GLWA
Great Lakes Water Authority

Appendix B: Wastewater Business Case Evaluations

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DETROIT, MICHIGAN 48226

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GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

211001 CIP#

WRRF Rehabilitation of Primary Clarifiers Rectangular Tanks, Drain Lines,

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

Project Statu Active

CIP Type Project

Pipe Gallery

Project Engineer/Manager Nicolas Nicolas

Manager Philip Kora

Managing Dept WW Constr Eng

Date Original Business Case Prepared 6/23/2005

Year Project Added to CIP 1999

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 Significance Rehabilitation for meeting NPDES Permit and NEC requirements

Scope of Work 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.

Challenges N/A - Active

Project History

Related Project

Lookup Driver N/A - Active

Other Important Info

Explanation N/A - Active

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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**
P. Kora/N. Nicolas	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY19	$18,579			
Construction	FY20	$7,895			
Construction	FY21	$2,996			

Task	Start Date	End Date	Duration
Scope Development			
Procurement			
Project Execution	7/18/2016	11/17/2019	1217
Project Closeout	11/18/2019	5/18/2020	182

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	18,579	7,895	2,996	0	0	0	0	29,470

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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

Phase Budget	Wastewater	Cost Allocation	CTA
Phase Status	Closed Out	Funding Source	
Start Date		Fund	
End Date		Useful Life >20Yrs?	
		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
Construction	FY18-	$12,726			FY18
Engineering Services	FY18-	$188			FY18
Unknown	FY18-	$14			FY16
Unknown	FY18-	$10,229			FY17
GLWA Salaries CIP2020	FY18-	$150	60		FY18

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
23,367								23,367

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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
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 CIP2020	FY19	$100	40	5	
GLWA Salaries CIP2020	FY20	$60	24	3	
GLWA Salaries CIP2020	FY21	$40	16	2	

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	145	87	58	0	0	0	0	290

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018		10,848	12,097	20,990	7,968				0	0	51,903
2019	0	10,243	12,983	16,107	8,671	6,033				0	54,037
2020	0	0	23,367	18,724	7,982	3,054	0	0	0	0	53,127

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

WRRF PS No. 2 Pumping Improvements - Phase 1

211002 CIP#

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

Project Statu Active

CIP Type Project

Pump Station 2

Project Engineer/Manager Vinod Sharma

Manager Philip Kora

Managing Dept WW Constr Eng

Date Original Business Case Prepared 4/30/2003

Year Project Added to CIP 2003

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 Significance Correct drifting issues of pumps and meet long term wet weather capacity needs

Scope of Work This project involves evaluating and recommending alternatives for providing more reliable pumping capacity at Pump Station No. 2 for Pumps Nos. 11 and 14.

Challenges N/A - Active

Project History

Related Project

Lookup Driver N/A - Active

Other Important Info

Explanation N/A - Active

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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	$148			
Engineering Services	FY20	$29			

Task	Start Date	End Date	Duration
Scope Development			
Procurement			
Project Execution	7/20/2010	6/20/2019	3257
Project Closeout	6/20/2019	8/19/2019	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	148	29	0	0	0	0	0	177

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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**
9/17/2018	**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
Construction	FY19	$2,000			
Construction	FY20	$1,134			

Task	Start Date	End Date	Duration
Scope Development			
Procurement			
Project Execution	6/9/2016	6/30/2020	1482
Project Closeout	7/1/2020	8/30/2020	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	2,000	1,134	0	0	0	0	0	3,134

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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?	
		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
Construction	FY18-	$142			FY18
Engineering Services	FY18-	$43			FY18
Unknown	FY18-	$28			FY16
Unknown	FY18-	$80			FY17
GLWA Salaries CIP2020	FY18-	$21	8		Eng Est

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
322								322

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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 CIP2020	FY19	$80	32	4	PC-795
GLWA Salaries CIP2020	FY19	$3	1	0	CS-1444
GLWA Salaries CIP2020	FY20	$40	16	2	PC-795
GLWA Salaries CIP2020	FY20	$1	0	0	CS-1444

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	120	59	0	0	0	0	0	179

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018	456	1,157	1,304	616					0	0	3,533
2019	0	109	599	2,454	621					0	3,783
2020	0	0	322	2,268	1,222	0	0	0	0	0	3,812

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

WRRF Rehabilitation of Primary Clarifiers

211003 CIP#

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

Project Statu Reclassified

CIP Type Project

Primary Clarifiers

Project Engineer/Manager Nicolas Nicolas

Manager Philip Kora

Managing Dept WW Constr Eng

Date Original Business Case Prepared 5/9/2006

Year Project Added to CIP 2006

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 Significance Rehabilitation to maintain NPDES permit capacity and addressing excessive, maintenance induced downtime

Scope of Work This project includes rehabilitation of sludge and scum collectors, replacement of sludge conveyance equipment, and sludge cross scum and collectors for the rectangular clarifiers. The scope of work also includes concrete crack repair on floor, wall, and ceiling.

Challenges N/A - Active

Project History

Related Project

Lookup Driver N/A - Active

Other Important Info

Explanation N/A - Active

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

WRRF Rehabilitation of Primary Clarifiers

211003 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?	
		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)

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

WRRF Rehabilitation of Primary Clarifiers

211003 CIP#

Phase Study and Design and Construction Assistance **Contract** CS-1484 **Status** Cancelled

Title CS-1484 Rehabilitation of Primary Clarifiers

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Cancelled	**Funding Source**	Bond Proceeds
Start Date	8/11/2010	**Fund**	Construction Bond Fund
End Date	7/9/2019	**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	

Task	Start Date	End Date	Duration
Scope Development			
Procurement			
Project Execution	8/11/2010	6/30/2020	3611
Project Closeout	7/1/2020	8/30/2020	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	0	0	0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

WRRF Rehabilitation of Primary Clarifiers

211003 CIP#

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 Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	0	0	0

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018	1	220	240	120					0	0	581
2019	0	1,702	272	201	56					0	2,231
2020	0	0		0	0	0	0	0	0	0	0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

211004 CIP#

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

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

Project Statu Active

CIP Type Project

Rack and Grit

Project Engineer/Manager Partho Ghosh

Manager Philip Kora

Managing Dept WW Constr Eng

Date Original Business Case Prepared 3/17/2008

Year Project Added to CIP 2008

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 Significance Rehabilitate aging rack and grit system for efficient removal of grit to reduce loading on downstream process areas

Scope of Work 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.

Challenges N/A - Active

Project History

Related Project

Lookup Driver N/A - Active

Other Important Info

Explanation N/A - Active

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

211004 CIP#

WRRF PS #1 Rack & Grit and MPI Sampling Station 1 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?	
		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
Construction	FY18-	$3,068			FY18
Engineering Services	FY18-	$216			FY18
Unknown	FY18-	$16,571			Pre-Bifurcation
Unknown	FY18-	$1,770			FY16
Unknown	FY18-	$2,603			FY17
GLWA Salaries CIP2020	FY18-	$185	74		FY18

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
24,487								24,487

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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 CIP2020	FY19	$100	40	5	
GLWA Salaries CIP2020	FY20	$60	24	3	

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	145	87	0	0	0	0	0	232

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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**
9/17/2018	**Cost Est. Date**
Contract	**Cost Est. Source**
P. Kora/D. Bennett	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY19	$1,679			
Construction	FY20	$782			

Task	Start Date	End Date	Duration
Scope Development			
Procurement			
Project Execution	11/18/2013	9/30/2019	2142
Project Closeout	9/30/2019	11/29/2019	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	1,679	782	0	0	0	0	0	2,461

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018	13887	2,303	2,652	2,652					0	0	21,494

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

211004 CIP#

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2019	0	20,944	3,648	2,752	303					0	27,647
2020	0	0	24,487	1,824	869	0	0	0	0	0	27,180

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

WRRF PS No. 2 Improvements Phase II

211005 CIP#

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

Project Statu Future Planned

CIP Type Project

Main Raw Sewage Pumps at Pump Station 2

Project Engineer/Manager Alfredo Lava

Manager Ali Khraizat

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

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

Scope of Work 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.

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.
Lookup Driver	2 - Performance
Other Important Info	n/a
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

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

WRRF PS No. 2 Improvements Phase II

211005 CIP#

Project Manager Project Risk Matrix Scoring

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

Project Manager Score

78.6

Review Committee Project Risk Matrix Scoring

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

Review Committee Score

72.8

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

WRRF PS No. 2 Improvements Phase II

211005 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?	
		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)

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
0								0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

WRRF PS No. 2 Improvements Phase II

211005 CIP#

Phase Study and Design and Construction Assistance **Contract** CS-130 **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	FY21	$670			
Engineering Services	FY22	$620			
Engineering Services	FY23	$520			
Engineering Services	FY24	$500			
Engineering Services	FY25+	$102			2020CIP

Task	Start Date	End Date	Duration
Scope Development	3/8/2020	6/30/2020	114
Procurement	7/1/2020	2/6/2021	220
Project Execution	2/7/2021	12/17/2025	1774
Project Closeout	12/18/2025	2/16/2026	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	670	620	520	500	102	2,412

GLWA FY 2020-2024 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	FY24	$8,000			
Construction	FY25+	$10,600			2020CIP

Task	Start Date	End Date	Duration
Scope Development			
Procurement	12/1/2022	5/30/2023	180
Project Execution	6/1/2023	12/17/2025	930
Project Closeout	12/18/2025	2/16/2026	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	8,000	10,600	18,600

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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 CIP2020	FY21	$10	4	0	CS-130
GLWA Salaries CIP2020	FY22	$65	26		CS-130
GLWA Salaries CIP2020	FY23	$65	26		CS-130
GLWA Salaries CIP2020	FY24	$100	40		PS2
GLWA Salaries CIP2020	FY24	$20	8		CS-130
GLWA Salaries CIP2020	FY25+	$145	57		PS2
GLWA Salaries CIP2020	FY25+	$15	6		2020CIP

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	14	91	91	168	223	587

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018			600	1,700	4,800	3,700			0	0	10,800

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

211005 CIP#

WRRF PS No. 2 Improvements Phase II

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2019	0		7		515	115	9,294	9,101	3,055	0	22,087
2020	0	0	0	0	0	684	711	611	8,668	10,925	21,599

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

WRRF PS No. 1 Improvements

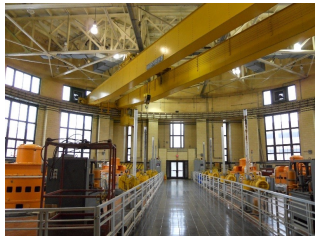
211006 CIP#

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

Project Statu Future Planned

CIP Type Project

Pump Station 1 Interior



Project Engineer/Manager Alfredo Lava

Manager Ali Khraizat

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

Project Significance

Condition assessment and rehabiliation of all pumps at Pump Station No. 1 to increase efficiency and reliability.

Scope of Work

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.

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).

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.
Lookup Driver	1 - Condition
Other Important Info	
Explanation	

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
WRRF PS No. 1 Improvements

211006 CIP#

Project Manager Project Risk Matrix Scoring

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

Project Manager Score

80.8

Review Committee Project Risk Matrix Scoring

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

Review Committee Score

75

GLWA FY 2020-2024 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	FY19	$442			
Engineering Services	FY20	$1,593			
Engineering Services	FY21	$178			
Engineering Services	FY22	$310			
Engineering Services	FY23	$178			
Engineering Services	FY24	$36			
GLWA Salaries CIP2020	FY19	$35	14		Eng Phase
GLWA Salaries CIP2020	FY20	$85	34		Eng Phase
GLWA Salaries CIP2020	FY21	$40	16		CA Phase
GLWA Salaries CIP2020	FY22	$46	18		CA Phase
GLWA Salaries CIP2020	FY23	$17	7		CA Phase
GLWA Salaries CIP2020	FY24	$5	2	0	CA Phase

Task	Start Date	End Date	Duration
Scope Development			

WRRF PS No. 1 Improvements

Task	Start Date	End Date	Duration
Procurement	4/2/2018	11/8/2018	220
Project Execution	11/9/2018	2/14/2025	2289
Project Closeout	2/15/2025	4/16/2025	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	491	1,712	234	374	202	43	0	3,056

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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	FY21	$2,000			
Construction	FY22	$8,000			
Construction	FY23	$8,000			
Construction	FY24	$600			

Task	Start Date	End Date	Duration
Scope Development	11/9/2018	9/1/2021	1027
Procurement	9/2/2021	3/1/2022	180
Project Execution	3/2/2022	2/14/2025	1080
Project Closeout	2/15/2025	4/16/2025	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	2,000	8,000	8,000	600	0	18,600

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
WRRF PS No. 1 Improvements

211006 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
	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 CIP2020	FY19	$5	2		S/D/CA Phase
GLWA Salaries CIP2020	FY20	$65	26		S/D/CA Phase
GLWA Salaries CIP2020	FY21	$65	26		S/D/CA Phase
GLWA Salaries CIP2020	FY22	$16	6		C Phase
GLWA Salaries CIP2020	FY22	$20	8		S/D/CA Phase
GLWA Salaries CIP2020	FY23	$110	44		C Phase
GLWA Salaries CIP2020	FY23	$10	4	0	S/D/CA Phase
GLWA Salaries CIP2020	FY24	$110	44		C Phase
GLWA Salaries CIP2020	FY24	$10	4	0	S/D/CA Phase
GLWA Salaries CIP2020	FY25+	$55	22		C Phase
GLWA Salaries CIP2020	FY25+	$5	2	0	S/D/CA Phase

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	7	91	91	50	168	168	84	659

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018			600	5,350	5,125	2,054			0	0	13,129
2019	0			500	1,800	2,462	9,394	9,245	719	0	24,120
2020	0	0		498	1,803	2,325	8,424	8,370	811	84	22,315

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

211007 CIP#

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

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

Project Statu Future Planned

CIP Type Project

WRRF Pumping Station 2: Bar Racks and Grit Collection System

Project Engineer/Manager Beena Chackunkal

Manager Ali Khraizat

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

Project Significance Replacement of all bar racks and associated equipment for more reliable and efficient operations. Improvements to the grit collection system will prevent the grit affecting the downstream equipment. These improvements will enable WRRF to be in compliance with NPDES permit.

Scope of Work The work consists of evaluation, design and construction for the replacement of Bar Racks and Grit Collection System including their associated motors and electrical panels as necessary to meet the long-term wet weather capacity requirements at thePS-2.

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.

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

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
Lookup Driver	2 - Performance
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
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

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

211007 CIP#

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

Project Manager Project Risk Matrix Scoring

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

Project Manager Score

73.4

Review Committee Project Risk Matrix Scoring

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

Review Committee Score

65.2

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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 CIP2020	FY20	$10	4	0	S/D/CA Phase
GLWA Salaries CIP2020	FY21	$70	28		S/D/CA Phase
GLWA Salaries CIP2020	FY22	$25	10		C Phase
GLWA Salaries CIP2020	FY22	$70	28		S/D/CA Phase
GLWA Salaries CIP2020	FY23	$110	44		C Phase
GLWA Salaries CIP2020	FY23	$35	14		S/D/CA Phase
GLWA Salaries CIP2020	FY24	$110	44		C Phase
GLWA Salaries CIP2020	FY24	$10	4		S/D/CA Phase
GLWA Salaries CIP2020	FY25+	$35	14		C Phase

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	14	98	133	203	168	49	665

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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	FY19	$6			
Engineering Services	FY20	$255			
Engineering Services	FY21	$1,000			
Engineering Services	FY22	$135			
Engineering Services	FY23	$103			
Engineering Services	FY24	$75			

Task	Start Date	End Date	Duration
Scope Development			
Procurement	3/25/2019	10/31/2019	220
Project Execution	11/1/2019	2/5/2025	1923
Project Closeout	2/6/2025	4/7/2025	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	6	255	1,000	135	103	75	0	1,574

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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	FY21	$231			
Construction	FY22	$1,771			
Construction	FY23	$6,000			
Construction	FY24	$7,595			

Task	Start Date	End Date	Duration
Scope Development			
Procurement	8/24/2021	2/20/2022	180
Project Execution	2/21/2022	2/5/2025	1080
Project Closeout	2/6/2025	4/7/2025	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	231	1,771	6,000	7,595	0	15,597

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018			650	2,900	3,300	2,817			0	0	9,667
2019	0			7	402	1,980	2,404	6,956	8,814	0	20,563
2020	0	0		6	269	1,329	2,039	6,306	7,838	49	17,836

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

211008 CIP#

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

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

Project Statu Active

CIP Type Project

Ferric Chloride Tanks at Pump Station 1

Project Engineer/Manager Ravi Yelamanchi

Manager Ali Khraizat

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

Project Significance

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

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.

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.
Lookup Driver	1 - Condition
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.
Explanation	The current chemical feed systems at PS-1 has deteriorated to the point where this need to be rehabilitated.

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

211008 CIP#

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

Project Manager Project Risk Matrix Scoring

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

Project Manager Score

73.4

Review Committee Project Risk Matrix Scoring

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

Review Committee Score

74.2

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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 CIP2020	FY19	$15	6		S/D/CA Phase
GLWA Salaries CIP2020	FY20	$100	40	5	C Phase
GLWA Salaries CIP2020	FY20	$75	30		S/D/CA Phase
GLWA Salaries CIP2020	FY21	$89	35	4	C Phase
GLWA Salaries CIP2020	FY21	$15	6		S/D/CA Phase
GLWA Salaries CIP2020	FY22	$28	11		C Phase
GLWA Salaries CIP2020	FY22	$8	3		S/D/CA Phase

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	21	250	149	50	0	0	0	470

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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	$1,000			
Engineering Services	FY20	$200			
Engineering Services	FY21	$200			
Engineering Services	FY22	$50			

Task	Start Date	End Date	Duration
Scope Development			
Procurement	9/1/2018	11/30/2018	90
Project Execution	12/1/2018	3/30/2022	1215
Project Closeout	3/31/2022	6/29/2022	90

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	1,000	200	200	50	0	0	0	1,450

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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	FY20	$2,500			2020CIP
Construction	FY21	$4,634			2020CIP
Construction	FY22	$1,500			

Task	Start Date	End Date	Duration
Procurement	5/1/2019	9/30/2019	152
Project Execution	10/1/2019	3/30/2022	911
Project Closeout	3/31/2022	6/30/2022	91

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	2,500	4,634	1,500	0	0	0	8,634

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

211008 CIP#

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

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	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY18-	$12			FY18

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
12								12

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018			400	1,400	5,200	2,000	633		0	0	9,633
2019	0			7	115	1,259	2,732	5,537	2,363	0	12,013
2020	0	0	12	1,021	2,950	4,983	1,600	0	0	0	10,566

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

211009 CIP#

WRRF Rehabilitation of the Circular Primary Clarifier Scum Removal System

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

Project Statu Future Planned

CIP Type Project

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 Ali Khraizat

Manager Ali Khraizat

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

Project Significance 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 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.

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.

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.
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.
Lookup Driver	1 - Condition
Other Important Info	*Innovation note: See project write-up -- evaluate alternatives for energy efficiency.
Explanation	The condition of the existing equipment is old and complicated, this results in significant down time and maintenance challenges.

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

211009 CIP#

WRRF Rehabilitation of the Circular Primary Clarifier Scum Removal System

Project Manager Project Risk Matrix Scoring

Criteria	Score	Comment
Condition	4	Shows abnormal wear. Replacement or major
Efficiency and Innovation	4	Project will have a positive impact on Wear &
Financial	4	Project will likely result in avoidance of fines
O&M	4	High levels of O&M
Performance (Service Level/Reliability)	4	High Risk of Performance Failures
Public Benefit	2	Additional Savings in O&M
Public Health & Safety	3	Failure not catastophic, moderate chance of
Regulatory (Environmental/Legal)	3	Moderate risk of causing regulatory violation

Project Manager Score

69.8

Review Committee Project Risk Matrix Scoring

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

Review Committee Score

70.2

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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 CIP2020	FY21	$20	8		S/D/CA Phase
GLWA Salaries CIP2020	FY22	$85	34		S/D/CA Phase
GLWA Salaries CIP2020	FY23	$35	14		C Phase
GLWA Salaries CIP2020	FY23	$45	18		S/D/CA Phase
GLWA Salaries CIP2020	FY24	$200	79		C Phase
GLWA Salaries CIP2020	FY24	$15	6		S/D/CA Phase
GLWA Salaries CIP2020	FY25+	$15	6		C Phase
GLWA Salaries CIP2020	FY25+	$10	4	0	S/D/CA Phase

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
		0	28	119	112	300	35	594

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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	$750			
Engineering Services	FY22	$500			
Engineering Services	FY23	$125			
Engineering Services	FY24	$125			

Task	Start Date	End Date	Duration
Scope Development			
Procurement	4/1/2020	11/7/2020	220
Project Execution	11/8/2020	7/23/2024	1353
Project Closeout	7/24/2024	9/22/2024	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	750	500	125	125	0	1,500

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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	$5,000			
Construction	FY24	$4,300			

Task	Start Date	End Date	Duration
Procurement	2/3/2022	8/2/2022	180
Project Execution	8/3/2022	7/23/2024	720
Project Closeout	7/24/2024	9/22/2024	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	5,000	4,300	0	9,300

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018			266	324	1,870	2,671	2,670	2,679	0	0	10,480
2019	0				7	859	572	5,796	5,005	0	12,239

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

211009 CIP#

WRRF Rehabilitation of the Circular Primary Clarifier Scum Removal System

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2020	0	0		0	0	778	619	5,237	4,725	35	11,394

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

212001 CIP#

WRRF Returned Activated Sludge (RAS) Pumps, Influent Mixed Liquor System and Motor

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

Project Statu Closed

CIP Type Project

Return activated sludge pump and Motor Control Center building

Project Engineer/Manager Nicolas Nicolas

Manager Philip Kora

Managing Dept WW Constr Eng

Date Original Business Case Prepared 4/1/2005

Year Project Added to CIP 2005

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

Project Significance Replace aging pump units, control and instrumentation and building enclosures

Scope of Work This project provides new power supply cable to/from secondary clarifiers and substation MCC, provides new MCCs at each secondary clarifier, provides short-circuit analysis and fault rating , replace 25 RAS pumps at the secondary clarifiers and complete all miscellaneous electrical work such as replacement of cables, conduit, pull boxes, panels and junctions boxes, etc.

Challenges N/A - Active

Project History

Related Project

Lookup Driver N/A - Active

Other Important Info

Explanation N/A - Active

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

212001 CIP#

WRRF Returned Activated Sludge (RAS) Pumps, Influent Mixed Liquor System and Motor

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	

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
Unknown	FY18-	$34,090			2020CIP

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
34,090								34,090

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

212001 CIP#

WRRF Returned Activated Sludge (RAS) Pumps, Influent Mixed Liquor System and Motor

Phase Construction **Contract** PC-776 **Status** Closed Out

Title PC-776 Returned Activated Sludge (RAS) Pumps, Influent Mixed Liquor System and Motor Control Centers (MCC) Improvements for Secondary Clarifiers

Phase Budget	Wastewater	Cost Allocation	CTA
Phase Status	Closed Out	Funding Source	Bond Proceeds
Start Date	8/23/2010	Fund	Construction Bond Fund
End Date	5/9/2016	Useful Life >20Yrs?	Yes
		Tot. Federal Loan Amount	

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	

Task	Start Date	End Date	Duration
Scope Development			
Procurement			
Project Execution			
Project Closeout			

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

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018	24060	115							0	0	24,175
2019	0	34,090								0	34,090
2020	0	0	34,090								34,090

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

212002 CIP#

WRRF Study, Design, & Construction Management Services for Modified Detroit River Outfall

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

Project Statu Closed

CIP Type Project

DRO2 plan at WRRF

Project Engineer/Manager Alfredo Lava

Manager Ali Khraizat

Managing Dept WW Design Eng

Date Original Business Case Prepared

Year Project Added to CIP 2006

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

Project Significance Provide remediation and decommissioning of non-utilized portions of as-built PC-709 construction, which resulted in a flooded tunnel

Scope of Work The scope of work includes limited study, detailed design, preparation of construction plans, and construction management services necessary to implement the modified Detroit River Outfall No. 2 in accordance with NPDES Permit requirements.

Challenges

Project History

Related Project

Lookup Driver N/A - Pending Closeout

Other Important Info

Explanation N/A - Pending Closeout

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

212002 CIP#

WRRF Study, Design, & Construction Management Services for Modified Detroit River Outfall

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	

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
Unknown	FY18-	$279			FY16
Unknown	FY18-	$10,091			Pre-Bifurcation
Unknown	FY18-	$449			FY17

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
10,819								10,819

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

212002 CIP#

WRRF Study, Design, & Construction Management Services for Modified Detroit River Outfall

Phase Study and Design and Construction Assistance **Contract** CS-1448 **Status** Pending Close-out

Title CS-1448 Study, Design, & Construction Management Services for Modified Detroit River Outfall No. 2 - WRRF

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Pending Close-out	**Funding Source**	Bond Proceeds
Start Date	10/31/2006	**Fund**	Construction Bond Fund
End Date	10/31/2016	**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	
Description	

Task	Start Date	End Date	Duration
Scope Development			
Procurement			
Project Execution			
Project Closeout			

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

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018	8449	33							0	0	8,482
2019	0	10,819								0	10,819
2020	0	0	10,819								10,819

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

WRRF Aeration System Improvements

212003 CIP#

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

Project Statu Active

CIP Type Project

Equipment for aeration system

Project Engineer/Manager Kashmira Patel

Manager Philip Kora

Managing Dept WW Constr 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

Project Significance Improve aeration system and provide necessary inter-connections

Scope of Work 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.

Challenges N/A - Under Procurement

Project History

Related Project

Lookup Driver N/A - Under Procurement

Other Important Info

Explanation N/A - Under Procurement

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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?	
		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
Construction	FY18-	$7,767			FY18 PC-796
Engineering Services	FY18-	$171			FY18 CS-157
Unknown	FY18-	$1,902			FY17
Unknown	FY18-	$1,881			Pre-Bifurcation
Unknown	FY18-	$22			FY16
GLWA Salaries CIP2020	FY18-	$77	31		FY18 PC-796

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
11,851								11,851

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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**
P. Kora/D. Bennett	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY19	$4,590			

Task	Start Date	End Date	Duration
Scope Development			
Procurement			
Project Execution	10/3/2016	1/21/2019	840
Project Closeout	1/22/2019	3/23/2019	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	4,590	0	0	0	0	0	0	4,590

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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**
9/17/2018	**Cost Est. Date**
Contract	**Cost Est. Source**
P. Kora/V. Sharma	**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	$88			

Task	Start Date	End Date	Duration
Scope Development			
Procurement			
Project Execution	2/21/2012	3/24/2019	2588
Project Closeout			

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	88	0	0	0	0	0	0	88

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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
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 CIP2020	FY19	$6	2	0	CS-157
GLWA Salaries CIP2020	FY19	$100	40	5	PC-796

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	153	0	0	0	0	0	0	153

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018		2,348	11,197	2,658					0	0	16,203
2019	0	3,805	9,273	2,719	2,523					0	18,320
2020	0	0	11,851	4,831	0	0	0	0	0	0	16,682

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

212004 CIP#

WRRF Chlorination and Dechlorination Process Equipment Improvements

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

Project Statu Active

CIP Type Project

Chlorinator/Sulfonator buildings

Project Engineer/Manager Ali Khraizat

Manager Ali Khraizat

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

Project Significance 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 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".

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.

Lookup Driver 1 - Condition

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.
Explanation	Non-compliance with the manufacturers recommended maintenance schedule has caused the disinfection equipment condition to deteriorate.

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

212004 CIP#

WRRF Chlorination and Dechlorination Process Equipment Improvements

Project Manager Project Risk Matrix Scoring

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

Project Manager Score

83.8

Review Committee Project Risk Matrix Scoring

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

Review Committee Score

81.6

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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?	
		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
Engineering Services	FY18-	$30			FY18
Unknown	FY18-	$86			FY17

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
116								116

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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	FY19	$859			
Construction	FY20	$2,142			
Construction	FY21	$1,585			

Task	Start Date	End Date	Duration
Scope Development			
Procurement	7/3/2018	12/30/2018	180
Project Execution	1/1/2019	8/23/2020	600
Project Closeout	8/24/2020	10/23/2020	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	859	2,142	1,585	0	0	0	0	4,586

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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 CIP2020	FY19	$10	4	0	C Phase
GLWA Salaries CIP2020	FY20	$90	36		C Phase
GLWA Salaries CIP2020	FY21	$19	8		C Phase

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	14	126	27	0	0	0	0	167

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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	$40			2020CIP
Engineering Services	FY20	$77			2020CIP
Engineering Services	FY21	$58			2020CIP

Task	Start Date	End Date	Duration
Project Execution	5/27/2017	6/27/2020	1127

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	40	77	58					175

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018			400	2,800	1,800				0	0	5,000
2019	0	86		2,101	2,422	661				0	5,270
2020	0	0	116	913	2,345	1,670	0	0	0	0	5,044

GLWA FY 2020-2024 CIP

WRRF Rouge River Outfall No. 2 (RRO-2) Segment 1

212005 CIP#

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

Project Statu Closed

CIP Type Project

Piece of movable dam at DRO-2

Project Engineer/Manager Partho Ghosh

Manager Philip Kora

Managing Dept WW Constr Eng

Date Original Business Case Prepared 3/30/2011

Year Project Added to CIP 2011

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

Project Significance Cap abandoned entrance shaft of failed DRO-2 tunnel and rehabilitate movable dams and stop logs to control wet weather flow discharge

Scope of Work The scope of work includes installation of new Stop Log-8 Gates, modification of Movable Dam MD-1, and installation of new power pack building. This project will also provide for a hydraulic actuation system for gates MD-3 A/B and SG 41-44, modification of stop logs SL-1 A/B, and replace chlorination/dechlorination tank car emergency shutoff valves. The project will further include modification of PLC based control system, capping abandoned PC-709 precast tunnel lining segments.

Challenges

Project History

Related Project

Lookup Driver

Other Important Info

Explanation N/A - Pending Closeout

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

WRRF Rouge River Outfall No. 2 (RRO-2) Segment 1

212005 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?	
		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
Unknown	FY18-	$209			FY16
Unknown	FY18-	$43			FY17

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
252								252

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

WRRF Rouge River Outfall No. 2 (RRO-2) Segment 1

212005 CIP#

Phase Construction **Contract** PC-786 **Status** Closed Out

Title PC-786 Rouge River Outfall No. 2 (RRO-2) Segment 1 - WRRF Modifications

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Closed Out	**Funding Source**	Federal Loan Programs
Start Date	5/21/2012	**Fund**	Improvement & Extension Fun
End Date	12/21/2016	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

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	

Task	Start Date	End Date	Duration
Scope Development			
Procurement			
Project Execution			
Project Closeout			

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

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018	12125	62							0	0	12,187
2019	0	252								0	252
2020	0	0	252								252

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

212006 CIP#

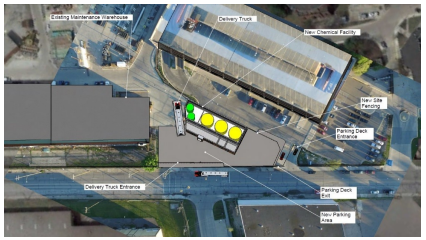
WRRF Rouge River Outfall (RRO) Disinfection (Alternative)

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

Project Statu Active

CIP Type Project

Plan view of RRO location



Project Engineer/Manager Darrel Field

Manager Philip Kora

Managing Dept WW Constr 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

Project Significance Provide project oversight and design build services for alternative disinfection services to meet NPDES Permit requirements at existing Rouge River Outfall

Scope of Work 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.

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.

Lookup Driver N/A - Under Procurement

Other Important Info n/a

Explanation N/A - Under Procurement

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

212006 CIP#

WRRF Rouge River Outfall (RRO) Disinfection (Alternative)

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	

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
Construction	FY18-	$18,802			FY18
Engineering Services	FY18-	$660			FY18
Unknown	FY18-	$5,961			FY17
Unknown	FY18-	$912			FY16
GLWA Salaries CIP2020	FY18-	$76	30		FY18

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
26,441								26,441

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

212006 CIP#

WRRF Rouge River Outfall (RRO) Disinfection (Alternative)

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		**Fund**	Improvement & Extension Fun
End Date		**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**
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	$547			CS-1781
Engineering Services	FY20	$155			CS-1781

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	547	155	0	0	0	0	0	702

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

212006 CIP#

WRRF Rouge River Outfall (RRO) Disinfection (Alternative)

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
9/17/2018	Cost Est. Date
Contract	Cost Est. Source
P. Kora/ D. Field	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	$16,280			PC-797
Design-Build	FY20	$4,337			PC-797

Task	Start Date	End Date	Duration
Project Execution	2/19/2016	4/1/2019	1137
Project Closeout	4/2/2019	12/31/2019	273

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	16,280	4,337	0	0	0	0	0	20,617

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

212006 CIP#

WRRF Rouge River Outfall (RRO) Disinfection (Alternative)

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	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2020	FY19	$120	48	6	PC-797
GLWA Salaries CIP2020	FY19	$6	2	0	CS-1781
GLWA Salaries CIP2020	FY20	$60	24	3	PC-797
GLWA Salaries CIP2020	FY20	$3	1	0	CS-1781

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	182	91	0	0	0	0	0	273

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018	729	6,530	15,800	15,520	9,020				0	0	47,599
2019	0	6,873	20,619	15,817	4,157					0	47,466
2020	0	0	26,441	17,009	4,583	0	0	0	0	0	48,033

GLWA FY 2020-2024 CIP

WRRF Rehabilitation of the Secondary Clarifiers

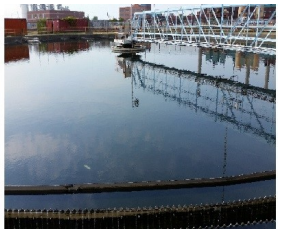
212007 CIP#

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

Project Statu Future Planned

CIP Type Project

Only one or maximum two out of total 25 secondary clarifiers can be taken out of service at a time for repairs. Secondary system has a lot of moving parts and equipment. A long term (8 years) rehabilitation program for the secondary clarifiers needs to be



Project Engineer/Manager Beena Chackunkal

Manager Ali Khraizat

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

Project Significance The secondary clarifiers need to be inspected and rehabilitated for certain components such as the rake arms.

Scope of Work 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.

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.

WRRF Rehabilitation of the Secondary Clarifiers

Lookup Driver	1 - Condition
Other Important Info	n/a
Explanation	Some of the key components are approaching the end of their useful life.

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

WRRF Rehabilitation of the Secondary Clarifiers

212007 CIP#

Project Manager Project Risk Matrix Scoring

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

Project Manager Score

58.4

Review Committee Project Risk Matrix Scoring

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

Review Committee Score

53.2

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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 CIP2020	FY23	$8	3	0	S/D
GLWA Salaries CIP2020	FY24	$95	38		S/D
GLWA Salaries CIP2020	FY25+	$362	143		CA/C Phase

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	11	133	505	649

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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	$60			
Engineering Services	FY24	$800			
Engineering Services	FY25+	$1,114			2020CIP

Task	Start Date	End Date	Duration
Scope Development	4/29/2022	6/28/2022	60
Procurement	7/1/2022	2/6/2023	220
Project Execution	2/7/2023	5/14/2028	1923
Project Closeout	5/15/2028	7/14/2028	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	60	800	1,114	1,974

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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+	$27,495			2020CIP

Task	Start Date	End Date	Duration
Scope Development			
Procurement	11/29/2024	5/28/2025	180
Project Execution	5/30/2025	8/14/2028	1172
Project Closeout	5/15/2028	8/14/2028	91

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	0	27,495	27,495

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018			301	3,576	5,543	5,540	5,540	10,499	0	0	30,999
2019	0				859	1,374	3,680	9,216	19,676	0	34,805

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

212007 CIP#

WRRF Rehabilitation of the Secondary Clarifiers

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2020	0	0		0	0	0	0	71	933	29,114	30,118

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

212008 CIP#

WRRF Rehabilitation of Intermediate Lift Pumps (ILPs)

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

Project Statu Future Planned

CIP Type Project

Intermediate Lift Pump Station N.2

Project Engineer/Manager Beena Chackunkal

Manager Ali Khraizat

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

Project Significance The ILPs are old and reached the end of life cycle. The ILPs convey primary effluent to the secondary bioreactors. Therefore a replacement or rehabilitation will help to comply with the permit capacity requirement for the Secondary Process Area.

Scope of Work Feasibility study, design and construction of the existing process flow to maximize conveyance redundancy/distribution, pump sizing to accommodate dry and wet weather operations for the five intermediate lift pumps that lift primary effluent to the aeration basins for secondary treatment.

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.

Lookup Driver 3 - Regulatory

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.

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

WRRF Rehabilitation of Intermediate Lift Pumps (ILPs)

212008 CIP#

Project Manager Project Risk Matrix Scoring

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

Project Manager Score

74.6

Review Committee Project Risk Matrix Scoring

Criteria	Score	Comment
Condition	4	Rebuilt greater than 10 years
Efficiency and Innovation	2	
Financial	4	
O&M	3	
Performance (Service Level/Reliability)	4	
Public Benefit	3	
Public Health & Safety	3	
Regulatory (Environmental/Legal)	5	

Review Committee Score

72.8

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

WRRF Rehabilitation of Intermediate Lift Pumps (ILPs)

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 CIP2020	FY20	$18	7		Eng Phase
GLWA Salaries CIP2020	FY21	$67	27		Eng Phase
GLWA Salaries CIP2020	FY22	$5	2	0	C Phase
GLWA Salaries CIP2020	FY22	$65	26		Eng Phase
GLWA Salaries CIP2020	FY23	$12	5		Eng Phase
GLWA Salaries CIP2020	FY23	$100	40		C Phase
GLWA Salaries CIP2020	FY24	$20	8		C Phase
GLWA Salaries CIP2020	FY24	$12	5		Eng Phase
GLWA Salaries CIP2020	FY25+	$50	20	2	C Phase
GLWA Salaries CIP2020	FY25+	$10	4	0	Eng Phase

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
		25	94	98	157	45	86	505

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

WRRF Rehabilitation of Intermediate Lift Pumps (ILPs)

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	FY22	$103			
Construction	FY23	$6,370			
Construction	FY24	$5,665			
Construction	FY25+	$6,645			2020CIP

Task	Start Date	End Date	Duration
Scope Development	11/8/2019	8/29/2021	660
Procurement	8/31/2021	2/27/2022	180
Project Execution	2/28/2022	2/12/2025	1080
Project Closeout	2/13/2025	4/14/2025	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
				103	6,370	5,665	6,645	18,783

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

WRRF Rehabilitation of Intermediate Lift Pumps (ILPs)

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
	FY25+	$80			2020CIP
Engineering Services	FY20	$204			
Engineering Services	FY21	$406			
Engineering Services	FY22	$455			
Engineering Services	FY23	$200			
Engineering Services	FY24	$200			

Task	Start Date	End Date	Duration
Scope Development			
Procurement	4/1/2019	11/7/2019	220
Project Execution	11/8/2019	2/12/2025	1923
Project Closeout	2/13/2025	4/14/2025	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
		204	406	455	200	200	80	1,545

WRRF Rehabilitation of Intermediate Lift Pumps (ILPs)

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2019	0				230	1,141	6,569	5,767	6,809	0	20,516
2020	0	0			229	500	656	6,727	5,910	6,811	20,833

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

213001 CIP#

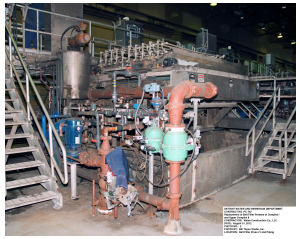
WRRF Replacement of Belt Filter Presses for Complex I and Upper Level Complex II

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

Project Statu Pending Closeout

CIP Type Project

PC 787 Belt filter presses replacement



Project Engineer/Manager Vinod Sharma / Nicolas Nicolas

Manager Ali Khraizat

Managing Dept WW Design Eng

Date Original Business Case Prepared 5/10/2006

Year Project Added to CIP 2006

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

Project Significance Study, design and construction assistance of equipment experiencing numerous breakdowns and for meeting permit capacities

Scope of Work The work will consist of replacements of 10 Belt Filter Presses for Complex 1 and 12 Belt Filter Presses for Complex II Dewatering, Screened Final Effluent booster pumps, sludge belt conveyors, sludge grinders, and all related supportive equipment including control panels and associated wiring.

Challenges

Project History

Related Project

Lookup Driver

Other Important Info

Explanation N/A - Pending Closeout

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

213001 CIP#

WRRF Replacement of Belt Filter Presses for Complex I and Upper Level Complex II

Phase Construction **Contract** PC-787 **Status** Closed Out

Title PC-787 Replacement of Belt Filter Presses for Complex I and Upper Level Complex II

Project closed out in FY 17

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Closed Out	**Funding Source**	Bond Proceeds
Start Date	5/21/2012	**Fund**	Construction Bond Fund
End Date	8/3/2016	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

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	

Task	Start Date	End Date	Duration
Scope Development			
Procurement			
Project Execution			
Project Closeout			

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

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

213001 CIP#

WRRF Replacement of Belt Filter Presses for Complex I and Upper Level Complex II

Phase Study and Design and Construction Assistance **Contract** CS-1483 **Status** Pending Close-out

Title CS-1483 Replacement of Belt Filter Presses for Complex I and Upper Level Complex II

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Pending Close-out	**Funding Source**	Bond Proceeds
Start Date	1/11/2010	**Fund**	Construction Bond Fund
End Date	12/31/2016	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

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	

Task	Start Date	End Date	Duration
Scope Development			
Procurement			
Project Execution			
Project Closeout			

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

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

213001 CIP#

WRRF Replacement of Belt Filter Presses for Complex I and Upper Level Complex II

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	

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
Unknown	FY18-	$2,568			FY17
Unknown	FY18-	$1,463			FY16
Unknown	FY18-	$32,638			Pre-Bifurcation
GLWA Salaries CIP2020	FY18-	$1			FY18

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
36,670								36,670

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018	29	1,872							0	0	1,901
2019	0	36,669								0	36,669
2020	0	0	36,670								36,670

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

WRRF Rehabilitation of Central Offload Facility

213002 CIP#

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

Project Statu Active

CIP Type Project

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

Project Engineer/Manager Partho Ghosh

Manager Philip Kora

Managing Dept WW Constr 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

Project Significance 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 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.

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.

Lookup Driver 1 - Condition

Other Important Info

Explanation N/A - Under Procurement

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

WRRF Rehabilitation of Central Offload Facility

213002 CIP#

Project Manager Project Risk Matrix Scoring

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

Project Manager Score

78.4

Review Committee Project Risk Matrix Scoring

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

Review Committee Score

76.2

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2020	FY19	$100	40	5	
GLWA Salaries CIP2020	FY19	$20	8	1	
GLWA Salaries CIP2020	FY20	$120	48	6	
GLWA Salaries CIP2020	FY20	$15	6	1	
GLWA Salaries CIP2020	FY21	$80	32	4	
GLWA Salaries CIP2020	FY21	$5	2	0	

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	174	196	123	0	0	0	0	493

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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?	
		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
Engineering Services	FY18-	$742			FY18
Unknown	FY18-	$202			FY17
GLWA Salaries CIP2020	FY18-	$27	11		FY18

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
982								982

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY19	$30			
Engineering Services	FY20	$200			
Engineering Services	FY21	$74			

Task	Start Date	End Date	Duration
Scope Development			
Procurement			
Project Execution	10/17/2016	4/19/2021	1645
Project Closeout	1/19/2021	3/20/2021	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	30	200	74	0	0	0	0	304

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY19	$4,000			
Construction	FY20	$7,300			
Construction	FY21	$3,100			

Task	Start Date	End Date	Duration
Scope Development	10/17/2016	4/20/2018	550
Procurement	4/20/2018	10/17/2018	180
Project Execution	10/18/2018	4/19/2021	914
Project Closeout	4/20/2021	6/19/2021	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	4,000	7,300	3,100	0	0	0	0	14,400

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

WRRF Rehabilitation of Central Offload Facility

213002 CIP#

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2019	0	202	665	6,447	7,520	4,579				0	19,413
2020	0	0	982	4,204	7,696	3,297	0	0	0	0	16,179

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

WRRF Sewage Sludge Incinerator Air Quality Improvements

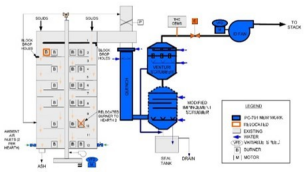
213003 CIP#

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

Project Statu Closed

CIP Type Project

Schematic of incinerator air quality improvement equipment



Project Engineer/Manager Kashmira Patel

Manager Philip Kora

Managing Dept WW Constr Eng

Date Original Business Case Prepared 4/26/2012

Year Project Added to CIP 2012

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

Project Significance Provide sludge incinerations air quality improvements at Incinerator Complex II to meet NPDES Permit requirements

Scope of Work This project involves the design and construction for sludge incinerator air quality improvements at Complex II Incinerator Facility at WRRF. The scope of work includes installation of new scrubber, induced draft fan, noise reduction modification, and air quality and monitoring equipment.

Challenges N/A - Active

Project History

Related Project

Lookup Driver N/A - Active

Other Important Info

Explanation N/A - Active

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

WRRF Sewage Sludge Incinerator Air Quality Improvements

213003 CIP#

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	Federal Loan Programs
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 Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	0	0	0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

WRRF Sewage Sludge Incinerator Air Quality Improvements

213003 CIP#

Phase Design and Build **Contract** PC-791 **Status** Closed Out

Title PC-791 Sewage Sludge Incinerator Air Quality Improvements at WRRF

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Closed Out	**Funding Source**	Federal Loan Programs
Start Date	12/17/2012	**Fund**	Improvement & Extension Fun
End Date	6/30/2017	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

4	**Cost Est. Class**
9/15/2017	**Cost Est. Date**
Engineering	**Cost Est. Source**
Biren Saparia	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Task	Start Date	End Date	Duration
Scope Development			
Procurement			
Project Execution	12/17/2012	6/30/2017	1656
Project Closeout	7/1/2017	12/15/2017	167

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	0	0	0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

WRRF Sewage Sludge Incinerator Air Quality Improvements

213003 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?	
		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
Construction	FY18-	$436			FY18
Engineering Services	FY18-	$56			FY18
Unknown	FY18-	$36,153			Prev Yrs
GLWA Salaries CIP2020	FY18-	$22	9		FY18

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
36,676								36,676

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018	33043	3,000							0	0	36,043
2019	0	50,635	459							0	51,094
2020	0	0	36,676	0	0	0	0	0	0	0	36,676

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
WRRF Biosolids Dryer Facility

213004 CIP#

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

Project Statu Pending Closeout

CIP Type Project

New GLWA Biosolids Dryer Facility

Project Engineer/Manager Darrel Field

Manager Philip Kora

Managing Dept WW Constr Eng

Date Original Business Case Prepared 4/26/2012

Year Project Added to CIP 2012

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

Project Significance Allows retirement of Complex I Incinerators. Will provide significant cost savings and is the largest Biosolids dryer facility in North America

Scope of Work This project provides for study, design and construction of a thermal dryer facility with a firm capacity of 330 dry tons per day (dtpd). The scope of work also includes a conveyance system from Complex I to Complex II.

Challenges N/A - Pending Closeout

Project History

Related Project

Lookup Driver N/A - Pending Closeout

Other Important Info

Explanation N/A - Pending Closeout

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
WRRF Biosolids Dryer Facility

213004 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?	
		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
Construction	FY18-	$186			FY18
Engineering Services	FY18-	$192			FY18
Unknown	FY18-	$1,438			FY16
Unknown	FY18-	$585			FY17
GLWA Salaries CIP2020	FY18-	$5	2		FY18

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
2,408								2,408

GLWA FY 2020-2024 CIP

WRRF Biosolids Dryer Facility

213004 CIP#

Phase Design and Build **Contract** PC-792 **Status** Pending Close-out

Title PC-792 Biosolids Dryer Facility at WRRF

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Pending Close-out	**Funding Source**	Federal Loan Programs
Start Date	5/23/2013	**Fund**	Improvement & Extension Fun
End Date	10/31/2016	**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**
P. Kora/D. Field	**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	$21			

Task	Start Date	End Date	Duration
Scope Development			
Procurement			
Project Execution	5/23/2013	12/31/2017	1683
Project Closeout	1/1/2018	6/30/2018	180

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	21	0	0	0	0	0	0	21

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
WRRF Biosolids Dryer Facility

213004 CIP#

Phase GLWA Employees Project management **Contract** NA **Status** Pending Close-out

Title GLWA Salaries

Phase Budget	Wastewater	Cost Allocation	CTA
Phase Status	Pending Close-out	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

2	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 CIP2020	FY19	$1	0	0	

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	1	0	0	0	0	0	0	1

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018	134190	1,691	60	26					0	0	135,967
2019	0	2,024	193	23						0	2,240
2020	0	0	2,408	22	0	0	0	0	0	0	2,430

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

213005 CIP#

WRRF Complex I Incinerators Decommissioning and Reusability

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

Project Statu Future Planned

CIP Type Project

Complex – I Incinerator Building at the WRRF

Project Engineer/Manager Ravi Yelamanchi

Manager Ali Khraizat

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

Project Significance This project will decommission the C-I Incinerators building and investigate the re-usability.

Scope of Work 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.

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 Dewa

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.

Related Project n/a

Lookup Driver 3 - Regulatory

Other Important Info *Innovation note: Future uses may include alternative sludge handling; keep aligned with Master Plan and Research & Innovation.

WRRF Complex I Incinerators Decommissioning and Reusability

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

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

213005 CIP#

WRRF Complex I Incinerators Decommissioning and Reusability

Project Manager Project Risk Matrix Scoring

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

Project Manager Score

38.4

Review Committee Project Risk Matrix Scoring

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

Review Committee Score

38.4

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

213005 CIP#

WRRF Complex I Incinerators Decommissioning and Reusability

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	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY18-	$34			FY18
GLWA Salaries CIP2020	FY18-	$6	3	0	2020CIP

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
43								43

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

213005 CIP#

WRRF Complex I Incinerators Decommissioning and Reusability

Phase Design & Construction Assistance **Contract** CS-228 **Status** Pending Close-out

Title Complex Incineration Heating

Phase Budget	Wastewater	Cost Allocation	CTA
Phase Status	Pending Close-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

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)

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

213005 CIP#

WRRF Complex I Incinerators Decommissioning and Reusability

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	

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	0		0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

213005 CIP#

WRRF Complex I Incinerators Decommissioning and Reusability

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

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

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**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	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY25+	$350			2020CIP

Task	Start Date	End Date	Duration
Scope Development			
Procurement	7/1/2024	8/30/2024	60
Project Execution	8/31/2024	4/20/2027	962
Project Closeout	4/21/2027	6/20/2027	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
							350	350

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

213005 CIP#

WRRF Complex I Incinerators Decommissioning and Reusability

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

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

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**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	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY25+	$4,059			2020CIP

Task	Start Date	End Date	Duration
Procurement	4/29/2025	10/26/2025	180
Project Execution	10/27/2025	4/20/2027	540
Project Closeout	4/21/2027	6/20/2027	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
							4,059	4,059

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

213005 CIP#

WRRF Complex I Incinerators Decommissioning and Reusability

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

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	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**
Eng	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Task	Start Date	End Date	Duration
Project Execution			

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0							0

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018			900	200					0	0	1,100
2019	0					161	1,221	2,352	1,171	0	4,905
2020	0	0	43	0	0	0	0	0	0	4,409	4,452

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

213006 CIP#

WRRF Improvements to Sludge Feed Pumps at Dewatering Facilities

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

Project Statu Future Planned

CIP Type Project

Sludge Feed Pumps

Project Engineer/Manager Ravi Yelamanchi

Manager Ali Khraizat

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

Project Significance Improved sludge feed pumping system will provide wide range of operating conditions.

Scope of Work The scope of work includes study, design, and construction for the replacement of sludge feed pumps SFP 1, 2, 5 and 6 and other modifications to the pumping system at the WRRF.

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.

Lookup Driver 2 - Performance

Other Important Info

Explanation

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

213006 CIP#

WRRF Improvements to Sludge Feed Pumps at Dewatering Facilities

Project Manager Project Risk Matrix Scoring

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

Project Manager Score

66.4

Review Committee Project Risk Matrix Scoring

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

Review Committee Score

67.8

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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	FY24	$1,000			2020CIP
Construction	FY25+	$2,055			

Task	Start Date	End Date	Duration
Scope Development			
Procurement	6/30/2023	12/27/2023	180
Project Execution	12/28/2023	6/20/2025	540
Project Closeout	6/21/2025	8/20/2025	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
				0	0	1,000	2,055	3,055

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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	FY23	$10			
Engineering Services	FY24	$275			2020CIP
Engineering Services	FY25+	$10			

Task	Start Date	End Date	Duration
Scope Development			
Procurement	1/23/2022	8/31/2022	220
Project Execution	9/1/2022	6/20/2025	1023
Project Closeout	6/21/2025	8/20/2025	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
			0		10	275	10	295

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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 CIP2020	FY23	$10	4	0	S/D
GLWA Salaries CIP2020	FY24	$20	8		C Phase
GLWA Salaries CIP2020	FY24	$45	18		S/D/CA Phase
GLWA Salaries CIP2020	FY25+	$147	58		C Phase
GLWA Salaries CIP2020	FY25+	$44	17		S/D/CA Phase

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0		0	0	14	91	266	371

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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?	
		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
Unknown	FY18-	$1			FY16
Unknown	FY18-	$4			FY17

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
5								5

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018		33	402	750					0	0	1,185
2019	0	4			57	275	2,391	1,130		0	3,857
2020	0	0	5	0		0	0	24	1,366	2,331	3,726

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

213007 CIP#

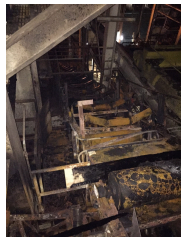
WRRF Modification to Incinerator Sludge Feed Systems at Complex -II

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

Project Statu Active

CIP Type Project

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

Manager Philip Kora

Managing Dept WW Constr 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

Project Significance 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 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.

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.

Lookup Driver 3 - Regulatory

Other Important Info n/a

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

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

213007 CIP#

WRRF Modification to Incinerator Sludge Feed Systems at Complex -II

Project Manager Project Risk Matrix Scoring

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

Project Manager Score

92.4

Review Committee Project Risk Matrix Scoring

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

Review Committee Score

87.2

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

213007 CIP#

WRRF Modification to Incinerator Sludge Feed Systems at Complex -II

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	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY18-	$399			FY18
Engineering Services	FY18-	$278			FY18
GLWA Salaries CIP2020	FY18-	$39	15		FY18

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
731								731

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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**
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	$17			2020CIP
Engineering Services	FY20	$17			2020CIP
Engineering Services	FY21	$11			2020CIP

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	17	17	11					45

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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**
9/12/2018	**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
Construction	FY19	$6,799			
Construction	FY20	$8,351			
Construction	FY21	$3,083			

Task	Start Date	End Date	Duration
Scope Development	8/22/2016	10/26/2017	430
Procurement	10/30/2017	4/20/2018	172
Project Execution	4/21/2018	2/19/2021	1035
Project Closeout	2/20/2021	4/21/2021	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	6,799	8,351	3,083	0	0	0	0	18,233

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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**
9/12/2018	**Cost Est. Date**
Contract	**Cost Est. Source**
WW 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	FY19	$170			
Engineering Services	FY20	$170			
Engineering Services	FY21	$98			2020CIP

Task	Start Date	End Date	Duration
Scope Development			
Procurement			
Project Execution	8/22/2016	2/19/2021	1642
Project Closeout	2/20/2021	4/21/2021	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	170	170	98	0	0	0	0	438

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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
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 CIP2020	FY19	$8	3	0	Eng Phase
GLWA Salaries CIP2020	FY19	$112	44	6	C Phase
GLWA Salaries CIP2020	FY20	$8	3	0	Eng Phase
GLWA Salaries CIP2020	FY20	$112	44	6	C Phase
GLWA Salaries CIP2020	FY21	$80	32	4	C Phase

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	173	173	116	0	0	0	0	462

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018		1,500	9,600	7,822					0	0	18,922
2019	0		567	6,787	11,356	3,477				0	22,187
2020	0	0	731	7,159	8,711	3,308	0	0	0	0	19,909

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

WRRF Rehabilitation of the Ash Handling Systems

213008 CIP#

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

Project Statu Future Planned

CIP Type Project

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

Manager Ali Khraizat

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

Project Significance 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 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.

Challenges Maintaining the dry ash system at capacity while the wet ash system is being built will be a challenge.

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.

Lookup Driver 1 - Condition

Other Important Info	*Innovation note: Due to only 10-15 years remaining useful life on Complex I, reconsider recommissioning wet ash. Recommend focusing on reuse of dry ash elements of Complex I, and adding redundancy and automation to the dry ash system.
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.

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

WRRF Rehabilitation of the Ash Handling Systems

213008 CIP#

Project Manager Project Risk Matrix Scoring

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

Project Manager Score

66

Review Committee Project Risk Matrix Scoring

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

Review Committee Score

57.8

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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 CIP2020	FY20	$8	3	0	S Phase
GLWA Salaries CIP2020	FY21	$8	3	0	S/D/CA
GLWA Salaries CIP2020	FY22	$10	4	0	C
GLWA Salaries CIP2020	FY22	$65	26		D/CA
GLWA Salaries CIP2020	FY23	$115	46		C Phase
GLWA Salaries CIP2020	FY23	$45	18		D/CA
GLWA Salaries CIP2020	FY24	$42	17		C Phase
GLWA Salaries CIP2020	FY24	$25	10		D/CA

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	11	11	105	224	94	0	445

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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	$1,100			2020CIP
Engineering Services	FY22	$420			2020CIP
Engineering Services	FY23	$350			2020CIP
Engineering Services	FY24	$90			2020CIP

Task	Start Date	End Date	Duration
Procurement	1/27/2020	6/27/2020	152
Project Execution	6/28/2020	12/30/2023	1280
Project Closeout	12/31/2023	6/30/2024	182

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
			1,100	420	350	90		1,960

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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	$100			

Task	Start Date	End Date	Duration
Scope Development	1/30/2019	4/30/2019	90
Procurement	5/1/2019	7/31/2019	91
Project Execution	8/1/2019	12/30/2019	151
Project Closeout	1/1/2020	2/1/2020	31

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	100	0	0	0	0	0	100

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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	$5,000			
Construction	FY23	$9,000			
Construction	FY24	$2,000			

Task	Start Date	End Date	Duration
Scope Development			
Procurement	6/29/2021	12/26/2021	180
Project Execution	12/27/2021	12/30/2023	733
Project Closeout	12/31/2023	2/29/2024	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
				5,000	9,000	2,000	0	16,000

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

WRRF Rehabilitation of the Ash Handling Systems

213008 CIP#

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2019	0				687	916	3,614	6,069	9,330	0	20,616
2020	0	0		0	111	1,111	5,525	9,574	2,184	0	18,505

GLWA FY 2020-2024 CIP

214001 CIP#

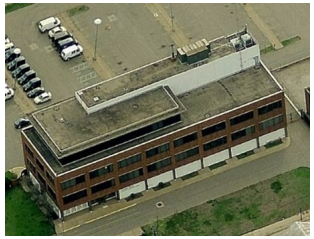
WRRF Relocation of Industrial Waste Control Division and Analytical Laboratory Operations

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

Project Statu Active

CIP Type Project

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

Manager Ali Khraizat

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 IWC

Location City of Detroit

Fund and Cost Center Wastewater - 5421-892211

Project Significance Laboratory Optimization, Continued operation of IWC and Lab, lease termination for analytical laboratory, and utilization of available space in WRRF NAB

Scope of Work Relocate Industrial Waste Control Division and Analytical Lab to New Administration Building at WRRF. Consolidate the existing Operations Lab with Analytical Lab.

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

Lookup Driver	3 - Regulatory
Other Important Info	
Explanation	Length and reorganization is yet established.

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

214001 CIP#

WRRF Relocation of Industrial Waste Control Division and Analytical Laboratory Operations

Project Manager Project Risk Matrix Scoring

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

Project Manager Score

71.6

Review Committee Project Risk Matrix Scoring

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

Review Committee Score

62.2

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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	$220			2020CIP
Engineering Services	FY20	$53			2020CIP

Task	Start Date	End Date	Duration
Project Execution	10/1/2017	6/27/2020	1000
Project Closeout	6/28/2020	8/28/2020	61

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	220	53	0					273

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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?	
		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
Engineering Services	FY18-	$385			FY18
Unknown	FY18-	$182			FY17
GLWA Salaries CIP2020	FY18-	$4	2	0	FY18

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
573								573

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

214001 CIP#

WRRF Relocation of Industrial Waste Control Division and Analytical Laboratory Operations

Phase Construction **Contract** CON-280 **Status** Active

Title Relocation of Industrial Waste Control Division

Phase Budget	Wastewater	**Cost Allocation**	IWC
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**
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	$1,654			

Task	Start Date	End Date	Duration
Scope Development	1/4/2018	7/3/2018	180
Procurement	7/3/2018	12/22/2018	172
Project Execution	6/25/2018	1/21/2019	210
Project Closeout	1/22/2019	3/22/2019	59

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	1,654	0	0	0	0	0	0	1,654

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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 CIP2020	FY19	$110	44		C Phase
GLWA Salaries CIP2020	FY20	$10	4	0	C Phase

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	154	14	0	0	0	0	0	168

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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	FY19	$800			2020CIP
Construction	FY20	$7,500			2020CIP

Task	Start Date	End Date	Duration
Procurement	10/29/2018	4/27/2019	180
Project Execution	4/28/2019	10/28/2020	549
Project Closeout	10/29/2020	12/28/2020	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	800	7,500						8,300

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018			5,000	2,000					0	0	7,000
2019	0	182		4,001	7,764	1,000				0	12,947

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

214001 CIP#

WRRF Relocation of Industrial Waste Control Division and Analytical Laboratory Operations

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2020	0	0	573	2,828	7,567	0	0	0	0	0	10,968

GLWA FY 2020-2024 CIP

216001 CIP#

Underground Electrical Duct Bank Repair and EB-1, EB-2 and EB-10 Primary Power Service

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

Project Statu Pending Closeout

CIP Type Project

Electrical Duct Bank

Project Engineer/Manager Vinod Sharma

Manager Philip Kora

Managing Dept WW Constr Eng

Date Original Business Case Prepared 5/7/1998

Year Project Added to CIP 1998

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

Project Significance Procure and install electrical power system to meet safety standards and prove third redundant electric feeder per NPDES permit

Scope of Work This project involves the study, design, and construction assistance work for repairing the 15KV Primary Switch Gears A & B, unit substation EB-1, EB-2, and EB-10, unit 5KV substation and switch gear DE-1, and two outdoor 3-phase primary transformers; and repair of building structure and associated components. The work will also include coordination of system shut-down, and coordination of system reconnection with new cables.

Challenges N/A - Pending Closeout

Project History

Related Project

Lookup Driver N/A - Pending Closeout

Other Important Info

Explanation N/A - Pending Closeout

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

216001 CIP#

Underground Electrical Duct Bank Repair and EB-1, EB-2 and EB-10 Primary Power Service

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

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 Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	0	0	0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

216001 CIP#

Underground Electrical Duct Bank Repair and EB-1, EB-2 and EB-10 Primary Power Service

Phase Construction **Contract** PC-783 **Status** Closed Out

Title PC-783 Underground Electrical Duct Bank Repair and EB-1, EB-2 and EB-10 Primary Power Service Improvements

Weiss Construction

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Closed Out	**Funding Source**	Bond Proceeds
Start Date	5/21/2012	**Fund**	Construction Bond Fund
End Date	5/21/2016	**Useful Life >20Yrs?**	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

1	**Cost Est. Class**
	Cost Est. Date
Contract	**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 Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	0	0	0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

216001 CIP#

Underground Electrical Duct Bank Repair and EB-1, EB-2 and EB-10 Primary Power Service

Phase Study and Design and Construction Assistance **Contract** NA **Status** Pending Close-out

Title Underground Electrical Duct Bank Repair and EB-1, EB-2 and EB-10

Phase Budget	Wastewater	Cost Allocation	CTA
Phase Status	Pending Close-out	Funding Source	Bond Proceeds
Start Date	6/12/2008	Fund	Construction Bond Fund
End Date	6/11/2016	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	

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

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

216001 CIP#

Underground Electrical Duct Bank Repair and EB-1, EB-2 and EB-10 Primary Power Service

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	

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
Construction	FY18-	$989			FY18-616900
Construction	FY18-	$39			FY18-617950
Unknown	FY18-	$1,072			FY17
Unknown	FY18-	$1,339			FY16
Unknown	FY18-	$29,225			Pre-Bifurcation
GLWA Salaries CIP2020	FY18-	$15	6		FY18

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
32,685								32,685

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018	23037	2,575	1,532						0	0	27,144
2019	0	31,636	1,033							0	32,669

GLWA FY 2020-2024 CIP

216001 CIP#

Underground Electrical Duct Bank Repair and EB-1, EB-2 and EB-10 Primary Power Service

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2020	0	0	32,685	0	0	0	0	0	0	0	32,685

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

216002 CIP#

Plant-wide Fire Alarm Systems Upgrade/ Integration and Fire Protection Improvements

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

Project Statu Pending Closeout

CIP Type Project

Fire alarm system

Project Engineer/Manager Vinod Sharma

Manager Ali Khraizat

Managing Dept WW Design Eng

Date Original Business Case Prepared 4/13/2004

Year Project Added to CIP 2004

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

Project Significance Install an integrated Fire Alarm system to facilitate centralized monitoring

Scope of Work This project involves the installation of an Integrated Plant-wide Fire Alarm System in approximately 100 buildings (of which 50+ have a stand-alone fire alarm system) at the WRRF in order to facilitate centralized monitoring and assure faster corrective action. The new system will be interfaced with the existing WRRF Control System.

Challenges N/A - Pending Closeout

Project History

Related Project

Lookup Driver N/A - Pending Closeout

Other Important Info

Explanation N/A - Pending Closeout

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

216002 CIP#

Plant-wide Fire Alarm Systems Upgrade/ Integration and Fire Protection Improvements

Phase Construction **Contract** PC-782 **Status** Closed Out

Title PC-782 Plant-wide Fire Alarm Systems Upgrade/ Integration and Fire Protection Improvements

Phase Budget	Wastewater	Cost Allocation	CTA
Phase Status	Closed Out	Funding Source	Bond Proceeds
Start Date	4/15/2013	Fund	Construction Bond Fund
End Date	11/4/2016	Useful Life >20Yrs?	Yes
		Tot. Federal Loan Amount	

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	

Task	Start Date	End Date	Duration
Scope Development			
Procurement			
Project Execution			
Project Closeout			

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

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

216002 CIP#

Plant-wide Fire Alarm Systems Upgrade/ Integration and Fire Protection Improvements

Phase Study and Design and Construction Assistance **Contract** CS-1443 **Status** Pending Close-out

Title CS-1443 Plant-wide Fire Alarm Systems Upgrade/ Integration and Fire Protection Improvements

Phase Budget	Wastewater	Cost Allocation	CTA
Phase Status	Pending Close-out	Funding Source	Bond Proceeds
Start Date	6/12/2008	Fund	Construction Bond Fund
End Date	12/31/2015	Useful Life >20Yrs?	Yes
		Tot. Federal Loan Amount	

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	

Task	Start Date	End Date	Duration
Scope Development			
Procurement			
Project Execution			
Project Closeout			

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

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

216002 CIP#

Plant-wide Fire Alarm Systems Upgrade/ Integration and Fire Protection Improvements

Phase GLWA Employees Project management **Contract** NA **Status** Pending Close-out

Title GLWA Salaries

Phase Budget	Wastewater	Cost Allocation	CTA
Phase Status	Pending Close-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

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)

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

216002 CIP#

Plant-wide Fire Alarm Systems Upgrade/ Integration and Fire Protection 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?	
		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
Unknown	FY18-	$503			FY17
Unknown	FY18-	$347			FY16
GLWA Salaries CIP2020	FY18-	$4	1		FY18

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
855								855

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018	5390	624							0	0	6,014
2019	0	850								0	850
2020	0	0	855								855

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

216004 CIP#

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

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

Project Statu Active

CIP Type Project

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

Manager Ali Khraizat

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

Project Significance

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

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.

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.
Lookup Driver	2 - Performance
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.
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.

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

216004 CIP#

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

Project Manager Project Risk Matrix Scoring

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

Project Manager Score

82.2

Review Committee Project Risk Matrix Scoring

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

Review Committee Score

82.2

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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	$55			2020CIP
Engineering Services	FY20	$105			2020CIP
Engineering Services	FY21	$16			2020CIP

Task	Start Date	End Date	Duration
Project Execution	5/27/2017	6/27/2020	1127
Project Closeout	6/28/2020	8/28/2020	61

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	55	105	16					176

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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?	
		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
Engineering Services	FY18-	$123			FY18
Unknown	FY18-	$312			FY17
GLWA Salaries CIP2020	FY18-	$3	1	0	FY18

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
439								439

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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	$487			
Construction	FY20	$3,500			
Construction	FY21	$500			

Task	Start Date	End Date	Duration
Scope Development			
Procurement	6/13/2018	12/10/2018	180
Project Execution	12/11/2018	12/11/2020	731
Project Closeout	12/12/2020	2/10/2021	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	487	3,500	500	0	0	0	0	4,487

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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	$25			2020CIP
Engineering Services	FY20	$65			2020CIP
Engineering Services	FY21	$14			2020CIP

Task	Start Date	End Date	Duration
Project Execution	1/1/2017	6/30/2020	1276
Project Closeout	7/1/2020	9/1/2020	62

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	25	65	14					104

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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 CIP2020	FY19	$15	6		CA Phase
GLWA Salaries CIP2020	FY19	$15	6		C Phase
GLWA Salaries CIP2020	FY20	$150	59		C Phase
GLWA Salaries CIP2020	FY20	$30	12		CA Phase
GLWA Salaries CIP2020	FY21	$45	18		C Phase
GLWA Salaries CIP2020	FY21	$10	4	0	CA Phase

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	42	251	77		0			370

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018			2,500	2,500					0	0	5,000
2019	0	312	40	551	3,957	565				0	5,425

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

216004 CIP#

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2020	0	0	439	609	3,921	607	0	0	0	0	5,576

GLWA FY 2020-2024 CIP

216006 CIP#

Assessment and Rehabilitation of WRRF yard piping and underground utilities

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

Project Statu Future Planned

CIP Type Project

GLWA WRRF

Project Engineer/Manager Ali Khraizat

Manager Ali Khraizat

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

Project Significance 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 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.

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.

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.

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.

Assessment and Rehabilitation of WRRF yard piping and underground utilities

Lookup Driver	1 - Condition
Other Important Info	Reliable utility is a critical aspect of O&M for the facility and to avoid outages.
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).

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

216006 CIP#

Assessment and Rehabilitation of WRRF yard piping and underground utilities

Project Manager Project Risk Matrix Scoring

Criteria	Score	Comment
Condition	5	Asset has exceeded its design service levels
Efficiency and Innovation	4	Right sizing system will have significant operati
Financial	4	Project will likely result in avoidance of emerge
O&M	4	Project will have significant impact on O&M
Performance (Service Level/Reliability)	4	Expected performance failures under normal
Public Benefit	3	Moderate additional savings
Public Health & Safety	4	Likely to address significant hazard issues or co
Regulatory (Environmental/Legal)	4	Regulatory Compliance failure will lead to fine

Project Manager Score

80.8

Review Committee Project Risk Matrix Scoring

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

Review Committee Score

76.4

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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 CIP2020	FY20	$160	63		DB
GLWA Salaries CIP2020	FY21	$250	99		DB
GLWA Salaries CIP2020	FY22	$250	99		DB

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	223	349	349	0	0		921

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

216006 CIP#

Assessment and Rehabilitation of WRRF yard piping and underground utilities

Phase Design and Build **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
Materials	FY23	$4,500			2020CIP
Materials	FY24	$3,500			2020CIP
Materials	FY25+	$7,423			2020CIP
Design-Build	FY20	$100			
Design-Build	FY21	$4,909			
Design-Build	FY22	$3,500			2020CIP

Task	Start Date	End Date	Duration
Scope Development			
Procurement	7/1/2020	2/6/2021	220
Project Execution	2/7/2021	5/16/2026	1924
Project Closeout	5/17/2026	7/16/2026	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	100	4,909	3,500	4,500	3,500	7,423	23,932

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018			1,700	2,000	12,000	15,600	16,279	4,141	0	0	51,720
2019	0				1,718	4,008	7,174	17,530	24,026	0	54,456
2020	0	0		0	323	5,258	3,849	4,500	3,500	7,423	24,853

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

DTE Primary Electric 3rd Feed Supply to WRRF

216007 CIP#

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

Project Statu Future Planned

CIP Type Project

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

Manager Philip Kora

Managing Dept WW Constr 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

Project Significance GLWA's WWTP will have a redundant primary electrical service to power the WRRF equipment.

Scope of Work 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.

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 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.

Lookup Driver 3 - Regulatory

Other Important Info n/a

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

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

DTE Primary Electric 3rd Feed Supply to WRRF

216007 CIP#

Project Manager Project Risk Matrix Scoring

Criteria	Score	Comment
Condition	5	Immediate replacement/rehabilitation require
Efficiency and Innovation	3	Project will have a moderate impact on energ
Financial	5	Project will result in avoidance of fines
O&M	2	Repair of equipment will cost money in case c
Performance (Service Level/Reliability)	5	High Risk of Performance Failures
Public Benefit	5	Additional Savings for GLWA
Public Health & Safety	5	Catastrophic failure w/safety/health/environn
Regulatory (Environmental/Legal)	5	Imminent risk of causing permit violations

Project Manager Score

89.8

Review Committee Project Risk Matrix Scoring

Criteria	Score	Comment
Condition	5	
Efficiency and Innovation	1	
Financial	5	
O&M	2	
Performance (Service Level/Reliability)	5	
Public Benefit	5	
Public Health & Safety	4	
Regulatory (Environmental/Legal)	5	

Review Committee Score

82.8

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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
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 CIP2020	FY19	$40	16	2	
GLWA Salaries CIP2020	FY20	$40	16	2	
GLWA Salaries CIP2020	FY21	$40	16	2	

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	58	58	58	0	0	0	0	174

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

DTE Primary Electric 3rd Feed Supply to WRRF

216007 CIP#

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

Title DTE Primary Electric 3rd Feed Supply to WRRF

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**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**
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
Construction	FY19	$2,000			
Construction	FY20	$1,173			
Construction	FY21	$3,266			

Task	Start Date	End Date	Duration
Scope Development	7/1/2018	12/31/2018	183
Procurement	1/1/2019	4/30/2019	119
Project Execution	5/1/2019	8/31/2020	488
Project Closeout	9/1/2020	12/31/2020	121

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	2,000	1,173	3,266	0	0	0	0	6,439

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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?	
		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
Construction	FY18-	$292			FY18
Engineering Services	FY18-	$25			FY18
Other	FY18-	$251			FY18
Unknown	FY18-	$15			FY17

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
583								583

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

DTE Primary Electric 3rd Feed Supply to WRRF

216007 CIP#

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

Title DTE Primary Electric 3rd Feed Supply to 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	$0

Cost Estimation Information

4	**Cost Est. Class**
9/13/2018	**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	FY19	$50			2020CIP
Engineering Services	FY20	$150			2020CIP
Engineering Services	FY21	$50			2020CIP

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	50	150	50					250

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018			3,500	3,500					0	0	7,000
2019	0	15		2,002	1,326	3,326				0	6,669
2020	0	0	583	2,108	1,381	3,374	0	0	0	0	7,446

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

216008 CIP#

Rehabilitation of Screened Final Effluent (SFE) Pump Station

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

Project Statu New

CIP Type Project

Project Engineer/Manager Ali Khraizat

Manager Ali Khraizat

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 Secondary Treatment & Disinfection

Location City of Detroit

Fund and Cost Center Wastewater - 5421-892211

Project Significance 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 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.

Challenges Maintaining the adequate supply of SFE to the plant treatment processes during construction of the SFE improvements.

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.

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.

Lookup Driver 1 - Condition

Rehabilitation of Screened Final Effluent (SFE) Pump Station

Other Important Info	*Innovation note: optimize of a valuable resource recovered for facility needs.
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 2020-2024 CIP

Rehabilitation of Screened Final Effluent (SFE) Pump Station

216008 CIP#

Project Manager Project Risk Matrix Scoring

Criteria	Score	Comment
Condition	5	Some components are passed their useful life
Efficiency and Innovation	4	Project will have a significant impact on efficie
Financial	4	Exposure to multiple fines for permit violations
O&M	4	Significant O&M is required to keep the SFE in
Performance (Service Level/Reliability)	2	Much of the equipment is out frequently out o
Public Benefit	2	Public will benefit from improved air quality
Public Health & Safety	1	Permit violations would cause both air quality
Regulatory (Environmental/Legal)	2	If the SFE pump station goes down, there is an

Project Manager Score

55.8

Review Committee Project Risk Matrix Scoring

Criteria	Score	Comment
Condition	5	
Efficiency and Innovation	4	
Financial	4	
O&M	4	
Performance (Service Level/Reliability)	2	
Public Benefit	2	
Public Health & Safety	1	
Regulatory (Environmental/Legal)	2	

Review Committee Score

55.8

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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 CIP2020	FY19	$8	3	0	2020CIP
GLWA Salaries CIP2020	FY20	$65	26		2020CIP
GLWA Salaries CIP2020	FY21	$65	26		2020CIP
GLWA Salaries CIP2020	FY22	$125	50		2020CIP
GLWA Salaries CIP2020	FY23	$75	30		2020CIP
GLWA Salaries CIP2020	FY24	$25	10		2020CIP

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	11	91	91	175	105	35		508

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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	$9,000			2020CIP
Construction	FY23	$7,500			2020CIP
Construction	FY24	$5,400			2020CIP

Task	Start Date	End Date	Duration
Procurement	12/11/2020	6/9/2021	180
Project Execution	6/10/2021	10/11/2023	853
Project Closeout	10/12/2023	12/11/2023	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
			0	9,000	7,500	5,400		21,900

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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	FY19	$40			2020CIP
Engineering Services	FY20	$1,000			2020CIP
Engineering Services	FY21	$900			2020CIP
Engineering Services	FY22	$300			2020CIP
Engineering Services	FY23	$200			2020CIP
Engineering Services	FY24	$100			2020CIP

Task	Start Date	End Date	Duration
Scope Development	9/12/2018	12/28/2018	107
Procurement	1/2/2019	8/10/2019	220
Project Execution	8/11/2019	10/11/2023	1522
Project Closeout	10/12/2023	12/11/2023	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	40	1,000	900	300	200	100		2,540

Rehabilitation of Screened Final Effluent (SFE) Pump Station

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2020	0	0		51	1,091	991	9,475	7,805	5,535		24,948

GLWA FY 2020-2024 CIP

222001 CIP#

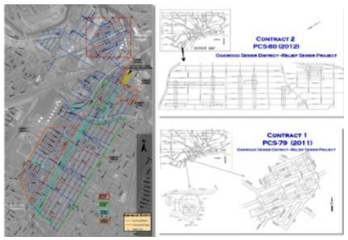
Oakwood District Intercommunity Relief Sewer Modification at Oakwood District

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

Project Statu Future Planned

CIP Type Project

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 Todd King

Manager Todd King

Managing Dept Field Services

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 Interceptors

Location Multiple Counties

Fund and Cost Center Wastewater - 5421-892211

Project Significance 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 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.

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.

Project History 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

Lookup Driver 2 - Performance

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.

Oakwood District Intercommunity Relief Sewer Modification at Oakwood District

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 2020-2024 CIP

222001 CIP#

Oakwood District Intercommunity Relief Sewer Modification at Oakwood District

Project Manager Project Risk Matrix Scoring

Criteria	Score	Comment
Condition	1	
Efficiency and Innovation	3	
Financial	3	
O&M	1	
Performance (Service Level/Reliability)	4	
Public Benefit	4	
Public Health & Safety	3	
Regulatory (Environmental/Legal)	2	

Project Manager Score

51.8

Review Committee Project Risk Matrix Scoring

Criteria	Score	Comment
Condition	1	
Efficiency and Innovation	3	
Financial	3	
O&M	1	
Performance (Service Level/Reliability)	4	
Public Benefit	4	
Public Health & Safety	3	
Regulatory (Environmental/Legal)	2	

Review Committee Score

51.8

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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

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

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Task	Start Date	End Date	Duration
Scope Development			
Procurement			
Project Execution			
Project Closeout			

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	0	0	0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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

	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	$3,800			2020CIP
Construction	FY23	$10,077			2020CIP
Construction	FY24	$10,077			2020CIP
Construction	FY25+	$14,077			2020CIP

Task	Start Date	End Date	Duration
Scope Development	7/1/2021	9/30/2021	91
Procurement	9/30/2021	6/28/2022	271
Project Execution	6/28/2022	6/22/2027	1820
Project Closeout	6/22/2027	8/21/2027	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	3,800	10,077	10,077	14,077	38,031

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

222001 CIP#

Oakwood District Intercommunity Relief Sewer Modification at Oakwood District

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	

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	0	0	0

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018				550	2,750	5,500	2,200		0	0	11,000
2019	0				10	1,372	5,961	10,292	20,365	0	38,000
2020	0	0		0	0	0	3,800	10,077	10,077	14,077	38,031

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

222002 CIP#

Detroit River Interceptor (DRI) Evaluation and Rehabilitation

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

Project Statu Active

CIP Type Project

Visual inspection of a large sewer

Project Engineer/Manager Mini Panicker

Manager 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 Interceptors

Location City of Detroit

Fund and Cost Center Wastewater - 5421-892211

Project Significance 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 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.

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

Lookup Driver 1 - Condition

Other Important Info n/a

Explanation Recent inspections revealed portions with encrustation and deterioration.

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

222002 CIP#

Detroit River Interceptor (DRI) Evaluation and Rehabilitation

Project Manager Project Risk Matrix Scoring

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

Project Manager Score

73.2

Review Committee Project Risk Matrix Scoring

Criteria	Score	Comment
Condition	5	
Efficiency and Innovation	1	
Financial	5	
O&M	1	
Performance (Service Level/Reliability)	4	
Public Benefit	4	
Public Health & Safety	3	
Regulatory (Environmental/Legal)	3	

Review Committee Score

65.4

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

222002 CIP#

Detroit River Interceptor (DRI) Evaluation and Rehabilitation

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	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY19	$2,424			2020CIP

Task	Start Date	End Date	Duration
Scope Development	8/1/2017	8/30/2017	29
Procurement	8/30/2017	10/30/2017	61
Project Execution	11/1/2017	12/30/2018	424
Project Closeout	1/1/2019	2/28/2019	58

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	2,424	0	0	0	0	0	0	2,424

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

222002 CIP#

Detroit River Interceptor (DRI) Evaluation and Rehabilitation

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	

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
Construction	FY18-	$2,635			FY18
Unknown	FY18-	$5			FY17
GLWA Salaries CIP2020	FY18-	$5	2	0	FY18

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
2,647								2,647

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

222002 CIP#

Detroit River Interceptor (DRI) Evaluation and Rehabilitation

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	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Design-Build	FY19	$7,000			
Design-Build	FY20	$10,000			
Design-Build	FY21	$10,000			
Design-Build	FY22	$10,000			

Task	Start Date	End Date	Duration
Scope Development	10/1/2017	12/31/2017	91
Procurement	12/31/2017	5/20/2018	140
Project Execution	5/24/2018	3/25/2023	1766
Project Closeout	3/25/2023	5/24/2023	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	7,000	10,000	10,000	10,000	0	0	0	37,000

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

222002 CIP#

Detroit River Interceptor (DRI) Evaluation and Rehabilitation

Phase To Be Determined **Contract** NA **Status** Future Planned Start

Title For Future Inspection 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	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY23	$1,000			
Construction	FY24	$1,000			
Construction	FY25+	$5,000			

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	1,000	1,000	5,000	7,000

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

222002 CIP#

Detroit River Interceptor (DRI) Evaluation and Rehabilitation

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

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)

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018		321	10,000	5,000	5,000				0	0	20,321
2019	0	5	2,232	1,084	8,052	10,187	10,187	10,187	2,491	0	44,425
2020	0	0	2,647	9,424	10,000	10,000	10,000	1,000	1,000	5,000	49,071

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

222003 CIP#

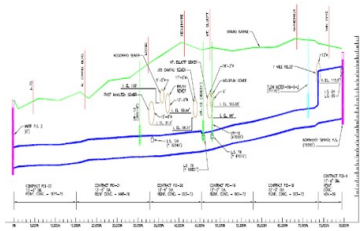
North Interceptor East Arm (NIEA) Evaluation and Rehabilitation

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

Project Statu Future Planned

CIP Type Project

Elevation profile of part of the NIEA



Project Engineer/Manager Todd King

Manager 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 Interceptors

Location Multiple Counties

Fund and Cost Center Wastewater - 5421-892211

Project Significance 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 Provide CCTV and or sonar inspection of the NIEA 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, minimize the inflow and infiltration into the collection system, and to extend the service life.

Challenges NIEA may have flow control challenges for both inspection and rehabilitation.

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.

Related Project PCI-4, PCI-18, PCI-19
CIP 222007 also on NIEA

Lookup Driver 1 - Condition

Other Important Info	*Innovation note: Consider new techniques for assessment.
Explanation	Recent inspections revealed portions with encrustation and deterioration.

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

North Interceptor East Arm (NIEA) Evaluation and Rehabilitation

222003 CIP#

Project Manager Project Risk Matrix Scoring

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

Project Manager Score

73.2

Review Committee Project Risk Matrix Scoring

Criteria	Score	Comment
Condition	5	
Efficiency and Innovation	1	
Financial	5	
O&M	1	
Performance (Service Level/Reliability)	4	
Public Benefit	4	
Public Health & Safety	3	
Regulatory (Environmental/Legal)	3	

Review Committee Score

65.4

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

222003 CIP#

North Interceptor East Arm (NIEA) Evaluation and Rehabilitation

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	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	

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	0	0	0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

222003 CIP#

North Interceptor East Arm (NIEA) Evaluation and Rehabilitation

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

Title North Interceptor East Arm (NIEA) Evaluation and Rehabilitation

Phase Budget	Wastewater	Cost Allocation	OMID
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

	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
Other	FY25+	$23,770			2020CIP

Task	Start Date	End Date	Duration
Scope Development			
Procurement			
Project Execution			
Project Closeout			

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	0	23,770	23,770

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

222003 CIP#

North Interceptor East Arm (NIEA) Evaluation and Rehabilitation

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

Title North Interceptor East Arm (NIEA) Evaluation and Rehabilitation

Phase Budget	Wastewater	Cost Allocation	OMID
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

	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
Other	FY25+	$1,380			2020CIP

Task	Start Date	End Date	Duration
Scope Development			
Procurement			
Project Execution			
Project Closeout			

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	0	1,380	1,380

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

222003 CIP#

North Interceptor East Arm (NIEA) Evaluation and Rehabilitation

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

Title North Interceptor East Arm (NIEA) Evaluation and Rehabilitation

Phase Budget	Wastewater	Cost Allocation	OMID
Phase Status	Future Planned Start	Funding Source	Revenue Financed Capital
Start Date		Fund	Improvement & Extension Fun
End Date		Useful Life >20Yrs?	No
		Tot. Federal Loan Amount	

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
Other	FY25+	$850			2020CIP

Task	Start Date	End Date	Duration
Scope Development			
Procurement			
Project Execution			
Project Closeout			

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	0	850	850

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018			11,000	12,000	3,000				0	0	26,000
2019	0					11,000	12,000	3,000		0	26,000

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

222003 CIP#

North Interceptor East Arm (NIEA) Evaluation and Rehabilitation

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2020	0	0		0	0	0	0	0	0	26,000	26,000

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
Collection System Infrastructure Improvements

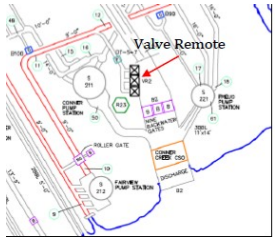
222004 CIP#

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

Project Statu Future Planned

CIP Type Project

Example of a Valve Remote at Conner Pump Station



Project Engineer/Manager Mini Panicker

Manager 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 Interceptors

Location Multiple Counties

Fund and Cost Center Wastewater - 5421-892211

Project Significance 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 wastewater treatment plant and CSO control facilities.

Scope of Work 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.

Challenges These are operational elements, so flow control may be a challenge.

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.

Related Project SCP-SCC-019, PC-695

Lookup Driver 1 - Condition

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

Explanation These structures have reached their life expectancy and some of the operating technology is outdated.

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
Collection System Infrastructure Improvements

222004 CIP#

Project Manager Project Risk Matrix Scoring

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

Project Manager Score

72.6

Review Committee Project Risk Matrix Scoring

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

Review Committee Score

68.2

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
Collection System Infrastructure Improvements

222004 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?	
		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)

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
Collection System Infrastructure Improvements

222004 CIP#

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

Title Collection System Elements Improvements

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	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY20	$1,500			
Construction	FY21	$2,514			2020CIP
Construction	FY22	$6,000			2020CIP
Construction	FY23	$5,000			2020CIP
Construction	FY24	$8,000			2020CIP
Construction	FY25+	$60,000			2020CIP

Task	Start Date	End Date	Duration
Scope Development	1/1/2019	4/30/2019	119
Procurement	5/1/2019	8/1/2019	92
Project Execution	8/1/2019	3/1/2022	943
Project Closeout	3/2/2021	6/30/2022	485

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	1,500	2,514	6,000	5,000	8,000	60,000	83,014

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
Collection System Infrastructure Improvements

222004 CIP#

Phase Design **Contract** NA **Status** Active

Title Collection System Elements Improvements

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date	7/1/2018	**Fund**	Construction Bond Fund
End Date	12/30/2018	**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
Engineering Services	FY19	$500			2020CIP
Engineering Services	FY20	$1,500			2020CIP
Engineering Services	FY21	$1,000			2020CIP

Task	Start Date	End Date	Duration
Scope Development	7/1/2018	9/30/2018	91
Procurement	9/30/2018	1/1/2019	93
Project Execution	1/2/2019	4/30/2021	849
Project Closeout	4/30/2021	6/30/2021	61

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	500	1,500	1,000					3,000

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
Collection System Infrastructure Improvements

222004 CIP#

Phase Study **Contract** NA **Status** Pending Close-out

Title Collection System Elements Improvements

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Pending Close-out	**Funding Source**	Revenue Financed Capital
Start Date	7/1/2018	**Fund**	Improvement & Extension Fun
End Date	12/30/2018	**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
Engineering Services	FY19	$500			2020CIP
Engineering Services	FY20	$500			2020CIP

Task	Start Date	End Date	Duration
Scope Development	7/1/2018	9/30/2018	91
Procurement	9/30/2018	1/1/2019	93
Project Execution	1/2/2019	4/30/2021	849
Project Closeout			

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	500	500	0	0	0	0	0	1,000

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
Collection System Infrastructure 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 CIP2020	FY19	$13	5	1	C Phase

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	19	0	0	0	0	0	0	19

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018			341	1,000	1,422				0	0	2,763
2019	0		341	1,019	1,014					0	2,374
2020	0	0		1,019	3,500	3,514	6,000	5,000	8,000	60,000	87,033

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

Collection System Access Hatch Improvements

222005 CIP#

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

Project Statu Reclassified

CIP Type Project

Project Engineer/Manager Mini Panicker

Manager 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 Interceptors

Location Multiple Counties

Fund and Cost Center Wastewater - 5421-892211

Project Significance Access Hatches are structures in the collection system to provide reliable access to buried equipment and pipe lines. Many are deteriorated and dangerous to operate.

Scope of Work Locate the deteriorating access hatches, evaluate the existing conditions, provide the necessary replacement/ rehabilitation to minimize the inflow into the collection system and underground structures. Access hatches in the collection system are installed under various projects for providing access to underground vaults and equipment.

Challenges NA

Project History Access hatches in the collection system are installed under various projects for providing access to underground vaults and equipment.

Related Project Various

Lookup Driver 1 - Condition

Other Important Info n/a

Explanation These gates have reached their life expectancy and the operating technology is outdated.

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

Collection System Access Hatch Improvements

222005 CIP#

Project Manager Project Risk Matrix Scoring

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

Project Manager Score

65.8

Review Committee Project Risk Matrix Scoring

Criteria	Score	Comment
Condition	5	
Efficiency and Innovation	1	
Financial	1	
O&M	2	
Performance (Service Level/Reliability)	3	
Public Benefit	4	
Public Health & Safety	4	
Regulatory (Environmental/Legal)	2	

Review Committee Score

56.4

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
Collection System Access Hatch Improvements

222005 CIP#

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

Title Collection System Access Hatch Improvements

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
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	

Task	Start Date	End Date	Duration
Scope Development			
Procurement			
Project Execution			
Project Closeout			

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	0	0	0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

Collection System Access Hatch Improvements

222005 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
	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 Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	0	0	0

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018			3,196	2,000	2,001				0	0	7,197
2019	0		341	1,000	1,422					0	2,763
2020	0	0		0	0	0	0	0	0	0	0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

222007 CIP#

NIEA Rehabilitation from WRRF to Gratiot Ave. and Sylvester St.

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

Project Statu Cancelled

CIP Type Project

Example inspection of a large sewer

Project Engineer/Manager Todd King

Manager 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 Interceptors

Location City of Detroit

Fund and Cost Center Wastewater - 5421-892211

Project Significance 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 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.

Challenges NIEA may have flow control challenges for both inspection and rehabilitation.

Project History 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

Related Project CIP 222003 also on NIEA

Lookup Driver 1 - Condition

Other Important Info *Innovation note: Consider new techniques for assessment.

Explanation

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

222007 CIP#

NIEA Rehabilitation from WRRF to Gratiot Ave. and Sylvester St.

Project Manager Project Risk Matrix Scoring

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

Project Manager Score

69.8

Review Committee Project Risk Matrix Scoring

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

Review Committee Score

72.8

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

222007 CIP#

NIEA Rehabilitation from WRRF to Gratiot Ave. and Sylvester St.

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	

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	0	0	0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

222007 CIP#

NIEA Rehabilitation from WRRF to Gratiot Ave. and Sylvester St.

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

Title NIEA Evaluation and Rehabilitation from WRRF to Gratiot Ave. and Sylvester St.

Phase Budget	Wastewater	Cost Allocation	CTA
Phase Status	Future Planned Start	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

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

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Task	Start Date	End Date	Duration
Scope Development	4/28/2020	6/28/2020	61
Procurement	6/28/2020	12/25/2020	180
Project Execution	12/25/2020	6/22/2024	1275
Project Closeout	6/22/2024	8/21/2024	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	0	0	0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

222007 CIP#

NIEA Rehabilitation from WRRF to Gratiot Ave. and Sylvester St.

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

Title NIEA Evaluation and Rehabilitation from WRRF to Gratiot Ave. and Sylvester St.

Phase Budget	Wastewater	Cost Allocation	CTA
Phase Status	Future Planned Start	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

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

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Task	Start Date	End Date	Duration
Scope Development	7/1/2018	9/30/2018	91
Procurement	9/30/2018	6/29/2019	272
Project Execution	6/29/2019	6/22/2024	1820
Project Closeout	6/22/2024	9/20/2024	90

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	0	0	0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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)

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
0								0

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018			7,000	7,000	7,000				0	0	21,000
2019	0			4	760	3,295	5,689	5,689	5,566	0	21,003
2020	0	0	0	0	0	0	0	0	0	0	0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

Fairview Pumping Station - Replace Four Sanitary Pumps

232001 CIP#

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

Project Statu Active

CIP Type Project

Sanitary pumps at Fairview Pumping

Project Engineer/Manager Jorge Nicolas

Manager 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 SCC

Class Lvl 3 Pumping Stations

Location City of Detroit

Fund and Cost Center Wastewater - 5421-892211

Project Significance Replacement and upgrade of pumping equipment's to improve transportation of waste water to the treatment plant

Scope of Work 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.

Challenges N/A - Active

Project History n/a

Related Project Wastewater Master Plan and ongoing discussions between GLWA and MDEQ regarding wet weather operational procedures.

Lookup Driver 1 - Condition

Other Important Info n/a

Explanation N/A - Active

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

Fairview Pumping Station - Replace Four Sanitary Pumps

232001 CIP#

Project Manager Project Risk Matrix Scoring

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

Project Manager Score

72.8

Review Committee Project Risk Matrix Scoring

Criteria	Score	Comment
Condition		
Efficiency and Innovation		
Financial		
O&M		
Performance (Service Level/Reliability)		
Public Benefit		
Public Health & Safety		
Regulatory (Environmental/Legal)		

Review Committee Score

0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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 CIP2020	FY19	$10	4	0	
GLWA Salaries CIP2020	FY20	$10	4	0	
GLWA Salaries CIP2020	FY21	$10	4	0	

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	14	14	14	0	0	0	0	42

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

Fairview Pumping Station - Replace Four Sanitary Pumps

232001 CIP#

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

Title Fairview Pumping Station - Replace Four Sanitary Pumps

Now CS-201

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**
	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	$5,506			
Construction	FY20	$17,506			
Construction	FY21	$4,397			

Task	Start Date	End Date	Duration
Scope Development	4/27/2016	6/1/2018	765
Procurement	6/1/2018	9/1/2018	92
Project Execution	9/1/2018	10/1/2020	761
Project Closeout	10/1/2020	1/1/2021	92

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	5,506	17,506	4,397	0	0	0	0	27,409

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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

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	$480			
Engineering Services	FY20	$480			
Engineering Services	FY21	$480			

Task	Start Date	End Date	Duration
Scope Development	7/22/2015	11/23/2015	124
Procurement	11/23/2015	4/25/2016	154
Project Execution	4/25/2016	10/1/2020	1620
Project Closeout	10/1/2020	12/30/2020	90

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	480	480	480	0	0	0	0	1,440

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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?	
		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
Engineering Services	FY18-	$751			FY18
Unknown	FY18-	$778			FY17
GLWA Salaries CIP2020	FY18-	$16	6		FY18

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
1,551								1,551

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018	128	472	2,100	14,350	15,350				0	0	32,400
2019	0	778	508	12,094	14,414	3,974				0	31,768
2020	0	0	1,551	6,000	18,000	4,891	0	0	0	0	30,442

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

Freud & Conner Creek Pump Station Improvements

232002 CIP#

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

Project Statu Active

CIP Type Project

Freud Pump Station

Project Engineer/Manager Mini Panicker

Manager 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 SCC

Class Lvl 3 Pumping Stations

Location City of Detroit

Fund and Cost Center Wastewater - 5421-892211

Project Significance

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

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.

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
Lookup Driver	2 - Performance
Other Important Info	n/a
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 2020-2024 CIP

Freud & Conner Creek Pump Station Improvements

232002 CIP#

Project Manager Project Risk Matrix Scoring

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

Project Manager Score

75.8

Review Committee Project Risk Matrix Scoring

Criteria	Score	Comment
Condition	4	
Efficiency and Innovation	1	
Financial	5	
O&M	3	
Performance (Service Level/Reliability)	4	
Public Benefit	5	
Public Health & Safety	4	
Regulatory (Environmental/Legal)	5	

Review Committee Score

79.6

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

Freud & Conner Creek Pump Station Improvements

232002 CIP#

Phase Construction **Contract** PO-3785 **Status** Closed Out

Title PO-3785 Freud PS 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

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

Program/Allowance Task Information

Project Manager	Todd King
CIP Number	
Description	

Task	Start Date	End Date	Duration
Project Closeout	9/30/2016	6/30/2017	273

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

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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	

Task	Start Date	End Date	Duration
Project Closeout	9/30/2016	6/30/2017	273

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

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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 CIP2020	FY19	$10	4	0	CS-120
GLWA Salaries CIP2020	FY20	$20	8	1	CS-120
GLWA Salaries CIP2020	FY21	$10	4	0	CS-120
GLWA Salaries CIP2020	FY22	$10	4	0	CS-120
GLWA Salaries CIP2020	FY23	$10	4	0	CS-120
GLWA Salaries CIP2020	FY24	$5	2	0	CS-120
GLWA Salaries CIP2020	FY25+	$5	2	0	CS-120

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	14	29	14	14	14	7	7	99

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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**
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	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY20	$15,000			land acquisition
Construction	FY21	$12,000			2020CIP
Construction	FY22	$49,000			
Construction	FY23	$49,000			
Construction	FY24	$24,500			

Task	Start Date	End Date	Duration
Scope Development	10/1/2018	6/30/2019	272
Procurement	7/1/2019	9/30/2019	91
Project Execution	10/1/2019	6/30/2023	1368
Project Closeout	7/1/2023	12/24/2023	176

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	15,000	12,000	49,000	49,000	24,500	0	149,500

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

Freud & Conner Creek Pump Station Improvements

232002 CIP#

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	

Task	Start Date	End Date	Duration
Project Closeout	9/30/2016	6/30/2017	273

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

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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?	
		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
Construction	FY18-	$2,288			FY18
Engineering Services	FY18-	$709			FY18
Unknown	FY18-	$2,101			FY17
GLWA Salaries CIP2020	FY18-	$9	4	0	2020CIP

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
5,111								5,111

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY19	$1,070			
Engineering Services	FY20	$2,000			2020CIP
Engineering Services	FY21	$1,000			
Engineering Services	FY22	$1,000			
Engineering Services	FY23	$1,000			
Engineering Services	FY24	$500			2020CIP
Engineering Services	FY25+	$250			2020CIP

Task	Start Date	End Date	Duration
Scope Development	9/14/2018	12/18/2018	95
Procurement	12/18/2018	4/19/2019	122
Project Execution	3/27/2017	6/30/2023	2286
Project Closeout	7/1/2023	12/30/2023	182

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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	$900			2020CIP

Task	Start Date	End Date	Duration
Scope Development	11/15/2016	11/30/2016	15
Procurement	9/30/2016	9/30/2016	0
Project Execution	9/30/2016	10/30/2018	760
Project Closeout	11/1/2018	11/30/2018	29

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	900	0	0	0	0	0	0	900

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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	

Task	Start Date	End Date	Duration
Project Closeout	9/30/2016	6/30/2017	273

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

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018		8,040	5,900	5,100	2,460	1,000			0	0	22,500
2019	0	2,101	1,384	1,192		223	1,582	11,000	15,000	0	32,482
2020	0	0	5,111	1,984	17,029	13,014	50,014	50,014	25,007	257	162,430

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
Northeast Pumping Station

232003 CIP#

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

Project Statu Future Planned

CIP Type Project

Pump at the Northeast Pumping Station

Project Engineer/Manager Mini Panicker

Manager 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 SCC

Class Lvl 3 Pumping Stations

Location City of Detroit

Fund and Cost Center Wastewater - 5421-892211

Project Significance 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 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.

Challenges Meeting the collection system transport capacity during the construction

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

Related Project PC-216, PC-672, PC-736

Lookup Driver 1 - Condition

Other Important Info	*Innovation note: Include energy efficiency
Explanation	Some equipment in this station are the original one when the station was built in 1969

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
Northeast Pumping Station

232003 CIP#

Project Manager Project Risk Matrix Scoring

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

Project Manager Score

79.6

Review Committee Project Risk Matrix Scoring

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

Review Committee Score

89

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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	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 Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	0	0	0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

Northeast Pumping Station

232003 CIP#

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

Title Northeast Pumping Station

Phase Budget	Wastewater	**Cost Allocation**	OMID
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**
10/30/2017	**Cost Est. Date**
Engineering	**Cost Est. Source**
Biren Saparia	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Task	Start Date	End Date	Duration
Scope Development			
Procurement			
Project Execution			
Project Closeout			

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	0	0	0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

Northeast Pumping Station

232003 CIP#

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

Title Northeast Pumping Station

Phase Budget	Wastewater	**Cost Allocation**	OMID
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**
10/30/2017	**Cost Est. Date**
Engineering	**Cost Est. Source**
Biren Saparia	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Task	Start Date	End Date	Duration
Scope Development			
Procurement			
Project Execution			
Project Closeout			

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	0	0	0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

Northeast Pumping Station

232003 CIP#

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

Title Northeast Pumping Station

Phase Budget	Wastewater	**Cost Allocation**	OMID
Phase Status	Future Planned Start	**Funding Source**	Revenue Financed Capital
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	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY25+	$26,328			2020CIP

Task	Start Date	End Date	Duration
Scope Development			
Procurement			
Project Execution			
Project Closeout			

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	0	26,328	26,328

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018			2,408	10,920	13,000				0	0	26,328
2019	0					2,408	10,920	13,000		0	26,328

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

Northeast Pumping Station

232003 CIP#

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2020	0	0		0	0	0	0	0	0	26,328	26,328

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

Collection System In System Storage Devices (ISDs) Improvement

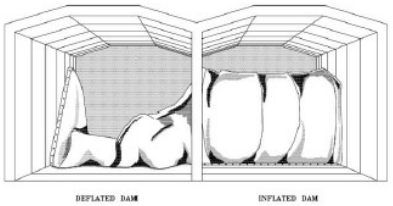
233002 CIP#

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

Project Statu Reclassified

CIP Type Project

Inflatable dam illustration



Project Engineer/Manager Mini Panicker

Manager 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 SCC

Class Lvl 3 In System Devices

Location Multiple Counties

Fund and Cost Center Wastewater - 5421-892211

Project Significance ISDs are operational elements in the collection system that help in storing combined sewage during wet weather events to minimize the frequency and volume of the untreated overflows and to maximize the flows to the wastewater treatment plant and CSO control facilities.

Scope of Work Assess the existing conditions of the ISD elements and their structures and rehabilitate/ replace.

Challenges These are operational elements, so flow control may be a challenge especially during wet weather periods.

Project History 13 ISDs were installed in the GLWA combined sewers in 2003 under PC-747. No major rehabilitation has been done since then.

Related Project PC-747

Lookup Driver 1 - Condition

Other Important Info *Innovation note: May need to increase scope for dynamic control of in-line elements -- see U of M study. Asset Numbers are -WS986810250861, WS986810250862, WS986810250863, WS986810250864, WS986810250865, WS986810250866, WS986810250867, WS986810250868, WS986810250869, WS986810250870, WS986810250871, WS986810250872,WS986810250873

Explanation These gates have reached their life expectancy and the operating technology is outdated.

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

233002 CIP#

Collection System In System Storage Devices (ISDs) Improvement

Project Manager Project Risk Matrix Scoring

Criteria	Score	Comment
Condition	4	
Efficiency and Innovation	3	
Financial	1	
O&M	3	
Performance (Service Level/Reliability)	3	
Public Benefit	2	
Public Health & Safety	2	
Regulatory (Environmental/Legal)	3	

Project Manager Score

53.4

Review Committee Project Risk Matrix Scoring

Criteria	Score	Comment
Condition	4	
Efficiency and Innovation	3	
Financial	1	
O&M	3	
Performance (Service Level/Reliability)	3	
Public Benefit	2	
Public Health & Safety	1	
Regulatory (Environmental/Legal)	3	

Review Committee Score

50

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

233002 CIP#

Collection System In System Storage Devices (ISDs) Improvement

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)

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

233002 CIP#

Collection System In System Storage Devices (ISDs) Improvement

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

Title Collection System In System Storage Devices (ISDs) Improvement

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date	12/15/2018	**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	
CIP Number	
Description	

Task	Start Date	End Date	Duration
Scope Development	7/26/2021	9/26/2021	62
Procurement	9/26/2021	3/25/2022	180
Project Execution	3/25/2022	9/20/2024	910
Project Closeout	9/20/2024	10/20/2024	30

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	0	0	0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

233002 CIP#

Collection System In System Storage Devices (ISDs) Improvement

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

Title Collection System In System Storage Devices (ISDs) Improvement

Phase Budget	Wastewater	Cost Allocation	CTA
Phase Status	Future Planned Start	Funding Source	Bond Proceeds
Start Date	7/1/2018	Fund	Construction Bond Fund
End Date	12/1/2018	Useful Life >20Yrs?	Yes
		Tot. Federal Loan Amount	

Cost Estimation Information

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

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Task	Start Date	End Date	Duration
Scope Development	12/29/2019	3/29/2020	91
Procurement	3/29/2020	12/26/2020	272
Project Execution	12/26/2020	9/20/2024	1364
Project Closeout	9/20/2024	10/20/2024	30

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	0	0	0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

233002 CIP#

Collection System In System Storage Devices (ISDs) Improvement

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

Title Collection System In System Storage Devices (ISDs) Improvement

Phase Budget	Wastewater	Cost Allocation	CTA
Phase Status	Future Planned Start	Funding Source	Revenue Financed Capital
Start Date	1/1/2018	Fund	Improvement & Extension Fun
End Date	5/31/2018	Useful Life >20Yrs?	No
		Tot. Federal Loan Amount	

Cost Estimation Information

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

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Task	Start Date	End Date	Duration
Scope Development	7/1/2018	9/30/2018	91
Procurement	9/30/2018	6/29/2019	272
Project Execution	6/29/2019	12/29/2019	183
Project Closeout	12/29/2019	1/28/2020	30

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	0	0	0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

233002 CIP#

Collection System In System Storage Devices (ISDs) Improvement

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	

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	0	0	0

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018			86	464	2,000	1,000			0	0	3,550
2019	0		86	82	382	2,000	1,000			0	3,550
2020	0	0		0	0	0	0	0	0	0	0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

251002 CIP#

Wastewater System-Wide Instrumentation & Control Software and Hardware Upgrade

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

Project Statu Reclassified

CIP Type Project

Ovation hardware and screens

Project Engineer/Manager Beena Chackunkal

Manager Ali Khraizat

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 General Purpose

Class Lvl 3 General Purpose

Location Multiple Counties

Fund and Cost Center Wastewater - 5421-892211

Project Significance

This Instrumentation & Controls (I&C) system upgrade is for the operating system and miscellaneous ovation hardware upgrades. It is necessary when the old OS is no longer supported by Microsoft. Ovation needs to be upgraded too.

Scope of Work

Upgrade Ovation software and miscellaneous hardware. An evaluation for the upgrade will be conducted. During the evaluation of the upgrade, the study will also consider an evaluation of Ovation's ultimate ability to meet GLWA's future needs.
Replace Obsolete/End of Life Allen Bradley PLC5 control systems at 3 CSO Facilities (Leib, St. Aubin, 7-Mile) and upgrade critical Instrumentation. New Controllers, HMI, network components and controls system integration.
Upgrade Ovation at 4 CSO Site(Connor, Oakwood, Baby Creek and Belle Isle) and Upgrade critical Instrumentation. Implement high performance graphics and advance alarm management and advanced process control.
Upgrade control rooms at WRRF and CSO Sites. New consoles, HVAC, Flooring, security enhancements and lighting.

Challenges

Co-ordinate with Plant and CSO operation for shutdown requests during the software and hardware upgrade.

Project History

GLWA is using an Ovation Control System. Ovation System utilizes Microsoft Windows based operating system. Anytime when Microsoft stops supporting an operating system, Ovation upgrades its software and miscellaneous hardware in order to be compatible with new windows based operating system. GLWA business practice has been not to upgrade ovation immediately and wait few years to upgrade.

Related Project

Last upgrade was completed in 2014.

Lookup Driver

4 - O&M

Other Important Info	*Innovation note: Maximize automation, especially aeration decks -- see University of Michigan phosphorus study.
Explanation	It is necessary when the old OS is no longer supported by Microsoft, Ovation software and miscellaneous hardware needs to be upgraded.

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

251002 CIP#

Wastewater System-Wide Instrumentation & Control Software and Hardware Upgrade

Project Manager Project Risk Matrix Scoring

Criteria	Score	Comment
Condition	4	Process functions require high levels of mainte
Efficiency and Innovation	4	Project will remove significant operational hur
Financial	4	Project will likely result in avoidance of fines
O&M	4	Significant positive impact on O&M
Performance (Service Level/Reliability)	4	Significant positive impact on system reliability
Public Benefit	3	Moderate savings for GLWA
Public Health & Safety	3	Moderate positive impact
Regulatory (Environmental/Legal)	4	Risk of non compliance in near term

Project Manager Score

75

Review Committee Project Risk Matrix Scoring

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

Review Committee Score

70.2

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

251002 CIP#

Wastewater System-Wide Instrumentation & Control Software and Hardware Upgrade

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

Title Wastewater System Wide Instrumentation & Control Software and Hardware Upgrade

Phase Budget	Wastewater	Cost Allocation	CTA
Phase Status	Future Planned Start	Funding Source	Revenue Financed Capital
Start Date	2/1/2018	Fund	Improvement & Extension Fun
End Date	3/6/2022	Useful Life >20Yrs?	No
		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	

Task	Start Date	End Date	Duration
Scope Development			
Procurement	7/1/2019	2/6/2020	220
Project Execution	2/7/2020	10/22/2023	1353
Project Closeout	10/23/2023	12/22/2023	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	0	0	0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

251002 CIP#

Wastewater System-Wide Instrumentation & Control Software and Hardware Upgrade

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

Title Wastewater System Wide Instrumentation & Control Software and Hardware Upgrade

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Revenue Financed Capital
Start Date	4/5/2020	**Fund**	Improvement & Extension Fun
End Date	3/26/2022	**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	

Task	Start Date	End Date	Duration
Scope Development			
Procurement	5/4/2021	10/31/2021	180
Project Execution	11/1/2021	10/22/2023	720
Project Closeout	10/23/2023	12/22/2023	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
		0	0	0	0	0		0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

251002 CIP#

Wastewater System-Wide Instrumentation & Control Software and Hardware Upgrade

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

Title GLWA Salaries

Phase Budget	Wastewater	Cost Allocation	CTA
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

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 Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	0	0	0

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018						3,299	2,563		0	0	5,862
2019	0			877	2,653	7,012	3,506			0	14,048
2020	0	0		0	0	0	0	0	0	0	0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

260100 CIP#

WRRF, Lift Station and Wastewater Collection System Structures Allowance

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

Project Statu Active

CIP Type Allowance

WRRF

Project Engineer/Manager Beena Chackunkal

Manager Ali Khraizat

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

Project Significance Funding required for unplanned, emergency and critical small capital projects in the entire wastewater system

Scope of Work 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.

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.

Lookup Driver N/A - Allowance

Other Important Info

Explanation N/A - Allowance

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

260100 CIP#

WRRF, Lift Station and Wastewater Collection System Structures Allowance

Project Manager Project Risk Matrix Scoring

Criteria	Score	Comment
Condition	4	Process functions require high levels of mainte
Efficiency and Innovation	4	Project will remove significant operational hur
Financial	3	Project will likely result in avoidance of fines
O&M	4	Significant positive impact on O&M
Performance (Service Level/Reliability)	4	Significant positive impact on system reliability
Public Benefit	3	Moderate savings for GLWA
Public Health & Safety	3	Moderate positive impact
Regulatory (Environmental/Legal)	4	Risk of non compliance in near term

Project Manager Score

73

Review Committee Project Risk Matrix Scoring

Criteria	Score	Comment
Condition		
Efficiency and Innovation		
Financial		
O&M		
Performance (Service Level/Reliability)		
Public Benefit		
Public Health & Safety		
Regulatory (Environmental/Legal)		

Review Committee Score

0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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)

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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)

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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
Phase Status	Closed Out
Start Date	
End Date	

Cost Allocation	CTA
Funding Source	Bond Proceeds
Fund	Construction Bond Fund
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)

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

260100 CIP#

WRRF, Lift Station and Wastewater Collection System Structures Allowance

Phase Construction **Contract** SCP-PC-014 **Status** Pending Close-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	Pending Close-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.

Task	Start Date	End Date	Duration
Scope Development			
Procurement			
Project Execution	5/25/2016	12/27/2017	581
Project Closeout	12/27/2017	1/26/2018	30

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	0	0	0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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

Task	Start Date	End Date	Duration
Scope Development			
Procurement			
Project Execution	4/22/2016	4/17/2017	360
Project Closeout	4/17/2017	11/3/2017	200

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

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

260100 CIP#

WRRF, Lift Station and Wastewater Collection System Structures Allowance

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

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	Active	**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	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY19	$100			
Engineering Services	FY20	$100			
Engineering Services	FY21	$100			
Engineering Services	FY22	$100			
Engineering Services	FY23	$100			
Engineering Services	FY24	$100			2020CIP
Engineering Services	FY25+	$500			2020CIP

Task	Start Date	End Date	Duration
Scope Development	10/16/2017	7/3/2018	260
Procurement	7/3/2018	1/29/2019	210
Project Execution	1/30/2019	4/29/2024	1916
Project Closeout	4/29/2024	6/28/2024	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

260100 CIP#

WRRF, Lift Station and Wastewater Collection System Structures Allowance

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

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	Active	**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	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY19	$1,000			
Construction	FY20	$1,000			
Construction	FY21	$1,000			
Construction	FY22	$1,000			
Construction	FY23	$1,000			
Construction	FY24	$1,000			2020CIP
Construction	FY25+	$5,000			2020CIP

Task	Start Date	End Date	Duration
Scope Development	10/16/2017	7/3/2018	260
Procurement	10/3/2018	1/31/2019	120
Project Execution	2/1/2019	5/1/2024	1916
Project Closeout	5/2/2024	6/30/2024	59

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total

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)

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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

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

	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.

Task	Start Date	End Date	Duration
Scope Development			
Procurement			
Project Execution	12/5/2016	7/3/2017	210
Project Closeout	7/3/2017	9/1/2017	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	0	0	0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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?	
		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
Construction	FY18-	$3,091			FY18 Fire Remediation
Construction	FY18-	$900			FY18 SCP-PC-014
Engineering Services	FY18-	$122			FY18 CS-060
Unknown	FY18-	$19,626			Reconciled FY16-17
GLWA Salaries CIP2020	FY18-	$40	16		FY18 SCP-PC-014
GLWA Salaries CIP2020	FY18-	$1			FY18 DWS-065
GLWA Salaries CIP2020	FY18-	$12	5		FY18 CS-060

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
23,813								23,813

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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)

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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)

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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)

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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)

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

260100 CIP#

WRRF, Lift Station and Wastewater Collection System Structures Allowance

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
	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 Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	0	0	0

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018		5,587	12,000	12,000	15,000	15,000	12,000		0	0	71,587
2019	0	14,758	2,195	1,100	1,100	2,200	2,200	2,200		0	25,753
2020	0	0	23,813	1,100	1,100	1,100	1,100	1,100	1,100	5,500	35,913

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

Sewer and Interceptor Rehabilitation Program

260200 CIP#

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

Project Statu Active

CIP Type Program

An example interceptor

Project Engineer/Manager Mini Panicker

Manager 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

Project Significance Rehabilitation and replacement program of the existing sewers and interceptors based upon structural deficiencies identified from the evaluation results. 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 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.

Challenges 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

Lookup Driver 1 - Condition

Other Important Info n/a

Explanation	Some sewers have sediment deposits that results in transportation capacity limitation. Some have deterioration.

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
Sewer and Interceptor Rehabilitation Program

260200 CIP#

Project Manager Project Risk Matrix Scoring

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

Project Manager Score

87.6

Review Committee Project Risk Matrix Scoring

Criteria	Score	Comment
Condition		
Efficiency and Innovation		
Financial		
O&M		
Performance (Service Level/Reliability)		
Public Benefit		
Public Health & Safety		
Regulatory (Environmental/Legal)		

Review Committee Score

0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
Sewer and Interceptor Rehabilitation Program

260200 CIP#

Phase Design & 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	Biren Saparia
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	$1,079			
Engineering Services	FY20	$913			

Task	Start Date	End Date	Duration
Project Execution	9/1/2017	6/1/2020	1004
Project Closeout	6/1/2020	8/31/2020	91

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	1,079	913	0	0	0	0	0	1,992

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
Sewer and Interceptor Rehabilitation Program

260200 CIP#

Phase Construction **Contract** CS-068 **Status** Pending Close-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	Pending Close-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	Biren Saparia
CIP Number	260203
Description	Inspect Interceptors and Trunk Sewers for Possible Sludge Deposits and Structural Integrity.

Task	Start Date	End Date	Duration
Scope Development			
Procurement			
Project Execution	10/25/2016	3/25/2018	516
Project Closeout	10/25/2018	4/24/2018	-184

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	0	0	0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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
Bid	**Cost Est. Source**
Mini Panicker	**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.

Task	Start Date	End Date	Duration
Scope Development			
Procurement			
Project Execution	8/25/2016	6/30/2018	674
Project Closeout	6/30/2018	8/29/2018	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	0	0	0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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?	
		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
Construction	FY18-	$7,822			FY18-CON-149
Construction	FY18-	$1,324			FY18-CS-068
Engineering Services	FY18-	$983			FY18-CON-149
Unknown	FY18-	$3,397			FY17
GLWA Salaries CIP2020	FY18-	$21	8		FY18

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
13,555								13,555

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
Sewer and Interceptor Rehabilitation Program

260200 CIP#

Phase Construction **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	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY20	$6,557			
Construction	FY21	$7,600			
Construction	FY22	$15,000			
Construction	FY23	$15,000			
Construction	FY24	$15,000			
Construction	FY25+	$95,000			2020CIP

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	6,557	7,600	15,000	15,000	15,000	95,000	154,157

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
Sewer and Interceptor Rehabilitation Program

260200 CIP#

Phase Construction **Contract** CON-149 **Status** Active

Title CON-149, Emergency Sewer Repair

Conner PLC upgrades

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	Beena Chackunkal
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY19	$7,400			
Construction	FY20	$7,400			
Construction	FY21	$7,400			2020CIP

Task	Start Date	End Date	Duration
Project Execution	7/14/2017	5/14/2019	669
Project Closeout	5/14/2019	7/13/2019	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	7,400	7,400	7,400	0	0	0	0	22,200

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

Sewer and Interceptor Rehabilitation Program

260200 CIP#

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

Title 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	$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	

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
		0	0					0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
Sewer and Interceptor Rehabilitation Program

260200 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 CIP2020	FY19	$90	36	4	CS-168, CON-149
GLWA Salaries CIP2020	FY20	$90	36	4	CS-168, CON-149

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	130	130	0	0	0	0	0	260

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018		2,612	8,000	8,000	20,000	20,000	20,000		0	0	78,612
2019	0	3,397	7,751	10,601	10,400	11,400	11,400	11,400	11,400	0	77,749
2020	0	0	13,555	8,609	15,000	15,000	15,000	15,000	15,000	95,000	192,164

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

Scheduled Replacement Program of Critical Assets

260300 CIP#

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

Project Statu Active

CIP Type Program

Aerial view of the WRRF

Project Engineer/Manager Beena Chackunkal

Manager Ali Khraizat

Managing Dept WW Design Eng

Date Original Business Case Prepared 8/2/2016

Year Project Added to CIP 2016

Budget Wastewater

Class Lvl 1 Wastewater

Class Lvl 2 Programs

Class Lvl 3 Programs

Location Multiple Counties

Fund and Cost Center Wastewater - 5421-892211

Project Significance This program is to perform the scheduled replacement for critical assets and planned small capital projects (SCP) at WRRF and WW operations

Scope of Work SRP implementation procedures includes replacement for key Equipment and facilities, prepare long- range replacement schedules, yearly budget Estimates, O & M annual costs, Equipment Replacement Criteria and conclusions and recommendations.

Challenges Depending on type of project, long term or short term projects equipment or part of process areas need to shut down.

Project History WRRF and CSOs have being 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 those facilities.

Related Project At present 2 capital projects has been identified to be tapped for CIP#1330 budget: (a) CON-143, Complex-II Incineration Building Roof Replacement construction project due to fire damage, design has been recently completed by NTH under emergency fire restoration.

Lookup Driver 2 - Performance

Other Important Info GIS, Section Maps and Gate Books are available for reference

Explanation To reduce equipment and process down times of critical assets

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
Scheduled Replacement Program of Critical Assets

260300 CIP#

Project Manager Project Risk Matrix Scoring

Criteria	Score	Comment
Condition	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
O&M	4	Significant positive impact on O&M
Performance (Service Level/Reliability)	3	Moderate risk of performance failure
Public Benefit	3	Moderate savings for GLWA
Public Health & Safety	3	Moderate positive impact
Regulatory (Environmental/Legal)	3	Moderate impact on regulatory issues

Project Manager Score

66.4

Review Committee Project Risk Matrix Scoring

Criteria	Score	Comment
Condition		
Efficiency and Innovation		
Financial		
O&M		
Performance (Service Level/Reliability)		
Public Benefit		
Public Health & Safety		
Regulatory (Environmental/Legal)		

Review Committee Score

0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
Scheduled Replacement Program of Critical Assets

260300 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
10/1/2017	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 Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	0	0	0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
Scheduled Replacement Program of Critical Assets

260300 CIP#

Phase Construction **Contract** CON-143 **Status** Pending Close-out

Title CON-143, Roof Replacement of Complex II

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Pending Close-out	**Funding Source**	Bond Proceeds
Start Date	7/24/2017	**Fund**	Construction Bond Fund
End Date	12/14/2017	**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	Ali Khraizat
CIP Number	260301
Description	The scope of work includes but is not limited to the complete removal, disposal and replacement of the existing roofing on the Incinerator Complex II building at the GLWA WRRF.

Task	Start Date	End Date	Duration
Scope Development			
Procurement			
Project Execution	7/24/2017	12/14/2017	143
Project Closeout	12/14/2017	2/12/2018	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	0	0	0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

Scheduled Replacement Program of Critical Assets

260300 CIP#

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

Title UNALLOCATED: Scheduled Replacement Program of Critical Assets

Any new projects that needs Engineering Services

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Revenue Financed Capital
Start Date	7/2/2018	**Fund**	Improvement & Extension Fun
End Date	6/30/2023	**Useful Life >20Yrs?**	No
		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	

Task	Start Date	End Date	Duration
Scope Development			
Procurement			
Project Execution	7/1/2018	6/30/2023	1825
Project Closeout			

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	0	0	0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
Scheduled Replacement Program of Critical Assets

260300 CIP#

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

Title UNALLOCATED: Scheduled Replacement Program of Critical Assets

Any new projects for Construction under this CIP.

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Future Planned Start	**Funding Source**	Bond Proceeds
Start Date	7/2/2018	**Fund**	Construction Bond Fund
End Date	6/30/2023	**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	

Task	Start Date	End Date	Duration
Scope Development			
Procurement			
Project Execution	7/1/2018	6/30/2024	2191
Project Closeout			

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	0	0	0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
Scheduled Replacement Program of Critical Assets

260300 CIP#

Phase Construction **Contract** SCP-CON-127 **Status** Active

Title SCP-CON-127, Lakeshore, Decommissioning of Existing Watermain and Ductwork Rehabilitation at WRRF

Lakeshore

Phase Budget	Wastewater	**Cost Allocation**	CTA
Phase Status	Active	**Funding Source**	Bond Proceeds
Start Date	6/5/2017	**Fund**	Construction Bond Fund
End Date	10/23/2017	**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	Beena Chackunkal
CIP Number	260302
Description	

Task	Start Date	End Date	Duration
Scope Development			
Procurement			
Project Execution	6/5/2017	10/23/2017	140
Project Closeout	10/23/2017	12/22/2017	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	0	0	0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
Scheduled Replacement Program of Critical Assets

260300 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?	
		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
Construction	FY18-	$14			FY18 CON-127 xx
Construction	FY18-	$37			FY18 CON-127
Construction	FY18-	$1,673			FY18 CON-143
Unknown	FY18-	$56			FY17
GLWA Salaries CIP2020	FY18-	$4	1	0	FY18

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
1,785								1,785

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
Scheduled Replacement Program of Critical Assets

260300 CIP#

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

Title Primary Circular & Rectanlar Clarifer Scum Building Improvements

Design was done by GLWA

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

3	**Cost Est. Class**
9/13/2018	**Cost Est. Date**
Eng	**Cost Est. Source**
Ali Khraizat	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Task	Start Date	End Date	Duration
Procurement	12/1/2018	7/14/2019	225
Project Execution	7/15/2019	7/15/2020	366
Project Closeout	7/16/2020	9/14/2020	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
		0	0					0

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018		500	5,000	5,000	5,000	5,000	5,000		0	0	25,500
2019	0	56	2,172			2,200	2,200	2,200	2,200	0	11,028
2020	0	0	1,785	0	0	0	0	0	0	0	1,785

GLWA FY 2020-2024 CIP

260400 CIP#

Sewage Meter Design, Installation, Replacement and Rehabilitation Program

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

Project Statu Reclassified

CIP Type Program

Example of a flow meter

Project Engineer/Manager Chandan Sood

Manager Chandan Sood

Managing Dept Systems Planning

Date Original Business Case Prepared 1/26/2016

Year Project Added to CIP 2014

Budget Wastewater

Class Lvl 1 Wastewater

Class Lvl 2 Programs

Class Lvl 3 Programs

Location Multiple Counties

Fund and Cost Center

Project Significance Improving meter data reliability, ensuring accurate billing, improving customer service and allow high quality analysis of the system

Scope of Work Replace the existing antiquated metering equipment with new metering equipment.

Challenges Requires temporary shutdown of large sewers

Project History The GLWA sewer metering equipment is composed of various types of metering technology, including Magnetic Flow Tube, Partial Flume, Ultrasonic, Venturi, and Sonic Hydro ranger. Most of these meters have surpassed their life expectancy for accurate metering, and need to be replaced with new metering technology.

Related Project n/a

Lookup Driver 2 - Performance

Other Important Info n/a

Explanation Not provided.

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

260400 CIP#

Sewage Meter Design, Installation, Replacement and Rehabilitation Program

Project Manager Project Risk Matrix Scoring

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

Project Manager Score

82.4

Review Committee Project Risk Matrix Scoring

Criteria	Score	Comment
Condition		
Efficiency and Innovation		
Financial		
O&M		
Performance (Service Level/Reliability)		
Public Benefit		
Public Health & Safety		
Regulatory (Environmental/Legal)		

Review Committee Score

0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

260400 CIP#

Sewage Meter Design, Installation, Replacement and Rehabilitation Program

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

Title GLWA Salaries

Phase Budget	Wastewater	Cost Allocation	CTA
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	

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	0	0	0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

260400 CIP#

Sewage Meter Design, Installation, Replacement and Rehabilitation Program

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

Title Unallocated Sewage Meter Design, Installation, Replacement and Rehabilitation Program

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

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	

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	0	0	0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

260400 CIP#

Sewage Meter Design, Installation, Replacement and Rehabilitation Program

Phase Study and Design and Construction Assistance **Contract** CON-179 **Status** Active

Title CON-179 Sewage Meter Design, Installation, Replacement and Rehabilitation Program

Phase Budget	Wastewater	Cost Allocation	CTA
Phase Status	Active	Funding Source	Revenue Financed Capital
Start Date	8/8/2017	Fund	Improvement & Extension Fun
End Date	8/7/2020	Useful Life >20Yrs?	No
		Tot. Federal Loan Amount	

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	

Task	Start Date	End Date	Duration
Scope Development			
Procurement			
Project Execution	8/8/2017	8/7/2020	1095
Project Closeout	8/7/2020	10/6/2020	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	0	0	0

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018		500	500	500	500	500	500		0	0	3,000
2019	0		500	1,700	1,700	1,700	1,000	1,000	1,000	0	8,600
2020	0	0		0	0	0	0	0	0	0	0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
CSO Outfall Rehabilitation

260500 CIP#

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

Project Statu Active

CIP Type Program

Sewer tap piping in B009 outfall (left) and sludge buildup and poor masonry in B007 outfall (right)

Project Engineer/Manager Mini Panicker

Manager 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

Project Significance 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 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.

Challenges Some outfalls are below the river elevation; rehabilitation may be challenging.

Project History The construction of these outfalls are dated back to the early 1900s under various contracts.

Related Project CIP 1357, CS-168

Lookup Driver 2 - Performance

Other Important Info PROJECTS 222006 AND 233001 HAVE BEEN INCORPORATED INTO THIS PROJECT.

Explanation

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
CSO Outfall Rehabilitation

260500 CIP#

Project Manager Project Risk Matrix Scoring

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

Project Manager Score

72.8

Review Committee Project Risk Matrix Scoring

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

Review Committee Score

72.8

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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 CIP2020	FY20	$70	28	4	
GLWA Salaries CIP2020	FY21	$70	28	4	
GLWA Salaries CIP2020	FY22	$70	28	4	
GLWA Salaries CIP2020	FY23	$70	28	4	
GLWA Salaries CIP2020	FY24	$70	28	4	

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	102	102	102	102	102	0	510

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
CSO Outfall Rehabilitation

260500 CIP#

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

Title Collection System Backwater Gates, Regulator Gates Rehabilitation and CSO Access Hatch Improvements

233001 in 2018 CIP. Replacement of CSO outfall back water gate is essential to prevent the river inflow into the collection system. Many are missing and the rest of them have reached their life expectancy. Locate the CSO Outfall back water gates, evaluate the existing conditions, and provide the necessary replacement / rehabilitation to minimize the river flow into the collection system. The installation of these structures are dated back to 1912 under various contracts. All back water gates were replaced in the late seventies and again 6 were replaced in the recent years under PC-698. Existing ones are past their service life. Some outfalls are below the river elevation; installation may be challenging.

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**
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	FY20	$5,000			
Construction	FY21	$7,845			
Construction	FY22	$5,824			
Construction	FY23	$5,000			2020CIP
Construction	FY24	$5,000			2020CIP
Construction	FY25+	$7,102			2020CIP

Task	Start Date	End Date	Duration
Scope Development	1/1/2019	2/28/2019	58
Procurement	3/1/2019	6/30/2019	121
Project Execution	7/1/2019	12/30/2023	1643

Task	Start Date	End Date	Duration
Project Closeout	1/1/2024	6/30/2024	181

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	5,000	7,845	5,824	5,000	5,000	7,102	35,771

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
CSO Outfall Rehabilitation

260500 CIP#

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

Title Unallocated General CSO Outfall Rehabilitation

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	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY20	$10,000			
Construction	FY21	$10,000			
Construction	FY22	$5,000			
Construction	FY23	$10,000			
Construction	FY24	$10,000			
Construction	FY25+	$3,898			2020CIP

Task	Start Date	End Date	Duration
Scope Development	7/1/2018	9/30/2018	91
Procurement	9/30/2018	3/29/2020	546
Project Execution	3/29/2020	3/29/2022	730
Project Closeout	3/29/2022	6/27/2022	90

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	10,000	10,000	5,000	10,000	10,000	3,898	48,898

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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	
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	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2020	FY18-	$6	3		FY18

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
9								9

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
CSO Outfall Rehabilitation

260500 CIP#

Phase Construction **Contract** CON-260 **Status** Active

Title Rehabilitation of CSO Outfall Phase 1

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
Bid	Cost Est. Source
Mini Panicker	Cost Est. Prepared By

Program/Allowance Task Information

Project Manager	
CIP Number	
Description	

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY19	$4,000			2020CIP

Task	Start Date	End Date	Duration
Project Execution	8/1/2018	2/1/2019	184
Project Closeout	2/2/2019	2/26/2019	24

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	4,000							4,000

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018			6,000	6,000	6,000	6,000	6,000	6,000	0	0	36,000
2019	0			507	3,826	10,001	10,001	10,001	10,001	0	44,337
2020	0	0	9	4,000	15,102	17,947	10,926	15,102	15,102	11,000	89,188

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

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

Project Statu Active

CIP Type Program

Retrofitted chemical feed pump replacement at Puritan-Fenkell RTB and makeshift wooden stairs to enter Basin Valve Gallery

Project Engineer/Manager Chris Nastally

Manager 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

Project Significance

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

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: Needs Assessment, Condition Assessment, and update to the 2013 Scheduled Replacement Plan (SRP); 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.

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.

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.

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.
Lookup Driver	Varies
Other Important Info	(Replaces CIP1313).
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.

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

Project Manager Project Risk Matrix Scoring

Criteria	Score	Comment
Condition	4	Asset has <25% of its design service life remain
Efficiency and Innovation	4	Process efficiency for a more robust system
Financial	4	Project will likely result in avoidance of fines
O&M	4	Significant Positive impact on O&M
Performance (Service Level/Reliability)	4	Expected performance failures under normal
Public Benefit	3	Likely to impact quality of life & aesthetics
Public Health & Safety	4	Significant positive impact on staff/public
Regulatory (Environmental/Legal)	5	Imminent risk of causing permit violations

Project Manager Score

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Review Committee Project Risk Matrix Scoring

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

Review Committee Score

90.6

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

Phase Construction **Contract** 1802791 **Status** Future Planned Start

Title 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	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

1	**Cost Est. Class**
6/28/2018	**Cost Est. Date**
Funds Request Form	**Cost Est. Source**
NTH/GLWA	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Chris Nastally
CIP Number	260606
Description	Puritan Fenkell Roof Replacement

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY19	$300			From TBD Unallocated Amount

Task	Start Date	End Date	Duration
Scope Development			
Procurement	9/7/2018	3/1/2019	175
Project Execution	3/1/2019	6/30/2019	121
Project Closeout	7/1/2019	10/1/2019	92

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	300							300

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

Phase Design and Build **Contract** DB-261 **Status** Active

Title 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		**Fund**	Construction Bond Fund
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

1	**Cost Est. Class**
5/4/2018	**Cost Est. Date**
Construction Bid	**Cost Est. Source**
Johnson Controls Inc.	**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	$980			from the TBD Unallocated Amo

Task	Start Date	End Date	Duration
Scope Development	11/2/2017	3/8/2018	126
Procurement	3/8/2018	5/4/2018	57
Project Execution	5/9/2018	6/30/2019	417
Project Closeout	7/1/2019	12/31/2019	183

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

Phase Construction **Contract** CON-219 **Status** Active

Title 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	Active	**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 Bid	**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	$600			funded by I.E. and Capital Bon

Task	Start Date	End Date	Duration
Scope Development			
Procurement	9/18/2017	1/29/2018	133
Project Execution	2/1/2018	3/31/2019	423
Project Closeout	4/1/2019	7/1/2019	91

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	600							600

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

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

Title 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	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**
9/14/2018	**Cost Est. Date**
Engineers Estimate	**Cost Est. Source**
Arcadis	**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	$250			2020CIP
Construction	FY20	$450			2020CIP

Task	Start Date	End Date	Duration
Scope Development	5/4/2018	9/28/2018	147
Procurement	9/28/2018	2/1/2019	126
Project Execution	2/1/2019	12/31/2019	333
Project Closeout	1/2/2020	4/1/2020	90

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	250	450						700

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

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

Title 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 CIP2020	FY19	$100	40	5	CON-234
GLWA Salaries CIP2020	FY19	$9	4	0	CS-116
GLWA Salaries CIP2020	FY19	$40	16	2	
GLWA Salaries CIP2020	FY20	$100	40	5	CON-234
GLWA Salaries CIP2020	FY20	$4	2	0	CS-116
GLWA Salaries CIP2020	FY20	$50	20	2	
GLWA Salaries CIP2020	FY21	$175	69	9	
GLWA Salaries CIP2020	FY22	$225	89	11	
GLWA Salaries CIP2020	FY23	$225	89	11	
GLWA Salaries CIP2020	FY24	$250	99	12	
GLWA Salaries CIP2020	FY25+	$250	99	12	2020CIP

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	216	223	253	325	325	361	361	2,064

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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?	
		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
Construction	FY18-	$43			FY18 Baby Creek
Engineering Services	FY18-	$192			FY18 CSO Facilities
Engineering Services	FY18-	$243			FY18 Conner Creek
GLWA Salaries CIP2020	FY18-	$2	1		FY18

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
481								481

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

Phase Design and Build **Contract** NA **Status** Future Planned Start

Title TBD - S/D/CA/C

This phase includes the following projects with preliminary scope identified: completion of a Needs Assessment, Condition Assessment, and Upate of the Scheduled Replacement Plan; Structural Condition Assessment Design/Build, CSO Fire Alarm System Replacements, Flushing Improvements at Baby Creek, and lastly, construction dollars identifed in FY 23 & beyond which focus at carrying out projects identified, and later designed, from the Needs Assessment/Condition Assessment and SRP Update project at the very beginning of this phase.

Phase Budget	Wastewater	**Cost Allocation**	CSO 83/17
Phase Status	Future Planned Start	**Funding Source**	Revenue Financed Capital
Start Date	12/8/2018	**Fund**	Improvement & Extension Fun
End Date	1/14/2024	**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	

Cost Estimation Information

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

Program/Allowance Task Information

Project Manager	N/A
CIP Number	
Description	Unallocated CIP Funds - for the CSO CIP Program. Since a bonafied CIP for the CSO Facilities does not exist, this money is TBD for projects in the near term which are not planned for. As CS-299 winds down and a bonafied CIP plan exists, this TBD allowance in anticipated to decrease substantially.

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Design-Build	FY20	$650			Moved to Facilities Assessment
Design-Build	FY21	$500			Shifted to Assessment Project, le
Design-Build	FY21	$1,500			Moved to Structural DB Project,
Design-Build	FY22	$1,000			Anticipate develop of RFPs fro
Design-Build	FY22	$2,500			Shifted to Structural DB Project,
Design-Build	FY23	$1,500			Larger RFPs from Facilities Assess
Design-Build	FY23	$5,000			Design work will yield constructi

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Design-Build	FY24	$1,500			More Design Work / RFPs
Design-Build	FY24	$8,000			Design Work will yiel large const
Design-Build	FY25+	$11,139			Budgetary number- Const
Design-Build	FY25+	$1,500			Budgetary number - Eng

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	650	2,000	3,500	6,500	9,500	12,639	34,789

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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

	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.

Task	Start Date	End Date	Duration
Scope Development			
Procurement			
Project Execution	2/28/2017	11/30/2017	275
Project Closeout	11/30/2017	1/29/2018	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	0	0	0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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

	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

Task	Start Date	End Date	Duration
Scope Development			
Procurement			
Project Execution	3/21/2017	12/31/2017	285
Project Closeout	12/31/2017	3/1/2018	60

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	0	0	0	0	0	0	0	0

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 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

	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.

Task	Start Date	End Date	Duration
Scope Development			
Procurement			
Project Execution			
Project Closeout			

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

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

Phase Design & Construction Assistance **Contract** CS-172 **Status** Active

Title 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 Budget	**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	$50			2020CIP
Engineering Services	FY20	$5			2020CIP

Task	Start Date	End Date	Duration
Scope Development			
Procurement			
Project Execution	7/1/2017	12/12/2019	894
Project Closeout	12/12/2019	2/12/2020	62

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	50	5	0	0	0	0	0	55

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

Phase Design & Construction Assistance **Contract** CS-116 **Status** Active

Title CS-116 - Rehabilitation of Conner Creek CSO RTB Effluent Launder Gates & Emergency Relief Gates

CS-116 - Design phase, moving to 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	9/23/2019	**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

1	**Cost Est. Class**
	Cost Est. Date
HRC - Costs	**Cost Est. Source**
HRC	**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	$90			
Engineering Services	FY20	$43			

Task	Start Date	End Date	Duration
Scope Development			
Procurement			
Project Execution	2/27/2017	12/12/2019	1018
Project Closeout	12/12/2019	2/12/2020	62

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	90	43	0	0	0	0	0	133

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

Phase Construction **Contract** CON-234 **Status** Active

Title 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**
	Cost Est. Date
Construction Bid	**Cost Est. Source**
Weiss	**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	$5,283			Revised by contractors estimat
Construction	FY20	$775			Revised by contractors estimat

Task	Start Date	End Date	Duration
Scope Development			
Project Execution	6/12/2018	12/12/2019	548
Project Closeout	12/12/2019	2/12/2020	62

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	5,283	775	0	0	0	0	0	6,058

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

Phase Construction **Contract** TBD **Status** New

Title 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	**Cost Allocation**	CSO 83/17
Phase Status	New	**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**
9/18/2018	**Cost Est. Date**
Estimated	**Cost Est. Source**
CSO Manager	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Gary Stoll
CIP Number	TBD
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.

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

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260600 CIP#

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY20	$400			estimated costs

Task	Start Date	End Date	Duration
Scope Development	12/1/2018	4/1/2019	121
Procurement	4/15/2019	9/15/2019	153
Project Execution	9/15/2019	6/30/2020	289
Project Closeout	7/1/2020	10/1/2020	92

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
		400						400

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

Phase Study **Contract** CS-299 **Status** Under Procurement

Title CSO Facilities Conditions Assessment

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	Under Procurement	**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.

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY20	$2,250			assume 50% spent this FY
Engineering Services	FY21	$2,250			assume 50% spent this FY

Task	Start Date	End Date	Duration
Scope Development	2/15/2018	7/2/2018	137
Procurement	8/21/2018	6/30/2019	313
Project Execution	7/1/2019	6/30/2021	730
Project Closeout	7/1/2021	10/1/2021	92

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
		2,250	2,250					4,500

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

Phase Construction **Contract** TBD **Status** New

Title Baby Creek SDF - MAU 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	New	**Funding Source**	Revenue Financed Capital
Start Date		**Fund**	I&E/Bond
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

5	**Cost Est. Class**
9/18/2018	**Cost Est. Date**
Estimated	**Cost Est. Source**
CSO Manager	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Chris Nastally
CIP Number	TBD
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	FY19	$150			estimated costs

Task	Start Date	End Date	Duration
Scope Development	8/6/2018	2/2/2019	180
Procurement	2/15/2019	5/1/2019	75
Project Execution	5/1/2019	6/30/2019	60
Project Closeout	7/1/2019	9/1/2019	62

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	150							150

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

Phase Design and Build **Contract** TBD **Status** New

Title 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	New	**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	TBD
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.

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Design-Build	FY22	$2,000			Estimated
Design-Build	FY23	$3,500			Estimated
Design-Build	FY24	$3,500			Estimated
Design-Build	FY25+	$2,000			Estimated

Task	Start Date	End Date	Duration
Procurement	11/1/2018	6/30/2019	241
Project Execution	7/1/2021	7/1/2025	1461
Project Closeout	7/1/2025	12/31/2025	183

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
				2,000	3,500	3,500	2,000	11,000

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GLWA FY 2020-2024 CIP
CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

Phase Construction **Contract** TBD **Status** New

Title 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. This project is in concept phase to develop scope for design.

Phase Budget	Wastewater	**Cost Allocation**	CSO 83/17
Phase Status	New	**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**
9/18/2018	**Cost Est. Date**
Estimated	**Cost Est. Source**
CSO Manager	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Chris Nastally
CIP Number	TBD
Description	This project expands on the MAU replacement project by addressing system controls throughout the facility, ventilation issues, and odor control issues. This project is in concept phase to develop scope for design.

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY20	$250			estimated value
Construction	FY21	$50			estimated based on even distri

Task	Start Date	End Date	Duration
Scope Development	12/3/2018	4/15/2019	133
Procurement	5/1/2019	10/21/2019	173
Project Execution	11/1/2019	8/31/2020	304
Project Closeout	8/31/2020	11/30/2020	91

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
		250	50					300

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

Phase Construction **Contract** CON-254 **Status** Active

Title Oakwood Drain Valve Improvement

Project is to replace a series of failed equipment in drain vaults located adjacent to the Oakwood RTB. This equipment has failed causing

Phase Budget	Wastewater	**Cost Allocation**	CSO 83/17
Phase Status	Active	**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**
6/18/2018	**Cost Est. Date**
Contractor Bid	**Cost Est. Source**
Weiss Construction	**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

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY19	$523			Based on Contractors resource l
Construction	FY20	$33			Based on Contractors resource l

Task	Start Date	End Date	Duration
Procurement	3/1/2018	6/18/2018	109
Project Execution	6/18/2018	12/11/2019	541
Project Closeout	12/11/2019	3/11/2020	91

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
	523	33						556

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

Phase Construction **Contract** TBD **Status** New

Title 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	New	**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**
9/18/2018	**Cost Est. Date**
NTH / CSO Manager	**Cost Est. Source**
CSO manager	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Chris Nastally
CIP Number	TBD
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. Project is in the design phase.

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY20	$300			Estimate based on PF Roof Repl

Task	Start Date	End Date	Duration
Scope Development	11/1/2018	1/1/2019	61
Procurement	1/15/2019	7/15/2019	181
Project Execution	7/15/2019	12/31/2019	169
Project Closeout	1/1/2020	4/1/2020	91

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
		300						300

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP
CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

Phase Construction **Contract** TBD **Status** New

Title 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. This project will identify issues, and repair/replace equipment necessary to return the system to normal operation.

Phase Budget	Wastewater	**Cost Allocation**	CSO 83/17
Phase Status	New	**Funding Source**	Bond Proceeds
Start Date		**Fund**	I&E/Bond
End Date		**Useful Life >20Yrs?**	No
		Tot. Federal Loan Amount	$0

Cost Estimation Information

5	**Cost Est. Class**
9/18/2018	**Cost Est. Date**
N/A	**Cost Est. Source**
CSO Manager estimated	**Cost Est. Prepared By**

Program/Allowance Task Information

Project Manager	Kashmira Patel
CIP Number	TBD
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. This project will identify issues, and repair/replace equipment necessary to return the system to normal operation.

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY20	$225			budget is estimated, project de

Task	Start Date	End Date	Duration
Scope Development	9/12/2018	1/18/2019	128
Procurement	1/31/2019	8/1/2019	182
Project Execution	8/1/2019	6/30/2020	334
Project Closeout	7/1/2020	10/1/2020	92

GLWA Great Lakes Water Authority

GLWA FY 2020-2024 CIP

CSO FACILITIES IMPROVEMENT PROGRAM

260600 CIP#

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

Prior Yr Actuals	FY19	FY20	FY21	FY22	FY23	FY24	FY25+	Total
		225						225

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

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018		3,428	2,247	6,400	9,000	7,200	3,610		0	0	31,885
2019	0	764	1,658	9,277	6,218	2,351	4,351	9,351	11,251	0	45,221
2020	0	0	481	8,442	5,604	4,553	5,825	10,325	13,361	15,000	63,591