - Khraizat & Caldwell modified prioritiz
Public Benefit	2	11/28/18 - Khraizat & Caldwell modified prioritiz
Financial	3	11/28/18 - Khraizat & Caldwell modified prioritiz
Efficiency and Innovation	3	11/28/18 - Khraizat & Caldwell modified prioritiz

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

211009 CIP#

WRRF Rehabilitation of the Circular Primary Clarifier Scum Removal System

Phase GLWA Employees Project management **Contract** NA **Status** Future Planned Start

Title GLWA Salaries

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

4	**Cost Est. Class**
10/1/2017	**Cost Est. Date**
	Cost Est. Source
Ali Khraizat	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2021	FY20	$21			2021CIP
GLWA Salaries CIP2021	FY21	$86			2021CIP
GLWA Salaries CIP2021	FY22	$86			2021CIP
GLWA Salaries CIP2021	FY23	$101			2021CIP
GLWA Salaries CIP2021	FY24	$120			2021CIP
GLWA Salaries CIP2021	FY25	$85			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	21	86	86	101	120	85	0	499	478

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

211009 CIP#

WRRF Rehabilitation of the Circular Primary Clarifier Scum Removal System

Phase Study and Design and Construction Assistance **Contract** NA **Status** Future Planned Start

Title Rehabilitation of the Circular Primary Clarifier Scum Removal System

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date	11/8/2020	**Fund**	Construction Bond Fund
End Date	5/24/2024	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

4	**Cost Est. Class**
10/2/2017	**Cost Est. Date**
	Cost Est. Source
Ali Khraizat	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY21	$227			2021CIP
Engineering Services	FY22	$1,168			2021CIP
Engineering Services	FY23	$117			2021CIP
Engineering Services	FY24	$140			2021CIP
Engineering Services	FY25	$98			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	227	1,168	117	140	98	0	1,750	1,750

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Pre-Procurement	4/1/2020	7/29/2020	119
Procurement	7/30/2020	1/25/2021	179
Project Execution	1/26/2021	3/12/2025	1506

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

211009 CIP#

WRRF Rehabilitation of the Circular Primary Clarifier Scum Removal System

Phase Construction **Contract** NA **Status** Future Planned Start

Title Rehabilitation of the Circular Primary Clarifier Scum Removal System

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date	6/4/2022	**Fund**	Construction Bond Fund
End Date	5/24/2024	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

3	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
Engineer	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY23	$584			2021CIP
Construction	FY24	$8,455			2021CIP
Construction	FY25	$1,961			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	0	584	8,455	1,961	0	11,000	11,000

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Procurement	7/25/2022	1/20/2023	179
Project Execution	1/21/2023	1/11/2025	721
Project Closeout	1/12/2025	3/12/2025	59

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

211009 CIP#

WRRF Rehabilitation of the Circular Primary Clarifier Scum Removal System

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	0	21	313	1,254	802	8,715	2,144	0	13,249	13,228
2020	0	0		0	0	778	619	5,237	4,725	35	0	11,394	11,359
2019	0				7	859	572	5,796	5,005	0	0	12,239	7,234
2018			266	324	1,870	2,671	2,670	2,679	0	0	0	10,480	7,801

Description of CIP Changes Minor changes to the timing of projected expenses.

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Rehabilitation of Sludge Processing Complexes A and B

211010 CIP#

- ☐ Innovation
- ☐ Conceptual WW MP
- ☐ Water MP Right Sizing
- ☑ Reliability/Redundancy
- ☐ NEWTP Repurposing

Project Status Future Planned

CIP Type Project

☑ **Project New To CIP**

Project Engineer/Manager Ravi Yelamanchi
Director Dan Alford
Managing Dept WW Design Eng
Date Original Business Case Prepared
Year Project Added to CIP 2019

Budget Wastewater
Class Lvl 1 Wastewater
Class Lvl 2 WRRF
Class Lvl 3 Primary Treatment
Location City of Detroit
Fund and Cost Center Wastewater - 5421-892211

Problem Statement	Both Complex A and Complex B have reached the end of there design life. The majority of the equipment for the two processes are located below grade in areas prone to flooding. Tanks are located above grade and have little to no access around the perimeter, this limits and reduces cleaning effectiveness. Both the valves and the pumps used to transfer sludge to the BDF are past there design life. Equipment brakeage affects the plant ability to process sludge.
Scope of Work / Project Alternatives	The work consists of evaluation, design and rehabilitation of both Complex A and Complex B. Scope to include tank repair to improving tank access and increase life, building and process repair to including structural, mechanical, process, electrical, and instrumentation replacement. Scope should focused on relocating the sludge pumps from below grade to above grade which could include new above grade structures and cross connecting pumps to allow for additional flexibility in feeding the BDF process.
Other Important Info	Maintaining the MDEQ-NPDES required capacity during the construction phase of the project.
Primary Driver	8 - Efficiency
Driver Explanation	Equipment has exceeded its design life.

Rehabilitation of Sludge Processing Complexes A and B

PM Weighted Score
65

Criteria	Score	Comment
Condition	2	
Operations and Maintenance	4	
Efficiency and Innovation	2	
Financial	2	
Performance (Service Level/Reliability)	2	
Public Health and Safety	5	
Regulatory (Environmental/Legal)	4	
Public Benefit	4	

RC Weighted Score
65

Criteria	Score	Comment
Condition	2	
Efficiency and Innovation	2	
Public Benefit	4	
Financial	2	
Regulatory (Environmental/Legal)	4	
Operations and Maintenance	4	
Public Health and Safety	5	
Performance (Service Level/Reliability)	2	

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Rehabilitation of Sludge Processing Complexes A and B

211010 CIP#

Phase Study and Design and Construction Assistance **Contract** TBD **Status** Future Planned Start

Title TBD

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

5	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY24	$92			2021CIP
Engineering Services	FY25	$662			2021CIP
Engineering Services	FY26+	$616			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	0	0	92	662	616	1,370	754

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Pre-Procurement	7/1/2023	8/11/2023	41
Procurement	8/12/2023	3/18/2024	219
Project Execution	3/19/2024	10/15/2028	1671

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Rehabilitation of Sludge Processing Complexes A and B

211010 CIP#

Phase Construction **Contract** TBD **Status** Future Planned Start

Title Construction

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

	Cost Est. Class
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY26+	$12,118			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	0	0	0	0	12,118	12,118	0

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Procurement	7/12/2025	1/7/2026	179
Project Execution	1/8/2026	8/16/2028	951
Project Closeout	8/17/2028	10/15/2028	59

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Rehabilitation of Sludge Processing Complexes A and B

211010 CIP#

Phase GLWA Employees Project management **Contract** NA **Status** Future Planned Start

Title Project Mgt

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

	Cost Est. Class
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2021	FY24	$86			2021CIP
GLWA Salaries CIP2021	FY25	$86			2021CIP
GLWA Salaries CIP2021	FY26+	$379			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	0	0	86	86	379	551	172

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Rehabilitation of Sludge Processing Complexes A and B

211010 CIP#

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	0	0	0	0	0	178	748	13,113	14,039	926

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
WRRF PS1 Screening and Grit Improvements

211011 CIP#

- [x] Innovation
- [ ] Conceptual WW MP
- [ ] Water MP Right Sizing
- [x] Reliability/Redundancy
- [ ] NEWTP Repurposing

Project Status Future Planned

CIP Type Project

[x] **Project New To CIP**

Project Engineer/Manager TBD
Director Dan Alford
Managing Dept WW Design Eng
Date Original Business Case Prepared 8/7/2019
Year Project Added to CIP 2019

Budget Wastewater
Class Lvl 1 Wastewater
Class Lvl 2 WRRF
Class Lvl 3 Primary Treatment
Location City of Detroit
Fund and Cost Center

Problem Statement	Addition of fine screens (1/4 inch) for more reliable and efficient screenings removal. Addition of screenings washing and compaction to reduce truck traffic and cost of disposal. Improvement of grit collection system with more efficient, state-of-the-art, grit collection and pumping system, and grit washing and classification to reduce truck traffic and cost of disposal. Improvements to the grit screenings and grit removal and handling systems will improve the performance of all downstream processes, reduce maintenance costs and increase life of downstream equipment.
Scope of Work / Project Alternatives	The work consists of evaluation, design and construction of the addition of new fine screens (1/4 inch) downstream of the bar racks, addition of screenings washing and compaction, inclusion of stacked tray grit removal within the aerated grit tank and grit washing and/or classification. Work also includes the upgrade and expansion as necessary of the existing building that houses the screens and the screenings and grit handling and load out, including all lighting, HVAC, plumbing, electrical, and architectural work. New instrumentation and controls for operations and monitoring will also be provided. System shall be designed to meet long-term wet weather capacity requirements at PS1.
Other Important Info	Maintaining the MDEQ-NPDES required capacity during the construction phase of the project. Coordination with the CIP Number 211006
Primary Driver	2 - Performance

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
WRRF PS1 Screening and Grit Improvements

211011 CIP#

PM Weighted Score
64

Criteria	Score	Comment
Operations and Maintenance	4	
Public Health and Safety	2	
Regulatory (Environmental/Legal)	2	
Efficiency and Innovation	3	
Financial	4	
Condition	4	
Public Benefit	2	
Performance (Service Level/Reliability)	5	

RC Weighted Score
64

Criteria	Score	Comment
Public Health and Safety	2	
Efficiency and Innovation	3	
Regulatory (Environmental/Legal)	2	
Financial	4	
Performance (Service Level/Reliability)	5	
Operations and Maintenance	4	
Public Benefit	2	
Condition	4	Temp O&M plan in place

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
WRRF PS1 Screening and Grit Improvements

211011 CIP#

Phase GLWA Employees Project management **Contract** NA **Status** Future Planned Start

Title GLWA Salaries

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

	Cost Est. Class
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2021	FY25	$14			2021CIP
GLWA Salaries CIP2021	FY26+	$516			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	0	0	0	14	516	530	14

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF PS1 Screening and Grit Improvements

211011 CIP#

Phase Construction **Contract** TBD **Status** Future Planned Start

Title Addition of Fine Screens, New Grit Collection System

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

	Cost Est. Class
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY26+	$79,374			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	0	0	0	0	79,374	79,374	0

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Procurement	7/1/2027	12/31/2027	183
Project Execution	1/1/2028	12/30/2030	1094
Project Closeout	12/31/2030	2/28/2031	59

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF PS1 Screening and Grit Improvements

211011 CIP#

Phase Design & Construction Assistance **Contract** TBD **Status** Future Planned Start

Title Addition of Fine Screens, New Grit Collection System

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

	Cost Est. Class
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY26+	$20,843			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	0	0	0	0	20,843	20,843	0

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Pre-Procurement	5/1/2025	6/30/2025	60
Procurement	7/1/2025	12/31/2025	183
Project Execution	1/1/2026	2/28/2031	1884

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF PS1 Screening and Grit Improvements

211011 CIP#

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	0	0	0	0	0	0	14	100,733	100,747	14

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
WRRF Aeration System Improvements

212003 CIP#

- ☐ Innovation
- ☐ Conceptual WW MP
- ☐ Water MP Right Sizing
- ☑ Reliability/Redundancy
- ☐ NEWTP Repurposing

Project Status Active

CIP Type Project

☐ **Project New To CIP**

Equipment for aeration system

Project Engineer/Manager Vinod Sharma
Director Philip Kora
Managing Dept WW Construction Eng
Date Original Business Case Prepared 4/25/2008
Year Project Added to CIP 2008

Budget Wastewater
Class Lvl 1 Wastewater
Class Lvl 2 WRRF
Class Lvl 3 Secondary Treatment & Disinfection
Location City of Detroit
Fund and Cost Center Wastewater - 5421-892211

Problem Statement	Improve aeration system and provide necessary inter-connections
Scope of Work / Project Alternatives	The scope of work includes study, design, and construction assistance for the oxygen baffle on Bay 10 of A1 & A2 decks, replacement of influent, Return Activated Sludge (RAS) piping, isolation gate and valves for decks Nos. 3 & 4, replace RAS and influent magmeters for Intermediate Lift Pumps (ILP) Nos. 3, 4 & 7. The work also includes replacement of influent gates and operators on Aeration Deck No. 1 & 2.
Other Important Info	Challenges: N/A - Under Procurement
Primary Driver	N/A - Under Procurement
Driver Explanation	N/A - Under Procurement

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF Aeration System Improvements

212003 CIP#

Phase not applicable **Contract** NA **Status** Closed Out

Title Prior Year Actual Expenses

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Closed Out	**Funding Source**	
Start Date		**Fund**	
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
n/a	FY19-	$3,805			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
3,805	0	0	0	0	0	0	0	3,805	0

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF Aeration System Improvements

212003 CIP#

Phase Construction **Contract** PC-796 **Status** Active

Title PC-796 Aeration System Improvements

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Federal Loan Programs
Start Date	10/3/2016	**Fund**	Improvement & Extension Fun
End Date	9/24/2018	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
9/17/2018	**Cost Est. Date**
Contract	**Cost Est. Source**
PMA	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY19-	$12,068			2021CIP
Construction	FY20	$126			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
12,068	126	0	0	0	0	0	0	12,194	0

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Project Execution	10/3/2016	3/2/2019	880
Project Closeout	3/4/2019	7/21/2019	139

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF Aeration System Improvements

212003 CIP#

Phase Study and Design and Construction Assistance **Contract** CS-157 **Status** Active

Title CS-157 Aeration System Improvements

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Federal Loan Programs
Start Date	2/21/2012	**Fund**	Improvement & Extension Fun
End Date	2/28/2018	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
9/17/2019	**Cost Est. Date**
Contract	**Cost Est. Source**
PMA	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY19-	$249			2021CIP
Engineering Services	FY20	$10			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
249	10	0	0	0	0	0	0	259	0

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Project Execution	2/21/2012	7/26/2019	2712

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF Aeration System Improvements

212003 CIP#

Phase GLWA Employees Project management **Contract** NA **Status** Active

Title GLWA Salaries

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Federal Loan Programs
Start Date		**Fund**	Improvement & Extension Fun
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

3	**Cost Est. Class**
7/31/2019	**Cost Est. Date**
	Cost Est. Source
PMA	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2021	FY19-	$234			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
234	0	0	0	0	0	0	0	234	0

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF Aeration System Improvements

212003 CIP#

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	16,356	136	0	0	0	0	0	0	16,492	0
2020	0	0	11,851	4,831	0	0	0	0	0	0	0	16,682	0
2019	0	3,805	9,273	2,719	2,523					0	0	18,320	5,242
2018		2,348	11,197	2,658					0	0	0	16,203	13,855

Description of CIP Changes Cash flow projection is adjusted based on the latest status of construction.

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

212004 CIP#

WRRF Chlorination and Dechlorination Process Equipment Improvements

- [x] Innovation
- [ ] Conceptual WW MP
- [ ] Water MP Right Sizing
- [x] Reliability/Redundancy
- [ ] NEWTP Repurposing

Project Status Active

CIP Type Project

☐ **Project New To CIP**

Chlorinator/Sulfonator buildings

Project Engineer/Manager Ali Khraizat

Director Dan Alford

Managing Dept WW Design Eng

Date Original Business Case Prepared 8/8/2016

Year Project Added to CIP 2010

Budget Wastewater

Class Lvl 1 Wastewater

Class Lvl 2 WRRF

Class Lvl 3 Secondary Treatment & Disinfection

Location City of Detroit

Fund and Cost Center Wastewater - 5421-892211

Problem Statement	The disinfection complex equipment condition has deteriorated because of the corrosive characteristics of the chemicals utilized in the operations of the area. This project is needed to restore equipment performance to OEM levels.
Scope of Work / Project Alternatives	Scope of Work is to refurbish evaporators, chlorinators/sulfonators, replace regulating check valves, ejectors, process water valves, gas safety panels, compressors, gas flow meters, and all accessories and appurtenances. This proposed CIP budget is for construction only. The design and construction assistance services are budgeted through "As Needed Engineering Services Contract CS-1481, Task #23".
Other Important Info	*Innovation note: Align with considerations of alternative disinfection. The maintenance of the equipment hasn't been performed at the recommended intervals. Rebuilding the equipment and maintaining them according to OEM specifications would provide reliable performance. Challenges: Chlorine and sulfur dioxide are both extremely hazardous toxic chemicals that can impact staff and the public if an uncontrolled gas release occurs. Maintaining staff safety, regulatory compliance, and meeting production requirements is a challenge. Project History: The DMT Disinfection Complex was commissioned in 2003 and was expected to operate until 2023 without any major projects. However budget and staffing reductions caused the scheduled maintenance to be reduced so the equipment condition has deteriorated.
Related Project	The RRO segment 2, and RRO Disinfection Projects (PC-797) are potentially affected by this task. The PC-797 control and existing DRO Chlorination and De-chlorination system control needs to be integrated during the

	design and construction phase of "RRO Disinfection Project PC-797" in order to meet NPDES Permit requirements.
Primary Driver	1 - Condition
Driver Explanation	Non-compliance with the manufacturers recommended maintenance schedule has caused the disinfection equipment condition to deteriorate.

WRRF Chlorination and Dechlorination Process Equipment Improvements

PM Weighted Score
83.8

Criteria	Score	Comment
Condition	5	Replacement or major rehab needed immed
Performance (Service Level/Reliability)	4	High Risk of Performance Failures
Regulatory (Environmental/Legal)	5	Compliance Failure
Operations and Maintenance	4	High levels of O&M
Public Health and Safety	5	Likely to address major hazard issues or conce
Public Benefit	4	Significant impact on public image
Financial	3	Moderate positive financial implications throg
Efficiency and Innovation	2	Significant Operational efficiency

RC Weighted Score
81.6

Criteria	Score	Comment
Condition	5	
Performance (Service Level/Reliability)	4	
Regulatory (Environmental/Legal)	4	
Operations and Maintenance	3	
Public Health and Safety	5	
Public Benefit	4	
Financial	3	
Efficiency and Innovation	4	

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

212004 CIP#

WRRF Chlorination and Dechlorination Process Equipment Improvements

Phase not applicable **Contract** NA **Status** Closed Out

Title Prior Year Actual Expenses

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Closed Out	**Funding Source**	
Start Date		**Fund**	
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
n/a	FY19-	$86			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
86	0	0	0	0	0	0	0	86	0

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

212004 CIP#

WRRF Chlorination and Dechlorination Process Equipment Improvements

Phase Construction **Contract** CON-238 **Status** Under Procurement

Title Chlorination and Dechlorination Process Equipment Improvements

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Under Procurement	**Funding Source**	Bond Proceeds
Start Date	3/3/2018	**Fund**	Construction Bond Fund
End Date	8/25/2019	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

4	**Cost Est. Class**
10/2/2017	**Cost Est. Date**
	Cost Est. Source
Ali Khraizat	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY20	$3,584			2021CIP
Construction	FY21	$1,698			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	3,584	1,698	0	0	0	0	0	5,282	1,698

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Pre-Procurement	7/1/2016	6/30/2017	364
Procurement	2/20/2018	9/29/2019	586
Project Execution	9/30/2019	12/22/2020	449
Project Closeout	12/23/2020	6/21/2021	180

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

212004 CIP#

WRRF Chlorination and Dechlorination Process Equipment Improvements

Phase GLWA Employees Project management **Contract** NA **Status** Active

Title GLWA Salaries

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

5	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2021	FY19-	$11			2021CIP
GLWA Salaries CIP2021	FY20	$76			2021CIP
GLWA Salaries CIP2021	FY21	$88			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
11	76	88	0	0	0	0	0	175	88

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

212004 CIP#

WRRF Chlorination and Dechlorination Process Equipment Improvements

Phase Construction Assistance **Contract** New **Status** Active

Title CS-301 Task 23 - General Eng Serves (Sigma)

Existing DWSD contract coverted over to new GLWA contract.

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

5	**Cost Est. Class**
9/12/2018	**Cost Est. Date**
Contract	**Cost Est. Source**
WRRF Eng Design	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY19-	$93			2021CIP
Engineering Services	FY20	$66			2021CIP
Engineering Services	FY21	$64			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
93	66	64	0	0	0	0	0	223	64

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Project Execution	6/27/2017	6/21/2021	1455

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

212004 CIP#

WRRF Chlorination and Dechlorination Process Equipment Improvements

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	190	3,726	1,850	0	0	0	0	0	5,766	1,850
2020	0	0	117	913	2,345	1,670	0	0	0	0	0	5,045	4,015
2019	0	86		2,101	2,422	661				0	0	5,270	5,184
2018			400	2,800	1,800				0	0	0	5,000	5,000

Description of CIP Changes Con number was approved and added to the data base. Eng. Services was transferred from CIP No. 380901.

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF Rouge River Outfall (RRO) Disinfection (Alternative)

212006 CIP#

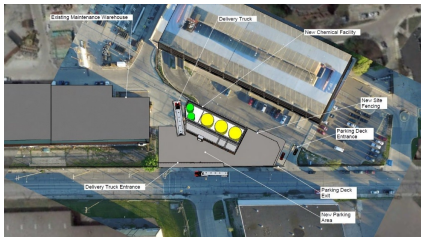
- ☐ Innovation
- ☐ Conceptual WW MP
- ☐ Water MP Right Sizing
- ☑ Reliability/Redundancy
- ☐ NEWTP Repurposing

Project Status Active

CIP Type Project

☐ **Project New To CIP**

Plan view of RRO location



Project Engineer/Manager Darrel Field

Director Philip Kora

Managing Dept WW Construction Eng

Date Original Business Case Prepared 2/11/2015

Year Project Added to CIP 2014

Budget Wastewater

Class Lvl 1 Wastewater

Class Lvl 2 WRRF

Class Lvl 3 Secondary Treatment & Disinfection

Location City of Detroit

Fund and Cost Center Wastewater - 5421-892211

Problem Statement	Provide project oversight and design build services for alternative disinfection services to meet NPDES Permit requirements at existing Rouge River Outfall
Scope of Work / Project Alternatives	The consultant shall provide comprehensive professional services for project oversight and Owner's representation for the PC-797 RRO Disinfection Progressive Design-Build Contract. The scope of work consists of completing basis of design, design and construction services to develop and implement a solution that will result in 100% disinfection of wet weather flow discharged from WRRF to Detroit River outfall and Rouge River Outfall in order to meet NPDES Permit requirements.
Other Important Info	Challenges: N/A - Under Procurement. Project History: The DR0-2 Outfall was originally designed in 1998 under CS-1150, and construction began in 1999 under PC-709. Some surface construction work and substantial underground work were performed, including construction of the entrance shaft, two access shafts, six diffuser riser shafts in the Detroit River, and about half of the length of the tunnel. On April 23, 2003, uncontrollable high rates of ground water mixed with Hydrogen Sulfide (H2S) inflow flooded the tunnel, and it has remained so since that time. After the tunnel flooded, GLWA (then DWSD) terminated the PC-709 contract and looked for other alternative to complete the work. After further study of the tunnel construction a different alternative was considered and thus, scope for the Modified Detroit River Outfall No. 2 (MOD DR0-2) under CS-1448 design was established. This contract called for a design to construct a new rock tunnel at a higher elevation with Slurry Shield Tunnel Boring Machine (TBM). The design of the MOD DR0-2 was completed on December 2007 and the construction of the DR0-2 project under PC-771 was started on November 2008. Due to economic hardship during the fiscal year

	2008/2009, DWSD requested MDEQ to terminate this contract. After further discussion an agreement reached with GLWA (then DWSD) and MDEQ to allow termination of this Contract and look for feasible and cost effective solutions to meet the wet-weather discharge to Rouge River Outfall. Therefore, on April 2009, GLWA (then DWSD) terminated the PC-771, MOD DR0-2 Contract. The Rouge River Outfall No. 2 (RR0-2) proposal was first developed in 2009. The RR0-2 was to be a ground level conduit extending approximately 2,500 feet to the intersection of the Rouge River and the Rouge Shipping canal. The RR0-2 conduit was to be used during the wet-weather events and primary effluent to the river shall be disinfected by mixing of Chlorine and De-chlorination. The Basis of Design (BOD) for the RR0-2 project was issued on November 6, 2009. GLWA (then DWSD) performed a RR0-2 Segment- 1 contract to do the ancillary work such as modification of gates, stop logs and chlorine tank shut off valves at WRRF. In 2012/2013 the WRRF commissioned a study of the feasibility of alternative disinfection methods for meeting the requirements of the Rouge River Disinfection. The results of this study and a subsequent hydraulic study came to the conclusion that the existing conduits to the Rouge River had sufficient contact time to properly disinfect and dechlorinate the secondary effluent from the WRRF. If a method could be designed to shunt secondary flows to the Rouge River during wet weather and send primary effluent through the longer DRO, then a substantial savings would result from a new design approach. This approach was further explored and discussed with the MDEQ. The result is a NPDES permit modification allowing for the construction of the proposed Rouge River Outfall Disinfection project, keeping the April 2019 project completion date that had been in the NPDES permit.
Related Project	1. CS-1448, RR0-2 Segment 1-WRRF Modifications. 2. PC-786, RR0-2 Segment 1-WRRF Modifications.
Primary Driver	N/A - Under Procurement
Driver Explanation	N/A - Under Procurement

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF Rouge River Outfall (RRO) Disinfection (Alternative)

212006 CIP#

Phase not applicable **Contract** NA **Status** Closed Out

Title Prior Year Actual Expenses

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Closed Out	**Funding Source**	
Start Date		**Fund**	
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
n/a	FY19-	$6,873			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
6,873	0	0	0	0	0	0	0	6,873	0

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF Rouge River Outfall (RRO) Disinfection (Alternative)

212006 CIP#

Phase Construction Management **Contract** CS-1781 **Status** Active

Title CS-1781 Rouge River Outfall (RRO) Disinfection (Alternative)

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Federal Loan Programs
Start Date	8/19/2016	**Fund**	Improvement & Extension Fun
End Date	12/19/2016	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
7/31/2019	**Cost Est. Date**
Contract	**Cost Est. Source**
P. Kora	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY19-	$1,255			2021CIP
Engineering Services	FY20	$355			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
1,255	355	0	0	0	0	0	0	1,610	0

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Project Execution	2/19/2016	6/30/2020	1593

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF Rouge River Outfall (RRO) Disinfection (Alternative)

212006 CIP#

Phase Design and Build **Contract** PC-797 **Status** Active

Title PC-797 Rouge River Outfall (RRO) Disinfection (Alternative)

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Federal Loan Programs
Start Date	2/19/2016	**Fund**	Improvement & Extension Fun
End Date	12/31/2019	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
7/31/2019	**Cost Est. Date**
Contract	**Cost Est. Source**
PMA	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Design-Build	FY19-	$33,236			2021CIP
Design-Build	FY20	$2,383			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
33,236	2,383	0	0	0	0	0	0	35,619	0

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Project Execution	7/1/2016	9/30/2019	1186
Project Closeout	10/1/2019	6/30/2020	273

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF Rouge River Outfall (RRO) Disinfection (Alternative)

212006 CIP#

Phase GLWA Employees Project management **Contract** NA **Status** Active

Title GLWA Salaries

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Federal Loan Programs
Start Date		**Fund**	Improvement & Extension Fun
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

3	**Cost Est. Class**
7/31/2019	**Cost Est. Date**
	Cost Est. Source
PMA	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2021	FY19-	$328			2021CIP
GLWA Salaries CIP2021	FY20	$10			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
328	10	0	0	0	0	0	0	338	0

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF Rouge River Outfall (RRO) Disinfection (Alternative)

212006 CIP#

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	41,692	2,748	0	0	0	0	0	0	44,440	0
2020	0	0	26,441	17,009	4,583	0	0	0	0	0	0	48,033	4,583
2019	0	6,873	20,619	15,817	4,157					0	0	47,466	19,974
2018	729	6,530	15,800	15,520	9,020				0	0	0	47,599	40,340

Description of CIP Changes

Cash flow projection is adjusted based on the actual progress of the work as of 7/1/18. $248,569 inspection credit from CS-1781 is reflected in the cash flow projection.

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
WRRF Rehabilitation of the Secondary Clarifiers

212007 CIP#

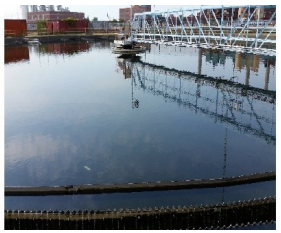
- ☐ Innovation
- ☐ Conceptual WW MP
- ☐ Water MP Right Sizing
- ☑ Reliability/Redundancy
- ☐ NEWTP Repurposing

Project Status Future Planned

CIP Type Project

☐ **Project New To CIP**

Secondary Clarifiers



Project Engineer/Manager Beena Chackunkal
Director Dan Alford
Managing Dept WW Design Eng
Date Original Business Case Prepared 7/27/2016
Year Project Added to CIP 2017

Budget Wastewater
Class Lvl 1 Wastewater
Class Lvl 2 WRRF
Class Lvl 3 Secondary Treatment & Disinfection
Location City of Detroit
Fund and Cost Center Wastewater - 5421-892211

Problem Statement	The secondary clarifiers need to be inspected and rehabilitated for certain components such as the rake arms.
Scope of Work / Project Alternatives	This project will provide for inspection, study, design, and construction for refurbishing the secondary clarifiers. A key component will be the inspection of the concrete and the rake arms. Once the condition of these components is determined, alternatives will be evaluated and the selected alternative will be designed and constructed. The scope will also include evaluating and designing isolation gates for the individual clarifiers. The B Houses have energy intensive HVAC units. These will be evaluated for potential payback with alternative, energy efficient units.
Other Important Info	Challenges: This will be a long term project because only one or two clarifiers can be taken out of service at a time. Also, there may be different levels of rehabilitation for each clarifier depending upon the results of the inspection. Project History: There are 25 secondary clarifiers at the GLWA WRRF. They have been rehabilitated in the past for other components such as RAS pumps, troughs and weirs, and center drives. It is time to refurbish some of the other key components.
Related Project	This project should be coordinated with the recently completed upgrades to finalize a list of components that were not previously upgraded.
Primary Driver	1 - Condition
Driver Explanation	Some of the key components are approaching the end of their useful life.

WRRF Rehabilitation of the Secondary Clarifiers

PM Weighted Score

58.4

Criteria	Score	Comment
Condition	4	Asset has <25% of its design service life remain
Performance (Service Level/Reliability)	3	Generally meets design needs, moderate risk
Regulatory (Environmental/Legal)	4	Moderate risk of causing regulatory violation
Operations and Maintenance	3	Moderate levels of O&M. Project will alleviate
Public Health and Safety	3	Failure not catastophic, moderate chance of
Public Benefit	3	Moderate savings for GLWA
Financial	1	Will generate savings
Efficiency and Innovation	1	Project will have a moderate impact on energ

RC Weighted Score

53.2

Criteria	Score	Comment
Condition	4	
Performance (Service Level/Reliability)	3	
Regulatory (Environmental/Legal)	4	
Operations and Maintenance	3	
Public Health and Safety	1	
Public Benefit	4	
Financial	1	
Efficiency and Innovation	1	

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF Rehabilitation of the Secondary Clarifiers

212007 CIP#

Phase GLWA Employees Project management **Contract** NA **Status** Future Planned Start

Title GLWA Salaries

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

4	**Cost Est. Class**
10/1/2017	**Cost Est. Date**
	Cost Est. Source
Ali Khraizat	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2021	FY22	$15			2021CIP
GLWA Salaries CIP2021	FY23	$86			2021CIP
GLWA Salaries CIP2021	FY24	$86			2021CIP
GLWA Salaries CIP2021	FY25	$90			2021CIP
GLWA Salaries CIP2021	FY26+	$395			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	15	86	86	90	395	672	277

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF Rehabilitation of the Secondary Clarifiers

212007 CIP#

Phase Study and Design and Construction Assistance **Contract** NA **Status** Future Planned Start

Title Rehabilitation of the Secondary Clarifiers

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date	2/7/2020	**Fund**	Construction Bond Fund
End Date	3/15/2025	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

4	**Cost Est. Class**
10/2/2017	**Cost Est. Date**
	Cost Est. Source
Ali Khraizat	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY23	$341			2021CIP
Engineering Services	FY24	$793			2021CIP
Engineering Services	FY25	$361			2021CIP
Engineering Services	FY26+	$479			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	0	341	793	361	479	1,974	1,495

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Pre-Procurement	4/29/2022	6/28/2022	60
Procurement	6/29/2022	2/4/2023	220
Project Execution	2/5/2023	10/8/2028	2072

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF Rehabilitation of the Secondary Clarifiers

212007 CIP#

Phase Construction **Contract** NA **Status** Future Planned Start

Title Rehabilitation of the Secondary Clarifiers

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date	3/31/2022	**Fund**	Construction Bond Fund
End Date	3/15/2025	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

3	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
Engineer	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY25	$81			2021CIP
Construction	FY26+	$27,414			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	0	0	0	81	27,414	27,495	81

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Procurement	11/26/2024	5/24/2025	179
Project Execution	5/25/2025	8/8/2028	1171
Project Closeout	8/9/2028	10/8/2028	60

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF Rehabilitation of the Secondary Clarifiers

212007 CIP#

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	0	0	0	15	427	879	532	28,288	30,141	1,853
2020	0	0		0	0	0	0	71	933	29,114	0	30,118	1,004
2019	0				859	1,374	3,680	9,216	19,676	0	0	34,805	15,129
2018			301	3,576	5,543	5,540	5,540	10,499	0	0	0	30,999	20,500

Description of CIP Changes

Project schedule was adjusted to begin construction after we estimate PS No. 1 rack and grit improvements project to take place.

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF Aeration Improvements 1 and 2

212008 CIP#

- [x] Innovation
- [ ] Conceptual WW MP
- [ ] Water MP Right Sizing
- [x] Reliability/Redundancy
- [ ] NEWTP Repurposing

Project Status Future Planned

CIP Type Project

- [ ] **Project New To CIP**

Intermediate Lift Pump Station N.2

Project Engineer/Manager Beena Chackunkal

Director Dan Alford

Managing Dept WW Design Eng

Date Original Business Case Prepared 9/14/2017

Year Project Added to CIP 2017

Budget Wastewater

Class Lvl 1 Wastewater

Class Lvl 2 WRRF

Class Lvl 3 Secondary Treatment & Disinfection

Location City of Detroit

Fund and Cost Center Wastewater - 5421-892211

Problem Statement	The ILPs convey primary effluent to the secondary bioreactors (aeration decks). These pumps have reached their useful life and are in need of replacement. The pump selection is integrally connected to improvements in the aeration decks related to the conversion to biological phosphorus removal, implementation of step feed and overall improved hydraulic control in the aeration decks and flow control through the secondary system. Implementation of biological phosphorus removal will reduce oxygen and chemical use resulting in a more sustainable treatment system, and implementation of step feed will improve high flow management through the secondary system increasing the volume of flow that can be treated through the secondary system thus minimizing the volume of flow discharged without secondary system. Hydraulic improvements ease operations and minimize the operator attention on the numerous surface aerators.
Scope of Work / Project Alternatives	The work consists of evaluation, design and construction of the replacement of ILPs 1 & 2, conversion of aeration decks 1 & 2 to incoprorate biological phosphorus removal, including replacement of mixers in Bays 1, 2 and 3, relocation of the oxygen feed, and a new purge blower. Incorporation of step feed includes modification of the influent conditions to allow primary effluent to be directed to Bay 1, as well as two other locations down the length of the tank. Weir length will be increased to reduce the variation in the hydraulic grade line across the tank to maintain adequate submergence of mixer/aerators and reduce the frequency of mixer/aerators tripping out on surge. Replacement of Mixer/aerators in Decks 4 through 10 will be evaluated and could be included as an add-alternate to the contract.
Other Important Info	Opportunity for a common header system to allow for any ILP to supply any bioreactor. If feasible provide ILPs that can meet the regulatory and dry weather needs without the need for speed control.

	Challenges: Maintaining the required wet weather secondary capacity of 930 MGD while operating efficiently during dry weather flows. Project History: ILP Station No. 1 houses ILP Nos. 1 and 2. The pumps are vertical turbine type each with a maximum capacity of 365 MGD and a motor size of 2,500 hp. The pumps are equipped with variable frequency drives (VFDs) to vary the pump speed. ILP Nos. 1 and 2 can feed Aeration Deck Nos. 1 and 2. ILP Station No. 2 houses ILP Nos. 3, 4, and 7. The pumps are vertical turbine pumps with a maximum rated design capacity of 350 MGD each and a motor size of 2,500 hp. The pumps are also equipped with VFDs. ILP Nos. 3 and 4 feed Aeration Deck Nos. 3 and 4, while ILP No. 7 is a swing pump and can be used to transfer wastewater to Aeration Deck Nos. 2, 3, or 4.
Related Project	PC-796: Aeration System Improvements, which is under construction.
Primary Driver	3 - Regulatory

WRRF Aeration Improvements 1 and 2

PM Weighted Score
74.6

Criteria	Score	Comment
Public Benefit	3	Project part of GLWA strategic plan
Condition	4	Asset has <25% of its design service life remain
Performance (Service Level/Reliability)	4	Risk of Performance Failure
Operations and Maintenance	3	Moderate levels of O&M. Project will alleviate
Efficiency and Innovation	3	Project will have a moderate impact on energ
Financial	4	Total financial consequence of $1,000,000-$5,(
Regulatory (Environmental/Legal)	5	Significant fines for Compliance Failure
Public Health and Safety	3	Failure not catastophic, moderate chance of

RC Weighted Score
67.8

Criteria	Score	Comment
Public Benefit	3	
Financial	3	
Public Health and Safety	3	
Performance (Service Level/Reliability)	3	
Operations and Maintenance	3	
Regulatory (Environmental/Legal)	4	
Efficiency and Innovation	4	
Condition	4	Rebuilt greater than 10 years

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF Aeration Improvements 1 and 2

212008 CIP#

Phase GLWA Employees Project management **Contract** NA **Status** Future Planned Start

Title GLWA Salaries

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

3	**Cost Est. Class**
10/1/2018	**Cost Est. Date**
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2021	FY20	$86			2021CIP
GLWA Salaries CIP2021	FY21	$86			2021CIP
GLWA Salaries CIP2021	FY22	$86			2021CIP
GLWA Salaries CIP2021	FY23	$115			2021CIP
GLWA Salaries CIP2021	FY24	$120			2021CIP
GLWA Salaries CIP2021	FY25	$121			2021CIP
GLWA Salaries CIP2021	FY26+	$35			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	86	86	86	115	120	121	35	649	528

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF Aeration Improvements 1 and 2

212008 CIP#

Phase Construction **Contract** NA **Status** Future Planned Start

Title WRRF Rehabilitation of Intermediate Lift Pumps (ILPs)

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date	6/2/2021	**Fund**	Construction Bond Fund
End Date	5/17/2024	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

4	**Cost Est. Class**
10/2/2017	**Cost Est. Date**
	Cost Est. Source
Ali Khraizat	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY23	$6,398			2021CIP
Construction	FY24	$39,229			2021CIP
Construction	FY25	$13,930			2021CIP
Construction	FY26+	$4,744			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	0	6,398	39,229	13,930	4,744	64,301	59,557

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Procurement	2/28/2022	8/27/2022	180
Project Execution	8/28/2022	8/13/2025	1081
Project Closeout	8/14/2025	10/13/2025	60

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF Aeration Improvements 1 and 2

212008 CIP#

Phase Study and Design and Construction Assistance **Contract** NA **Status** Future Planned Start

Title WRRF Rehabilitation of Intermediate Lift Pumps (ILPs)

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date	9/3/2018	**Fund**	Construction Bond Fund
End Date	5/17/2024	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

4	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
Ali Khraizat	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY20	$97			2021CIP
Engineering Services	FY21	$4,526			2021CIP
Engineering Services	FY22	$7,891			2021CIP
Engineering Services	FY23	$1,106			2021CIP
Engineering Services	FY24	$1,289			2021CIP
Engineering Services	FY25	$1,285			2021CIP
Engineering Services	FY26+	$370			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	97	4,526	7,891	1,106	1,289	1,285	370	16,564	16,097

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Pre-Procurement	6/24/2019	9/30/2019	98

WRRF Aeration Improvements 1 and 2

Phase Task Name	Start Date	End Date	Duration
Procurement	10/1/2019	5/8/2020	220
Project Execution	5/9/2020	10/13/2025	1983

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF Aeration Improvements 1 and 2

212008 CIP#

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	0	183	4,612	7,977	7,619	40,638	15,336	5,149	81,514	76,182
2020	0	0			229	500	656	6,727	5,910	6,811	0	20,833	14,022
2019	0				230	1,141	6,569	5,767	6,809	0	0	20,516	13,707

Description of CIP Changes Changes made to planned projected expenditures by year. Total project cost estimate went up by $300K.

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF Aeration Improvements 3 and 4

212009 CIP#

- [x] Innovation
- [ ] Conceptual WW MP
- [ ] Water MP Right Sizing
- [x] Reliability/Redundancy
- [ ] NEWTP Repurposing

Project Status Future Planned

CIP Type Project

[x] **Project New To CIP**

Project Engineer/Manager TBD
Director Dan Alford
Managing Dept WW Design Eng
Date Original Business Case Prepared 8/7/2019
Year Project Added to CIP 2019

Budget Wastewater
Class Lvl 1 Wastewater
Class Lvl 2 WRRF
Class Lvl 3 Secondary Treatment & Disinfection
Location City of Detroit
Fund and Cost Center

Problem Statement	The ILPs convey primary effluent to the secondary bioreactors (aeration decks). These pumps have reached their useful life and are in need of replacement. The pump selection is integrally connected to improvements in the aeration decks related to the conversion to biological phosphorus removal, implementation of step feed and overall improved hydraulic control in the aeration decks and flow control through the secondary system. Implementation of biological phosphorus removal will reduce oxygen and chemical use resulting in a more sustainable treatment system, and implementation of step feed will improve high flow management through the secondary system increasing the volume of flow that can be treated through the secondary system thus minimizing the volume of flow discharged without secondary system. Hydraulic improvements will ease operations and minimize the operator attention on the numerous surface aerators.
Scope of Work / Project Alternatives	The work consists of evaluation, design and construction of the replacement of ILPs 3, 4 & 7, conversion of aeration decks 3 & 4 to incoprorate biological phosphorus removal, including replacement of mixers in Bays 1 and 2, relocation of the oxygen feed, and a new purge blower. Incorporation of step feed includes modification of the influent conditions to allow primary effluent to be directed to Bay 1, as well as two other locations down the length of the tank. An assessment of reconfiguring decks 3 and 4 to four independent decks will also be assessed. Weir length will be increased to reduce the variation in the hydraulic grade line across the tank to maintain adequate submergence of mixer/aerators and reduce the frequency of mixer/aerators tripping out on surge. Replacement of Mixer/aerators in Decks 3 through 8 will be evaluated and could be included as an add-alternate to the contract or included as a separate contract.
Other Important Info	Maintaining the MDEQ-NPDES required capacity during the construction phase of the project.

WRRF Aeration Improvements 3 and 4

Primary Driver	3 - Regulatory

WRRF Aeration Improvements 3 and 4

PM Weighted Score
74.6

Criteria	Score	Comment
Public Health and Safety	3	
Condition	4	
Regulatory (Environmental/Legal)	5	
Operations and Maintenance	3	
Efficiency and Innovation	3	
Financial	4	
Performance (Service Level/Reliability)	4	
Public Benefit	3	

RC Weighted Score
67.8

Criteria	Score	Comment
Public Health and Safety	3	
Efficiency and Innovation	4	
Condition	4	
Regulatory (Environmental/Legal)	4	
Operations and Maintenance	3	
Public Benefit	3	
Performance (Service Level/Reliability)	3	
Financial	3	

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF Aeration Improvements 3 and 4

212009 CIP#

Phase GLWA Employees Project management **Contract** NA **Status** Future Planned Start

Title GLWA Salaries

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

	Cost Est. Class
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2021	FY25	$14			2021CIP
GLWA Salaries CIP2021	FY26+	$516			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	0	0	0	14	516	530	14

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF Aeration Improvements 3 and 4

212009 CIP#

Phase Construction **Contract** TBD **Status** Future Planned Start

Title WRRF Rehabilitation of Intermediate Lift Pumps (ILPs) 3,4 and 7

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

	Cost Est. Class
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY26+	$57,983			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	0	0	0	0	57,983	57,983	0

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Procurement	7/1/2027	12/31/2027	183
Project Execution	1/1/2028	12/31/2030	1095
Project Closeout	1/1/2031	3/1/2031	59

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF Aeration Improvements 3 and 4

212009 CIP#

Phase Design & Construction Assistance **Contract** TBD **Status** Future Planned Start

Title WRRF Rehabilitation of Intermediate Lift Pumps (ILPs) 3,4 and 7

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

	Cost Est. Class
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY26+	$15,250			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	0	0	0	0	15,250	15,250	0

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Pre-Procurement	5/1/2025	6/30/2025	60
Procurement	7/1/2025	12/31/2025	183
Project Execution	1/1/2026	3/1/2031	1885

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF Aeration Improvements 3 and 4

212009 CIP#

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	0	0	0	0	0	0	14	73,749	73,763	14

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

212010 CIP#

WRRF Conversion of Disinfection of all Flow to Sodium Hypochlorite and Sodium Bisulfite

- ☐ Innovation
- ☐ Conceptual WW MP
- ☐ Water MP Right Sizing
- ☐ Reliability/Redundancy
- ☐ NEWTP Repurposing

Project Status Future Planned

CIP Type Program

☑ **Project New To CIP**

Project Engineer/Manager TBD
Director Dan Alford
Managing Dept WW Design Eng
Date Original Business Case Prepared 8/7/2019
Year Project Added to CIP 2019

Budget Wastewater
Class Lvl 1 Wastewater
Class Lvl 2 WRRF
Class Lvl 3 Secondary Treatment & Disinfection
Location City of Detroit
Fund and Cost Center

Problem Statement	With the completion of the RRO Disinfection Project (CIP 212006), storage and feed of sodium hypochlorite to the primary effluent bypass with sodium bisulfite for dechlorination has been enabled. Elimination of the use of gaseous chlorine for disinfection of the secondary effluent and replacement with sodium hypochlorite will increase operator and public safety in and around the plant site.
Scope of Work / Project Alternatives	The work consists of evaluation of sodium hypochlorite and sodium bisulfite usage over the first three years of operation of the new system to assess actual dosage required to achieve permit compliance and storage available with the existing system. The assessment will include preliminary design of modifications required to enable sodium hypochlorite feed to the secondary treatment effluent and an assessment of the storage requirements at varying sodium hypochlorite concentrations. The assessment will also include the appetite for a chemical manufacturer to own and operate a sodium hypochlorite generation facility in close proximity to the facility that would allow piping of sodium hypochlorite to the site (in lieu of providing additional storage, if required, on-site).

WRRF Conversion of Disinfection of all Flow to Sodium Hypochlorite and Sodium Bisulfite

PM Weighted Score
69

Criteria	Score	Comment
Public Benefit	5	
Condition	3	
Efficiency and Innovation	2	
Regulatory (Environmental/Legal)	4	
Public Health and Safety	5	
Operations and Maintenance	4	
Performance (Service Level/Reliability)	2	
Financial	2	

RC Weighted Score
65

Criteria	Score	Comment
Operations and Maintenance	4	
Financial	2	
Public Benefit	4	
Public Health and Safety	5	
Efficiency and Innovation	2	
Condition	2	
Performance (Service Level/Reliability)	2	
Regulatory (Environmental/Legal)	4	

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

212010 CIP#

WRRF Conversion of Disinfection of all Flow to Sodium Hypochlorite and Sodium Bisulfite

Phase GLWA Employees Project management **Contract** NA **Status** Future Planned Start

Title GLWA Salaries

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

	Cost Est. Class
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2021	FY25	$14			2021CIP
GLWA Salaries CIP2021	FY26+	$516			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	0	0	0	14	516	530	14

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

212010 CIP#

WRRF Conversion of Disinfection of all Flow to Sodium Hypochlorite and Sodium Bisulfite

Phase Construction **Contract** TBD **Status** Future Planned Start

Title WRRF Conversion of Disinfection of all Flow to Sodium Hypochlorite and Sodium Bisulfite

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

	Cost Est. Class
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY26+	$4,509			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	0	0	0	0	4,509	4,509	0

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Procurement	7/1/2027	12/31/2027	183
Project Execution	1/1/2028	12/31/2030	1095
Project Closeout	1/1/2031	3/1/2031	59

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

212010 CIP#

WRRF Conversion of Disinfection of all Flow to Sodium Hypochlorite and Sodium Bisulfite

Phase Design & Construction Assistance **Contract** TBD **Status** Future Planned Start

Title WRRF Conversion of Disinfection of all Flow to Sodium Hypochlorite and Sodium Bisulfite

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

	Cost Est. Class
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY26+	$947			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	0	0	0	0	947	947	0

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Pre-Procurement	5/1/2025	6/30/2025	60
Procurement	7/1/2025	12/31/2025	183
Project Execution	1/1/2026	3/1/2031	1885

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

212010 CIP#

WRRF Conversion of Disinfection of all Flow to Sodium Hypochlorite and Sodium Bisulfite

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	0	0	0	0	0	0	14	5,972	5,986	14

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
WRRF Rehabilitation of Central Offload Facility

213002 CIP#

- ☐ Innovation
- ☐ Conceptual WW MP
- ☐ Water MP Right Sizing
- ☑ Reliability/Redundancy
- ☐ NEWTP Repurposing

Project Status Cancelled

CIP Type Project

☐ **Project New To CIP**

Powdered lime discharges into the COF causing lime to discharge throughout the building making the scrubber system to fail

Project Engineer/Manager Partho Ghosh
Director Philip Kora
Managing Dept WW Construction Eng
Date Original Business Case Prepared 8/8/2016
Year Project Added to CIP 2010

Budget Wastewater
Class Lvl 1 Wastewater
Class Lvl 2 WRRF
Class Lvl 3 Residuals Management
Location City of Detroit
Fund and Cost Center Wastewater - 5421-892211

Problem Statement	Refurbishment or replacement of COF equipment including sludge storage bins, conveyors, and lime offload system, scrubber system, HVAC etc., will improve reliability and performance. This improvement will enable WRRF to be in compliance with NPDES permit
Scope of Work / Project Alternatives	The study, design and construction for the rehabilitation of the central offload facility includes bin activators, rotary feeder valves, knife gate valves, bottom hoppers, conveyors, and other associated items. The work also includes rehabilitation of HVAC system of the entire facility, lime offloading system, drainage system, elevator, and doors.
Other Important Info	Challenges: Maintaining the MDEQ-NPDES required capacity during the construction phase of the project. Project History: The Central Offload Facility was built under PC-744 (DWP-1074) as a design build project in 2005. The project completion was delayed due to the lime sludge slide gates on the lime mixers which were continuously leaking whenever sludge head in storage bins was high. This problem was finally resolved after replacing the gates. Due to the nature of lime and sludge and continuous operation of this facility, the equipment started failing causing various operational and maintenance problems. Eventually, the facility needs a major rehabilitation.
Related Project	PC - 757: Rehabilitation of Primary Clarifiers and Pipe Gallery Improvements.
Primary Driver	1 - Condition
Driver Explanation	N/A - Under Procurement

WRRF Rehabilitation of Central Offload Facility

PM Weighted Score
78.4

Criteria	Score	Comment
Condition	5	Replacement or major rehab needed immed
Performance (Service Level/Reliability)	5	Will cause capacity problems
Regulatory (Environmental/Legal)	4	Regulatory Compliance failure will lead to fine
Operations and Maintenance	4	High levels of O&M
Public Health and Safety	3	Moderate impact on public Health & Safety
Public Benefit	3	Moderate savings for GLWA
Financial	3	Will generate savings
Efficiency and Innovation	4	Project will remove significant operational hur

RC Weighted Score
76.2

Criteria	Score	Comment
Condition	4	
Performance (Service Level/Reliability)	4	
Regulatory (Environmental/Legal)	4	
Operations and Maintenance	4	
Public Health and Safety	4	
Public Benefit	4	
Financial	3	
Efficiency and Innovation	3	

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF Rehabilitation of Central Offload Facility

213002 CIP#

Phase GLWA Employees Project management **Contract** NA **Status** Active

Title GLWA Salaries

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Federal Loan Programs
Start Date		**Fund**	Improvement & Extension Fun
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

3	**Cost Est. Class**
9/17/2018	**Cost Est. Date**
	Cost Est. Source
P. Kora	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	0	0	0	0	0	0	0

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF Rehabilitation of Central Offload Facility

213002 CIP#

Phase not applicable **Contract** NA **Status** Closed Out

Title Prior Year Actual Expenses

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Closed Out	**Funding Source**	
Start Date		**Fund**	
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	0	0	0	0	0	0	0

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF Rehabilitation of Central Offload Facility

213002 CIP#

Phase Study and Design and Construction Assistance **Contract** CS-1701 **Status** Active

Title CS-1701 Rehabilitation of Central Offload Facility

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Federal Loan Programs
Start Date	10/17/2016	**Fund**	Improvement & Extension Fun
End Date	1/19/2021	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$1,170,123

Cost Estimation Information

1	**Cost Est. Class**
9/12/2018	**Cost Est. Date**
Contract	**Cost Est. Source**
A. Khraizat	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	0	0	0	0	0	0	0

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF Rehabilitation of Central Offload Facility

213002 CIP#

Phase Construction **Contract** CON-279 **Status** Active

Title Rehabilitation of Central Offload Facility

Construction will start after the design is complete.

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date	7/20/2018	**Fund**	Construction Bond Fund
End Date	1/19/2021	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$14,347,000

Cost Estimation Information

1	**Cost Est. Class**
9/12/2018	**Cost Est. Date**
Contract	**Cost Est. Source**
A. Khraizat/P. Kora	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	0	0	0	0	0	0	0

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF Rehabilitation of Central Offload Facility

213002 CIP#

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	0	0	0	0	0	0	0	0	0	0
2020	0	0	982	4,204	7,696	3,297	0	0	0	0	0	16,179	10,993
2019	0	202	665	6,447	7,520	4,579				0	0	19,413	18,546
2018		800	5,850	6,750	4,350				0	0	0	17,750	16,950

Description of CIP Changes This project was terminated by GLWA for its convenience

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF Complex I Incinerators Decommissioning and Reusability

213005 CIP#

- [x] Innovation
- [ ] Conceptual WW MP
- [ ] Water MP Right Sizing
- [x] Reliability/Redundancy
- [ ] NEWTP Repurposing

Project Status Cancelled

CIP Type Project

- [ ] **Project New To CIP**

Complex – I Incinerator Building at the WRRF

Project Engineer/Manager Ravi Yelamanchi

Director Dan Alford

Managing Dept WW Design Eng

Date Original Business Case Prepared 8/15/2016

Year Project Added to CIP 2014

Budget Wastewater

Class Lvl 1 Wastewater

Class Lvl 2 WRRF

Class Lvl 3 Residuals Management

Location City of Detroit

Fund and Cost Center Wastewater - 5421-892211

Problem Statement	This project will decommission the C-I Incinerators building and investigate the re-usability.
Scope of Work / Project Alternatives	Provide basis of design report for decommissioning of the Complex-I demolition and relocation drawings for existing pass through utilities. Provide recommendation for future reusability plan for Complex I. The demolition cost and construction assistance, and relocation of utilities is not included in this budgeted CIP. The budgeted CIP includes study, design and minimum rehabilitation to install heating to continue utilizing the building other than incinerations. The cost to demolish equipment and rehabilitate the existing building for reuse is very high and further capital investment is deferred until reuse need of this building is well defined.
Other Important Info	*Innovation note: Future uses may include alternative sludge handling; keep aligned with Master Plan and Research & Innovation. Project History: Complex I was installed and in operation since the 1940's and has completed its valuable life cycle. The Bio-solids Alternatives Evaluation at the WWTP evaluated several options for long-term dewatering disposal as it relates to overall, and more specifically, the Complex I Incinerator Facility. Most of the options indicated that a long-term phasing out of Complex I especially due to its aged equipment and challenges of meet regularity requirements. Challenges: Possible challenges with this project will include shutdowns of the secondary water system and abatement of asbestos and lead for this building built 1940's. Some utility service lines may be shared with adjoining Complex II Incinerator and Complex I Dewatering.
Related Project	n/a
Primary Driver	3 - Regulatory

Driver Explanation	Due to new EPA regulations and cost issues this facility will need to be phased out.

WRRF Complex I Incinerators Decommissioning and Reusability

PM Weighted Score
38.4

Criteria	Score	Comment
Condition	2	Asset has <25% of its design service life remain
Performance (Service Level/Reliability)	3	Process is out of service
Regulatory (Environmental/Legal)	1	Moderate risk of causing regulatory violation
Operations and Maintenance	3	Moderate positive impact on O&M
Public Health and Safety	1	Likely to address minor hazard issues or conce
Public Benefit	1	Moderate savings for GLWA
Financial	2	Will generate savings
Efficiency and Innovation	3	Project will have a moderate impact on energ

RC Weighted Score
38.4

Criteria	Score	Comment
Condition	2	
Performance (Service Level/Reliability)	3	
Regulatory (Environmental/Legal)	1	
Operations and Maintenance	3	
Public Health and Safety	1	
Public Benefit	1	
Financial	2	
Efficiency and Innovation	3	

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

213005 CIP#

WRRF Complex I Incinerators Decommissioning and Reusability

Phase Design & Construction Assistance **Contract** CS-228 **Status** Cancelled

Title Complex Incineration Heating

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Cancelled	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

5	**Cost Est. Class**
9/12/2018	**Cost Est. Date**
Contract	**Cost Est. Source**
Design Eng	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	0	0	0	0	0	0	0

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

213005 CIP#

WRRF Complex I Incinerators Decommissioning and Reusability

Phase GLWA Employees Project management **Contract** NA **Status** Cancelled

Title GLWA Salaries

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Cancelled	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

5	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	0	0	0	0	0	0	0

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

213005 CIP#

WRRF Complex I Incinerators Decommissioning and Reusability

Phase Study and Design and Construction Assistance **Contract** NA **Status** Cancelled

Title Complex I Incinerators Decommissioning and Reusability at Wastewater Treatment Plant (WRRF)

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Cancelled	**Funding Source**	Bond Proceeds
Start Date	1/8/2021	**Fund**	Construction Bond Fund
End Date	8/29/2023	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

4	**Cost Est. Class**
10/2/2017	**Cost Est. Date**
	Cost Est. Source
Ali Khraizat	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	0	0	0	0	0	0	0

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF Complex I Incinerators Decommissioning and Reusability

213005 CIP#

Phase Construction **Contract** NA **Status** Cancelled

Title Complex I Incinerators Decommissioning and Reusability at Wastewater Treatment Plant (WRRF)

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Cancelled	**Funding Source**	Bond Proceeds
Start Date	3/7/2022	**Fund**	Construction Bond Fund
End Date	8/29/2023	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

4	**Cost Est. Class**
10/2/2017	**Cost Est. Date**
	Cost Est. Source
Ali Khraizat	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	0	0	0	0	0	0	0

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF Complex I Incinerators Decommissioning and Reusability

213005 CIP#

Phase Construction **Contract** CON-229 **Status** Cancelled

Title WRRF Complex I Steam heaters

Steam heat replacement was necessary to protect vital assets from freezing.

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Cancelled	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

5	**Cost Est. Class**
9/12/2018	**Cost Est. Date**
Contract	**Cost Est. Source**
Eng	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	0	0	0	0	0	0	0

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

213005 CIP#

WRRF Complex I Incinerators Decommissioning and Reusability

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	0	0	0	0	0	0	0	0	0	0
2020	0	0	43	0	0	0	0	0	0	4,409	0	4,452	0
2019	0					161	1,221	2,352	1,171	0	0	4,905	3,734
2018			900	200					0	0	0	1,100	1,100

Description of CIP Changes

A contract was executed to provide necessary heat to complex I in order to protect vital assets from freezing conditions. The main project is deferred to 2025 and beyond.

Cancelled at Alignment Mtg

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

213006 CIP#

WRRF Improvements to Sludge Feed Pumps at Dewatering Facilities

- ☐ Innovation
- ☐ Conceptual WW MP
- ☐ Water MP Right Sizing
- ☑ Reliability/Redundancy
- ☐ NEWTP Repurposing

Project Status Future Planned

CIP Type Project

☐ **Project New To CIP**

Sludge Feed Pumps

Project Engineer/Manager Ravi Yelamanchi
Director Dan Alford
Managing Dept WW Design Eng
Date Original Business Case Prepared
Year Project Added to CIP 2016

Budget Wastewater
Class Lvl 1 Wastewater
Class Lvl 2 WRRF
Class Lvl 3 Residuals Management
Location City of Detroit
Fund and Cost Center Wastewater - 5421-892211

Problem Statement	Improved sludge feed pumping system will provide wide range of operating conditions. Variable Frequency drive and Hydraulic drive units for SFP 1 and 2 are located below grade and the area has flooded. A single recycle valve for SFP 3 and 4 puts the plant at a higher risk for system outages.
Scope of Work / Project Alternatives	The scope of work includes study, design, and construction for the replacement of sludge feed pumps SFP 1, 2, 3, 4, 5 and 6 and other modifications to the pumping system at the WRRF.
Other Important Info	Challenges: Maintaining Plant Operational Capacity during construction. Project History: Water Resource Recovery Facility (WRRF) has six (6) Sludge Storage Tanks (SST-1, 2, 3, 4, 5 &6), which feed sludge to the dewatering facilities (i.e. belt filter presses complexes and complex II centrifuges.) Typically, sludge from Storage Tanks 1 & 2 supplies the centrifuges on dewatering complex II upper level; sludge from Storage Tanks 3 & 4 supplies the centrifuges on the lower level of Dewatering Complex II; and sludge from Storage Tanks 5 & 6 supplies the belt filter presses in Dewatering Complex I. However, control valves in the Dewatering Complex II basement allow sludge from any storage tanks to supply any Dewatering area. Under Contract PC-792, Storage Tanks SST-3 & 4 along with Sludge Feed Pumps SFP-3 & 4 are to be dedicated to BDF Facility.
Related Project	PC - 791 and CON -197.
Primary Driver	2 - Performance

WRRF Improvements to Sludge Feed Pumps at Dewatering Facilities

PM Weighted Score
66.4

Criteria	Score	Comment
Public Benefit	3	Moderate savings for GLWA
Regulatory (Environmental/Legal)	4	Not Imminent risk
Efficiency and Innovation	4	Right sizing system will have significant operati
Operations and Maintenance	3	Moderate levels of O&M
Performance (Service Level/Reliability)	4	Expected performance failures under normal
Condition	3	Moderate renewal or rehab needed in short t
Public Health and Safety	3	Likely to address minor hazard issues or conce
Financial	2	Low Financial impact at this time

RC Weighted Score
69.2

Criteria	Score	Comment
Financial	4	updated
Regulatory (Environmental/Legal)	4	
Performance (Service Level/Reliability)	3	updated
Public Benefit	2	
Efficiency and Innovation	4	
Condition	4	updated
Operations and Maintenance	5	
Public Health and Safety	2	

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

213006 CIP#

WRRF Improvements to Sludge Feed Pumps at Dewatering Facilities

Phase Construction **Contract** NA **Status** Future Planned Start

Title Improvements to Sludge Feed Pumps at Dewatering Facilities

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date	6/7/2021	**Fund**	Construction Bond Fund
End Date	11/9/2022	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

4	**Cost Est. Class**
10/2/2017	**Cost Est. Date**
	Cost Est. Source
Ali Khraizat	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY22	$11			2021CIP
Construction	FY23	$2,970			2021CIP
Construction	FY24	$478			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	11	2,970	478	0	0	3,459	3,459

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Procurement	12/15/2021	6/12/2022	179
Project Execution	6/13/2022	12/4/2023	539
Project Closeout	12/5/2023	2/2/2024	59

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

213006 CIP#

WRRF Improvements to Sludge Feed Pumps at Dewatering Facilities

Phase Study and Design and Construction Assistance **Contract** NA **Status** Future Planned Start

Title Improvements to Sludge Feed Pumps at Dewatering Facilities

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date	4/10/2020	**Fund**	Construction Bond Fund
End Date	11/29/2022	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

4	**Cost Est. Class**
10/2/2017	**Cost Est. Date**
	Cost Est. Source
Ali Khraizat	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY21	$88			2021CIP
Engineering Services	FY22	$286			2021CIP
Engineering Services	FY23	$280			2021CIP
Engineering Services	FY24	$166			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	88	286	280	166	0	0	820	820

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Pre-Procurement	7/1/2020	8/11/2020	41
Procurement	8/12/2020	3/19/2021	219
Project Execution	3/20/2021	2/2/2024	1049

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

213006 CIP#

WRRF Improvements to Sludge Feed Pumps at Dewatering Facilities

Phase GLWA Employees Project management **Contract** NA **Status** Future Planned Start

Title GLWA Salaries

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

5	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2021	FY21	$86			2021CIP
GLWA Salaries CIP2021	FY22	$88			2021CIP
GLWA Salaries CIP2021	FY23	$121			2021CIP
GLWA Salaries CIP2021	FY24	$72			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	86	88	121	72	0	0	367	367

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

213006 CIP#

WRRF Improvements to Sludge Feed Pumps at Dewatering Facilities

Phase not applicable **Contract** NA **Status** Closed Out

Title Prior Year Actual Expenses

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Closed Out	**Funding Source**	
Start Date		**Fund**	
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
n/a	FY19-	$5			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
5	0	0	0	0	0	0	0	5	0

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

213006 CIP#

WRRF Improvements to Sludge Feed Pumps at Dewatering Facilities

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	5	0	174	385	3,371	716	0	0	4,651	4,646
2020	0	0	5	0		0	0	24	1,366	2,331	0	3,726	1,390
2019	0	4			57	275	2,391	1,130		0	0	3,857	3,853
2018		33	402	750					0	0	0	1,185	1,152

Description of CIP Changes Schedule was delayed by 3 years to accommodate funding for CIP No. 232002.

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

213007 CIP#

WRRF Modification to Incinerator Sludge Feed Systems at Complex -II

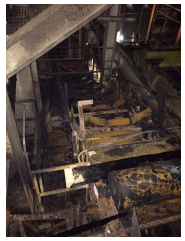
- ☐ Innovation
- ☐ Conceptual WW MP
- ☐ Water MP Right Sizing
- ☑ Reliability/Redundancy
- ☐ NEWTP Repurposing

Project Status Active

CIP Type Project

☐ **Project New To CIP**

Picture from left to right Sludge Conveyer G Damaged by Fire and Conveyer B in the Complex – II Dewatering Building and Fire Damaged Conveyer H in Complex-II Incinerators Building



Project Engineer/Manager Chris Breinling
Director Philip Kora
Managing Dept WW Construction Eng
Date Original Business Case Prepared 7/27/2016
Year Project Added to CIP 2016

Budget Wastewater
Class Lvl 1 Wastewater
Class Lvl 2 WRRF
Class Lvl 3 Residuals Management
Location City of Detroit
Fund and Cost Center Wastewater - 5421-892211

Problem Statement	GLWA have an ongoing study and design of sludge cake conveyance system improvements project after the March 4, 2016 fire incident in Complex –II Incinerators building. The construction of this project will provide a cleaner, fire resistant, reliable and safe sludge feed to the incinerators.
Scope of Work / Project Alternatives	The restoration of sludge conveying capacity, which was lost due to the fire damage and to provide improved sludge conveyance from each dewatering facility to the incinerators. Replacement of 19 MCCs and Replacement of the Unit Substation EB-26 in Incineration Complex II.
Other Important Info	Challenges: Maintaining the sludge conveyance capacity to meet permit requirements during the construction of these improvements, will be the most significant challenge on this project. Project History: The C-II Incineration complex is over 40 years old. Major rehabilitation had been deferred over the years in anticipation of an alternative Biosolids disposal solution to handle all the solids. The Complex-II have many major pieces of equipment that are nearing the end of their useful life and require replacement or major rehabilitation in order to be used as the primary long-term solids disposal method. GLWA approved a PC-774 and PC-791 contract to rehabilitate some of the aging problem of the incineration and to meet the new air permit requirements. GLWA just completed the construction of a Biosolids Dryer Facility (BDF) with a firm capacity of 316 dry tons per day. The BDF facility is currently in operation under an in-term agreement with NEFCO. The current GLWA plan for Biosolids disposal is to utilize BDF to its capacity first, then send the additional load to Complex-II

	Incinerators and anything beyond that to the land fill. This Biosolids Disposal Plan requires investment in the Complex-II Incinerators to process the sludge loads on a regular basis for the daily and wet weather events to avoid the highest cost of land fill. The sludge from Dewatering Complex II travels through a series of conveyor belts (i.e., conveyors G, H and J) before it reaches Incineration Complex II. The sludge from Dewatering Complex II Lower Level was transported by Conveyor G to Conveyor H. In Incinerator Complex II, Conveyor H branches to Conveyors K and L then continue to various conveyors to feed incinerators. The sludge from Dewatering C-II Upper Level was transported by Conveyor J which branches to Conveyors M and N in Incineration C-II then continue to various Conveyors to feed incinerators. The conveyor belt structures in Incineration C-II are old, have been modified, rebuilt or repaired several times that might have altered the overall integrity of the structures. The existing "Dusseau" hopper oftentimes plugged resulting to sludge spillage. The existing feed system to the incinerator from the hoppers should be redesigned and replaced. New control systems, safeguards, provision of SFE water, run time meter or tie to ovation system and poor lighting system in the complex needs improvement. Drainage problems had historically existed within the basement of Complex II Incineration and C-II Dewatering having to do with both building drainage, and filtrate drainage. These problems led to excessive demands on operations and maintenance staff, shutdown of process-related equipment, and safety concerns for WWTP personnel. Improvements to the C-II Incinerators building drainage system were completed in 2003 under contract DWP-1028. However, the drainage problems were not completely eliminated and still continue to exist and further Improvements to the C-II Dewatering are in design for improvements. In order to have an effective sludge conveyer's wash system, a key requirement for safe operation of sludge conveyance system, the drainage improvements in the Complex-II Dewatering and Incinerators building are essential.
Related Project	The change order to Contract PC-791 was issued by GLWA to address the fire emergency and restore the operation of C-II Incineration.
Primary Driver	3 - Regulatory
Driver Explanation	The existing sludge conveyance system is very old and is critical to disposal of biosolids to meet permit requirements (e.g. incinerator air permit requirements). The disposal of biosolids to meet allowable permitted inventory of biosolids at the WRRF, s

WRRF Modification to Incinerator Sludge Feed Systems at Complex -II

PM Weighted Score
92.4

Criteria	Score	Comment
Condition	5	Immediate replacement required
Performance (Service Level/Reliability)	5	Causing Significant Capacity Problems
Regulatory (Environmental/Legal)	5	Significant fines for Compliance Failure
Operations and Maintenance	4	Significant Positive impact on O&M
Public Health and Safety	5	Project will have a major & measurable positiv
Public Benefit	4	Significant, noticeable impact on GLWA imag
Financial	4	Project will likely result in avoidance of fines
Efficiency and Innovation	4	Project will remove significant operational hur

RC Weighted Score
87.2

Criteria	Score	Comment
Condition	5	
Performance (Service Level/Reliability)	5	
Regulatory (Environmental/Legal)	5	
Operations and Maintenance	4	
Public Health and Safety	4	
Public Benefit	4	
Financial	4	
Efficiency and Innovation	3	

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

213007 CIP#

WRRF Modification to Incinerator Sludge Feed Systems at Complex -II

Phase Construction Assistance **Contract** CS-291 **Status** Active

Title Engineering services for the replacement of MCC's and EB-26

This contract was reallocated from CIP No. 380601

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

5	**Cost Est. Class**
7/31/2019	**Cost Est. Date**
Contract	**Cost Est. Source**
PMA	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY19-	$25			2021CIP
Engineering Services	FY20	$10			2021CIP
Engineering Services	FY21	$6			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
25	10	6	0	0	0	0	0	41	6

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Project Execution	4/2/2018	1/31/2021	1035

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

213007 CIP#

WRRF Modification to Incinerator Sludge Feed Systems at Complex -II

Phase Construction **Contract** CON-197 **Status** Active

Title CON-197 Modification to Incinerator Sludge Feed Systems at Complex -II

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date	2/5/2018	**Fund**	Construction Bond Fund
End Date	1/27/2020	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
7/31/2019	**Cost Est. Date**
Contract	**Cost Est. Source**
PMA	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY19-	$8,441			2021CIP
Construction	FY20	$8,097			2021CIP
Construction	FY21	$2,094			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
8,441	8,097	2,094	0	0	0	0	0	18,632	2,094

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Project Execution	4/2/2018	9/1/2020	883
Project Closeout	9/2/2020	1/31/2021	151

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

213007 CIP#

WRRF Modification to Incinerator Sludge Feed Systems at Complex -II

Phase Study and Design and Construction Assistance **Contract** CS-060 **Status** Active

Title Study/Design of upgraded sludge conveyance system and lighting improvement

CS-060 is funded from this CIP. Could not add it to the choice list. Move this phase to 213007

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date	8/22/2016	**Fund**	Construction Bond Fund
End Date	10/31/2018	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

5	**Cost Est. Class**
7/31/2019	**Cost Est. Date**
Contract	**Cost Est. Source**
PMA	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY19-	$655			2021CIP
Engineering Services	FY20	$108			2021CIP
Engineering Services	FY21	$87			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
655	108	87	0	0	0	0	0	850	87

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Project Execution	8/22/2016	4/21/2021	1703

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

213007 CIP#

WRRF Modification to Incinerator Sludge Feed Systems at Complex -II

Phase GLWA Employees Project management **Contract** NA **Status** Active

Title GLWA Salaries

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

3	**Cost Est. Class**
7/31/2019	**Cost Est. Date**
	Cost Est. Source
PMA	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2021	FY19-	$231			2021CIP
GLWA Salaries CIP2021	FY20	$121			2021CIP
GLWA Salaries CIP2021	FY21	$71			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
231	121	71	0	0	0	0	0	423	71

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

213007 CIP#

WRRF Modification to Incinerator Sludge Feed Systems at Complex -II

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	9,352	8,336	2,258	0	0	0	0	0	19,946	2,258
2020	0	0	871	7,159	8,711	3,308	0	0	0	0	0	20,049	12,019
2019	0		567	6,787	11,356	3,477				0	0	22,187	21,620
2018		1,500	9,600	7,822					0	0	0	18,922	17,422

Description of CIP Changes CS-291 was reallocated from CIP No. 380601.

GLWA FY 2021-2025 CIP

WRRF Rehabilitation of the Ash Handling Systems

213008 CIP#

- [x] Innovation
- [ ] Conceptual WW MP
- [ ] Water MP Right Sizing
- [x] Reliability/Redundancy
- [ ] NEWTP Repurposing

Project Status Active

CIP Type Project

- [ ] **Project New To CIP**

Ash crusher system was last rehabilitated 15 years ago and near the end of its useful life, due to Complex I decommissioning dry ash system needs to be reconfigured and rehabilitated

Project Engineer/Manager Alfredo Lava

Director Dan Alford

Managing Dept WW Design Eng

Date Original Business Case Prepared 7/27/2016

Year Project Added to CIP 2017

Budget Wastewater

Class Lvl 1 Wastewater

Class Lvl 2 WRRF

Class Lvl 3 Residuals Management

Location City of Detroit

Fund and Cost Center Wastewater - 5421-892211

Problem Statement	The ash systems convey and store ash for ultimate disposal. The incinerators cannot be used if both the systems are not working.
Scope of Work / Project Alternatives	The scope of work will include study, design, and construction for the rehabilitation of the wet and dry ash systems. The scope will also include the piping, valves, isolation gates, vacuum pumps, air filters, HVAC, boilers, miscellaneous silo repairs (concrete, access, etc.) site work and drainage, and miscellaneous structural repairs (foot bridge, spalling concrete, etc.) at the dry ash handling system. It will also include the pumps, piping, and sluicing system at the wet ash system.
Other Important Info	*Innovation note: Due to only 10-15 years remaining useful life on Complex I, reconsider recommissioning wet ash. Recom. Project History: The C-I and C-II Incinerators have been the primary source for processing Biosolids at the GLWA WRF since the plant was first built. The original ash handling system was a wet ash/sluicing process. The dry ash system was constructed in the 1960s and expanded with the construction of the C-II Incinerators in the 1970s. The wet ash system has not been in use for over five years and there is no backup if the dry ash system goes down. The C-I Incinerators are planned to be decommissioned in the next year or two and there is a potential to link the C-I ash handling system to the C-II system to provide extra storage.
Related Project	This project should be coordinated with the decommissioning of the C-I Incinerators as well as any planned plant

	wide pipe rehabilitation program.
Primary Driver	1 - Condition
Driver Explanation	The wet ash system has been out of service for over five years and the dry ash system is nearing the end of its useful life.

WRRF Rehabilitation of the Ash Handling Systems

PM Weighted Score
66

Criteria	Score	Comment
Condition	4	Asset has <25% of its design service life remain
Performance (Service Level/Reliability)	4	Expected performance failures under normal
Regulatory (Environmental/Legal)	3	Moderate risk of causing regulatory violation
Operations and Maintenance	4	Significant Positive impact on O&M
Public Health and Safety	3	Likely to address minor hazard issues or conce
Public Benefit	2	Additional Savings in O&M
Financial	3	Project will generate significant savings
Efficiency and Innovation	3	Project will have a moderate impact on energ

RC Weighted Score
57.8

Criteria	Score	Comment
Condition	4	
Performance (Service Level/Reliability)	3	
Regulatory (Environmental/Legal)	3	
Operations and Maintenance	4	
Public Health and Safety	3	
Public Benefit	1	
Financial	3	
Efficiency and Innovation	1	

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF Rehabilitation of the Ash Handling Systems

213008 CIP#

Phase GLWA Employees Project management **Contract** NA **Status** Future Planned Start

Title GLWA Salaries

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

5	**Cost Est. Class**
10/1/2017	**Cost Est. Date**
	Cost Est. Source
Ali Khraizat	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2021	FY20	$86			2021CIP
GLWA Salaries CIP2021	FY21	$86			2021CIP
GLWA Salaries CIP2021	FY22	$94			2021CIP
GLWA Salaries CIP2021	FY23	$121			2021CIP
GLWA Salaries CIP2021	FY24	$116			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	86	86	94	121	116	0	0	503	417

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF Rehabilitation of the Ash Handling Systems

213008 CIP#

Phase Design & Construction Assistance **Contract** TBD **Status** Future Planned Start

Title Rehabilitation of the Ash Handling Systems

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

4	**Cost Est. Class**
9/12/2018	**Cost Est. Date**
	Cost Est. Source
Ali Khraizat	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY21	$1,252			2021CIP
Engineering Services	FY22	$355			2021CIP
Engineering Services	FY23	$180			2021CIP
Engineering Services	FY24	$173			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	1,252	355	180	173	0	0	1,960	1,960

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Procurement	4/17/2020	10/13/2020	179
Project Execution	10/14/2020	6/16/2024	1341

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF Rehabilitation of the Ash Handling Systems

213008 CIP#

Phase Study **Contract** NA **Status** Future Planned Start

Title Rehabilitation of the Ash Handling Systems

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date	11/8/2019	**Fund**	Construction Bond Fund
End Date	12/14/2014	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

5	**Cost Est. Class**
9/12/2018	**Cost Est. Date**
	Cost Est. Source
Ali Khraizat	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY20	$80			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	80	0	0	0	0	0	0	80	0

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Procurement	3/31/2019	10/15/2019	198
Project Execution	10/16/2019	4/16/2020	183

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF Rehabilitation of the Ash Handling Systems

213008 CIP#

Phase Construction **Contract** NA **Status** Future Planned Start

Title Rehabilitation of the Ash Handling Systems

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date	12/30/2021	**Fund**	Construction Bond Fund
End Date	12/14/2024	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

4	**Cost Est. Class**
10/2/2017	**Cost Est. Date**
	Cost Est. Source
Ali Khraizat	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY22	$187			2021CIP
Construction	FY23	$10,760			2021CIP
Construction	FY24	$5,053			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	187	10,760	5,053	0	0	16,000	16,000

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Procurement	10/14/2021	4/11/2022	179
Project Execution	4/12/2022	4/17/2024	736
Project Closeout	4/18/2024	6/16/2024	59

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF Rehabilitation of the Ash Handling Systems

213008 CIP#

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	0	166	1,338	636	11,061	5,342	0	0	18,543	18,377
2020	0	0		0	111	1,111	5,525	9,574	2,184	0	0	18,505	18,505
2019	0				687	916	3,614	6,069	9,330	0	0	20,616	11,286
2018			530	1,045	6,225	5,725	4,791		0	0	0	18,316	18,316

Description of CIP Changes Study phase was added on its own to evaluate options prior to design. The schedule was delayed by 1 FY.

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

214001 CIP#

WRRF Relocation of Industrial Waste Control Division and Analytical Laboratory Operations

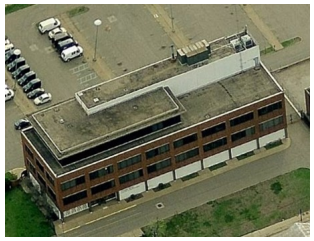
- ☐ Innovation
- ☐ Conceptual WW MP
- ☐ Water MP Right Sizing
- ☑ Reliability/Redundancy
- ☐ NEWTP Repurposing

Project Status Active

CIP Type Project

☐ **Project New To CIP**

Old IWC and Analytical Lab; new one will be built at the location of the WRRF because of Gordie Howe International Bridge Project



Project Engineer/Manager Beena Chackunkal
Director Dan Alford
Managing Dept WW Design Eng
Date Original Business Case Prepared 10/12/2016
Year Project Added to CIP 2014

Budget Wastewater
Class Lvl 1 Wastewater
Class Lvl 2 WRRF
Class Lvl 3 Industrial Waste Control
Location City of Detroit
Fund and Cost Center Wastewater - 5421-892211

Problem Statement	Laboratory Optimization, Continued operation of IWC and Lab, lease termination for analytical laboratory, and utilization of available space in WRRF NAB
Scope of Work / Project Alternatives	Relocate Industrial Waste Control Division and Analytical Lab to New Administration Building at WRRF. Consolidate the existing Operations Lab with Analytical Lab.
Other Important Info	Challenges: Maintaining the laboratory operations during relocation. Project History: In accordance with the NPDES Permit, GLWA implements and enforces an Industrial Pretreatment Program (IPP), and regulates the discharge of wastewater from commercial and industrial sources throughout the service area. A key component of the IPP includes the performance of analytical testing on wastewater samples collected from industrial and commercial sources, in-system samples from the sewer system and other sources including groundwater and septage. The Industrial Waste Control Division (IWC) is responsible for implementation of the IPP, and analytical services are obtained from the Analytical Laboratory located at the MCHT facility. IWC activities are housed at the Livernois Center Building (LCB) located at 303 S. Livernois, while the Analytical Laboratory leases space at the MCHT on Second Avenue. The State of Michigan Department of Transportation and the Govt. of Canada have proposed to construct a new bridge crossing across the Detroit River, with a completion date of 2020. The Livernois Center Building lies within the area designated for the Bridge and support services and need to be relocated. It would be desirable to relocate the laboratory facilities at the same time to optimize the operations and make use of underutilized

	GLWA facilities rather than lease space from a 3rd party.
Related Project	none
Primary Driver	3 - Regulatory
Driver Explanation	Length and reorganization is yet established.

WRRF Relocation of Industrial Waste Control Division and Analytical Laboratory Operations

PM Weighted Score
71.6

Criteria	Score	Comment
Condition	3	Immediate replacement required
Performance (Service Level/Reliability)	4	Likelyhood of serious inconveniencies and bus
Regulatory (Environmental/Legal)	5	Project is part of a mandated or otherwise ent
Operations and Maintenance	2	Major,measurable positive impact on O&M
Public Health and Safety	3	Cancelling project will continue posing signific
Public Benefit	3	Supports neighborhood growth
Financial	3	securing of grants/external funds will cover pr
Efficiency and Innovation	5	Substantial operational efficiencies

RC Weighted Score
62.2

Criteria	Score	Comment
Condition	3	
Performance (Service Level/Reliability)	2	
Regulatory (Environmental/Legal)	5	
Operations and Maintenance	2	
Public Health and Safety	2	
Public Benefit	3	
Financial	3	
Efficiency and Innovation	5	

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

214001 CIP#

WRRF Relocation of Industrial Waste Control Division and Analytical Laboratory Operations

Phase Design & Construction Assistance **Contract** CS-262 **Status** Active

Title General Engineering Services for design of CON-280 and Analytical Lab (Sigma)

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

1	**Cost Est. Class**
9/12/2018	**Cost Est. Date**
Contract	**Cost Est. Source**
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY19-	$716			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
716	0	0	0	0	0	0	0	716	0

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Project Execution	10/12/2016	5/22/2021	1683

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

214001 CIP#

WRRF Relocation of Industrial Waste Control Division and Analytical Laboratory Operations

Phase not applicable **Contract** NA **Status** Closed Out

Title Prior Year Actual Expenses

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Closed Out	**Funding Source**	
Start Date		**Fund**	
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
n/a	FY19-	$182			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
182	0	0	0	0	0	0	0	182	0

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

214001 CIP#

WRRF Relocation of Industrial Waste Control Division and Analytical Laboratory Operations

Phase Construction **Contract** CON-280 **Status** Closed Out

Title Relocation of Industrial Waste Control Division

Phase Budget	Wastewater	**Cost Allocation**	IWC
Phase Status	Closed Out	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
9/12/2018	**Cost Est. Date**
Contract	**Cost Est. Source**
Engineer	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY19-	$1,327			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
1,327	0	0	0	0	0	0	0	1,327	0

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Project Execution	6/25/2018	2/28/2019	248
Project Closeout	3/1/2019	4/21/2019	51

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

214001 CIP#

WRRF Relocation of Industrial Waste Control Division and Analytical Laboratory Operations

Phase GLWA Employees Project management **Contract** NA **Status** Active

Title GLWA Salaries

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

5	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2021	FY19-	$76			2021CIP
GLWA Salaries CIP2021	FY20	$93			2021CIP
GLWA Salaries CIP2021	FY21	$108			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
76	93	108	0	0	0	0	0	277	108

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

214001 CIP#

WRRF Relocation of Industrial Waste Control Division and Analytical Laboratory Operations

Phase Construction **Contract** NA **Status** Active

Title Relocation of Analytical Lab

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

3	**Cost Est. Class**
9/12/2018	**Cost Est. Date**
Eng Est.	**Cost Est. Source**
Ali Khraizat	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY20	$10,276			2021CIP
Construction	FY21	$1,223			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	10,276	1,223	0	0	0	0	0	11,499	1,223

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Project Execution	9/24/2019	9/23/2020	365
Project Closeout	9/24/2020	5/21/2021	239

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

214001 CIP#

WRRF Relocation of Industrial Waste Control Division and Analytical Laboratory Operations

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	2,301	10,369	1,331	0	0	0	0	0	14,001	1,331
2020	0	0	573	2,828	7,567	0	0	0	0	0	0	10,968	7,567
2019	0	182		4,001	7,764	1,000				0	0	12,947	12,765
2018			5,000	2,000					0	0	0	7,000	7,000

Description of CIP Changes Reallocated engineering services from CIP No. 380901 (contact was moved from as-needed to appropriate CIP). Separated IWC and Lab construction phases due to GHIB project schedule.

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

216004 CIP#

Rehabilitation of Various Sampling Sites and PS#2 Ferric Chloride System at WRRF

- [x] Innovation
- [ ] Conceptual WW MP
- [ ] Water MP Right Sizing
- [x] Reliability/Redundancy
- [ ] NEWTP Repurposing

Project Status Active

CIP Type Project

- [ ] **Project New To CIP**

The RAS-3 sampling station in the basement of Intermediate Lift Pump No. 2 (ILP No. 2) Building samples the return activated sludge flows to Aeration Deck No.4

Project Engineer/Manager Beena Chackunkal
Director Dan Alford
Managing Dept WW Design Eng
Date Original Business Case Prepared 8/1/2016
Year Project Added to CIP 2010

Budget Wastewater
Class Lvl 1 Wastewater
Class Lvl 2 WRRF
Class Lvl 3 General Purpose
Location City of Detroit
Fund and Cost Center Wastewater - 5421-892211

Problem Statement	Rehabilitation of the sampling facilities will improve system reliability and allow for consistent and accurate sampling. This will help to submit an accurate report to MDEQ. The rehabilitation of Ferric Chloride system will improve the phosphorous removal to comply with the Permit.
Scope of Work / Project Alternatives	The scope of work includes: Replacement of existing sampling equipment, installing new samplers, pumps, piping, housing and support equipment such as I&C, HVAC, etc. at the various sampling sites. The scope also include: Replacement of existing two steel Ferric Chloride tanks at PS#2 with four (4) smaller tanks. Provide new piping layout, gravity feed, and self-cleaning strainer. Rehabilitate Ferric Chloride Unloading station, associated Valves and Appurtenances. Provide Flow meters and new control strategies to meet future demands of Ferric Chloride at Pump Station # 2. The CIP is for construction only.
Other Important Info	*Innovation note: Rehab may include alternative online/real-time sampling & analysis, as well as improved mixing of the ferric with primary influent. The original CIP Project Proposal CIP-1223, "Rehabilitation of Grit and Screening System at PS-2 and Rehabilitation of Sampling Sites at WWTP" included two major scope items; Rehabilitation of Grit & Bar Screening System and Sampling Stations. That construction budget for CIP-1223 amount $11 M was set aside in CIP. The design for Grit & Screening System and Sampling Station were complete under As Needed Engineering Services Contract, CS-1481

	Task 18. The construction for "Rehabilitation of Sampling Sites" will move forward and be bid out separately for construction without Grit & Bar Screening System. The Bar Rack System and Grit System designed under As Needed Engineering Services Contact CS-1481, Task 18 will not proceed for construction as designed. An engineering decision to have a fresh look and start a new study, design and construction project through CIP-1314 will proceed. The proposed CIP budget is for construction cost only. The original budget for CIP-1223 was $11M and has been reduced to $5M. The remaining $6M budget has been transferred to CIP-1314 to complete study, design and construction of Grit and Screening System at PS#2. Challenges: Maintaining the MDEQ-NPDES required capacity during the construction phase of the project. Project History: The Sampling sites are located at Oakwood, MPI-2, NEIA, PEAS1, 3 & 4, ML1 thru 4, and RAS1 thru 4, C2SE 3& 4. Sampling is performed to monitor permit compliance and process performance. Samples are also collected and analyzed on composite samples. The above sampling stations are required to be rehabilitated or replaced for meeting the permit sampling requirements. These sampling stations regularly fails to collect samples due to the clogging problem in the sample line. Replacement of existing sampling equipment, installing new samplers, pumps, HVAC, etc. were also proposed through Need Assessment 2010 – 2016 for these sampling stations. The WRRF sampling station rehabilitation design is completed under an As Needed Engineering Services. The WRRF PS# 2 Ferric Chloride rehabilitation design is completed under another As Needed Engineering Services Contact. These two projects are combined together for construction under the revised CIP #1223 in the 2018 CIP.
Related Project	CIP 211008 also concerns Ferric Chloride system. PC-757: Rehabilitation of Primary Clarifiers, Drain Lines, Hot Water, and Scum Lines, PC 789 – Pump Station No. 1 Rack and Grit Building, MPI and JSS Improvements, PC 795 – Pump Station No. 2 Improvements.
Primary Driver	2 - Performance
Driver Explanation	Plant operations report on the failure of shear pins and accelerated wearing and tearing of the bar racks causing downtime for the maintenance and violation of the permit.

Rehabilitation of Various Sampling Sites and PS#2 Ferric Chloride System at WRRF

PM Weighted Score

82.2

Criteria	Score	Comment
Condition	5	Excessive Maintenance levels for the equipme
Performance (Service Level/Reliability)	5	Equipment obsolete/extremely difficult to mai
Regulatory (Environmental/Legal)	5	Compliance Failure will lead to significant fine
Operations and Maintenance	4	High levels of O&M
Public Health and Safety	3	Moderate positive impact on public H&S
Public Benefit	3	Moderate savings for GLWA
Financial	4	Project will likely result in avoidance of fines
Efficiency and Innovation	3	Process efficiency for a more robust system ar

RC Weighted Score

82.2

Criteria	Score	Comment
Condition	5	
Performance (Service Level/Reliability)	5	
Regulatory (Environmental/Legal)	5	
Operations and Maintenance	4	
Public Health and Safety	3	
Public Benefit	3	
Financial	4	
Efficiency and Innovation	3	

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

216004 CIP#

Rehabilitation of Various Sampling Sites and PS#2 Ferric Chloride System at WRRF

Phase Construction Assistance **Contract** CS-301 **Status** Active

Title Engineering Services for the Rehab of Various Sampling Stations

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

1	**Cost Est. Class**
9/12/2018	**Cost Est. Date**
Contract	**Cost Est. Source**
Eng	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY19-	$23			2021CIP
Engineering Services	FY20	$62			2021CIP
Engineering Services	FY21	$62			2021CIP
Engineering Services	FY22	$7			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
23	62	62	7	0	0	0	0	154	69

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Project Execution	5/27/2017	8/10/2021	1536

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

216004 CIP#

Rehabilitation of Various Sampling Sites and PS#2 Ferric Chloride System at WRRF

Phase not applicable **Contract** NA **Status** Closed Out

Title Prior Year Actual Expenses

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Closed Out	**Funding Source**	
Start Date		**Fund**	
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
n/a	FY19-	$435			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
435	0	0	0	0	0	0	0	435	0

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

216004 CIP#

Rehabilitation of Various Sampling Sites and PS#2 Ferric Chloride System at WRRF

Phase Construction **Contract** NA **Status** Future Planned Start

Title Rehabilitation of Various Sampling Sites and PS#2 Ferric Chloride System at WRRF

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date	4/2/2018	**Fund**	Construction Bond Fund
End Date	9/24/2019	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

3	**Cost Est. Class**
10/2/2017	**Cost Est. Date**
	Cost Est. Source
Ali Khraizat	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY19-	$271			2021CIP
Construction	FY20	$3,290			2021CIP
Construction	FY21	$1,097			2021CIP
Construction	FY22	$98			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
271	3,290	1,097	98	0	0	0	0	4,756	1,195

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Project Execution	2/18/2019	2/21/2021	734
Project Closeout	2/22/2021	8/10/2021	169

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

216004 CIP#

Rehabilitation of Various Sampling Sites and PS#2 Ferric Chloride System at WRRF

Phase Construction Assistance **Contract** CS-292 **Status** Active

Title Engineering Services for the Rehab of Ferric PS No.2

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

1	**Cost Est. Class**
9/12/2018	**Cost Est. Date**
Contract	**Cost Est. Source**
Eng	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY19-	$60			2021CIP
Engineering Services	FY20	$45			2021CIP
Engineering Services	FY21	$45			2021CIP
Engineering Services	FY22	$5			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
60	45	45	5	0	0	0	0	155	50

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Project Execution	1/1/2017	8/10/2021	1682

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

216004 CIP#

Rehabilitation of Various Sampling Sites and PS#2 Ferric Chloride System at WRRF

Phase GLWA Employees Project management **Contract** NA **Status** Active

Title GLWA Salaries

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

5	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2021	FY19-	$26			2021CIP
GLWA Salaries CIP2021	FY20	$96			2021CIP
GLWA Salaries CIP2021	FY21	$96			2021CIP
GLWA Salaries CIP2021	FY22	$11			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
26	96	96	11	0	0	0	0	229	107

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Rehabilitation of Various Sampling Sites and PS#2 Ferric Chloride System at WRRF

216004 CIP#

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	815	3,493	1,300	121	0	0	0	0	5,729	1,421
2020	0	0	439	609	3,921	607	0	0	0	0	0	5,576	4,528
2019	0	312	40	551	3,957	565				0	0	5,425	5,073
2018			2,500	2,500					0	0	0	5,000	5,000

Description of CIP Changes Reallocated as-needed contracts from CIP No. 380901 (Sigma-Sampling Sta.) and CIP No. 380501 (Metco-Ferric).

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

216006 CIP#

Assessment and Rehabilitation of WRRF yard piping and underground utilities

- [x] Innovation
- [ ] Conceptual WW MP
- [ ] Water MP Right Sizing
- [x] Reliability/Redundancy
- [ ] NEWTP Repurposing

Project Status Active

CIP Type Project

- [ ] **Project New To CIP**

GLWA WRRF

Project Engineer/Manager Charles Reinhart
Director Dan Alford
Managing Dept WW Design Eng
Date Original Business Case Prepared 7/27/2016
Year Project Added to CIP 2017

Budget Wastewater
Class Lvl 1 Wastewater
Class Lvl 2 WRRF
Class Lvl 3 General Purpose
Location City of Detroit
Fund and Cost Center Wastewater - 5421-892211

Problem Statement	Yard piping and underground utilities are vital to the operations of the WRRF. The integrity of these systems will be maintained with this project. The Secondary Water system needs to be relocated or completely refurbished to provide uninterrupted water for fire protection and process applications such as seal water to the pumps. Some of the yard piping is original to the plant and requires a condition assessment.
Scope of Work / Project Alternatives	This project will include the study, design, and construction for the needed improvements to yard piping and underground utilities. This includes right sizing, as-built confirmation and condition assessment of our yard piping and underground utilities. It is possible that the secondary water system may need to be relocated. The distribution models for the water systems will also be updated. A redundant potable water feed to the WRRF will also be evaluated.
Other Important Info	Reliable utility is a critical aspect of O&M for the facility and to avoid outages. Project History: Some of the pipe lines at the WRRF have been inexistence since the plant was built and have been found on record dating back to 1938. As the plant has grown, so have the systems. In general, the majority of the changes to the multiple systems occurred when the specific buildings or components to the plant were built or renovated. Therefore, an evaluation and necessary replacement of these pipelines are needed to make sure the integrity of these pipelines. Challenges: Maintaining the adequate supply of our water systems required for treatment processes during assessment and rehabilitation of underground utilities will be the most significant challenge on this project. Temporary power, air, water, natural gas system shutdowns may also be required to perform the work.

Assessment and Rehabilitation of WRRF yard piping and underground utilities

Related Project	There are currently no other specific projects for underground utilities, however many other projects require continuous service from these utilities and the ability to consistently supply the required quantities will need to be coordinated with these projects during construction of the improvements.
Primary Driver	1 - Condition
Driver Explanation	Some of the underground utilities are original to the plant and are critical to the plant treatment processes (e.g. incinerator air permit requirements).

Assessment and Rehabilitation of WRRF yard piping and underground utilities

PM Weighted Score
80.8

Criteria	Score	Comment
Condition	5	Asset has exceeded its design service levels
Performance (Service Level/Reliability)	4	Expected performance failures under normal
Regulatory (Environmental/Legal)	4	Regulatory Compliance failure will lead to fine
Operations and Maintenance	4	Project will have significant impact on O&M
Public Health and Safety	4	Likely to address significant hazard issues or co
Public Benefit	3	Moderate additional savings
Financial	4	Project will likely result in avoidance of emerge
Efficiency and Innovation	4	Right sizing system will have significant operati

RC Weighted Score
76.4

Criteria	Score	Comment
Condition	5	
Performance (Service Level/Reliability)	4	
Regulatory (Environmental/Legal)	4	
Operations and Maintenance	3	
Public Health and Safety	4	
Public Benefit	4	
Financial	3	
Efficiency and Innovation	3	

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

216006 CIP#

Assessment and Rehabilitation of WRRF yard piping and underground utilities

Phase GLWA Employees Project management **Contract** NA **Status** Future Planned Start

Title GLWA Salaries

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

3	**Cost Est. Class**
10/1/2017	**Cost Est. Date**
	Cost Est. Source
Ali Khraizat	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2021	FY19-	$3			2021CIP
GLWA Salaries CIP2021	FY20	$86			2021CIP
GLWA Salaries CIP2021	FY21	$94			2021CIP
GLWA Salaries CIP2021	FY22	$95			2021CIP
GLWA Salaries CIP2021	FY23	$95			2021CIP
GLWA Salaries CIP2021	FY24	$95			2021CIP
GLWA Salaries CIP2021	FY25	$95			2021CIP
GLWA Salaries CIP2021	FY26+	$2			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
3	86	94	95	95	95	95	2	565	474

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

216006 CIP#

Assessment and Rehabilitation of WRRF yard piping and underground utilities

Phase Design & Construction Assistance **Contract** NA **Status** Future Planned Start

Title Assessment and Rehabilitation of WRFF yard piping and underground utilities

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date	9/13/2019	**Fund**	Construction Bond Fund
End Date	10/19/2024	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

5	**Cost Est. Class**
9/12/2018	**Cost Est. Date**
Eng	**Cost Est. Source**
Ali Khraizat	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY20	$184			2021CIP
Engineering Services	FY21	$443			2021CIP
Engineering Services	FY22	$443			2021CIP
Engineering Services	FY23	$443			2021CIP
Engineering Services	FY24	$444			2021CIP
Engineering Services	FY25	$443			2021CIP
Engineering Services	FY26+	$10			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	184	443	443	443	444	443	10	2,410	2,216

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Pre-Procurement	1/15/2019	8/15/2019	212

Assessment and Rehabilitation of WRRF yard piping and underground utilities

Phase Task Name	Start Date	End Date	Duration
Procurement	8/16/2019	2/11/2020	179
Project Execution	2/12/2020	7/8/2025	1973

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

216006 CIP#

Assessment and Rehabilitation of WRRF yard piping and underground utilities

Phase Construction **Contract** TBD **Status** Future Planned Start

Title Assessment and Rehabilitation of WRFF yard piping and underground utilities

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

	Cost Est. Class
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY21	$3,754			2021CIP
Construction	FY22	$4,216			2021CIP
Construction	FY23	$4,216			2021CIP
Construction	FY24	$4,228			2021CIP
Construction	FY25	$4,862			2021CIP
Construction	FY26+	$261			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	3,754	4,216	4,216	4,228	4,862	261	21,537	21,276

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Procurement	5/12/2020	8/9/2020	89
Project Execution	8/10/2020	5/9/2025	1733

Phase Task Name	Start Date	End Date	Duration
Project Closeout	5/10/2025	7/8/2025	59

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

216006 CIP#

Assessment and Rehabilitation of WRRF yard piping and underground utilities

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	3	270	4,291	4,754	4,754	4,767	5,400	273	24,512	23,966
2020	0	0		0	323	5,258	3,849	4,500	3,500	7,423	0	24,853	17,430
2019	0				1,718	4,008	7,174	17,530	24,026	0	0	54,456	30,430
2018			1,700	2,000	12,000	15,600	16,279	4,141	0	0	0	51,720	47,579

Description of CIP Changes This project was separated from of SFE PS rehabilitation and the schedule was advanced by 1 FY.

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

DTE Primary Electric 3rd Feed Supply to WRRF

216007 CIP#

- ☐ Innovation
- ☐ Conceptual WW MP
- ☐ Water MP Right Sizing
- ☑ Reliability/Redundancy
- ☐ NEWTP Repurposing

Project Status Active

CIP Type Project

☐ **Project New To CIP**

The new 3rd 120/13.8 kV Transformer installed and owned by the Great Lakes Water Authority waiting for the 3rd Primary Electric Feed Line to be installed and energized

Project Engineer/Manager Phillip Kora
Director Philip Kora
Managing Dept WW Construction Eng
Date Original Business Case Prepared 7/27/2016
Year Project Added to CIP 2017

Budget Wastewater
Class Lvl 1 Wastewater
Class Lvl 2 WRRF
Class Lvl 3 General Purpose
Location City of Detroit
Fund and Cost Center Wastewater - 5421-892211

Problem Statement	GLWA's WWTP will have a redundant primary electrical service to power the WRRF equipment.
Scope of Work / Project Alternatives	The scope of this design-build project includes design and construction of 3rd 120 kV primary electric supply transmission line owned by DTE tapping into the 120-kV Waterman-Zug line in the vicinity of Dearborn St. and Copland St right-of-way at Tower 1368. The design-build services also include securing the property right-of-way easements from the property owners, as well as the design and construction of power transmission supply line. This primary transmission power line will energize the already installed new 120-13.8 industrial substation owned by GLWA near EB-1.
Other Important Info	Challenges: Negotiation with private property owners and testing of the automatic switch over will require co-ordination with operations. Project History: The WRRF has been supplied primary electrical power through the DTE Maxwell Switching Station via two power supply lines Maxwell 1 and Maxwell 2. The two main electrical buildings at the WRRF which feed the primary and secondary facilities are Electrical Building 1 and 2 (EB-1 and EB2). EB2 supply electrical power to the pump station #1 and all the primary treatment facilities. EB1 supply power to pump station #2, secondary treatment facilities, dewatering, incineration and all other remaining facilities. The City of Detroit's Public Lighting Department (PLD) provided a redundant 24kV back-up electrical services to EB2 through the City of Detroit 24kV industrial substation. In the event of DTE power supply failure the PLD 24kV power supply line provided redundancy and reliability to EB2. The back-up power supply by PLD at EB-2 required a manual switch over in the

DTE Primary Electric 3rd Feed Supply to WRRF

	event of DTE power failure. The City of Detroit's PLD discontinued its power generation in the late 1980's. PLD also started curtailing electrical power supply distribution to its customers. The study by HRC in 1988 and later by Metcalf & Eddy in the early 90's during design and construction of Pump Station # 2 project identified the need for a 3rd primary electrical supply line. In order to provide reliable and redundant primary electric power supply to the WRRF after the September 8, 2011 power failure event, GLWA initiated a consulting services contract "CS-1449 Underground Electrical Duct Bank Repair and EB-1, EB-2 and EB-10 Primary Power Services Improvements at the WWTP". This CS-1449 scope required to study and design reliable and redundant primary electrical power system improvements. The study recommended to abandon PLD's 24kV back-up electric power supply to EB-2 and replace with a 3rd power supply feed line from DTE's Waterman substation. In addition to the 3rd power feed line, the study also recommended a new 120-13.8 kV transformer near EB-1 and a new 15kV power supply line to EB-2, to address power redundancy and reliability. Construction of the primary power services improvements design through CS-1449 were procured through contract PC-783. The contract PC-783 in the 1st quarter of 2016 abandoned and removed the 24kV power feed line and industrial substation owned by PLD. On May 29, 2012, GLWA signed a letter of agreement with DTE to provide a 3rd 120kV feed transmission line owned by DTE (paid by GLWA) to a new 120-13.8 kV industrial substation built and owned by GLWA. The DTE agreed to obtain all required property right-of-way and easements for the route with reasonable effort per the agreement with GLWA. The PC-783 contract allocated $1.30 Million budget for DTE to execute these services. GLWA, through construction contract PC-783, has already installed a new 120-13.8 industrial substation near EB-1, a new 15kV power supply line from the new transformer to EB-2, and removed 24kV back-up electrical service line and industrial substation owned by PLD. However, DTE failed to get property right-of-way and easements for the route. DTE's original design route for transmission line was along the railroad tracks but the rail company declined to provide right-of-way for DTE's new transmission line. DTE later planned a longer transmission route to buy property from private owners, but a property owner increased the price sensing urgency for GLWA. The new cost estimate by DTE for this new transmission line is $4.3 Million. GLWA's WRRF requires a reliable and redundant electrical power supply in order to be in compliance with NPDES permit requirements. The disconnection and removal of backup power supply from PLD leaves GLWA vulnerable for power failure and this urgent power supply line needs to be installed at the earliest. In order to speed design and construction GLWA is proposing a design-build project delivery method for the 3rd power supply line project. Presently there is no true redundant primary electrical service feed line to the WRRF, both the primary electric supply lines originate from the DTE Maxwell Switching Station. GLWA's General Counsel is currently working on utilizing the "Condemnation Process" to acquire easement from the private property owners for this route.
Related Project	PC-783 project.
Primary Driver	3 - Regulatory
Driver Explanation	GLWA's WWTP requires a reliable and redundant primary electrical power supply in order to be in compliance with its NPDES permit requirements. The disconnection and removal of backup power supply line and substation from PLD leaves GLWA very vulnerable in

PM Weighted Score
89.8

Criteria	Score	Comment
Condition	5	Immediate replacement/rehabilitation require
Performance (Service Level/Reliability)	5	High Risk of Performance Failures
Regulatory (Environmental/Legal)	5	Imminent risk of causing permit violations
Operations and Maintenance	2	Repair of equipment will cost money in case o
Public Health and Safety	5	Catastrophic failure w/safety/health/environn
Public Benefit	5	Additional Savings for GLWA
Financial	5	Project will result in avoidance of fines
Efficiency and Innovation	3	Project will have a moderate impact on energ

RC Weighted Score
82.8

Criteria	Score	Comment
Condition	5	
Performance (Service Level/Reliability)	5	
Regulatory (Environmental/Legal)	5	
Operations and Maintenance	2	
Public Health and Safety	4	
Public Benefit	5	
Financial	5	
Efficiency and Innovation	1	

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

DTE Primary Electric 3rd Feed Supply to WRRF

216007 CIP#

Phase GLWA Employees Project management **Contract** NA **Status** Active

Title GLWA Salaries

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

3	**Cost Est. Class**
7/31/2019	**Cost Est. Date**
	Cost Est. Source
PMA	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2021	FY20	$69			2021CIP
GLWA Salaries CIP2021	FY21	$75			2021CIP
GLWA Salaries CIP2021	FY22	$37			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	69	75	37	0	0	0	0	181	112

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

DTE Primary Electric 3rd Feed Supply to WRRF

216007 CIP#

Phase Construction **Contract** NA **Status** Active

Title DTE Primary Electric 3rd Feed Supply to WRRF

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date	6/6/2018	**Fund**	Construction Bond Fund
End Date	6/6/2019	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

3	**Cost Est. Class**
7/31/2019	**Cost Est. Date**
	Cost Est. Source
PMA	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY19-	$723			2021CIP
Construction	FY20	$2,869			2021CIP
Construction	FY21	$1,131			2021CIP
Construction	FY22	$654			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
723	2,869	1,131	654	0	0	0	0	5,377	1,785

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Procurement	1/1/2019	5/6/2019	125
Project Execution	8/1/2019	6/30/2021	699
Project Closeout	7/1/2021	12/27/2021	179

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

DTE Primary Electric 3rd Feed Supply to WRRF

216007 CIP#

Phase not applicable **Contract** NA **Status** Closed Out

Title Prior Year Actual Expenses

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Closed Out	**Funding Source**	
Start Date		**Fund**	
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
n/a	FY19-	$15			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
15	0	0	0	0	0	0	0	15	0

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

DTE Primary Electric 3rd Feed Supply to WRRF

216007 CIP#

Phase Design & Construction Assistance **Contract** TBD **Status** Active

Title DTE Primary Electric 3rd Feed Supply to WRRF

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

4	**Cost Est. Class**
7/31/2019	**Cost Est. Date**
Estimate	**Cost Est. Source**
Engineering	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY20	$124			2021CIP
Engineering Services	FY21	$90			2021CIP
Engineering Services	FY22	$36			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	124	90	36	0	0	0	0	250	126

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Project Execution	8/1/2019	12/27/2021	879

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

DTE Primary Electric 3rd Feed Supply to WRRF

216007 CIP#

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	738	3,062	1,296	727	0	0	0	0	5,823	2,023
2020	0	0	584	2,108	1,381	3,374	0	0	0	0	0	7,447	4,755
2019	0	15		2,002	1,326	3,326				0	0	6,669	6,654
2018			3,500	3,500					0	0	0	7,000	7,000

Description of CIP Changes The agreement between DTE and GLWA is signed and the kick off meeting will be scheduled in the month of August 2019

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Rehabilitation of Screened Final Effluent (SFE) Pump Station

216008 CIP#

- [x] Innovation
- [ ] Conceptual WW MP
- [x] Water MP Right Sizing
- [ ] Reliability/Redundancy
- [ ] NEWTP Repurposing

Project Status Future Planned

CIP Type Project

- [ ] **Project New To CIP**

Project Engineer/Manager TBD

Director Dan Alford

Managing Dept WW Design Eng

Date Original Business Case Prepared 6/21/2017

Year Project Added to CIP 2018

Budget Wastewater

Class Lvl 1 Wastewater

Class Lvl 2 WRRF

Class Lvl 3 General Purpose

Location City of Detroit

Fund and Cost Center Wastewater - 5421-892211

Problem Statement	The SFE Pump Station provides SFE water to many of the GLWA WRRF treatment processes and needs to be completely rehabilitated to maintain uninterrupted supply of SFE water to these processes.
Scope of Work / Project Alternatives	This project will include the study, design, and construction for the needed improvements to the SFE pump station. This includes required capacity, pumps, strainers, piping, controls, building improvements, and electrical supply. This will also include a study to evaluate the potential for replacing the secondary water utilization with SFE utilization where feasible and an alternative analysis to the existing carrier water at chlorination/dechlorination facility, seal water, recovery needs which may include additional SFE treatment such as chemical addition to accommodate process needs.
Other Important Info	*Innovation note: optimize of a valuable resource recovered for facility needs. Project History: The SFE pump station has eight pumps with a total capacity of approximately 135 MGD. Pumps 1,2,4, and 6 were installed in 1973, pumps 3 and 5 in 1980, and pumps 7 and 8 in 1998. The older pumps were rebuilt in 1998. Strainers have been reconditioned as necessary over time. Due to the critical nature of the SFE pump station and the elapsed time since a major rehabilitation (over 15 years), a significant upgrade/rehabilitation is required. In addition, the two 5 kV transformers that supply power from EB-3 are approximately 40 years old and are in need of replacement. Challenges: Maintaining the adequate supply of SFE to the plant treatment processes during construction of the SFE improvements.
Related Project	There are no other specific projects for the SFE pump station that need to be coordinated with, however many other projects require SFE to consistently supply the required quantities needed. This will need to be coordinated

	with these projects during construction of the improvements.
Primary Driver	1 - Condition
Driver Explanation	The SFE pump station is very old and is critical to other treatment processes meeting permit requirements (e.g. incinerator air permit requirements). The Secondary Water System is very corroded and needs to be rehabilitated or relocated.

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Rehabilitation of Screened Final Effluent (SFE) Pump Station

216008 CIP#

PM Weighted Score
55.8

Criteria	Score	Comment
Condition	5	Some components are passed their useful life
Operations and Maintenance	4	Significant O&M is required to keep the SFE in
Financial	4	Exposure to multiple fines for permit violations
Performance (Service Level/Reliability)	2	Much of the equipment is out frequently out o
Regulatory (Environmental/Legal)	2	If the SFE pump station goes down, there is an
Efficiency and Innovation	4	Project will have a significant impact on efficie
Public Benefit	2	Public will benefit from improved air quality
Public Health and Safety	1	Permit violations would cause both air quality

RC Weighted Score
55.8

Criteria	Score	Comment
Regulatory (Environmental/Legal)	2	
Efficiency and Innovation	4	
Condition	5	
Public Health and Safety	1	
Performance (Service Level/Reliability)	2	
Financial	4	
Operations and Maintenance	4	
Public Benefit	2	

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Rehabilitation of Screened Final Effluent (SFE) Pump Station

216008 CIP#

Phase GLWA Employees Project management **Contract** NA **Status** Future Planned Start

Title GLWA Salaries

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

3	**Cost Est. Class**
10/1/2018	**Cost Est. Date**
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2021	FY20	$86			2021CIP
GLWA Salaries CIP2021	FY21	$86			2021CIP
GLWA Salaries CIP2021	FY22	$104			2021CIP
GLWA Salaries CIP2021	FY23	$121			2021CIP
GLWA Salaries CIP2021	FY24	$118			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	86	86	104	121	118	0	0	515	429

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Rehabilitation of Screened Final Effluent (SFE) Pump Station

216008 CIP#

Phase Construction **Contract** NA **Status** Future Planned Start

Title Rehabilitation of Screened Final Effluent (SFE) Pump Station

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

5	**Cost Est. Class**
9/12/2018	**Cost Est. Date**
Eng	**Cost Est. Source**
Ali Khraizat	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY22	$1,147			2021CIP
Construction	FY23	$15,196			2021CIP
Construction	FY24	$5,556			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	1,147	15,196	5,556	0	0	21,899	21,899

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Procurement	6/28/2021	12/24/2021	179
Project Execution	12/25/2021	4/25/2024	852
Project Closeout	4/26/2024	6/24/2024	59

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Rehabilitation of Screened Final Effluent (SFE) Pump Station

216008 CIP#

Phase Study and Design and Construction Assistance **Contract** NA **Status** Future Planned Start

Title Rehabilitation of Screened Final Effluent (SFE) Pump Station

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

4	**Cost Est. Class**
9/12/2018	**Cost Est. Date**
Eng	**Cost Est. Source**
Ali Khraizat	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY20	$504			2021CIP
Engineering Services	FY21	$1,276			2021CIP
Engineering Services	FY22	$256			2021CIP
Engineering Services	FY23	$254			2021CIP
Engineering Services	FY24	$250			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	504	1,276	256	254	250	0	0	2,540	2,036

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Pre-Procurement	7/1/2019	8/29/2019	59
Procurement	8/30/2019	2/25/2020	179
Project Execution	2/26/2020	6/24/2024	1580

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Rehabilitation of Screened Final Effluent (SFE) Pump Station

216008 CIP#

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	0	590	1,362	1,507	15,571	5,924	0	0	24,954	24,364
2020	0	0		51	1,091	991	9,475	7,805	5,535		0	24,948	24,897

Description of CIP Changes This project is separated from 2019 CIP 216006 and will label as a new project

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

LM Facilities Assessment and Rehabilitation/Replacement

216009 CIP#

- ☐ Innovation
- ☐ Conceptual WW MP
- ☐ Water MP Right Sizing
- ☐ Reliability/Redundancy
- ☐ NEWTP Repurposing

Project Status Active

CIP Type Project

☑ **Project New To CIP**

Project Engineer/Manager Beena Chackunkal
Director Dan Alford
Managing Dept WW Design Eng
Date Original Business Case Prepared 8/6/2019
Year Project Added to CIP 2019

Budget Wastewater
Class Lvl 1 Wastewater
Class Lvl 2 WRRF
Class Lvl 3 General Purpose
Location City of Detroit
Fund and Cost Center

Problem Statement	The warehouse buildings that stores equipment and supplies for GLWA are located at different facilities. The physical condition of the existing buildings, specifically the McKinstry warehouse (SSS), seems to be in poor condition with extensive roof leaking and other issues. There is an assessment of the L&M Facilities going on to determine whether it makes economic sense to continue to operate these facilities at the existing sites or if these facilities can be downsized into one central site.
Scope of Work / Project Alternatives	Evaluate the existing conditions of the warehouse facilities throughout GLWA. Provide recommendations to improve the facility environment to store the assets safely and efficiently. The various building systems, including heating, ventilation, electrical, and lighting shall be evaluated to be in compliance with applicable building codes and regulations. Design and Construction of the suggested modifications, based on the evaluation, shall follow.
Related Project	Wastewater Master Plan
Primary Driver	1 - Condition

PM Weighted Score
64.6

Criteria	Score	Comment
Performance (Service Level/Reliability)	4	High Risk of Performance Failure
Efficiency and Innovation	5	
Condition	4	Replacement or major rehabilitation needed
Regulatory (Environmental/Legal)	2	Low risk of causing permit/regulatory violation
Operations and Maintenance	4	High levels of maintenance required to keep t
Public Health and Safety	2	There are no major staff or hazard issues or co
Public Benefit	2	Project mostly requires new infrastructure
Financial	4	Not implementing the project would have sigr

RC Weighted Score
71.6

Criteria	Score	Comment
Public Benefit	2	
Public Health and Safety	4	
Efficiency and Innovation	5	
Condition	5	
Financial	4	
Regulatory (Environmental/Legal)	2	
Performance (Service Level/Reliability)	4	
Operations and Maintenance	3	

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

LM Facilities Assessment and Rehabilitation/Replacement

216009 CIP#

Phase Construction **Contract** TBD **Status** Future Planned Start

Title

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

	Cost Est. Class
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY22	$1,165			2021CIP
Construction	FY23	$835			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	1,165	835	0	0	0	2,000	2,000

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Procurement	3/1/2021	8/31/2021	183
Project Execution	9/1/2021	2/28/2023	545
Project Closeout	3/1/2023	4/30/2023	60

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

216009 CIP#

LM Facilities Assessment and Rehabilitation/Replacement

Phase GLWA Employees Project management **Contract** NA **Status** Future Planned Start

Title GLWA Salaries

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

	Cost Est. Class
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2021	FY20	$77			2021CIP
GLWA Salaries CIP2021	FY21	$86			2021CIP
GLWA Salaries CIP2021	FY22	$115			2021CIP
GLWA Salaries CIP2021	FY23	$100			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	77	86	115	100	0	0	0	378	301

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

216009 CIP#

LM Facilities Assessment and Rehabilitation/Replacement

Phase Study and Design and Construction Assistance **Contract** TBD **Status** Active

Title

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

1	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY20	$150			2021CIP
Engineering Services	FY21	$167			2021CIP
Engineering Services	FY22	$38			2021CIP
Engineering Services	FY23	$35			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	150	167	38	35	0	0	0	390	240

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Pre-Procurement	8/12/2019	9/30/2019	49
Procurement	10/1/2019	3/31/2020	182
Project Execution	4/1/2020	4/30/2023	1124

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

216009 CIP#

LM Facilities Assessment and Rehabilitation/Replacement

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	0	227	253	1,318	970	0	0	0	2,768	2,541

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
WRRF Facility Optimization

216010 CIP#

- ☐ Innovation
- ☐ Conceptual WW MP
- ☐ Water MP Right Sizing
- ☐ Reliability/Redundancy
- ☐ NEWTP Repurposing

Project Status Future Planned

CIP Type Project

☑ **Project New To CIP**

Project Engineer/Manager TBD
Director Dan Alford
Managing Dept WW Design Eng
Date Original Business Case Prepared 8/7/2019
Year Project Added to CIP 2019

Budget Wastewater
Class Lvl 1 Wastewater
Class Lvl 2 WRRF
Class Lvl 3 General Purpose
Location City of Detroit
Fund and Cost Center

Problem Statement	The existing WRRF is a product of countless construction projects over nearly 90 years and consists of numerous process and non-process buildings with varying levels of use and practicality. As WRRF across the nation come out of the shadows and into the light of the public and elected officials it is critical to convey an image that reflects the pride and importance of the work that is done every day at this facility. As such, this project will work on the softer side of the facility, create a visitor center focusing on public education to entice the next generation of wastewater engineers, scientists and operators, and to beautify the image of the facility creating a more welcoming environment for the public and staff alike.
Scope of Work / Project Alternatives	The work consists of extending the evaluation performed as a part of Master Planning to design and construct site modifications including but not limited to a new visitor center, demolition or repurposing of existing structures that are no longer used, consolidation and or reconfiguration of administration, operations and maintenence staff and spaces, vehicle and equipment storage spaces, shops, etc. The project also includes site modifications to include improved site circulation, parking and fencing, green infrastructure, improved landscaping, wallking paths around the site and site features, including but not limited to educational signage and benches.
Primary Driver	6 - Public Benefit

PM Weighted Score
63.6

Criteria	Score	Comment
Public Benefit	5	updated 9/16/16 per NM | Will provide for a b
Regulatory (Environmental/Legal)	1	
Efficiency and Innovation	4	updated 9/16/16 per NM
Condition	4	Existing Admin Building does not function as a
Public Health and Safety	4	updated 9/16/16 per NM
Operations and Maintenance	3	updated 9/16/16 per NM | Will provide improv
Performance (Service Level/Reliability)	3	updated 9/16/16 per NM | Existing Admin Buil
Financial	3	updated 9/16/16 per NM

RC Weighted Score
63.6

Criteria	Score	Comment
Public Health and Safety	4	
Public Benefit	5	
Financial	3	
Regulatory (Environmental/Legal)	1	
Condition	4	
Operations and Maintenance	3	
Performance (Service Level/Reliability)	3	
Efficiency and Innovation	4	

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
WRRF Facility Optimization

216010 CIP#

Phase Construction **Contract** TBD **Status** Future Planned Start

Title WRRF Visitor Center and Site Beautification

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

	Cost Est. Class
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY23	$656			2021CIP
Construction	FY24	$7,712			2021CIP
Construction	FY25	$632			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	0	656	7,712	632	0	9,000	9,000

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Procurement	9/3/2022	3/1/2023	179
Project Execution	3/2/2023	7/1/2024	487
Project Closeout	7/2/2024	8/30/2024	59

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
WRRF Facility Optimization

216010 CIP#

Phase GLWA Employees Project management **Contract** NA **Status** Future Planned Start

Title GLWA Salaries

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

	Cost Est. Class
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2021	FY21	$14			2021CIP
GLWA Salaries CIP2021	FY22	$86			2021CIP
GLWA Salaries CIP2021	FY23	$97			2021CIP
GLWA Salaries CIP2021	FY24	$120			2021CIP
GLWA Salaries CIP2021	FY25	$21			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	14	86	97	120	21	0	338	338

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
WRRF Facility Optimization

216010 CIP#

Phase Design & Construction Assistance **Contract** TBD **Status** Future Planned Start

Title WRRF Visitor Center and Site Beautification

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

	Cost Est. Class
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY22	$571			2021CIP
Engineering Services	FY23	$234			2021CIP
Engineering Services	FY24	$167			2021CIP
Engineering Services	FY25	$28			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	571	234	167	28	0	1,000	1,000

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Pre-Procurement	5/1/2021	6/30/2021	60
Procurement	7/1/2021	1/1/2022	184
Project Execution	1/2/2022	8/30/2024	971

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

WRRF Facility Optimization

216010 CIP#

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	0	0	14	657	987	7,999	681	0	10,338	10,338

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

222001 CIP#

Oakwood District Intercommunity Relief Sewer Modification at Oakwood District

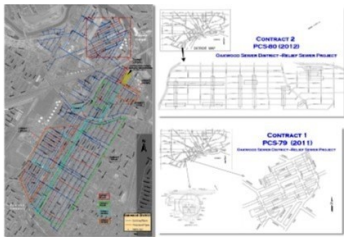
- ☐ Innovation
- ☐ Conceptual WW MP
- ☐ Water MP Right Sizing
- ☑ Reliability/Redundancy
- ☐ NEWTP Repurposing

Project Status Future Planned

CIP Type Project

☐ **Project New To CIP**

Aerial photo, far left, of Oakwood Sewer District depicting previously designed relief sewers tributary to Oakwood Pump Station and CSO Retention Treatment Basin. Part of the planned relief sewers and associated hydraulic structures were constructed between



Project Engineer/Manager Mini Panicker

Director Biren Saparia

Managing Dept SCC

Date Original Business Case Prepared 7/27/2016

Year Project Added to CIP 2014

Budget Wastewater

Class Lvl 1 Wastewater

Class Lvl 2 Field Services

Class Lvl 3 Interceptor

Location Multiple Counties

Fund and Cost Center Wastewater - 5421-892211

Problem Statement	Improvements to the Oakwood District Sanitary Sewer system and implementation of various projects as recommended in report by Applied Sciences, Inc. Dated 2/26/16. Projects to include: 1) Clean & Inspect Trunk Sewers, 2) Analysis and improvement of Oakwood PS/RTB operations, 3) Second influent sewer to Oakwood PS, and 4) NWI Diversion for CSO Control. Projects to be prioritized and validated as part of Wastewater Master Plan Project (GLWA CS-036).
Scope of Work / Project Alternatives	The work includes basis of design (study) report on alternative solution to proposed Oakwood District Intercommunity Relief Sewer, diversion of storm water flow, and construction assistance during construction phase of emerging projects. Coordinate with DWSD projects including catch basin restrictions and green spaces.
Other Important Info	Refer to linked aerial photo of Oakwood District with overlay of proposed new sewers, as built drawings of recent construction in the District for PCS-79, PCS-80 and PC-755; map of Intercommunity Collection System including portion of Oakwood District shown above—and other select resources linked below. Challenges: Maintaining the wet weather contract capacities and adequate CSO treatment during extreme

storm events and mitigate basement and street flooding in the District and intercommunity regional districts are the most significant challenges for the project to address. Other Important Info: The Oakwood District is located in the southwest portion of the City of Detroit covering an area of 1,520 acres. In general, it's bound within by a continuous stretch of the northerly and westerly bank of the Rouge River, thence stretches of the city limits of River Rouge and Ecorse to the south, thence a stretch of the city limits of Lincoln Park to the far lower west (abutting a stretch of Outer Drive near the adjacent watercourse of Ecorse Creek further west), thence a stretch of the city limits of Melvindale to the north near I-75 (between Outer Drive and Schaefer Hwy), thence a continued stretch of city limits of Melvindale to the upper west abutting Schaefer Hwy (between I-75 and the point of beginning along southerly embankment of the Rouge River adjacent Mellon Ave.

Much of the District was originally platted as Oakwood Village, later annexed to the City of Detroit. Some areas of the District are situated in relatively low-lying, flood prone topographies. Much of the combined sewer drainage system was originally designed and built since the 1930's with laterals and larger trunk and intercepting sewers tributary to the former (and present replacement) Oakwood Pumping Station situated near the intersection of Sanders and Liddesdale Street. In early years, combined sanitary and intercepted storm runoff flow drained to that pump station was coarsely screened, pumped (lifted) and, in turn, conveyed though two discharge conduits tributary to a segment of O'Brien Drain--a natural and man-made (modified) stream confluent to the Rouge River--without further treatment.

Whereas much of the remaining area of the District, predominantly that north of Fort Street and east of Schaefer highway (a/k/a Oakwood Heights), is situated on relatively higher terrain. Originally, good portions of this area4 connected to public sewers drained to other streams or outfalls tributary to the Rouge and otherwise drained to the original municipal wastewater treatment plant in Detroit via other lateral, trunk and intercepting sewers tributary to an original 24" siphon connection constructed beneath the Rouge River just south of the Fort Street bridge to the city's 12'-9" Oakwood Interceptor also constructed in the 1930's extending from the WWTP, largely paralleling the Rouge River to a point ending just north of Fort Street beneath Miller Road.

In the 1940's, a 3'-0" sewer was constructed from the original pump station's discharge channel which proceeded northerly beneath Sanders St and thence easterly beneath Fort St to a drop shaft hydraulic structure at below intersection at Bayside St in turn connected with a 24" siphoned sewer running easterly beneath the Rouge River and connecting with a downstream hydraulic connection to the City's 12'-9" Oakwood Interceptor (later renamed Oakwood Northwest Interceptor, or ONWI) tributary to the WWTP (originally built in the 30's and placed into operation in early 40's) to primarily convey pumped sanitary (dry weather) flow from the southerly portion of the District to the treatment plant. Continued sewer modifications in the District promoted the interception and routing of combined flows in other areas underserved to the pump station via larger intercepting sewers constructed along Pleasant, Sanders and elsewhere connecting with the main Liddesdale Interceptor—the primary influent sewer to pump station.

In the 1950's, to meet increased service needs in the far western sewer districts of the City of Detroit and neighboring communities of Wayne County and otherwise mitigate increased public health risks, the county (with endorsements from a coalition of these municipalities) commissioned construction of the 10'-0" cylinder

	Northwest Interceptor (NWI). The NWI was constructed in segments, phased over 10 years. Its alignment generally extends 15 miles northwest from its terminus near Fort and Bayside within the Oakwood District --largely following the original watercourse of main trunk of the Rouge thence northerly beneath the Southfield Freeway (M-39) to a connection with the tributary 7'-6" cylindrical Ford Road intercepting sewer—which transports upstream drainage from Detroit's Rouge River District as well as drainage from several hydraulically-connected suburban communities. The NWI's transport capacity, although initially sized to convey wet weather flows resulting up to the typical 10-year uniform rainstorm simulated across the collection system, contributes to ¼ or more of all annual tributary influent flows to the WRRF, on average—depending on prevailing transport capacities along its extensive run as well as limited transport capacities within the downstream ONWI. It should be recognized that the sole hydraulic-connection from the Oakwood Sewer District for drainage to the NWI is via a drop manhole connection of the aforementioned 36" sanitary discharge main leading from the new (replacement) Oakwood pump station and integral CSO retention treatment basin built in 2011 (PC-755). This connection, which is located beneath Fort St just upstream of the above-mentioned 1950's hydraulic drop shaft structure located at Fort at Bayside with a connected 6'-3" siphon to the ONWI. For more information on Oakwood District refer to Section 2.4 of the linked Description of Sewer Service Districts from the 2003 Wastewater Master Plan, some subject to revisions, since the Oakwood Pump Station and CSO Control Facility was constructed in 2011. Also for further reference, refer to linked Oakwood District Sewer Maps. Prior Drainage Plans; Continued Interim Plans As part of overall renovation, larger, deeper intercepting sewers and relief sewers were proposed to Oakwood District to alleviate the surcharging and flooding of basement. Contact PCS-79 (2011) implemented sewer modifications designed in the Oakwood Heights area as well as Junction Chamber No. 1 at the headworks (influent channels) to the new Oakwood pump station/CSO RTB just east of Pleasant Ave; PCS-80 (2012) implemented select designed relief and replacement sewers in tributary area to the existing 9'-0"- Liddesdale intercepting sewer. In addition, the proposed system also consisted of a replacement of the existing sewer systems through the district area. The existing sewer system generally consists of sewer line located behind homes, which is connecting sanitary flows from homes and storm flows from the catch basins located in the street. Previously, GLWA authorized a new task to Applied Science, Inc. (ASI) under CS-1482 to perform the baseline hydraulic and hydrologic analysis for the impacted areas of the Oakwood District based on the recent condition of the site, such as conversion of the green space by the Marathon Oil Company, current hydrologic factors given the current land use, and assessment of other land and abandoned properties. Moreover, extended efforts have been undertaken by ASI, as engineering representative of Wayne County, and GLWA to address wet weather capacity needs for the intercommunity districts tributary to GLWA's NWI and the county's Rouge Valley Interceptor (1965) illustrated on above map)--which are hydraulically-connected with a passive structure (B-097) built in the 1960's at their crossing (i.e., double 6'-6" siphons of the RVI beneath the NWI's alignment) in proximity of Pleasant Ave and Oakwood Ave intersection.
Related Project	CS-1482, Oakwood District Analysis (ongoing) ; CS-1522 (DWSD), Green Infrastructure; Wastewater Master Plan (GLWA CS-036) ; CS-1525, Regulatory Assistance

Oakwood District Intercommunity Relief Sewer Modification at Oakwood District

Primary Driver	2 - Performance
Driver Explanation	Preferred alternative wet weather relief sewer modifications to mitigate historical basement and street flooding in impacted districts and otherwise provide increased flow transport and treatment for economic, ecologic and societal benefit of customers in

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Oakwood District Intercommunity Relief Sewer Modification at Oakwood District

222001 CIP#

PM Weighted Score
51.8

Criteria	Score	Comment
Condition	1	
Performance (Service Level/Reliability)	4	
Regulatory (Environmental/Legal)	2	
Operations and Maintenance	1	
Public Health and Safety	3	
Public Benefit	4	
Financial	3	
Efficiency and Innovation	3	

RC Weighted Score
53.6

Criteria	Score	Comment
Condition	1	
Performance (Service Level/Reliability)	4	
Regulatory (Environmental/Legal)	2	
Operations and Maintenance	1	
Public Health and Safety	3	
Public Benefit	4	
Financial	3	
Efficiency and Innovation	4	updated

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

222001 CIP#

Oakwood District Intercommunity Relief Sewer Modification at Oakwood District

Phase Construction **Contract** NA **Status** Future Planned Start

Title Oakwood District Intercommunity Relief Sewer Modification at Oakwood District

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date	8/1/2021	**Fund**	Construction Bond Fund
End Date	6/16/2024	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

5	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	Mini Panicker
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY23	$2,589			2021CIP
Construction	FY24	$10,827			2021CIP
Construction	FY25	$13,032			2021CIP
Construction	FY26+	$20,552			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	0	2,589	10,827	13,032	20,552	47,000	26,448

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Procurement	8/10/2022	2/5/2023	179
Project Execution	2/6/2023	5/1/2027	1545
Project Closeout	5/2/2027	6/30/2027	59

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

222001 CIP#

Oakwood District Intercommunity Relief Sewer Modification at Oakwood District

Phase Study and Design and Construction Assistance **Contract** NA **Status** Future Planned Start

Title Oakwood District Intercommunity Relief Sewer Modification at Oakwood District

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date	11/6/2019	**Fund**	Construction Bond Fund
End Date	6/12/2024	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

5	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	Mini Panicker
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY21	$889			2021CIP
Engineering Services	FY22	$3,042			2021CIP
Engineering Services	FY23	$704			2021CIP
Engineering Services	FY24	$342			2021CIP
Engineering Services	FY25	$341			2021CIP
Engineering Services	FY26+	$682			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	889	3,042	704	342	341	682	6,000	5,318

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Pre-Procurement	7/1/2020	9/28/2020	89
Procurement	9/29/2020	3/27/2021	179

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

222001 CIP#

Oakwood District Intercommunity Relief Sewer Modification at Oakwood District

Phase Task Name	Start Date	End Date	Duration
Project Execution	3/28/2021	6/30/2027	2285

Phase GLWA Employees Project management **Contract** NA **Status** Future Planned Start

Title GLWA Salaries

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

5	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2021	FY21	$86			2021CIP
GLWA Salaries CIP2021	FY22	$86			2021CIP
GLWA Salaries CIP2021	FY23	$78			2021CIP
GLWA Salaries CIP2021	FY24	$65			2021CIP
GLWA Salaries CIP2021	FY25	$66			2021CIP
GLWA Salaries CIP2021	FY26+	$131			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	86	86	78	65	66	131	512	381

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

222001 CIP#

Oakwood District Intercommunity Relief Sewer Modification at Oakwood District

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	0	0	975	3,128	3,371	11,234	13,439	21,365	53,512	32,147
2020	0	0		0	0	0	3,800	10,077	10,077	14,077	0	38,031	23,954
2019	0				10	1,372	5,961	10,292	20,365	0	0	38,000	17,635
2018				550	2,750	5,500	2,200		0	0	0	11,000	11,000

Description of CIP Changes Project schedule has been changed.

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Detroit River Interceptor (DRI) Evaluation and Rehabilitation

222002 CIP#

- ☐ Innovation
- ☐ Conceptual WW MP
- ☐ Water MP Right Sizing
- ☑ Reliability/Redundancy
- ☐ NEWTP Repurposing

Project Status Active

CIP Type Project

☐ **Project New To CIP**

Visual inspection of a large sewer

Project Engineer/Manager Mini Panicker

Director Biren Saparia

Managing Dept SCC

Date Original Business Case Prepared 10/11/2016

Year Project Added to CIP 2016

Budget Wastewater

Class Lvl 1 Wastewater

Class Lvl 2 Field Services

Class Lvl 3 Interceptor

Location City of Detroit

Fund and Cost Center Wastewater - 5421-892211

Problem Statement	Evaluation of the existing condition of the Detroit River interceptor (DRI), and rehabilitation/replacement of portions based on the evaluation results are essential to optimize the transportation capacity of the GLWA collection system and to increase its service life.
Scope of Work / Project Alternatives	Preliminary Scope of Work of the Project is as follows: Review the existing records, investigate the existing conditions , provide the necessary cleaning/rehabilitation/replacement to optimize the design capacity of the collection system and to minimize the inflow and infiltration into the collection system.
Other Important Info	Challenges: DRI may have flow control challenges for both inspection and rehabilitation. Recommendations from these inspections may reveal further need for cleaning, rehabilitation or replacement. Project History: The installation of some of the GLWA interceptors and sewers are dated back to 1912 under various contracts. Detroit River Interceptor inspection was completed in 5 different phases and there were portions deteriorated with visible surface aggregates, attached encrustation and infiltration. Some trunk sewer inspection revealed sludge deposition with reduced transportation capacity.
Related Project	CON-183 and DB-226
Primary Driver	1 - Condition
Driver Explanation	Recent inspections revealed portions with encrustation and deterioration.

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Detroit River Interceptor (DRI) Evaluation and Rehabilitation

222002 CIP#

PM Weighted Score
73.2

Criteria	Score	Comment
Condition	5	
Performance (Service Level/Reliability)	4	
Regulatory (Environmental/Legal)	4	
Operations and Maintenance	3	
Public Health and Safety	3	
Public Benefit	4	
Financial	4	
Efficiency and Innovation	2	

RC Weighted Score
65.4

Criteria	Score	Comment
Condition	5	
Performance (Service Level/Reliability)	4	
Regulatory (Environmental/Legal)	3	
Operations and Maintenance	1	
Public Health and Safety	3	
Public Benefit	4	
Financial	5	
Efficiency and Innovation	1	

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Detroit River Interceptor (DRI) Evaluation and Rehabilitation

222002 CIP#

Phase Construction **Contract** Con-183 **Status** Active

Title Con-183 Detroit River Interceptor (DRI) Evaluation and Rehabilitation

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date	10/1/2017	**Fund**	Construction Bond Fund
End Date	6/30/2020	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

4	**Cost Est. Class**
8/31/2017	**Cost Est. Date**
Engineering	**Cost Est. Source**
Biren Saparia	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Mini Panicker
CIP Number	
Description	Emegency repair of Detroit River Interceptor in the downtown area

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY19-	$5,227			2021CIP
Construction	FY20	$613			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
5,227	613	0	0	0	0	0	0	5,840	0

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Pre-Procurement	7/1/2017	12/31/2017	183
Procurement	7/2/2017	6/30/2018	363
Project Execution	7/3/2017	11/1/2019	851
Project Closeout	11/2/2019	11/30/2019	28

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Detroit River Interceptor (DRI) Evaluation and Rehabilitation

222002 CIP#

Phase not applicable **Contract** NA **Status** Closed Out

Title Prior Year Actual Expenses

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Closed Out	**Funding Source**	
Start Date		**Fund**	
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
n/a	FY19-	$5			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
5	0	0	0	0	0	0	0	5	0

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Detroit River Interceptor (DRI) Evaluation and Rehabilitation

222002 CIP#

Phase Design and Build **Contract** DB-226 **Status** Active

Title Repair/Rehab of DRI from Alter Rd to WRRF

Pool for future projects

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
8/31/2017	**Cost Est. Date**
Contractor	**Cost Est. Source**
Biren Saparia	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Mini Panicker
CIP Number	222002
Description	This project is for the repair/rehab of DRI from Alter Rd to WRRF. It involves flow control structures in DRI.

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Design-Build	FY19-	$5,328			2021CIP
Design-Build	FY20	$15,465			2021CIP
Design-Build	FY21	$23,513			2021CIP
Design-Build	FY22	$9,665			2021CIP
Design-Build	FY23	$1,357			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
5,328	15,465	23,513	9,665	1,357	0	0	0	55,328	34,535

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Pre-Procurement	10/1/2017	12/31/2017	91

Detroit River Interceptor (DRI) Evaluation and Rehabilitation

Phase Task Name	Start Date	End Date	Duration
Procurement	1/1/2018	7/30/2018	210
Project Execution	5/21/2018	3/25/2023	1769
Project Closeout	3/26/2023	5/24/2023	59

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Detroit River Interceptor (DRI) Evaluation and Rehabilitation

222002 CIP#

Phase To Be Determined **Contract** NA **Status** Future Planned Start

Title Future Condition Assessment/Rehab

This is for the condition assessment of DRI.

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

4	**Cost Est. Class**
	Cost Est. Date
Engineering	**Cost Est. Source**
Mini Panicker	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Mini Panicker
CIP Number	
Description	Inspection and rehabilitation/repair if necessary

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Unknown	FY24	$10,014			2021CIP
Unknown	FY25	$9,986			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	0	0	10,014	9,986	0	20,000	20,000

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Project Execution	7/1/2023	6/30/2025	730

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Detroit River Interceptor (DRI) Evaluation and Rehabilitation

222002 CIP#

Phase GLWA Employees Project management **Contract** NA **Status** Active

Title GLWA Salaries

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

5	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2021	FY19-	$32			2021CIP
GLWA Salaries CIP2021	FY20	$121			2021CIP
GLWA Salaries CIP2021	FY21	$121			2021CIP
GLWA Salaries CIP2021	FY22	$121			2021CIP
GLWA Salaries CIP2021	FY23	$108			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
32	121	121	121	108	0	0	0	503	350

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Detroit River Interceptor (DRI) Evaluation and Rehabilitation

222002 CIP#

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	10,592	16,199	23,634	9,786	1,465	10,014	9,986	0	81,676	54,885
2020	0	0	2,647	9,424	10,000	10,000	10,000	1,000	1,000	5,000	0	49,071	32,000
2019	0	5	2,232	1,084	8,052	10,187	10,187	10,187	2,491	0	0	44,425	39,697
2018		321	10,000	5,000	5,000				0	0	0	20,321	20,000

Description of CIP Changes Funds increased due to anticipated DB-226 scope increase.

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

222003 CIP#

North Interceptor East Arm (NIEA) Evaluation and Rehabilitation

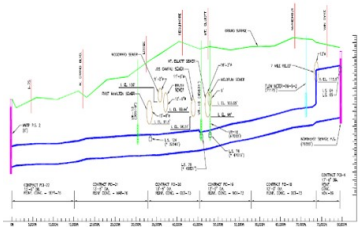
- [x] Innovation
- [ ] Conceptual WW MP
- [ ] Water MP Right Sizing
- [x] Reliability/Redundancy
- [ ] NEWTP Repurposing

Project Status Cancelled

CIP Type Project

- [ ] **Project New To CIP**

Elevation profile of part of the NIEA



Project Engineer/Manager Todd King

Director Todd King

Managing Dept Field Services

Date Original Business Case Prepared 3/3/2017

Year Project Added to CIP 2016

Budget Wastewater

Class Lvl 1 Wastewater

Class Lvl 2 Field Services

Class Lvl 3 Interceptor

Location Multiple Counties

Fund and Cost Center Wastewater - 5421-892211

Problem Statement	Evaluation of the existing condition of NIEA, and rehabilitation/replacement of portions with structural deficiencies based on the evaluation results are essential to optimize the transportation capacity of the GLWA collection system and to increase its service life
Scope of Work / Project Alternatives	Review the available inspection report (NTH 2015) which recommends additional work along the 33,900 lineal feet reach. The report also recommends 1500 lineal feet of potential slip lining. This SOW includes further evaluation of the existing conditions, develop a data gap analysis and provide the necessary cleaning/rehabilitation to optimize the design capacity of the collection system, minimize the inflow and infiltration into the collection system, and extend the service life, evaluate the existing conditions, and provide the necessary cleaning/rehabilitation/replace to optimize the design capacity of the collection system, minimize the inflow and infiltration into the collection system, and to extend the service life.
Other Important Info	*Innovation note: Consider new techniques for assessment. Project History: The installation of some of the GLWA interceptors and sewers are dated back to 1912 under various contracts. NIEA inspection by NTH recently revealed structural deficiencies and sludge deposits. Detroit River Interceptor inspection was recently completed and there were portions deteriorated with visible surface aggregates, attached encrustation and infiltration. Some trunk sewer inspection also revealed sludge deposition with reduced transportation capacity. Inspections of sewers to reveal the existing conditions are necessary and shall be done every 5 to 7 years. Recommendations from these inspections may reveal further need for cleaning, rehabilitation or replacement.

	Challenges: NIEA may have flow control challenges for both inspection and rehabilitation.
Related Project	PCI-4, PCI-18, PCI-19 CIP 222007 also on NIEA
Primary Driver	1 - Condition
Driver Explanation	Recent inspections revealed portions with encrustation and deterioration.

North Interceptor East Arm (NIEA) Evaluation and Rehabilitation

PM Weighted Score
73.2

Criteria	Score	Comment
Condition	5	
Performance (Service Level/Reliability)	4	
Regulatory (Environmental/Legal)	4	
Operations and Maintenance	3	
Public Health and Safety	3	
Public Benefit	4	
Financial	4	
Efficiency and Innovation	2	

RC Weighted Score
65.4

Criteria	Score	Comment
Condition	5	
Performance (Service Level/Reliability)	4	
Regulatory (Environmental/Legal)	3	
Operations and Maintenance	1	
Public Health and Safety	3	
Public Benefit	4	
Financial	5	
Efficiency and Innovation	1	

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

222003 CIP#

North Interceptor East Arm (NIEA) Evaluation and Rehabilitation

Phase GLWA Employees Project management **Contract** NA **Status** Cancelled

Title GLWA Salaries

Phase Budget	Wastewater	**Cost Allocation**	OMID
Phase Status	Cancelled	**Funding Source**	Contribution in Aid of Constru
Start Date		**Fund**	Improvement & Extension Fun
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

5	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
	0							0	0

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

North Interceptor East Arm (NIEA) Evaluation and Rehabilitation

222003 CIP#

Phase To Be Determined **Contract** NA **Status** Cancelled

Title North Interceptor East Arm (NIEA) Evaluation and Rehabilitation

Phase Budget	Wastewater	**Cost Allocation**	OMID
Phase Status	Cancelled	**Funding Source**	Contribution in Aid of Constru
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

5	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Phase Total Expenses By FY (All figures are in $1,000's)

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

222003 CIP#

North Interceptor East Arm (NIEA) Evaluation and Rehabilitation

Phase Design **Contract** TBD **Status** Cancelled

Title North Interceptor East Arm (NIEA) Evaluation and Rehabilitation

Phase Budget	Wastewater	**Cost Allocation**	OMID
Phase Status	Cancelled	**Funding Source**	Contribution in Aid of Constru
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

5	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Phase Total Expenses By FY (All figures are in $1,000's)

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

222003 CIP#

North Interceptor East Arm (NIEA) Evaluation and Rehabilitation

Phase Study **Contract** NA **Status** Cancelled

Title North Interceptor East Arm (NIEA) Evaluation and Rehabilitation

Phase Budget	Wastewater	**Cost Allocation**	OMID
Phase Status	Cancelled	**Funding Source**	Contribution in Aid of Constru
Start Date		**Fund**	Improvement & Extension Fun
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	

Cost Estimation Information

5	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Phase Total Expenses By FY (All figures are in $1,000's)

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

222003 CIP#

North Interceptor East Arm (NIEA) Evaluation and Rehabilitation

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0		0							0	0
2020	0	0		500	15,000	14,500	0	0	0	0	0	30,000	29,500
2019	0					11,000	12,000	3,000		0	0	26,000	26,000
2018			11,000	12,000	3,000				0	0	0	26,000	26,000

Description of CIP Changes Project Cancelled

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

222004 CIP#

Sewer System Infrastructure and Pumping Stations Improvements

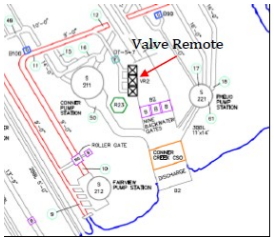
- ☐ Innovation
- ☐ Conceptual WW MP
- ☐ Water MP Right Sizing
- ☐ Reliability/Redundancy
- ☐ NEWTP Repurposing

Project Status Active

CIP Type Program

☐ **Project New To CIP**

Example of a Valve Remote at Conner Pump Station



Project Engineer/Manager Mini Panicker

Director Biren Saparia

Managing Dept SCC

Date Original Business Case Prepared 7/28/2016

Year Project Added to CIP 2017

Budget Wastewater

Class Lvl 1 Wastewater

Class Lvl 2 Field Services

Class Lvl 3 Interceptor

Location Multiple Counties

Fund and Cost Center Wastewater - 5421-892211

Problem Statement	VR-Gates, ISDs, and backwater gates are operational elements in the collection system that help in minimizing the untreated overflows and maximizing the flows to the WRRF and CSO control facilities. They have reached their life expectancy and needs rehabilitation.
Scope of Work / Project Alternatives	Evaluate the existing conditions of the VR-Gates, ISDs, Backwater Gates and Access Hatches, provide the necessary design and the Construction Assistance for their replacement/rehabilitation.
Other Important Info	Google map of VR-3 and VR-9 are included. VR-4, 5, 6, 10, 11 &13 are also part of the project. Project History: GLWA interceptors and sewers were constructed in the early 1900s. The hatches and access covers secure operations and maintenance access points throughout the system for items such as the backwater gates, ISD, and VR. The backwater gates, ISD, and VR are all critical elements that control and divert flows throughout the system. Most of them have reached their life expectancy and are hard to operate properly. These structures play vital roles in controlling the flow, increasing the storage capacity, and in meeting the NPDES permits. Challenges: These are operational elements, so flow control may be a challenge.
Related Project	SCP-SCC-019, PC-695
Primary Driver	1 - Condition
Driver Explanation	These structures have reached their life expectancy and some of the operating technology is outdated.

PM Weighted Score
72.6

Criteria	Score	Comment
Condition	4	
Performance (Service Level/Reliability)	4	
Regulatory (Environmental/Legal)	3	
Operations and Maintenance	4	
Public Health and Safety	4	
Public Benefit	4	
Financial	3	
Efficiency and Innovation	3	

RC Weighted Score
68.2

Criteria	Score	Comment
Condition	4	
Performance (Service Level/Reliability)	4	
Regulatory (Environmental/Legal)	3	
Operations and Maintenance	5	
Public Health and Safety	3	
Public Benefit	2	
Financial	3	
Efficiency and Innovation	3	

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Sewer System Infrastructure and Pumping Stations Improvements

222004 CIP#

Phase To Be Determined **Contract** TBD **Status** Future Planned Start

Title Future Conveyance System infrastructure Improvements

For next version of Req/Contract 1803709 plus assoicated construction

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

	Cost Est. Class
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	Mini Panicker
CIP Number	
Description	For the future improvement needs of the infrastructure elements

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Unknown	FY24	$1,002			2021CIP
Unknown	FY25	$999			2021CIP
Unknown	FY26+	$999			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	0	0	1,002	999	999	3,000	2,001

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Project Execution	7/1/2023	6/30/2026	1095

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Sewer System Infrastructure and Pumping Stations Improvements

222004 CIP#

Phase Study and Design and Construction Assistance **Contract** 1803709 **Status** Under Procurement

Title Conveyance System InfrastructureImprovements

This contract is to provide design and construction phase services to perform repairs and replace existing equipment throughout the GLWA Conveyance System Sewers. Work will include rehabilitation/ replacement of chamber hatches and access covers throughout the system, rehabilitation/ replacement of inflatable storage dams, rehabilitation, or replacement of remote operated gates and remote gate operators, and rehabilitation/ replacement of outfall gates.

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Under Procurement	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

4	**Cost Est. Class**
8/31/2017	**Cost Est. Date**
Engineering	**Cost Est. Source**
Biren Saparia	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Mini Panicker
CIP Number	222004
Description	For the rehabilitation/replacement of hatches, access covers, ISD, outfall gates and VR gates, provide the necessary desing and prepare complete set of 3 biddable construction documents

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY20	$1,373			2021CIP
Engineering Services	FY21	$1,946			2021CIP
Engineering Services	FY22	$408			2021CIP
Engineering Services	FY23	$390			2021CIP
Engineering Services	FY24	$391			2021CIP
Engineering Services	FY25	$67			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Procurement	10/1/2018	9/30/2019	364
Project Execution	10/1/2019	9/1/2024	1797

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Sewer System Infrastructure and Pumping Stations Improvements

222004 CIP#

Phase Construction **Contract** NA **Status** Future Planned Start

Title Backwater Gates, In-Systems Storage Devices, Regulators, and Valve Remotes Rehabilitation

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date	1/1/2019	**Fund**	Construction Bond Fund
End Date	6/30/2020	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

2	**Cost Est. Class**
8/31/2017	**Cost Est. Date**
Contractor	**Cost Est. Source**
Biren Saparia	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Mini Panicker
CIP Number	
Description	This contract is for the rehabilitation of the Outfall backwater gates, ISDs, Regulators, and VRs

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY22	$1,605			2021CIP
Construction	FY23	$11,122			2021CIP
Construction	FY24	$3,543			2021CIP
Construction	FY25	$1,230			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	1,605	11,122	3,543	1,230	0	17,500	17,500

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Procurement	4/1/2021	9/27/2021	179
Project Execution	9/28/2021	7/3/2024	1009

Phase Task Name	Start Date	End Date	Duration
Project Closeout	7/4/2024	9/1/2024	59

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Sewer System Infrastructure and Pumping Stations Improvements

222004 CIP#

Phase To Be Determined **Contract** TBD **Status** Active

Title Pumping Station Allowances

This is to be used for sewer pumping station improvements

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

5	**Cost Est. Class**
8/6/2019	**Cost Est. Date**
Engineers	**Cost Est. Source**
Biren Saparia	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Mini Panicker
CIP Number	
Description	This is to be used for sewer pumping station improvements

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Unknown	FY21	$669			2021CIP
Unknown	FY22	$971			2021CIP
Unknown	FY23	$971			2021CIP
Unknown	FY24	$974			2021CIP
Unknown	FY25	$962			2021CIP
Unknown	FY26+	$953			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	669	971	971	974	962	953	5,500	4,547

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Sewer System Infrastructure and Pumping Stations Improvements

222004 CIP#

Phase GLWA Employees Project management **Contract** NA **Status** Active

Title GLWA Salaries

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

5	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2021	FY19-	$4			2021CIP
GLWA Salaries CIP2021	FY20	$86			2021CIP
GLWA Salaries CIP2021	FY21	$86			2021CIP
GLWA Salaries CIP2021	FY22	$112			2021CIP
GLWA Salaries CIP2021	FY23	$121			2021CIP
GLWA Salaries CIP2021	FY24	$120			2021CIP
GLWA Salaries CIP2021	FY25	$21			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
4	86	86	112	121	120	21	0	550	460

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Sewer System Infrastructure and Pumping Stations Improvements

222004 CIP#

Phase To Be Determined **Contract** TBD **Status** Future Planned Start

Title Regulator Expansions

This phase was added by Wastewater Master Plan

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

2	**Cost Est. Class**
7/1/2019	**Cost Est. Date**
Wastewater Master Plan	**Cost Est. Source**
Carl Johnson- CDM Smith	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Mini Panicker
CIP Number	
Description	Added by Wastewater Maste Plan consultants-CDM Smith

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Unknown	FY22	$2,337			2021CIP
Unknown	FY23	$3,830			2021CIP
Unknown	FY24	$3,834			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	2,337	3,830	3,834	0	0	10,001	10,001

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Project Execution	7/1/2021	6/30/2024	1095

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

222004 CIP#

Sewer System Infrastructure and Pumping Stations Improvements

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	4	1,459	2,701	5,433	16,434	9,864	3,279	1,952	41,126	37,711
2020	0	0		1,019	3,500	3,514	6,000	5,000	8,000	60,000	0	87,033	26,014
2019	0		341	1,019	1,014					0	0	2,374	2,033
2018			341	1,000	1,422				0	0	0	2,763	2,763

Description of CIP Changes

Title Changed to "Sewer System Infrastructure and Pumping Stations Improvements"
Made this a program
Added a new phase as per Wastewater Master Plan's request
Added a new phase for the sewer pumping stations

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

222007 CIP#

NIEA Rehabilitation from WRRF to Gratiot Ave. and Sylvester St.

- [x] Innovation
- [ ] Conceptual WW MP
- [ ] Water MP Right Sizing
- [x] Reliability/Redundancy
- [ ] NEWTP Repurposing

Project Status Cancelled

CIP Type Project

- [ ] **Project New To CIP**

Example inspection of a large sewer

Project Engineer/Manager Todd King

Director Todd King

Managing Dept Field Services

Date Original Business Case Prepared 3/3/2017

Year Project Added to CIP 2017

Budget Wastewater

Class Lvl 1 Wastewater

Class Lvl 2 Field Services

Class Lvl 3 Interceptor

Location City of Detroit

Fund and Cost Center Wastewater - 5421-892211

Problem Statement	Rehabilitation and replacement program of the existing NIEA based upon structural deficiencies identified from the evaluation results. This is essential to optimize the transportation capacity of the GLWA collection system and to increase its life expectancy.
Scope of Work / Project Alternatives	Preliminary Scope of Work of the Project is as follows: Review available data, provide the necessary rehabilitation/replacement option, design and implement them to optimize the design capacity of the collection system, minimize the inflow and infiltration into the collection system, and extend the service life.
Other Important Info	*Innovation note: Consider new techniques for assessment. Other Important Info: The installation of some of the GLWA interceptors and sewers are dated back to 1912 under various contracts. NIEA inspection upstream of this segment by NTH recently revealed structural deficiencies and sludge deposits. Recent Detroit River Interceptor and North West Interceptor inspections revealed that there were portions deteriorated with visible surface aggregates, attached encrustation and infiltration. Some trunk sewer inspection also revealed sludge deposition with reduced transportation capacity. Inspections of sewers to reveal the existing conditions are necessary and shall be done every 5 to 7 years. Recommendations from these inspections may reveal further need for cleaning, rehabilitation or replacement Challenges: NIEA may have flow control challenges for both inspection and rehabilitation.
Related Project	CIP 222003 also on NIEA
Primary Driver	1 - Condition

NIEA Rehabilitation from WRRF to Gratiot Ave. and Sylvester St.

PM Weighted Score

69.8

Criteria	Score	Comment
Condition	4	
Performance (Service Level/Reliability)	4	
Regulatory (Environmental/Legal)	3	
Operations and Maintenance	4	
Public Health and Safety	3	
Public Benefit	2	
Financial	4	
Efficiency and Innovation	4	

RC Weighted Score

72.8

Criteria	Score	Comment
Regulatory (Environmental/Legal)	4	
Condition	4	
Public Health and Safety	4	
Performance (Service Level/Reliability)	4	
Financial	4	
Efficiency and Innovation	3	
Public Benefit	2	
Operations and Maintenance	3	

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

222007 CIP#

NIEA Rehabilitation from WRRF to Gratiot Ave. and Sylvester St.

Phase GLWA Employees Project management **Contract** NA **Status** Cancelled

Title GLWA Salaries

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Cancelled	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

5	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
	0							0	0

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

222007 CIP#

NIEA Rehabilitation from WRRF to Gratiot Ave. and Sylvester St.

Phase Construction **Contract** NA **Status** Cancelled

Title NIEA Evaluation and Rehabilitation from WRRF to Gratiot Ave. and Sylvester St.

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Cancelled	**Funding Source**	Bond Proceeds
Start Date	1/2/2019	**Fund**	Construction Bond Fund
End Date	6/30/2021	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

5	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Phase Total Expenses By FY (All figures are in $1,000's)

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

222007 CIP#

NIEA Rehabilitation from WRRF to Gratiot Ave. and Sylvester St.

Phase Design **Contract** NA **Status** Cancelled

Title NIEA Evaluation and Rehabilitation from WRRF to Gratiot Ave. and Sylvester St.

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Cancelled	**Funding Source**	Bond Proceeds
Start Date	7/1/2018	**Fund**	Construction Bond Fund
End Date	12/30/2020	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

5	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Phase Total Expenses By FY (All figures are in $1,000's)

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

222007 CIP#

NIEA Rehabilitation from WRRF to Gratiot Ave. and Sylvester St.

Phase not applicable **Contract** NA **Status** Closed Out

Title Prior Year Actual Expenses

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Closed Out	**Funding Source**	
Start Date		**Fund**	
End Date		**Useful Life >20Yrs?**	
		Tot. Federal Loan Amount	$0

Cost Estimation Information

1	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Phase Total Expenses By FY (All figures are in $1,000's)

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

222007 CIP#

NIEA Rehabilitation from WRRF to Gratiot Ave. and Sylvester St.

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0		0							0	0
2020	0	0	0	0	0	0	0	0	0	0	0	0	0
2019	0			4	760	3,295	5,689	5,689	5,566	0	0	21,003	15,437
2018			7,000	7,000	7,000				0	0	0	21,000	21,000

Description of CIP Changes

This project was included in the CIP previously to account for anticipated rehabilitation work needed as a result of the condition assessment. The projected expenditures at that time were based upon the needed rehabilitation of the stretch from Gratiot/Sylvester to NIEA pump station. Recent condition assessment of this interceptor stretch indicate the interceptor is in better condition than previously anticipated and therefore, the project is cancelled and removed from the CIP.

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Fairview Pumping Station - Replace Four Sanitary Pumps

232001 CIP#

- ☐ Innovation
- ☐ Conceptual WW MP
- ☐ Water MP Right Sizing
- ☑ Reliability/Redundancy
- ☐ NEWTP Repurposing

Project Status Active

CIP Type Project

☐ **Project New To CIP**

Sanitary pumps at Fairview Pumping

Project Engineer/Manager Mike Graham
Director Grant Gartrell
Managing Dept Water Eng
Date Original Business Case Prepared 3/9/2011
Year Project Added to CIP 2011

Budget Wastewater
Class Lvl 1 Wastewater
Class Lvl 2 Systems Control Center
Class Lvl 3 Pump Stations
Location City of Detroit
Fund and Cost Center Wastewater - 5421-892211

Problem Statement	Replacement and upgrade of pumping equipment's to improve transportation of waste water to the treatment plant
Scope of Work / Project Alternatives	The scope of work consists of the study, design, and construction for four new pumping systems including inlet and discharge valves and wet well hydraulics. This will also include enlarging doorways, revamping roadways, and upgrading electrical and control systems.
Other Important Info	Challenges: N/A - Active
Related Project	Wastewater Master Plan and ongoing discussions between GLWA and MDEQ regarding wet weather operational procedures.
Primary Driver	1 - Condition
Driver Explanation	N/A - Active

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Fairview Pumping Station - Replace Four Sanitary Pumps

232001 CIP#

PM Weighted Score
72.8

Criteria	Score	Comment
Regulatory (Environmental/Legal)	4	
Performance (Service Level/Reliability)	4	
Operations and Maintenance	3	
Public Health and Safety	3	
Public Benefit	3	
Financial	4	
Efficiency and Innovation	4	
Condition	4	

RC Weighted Score

Criteria	Score	Comment
Performance (Service Level/Reliability)		
Operations and Maintenance		
Public Benefit		
Efficiency and Innovation		
Condition		
Public Health and Safety		
Financial		
Regulatory (Environmental/Legal)		

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Fairview Pumping Station - Replace Four Sanitary Pumps

232001 CIP#

Phase GLWA Employees Project management **Contract** NA **Status** Active

Title GLWA Salaries

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

5	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2021	FY19-	$43			2021CIP
GLWA Salaries CIP2021	FY20	$121			2021CIP
GLWA Salaries CIP2021	FY21	$61			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
43	121	61	0	0	0	0	0	225	61

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Fairview Pumping Station - Replace Four Sanitary Pumps

232001 CIP#

Phase Construction **Contract** CON-297 **Status** Active

Title Fairview Pumping Station - Replace Four Sanitary Pumps

Now CS-201?

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

4	**Cost Est. Class**
	Cost Est. Date
consultant	**Cost Est. Source**
Consultant Brown & Caldwe	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY19-	$1,486			2021CIP
Construction	FY20	$24,822			2021CIP
Construction	FY21	$2,673			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
1,486	24,822	2,673	0	0	0	0	0	28,981	2,673

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Pre-Procurement	4/25/2016	6/1/2018	767
Procurement	6/2/2018	9/1/2018	91
Project Execution	1/1/2019	10/1/2020	639
Project Closeout	10/2/2020	1/1/2021	91

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Fairview Pumping Station - Replace Four Sanitary Pumps

232001 CIP#

Phase Design & Construction Assistance **Contract** CS-1747 **Status** Active

Title CS-1747 Fairview Pumping Station - Replace Four Sanitary Pumps

Amendment needed for post bid construction services and RPR that was deleted during negotiations.

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date	7/5/2016	**Fund**	Construction Bond Fund
End Date	10/5/2021	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

3	**Cost Est. Class**
	Cost Est. Date
consultant	**Cost Est. Source**
Consultant Brown & Caldwe	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY19-	$1,096			2021CIP
Engineering Services	FY20	$2,609			2021CIP
Engineering Services	FY21	$2,602			2021CIP
Engineering Services	FY22	$984			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
1,096	2,609	2,602	984	0	0	0	0	7,291	3,586

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Pre-Procurement	7/22/2015	11/22/2015	123
Procurement	11/23/2015	4/24/2016	153
Project Execution	4/25/2016	11/15/2021	2030

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Fairview Pumping Station - Replace Four Sanitary Pumps

232001 CIP#

Phase not applicable **Contract** NA **Status** Closed Out

Title Prior Year Actual Expenses

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Closed Out	**Funding Source**	
Start Date		**Fund**	
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
n/a	FY19-	$779			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
779	0	0	0	0	0	0	0	779	0

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

232001 CIP#

Fairview Pumping Station - Replace Four Sanitary Pumps

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	3,404	27,552	5,336	984	0	0	0	0	37,276	6,320
2020	0	0	1,551	6,000	18,000	4,891	0	0	0	0	0	30,442	22,891
2019	0	778	508	12,094	14,414	3,974				0	0	31,768	30,482
2018	128	472	2,100	14,350	15,350				0	0	0	32,400	31,800

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Freud & Conner Creek Pump Station Improvements

232002 CIP#

- ☐ Innovation
- ☐ Conceptual WW MP
- ☐ Water MP Right Sizing
- ☑ Reliability/Redundancy
- ☐ NEWTP Repurposing

Project Status Active

CIP Type Project

☐ **Project New To CIP**

Freud Pump Station

Project Engineer/Manager Mini Panicker
Director Biren Saparia
Managing Dept SCC
Date Original Business Case Prepared 10/12/2016
Year Project Added to CIP 2016

Budget Wastewater
Class Lvl 1 Wastewater
Class Lvl 2 Systems Control Center
Class Lvl 3 Pump Stations
Location City of Detroit
Fund and Cost Center Wastewater - 5421-892211

Problem Statement

The primary objective of this project is to study the overall performance of Connor Creek and Freud sewage pumping stations and develop design, and build an operational strategy to optimize the utilization of interconnected piping and operation between both pumping stations and the Connor Creek Retention and Treatment Basin.

Scope of Work / Project Alternatives

Provide basis of design, and final design for an operational strategy to optimize the utilization of interconnected piping and operation between Connor Creek and Freud pumping stations and the Connor Creek Retention and Treatment Basin. Provide construction of the emerging project and construction assistance during construction of the emerging project.

Other Important Info

Challenges: Meeting the collection system transport capacity during the construction.

Project History: The Connor Creek Pump Station (CCPS) was originally built in 1928 with four storm water pumps, each with a rated capacity of 500 cubic feet per second (cfs). The CCPS was expanded in 1940 adding four more pumps of the same capacity. The pump station currently has a total capacity of 4,000 cfs and a firm capacity of 3,500 cfs. The pumps are primed using a vacuum system that relies on the flooding of the discharge channel siphon to maintain a water seal, which allows the pumps to be primed. Since the Conner Creek CSO RTB went into operation in November 2005, the discharge channel for the CCPS is drained when the CC RTB is dewatered. Therefore, the vacuum priming system cannot prime the pumps. This results in the CCPS pumps being unable to start until the discharge channel is flooded and the vacuum priming system has a seal on the discharge to prime the pumps.
The Freud Pump Station (FPS) was originally built in 1954 with eight storm water pumps, each with a 450 cfs

	capacity. Two additional pumps were subsequently installed for dewatering and to act as sanitary pumps during dry weather flows. These two pumps are rated at 35 cfs and 20 cfs and are not operated when the storm water pumps are in service. Under the current operating protocol, the FPS is operated first and results in water flowing to the discharge channel of the CCPS, providing sufficient water to ensure submergence of the vacuum siphon block to allow the vacuum system to prime the CCPS pumps. The FPS pumps do not require priming during normal operations. The discharge pipe from each pump is tied to three 14' x 14' box conduits which transport flow to the CC RTB. The crown elevation of these conduits is approximately 95' and the lowest ground elevation along these conduits ranges from 96' to 100'. Surcharging and flooding have been reported when the CC RTB is filled to the overflow elevation of 98' and more than three of the FPS storm water pumps are in operation
Related Project	CS-120 Freud and Connor Creek PS Improvements, CON-109, PO #s 3783,3784,3785,&3786
Primary Driver	2 - Performance
Driver Explanation	During peak wet weather there is a potential for the sewers to surcharge and flood the street.

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Freud & Conner Creek Pump Station Improvements

232002 CIP#

PM Weighted Score
75.8

Criteria	Score	Comment
Condition	5	
Performance (Service Level/Reliability)	5	
Regulatory (Environmental/Legal)	5	
Operations and Maintenance	3	
Public Health and Safety	3	
Public Benefit	4	
Financial	2	
Efficiency and Innovation	2	

RC Weighted Score
79.6

Criteria	Score	Comment
Condition	4	
Performance (Service Level/Reliability)	4	
Regulatory (Environmental/Legal)	5	
Operations and Maintenance	3	
Public Health and Safety	4	
Public Benefit	5	
Financial	5	
Efficiency and Innovation	1	

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Freud & Conner Creek Pump Station Improvements

232002 CIP#

Phase Construction **Contract** PO-3785 **Status** Closed Out

Title PO-3785 Freud PS T1 Imprvmts

Freud transformer T1 updgrades

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Closed Out	**Funding Source**	Bond Proceeds
Start Date	9/30/2016	**Fund**	Construction Bond Fund
End Date	6/30/2017	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	Todd King
CIP Number	
Description	

Phase Total Expenses By FY (All figures are in $1,000's)

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Freud & Conner Creek Pump Station Improvements

232002 CIP#

Phase Construction **Contract** PO-3786 **Status** Closed Out

Title PO-3786, Vacuum priming system validation

Vacuum priming system validation

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Closed Out	**Funding Source**	Bond Proceeds
Start Date	9/30/2016	**Fund**	Construction Bond Fund
End Date	6/30/2017	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
	Cost Est. Date
Bid	**Cost Est. Source**
Mini Panicker	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Phase Total Expenses By FY (All figures are in $1,000's)

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Freud & Conner Creek Pump Station Improvements

232002 CIP#

Phase GLWA Employees Project management **Contract** NA **Status** Active

Title GLWA Salaries

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

5	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2021	FY19-	$17			2021CIP
GLWA Salaries CIP2021	FY20	$58			2021CIP
GLWA Salaries CIP2021	FY21	$57			2021CIP
GLWA Salaries CIP2021	FY22	$57			2021CIP
GLWA Salaries CIP2021	FY23	$100			2021CIP
GLWA Salaries CIP2021	FY24	$100			2021CIP
GLWA Salaries CIP2021	FY25	$100			2021CIP
GLWA Salaries CIP2021	FY26+	$302			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
17	58	57	57	100	100	100	302	791	414

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Freud & Conner Creek Pump Station Improvements

232002 CIP#

Phase Construction **Contract** NA **Status** Future Planned Start

Title Construction phase from CS-120

Construction Contract originating from CS-120.

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

2	**Cost Est. Class**
7/15/2019	**Cost Est. Date**
Contractor	**Cost Est. Source**
Biren Saparia	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Mini Panicker
CIP Number	
Description	This is for the construction/rehabilitation of both Freud and Connor PSs

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY23	$9,798			2021CIP
Construction	FY24	$23,730			2021CIP
Construction	FY25	$30,703			2021CIP
Construction	FY26+	$137,769			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	0	9,798	23,730	30,703	137,769	202,000	64,231

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Procurement	7/1/2021	6/30/2022	364
Project Execution	7/1/2022	3/31/2028	2100

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Freud & Conner Creek Pump Station Improvements

232002 CIP#

Phase Task Name	Start Date	End Date	Duration
Project Closeout	4/1/2028	6/30/2028	90

Phase Construction **Contract** PO-3784 **Status** Closed Out

Title PO-3784, Roof upgrade and structural repairs for Conner Pump Station

Roof upgrade and structural repairs for Conner Pump Station

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Closed Out	**Funding Source**	Bond Proceeds
Start Date	9/30/2016	**Fund**	Construction Bond Fund
End Date	6/30/2017	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

4	**Cost Est. Class**
8/31/2017	**Cost Est. Date**
Engineering	**Cost Est. Source**
Biren Saparia	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Phase Total Expenses By FY (All figures are in $1,000's)

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Freud & Conner Creek Pump Station Improvements

232002 CIP#

Phase not applicable **Contract** NA **Status** Closed Out

Title Prior Year Actual Expenses

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Closed Out	**Funding Source**	
Start Date		**Fund**	
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
n/a	FY19-	$2,101			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
2,101	0	0	0	0	0	0	0	2,101	0

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Freud & Conner Creek Pump Station Improvements

232002 CIP#

Phase Study and Design and Construction Assistance **Contract** CS-120 **Status** Active

Title CS-120, Freud & Conner Creek Pump Station Improvements

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Revenue Financed Capital
Start Date	6/7/2017	**Fund**	Improvement & Extension Fun
End Date	8/15/2022	**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	

Cost Estimation Information

4	**Cost Est. Class**
8/31/2017	**Cost Est. Date**
Engineering	**Cost Est. Source**
Biren Saparia	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Mini Panicker
CIP Number	
Description	CS-120 is to study the overall performance of Connor Creek and Freud sewage pumping stations and develop design, and build an operational strategy to optimize the utilization of interconnected piping and operation between both pumping stations and the Connor Creek Retention and Treatment Basin.

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY19-	$1,046			2021CIP
Engineering Services	FY20	$6,406			2021CIP
Engineering Services	FY21	$6,388			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
1,046	6,406	6,388	0	0	0	0	0	13,840	6,388

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Freud & Conner Creek Pump Station Improvements

232002 CIP#

Phase Construction **Contract** CON-109 **Status** Active

Title CON-109, Freud & Conner Creek Pump Station Improvements

Freud Pump Rehabilitation and procurement of new pump and a switchgear.

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date	12/19/2016	**Fund**	Construction Bond Fund
End Date	12/19/2017	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

4	**Cost Est. Class**
8/31/2017	**Cost Est. Date**
Engineering	**Cost Est. Source**
Biren Saparia	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY19-	$2,467			2021CIP
Construction	FY20	$900			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
2,467	900	0	0	0	0	0	0	3,367	0

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Project Execution	2/1/2019	11/30/2019	302

GLWA
Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Freud & Conner Creek Pump Station Improvements

232002 CIP#

Phase Construction **Contract** PO-3783 **Status** Closed Out

Title PO-3783, Conner PLC upgrades

Conner PLC upgrades

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Closed Out	**Funding Source**	Revenue Financed Capital
Start Date	9/30/2016	**Fund**	Improvement & Extension Fun
End Date	6/30/2017	**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	

Cost Estimation Information

2	**Cost Est. Class**
8/31/2017	**Cost Est. Date**
Contractor	**Cost Est. Source**
Biren Saparia	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Phase Total Expenses By FY (All figures are in $1,000's)

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Freud & Conner Creek Pump Station Improvements

232002 CIP#

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	5,631	7,364	6,445	57	9,898	23,830	30,803	138,071	222,099	71,033
2020	0	0	5,110	1,984	17,029	13,014	50,014	50,014	25,007	257	0	162,429	155,078
2019	0	2,101	1,384	1,192		223	1,582	11,000	15,000	0	0	32,482	13,997
2018		8,040	5,900	5,100	2,460	1,000			0	0	0	22,500	14,460

Description of CIP Changes

CS-120 funds increased
Funds for the future construction project from CS-120 also increased.

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
Northeast Pumping Station

232003 CIP#

- [x] Innovation
- [ ] Conceptual WW MP
- [ ] Water MP Right Sizing
- [x] Reliability/Redundancy
- [ ] NEWTP Repurposing

Project Status Cancelled

CIP Type Project

- [ ] **Project New To CIP**

Pump at the Northeast Pumping Station

Project Engineer/Manager Mini Panicker
Director Biren Saparia
Managing Dept SCC
Date Original Business Case Prepared 10/13/2016
Year Project Added to CIP 2016

Budget Wastewater
Class Lvl 1 Wastewater
Class Lvl 2 Systems Control Center
Class Lvl 3 Pump Stations
Location City of Detroit
Fund and Cost Center Wastewater - 5421-892211

Problem Statement	This project will include replacement of the inlet gate valves, installation of Pump No. 3 and new chopper pumps, repair of the original service elevator, rebuilding of the spare pumps, repair and upgrade of the wet well, repair and upgrade of the dry well, repair and upgrade of the Gate House air handling systems, emergency bypass of the station, etc.
Scope of Work / Project Alternatives	Provide basis of design, and final design for a complete rehabilitation for the station with an emergency bypass option. Provide construction of the emerging project and construction assistance during construction.
Other Important Info	*Innovation note: Include energy efficiency. Project History: The Northeast Sewage Pumping Station was built under contract PC-216. It had only three sanitary pumps and another sewage pump was added under PC-736. Later on OMID added 2 more sewage pumps. Recently under OMID Contract-3,OMID performed the removal of existing discharge piping; installation of a new discharge pipe manifold system; structural alterations to accommodate filling the east and west sides of the existing discharge chamber to support deteriorated external walls, replacement of the NESPS roof structure over the east and west sides; placement of new concrete walls and beams to form a centralized discharge opening to the PCI-4 sewer, construction of precast concrete walls above the central chamber and precast roof slab panels for permanent access; and other associated work to accomplish the repairs etc. This proposed rehabilitation project is to address the rest of the issues affecting the station which was built in 1969 Challenges: Meeting the collection system transport capacity during the construction.

Related Project	PC-216, PC-672, PC-736
Primary Driver	1 - Condition
Driver Explanation	Some equipment in this station are the original one when the station was built in 1969

PM Weighted Score
79.6

Criteria	Score	Comment
Condition	5	
Performance (Service Level/Reliability)	3	
Regulatory (Environmental/Legal)	4	
Operations and Maintenance	4	
Public Health and Safety	3	
Public Benefit	5	
Financial	5	
Efficiency and Innovation	4	

RC Weighted Score
89

Criteria	Score	Comment
Condition	5	
Performance (Service Level/Reliability)	5	
Regulatory (Environmental/Legal)	4	
Operations and Maintenance	4	
Public Health and Safety	4	
Public Benefit	5	
Financial	5	
Efficiency and Innovation	4	

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Northeast Pumping Station

232003 CIP#

Phase GLWA Employees Project management **Contract** NA **Status** Future Planned Start

Title GLWA Salaries

Phase Budget	Wastewater	**Cost Allocation**	OMID
Phase Status	Future Planned Start	**Funding Source**	Contribution in Aid of Constru
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

5	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
	0							0	0

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Northeast Pumping Station

232003 CIP#

Phase Construction **Contract** TBD **Status** Future Planned Start

Title Northeast Pumping Station

Phase Budget	Wastewater	**Cost Allocation**	OMID
Phase Status	Future Planned Start	**Funding Source**	Contribution in Aid of Constru
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

4	**Cost Est. Class**
10/30/2017	**Cost Est. Date**
Engineering	**Cost Est. Source**
Biren Saparia	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Phase Total Expenses By FY (All figures are in $1,000's)

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Northeast Pumping Station

232003 CIP#

Phase Design **Contract** TBD **Status** Future Planned Start

Title Northeast Pumping Station

Phase Budget	Wastewater	**Cost Allocation**	OMID
Phase Status	Future Planned Start	**Funding Source**	Contribution in Aid of Constru
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

4	**Cost Est. Class**
10/30/2017	**Cost Est. Date**
Engineering	**Cost Est. Source**
Biren Saparia	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Phase Total Expenses By FY (All figures are in $1,000's)

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Northeast Pumping Station

232003 CIP#

Phase To Be Determined **Contract** TBD **Status** Future Planned Start

Title Northeast Pumping Station

Phase Budget	Wastewater	**Cost Allocation**	OMID
Phase Status	Future Planned Start	**Funding Source**	Contribution in Aid of Constru
Start Date		**Fund**	Improvement & Extension Fun
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	

Cost Estimation Information

4	**Cost Est. Class**
8/31/2017	**Cost Est. Date**
Engineering	**Cost Est. Source**
Biren Saparia	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Phase Total Expenses By FY (All figures are in $1,000's)

Phase Task Dates

GLWA
Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Northeast Pumping Station

232003 CIP#

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0		0							0	0
2020	0	0		1,000	7,000	10,500	10,500	2,500	0	0	0	31,500	30,500
2019	0					2,408	10,920	13,000		0	0	26,328	26,328
2018			2,408	10,920	13,000				0	0	0	26,328	26,328

Description of CIP Changes Need to delete this project. Cancelled

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
CONDITION ASSESSMENT AT BLUE HILL PUMP STATION

232004 CIP#

- ☐ Innovation
- ☑ Conceptual WW MP
- ☐ Water MP Right Sizing
- ☑ Reliability/Redundancy
- ☐ NEWTP Repurposing

Project Status Future Planned

CIP Type Project

☑ **Project New To CIP**

Project Engineer/Manager Todd King
Director Todd King
Managing Dept Field Services
Date Original Business Case Prepared 8/28/2019
Year Project Added to CIP 2019

Budget Wastewater
Class Lvl 1 Wastewater
Class Lvl 2 Systems Control Center
Class Lvl 3 Pump Stations
Location City of Detroit
Fund and Cost Center Wastewater - 5421-892211

Problem Statement	The condition of the Blue Hill PS has not been accurately established to the metrics being established for other GLWA pumping stations. A new condition assessment is required.
Scope of Work / Project Alternatives	Perform station inspection by a multi-discipline team of specialists in pumps, valves, electrical, HVAC, structural, building envelope I&C, security, and building mechanical systems. Perform wire to water efficiency tests
Other Important Info	Performance of this pumping station is related with flood control objectives for Conner and Freud Pumping Stations.
Related Project	Improvements to Freud and Conner Pump Stations
Primary Driver	1 - Condition
Driver Explanation	Nearing end of useful life

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
CONDITION ASSESSMENT AT BLUE HILL PUMP STATION

232004 CIP#

PM Weighted Score
55

Criteria	Score	Comment
Efficiency and Innovation	5	
Operations and Maintenance	3	
Public Benefit	2	
Regulatory (Environmental/Legal)	2	
Performance (Service Level/Reliability)	3	
Condition	3	
Financial	3	
Public Health and Safety	2	

RC Weighted Score

Criteria	Score	Comment
Financial		
Public Health and Safety		
Public Benefit		
Performance (Service Level/Reliability)		
Efficiency and Innovation		
Operations and Maintenance		
Regulatory (Environmental/Legal)		
Condition		

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
CONDITION ASSESSMENT AT BLUE HILL PUMP STATION

232004 CIP#

Phase GLWA Employees Project management **Contract** NA **Status** Future Planned Start

Title Salaries

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Revenue Financed Capital
Start Date		**Fund**	Improvement & Extension Fun
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

	Cost Est. Class
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2021	FY21	$86			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	86	0	0	0	0	0	86	86

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
CONDITION ASSESSMENT AT BLUE HILL PUMP STATION

232004 CIP#

Phase Study **Contract** TBD **Status** Future Planned Start

Title Study

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Revenue Financed Capital
Start Date		**Fund**	Improvement & Extension Fun
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

	Cost Est. Class
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY21	$200			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	200	0	0	0	0	0	200	200

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Pre-Procurement	7/1/2020	7/30/2020	29
Procurement	7/31/2020	1/29/2021	182
Project Execution	1/30/2021	6/30/2021	151

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

CONDITION ASSESSMENT AT BLUE HILL PUMP STATION

232004 CIP#

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	0	0	286	0	0	0	0	0	286	286

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
Rouge River In-system Storage Devices

233003 CIP#

- ☐ Innovation
- ☑ Conceptual WW MP
- ☐ Water MP Right Sizing
- ☐ Reliability/Redundancy
- ☐ NEWTP Repurposing

Project Status Future Planned

CIP Type Project

☑ **Project New To CIP**

Project Engineer/Manager Mini Panicker
Director Biren Saparia
Managing Dept SCC
Date Original Business Case Prepared 8/1/2019
Year Project Added to CIP 2019

Budget Wastewater
Class Lvl 1 Wastewater
Class Lvl 2 Systems Control Center
Class Lvl 3 In System Devices (Dams, ISD's)
Location City of Detroit
Fund and Cost Center

Problem Statement	The Rouge River receives untreated CSO discharges from GLWA CSO outfalls and outfalls from other Member combined sewer systems during wet weather. CSO control strategies that deal with first flush capture from small storms is typically a cost-effective implementation step in a CSO control program. Studies for the Wastewater Master Plan have shown the effectiveness of controlling first flush for small storms with receiving water modeling. 9 locations on DWSD trunk sewers east of the Rouge River are feasible for storing 25 million gallons of CSO during small storms (less than 1-inch of rainfall).
Scope of Work / Project Alternatives	Perform sewer inspections, utility survey, and flow metering to establish and prioritize the siting of 9 new In-System Storage Devices (ISD) Perform preliminary and final design of the ISDs, including upstream and downstream access points, power supply and instrumentation. Construct 9 new inflatable dam in-system storage devices (ISD). Modify existing manholes or construct new access points upstream and downstream of each ISD. Provide electrical power, above ground structures for pneumatic control systems and instrumentation for remote operation. Provide connection for mobile standby generator.
Other Important Info	The new ISD devices would be installed in trunk sewers owned and operated by DWSD. These are not GLWA leased sewers. A legal agreement may need to be prepared for GLWA to construct, operate, and maintain.
Related Project	None known at this time, but could be tied to work DWSD is doing under program management because these ISDs are planned to be installed in DWSD pipes.

Rouge River In-system Storage Devices

Primary Driver	3 - Regulatory
Driver Explanation	The NPDES permit requires GLWA to control untreated CSO discharge. This project serves to increase in-system storage for small storms to prevent smaller storms from untreated cso discharging.

Rouge River In-system Storage Devices

PM Weighted Score
58.6

Criteria	Score	Comment
Public Benefit	4	This project is a low-cost (relatively speaking),
Operations and Maintenance	1	This project has a negative impact on O&M b
Regulatory (Environmental/Legal)	5	This project endeavors toward controlling CSO
Public Health and Safety	4	This project can reduce for small storms the bo
Condition	1	This does not apply
Efficiency and Innovation	5	This project results in better environmental stev
Financial	2	This projects financial implications are really co
Performance (Service Level/Reliability)	1	This project allows us to further utilize system st

RC Weighted Score
60.8

Criteria	Score	Comment
Regulatory (Environmental/Legal)	5	
Condition	1	
Financial	1	
Public Benefit	4	
Operations and Maintenance	1	
Performance (Service Level/Reliability)	3	
Public Health and Safety	4	
Efficiency and Innovation	4	

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
Rouge River In-system Storage Devices

233003 CIP#

Phase GLWA Employees Project management **Contract** NA **Status** Future Planned Start

Title GLWA Salaries

Phase Budget	Wastewater	**Cost Allocation**	CSO 83/17
Phase Status	Future Planned Start	**Funding Source**	Revenue Financed Capital
Start Date		**Fund**	Improvement & Extension Fun
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

	Cost Est. Class
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2021	FY22	$32			2021CIP
GLWA Salaries CIP2021	FY23	$86			2021CIP
GLWA Salaries CIP2021	FY24	$86			2021CIP
GLWA Salaries CIP2021	FY25	$86			2021CIP
GLWA Salaries CIP2021	FY26+	$568			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	32	86	86	86	568	858	290

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
Rouge River In-system Storage Devices

233003 CIP#

Phase Construction **Contract** TBD **Status** Future Planned Start

Title Construction of in-system storage devices (West-side System)

This phase constructs the designed improvements for the in-system storage devices at the 9 (or more) locations within the west-side sewer system which serve to protect the Rouge River during small precipitation events.

Phase Budget	Wastewater	**Cost Allocation**	CSO 83/17
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

4	**Cost Est. Class**
8/1/2019	**Cost Est. Date**
CDM Smith (WWMP)	**Cost Est. Source**
Carl Johnson	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Chris Nastally
CIP Number	
Description	There will be a construction allowance of approximately 10% added to the construction costs during bidding of the project.

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY26+	$37,100			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	0	0	0	0	37,100	37,100	0

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Procurement	9/4/2025	6/30/2026	299
Project Execution	7/1/2026	6/30/2030	1460
Project Closeout	7/1/2030	12/27/2030	179

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
Rouge River In-system Storage Devices

233003 CIP#

Phase Study and Design and Construction Assistance **Contract** TBD **Status** Future Planned Start

Title Study, Design, and Construction Assistance for West-Side In-system Storage Devices

Includes determing proper location of the sites, acquiring the land, developing easements and agreements necessary for construction, operations and mainteannce, and providing design and construction assistance to execute the project. Depending on how land acquisition goes, the design team could start on one side for acquiring, then designing and then bidding out the project to begin construction early. Execution of this project will need to be further evaluated during this period to ensure project meets planned criteria. Property acquisition can continue in parallel to design and construction activities.

Phase Budget	Wastewater	**Cost Allocation**	CSO 83/17
Phase Status	Future Planned Start	**Funding Source**	Revenue Financed Capital
Start Date		**Fund**	Improvement & Extension Fun
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

4	**Cost Est. Class**
8/1/2019	**Cost Est. Date**
CDM Smith (WWMP)	**Cost Est. Source**
Carl Johnson	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Chris Nastally
CIP Number	
Description	A design allowance will be added to the project for situations that arise during design that require additional design or consulting services.

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY24	$3,288			2021CIP
Engineering Services	FY25	$1,898			2021CIP
Engineering Services	FY26+	$3,653			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	0	0	3,288	1,898	3,653	8,839	5,186

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Rouge River In-system Storage Devices

233003 CIP#

Phase Task Name	Start Date	End Date	Duration
Pre-Procurement	2/16/2022	9/3/2022	199
Procurement	9/4/2022	6/30/2023	299
Project Execution	7/1/2023	12/27/2030	2736

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Rouge River In-system Storage Devices

233003 CIP#

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	0	0	0	32	86	3,374	1,984	41,321	46,797	5,476

Description of CIP Changes

2019-08 - This is a new project to the CIP being driven by recommendations from the Wastewater Masterplan Project (2019).

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

260100 CIP#

WRRF, Lift Station and Wastewater Collection System Structures Allowance

- ☐ Innovation
- ☐ Conceptual WW MP
- ☐ Water MP Right Sizing
- ☑ Reliability/Redundancy
- ☐ NEWTP Repurposing

Project Status Closed

CIP Type Allowance

☐ **Project New To CIP**

WRRF

Project Engineer/Manager Beena Chackunkal

Director Dan Alford

Managing Dept WW Design Eng

Date Original Business Case Prepared 4/13/2017

Year Project Added to CIP 2012

Budget Wastewater

Class Lvl 1 Wastewater

Class Lvl 2 Programs

Class Lvl 3 Programs

Location Multiple Counties

Fund and Cost Center Wastewater - 5421-892111

Problem Statement	Funding required for unplanned, emergency and critical small capital projects in the entire wastewater system
Scope of Work / Project Alternatives	This is an allowance for unplanned critical projects, equipment replacement/rehabilitation, critical asset replacement, energy saving projects, etc.. at the Wastewater Treatment Plant and other Wastewater Operation Facilities. Unplanned critical items include, but not limited to, mechanical, HVAC, electrical, instrumentation and control, demolition, earthwork, concrete, masonry, etc.
Other Important Info	Challenges: N/A - Allowance. Project History: WRRF has audited twice in the past for all equipment and supporting facilities. These audits helped to assess equipment repair and future planning and execution of rehabilitation/replacement projects at WRRF facilities.
Related Project	At present 2 capital projects has been identified to be tapped for CIP#1257 budget: (a) SCP-PC-014, Plant wide Replacement of Emergency Lighting and Exist Signs. The construction budget for this projects is $1,178,743. The NTP was issued on 12/2/2016 and the Final Completion Date is 12/27/2017. (b) SCP-PC-016G, Replacement of Flow Meter at Neff Road Pumping Station. This project has recently been completed in March 2017. CS -060 is also funded from this Allowance because it was started as an emergency due to the fire in Complex II of WRRF.
Primary Driver	N/A - Allowance
Driver Explanation	N/A - Allowance

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

260100 CIP#

WRRF, Lift Station and Wastewater Collection System Structures Allowance

PM Weighted Score

73

Criteria	Score	Comment
Performance (Service Level/Reliability)	4	Significant positive impact on system reliability
Efficiency and Innovation	4	Project will remove significant operational hur
Financial	3	Project will likely result in avoidance of fines
Public Benefit	3	Moderate savings for GLWA
Public Health and Safety	3	Moderate positive impact
Regulatory (Environmental/Legal)	4	Risk of non compliance in near term
Condition	4	Process functions require high levels of mainte
Operations and Maintenance	4	Significant positive impact on O&M

RC Weighted Score

Criteria	Score	Comment
Condition		
Public Health and Safety		
Operations and Maintenance		
Public Benefit		
Regulatory (Environmental/Legal)		
Efficiency and Innovation		
Performance (Service Level/Reliability)		
Financial		

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

260100 CIP#

WRRF, Lift Station and Wastewater Collection System Structures Allowance

Phase Construction **Contract** NA **Status** Closed Out

Title 260103 RFP-46280 Replace back drives of 4 DS-706 Sharples Centrifuges WWTP

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Closed Out	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	Beena Chackunkal
CIP Number	260103
Description	Replacement of DS-706 Centrifuges Back Drive 100 HP Motors, VFD's and Control Panels and Installation of Motor Protection Modules for Main Drive 300 HP Motors for Four (4) Sharples Centrifuges at Dewatering Complex II at the WRRF.

Phase Total Expenses By FY (All figures are in $1,000's)

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

260100 CIP#

WRRF, Lift Station and Wastewater Collection System Structures Allowance

Phase Construction **Contract** SCP-PC-010 **Status** Closed Out

Title SCP-PC-010 Tooles Contracting - Replace Various Air Distribution Equip 260105

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Closed Out	**Funding Source**	Revenue Financed Capital
Start Date		**Fund**	Improvement & Extension Fun
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	Beena Chackunkal
CIP Number	260105
Description	Replacement of air distribution equipment for the grit and screening facility at Pump Station 2 at the WRRF

Phase Total Expenses By FY (All figures are in $1,000's)

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

260100 CIP#

WRRF, Lift Station and Wastewater Collection System Structures Allowance

Phase Construction **Contract** NA **Status** Closed Out

Title 260102 RFP 44380 Titus Welding Co - Replace Stairs - WRRF

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Closed Out	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

2	**Cost Est. Class**
	Cost Est. Date
Contract	**Cost Est. Source**
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	Beena Chackunkal
CIP Number	260102
Description	Address several safety hazards present within and around the Administration Building such as cracked parapet stones, uneven sidewalk pavers, cracked floors and unsafe door.

Phase Total Expenses By FY (All figures are in $1,000's)

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

260100 CIP#

WRRF, Lift Station and Wastewater Collection System Structures Allowance

Phase Construction **Contract** SCP-PC-014 **Status** Closed Out

Title SCP-PC-014 Ferndale Electric Emergency Lighting - 260101

The construction money for SCP-PC-014 was funded from this Allowance. In Correct Project

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Closed Out	**Funding Source**	Revenue Financed Capital
Start Date	5/25/2016	**Fund**	Improvement & Extension Fun
End Date	12/27/2017	**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	Beena Chackunkal
CIP Number	260101
Description	Plant-wide replacement of emergency lighting, exit signs, uninterruptible power supplies and batteries at the WRRF.

Phase Total Expenses By FY (All figures are in $1,000's)

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

260100 CIP#

WRRF, Lift Station and Wastewater Collection System Structures Allowance

Phase Construction **Contract** SCP-PC-016G **Status** Closed Out

Title SCP-PC-016G, Z Contractors Inc, Neff Road Pumping Station Flowmeter Replacement - 260108

No projected expense for 2018.

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Closed Out	**Funding Source**	Revenue Financed Capital
Start Date	4/22/2016	**Fund**	Improvement & Extension Fun
End Date	4/17/2017	**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	Beena Chackunkal
CIP Number	260108
Description	City of Grosse Pointe - Neff Road Pumping Station Sanitary Flowmeter Replacement

Phase Total Expenses By FY (All figures are in $1,000's)

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

260100 CIP#

WRRF, Lift Station and Wastewater Collection System Structures Allowance

Phase Study and Design and Construction Assistance **Contract** NA **Status** Closed Out

Title Unallocated S/D/CA - WRRF, Lift Station and Wastewater Collection System Structures Allowance

Expecting Engineering Services for any Critical jobs for the next 5 years.

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Closed Out	**Funding Source**	Revenue Financed Capital
Start Date	7/1/2018	**Fund**	Improvement & Extension Fun
End Date	6/30/2023	**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	

Cost Estimation Information

3	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
Engineer	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Phase Total Expenses By FY (All figures are in $1,000's)

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

260100 CIP#

WRRF, Lift Station and Wastewater Collection System Structures Allowance

Phase Construction **Contract** NA **Status** Closed Out

Title Unallocated Construction - WRRF, Lift Station and Wastewater Collection System Structures Allowance

Expected Construction Cost from this Allowance for the next five years.

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Closed Out	**Funding Source**	Bond Proceeds
Start Date	7/1/2018	**Fund**	Construction Bond Fund
End Date	6/30/2023	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

4	**Cost Est. Class**
10/2/2017	**Cost Est. Date**
	Cost Est. Source
Ali Khraizat	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Phase Total Expenses By FY (All figures are in $1,000's)

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

260100 CIP#

WRRF, Lift Station and Wastewater Collection System Structures Allowance

Phase Construction **Contract** NA **Status** Closed Out

Title 260113, Walsh Construction, WRRF Fire Remediation

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Closed Out	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	Ali Khraizat
CIP Number	260113
Description	WRRF Fire Remediation

Phase Total Expenses By FY (All figures are in $1,000's)

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

260100 CIP#

WRRF, Lift Station and Wastewater Collection System Structures Allowance

Phase Construction **Contract** DWS-065 **Status** Closed Out

Title DWS-065, Tooles, Connor Creek CSO Control Facility Access Hatches 260112

260112

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Closed Out	**Funding Source**	Bond Proceeds
Start Date	12/5/2016	**Fund**	Construction Bond Fund
End Date	7/3/2017	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	Kashmira Patel
CIP Number	260112
Description	The scope of work includes installation of one access hatch on top of Conner Influent Channels and one near Roller Gates Area. Installation of Gravel access pad on top of existing Forebay roof slab was also part of the scope of work.

Phase Total Expenses By FY (All figures are in $1,000's)

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

260100 CIP#

WRRF, Lift Station and Wastewater Collection System Structures Allowance

Phase not applicable **Contract** NA **Status** Closed Out

Title Prior Year Actual Expenses

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Closed Out	**Funding Source**	
Start Date		**Fund**	
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	0	0	0	0	0	0	0

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

260100 CIP#

WRRF, Lift Station and Wastewater Collection System Structures Allowance

Phase Construction **Contract** SCP-PC-015 **Status** Closed Out

Title SCP-PC-015, SCP-PC-015, W-3 Construction, Overhead Door - 260111

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Closed Out	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	Beena Chackunkal
CIP Number	260111
Description	Overhead Door

Phase Total Expenses By FY (All figures are in $1,000's)

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

260100 CIP#

WRRF, Lift Station and Wastewater Collection System Structures Allowance

Phase Construction **Contract** NA **Status** Closed Out

Title 260109, RFB-46533, Weiss Construction, Rehab Valve Remote Flow Control Facility

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Closed Out	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	Gary Stoll
CIP Number	260109
Description	Rehab Valve Remote Flow Control Facility

Phase Total Expenses By FY (All figures are in $1,000's)

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

260100 CIP#

WRRF, Lift Station and Wastewater Collection System Structures Allowance

Phase Construction **Contract** NA **Status** Closed Out

Title 260104, RFB 46149, Installation of EB-25 Unit Substation at Incinerator Complex II, WRRF

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Closed Out	**Funding Source**	Revenue Financed Capital
Start Date		**Fund**	Improvement & Extension Fun
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	Beena Chackunkal
CIP Number	260104
Description	Installation of EB-25 Unit Substation at Incinerator Complex II, WRRF

Phase Total Expenses By FY (All figures are in $1,000's)

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

260100 CIP#

WRRF, Lift Station and Wastewater Collection System Structures Allowance

Phase Construction **Contract** NA **Status** Closed Out

Title 260107, Pump Station 2 Aeration Blower Replacement

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Closed Out	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

2	**Cost Est. Class**
	Cost Est. Date
Contract	**Cost Est. Source**
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	260107
Description	

Phase Total Expenses By FY (All figures are in $1,000's)

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

260100 CIP#

WRRF, Lift Station and Wastewater Collection System Structures Allowance

Phase GLWA Employees Project management **Contract** NA **Status** Closed Out

Title GLWA Salaries

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Closed Out	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

3	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	0	0	0	0	0	0	0

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

260100 CIP#

WRRF, Lift Station and Wastewater Collection System Structures Allowance

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	0	0	0	0	0	0	0	0	0	0
2020	0	0	21,938	1,100	1,100	1,100	1,100	1,100	1,100	5,500	0	34,038	5,500
2019	0	14,758	2,195	1,100	1,100	2,200	2,200	2,200		0	0	25,753	8,800
2018		5,587	12,000	12,000	15,000	15,000	12,000		0	0	0	71,587	66,000

Description of CIP Changes Reduced FY 21- 23 from $2.2 million to $1.1 million to accommodate CIP No. 232002.

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
Sewer and Interceptor Rehabilitation Program

260200 CIP#

- ☐ Innovation
- ☐ Conceptual WW MP
- ☐ Water MP Right Sizing
- ☑ Reliability/Redundancy
- ☐ NEWTP Repurposing

Project Status Active

CIP Type Program

☐ **Project New To CIP**

An example interceptor

Project Engineer/Manager Mini Panicker
Director Biren Saparia
Managing Dept SCC
Date Original Business Case Prepared 10/11/2016
Year Project Added to CIP 2013

Budget Wastewater
Class Lvl 1 Wastewater
Class Lvl 2 Programs
Class Lvl 3 Programs
Location Multiple Counties
Fund and Cost Center Wastewater - 5421-882301

Problem Statement	Rehabilitation and replacement program of the existing sewers and interceptors is identified after the conditiio assessment. This replacement, rehabilitation and cleaning program is essential to optimize the transportation capacity of the GLWA collection system and to increase its life expectancy.
Scope of Work / Project Alternatives	Provide CCTV and/or sonar inspection of the GLWA Collection System Interceptors and Trunk Sewers to reveal the existing conditions as per the National Association of Sewer Service Companies' (NASSCO) Pipeline Assessment Certification Program (PACP) standards, evaluate the existing conditions, and provide the necessary cleaning/rehabilitation/replace to optimize the design capacity of the collection system and to minimize the inflow and infiltration into the collection system.
Other Important Info	Challegers: Large sewers and interceptors may have flow control challenges for both inspection and rehabilitation. Project History: The installation of some of these interceptors and sewers are dated back to 1912 under various contracts. Detroit River Interceptor inspection was recently completed in 5 different phases and there were portions deteriorated with visible surface aggregates, attached encrustation and infiltration. Some trunk sewer inspection revealed sludge deposition with reduced transportation capacity. Inspections of sewers to reveal the existing conditions are necessary and shall be done every 5 to 7 years. Recommendations from these inspections may reveal further need for cleaning, rehabilitation or replacement.
Related Project	GLWA - CON-68, CON-149, CS-168, DWSD - DWS-889, DWSD-DWS-876, DWSD-DWS-901
Primary Driver	1 - Condition

Driver Explanation	Some sewers have sediment deposits that results in transportation capacity limitation. Some have deterioration.

PM Weighted Score

87.6

Criteria	Score	Comment
Performance (Service Level/Reliability)	5	
Efficiency and Innovation	3	
Financial	4	
Public Benefit	5	
Public Health and Safety	5	
Regulatory (Environmental/Legal)	5	
Condition	4	
Operations and Maintenance	3	

RC Weighted Score

Criteria	Score	Comment
Public Benefit		
Regulatory (Environmental/Legal)		
Operations and Maintenance		
Public Health and Safety		
Efficiency and Innovation		
Financial		
Condition		
Performance (Service Level/Reliability)		

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
Sewer and Interceptor Rehabilitation Program

260200 CIP#

Phase Study and Design and Construction Assistance **Contract** CS-168 **Status** Active

Title CS-168, FK Engineering, Sewer and Interceptor Evaluation and Rehabilitation Program

FK Engineering Associates

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date	9/1/2017	**Fund**	Construction Bond Fund
End Date	9/1/2020	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
	Cost Est. Date
Bid	**Cost Est. Source**
Mini Panicker	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Mini Panicker
CIP Number	260202
Description	Study, design and construction administration service to perform the as needed rehabilitation of GLWA Conveyance System Sewers. The primary objective ofthis project is to conduct a focused geotechnical and structural investigation and develop an array fo feasible alternatives.

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY19-	$520			2021CIP
Engineering Services	FY20	$1,710			2021CIP
Engineering Services	FY21	$290			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
520	1,710	290	0	0	0	0	0	2,520	290

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Project Execution	8/1/2018	8/31/2020	761

Phase Construction **Contract** CS-068 **Status** Closed Out

Title CS-068, Sewer and Interceptor Evaluation and Rehabilitation Program

Sewer Inspection. Eastside Emergency Sewer Inspection
VR02 Upgrades
Conner CSO Backwater Upgrades (Nine)
Installation of the Weir on Conner Discharge Channel
Installation of Sluice Gate and control on the Discharge Channel

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Closed Out	**Funding Source**	Bond Proceeds
Start Date	10/25/2016	**Fund**	Construction Bond Fund
End Date	4/25/2018	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
	Cost Est. Date
Bid	**Cost Est. Source**
Mini Panicker	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Mini Panicker
CIP Number	260203
Description	Inspect Interceptors and Trunk Sewers for Possible Sludge Deposits and Structural Integrity.

Phase Total Expenses By FY (All figures are in $1,000's)

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
Sewer and Interceptor Rehabilitation Program

260200 CIP#

Phase Study and Design and Construction Assistance **Contract** PO-005030 **Status** Pending Close-out

Title PO-005030, Sewer and Interceptor Evaluation and Rehabilitation Program

This includes Construction assistance to CON-183 (DRI Emergency under RenCen Center)

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Pending Close-out	**Funding Source**	Bond Proceeds
Start Date	8/25/2016	**Fund**	Construction Bond Fund
End Date	6/30/2018	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
	Cost Est. Date
Consultant	**Cost Est. Source**
Biren Saparia	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Biren Saparia
CIP Number	260201
Description	Evaluate the results of the DRI inspection, propose repair/rehabilitation alternatives and to prepare construction document for bidding purposes.

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	0	0	0	0	0	0	0

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Project Execution	8/25/2016	6/30/2019	1039

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
Sewer and Interceptor Rehabilitation Program

260200 CIP#

Phase not applicable **Contract** NA **Status** Closed Out

Title Prior Year Actual Expenses

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Closed Out	**Funding Source**	
Start Date		**Fund**	
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
n/a	FY19-	$5,115			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
5,115	0	0	0	0	0	0	0	5,115	0

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
Sewer and Interceptor Rehabilitation Program

260200 CIP#

Phase To Be Determined **Contract** NA **Status** Future Planned Start

Title UNALLOCATED, Sewer and Interceptor Evaluation and Rehabilitation Program

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

2	**Cost Est. Class**
8/31/2017	**Cost Est. Date**
Contractor	**Cost Est. Source**
Biren Saparia	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Mini Panicker
CIP Number	
Description	This is for the future replacement, rehabilitation and cleaning program for trunk sewers/interceptors

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Unknown	FY21	$4,138			2021CIP
Unknown	FY22	$16,268			2021CIP
Unknown	FY23	$19,311			2021CIP
Unknown	FY24	$15,495			2021CIP
Unknown	FY25	$14,347			2021CIP
Unknown	FY26+	$13,240			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	4,138	16,268	19,311	15,495	14,347	13,240	82,799	69,559

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Project Execution	7/1/2020	6/30/2026	2190

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
Sewer and Interceptor Rehabilitation Program

260200 CIP#

Phase Construction **Contract** CON-149 **Status** Active

Title CON-149, Emergency Sewer Repair

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date	7/17/2017	**Fund**	Construction Bond Fund
End Date	7/17/2019	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
8/31/2017	**Cost Est. Date**
Contractor	**Cost Est. Source**
Biren Saparia	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Mini Panicker
CIP Number	260201
Description	The purpose of this contract is to provide the means of PACP inspection of interceptors/trunk sewers, cleaning, and rehabilitation/ repair of failed sewers.

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY19-	$12,828			2021CIP
Construction	FY20	$12,525			2021CIP
Construction	FY21	$1,875			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
12,828	12,525	1,875	0	0	0	0	0	27,228	1,875

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Project Execution	7/14/2017	5/14/2021	1400
Project Closeout	5/15/2021	8/17/2021	94

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
Sewer and Interceptor Rehabilitation Program

260200 CIP#

Phase Construction **Contract** TBD **Status** Future Planned Start

Title Construction from 1802575

Sewer rehabilitation projects arising from 1802575

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

5	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	Mini Panicker
CIP Number	260204
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY21	$5,917			2021CIP
Construction	FY22	$19,143			2021CIP
Construction	FY23	$4,940			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	5,917	19,143	4,940	0	0	0	30,000	30,000

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Procurement	1/3/2020	6/30/2020	179
Project Execution	7/1/2020	4/6/2023	1009
Project Closeout	4/7/2023	6/30/2023	84

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
Sewer and Interceptor Rehabilitation Program

260200 CIP#

Phase Study and Design and Construction Assistance **Contract** 1802575 **Status** Under Procurement

Title Conveyance System Engineering Services

Brown and Caldwell

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Under Procurement	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

	Cost Est. Class
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	Mini Panicker
CIP Number	260204
Description	The purpose of this contract is to provide Engineering Services to evaluate the inspection results and recommend the best rehabilitation method. Also, the consultant will design and prepare bid packages for the construction contracts.

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY20	$4,500			2021CIP
Engineering Services	FY21	$500			2021CIP
Engineering Services	FY22	$500			2021CIP
Engineering Services	FY23	$500			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	4,500	500	500	500	0	0	0	6,000	1,500

Phase Task Dates

Sewer and Interceptor Rehabilitation Program

Phase Task Name	Start Date	End Date	Duration
Procurement	6/1/2019	8/31/2019	91
Project Execution	9/1/2019	6/30/2023	1398

Phase GLWA Employees Project management **Contract** NA **Status** Active

Title GLWA Salaries

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

5	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2021	FY19-	$174			2021CIP
GLWA Salaries CIP2021	FY20	$294			2021CIP
GLWA Salaries CIP2021	FY21	$256			2021CIP
GLWA Salaries CIP2021	FY22	$136			2021CIP
GLWA Salaries CIP2021	FY23	$121			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
174	294	256	136	121	0	0	0	981	513

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Sewer and Interceptor Rehabilitation Program

260200 CIP#

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	18,637	19,029	12,976	36,047	24,872	15,495	14,347	13,240	154,643	103,737
2020	0	0	13,555	8,609	15,000	15,000	15,000	15,000	15,000	95,000	0	192,164	75,000
2019	0	3,397	7,751	10,601	10,400	11,400	11,400	11,400	11,400	0	0	77,749	55,201
2018		2,612	8,000	8,000	20,000	20,000	20,000		0	0	0	78,612	76,000

Description of CIP Changes Funds changed for CS-168, CON-149, added contract 1802575 to the phases,

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
CSO Outfall Rehabilitation

260500 CIP#

- ☐ Innovation
- ☐ Conceptual WW MP
- ☐ Water MP Right Sizing
- ☑ Reliability/Redundancy
- ☐ NEWTP Repurposing

Project Status Active

CIP Type Program

☐ **Project New To CIP**

Sewer tap piping in B009 outfall (left) and sludge buildup and poor masonry in B007 outfall (right)

Project Engineer/Manager Mini Panicker
Director Biren Saparia
Managing Dept SCC
Date Original Business Case Prepared 3/3/2017
Year Project Added to CIP 2017

Budget Wastewater
Class Lvl 1 Wastewater
Class Lvl 2 Programs
Class Lvl 3 Programs
Location Multiple Counties
Fund and Cost Center

Problem Statement	PROJECTS 222006 AND 233001 HAVE BEEN INCORPORATED INTO THIS PROJECT. Rehabilitation of the CSO outfalls is essential to properly discharge the uncontrollable combined sewer overflows to the receiving waters and to prevent sewer back up into the Conveyance System. Recent inspections of the outfalls revealed structural deficiencies like fractures, missing mortar from bricks etc. There are sediment and debris deposits in many of them.
Scope of Work / Project Alternatives	Preliminary Scope of Work of the project is construction. Contract CS-168 will review the existing records, evaluate the existing conditions, and provide the necessary design to rehabilitate the outfalls. Another Engineering Services contract will be initiated after the CS-168 contract.
Other Important Info	PROJECTS 222006 AND 233001 HAVE BEEN INCORPORATED INTO THIS PROJECT. Project History: The construction of these outfalls are dated back to the early 1900s under various contracts. Challenges: Some outfalls are below the river elevation; rehabilitation may be challenging.
Related Project	CIP 1357, CS-168
Primary Driver	2 - Performance

PM Weighted Score
72.8

Criteria	Score	Comment
Condition	4	
Performance (Service Level/Reliability)	5	
Regulatory (Environmental/Legal)	3	
Operations and Maintenance	4	
Public Health and Safety	3	
Public Benefit	2	
Financial	4	
Efficiency and Innovation	4	

RC Weighted Score
72.8

Criteria	Score	Comment
Financial	4	
Public Health and Safety	3	
Public Benefit	3	
Efficiency and Innovation	4	
Operations and Maintenance	3	
Regulatory (Environmental/Legal)	4	
Condition	4	
Performance (Service Level/Reliability)	4	

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
CSO Outfall Rehabilitation

260500 CIP#

Phase GLWA Employees Project management **Contract** NA **Status** Active

Title GLWA Salaries

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

5	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2021	FY19-	$1			2021CIP
GLWA Salaries CIP2021	FY20	$121			2021CIP
GLWA Salaries CIP2021	FY21	$121			2021CIP
GLWA Salaries CIP2021	FY22	$121			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
1	121	121	121	0	0	0	0	364	242

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
CSO Outfall Rehabilitation

260500 CIP#

Phase Construction **Contract** NA **Status** Future Planned Start

Title New Construction for CSO Outfall Rehabilitation

This contract will provide the rehabilitation of the rest of the CSO outfalls.

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
8/31/2017	**Cost Est. Date**
Contractor	**Cost Est. Source**
Biren Saparia	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Mini Panicker
CIP Number	TBD
Description	This contract is to provide the rehabilitation of the rest of the CSO outfalls.

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY21	$2,249			2021CIP
Construction	FY22	$7,340			2021CIP
Construction	FY23	$11,995			2021CIP
Construction	FY24	$10,976			2021CIP
Construction	FY25	$8,243			2021CIP
Construction	FY26+	$4,197			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	2,249	7,340	11,995	10,976	8,243	4,197	45,000	40,803

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
CSO Outfall Rehabilitation

260500 CIP#

Phase not applicable **Contract** NA **Status** Closed Out

Title Prior Year Actual Expenses

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Closed Out	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

1	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
n/a	FY19-	$9			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
9	0	0	0	0	0	0	0	9	0

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
CSO Outfall Rehabilitation

260500 CIP#

Phase Construction **Contract** CON-260 **Status** Closed Out

Title Rehabilitation of CSO Outfall Phase 1

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Closed Out	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

1	**Cost Est. Class**
	Cost Est. Date
Bid	**Cost Est. Source**
Mini Panicker	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Mini Panicker
CIP Number	260502
Description	Rehabilitation of the Outfalls B-3, B-5, B-7, and B-10 were completed under this contract. Rehabilitation included cleaning, structural repairs, regulator gate rehabilitation, and access hatch replacement.

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY19-	$3,321			2021CIP
Construction	FY20	$213			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
3,321	213	0	0	0	0	0	0	3,534	0

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Project Execution	8/1/2018	7/26/2019	359

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
CSO Outfall Rehabilitation

260500 CIP#

Phase Construction **Contract** 19000796 **Status** Under Procurement

Title CSO Outfall Rehabilitation Phase 2

This contract is to provide rehabilitation for nine (9) GLWA Outfalls (B-6, B-15, B-17, B-20, B-23, B-24, B-31, B-36, and B-45)

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Under Procurement	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

	Cost Est. Class
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	Mini Panicker
CIP Number	260504
Description	This contract will provide repair work for nine (9) GLWA Outfalls (B-6, B-15, B-17, B-20, B-23, B-24, B-31, B-36, and B-45). The construction documents were prepared under CS-168

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY20	$2,759			2021CIP
Construction	FY21	$2,741			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	2,759	2,741	0	0	0	0	0	5,500	2,741

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Project Execution	7/1/2019	6/30/2021	730

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

CSO Outfall Rehabilitation

260500 CIP#

Phase Design and Build **Contract** TBD **Status** Future Planned Start

Title New Engineering Services and Construction for the CSO Outfall Rehabilitation

This contract will provide Engineering Services and Resident Project Representation for the rehabilitation of the rest of the CSO outfalls.

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

	Cost Est. Class
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	Mini Panicker
CIP Number	TBD
Description	This contract is to provide Engineering Services and Resident Project Representation for the rehabilitation of the rest of the CSO outfalls.

Phase Total Expenses By FY (All figures are in $1,000's)

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
CSO Outfall Rehabilitation

260500 CIP#

Phase Construction **Contract** TBD **Status** Future Planned Start

Title Rehabilitation of GLWA Outfalls-Phase IV

This Contract is for the construction of the rehabilitation designs prepared for CSO Outfalls B-9, B-12, B-14, B16, B-18, B-19, B21, B-22, B-27, B-28, and B-29. The construction documents were prepared under CS-168.

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

	Cost Est. Class
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	Mini Panicker
CIP Number	260505
Description	This Contract is for the construction of the rehabilitation designs prepared under CS-168 for CSO Outfalls B-9, B-12, B-14, B16, B-18, B-19, B21, B-22, B-27, B-28, and B-29.

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY20	$1,709			2021CIP
Construction	FY21	$6,595			2021CIP
Construction	FY22	$1,695			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	1,709	6,595	1,695	0	0	0	0	9,999	8,290

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Project Execution	7/1/2019	6/30/2022	1095

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

CSO Outfall Rehabilitation

260500 CIP#

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	3,331	4,802	11,706	9,156	11,995	10,976	8,243	4,197	64,406	52,076
2020	0	0	9	4,000	15,102	17,947	10,926	15,102	15,102	11,000	0	89,188	74,179
2019	0			507	3,826	10,001	10,001	10,001	10,001	0	0	44,337	34,336
2018			6,000	6,000	6,000	6,000	6,000	6,000	0	0	0	36,000	30,000

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

- ☐ Innovation
- ☐ Conceptual WW MP
- ☐ Water MP Right Sizing
- ☑ Reliability/Redundancy
- ☐ NEWTP Repurposing

Project Status Active

CIP Type Program

☐ **Project New To CIP**

Retrofitted chemical feed pump replacement at Puritan-Fenkell RTB and makeshift wooden stairs to enter Basin Valve Gallery

Project Engineer/Manager Chris Nastally

Director Chris Nastally

Managing Dept CSO

Date Original Business Case Prepared 7/27/2016

Year Project Added to CIP 2017

Budget Wastewater

Class Lvl 1 Wastewater

Class Lvl 2 Programs

Class Lvl 3 Programs

Location Multiple Counties

Fund and Cost Center Wastewater - 5421-892211

Problem Statement

This program is being established to facilitate the study, design, construction administration, and construction of improvements necessary to maintain the facilities which contribute to the CSO Control Program and compliance herewith.

Scope of Work / Project Alternatives

This program is intended to include studies, design, construction administration, and construction projects which serve to improve process areas or functions of the CSO Facilities. The overall scope of this program is to complete the following: The CS-299 (Facilities Assessment Project) will have projects that need to be programmed into the CIP over time, Replacement of CSO Facilities Fire Alarm Systems; Structural Condition Assessment Design/Build project; and flushing improvements to Baby Creek CSO Facility. A direct product of the Needs/Condition Assessment and SRP is identification of facility needs with projects identified, prioritized, and conceptual cost estimates. From this output, RFP's will be developed to address these needs. For this purpose, Design and Construction dollars have been identified in the later years of this Program to facilitate design and construction of those identified needs. It is anticipated that the primary drivers of these improvements will be obsolescence/end of service life, excessive O&M problems, reliability, efficiency and system standardization which arise from feedback from operation & maintenance, the scheduled replacement plan, and the needs/condition assessment. Following completion of the Wastewater Master Plan, new projects may be otherwise defined which will be incorporated into the CIP. These projects will likely be entered into the CIP as stand-alone projects rather than falling under this program. Furthermore, upon completion of the NPDES permit, new regulatory requirements may arise which require capital improvements. Depending on the nature of those improvements, they may be stand-alone projects or fall within the elements of this Program.

Additionaly, the latest NPDES permit as well as previous ones, given recognition to the Long Term CSO Control Plan and the requirements that outfalls which are high priority non core be addressed by 2037. Part and parcel to this is the development of a refreshed Long Term CSO Control plan to be submitted to the DEQ by 11/15/2022. The new Long Term CSO Control Plan will begin forging a path of Long Term CSO Control and will identify how GLWA will work towards addressing the requirements of the NPDES permit. The intent with the LT Plan is to construct high impact low-cost (relatively speaking) projects in years 5 through 10 of the LT Plan. Then in years 10 through 20 the more expensive improvements are expected to be made. Previous versions of the Long Term CSO Control Plan carried estimated costs of $1,000,000,000 to $2,000,000,000. While these costs are very high, and today not well defined beyond previousl LT plans, it is recognized that significant investment in CSO Control is required to be in compliance with the NPDES permit and therefore GLWA is attempting to begin accounting for and planning for this work in our long term financial planning for the CIP. As the Wastewater Masterplan and Long Term CSO Control Plans and CS-299 projects complete, the view of what needs to be done for existing and future CSO Facilities will become more vivid.

Other Important Info

(Replaces CIP1313).

Project History: The GLWA CSO Control Program consists of the operations of 6 CSO RTB's, and 3 Screening & Disinfection Facilities (SDF). The fundamental difference between the SDF's and the RTB's is the presence of a bonafied basin versus a large diameter, long effluent pipe/ outfall. The long outfall (SDF) functionally serves a purpose similar to the basin (RTB) in terms of storage of combined sewer overflow during a rain event. As a result, the SDF's are fundamentally more difficult to keep clean than the RTB's because flushing systems must transport settled solids (after a storm) long distances to leave the effluent pipe. The CSO Facilities average age is around 15 years with the oldest facilities being constructed in 1994 and the most recent facility being constructed in 2011. A scheduled replacement plan was completed in 2013, which is now out of date, and a high level Needs Assessment conducted in 2016, which didn't identify large scale projects or priorities based on condition other than those of emergency nature. Projects resulting from the 2016 NA were largely emergency projects in nature. A Goal of this program includes standardization of the systems utilized at each facility, as well as improving operational & maintenance conditions at each facility. Given the eras in which the facilities were constructed, and being part of demonstration projects, they have differing technology which makes maintenance and operations duties more difficult. Another goal of this program is to improve the operating conditions of facility assets to increase reliability, efficiency, and compliance with all GLWA regulatory and other levels of service.

Challenges: As this program starts off, there is a lot of design RFPs in the beginning which will lead to la refined projects aimed at improving operations, which lead to RFPs for design and large scale construction projects in the later years (3-5). A significant challenge to be faced will be maintaining the CSO facilities in current operations without the benefit of large-scale improvements of the CSO Systems. Another significant challenge of this program will be unforeseen conditions that may be encountered as facility inspections & condition assessments

	begin. For example, finding significant structural distress of a basin could lead to increase of budget or extension of timeline of improvements. Considering much of the equipment/systems identified for inclusion in this program are at or near obsolescence or are actively causing O&M issues, delays in improvements could possibly cause operational or compliance issues.
Related Project	The proposed new CIP budget for rehabilitation for all the CSO RTB and SDF facilities is based on the 2016 Needs Assessment Study Report and condition assessment performed under CS-1499, Task 18. The condition assessment identified deficient process equipment, systems and deteriorating structural conditions that required near-term remedial work at the three RTB's: the Puritan-Fenkell Basin and dry weather pump station (completed in 1998 under PC-697), the Seven Mile (Completed in 1999 under PC-696) and the Conner Creek (completed in 2005 under PC-739). The 2016 Needs Assessment Facility walkthrough have identified that CSO RTB and SDF's at Hubbell Southfield, St. Aubin & Leib, Baby Creek and Bell Isle needs rehabilitation. The Puritan-Fenkell and Seven Mile RTB's will be combined with this new capital improvements plan for all the remaining CSO facilities. GLWA staff have identified that Conner Creek CSO facility rehabilitation is critical to the wastewater operation and few projects has initiated as an emergency repair work. Due to recent rain events under emergency repair activities the following scope items at GLWA's Conner Creek CSO RTB are ongoing; Install additional automation, continue repairs to existing automation, replace five sodium hypochlorite pumps, repair piping leaks and relocate piping for the flushing water system, replace 5 Accusonic meters upstream, replace electrical power and controls raceway above the RTB, replace emergency relief gates causing concrete damage, replace all disinfection valves, replace all insulation and heat taping for exposed sodium hypochlorite lines, replace all sodium hypochlorite mixers in the channels. The above Conner Creek CSO RTB facility emergency repair list include only operation critical rehabilitation needs to avoid flooding's, the remaining non critical rehabilitation needs identified in the Needs Assessment Report will be addressed through this proposed project at this facility.
Primary Driver	Varies
Driver Explanation	The chemical feed system pumps, valves, gates, dewatering and sampling pumps are old and critical to the CSO RTB and SDF treatment processes meeting permit requirements.

PM Weighted Score
82

Criteria	Score	Comment
Condition	4	Asset has <25% of its design service life remain
Performance (Service Level/Reliability)	4	Expected performance failures under normal
Regulatory (Environmental/Legal)	5	Imminent risk of causing permit violations
Operations and Maintenance	4	Significant Positive impact on O&M
Public Health and Safety	4	Significant positive impact on staff/public
Public Benefit	3	Likely to impact quality of life & aesthetics
Financial	4	Project will likely result in avoidance of fines
Efficiency and Innovation	4	Process efficiency for a more robust system

RC Weighted Score
90.6

Criteria	Score	Comment
Condition	4	
Performance (Service Level/Reliability)	4	
Regulatory (Environmental/Legal)	5	
Operations and Maintenance	4	
Public Health and Safety	5	
Public Benefit	5	
Financial	5	
Efficiency and Innovation	4	

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

Phase Construction **Contract** TBD **Status** Future Planned Start

Title 260617 - St. Aubin Screening & Chemical System Improvements (Construction Services)

This phase will construct improvements designed for the chemical disinfection and screening systems at St. Aubin in the S/D/CA phase.

Phase Budget	Wastewater	**Cost Allocation**	CSO 83/17
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

5	**Cost Est. Class**
7/24/2019	**Cost Est. Date**
CSO Manager	**Cost Est. Source**
CsO Manager	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Chris Nastally
CIP Number	260617
Description	The wastewater masterplan, and likely the Long Term CSO Control Plan will recommend construction of netting facilities as low-cost CSO Control improvements for high priority non-core outfalls on the Rouge and Detroit Rivers. This project acknowledges this.

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY21	$92			2021CIP
Construction	FY22	$708			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	92	708	0	0	0	0	800	800

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration

Phase Task Name	Start Date	End Date	Duration
Project Execution	3/16/2021	3/15/2022	364
Project Closeout	3/16/2022	6/13/2022	89

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

Phase Study and Design and Construction Assistance **Contract** TBD **Status** Future Planned Start

Title 260617 - St. Aubin Screening & Chemical System Improvements (Design Services)

The St. Aubin SDF is nearly 20 years old. A study was conducted on the disinfection system and the screens were assessed by the manufacturer and recommendations resulted in upgrade of these systems to restore operational control, flexibility, and reliability. The current pumping system for NaOCl is over-sized (dose of 38 mg/L - when only 10 mg/L is required from sampling). The over-sized system makes it difficult to dial the pumps down on the low end (where most events are) and properly dose (without over-dosing) the water. As a result, operators tend to turn them on and off (plug flow), to meet permit limits. This is not the best for the equipment, water quality, or operations. Furthermore, the screens currently get blinded and then the rake mechanism trips out. There is a new control system for these screens offered by the manufacturer that would allow us to upgrade the controls of the screen and reduce it fully tripping out so that it will continue to rake parts of the screen during an event rather than tripping out and raking none of the scree. This phase endeavors to further evaluate this, design improvements, offer CA, and then bid out for construction. This phase will also provide construction assistance during construction (shop drawing review, as needed inspection, rfi response, attending progress meetings, etc.)

Phase Budget	Wastewater	**Cost Allocation**	CSO 83/17
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

5	**Cost Est. Class**
7/24/2019	**Cost Est. Date**
CSO Manager	**Cost Est. Source**
CSO Manager	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Chris Nastally
CIP Number	260617
Description	The St. Aubin SDF is nearly 20 years old. A study was conducted on the disinfection system and the screens were assessed by the manufacturer and recommendations resulted in upgrade of these systems to restore operational control, flexibility, and reliability. The current pumping system for NaOCl is over-sized (dose of 38 mg/L - when only 10 mg/L is required from sampling). The over-sized system makes it difficult to dial the pumps down on the low end (where most events are) and properly

dose (without over-dosing) the water. As a result, operators tend to turn them on and off (plug flow), to meet permit limits. This is not the best for the equipment, water quality, or operations. Furthermore, the screens currently get blinded and then the rake mechanism trips out. There is a new control system for these screens offered by the manufacturer that would allow us to upgrade the controls of the screen and reduce it fully tripping out so that it will continue to rake parts of the screen during an event rather than tripping out and raking none of the scree. This phase endeavors to further evaluate this, design improvements, offer CA, and then bid out for construction.

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY20	$155			2021CIP
Engineering Services	FY21	$174			2021CIP
Engineering Services	FY22	$61			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	155	174	61	0	0	0	0	390	235

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Project Execution	9/15/2019	6/13/2022	1002

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

Phase Study and Design and Construction Assistance **Contract** TBD **Status** Future Planned Start

Title 260618 - Oakwood CSO Facility HVAC Improvements Project (Design Services)

A study was completed in January of 2019 to evaluate the Sanitary Pumping and Storm Pumping systems at Oakwood CSO RTB. In the sanitary pump room, there is heavy corrosion and the gas detection system is constantly going off causing operators to leave the overhead door open to keep the space ventilated and safe to enter. As a result of this, the door is left open nearly year round. This practice led to freezing of the fire sprinkler system in January of 2019 and resulted in repair work to fix the sprinkler lines that were damaged. The study conducted in January of 2019 concluded that the ventilation system (supply and exhaust) for the wet-well and sanitary pumping room is inadequate. Currently the combination of exhaust fans and odor control system pull too much air from the wet-well (more than the supply fans put in) and have created a negative air pressure where we are constantly drawing air from the sewer (wetwell) into the sanitary pump room air space. This is causing the gas and corrosion issues and requires resolution. The HVAC exhaust/supply fans are currently entombed in a small area at the facility and are difficult to service or replace. This project will examine equipment access as well as a balanced air for the space. The fans also have some significant corrosion to them and may require complete replacement. This project will also cover construction assistance during construction for RFI's, submittal review, progress meetings, etc.

Phase Budget	Wastewater	**Cost Allocation**	CSO 83/17
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

5	**Cost Est. Class**
7/23/2019	**Cost Est. Date**
CSO Manager	**Cost Est. Source**
CSO Manager	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Chris Nastally
CIP Number	260618
Description	A study was completed in January of 2019 to evaluate the Sanitary Pumping and Storm Pumping systems at Oakwood CSO RTB. In the sanitary pump room, there is heavy corrosion and the gas detection system is constantly going off causing operators to leave the overhead door open to keep the space ventilated and safe to enter. As a result of this, the door is left open nearly year round. This practice led to freezing of the fire sprinkler

system in January of 2019 and resulted in repair work to fix the sprinkler lines that were damaged. The study conducted in January of 2019 concluded that the ventilation system (supply and exhaust) for the wet-well and sanitary pumping room is inadequate. Currently the combination of exhaust fans and odor control system pull too much air from the wet-well (more than the supply fans put in) and have created a negative air pressure where we are constantly drawing air from the sewer (wetwell) into the sanitary pump room air space. This is causing the gas and corrosion issues and requires resolution. The HVAC exhaust/supply fans are currently entombed in a small area at the facility and are difficult to service or replace. This project will examine equipment access as well as a balanced air for the space. The fans also have some significant corrosion to them and may require complete replacement. This project will also cover construction assistance during construction for RFI's, submittal review, progress meetings, etc.

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY20	$96			2021CIP
Engineering Services	FY21	$254			2021CIP
Engineering Services	FY22	$98			2021CIP
Engineering Services	FY23	$92			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	96	254	98	92	0	0	0	540	444

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Project Execution	12/15/2019	5/5/2023	1237

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

Phase Construction **Contract** 1802791 **Status** Active

Title 260606 - Puritan Fenkell Roof Replacement - Construction

Puritan Fenkell Roof is over 25 years old and original to the construction of the facility. The roof is leaking in many spots and requires replacement. We have decided to replace it with a metal roof instead of shingle to increase the life span of the roof.

Phase Budget	Wastewater	**Cost Allocation**	CSO 83/17
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

1	**Cost Est. Class**
12/18/2018	**Cost Est. Date**
Contractors BID	**Cost Est. Source**
Royal Roofing	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Matthew Krieger
CIP Number	260606
Description	Puritan Fenkell Roof Replacement

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY20	$350			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	350	0	0	0	0	0	0	350	0

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Procurement	9/1/2018	12/27/2018	117
Project Execution	1/31/2019	9/1/2019	213
Project Closeout	9/2/2019	10/1/2019	29

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GLWA FY 2021-2025 CIP
CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

Phase Construction **Contract** TBD **Status** Future Planned Start

Title 260618 - Oakwood CSO Facility HVAC Improvements Project (Construction Services)

This phase will construct improvements designed during the design services phase of this project.

Phase Budget	Wastewater	**Cost Allocation**	CSO 83/17
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

5	**Cost Est. Class**
7/23/2019	**Cost Est. Date**
CSO Manager	**Cost Est. Source**
CSO Manager	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Chris Nastally
CIP Number	260618
Description	This phase will construct improvements designed during the design services phase of this project.

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY22	$1,315			2021CIP
Construction	FY23	$485			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	1,315	485	0	0	0	1,800	1,800

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Procurement	6/7/2021	8/5/2021	59
Project Execution	8/6/2021	2/4/2023	547
Project Closeout	2/5/2023	5/5/2023	89

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

Phase Design and Build **Contract** DB-261 **Status** Active

Title 260602 - CSO Fire Alarm Improvement Project

Project is to upgrade or replace the fire alarm panels at all CSO Facilities except Oakwood RTB. Oakwood is just receiving some repairs to get the system functional and to meet the standards set forth with the current system.

Phase Budget	Wastewater	**Cost Allocation**	CSO 83/17
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date	5/9/2018	**Fund**	Construction Bond Fund
End Date	12/31/2019	**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

1	**Cost Est. Class**
7/31/2019	**Cost Est. Date**
Construction Bid	**Cost Est. Source**
PMA	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Chris Nastally
CIP Number	260602
Description	This project includes replacement/upgrading all CSO Fire Alarms to a standardized Johnson Controls (Simplex) Fire Alarm System. Eight of the CSO Facilities include replacement. The one facility in which the panel is not being repalced and only minor system repairs are occurring is Oakwood. The Oakwood panel is already the latest fire control panel system.

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Design-Build	FY19-	$816			2021CIP
Design-Build	FY20	$143			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
816	143	0	0	0	0	0	0	959	0

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Project Execution	6/1/2018	10/1/2019	487
Project Closeout	10/2/2019	12/31/2019	90

Phase Construction **Contract** CON-219 **Status** Closed Out

Title 260604 - Baby Creek CSO Facility Influent Area Improvements

Installation of accusonic flow meters and access hatches/manholes at Baby Creek to facilitate future maintenance.

Phase Budget	Wastewater	**Cost Allocation**	CSO 83/17
Phase Status	Closed Out	**Funding Source**	Bond Proceeds
Start Date		**Fund**	I&E/Bond
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

1	**Cost Est. Class**
10/12/2017	**Cost Est. Date**
Lakeshore Global Bid	**Cost Est. Source**
Lakeshore Global	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Gary Stoll
CIP Number	260604
Description	Installation of flow meters, manholes and access hatches.

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY19-	$746			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
746	0	0	0	0	0	0	0	746	0

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Project Execution	2/1/2018	3/31/2019	423

GLWA Great Lakes Water Authority

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CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

Phase Construction **Contract** 1802475 **Status** Active

Title 260607 - Leib SDF Electrical Improvements

Replacement of compromised electrical conduits, and equipment. Replacement of corroded pipe hanger system.

Phase Budget	Wastewater	**Cost Allocation**	CSO 83/17
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date	2/1/2019	**Fund**	I&E/Bond
End Date	1/31/2020	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

1	**Cost Est. Class**
7/31/2019	**Cost Est. Date**
Construction Bid	**Cost Est. Source**
PMA	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Kashmira Patel
CIP Number	260607
Description	Replacing conduits and equipmenet compromised by water infiltration into conduits. Replacing conduit support system which is severely corroded.

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY19-	$215			2021CIP
Construction	FY20	$701			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
215	701	0	0	0	0	0	0	916	0

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Procurement	10/1/2018	1/31/2019	122
Project Execution	2/1/2019	12/2/2019	304
Project Closeout	12/3/2019	1/31/2020	59

GLWA Great Lakes Water Authority

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CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

Phase GLWA Employees Project management **Contract** NA **Status** Active

Title General - GLWA Salaries

Phase Budget	Wastewater	**Cost Allocation**	CSO 83/17
Phase Status	Active	**Funding Source**	Revenue Financed Capital
Start Date		**Fund**	Improvement & Extension Fun
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

5	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2021	FY19-	$306			2021CIP
GLWA Salaries CIP2021	FY20	$1,219			2021CIP
GLWA Salaries CIP2021	FY21	$595			2021CIP
GLWA Salaries CIP2021	FY22	$319			2021CIP
GLWA Salaries CIP2021	FY23	$189			2021CIP
GLWA Salaries CIP2021	FY24	$87			2021CIP
GLWA Salaries CIP2021	FY25	$30			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
306	1,219	595	319	189	87	30	0	2,745	1,220

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

Phase not applicable **Contract** NA **Status** Closed Out

Title Prior Year Actual Expenses

Phase Budget	Wastewater	**Cost Allocation**	CSO 83/17
Phase Status	Closed Out	**Funding Source**	
Start Date		**Fund**	
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
-1,211	0	0	0	0	0	0	0	-1,211	0

Phase Task Dates

CSO FACILITIES IMPROVEMENT PROGRAM

Phase To Be Determined **Contract** NA **Status** Future Planned Start

Title TBD - Unallocated - S/D/CA/C/DB

This phase includes acknowledgement ofthe following projects which stem from other efforts and GLWA understands that a project is needed, but at this time has a very limited scope identified. Given the limited scope, costs for these projects rolled up under Unallocated costs are a ASCE class 5 estimate.

Leib SDF Improvements (WWMP & CS-299 driven). This project is a predecessor project to the Meldrum Diversion project. This project at this point doesn't have any scope or information associated with it other than we know we will need improvements to the facility's disinfection, screening, and gate systems to facilitate a higher volume of CSO overflow that needs to be treated above what it has historically treated. As a part of CS-299 we will evaluate the needs of the Leib SDF and incorporate those needs into a project which considers the Meldrum Diversion and develop a design, bid, build project for this facility.

Oakwood CSO RTB/SPS Improvements (WWMP & CS-299 driven). This project is a predecessor project to the NWI Diversion project. This project at this point doesn't have any scope or information associated with it other than we know we will need improvements to the facility's disinfection, screening, pumping, and gate systems to facilitate a higher volume of CSO overflow that needs to be treated above what it has historically treated. As a part of CS-299 we will evaluate the needs of the Oakwood Facility and incorporate those needs into a project which considers the NWI Diversion and develop a design, bid, build project for this facility.

Puritan Fenkell & 7 Mile CSO Facility Improvements (WWMP & CS-299 driven). This project(s) is a predecessor project to the WWMP recommendation to build a pump station and divert 150 MGD from Redford outfalls to the PF basin. Also, a hydraulic study was completed in 2019 to evaluate the operation of the system and was concluded that we would need to further evaluate the hydraulics to determine what elevation we can raise the weir to, and configure the basin for future operation. This will yield improvements to the basin and equipment to ensure it is ready to address future flows and future operational requirements.

CS-299 will generate other projects based on equipment condition and facility needs. CS-299 will yield a 20-year CIP which addressing needs of all 9 CSO Facilties. These projects may include different types of groupings based on project location, or project scope. Since the depth and breadth of projects are unknown at this time, we worked with AECOM based on thier experience of performing similar type projects and based on facility age trying to create placeholders in the "unallocated" portion of the CIP budget that will permit for future work. As a note, this was done in previous versions of the CIP and we are trying to refine it this year to more address a 10-year view of the CIP with the 10th year looking at 10+.

Some of the "unallocated" in the latter years covers LT CSO Control plans as laid out in the previous "Plans of Record - 2008 and 2010" and as modified by the current draft version of the 2019 Wastewater Masterplan. These anticipated projects from the LT CSO CP and the WWMP include, but aren't necessarily limited to: 1. Upper Rouge Conduit, as recommended in the Masterplan which is anticipated, at this time, to be a 12' diameter (5 mile long) pipe that is tunneled in and serves to capture first flush of the west side sewer system. 2. CSO Netting facilities as approved by the EGLE (formerly DEQ) in 2008/2010 along the Detroit and Rouge Rivers. There are many outfalls which may require these facilities, but the exact number or location is not known of as of today.

GLWA Great Lakes Water Authority

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CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

Phase Budget	Wastewater
Phase Status	Future Planned Start
Start Date	12/8/2018
End Date	1/14/2024

Cost Estimation Information

5	Cost Est. Class
8/20/2019	Cost Est. Date
CSO Manager & AECOM	Cost Est. Source
CSO Manager & AECOM	Cost Est. Prepared By

Cost Allocation	CSO 83/17
Funding Source	Revenue Financed Capital
Fund	Improvement & Extension Fun
Useful Life >20Yrs?	No
Tot. Federal Loan Amount	

Program/Allowance Task Information

Project Manager	N/A
CIP Number	

Description

This phase includes acknowledgement ofthe following projects which stem from other efforts and GLWA understands that a project is needed, but at this time has a very limited scope identified.

Leib SDF Improvements (WWMP & CS-299 driven). This project is a predecessor project to the Meldrum Diversion project. This project at this point doesn't have any scope or information associated with it other than we know we will need improvements to the facility's disinfection, screening, and gate systems to facilitate a higher volume of CSO overflow that needs to be treated above what it has historically treated. As a part of CS-299 we will evaluate the needs of the Leib SDF and incorporate those needs into a project which considers the Meldrum Diversion and develop a design, bid, build project for this facility.

Oakwood CSO RTB/SPS Improvements (WWMP & CS-299 driven). This project is a predecessor project to the NWI Diversion project. This project at this point doesn't have any scope or

information associated with it other than we know we will need improvements to the facility's disinfection, screening, pumping, and gate systems to facilitate a higher volume of CSO overflow that needs to be treated above what it has historically treated. As a part of CS-299 we will evaluate the needs of the Oakwood Facility and incorporate those needs into a project which considers the NWI Diversion and develop a design, bid, build project for this facility.

Puritan Fenkell & 7 Mile CSO Facility Improvements. This project(s) is a predecessor project to the WWMP recommendation to build a pump station and divert 150 MGD from Redford outfalls to the PF basin. Also, a hydraulic study was completed in 2019 to evaluate the operation of the system and was concluded that we would need to further evaluate the hydraulics to determine what elevation we can raise the weir to, and configure the basin for future operation. This will yield improvements to the basin and equipment to ensure it is ready to address future flows and future operational requirements.

Baby Creek Effluent Conduit Improvements: The Baby Creek facility effluent conduits are full of debris. To facilitate removing this debris we are planning a project to evaluate access options for accessing the conduits easily without interruption to the Woodmere Cemetery which allow us to maintain our pipe as necessary. These tunnel access points will be considered CIP when constructed because

they are permanent structures.

CS-299 will generate other projects based on equipment condition and facility needs. CS-299 will yield a 20-year CIP which addressing needs of all 9 CSO Facilties. These projects may include different types of groupings based on project location, or project scope. Since the depth and breadth of projects are unknown at this time, we worked with AECOM based on thier experience of performing similar type projects and based on facility age trying to create placeholders in the "unallocated" portion of the CIP budget that will permit for future work. As a note, this was done in previous versions of the CIP and we are trying to refine it this year to more address a 10-year view of the CIP with the 10th year looking at 10+.

Some of the "unallocated" in the latter years covers LT CSO Control plans as laid out in the previous "Plans of Record - 2008 and 2010" and as modified by the current draft version of the 2019 Wastewater Masterplan. These anticipated projects from the LT CSO CP and the WWMP include, but aren't necessarily limited to: 1. Upper Rouge Conduit, as recommended in the Masterplan which is anticipated, at this time, to be a 12' diameter pipe that is tunneled in and serves to capture first flush of the west side sewer system. 2. CSO Netting facilities as approved by the EGLE (formerly DEQ) in 2008/2010 along the Detroit and Rouge Rivers. There are many outfalls which may require these facilities, but the exact number or location is not known of as of

today.

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
n/a	FY20	$650			2021CIP
n/a	FY21	$2,000			2021CIP
n/a	FY22	$2,000			2021CIP
n/a	FY23	$5,350			2021CIP
n/a	FY24	$4,050			2021CIP
n/a	FY25	$20,250			2021CIP
n/a	FY26+	$85,250			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	650	2,000	2,000	5,350	4,050	20,250	85,250	119,550	33,650

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Project Execution	7/1/2022	6/30/2030	2921

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

Phase Construction **Contract** CON-144 **Status** Closed Out

Title CON-144 - Rehabilitation of CSO RTB's

CON 144 Construction

Phase Budget	Wastewater	**Cost Allocation**	CSO 83/17
Phase Status	Closed Out	**Funding Source**	Bond Proceeds
Start Date	2/28/2017	**Fund**	Construction Bond Fund
End Date	11/30/2017	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	Kashmira Patel
CIP Number	215001
Description	Project is completed.

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY19-	$917			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
917	0	0	0	0	0	0	0	917	0

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Project Execution	2/28/2017	11/29/2017	274
Project Closeout	11/30/2017	1/29/2018	60

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

Phase Study and Design and Construction Assistance **Contract** CS-145 **Status** Closed Out

Title CS-145 - S/D/Ca for Improvements to the CSO RTB's

S/D/CA CS 145.

Phase Budget	Wastewater	**Cost Allocation**	CSO 83/17
Phase Status	Closed Out	**Funding Source**	Revenue Financed Capital
Start Date	3/21/2017	**Fund**	Improvement & Extension Fun
End Date	12/31/2017	**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	Kashmira Patel
CIP Number	
Description	Project has been completed

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	0	0	0	0	0	0	0

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

Phase Construction **Contract** DWS-065 **Status** Closed Out

Title DWS-065 - Rehabilitation of CSO RTB's (Replaces CIP1313)

DWS-065 - Construction

Phase Budget	Wastewater	**Cost Allocation**	CSO 83/17
Phase Status	Closed Out	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	Project has been closed out.

Phase Total Expenses By FY (All figures are in $1,000's)

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

Phase Design & Construction Assistance **Contract** CS-172 **Status** Active

Title 260603 - CS-172 - Conner Creek CSO RTB Automation Improvements

CS-172 Design Phase, moving to contruction assistance phase.

Phase Budget	Wastewater	**Cost Allocation**	CSO 83/17
Phase Status	Active	**Funding Source**	Revenue Financed Capital
Start Date	7/1/2017	**Fund**	Improvement & Extension Fun
End Date	9/23/2019	**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

1	**Cost Est. Class**
	Cost Est. Date
HDR - Budget	**Cost Est. Source**
HDR	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	260603
Description	Connor Creek CSO Basin Additional Automation Install

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY19-	$110			2021CIP
Engineering Services	FY20	$14			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
110	14	0	0	0	0	0	0	124	0

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Project Execution	7/1/2017	9/23/2019	814

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

Phase Design & Construction Assistance **Contract** CS-116 **Status** Active

Title 260603 - CS-116 - Rehabilitation of Conner Creek CSO RTB Effluent Launder Gates & Emergency Relief Gates

CS-116 - study, design and construction assistance.

Phase Budget	Wastewater	**Cost Allocation**	CSO 83/17
Phase Status	Active	**Funding Source**	Revenue Financed Capital
Start Date	2/27/2017	**Fund**	Improvement & Extension Fun
End Date	12/31/2020	**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

1	**Cost Est. Class**
	Cost Est. Date
Engineer's proposal	**Cost Est. Source**
PMA	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Kashmira Patel
CIP Number	260603
Description	Rehabilitation of basin effluent relief and effluent launder gates to restore proper operations.

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY19-	$211			2021CIP
Engineering Services	FY20	$116			2021CIP
Engineering Services	FY21	$68			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
211	116	68	0	0	0	0	0	395	68

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Project Execution	2/27/2017	1/30/2021	1433

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

Phase Construction **Contract** CON-234 **Status** Active

Title 260603 - CON-234 Conner Creek Effluent Gate Improvements Project

Construction for CS 116 and CS-172 - rehabilitation of the effluent relief and effluent launder gates, actuators, and misc. electrical improvements.

Phase Budget	Wastewater	**Cost Allocation**	CSO 83/17
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date	3/1/2018	**Fund**	Construction Bond Fund
End Date	9/23/2019	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

1	**Cost Est. Class**
7/31/2019	**Cost Est. Date**
Construction Bid	**Cost Est. Source**
PMA	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Kashmira Patel
CIP Number	260603
Description	Construction for CS 116 and CS-172 - rehabilitation of the effluent relief and effluent launder gates, actuators, and misc. electrical improvements.

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY19-	$3,770			2021CIP
Construction	FY20	$2,061			2021CIP
Construction	FY21	$1,201			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
3,770	2,061	1,201	0	0	0	0	0	7,032	1,201

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Project Execution	6/12/2018	3/31/2021	1023

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

Phase Construction **Contract** 1804112 **Status** Under Procurement

Title 260609 - 7 Mile Parking Lot and Site Grading Improvements Project

The 7 Mile Parking Lot is failing in many locations, traps water in many locations, and slopes towards the building directing water towards the building during rain. Furthermore, the grading in the front and side of the site slopes towards the building with no catch basins also creating water infiltration issues in side of the building. The sidewalk has completely failed and the hatch at the front entrance has damage to it leaving a hole to trip or injur someone. This project will fix the parking lot, grading issues, sidewalk, and hatch. This project will also address landscaping (because of regrading) and provide landscaping which requires minimal maintenance to keep the aesthetics of the building looking good.

Phase Budget	Wastewater
Phase Status	Under Procurement
Start Date	
End Date	

Cost Allocation	CSO 83/17
Funding Source	Bond Proceeds
Fund	Construction Bond Fund
Useful Life >20Yrs?	Yes
Tot. Federal Loan Amount	$0

Cost Estimation Information

1	**Cost Est. Class**
7/3/2019	**Cost Est. Date**
Engineers OPCC	**Cost Est. Source**
HRC	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Matthew Krieger
CIP Number	260609
Description	The 7 Mile Parking Lot is failing in many locations, traps water in many locations, and slopes towards the building directing water towards the building during rain. Furthermore, the grading in the front and side of the site slopes towards the building with no catch basins also creating water infiltration issues in side of the building. The sidewalk has completely failed and the hatch at the front entrance has damage to it leaving a hole to trip or injur someone. This project will fix the parking lot, grading issues, sidewalk, and hatch. This project will also address landscaping (because of regrading) and provide landscaping which requires minimal maintenance to keep the aesthetics of the

building looking good.

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY19-	$20			2021CIP
Construction	FY20	$393			2021CIP
Construction	FY21	$7			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
20	393	7	0	0	0	0	0	420	7

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Procurement	5/1/2019	10/5/2019	157
Project Execution	10/6/2019	8/6/2020	305
Project Closeout	8/7/2020	11/4/2020	89

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

Phase Study **Contract** CS-299 **Status** Cancelled

Title 260605 - CS-299 - CSO Facilities Conditions Assessment

This project was taken out of CIP and funded with a mix of O&M and I&E funding sources because it is a study and not a 20-year improvement.
This project will consist of the following major tasks: A. Audit all assets. B. Criticality assessment for all assets and Condition Assessment for all Assets. C. Update of Scheduled Replacement Plan. D. Develop a 20-year CIP. E. Generate a Needs Assessment Report. F. Develop reporting tools for reporting to all the status of the CSO Program.

Phase Budget	Wastewater	**Cost Allocation**	CSO 83/17
Phase Status	Cancelled	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

2	**Cost Est. Class**
8/21/2018	**Cost Est. Date**
CSO Manager	**Cost Est. Source**
Chris Nastally - estimation b	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Chris Nastally
CIP Number	260605
Description	This project will consist of the following major tasks: A. Audit all assets. B. Criticality assessment for all assets and Condition Assessment for all Assets. C. Update of Scheduled Replacement Plan. D. Develop a 20-year CIP. E. Generate a Needs Assessment Report. F. Develop reporting tools for reporting to all the status of the CSO Program. Project was removed from CIP and will be funded with O&M and I&E funding sources moving forward.

Phase Total Expenses By FY (All figures are in $1,000's)

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

Phase Construction **Contract** 1803113 **Status** Active

Title 260610 - Baby Creek SDF - HV Units Replacement

Replace Make Up Air Units @ Baby Creek as they are past their life, and rusting out.

Phase Budget	Wastewater	**Cost Allocation**	CSO 83/17
Phase Status	Active	**Funding Source**	Revenue Financed Capital
Start Date	3/4/2019	**Fund**	I&E/Bond
End Date	12/11/2019	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

1	**Cost Est. Class**
12/10/2018	**Cost Est. Date**
Construction Bid	**Cost Est. Source**
De-Cal	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Kashmira Patel
CIP Number	260610
Description	Replacing rusted out existing make up air units with a newly designed unit to increase air flow to the space and decrease corrosions of space as well as increase temperature control of the space.

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY20	$262			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	262	0	0	0	0	0	0	262	0

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Procurement	12/31/2018	3/10/2019	69
Project Execution	3/11/2019	9/11/2019	184
Project Closeout	9/12/2019	12/11/2019	90

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

Phase Design and Build **Contract** 1902224 **Status** Future Planned Start

Title 260614 - CSO Facilities - Structural Improvements Project (CS-166 - Task C.05)

A partial structural condition assessment has been performed and structural improvement (types) identified and prioritized. This project will provie Design-Build services to completely inspect all CSO Facilities (above and below ground) and prioritize repairs to be carried out over a 3-5 year period.

Phase Budget	Wastewater	**Cost Allocation**	CSO 83/17
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

4	**Cost Est. Class**
9/18/2018	**Cost Est. Date**
Estimated	**Cost Est. Source**
CSO Manager/ NTH	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Chris Nastally
CIP Number	260614
Description	A partial structural condition assessment has been performed and structural improvement (types) identified and prioritized. This project will provie Design-Build services to completely inspect all CSO Facilities (above and below ground) and prioritize repairs to be carried out over a 3-5 year period. This project was previously pushed back 2 fiscal years (in the 2019 version of the CIP) and then pulled forward in the 2020 version to increase CIP spend in Wastewater.

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Design-Build	FY19-	$335			2021CIP
Design-Build	FY20	$44			2021CIP
Design-Build	FY21	$1,286			2021CIP
Design-Build	FY22	$5,788			2021CIP

CSO FACILITIES IMPROVEMENT PROGRAM

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Design-Build	FY23	$4,460			2021CIP
Design-Build	FY24	$622			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
335	44	1,286	5,788	4,460	622	0	0	12,535	12,156

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Pre-Procurement	11/1/2018	9/1/2019	304
Procurement	9/2/2019	5/8/2020	249
Project Execution	5/9/2020	5/7/2024	1459
Project Closeout	5/8/2024	11/3/2024	179

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

Phase Construction **Contract** 1901609 **Status** Under Procurement

Title 260613 - Baby Creek SDF - HVAC System Improvements

This project expands on the MAU replacement project by addressing system controls throughout the facility, ventilation issues, and odor control issues.

Phase Budget	Wastewater	**Cost Allocation**	CSO 83/17
Phase Status	Under Procurement	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

1	**Cost Est. Class**
7/1/2019	**Cost Est. Date**
Engineer's OPCC	**Cost Est. Source**
Arcadis	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Kashmira Patel
CIP Number	260613
Description	This project expands on the MAU replacement project by addressing system controls throughout the facility, ventilation issues, and odor control issues.

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY20	$207			2021CIP
Construction	FY21	$293			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	207	293	0	0	0	0	0	500	293

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Procurement	7/17/2019	12/5/2019	141
Project Execution	12/6/2019	2/27/2021	449

Phase Task Name	Start Date	End Date	Duration
Project Closeout	2/28/2021	5/28/2021	89

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

Phase Construction **Contract** CON-254 **Status** Pending Close-out

Title 260601 - Oakwood Drain Valve Improvements

Project is to replace a series of failed equipment in drain vaults located adjacent to the Oakwood RTB. This equipment has failed causing operations to be completely manual and difficult to manage. This project includes replacement of compromised electrical conduits which leak groundwater into the vault, as well as new sump pumps and controls for the equipment.

Phase Budget	Wastewater	**Cost Allocation**	CSO 83/17
Phase Status	Pending Close-out	**Funding Source**	Bond Proceeds
Start Date	6/18/2018	**Fund**	I&E/Bond
End Date	12/11/2019	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

1	**Cost Est. Class**
7/31/2019	**Cost Est. Date**
Contractor Bid	**Cost Est. Source**
PMA	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Gary Stoll
CIP Number	260601
Description	Project is to replace a series of failed equipment in drain vaults located adjacent to the Oakwood RTB. This equipment has failed causing operations to be completely manual and difficult to manage. This project includes replacement of compromised electrical conduits which leak groundwater into the vault, as well as new sump pumps and controls for the equipment. 7/22/2019 - this project is nearly completed. It will be closed out in the next month or two.

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY19-	$495			2021CIP
Construction	FY20	$60			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
495	60	0	0	0	0	0	0	555	0

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Project Execution	6/18/2018	9/11/2019	450
Project Closeout	9/12/2019	12/10/2019	89

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

Phase Construction **Contract** 1902040 **Status** Future Planned Start

Title 260615 - Construction of Site Improvments to Leib and Puritan Fenkell

Constructing site improvements to Leib SDF and Puritan Fenkell facilities for drainage, site lighting, and sidewalks.

Phase Budget	Wastewater	**Cost Allocation**	CSO 83/17
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	I&E/Bond
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

1	**Cost Est. Class**
7/15/2019	**Cost Est. Date**
Engineer's OPCC	**Cost Est. Source**
HRC	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Kashmira Patel
CIP Number	260615
Description	Constructing site improvements to Leib SDF and Puritan Fenkell facilities for drainage, site lighting, and sidewalks.

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY20	$233			2021CIP
Construction	FY21	$717			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	233	717	0	0	0	0	0	950	717

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Pre-Procurement	2/15/2019	8/15/2019	181
Procurement	8/16/2019	2/11/2020	179
Project Execution	2/12/2020	2/10/2021	364
Project Closeout	2/11/2021	5/11/2021	89

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

Phase Construction **Contract** 1901836 **Status** Future Planned Start

Title 260616 - Baby Creek Piping Improvements

The West End Sewer inside the Baby Creek CSO Effluent Channel is supported by concrete anchors and support wedges. These supports have become dislodged or eroded and need repair and replacement with improved anchoring devices. Without repair the sewer pipe will have inadequate support and may fail. The improved anchor devices are expected to extend the life of the sewer beyond 20 years. The project seeks to refurbish pipe support anchors and wedges.

Phase Budget	Wastewater	**Cost Allocation**	CSO 83/17
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date	12/2/2019	**Fund**	Construction Bond Fund
End Date	8/28/2020	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

1	**Cost Est. Class**
7/22/2019	**Cost Est. Date**
Engineer OPCC	**Cost Est. Source**
NTH Consultants	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Matthew Krieger
CIP Number	260616
Description	The West End Sewer inside the Baby Creek CSO Effluent Channel is supported by concrete anchors and support wedges. These supports have become dislodged or eroded and need repair and replacement with improved anchoring devices. Without repair the sewer pipe will have inadequate support and may fail. The improved anchor devices are expected to extend the life of the sewer beyond 20 years. The project seeks to refurbish pipe support anchors and wedges.

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY20	$103			2021CIP
Construction	FY21	$797			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	103	797	0	0	0	0	0	900	797

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Pre-Procurement	6/3/2019	9/15/2019	104
Procurement	9/16/2019	4/12/2020	209
Project Execution	4/13/2020	1/7/2021	269
Project Closeout	1/8/2021	4/7/2021	89

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

Phase Construction **Contract** 1900242 **Status** Active

Title 260608 - 7 Mile CSO Facility - Roof Replacement Project

The 7 Mile roof was inspected in 2018 and is at the end of it's life with 0 to 3 years remaining. This project will replace the existing shingle roof with a longer lasting metal roof.

Phase Budget	Wastewater	**Cost Allocation**	CSO 83/17
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

5	**Cost Est. Class**
5/6/2019	**Cost Est. Date**
Construction BID	**Cost Est. Source**
Royal Roofing	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Matthew Krieger
CIP Number	260608
Description	The 7 Mile roof was inspected in 2018 and is at the end of it's life with 0 to 3 years remaining. This project will replace the existing shingle roof with a longer lasting metal roof.

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY19-	$12			2021CIP
Construction	FY20	$512			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
12	512	0	0	0	0	0	0	524	0

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Procurement	1/15/2019	7/8/2019	174
Project Execution	7/9/2019	2/10/2020	216

Phase Task Name	Start Date	End Date	Duration
Project Closeout	2/11/2020	5/10/2020	89

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

Phase Construction **Contract** 1803718 **Status** Active

Title 260611 - Leib SDF - HVAC System Improvements

Many components of the Leib HVAC system have failed. These are causing ventilation issues, air quality issues, and likely are also a source of increased/accelerated corrosion of equipment in the facility.

Phase Budget	Wastewater	**Cost Allocation**	CSO 83/17
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date	6/17/2019	**Fund**	I&E/Bond
End Date	9/17/2020	**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

1	**Cost Est. Class**
3/22/2019	**Cost Est. Date**
Contractors BID	**Cost Est. Source**
Lakeshore Global	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Kashmira Patel
CIP Number	260611
Description	Project just began the design phase. Many components of the Leib HVAC system have failed. These are causing ventilation issues, air quality issues, and likely are also a source of increased/accelerated corrosion of equipment in the facility.

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY20	$236			2021CIP
Construction	FY21	$8			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	236	8	0	0	0	0	0	244	8

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration

Phase Task Name	Start Date	End Date	Duration
Project Execution	6/17/2019	9/17/2020	458

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	6,742	7,555	7,492	10,289	10,576	4,759	20,280	85,250	152,943	53,396
2020	0	0	481	8,442	5,604	4,553	5,825	10,325	13,361	15,000	0	63,591	39,668
2019	0	764	1,658	9,277	6,218	2,351	4,351	9,351	11,251	0	0	45,221	31,548
2018		3,428	2,247	6,400	9,000	7,200	3,610		0	0	0	31,885	28,457

Description of CIP Changes

260601 - CON-254 - Created new phase, $555K contractors bid, estimated spend based on contractors tentative schedule.
260602 - Created new phase, moved $980K from TBD to this project - CSO Fire Alarm Improvements.
260603 - CON-234, Updated FY costs based on actual contractors bid and potential change order to replace influent meters @ Conner Creek. This contract was bid in February 2018, awarded in 6/2018, and given the schedule, the Contractor will not complete work in FY19 as previously thought when it was bid.
260604 - Created new phase, shifted $355K from TBD to this project - Baby Creek Influent Area Improvements
260605 - Created new phase, $4.5M Budget for CSO Facilities Assessment Project
260606- Created new phase, moved $300K from TBD to this project - Puritan Fenkell Roof Replacement.
260607 - Created new phase, costs are $700K split over FY19 and FY20, FY19 from TBD- Leib Electrical Improvements Contract

TBD - Created new phase, Costs are estimated @ $300K, 7 Mile Roof Replacement Project
TBD - Created new phase, Costs are estimated @ $650K, Leib SDF HVAC Improvements Project
TBD - Created new phase, Costs are estimated @ $150K, Baby Creek MAU Replacement - I&E funded.
TBD - Created new phase, Costs are estimated @ 650K, Baby Creek HVAC System Improvements - expands on the project to only replace the MAUs.
TBD - Created new phase, Costs are estimated @ $400K, 7 Mile Parking lot, and Site Improvements Project
TBD - Created new phase, Costs are estimated @ $11M, CSO Facilities Structural Improvements Design Build (based on Task CS-166 - Task C.05).

Modified the TBD allowance category for immediate years as projects become clearer. As previously indicated, this amount will steadily decrease as projects are defined, and will likely be removed once the CSO Assessment Project is completed.

UPDATES IN 7-2019

260605 - CS-299 CSO Facilities Assessment Project was removed from CIP. It is O&M and I&E funded because it is more of a study than a CIP project. It will lead to CIP projects and we can come back and capitalize it later if

we so desire.

260610 - Baby Creek MAU Replacement project. Award was later than anticipated and equipment had 16 week lead time which led to funding being shifted from FY19 to FY20.
260612 - Puritan Fenkell & Seven Mile Instrumentation Project. This is to account for a CIP number that doesn't appear within the database but did exist briefly before we determined that this project was more appropriately funded from O&M. The CIP number had already been used in BigTime and so the decision was made to just assign the next project with the next CIP number Higher (260613).
260614 - CS-166 Task C.05 - Structural Improvements Project. In 2019 CIP this project was pushed back in the CIP to accommodate Conner/Freud impacts to the CIP budget. Due to lower than expected CIP spend, this project was pulled back forward for the 2020 CIP version to start in FY 20 (late FY 20 and carry through FY 24).

Added the following new projects
260616 - Baby Creek CSO Anchor and Wedge Improvement to West End Sewer
2606xx - St. Aubin Screening and Disinfection Improvements
2606xx - Oakwood HVAC Improvements.
Updated the unallocated amounts to account for CS-299 projects and also long term CSO control elements and cross-checked with AECOM for estimates.

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Pilot CSO Netting Facility

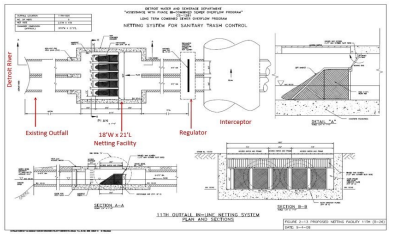
270001 CIP#

- ☐ Innovation
- ☑ Conceptual WW MP
- ☐ Water MP Right Sizing
- ☐ Reliability/Redundancy
- ☐ NEWTP Repurposing

Project Status Future Planned

CIP Type Project

☑ **Project New To CIP**



Project Engineer/Manager Chris Nastally

Director Chris Nastally

Managing Dept CSO

Date Original Business Case Prepared 8/1/2019

Year Project Added to CIP 2019

Budget Wastewater

Class Lvl 1 Wastewater

Class Lvl 2 CSO Facilities

Class Lvl 3 Multiple CSO Facilities

Location City of Detroit

Fund and Cost Center

Problem Statement	The First Street CSO Outfall has been identified in the NPDES Permit for the Priority Non-Core Compliance schedule. It is also the nearest and most frequently discharging outfall upstream of the proposed Ralph C Wilson waterfront park on the Detroit River. A pilot facility to demonstrate the application of CSO outfall nets is proposed at this location to keep the sanitary trash from discharging close to this beach, and also to help minimize impacts from fecal coliform bacteria contained in CSO discharge.
Scope of Work / Project Alternatives	Inspect the two 10-ft by 10-foot box culverts that comprise this outfall and establish a location for installing the CSO nets, considering outfall structural condition, ease of access for net removal and replacement, and maintenance vehicle parking. Construct in-line netting facility under Convention Center Drive to the west of Cobo Convention Center. Construct access point for future Total Chlorine Residual monitoring to be installed in a second phase of this project.
Other Important Info	GLWA staff conducted a field inspection in 2019 of CSO outfall netting facilities constructed in Cleveland in 2004. There are different types of CSO net installations, and GLWA believes that in-line nets provide for the most efficient operation and maintenance.
Related Project	City of Detroit Planned Beach Construction @ the Ralph C. Wilson waterfront park on the Detroit River. This project is driving the location of the pilot facility so that we can begin controlling sanitary trash and bacteria discharges during storms to help minimize impacts to this important development.
Primary Driver	3 - Regulatory
Driver Explanation	The NPDES permit requirs GLWA to reduce untreated CSO discharge. This project is a low cost option to reduce

	sanitary trash and treat bacteria from untreated CSO discharges that may occur from the outfall, just upstream of the beach.

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Pilot CSO Netting Facility

270001 CIP#

PM Weighted Score
62.4

Criteria	Score	Comment
Operations and Maintenance	1	This project will require more O&M and so it's c
Condition	1	This is for a new asset, so condition doesn't ap
Performance (Service Level/Reliability)	4	Project addresses a high-priority, non-core out
Public Health and Safety	4	I would have ranked 3, but because this is nec
Regulatory (Environmental/Legal)	5	This project is part of the current NPDES permit
Efficiency and Innovation	3	I compare this project to an alternative projec
Public Benefit	3	This project wouldn't receive media coverage
Financial	2	This was hard to score, it's a relatively low-cost

RC Weighted Score
65

Criteria	Score	Comment
Operations and Maintenance	1	
Financial	1	
Public Benefit	4	
Performance (Service Level/Reliability)	5	
Efficiency and Innovation	3	
Public Health and Safety	4	
Condition	1	
Regulatory (Environmental/Legal)	5	

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Pilot CSO Netting Facility

270001 CIP#

Phase Study and Design and Construction Assistance **Contract** TBD **Status** Future Planned Start

Title Study, Design, and Construction Assistance for Pilot Netting Facility

This phase is to finalize the location, type, and configuration of the pilot netting facility, acquire easements/land, complete the basis of design and design documents, and then provide construction assistance during construction.

Phase Budget	Wastewater	**Cost Allocation**	CSO 83/17
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

4	**Cost Est. Class**
8/1/2019	**Cost Est. Date**
CDM Smith (WWMP)	**Cost Est. Source**
Carl Johnson	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Chris Nastally
CIP Number	
Description	This project will include a design allowance to allow for unforseen conditons that require additional design services.

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY23	$1,518			2021CIP
Engineering Services	FY24	$232			2021CIP
Engineering Services	FY25	$250			2021CIP
Engineering Services	FY26+	$250			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	0	1,518	232	250	250	2,250	2,000

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Pre-Procurement	4/7/2021	9/3/2021	149

Pilot CSO Netting Facility

Phase Task Name	Start Date	End Date	Duration
Procurement	9/4/2021	6/30/2022	299
Project Execution	7/1/2022	6/29/2026	1459

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Pilot CSO Netting Facility

270001 CIP#

Phase GLWA Employees Project management **Contract** NA **Status** Future Planned Start

Title GLWA Salaries

Phase Budget	Wastewater	**Cost Allocation**	CSO 83/17
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

	Cost Est. Class
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2021	FY21	$20			2021CIP
GLWA Salaries CIP2021	FY22	$86			2021CIP
GLWA Salaries CIP2021	FY23	$86			2021CIP
GLWA Salaries CIP2021	FY24	$86			2021CIP
GLWA Salaries CIP2021	FY25	$121			2021CIP
GLWA Salaries CIP2021	FY26+	$120			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	20	86	86	86	121	120	519	399

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Pilot CSO Netting Facility

270001 CIP#

Phase Construction **Contract** TBD **Status** Future Planned Start

Title Construction

Phase Budget	Wastewater	**Cost Allocation**	CSO 83/17
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

	Cost Est. Class
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY25	$4,136			2021CIP
Construction	FY26+	$864			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	0	0	0	4,136	864	5,000	4,136

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Procurement	9/5/2023	6/30/2024	299
Project Execution	7/1/2024	12/31/2025	548
Project Closeout	1/1/2026	6/29/2026	179

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Pilot CSO Netting Facility

270001 CIP#

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	0	0	20	86	1,604	318	4,507	1,234	7,769	6,535

Description of CIP Changes

2019-08 - This is a new project to the CIP being driven by recommendations from the Wastewater Masterplan Project (2019).

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Meldrum Sewer Diversion and VR-15 Improvements

270002 CIP#

- ☐ Innovation
- ☑ Conceptual WW MP
- ☐ Water MP Right Sizing
- ☑ Reliability/Redundancy
- ☐ NEWTP Repurposing

Project Status Future Planned

CIP Type Project

☑ **Project New To CIP**

Project Engineer/Manager Mini Panicker
Director Biren Saparia
Managing Dept SCC
Date Original Business Case Prepared 8/1/2019
Year Project Added to CIP 2019

Budget Wastewater
Class Lvl 1 Wastewater
Class Lvl 2 CSO Facilities
Class Lvl 3 Multiple CSO Facilities
Location City of Detroit
Fund and Cost Center

Problem Statement	The Meldrum Sewer is an uncontrolled CSO that discharges through outfall B-07. Currently, this is an untreated CSO discharge. Untreated CSO discahrges let debris from the sewer and bacteria make their way into fresh water bodies and are not good for public health or the environment. The NPDES permit requires control of this outfall to Michigan water quality standards. The Leib Screening and Disinfection Facility was designed with capacity to screen and disinfect the Meldrum Sewer CSO flow, but presently there is no way to get the flow from the Meldrum sewer to the Conant-Mt. Elliot sewer (and to Leib). This project is a high-level recommendation from the wastewater masterplan. An rfp will need to be developed that further develops the project scope necessary to achieve the desired outcome of connecting the Meldrum sewer to the Contant-Mt. Elliot sewer.
Scope of Work / Project Alternatives	The scope of work involves connecting the Meldrum sewer to the Conant-Mt. Elliot Sewer with a diversion pipe that is 5 feet in diameter. New gates would be installed in the Meldrum sewer which direct flow through this diversion and into the Conant-Mt. Elliot sewer, which would then be processed through the Leib Screening and Disinfection Facility. These gates would allow dry weather flow to take it's normal route through the Meldrum sewer to the DRI, and would divert wet-weather to Leib SDF. This would reduce untreated CSO discharge, a requirement of the NPDES Permit.
Other Important Info	Recommended in DWSD LTCSO Plan of 2008.
Related Project	CS-299 facility assessment of Leib SDF. The Leib SDF will need to have capital investment to improve the reliability of equipment and the facility to be ready to accept additional flow.
Primary Driver	3 - Regulatory
Driver Explanation	The NPDES permit requirs GLWA to reduce untreated CSO discharge. This project is a low cost option to

	accomplish this for the B-07 outfall. In addition to regulator, this results in better improved public benefit from better water quality.

PM Weighted Score
56.4

Criteria	Score	Comment
Financial	1	This is difficult to score since not doing the proj
Public Health and Safety	4	The project will reduce untreated CSO overflo
Public Benefit	5	This is a low-cost solution to divert flow from the
Condition	1	This doesn't really apply.
Operations and Maintenance	1	This project increases O&M, and therefore has
Performance (Service Level/Reliability)	1	This doesn't really apply.
Efficiency and Innovation	4	This pipe connection with some weirs & gates
Regulatory (Environmental/Legal)	5	This is DEQ outfall 009 and is a high priority, nor

RC Weighted Score
62.4

Criteria	Score	Comment
Operations and Maintenance	1	
Public Benefit	5	
Performance (Service Level/Reliability)	3	
Efficiency and Innovation	4	
Financial	1	
Public Health and Safety	4	
Regulatory (Environmental/Legal)	5	
Condition	1	

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Meldrum Sewer Diversion and VR-15 Improvements

270002 CIP#

Phase Design & Construction Assistance **Contract** TBD **Status** Future Planned Start

Title Design and Construction Assistance for Meldrum Diversions

Phase is to complete the design, carries through procurement of construction, and then through construction time period & project closeout. Includes designing the sewer connection, and assisting during construction

Phase Budget	Wastewater	**Cost Allocation**	CSO 83/17
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

4	**Cost Est. Class**
8/1/2019	**Cost Est. Date**
CDM Smith WWMP	**Cost Est. Source**
Carl Johnson	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Chris Nastally
CIP Number	
Description	An allowance for design changes will be established under the main CIP number.

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY24	$500			2021CIP
Engineering Services	FY25	$33			2021CIP
Engineering Services	FY26+	$467			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	0	0	500	33	467	1,000	533

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Pre-Procurement	5/7/2022	9/3/2022	119
Procurement	9/4/2022	6/30/2023	299

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Meldrum Sewer Diversion and VR-15 Improvements

270002 CIP#

Phase Task Name	Start Date	End Date	Duration
Project Execution	7/1/2023	12/31/2027	1644

Phase GLWA Employees Project management **Contract** NA **Status** Future Planned Start

Title GLWA Salaries

Phase Budget	Wastewater	**Cost Allocation**	CSO 83/17
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

	Cost Est. Class
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2021	FY22	$13			2021CIP
GLWA Salaries CIP2021	FY23	$86			2021CIP
GLWA Salaries CIP2021	FY24	$86			2021CIP
GLWA Salaries CIP2021	FY25	$92			2021CIP
GLWA Salaries CIP2021	FY26+	$302			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	13	86	86	92	302	579	277

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Meldrum Sewer Diversion and VR-15 Improvements

270002 CIP#

Phase Construction **Contract** TBD **Status** Future Planned Start

Title Construction of the Meldrum Diversion

This phase is to execute the design project for the Meldrum Diversion to the Conant-Mt. Elliot sewer to divert untreated CSO discharge through the Leib SDF. This will result in untreated CSO discharge becoming "treated" CSO discharge. There is only recommendationsa bout scope schedule and budget from a masterplan perspective at this time.

Phase Budget	Wastewater	**Cost Allocation**	CSO 83/17
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

4	**Cost Est. Class**
8/1/2019	**Cost Est. Date**
CDM Smith (WWMP)	**Cost Est. Source**
Carl Johnson	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Chris Nastally
CIP Number	
Description	A construction allowance of 10% will be allocated to this project prior to bidding out to allow for unforseen conditions.

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY25	$37			2021CIP
Construction	FY26+	$4,463			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	0	0	0	0	37	4,463	4,500	37

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Procurement	7/1/2024	4/26/2025	299
Project Execution	4/27/2025	7/4/2027	798

Phase Task Name	Start Date	End Date	Duration
Project Closeout	7/5/2027	12/31/2027	179

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Meldrum Sewer Diversion and VR-15 Improvements

270002 CIP#

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	0	0	0	13	86	586	162	5,232	6,079	847

Description of CIP Changes

2019-08 - This is a new project to the CIP being driven by recommendations from the Long Term CSO Control Plan from 2008 and further evaluation and recommendation from the Wastewater Masterplan Project (2019).

GLWA FY 2021-2025 CIP

Long Term CSO Control Plan

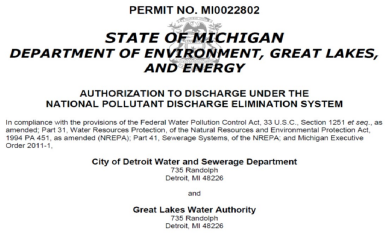
270003 CIP#

- ☐ Innovation
- ☐ Conceptual WW MP
- ☐ Water MP Right Sizing
- ☐ Reliability/Redundancy
- ☐ NEWTP Repurposing

Project Status Future Planned

CIP Type Project

☑ **Project New To CIP**



PERMIT NO. MI0022802

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Federal Water Pollution Control Act, 33 U.S.C., Section 1251 *et seq.*, as amended; Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA); Part 41, Sewerage Systems, of the NREPA; and Michigan Executive Order 2011-1,

City of Detroit Water and Sewerage Department
735 Randolph
Detroit, MI 48226

and

Great Lakes Water Authority
735 Randolph
Detroit, MI 48226

Project Engineer/Manager Chris Nastally

Director Chris Nastally

Managing Dept CSO

Date Original Business Case Prepared 8/20/2019

Year Project Added to CIP 2019

Budget Wastewater

Class Lvl 1 Wastewater

Class Lvl 2 CSO Facilities

Class Lvl 3 Multiple CSO Facilities

Location Multiple Counties

Fund and Cost Center

Problem Statement	The NPDES permit which governs CSO Discharges for GLWA requires GLWA to provide for prohibition, elimination, or adequate treatment of combined sewer discharges containing raw sewage. The current plans of 2008 and 2010 were approved by the EGLE (formerly MDEQ) and are the current plans of record. The new NPDES permit issued in July of 2019 opened the door for GLWA to refresh the Long Term Plan and submit to EGLE for review and approval by 11/15/2022. There are 56 total untreated outfalls operated by GLWA that require control in accordance with the NPDES permit language. The language allows for flexibility in terms of which outfalls GLWA shall address first, second & last, but nonetheless requires all of them to be addressed.
Scope of Work / Project Alternatives	This project will be a predecessor project to executing a long term CSO control plan, as required by the NPDES permit. This project will include evaluation of the requirements and work done under the 2008 and 2010 current plans of record, evaluation of elements within the Wastewater Masterplan aimed at CSO Control, evaluation of affordability, evaluation and siting of specific projects to be executed, and evaluation and programming of recommended projects to address affordability. The RFP for this project is presently being drafted.
Other Important Info	The wastewater masterplan, currently in draft format, has identified in it elements that are a part of the Long Term Plan, including a new storage conduit on the west-side for first flush capture, in-system storage dams, system diversions, and some netting facilities locations strategically selected. These will need to be evaluated and further fleshed out under this project and also evaluated against current system requirements, and former Long Term requirements and plans set forth in 2008 and 2010.
Related Project	Wastewater Masterplan - provides some inputs to this project, Former LT CSO Control 2008/2010 plans
Primary Driver	3 - Regulatory

Driver Explanation	The NPDES permit requires GLWA to provide for prohibition, elimination, or adequate treatment of combined sewer discharges containing raw sewage.

PM Weighted Score
59.6

Criteria	Score	Comment
Operations and Maintenance	1	This project will increase O&M requirements ul
Condition	1	This really doesn't apply.
Efficiency and Innovation	2	I scored this a 2 because elements of the plan
Performance (Service Level/Reliability)	3	This project will result in less untreated CSO Dis
Public Health and Safety	4	By controling remaining untreated CSO discha
Financial	3	The development of the plan is relatively inexp
Public Benefit	3	By reducing trash put into the river(s) during ur
Regulatory (Environmental/Legal)	5	This plan is required by regulatory NPDES perm

RC Weighted Score
59.6

Criteria	Score	Comment
Performance (Service Level/Reliability)	3	
Condition	1	
Public Benefit	3	
Regulatory (Environmental/Legal)	5	
Financial	3	
Operations and Maintenance	1	
Efficiency and Innovation	2	
Public Health and Safety	4	

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
Long Term CSO Control Plan

270003 CIP#

Phase Study **Contract** TBD **Status** Future Planned Start

Title Long Term CSO Control Plan Development (study phase)

This phase will develop the LT CSO Control Plan, submit to the EGLE for approval, and program out projects. From this study/project, plans for design and construction will be developed with the purpose of executing the roadmap laid out for long term CSO control as defined by this plan and as required by the NPDES permit.

Phase Budget	Wastewater	**Cost Allocation**	CSO 83/17
Phase Status	Future Planned Start	**Funding Source**	Revenue Financed Capital
Start Date		**Fund**	I&E/Bond
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

5	**Cost Est. Class**
8/20/2019	**Cost Est. Date**
CSO Manager	**Cost Est. Source**
CSO Manager	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Chris Nastally
CIP Number	
Description	This project will contain an allowance, however, the amount and what for is not determined.

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY21	$2,710			2021CIP
Engineering Services	FY22	$2,134			2021CIP
Engineering Services	FY23	$656			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	2,710	2,134	656	0	0	0	5,500	5,500

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Pre-Procurement	9/15/2019	2/28/2020	166

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
Long Term CSO Control Plan

270003 CIP#

Phase Task Name	Start Date	End Date	Duration
Procurement	2/29/2020	8/27/2020	180
Project Execution	8/28/2020	11/15/2022	809
Project Closeout	11/16/2022	2/14/2023	90

Phase GLWA Employees Project management **Contract** NA **Status** Future Planned Start

Title GLWA Salries

Phase Budget	Wastewater	**Cost Allocation**	CSO 83/17
Phase Status	Future Planned Start	**Funding Source**	Revenue Financed Capital
Start Date		**Fund**	Improvement & Extension Fun
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

	Cost Est. Class
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2021	FY20	$68			2021CIP
GLWA Salaries CIP2021	FY21	$86			2021CIP
GLWA Salaries CIP2021	FY22	$86			2021CIP
GLWA Salaries CIP2021	FY23	$54			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	68	86	86	54	0	0	0	294	226

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Long Term CSO Control Plan

270003 CIP#

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	0	68	2,796	2,220	710	0	0	0	5,794	5,726

Description of CIP Changes

2019 - This project is new to the CIP. I was formerly pulled out of the unallocated amount in the CSO Control Program 260600 of previous CIP version.

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Baby Creek Outfall Improvements Project

277001 CIP#

- ☐ Innovation
- ☐ Conceptual WW MP
- ☐ Water MP Right Sizing
- ☐ Reliability/Redundancy
- ☐ NEWTP Repurposing

Project Status Future Planned

CIP Type Project

☑ **Project New To CIP**

Project Engineer/Manager Chris Nastally
Director Chris Nastally
Managing Dept CSO
Date Original Business Case Prepared 8/9/2019
Year Project Added to CIP 2019

Budget Wastewater
Class Lvl 1 Wastewater
Class Lvl 2 CSO Facilities
Class Lvl 3 Baby Creek
Location Multiple Counties
Fund and Cost Center

Problem Statement	The triple barrel Baby Creek Outfall consists of (3) 14'-6" wide by 17'-6" tall concrete box culverts which extend from the Baby Creek Screening & Disinfection Facility to the Baby Creek Outfall on the Rouge River (approximately 5,500 feet). During the original construction of the facility a project was conducted to remove sludge from the pipe. That is because there was, and is no way to flush the outfall, and no easy way to clean the debris from the outfall. Having debris in the outfall will cause operational issues in terms of loss in capacity to transport flow, potential re-growth of bacteria during events making disinfection more difficult or require more chemical disinfection, and limiting GLWA's ability to perform inspections and adequately assess the condition of the entire pipe.
Scope of Work / Project Alternatives	This project consists of a study and design. Construction is anticipated from the design, but since the flushing system solution cannot be known at this time this phase is not included in the project due to the variability in alternatives and their associated costs. The study and design will assess the proper ways to clean the pipes, facilitate future maintenace, flushing of the pipes after rain events, and perform assessments of the backwater gates and ensure proper instrumentation is installed in the outfall to facilitate better operations and monitoring. In addition to this, the current pipes as they pass through the Woodmere Cemetery have a very minimal easement making future maintenance and access very difficult. This project will endeavor to identify the limits of a proper easement which facilitates access necessary for GLWA to properly maintain the outfall, and the Consultant will assist GLWA in acquiring these easements. This easement will likely be through Woodmere Cemetery and the Patton Park between Vernor & the Baby Creek SDF. GLWA also anticipates the Consultant providing Construction Assistance once this project goes into Construction.
Other Important Info	The current outfall is not capable of being flushed and the solids level will build up after each rain event.

	Furthermore, the rising river level continues to impact this facility and the outfalls capacity. Having a build up of sludge does not favor Baby Creek in passing the necessary flows because the headloss through the pipes is small and the capacity of the pipes are reduced to to the reduction in cross-sectional area.
Primary Driver	4 - O&M
Driver Explanation	There is no way to clean the outfall. Current access points in the cemetery to facilitate cleaning are contained within a limited easment that prohibits execution of a project to just clean because there are gravesites over the pipe, and tight esmt limit

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP
Baby Creek Outfall Improvements Project

277001 CIP#

PM Weighted Score
71.4

Criteria	Score	Comment
Operations and Maintenance	5	We cannot perform the proper maintenance
Regulatory (Environmental/Legal)	3	The debris could cause a bacteria re-growth
Financial	3	Canceling or delaying this project could result
Performance (Service Level/Reliability)	5	two of the three pipes have approximately 6ft
Condition	2	Pipe was installed in the 1960's. The condition
Public Health and Safety	3	While we meet our NPDES permit requirement
Efficiency and Innovation	4	I think installing a flushing system will result in G
Public Benefit	4	I think right now with poor easement limits defi

RC Weighted Score
72.8

Criteria	Score	Comment
Regulatory (Environmental/Legal)	4	
Public Health and Safety	3	
Condition	2	
Performance (Service Level/Reliability)	5	
Public Benefit	4	
Financial	3	
Efficiency and Innovation	4	
Operations and Maintenance	4	

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Baby Creek Outfall Improvements Project

277001 CIP#

Phase Study and Design and Construction Assistance **Contract** TBD **Status** Future Planned Start

Title Study and Design of Baby Creek Outfall Improvements

Phase includes study of and determination of flushing system for the outfall, and subsequent design of the outfall. The project will also include evaluation of pipe access alternatives and design of the selected alternative that facilitates conducting sludge removal projects if necessary. This project will lead to construction bidding documets, but the construction phase is not identified as of yet because of the selected alternatives are not known and the costs can vary significantly. Project will also include improvements to the backwater gates and instrumentation.

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

5	**Cost Est. Class**
8/9/2019	**Cost Est. Date**
CSO Manager	**Cost Est. Source**
CSO Manager	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	Tentative project schedule is as follows: Construction Procurement: 5-1-22 thru 12-27-22 Construction Project Execution: 12-28-22 through 12-27-25 Closeout is 6 months given the size of project.

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY21	$1,165			2021CIP
Engineering Services	FY22	$835			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	1,165	835	0	0	0	0	2,000	2,000

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Baby Creek Outfall Improvements Project

277001 CIP#

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Pre-Procurement	8/1/2019	1/31/2020	183
Procurement	2/1/2020	10/27/2020	269
Project Execution	10/28/2020	4/29/2022	548

Phase GLWA Employees Project management **Contract** NA **Status** Future Planned Start

Title GLWA Salaries

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	$0

Cost Estimation Information

	Cost Est. Class
	Cost Est. Date
	Cost Est. Source
	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2021	FY20	$79			2021CIP
GLWA Salaries CIP2021	FY21	$86			2021CIP
GLWA Salaries CIP2021	FY22	$72			2021CIP

Phase Total Expenses By FY (All figures are in $1,000's)

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	79	86	72	0	0	0	0	237	158

Phase Task Dates

GLWA Great Lakes Water Authority

GLWA FY 2021-2025 CIP

Baby Creek Outfall Improvements Project

277001 CIP#

Project Total Expenses By FY Compared to Prior CIPs (All figures are in $1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	0	79	1,251	907	0	0	0	0	2,237	2,158

Description of CIP Changes 2019 - Projcet added to the database.