



Lake Huron Water Treatment, Filter Instrumentation and Raw Water Flow Metering Improvements  
Photo by Erik Kramp

Lowering the Control Gate into Grand Connection Tunnel  
Photo by Mini Panicker

**CIP**  
CAPITAL IMPROVEMENT PLAN  
**2023 - 2027**



# GLWA's FY 2023 – 2027 Capital Improvement Plan

*Capital Planning Committee Meeting  
December 14, 2021  
10:00 a.m. – 12:00 p.m.*



# Agenda

- **Questions & Answers from CIP Draft 1 Discussion**
- **Major CIP Changes Since Draft 1 Discussion**
- **Recap and Next Steps**

# Summary

- Draft 1 Released
  - To GLWA CIP Committee Meeting on 10/19/2021
  - To Member Partners at Charges Roll-Out Meeting #1 on 11/09/2021
- Comments and Questions
  - Due on 11/19/2021
  - 5 Specific Questions & Comments
  - Feedback has been positive; the CIP has been well received
- Draft No. 2 Released the week of 12/06/2021

# Q&A



Lake Huron Water Treatment, Filter Instrumentation and Raw Water Flow Metering Improvements  
Photo by Erik Kramp

Lowering the Control Gate into Grand Connection Tunnel  
Photo by Mini Panicker

**CIP**  
CAPITAL IMPROVEMENT PLAN  
**2023 - 2027**

# Questions & Answers From CIP Discussion Draft No. 1

No.	From	Date	Question/Comment	Question & Comment Type	Response
1	Jeff McKeen, General Manager at SOCRRRA/SOCWA	11/18	<p>The overall level of CIP spending on the water system is way too high. The projected level of spending results in a significant increase in the level of new debt that will be required over the planning period which in turn greatly increases the amount of debt service expense that will be required over the planning period. Annual debt service expense is projected to increase from \$135.1 million in 2022 to \$233.9 million in 2032, a 73% increase. This increase will require significant annual increases in GLWA water charges. I thought that the long term direction of GLWA was to decrease the amount of debt for the water system. This CIP plan results in a very large increase in water system debt. If that long term direction has changed, that should be thoroughly discussed with GLWA's water customers. Very large reductions in the level of capital spending will be required to stabilize or reduce the water system debt. The project priority scores contained in the CIP should be an effective tool for guiding capital expenditures toward the most important projects and reduce the overall level of capital spending. The pace of project spending for ongoing projects should also be reviewed in order to slow the pace of capital spending.</p>	CIP Information	<p>These are valid points, GLWA has the same goals and understands that there is still work to be done to achieve these goals. GLWA acknowledges the need to continuously refine and analyze the CIP plan to balance the need with financial planning. We strive to meet a balanced CIP that focuses on addressing the operational needs while optimizing the system debt. The system must meet stakeholder's expectations and meet regulatory requirements while maintaining health and safety measures. Therefore, it is extremely important to note that this is a work in progress that may require several CIP cycles to achieve. As we improve our CIP process, we plan to focus on implementing a robust analysis to evaluate the projects priority within the CIP based on scoring perspective that considers risk and operational needs as well as affordability concerns. In light of the above, as we move forward on our path to improve the CIP, we appreciate and value your engagement.</p>

# Questions & Answers From CIP Discussion Draft No. 1

No.	From	Date	Question/Comment	Question & Comment Type	Response
2	Jeff McKeen, General Manager at SOCRRRA/SOCWA	11/18	If we are still planning to stop water treatment at the Northeast plant, why are we spending money on flocculation improvements at Northeast? Since the volume of water being sold by the GLWA system has declined so much, can we eliminate this spending at Northeast by producing less water at Northeast?	CIP Information	The existing flocculators are original to the plant and are beyond repair. Flocculation has an essential role in water treatment in mixing the chemical with the water to create a settleable particle mass. The settling of that solid matter makes disinfection effective. Without adequate flocculation suspended solids don't settle and instead are loaded onto the downstream filters. This additional load on the filters reduces filter runtime, and ultimately the efficiency and effectiveness of filtration. The additional loading increases the risk of microscopic particles breaking through the filters. That increases the risk of harboring pathogens some of which are resistant to chlorine disinfection. That means increasing vulnerability in our water quality safeguards which is not acceptable when looking at our overall objective of ensuring water of unquestionable quality. The Michigan Department of Environment, Great Lakes, and Energy (EGLE) noted in its 2021 sanitary survey of the Northeast WTP that the lack of flocculation at the plant represents a non-compliance with Act 399 requirements. EGLE stated in the 2021 sanitary survey for the Northeast ERP that it will consider this non-compliance outstanding until new flocculators are installed and placed into service. We understand your point in relation to possibly reducing this project's scope by minimizing the production capacity of the Northeast Plant. GLWA pledges to activate a special work group led by members of the CIP delivery team to evaluate projects that are proposed within the Northeast Water Treatment Plant. The work group will explore opportunities, if any, to refine project scope, budget, and schedule. The work group will seek input and report findings to member partners during the CIP workgroup outreach events.

# Questions & Answers From CIP Discussion Draft No. 1

No.	From	Date	Question/Comment	Question & Comment Type	Response
3	Jeff McKeen, General Manager at SOCRRA/SOCWA	11/18	There are at least 3 projects for transmission valve inspection and replacement (170500, 170503 and 170504). Are these independent projects or is there some overlap between the 3 projects?	CIP Information	The three CIP#s do overlap. CIP # 170500 is a program while CIP# 170503 and 170504 are projects under that program. This means budgets are allocated from the program to projects under it. The CIP# 170503 and CIP# 170504 are two contracts that are executed with two contractors for the same scope. These contracts are in place to provide redundancy in resource allocation.
4	Jeff McKeen, General Manager at SOCRRA/SOCWA	11/18	There are also 2 raw water intake projects (107109 and 116102). Is there some overlap between these 2 projects?	CIP Information	Both contracts are for the same raw water intake project, however CIP # 170109 is the inspection services on the raw water tunnel and CIP# 116002 is the actual repair of the raw water tunnel. CIP # 170109 also provides technical support for CIP# 116002.
5	Kelly Karll, PE., Manager, Environment & Infrastructure at SEMCOG	11/30	We see this planning process as way for both of our agencies ( SEMCOG and GLWA) to collaborate on identifying strategic opportunities for projects in similar areas. We believe how GLWA seeks to coordinate their approach and how SEMCOG coordinates the FAC approach could serve as the regional model that could pave the way for quantifiable, multi-agency cost savings and set the standard for the process and most relevant considerations for successful collaborative planning. We would be happy to set up a conversation between our agencies to talk through	CIP Information	The CIP team welcomes collaboration where possible for integrated CIP management with local partners. Such collaboration is extremely rewarding to all parties involved. It will be challenging to align schedules and funding cycles for all opportunities, but some could fall in place well to allow for successful integration of the collaboration effort. The CIP team will share the GIS maps and Linear assets section with SEMCOG and looks forward to future dialogue session on collaboration. A meeting with SEMCOG is set for December 15, 2021.

# CIP Changes Since Discussion Draft 1



Lake Huron Water Treatment, Filter Instrumentation  
and Raw Water Flow Metering Improvements  
Photo by Erik Kramp

Lowering the Control Gate into Grand Connection Tunnel  
Photo by Mini Panicker

**CIP**  
CAPITAL IMPROVEMENT PLAN  
**2023 - 2027**



## 2023- 2027 CIP Discussion Draft 2 – Modifications Made

### Increases/Decreases

- Water 5-year and 10-year total decreased based on the CIP 170503 and 170504 budget split between CIP & O&M

### Administrative Changes

- 14 Project Phases were updated to reflect current status
- 15 CIP Type was changed from Program to Project
- 13 Additional Projects were identified as Flood Control
- 10 Project Manager project scores were completed
- 6 Program scores were removed as Programs are not scored
- 2 New Programs were created: 383300 Masonry Replacement and Rehabilitation Program and 261000 WRRF Rehabilitation of the Secondary Clarifiers
- 3 Additional Projects were reclassified
- 27 Projects were added to the Linear Assets Outside of Facilities Table
- Modified BCEs Funding source information until future consultation by member partners and GLWA
- Updated Project Useful Life >20 years or <20 years

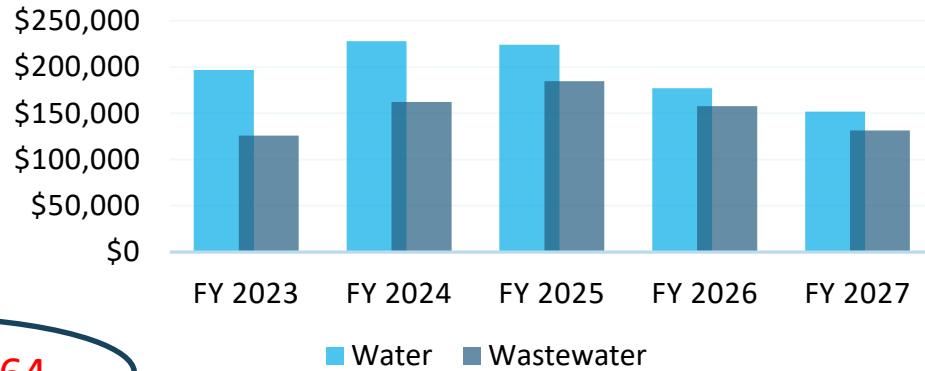
# 2023- 2027 CIP Discussion Draft 2 – Modifications Made

## Items Added/Completed

- GIS City of Detroit and County Map
- Updated Integrated Master Schedule
- Chapter 4 – Finance
- Appendices:
  - D - System Background Information
  - E - Validation Report
  - F - Scoring Equation Technical Memorandum
- Acknowledgement Page

# CIP SUMMARY

## 5-Year Outlook



WATER		WASTEWATER	
5-Year Total	\$965,648	5-Year Total	\$761,764
5-Year Average	\$193,130	5-Year Average	\$152,353
10-Year Total	\$1,881,683	10-Year Total	\$1,381,808
10-Year Average	\$188,168	10-Year Average	\$138,181

Financial figures in \$1,000s and rounded

Was 36

38  
New  
Projects  
\*

Was 181

182  
Projects\*

Was 14

20  
Closed  
Projects

NOTE: 18 NEW PROJECTS FROM PROGRAM

IN ADDITION TO THE 181 PROJECTS, THERE ARE:  
+7 RECLASSIFIED PROJECTS  
+1 CANCELLED PROJECT

Was \$977,264

Was \$1,893,299

Was \$1.74B

5-Year  
Total  
\$1.73  
Billion

5-Year  
Annual  
Average  
\$345 Million

10-Year  
Total  
\$3.26 Billion

10-Year Annual Average  
\$326 Million

Was \$3.28B

# CIP Changes Since Discussion Draft 1

2023-2027 CIP	5-Year CIP (\$1,000s)		10-Year CIP (\$1,000s)	
	Water	Sewer	Water	Sewer
Discussion Draft No. 1	977,264	761,764	1,893,299	1,381,808
Discussion Draft No. 2	965,648	761,764	1,881,683	1,381,808
Dollar Change	(11,616)	0	(11,616)	0
% Change	-1%	0%	-1%	0%

-\$4,204,567 – Transm. Sys. Valve Repl. 170503  
 -\$7,411,515 – Transm. Mains Valves & Urgent 170504  
 -\$11,616,082 – Total



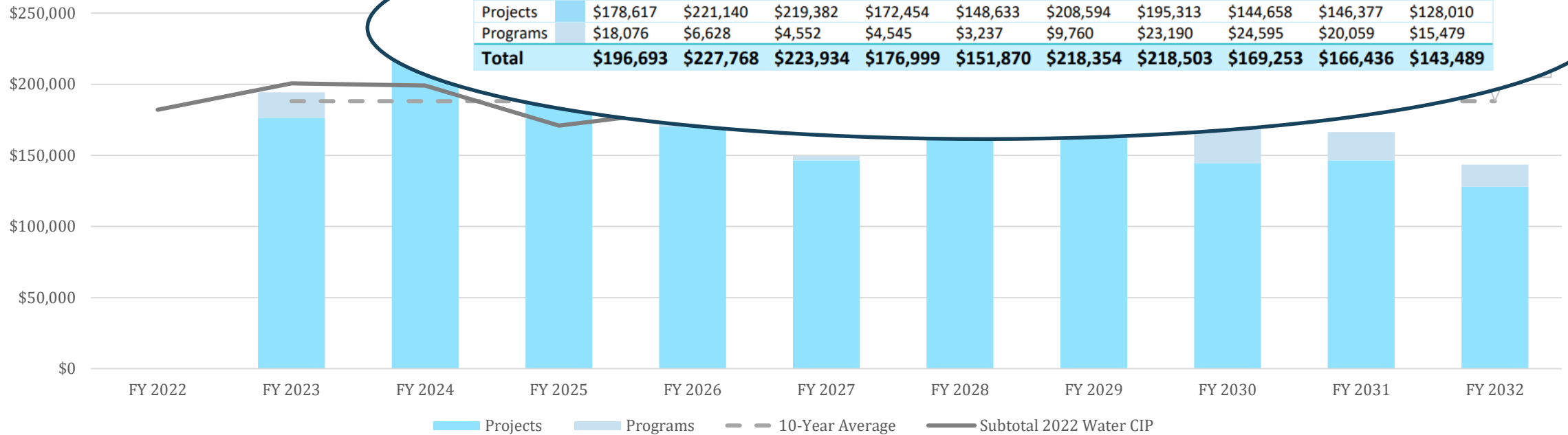


# FY2023-2032 DRAFT 10-YEAR WATER CIP OUTLOOK ( 1 of 2)

	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032
Projects	\$176,463	\$218,980	\$217,229	\$170,301	\$146,474	\$208,594	\$195,313	\$144,658	\$146,377	\$128,010
Programs	\$17,912	\$6,456	\$4,387	\$4,380	\$3,065	\$9,760	\$23,190	\$24,595	\$20,059	\$15,479
<b>Total</b>	<b>\$194,376</b>	<b>\$225,436</b>	<del><b>\$221,616</b></del>	<b>\$174,681</b>	<b>\$149,539</b>	<b>\$218,354</b>	<b>\$218,503</b>	<b>\$169,253</b>	<b>\$166,436</b>	<b>\$143,489</b>

Was:

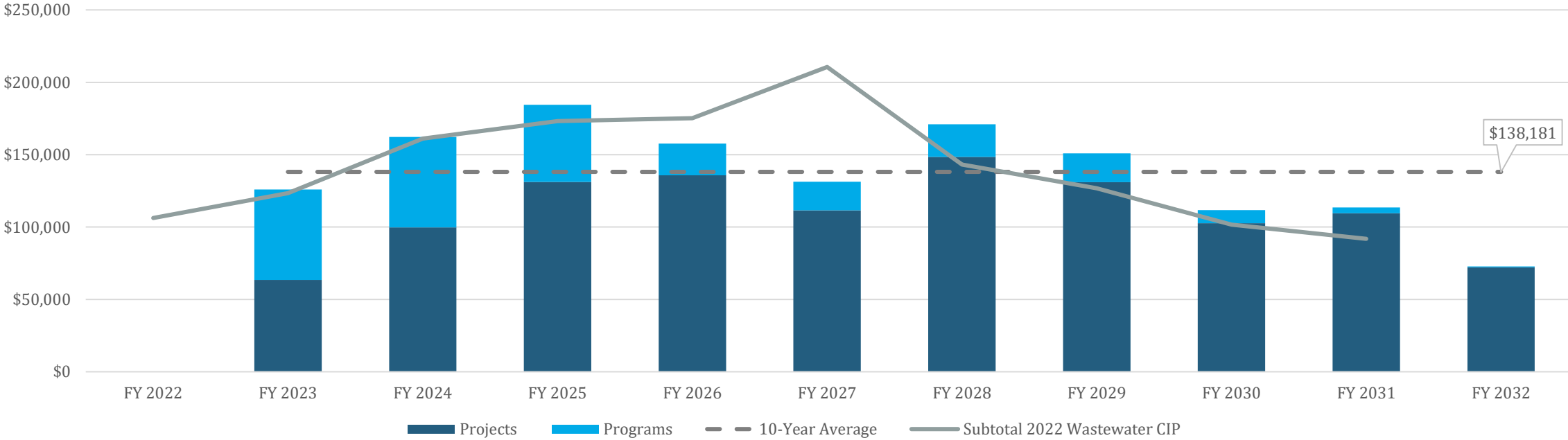
	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032
Projects	\$178,617	\$221,140	\$219,382	\$172,454	\$148,633	\$208,594	\$195,313	\$144,658	\$146,377	\$128,010
Programs	\$18,076	\$6,628	\$4,552	\$4,545	\$3,237	\$9,760	\$23,190	\$24,595	\$20,059	\$15,479
<b>Total</b>	<b>\$196,693</b>	<b>\$227,768</b>	<b>\$223,934</b>	<b>\$176,999</b>	<b>\$151,870</b>	<b>\$218,354</b>	<b>\$218,503</b>	<b>\$169,253</b>	<b>\$166,436</b>	<b>\$143,489</b>



# FY2023-2027 DRAFT 10-YEAR WASTEWATER CIP OUTLOOK

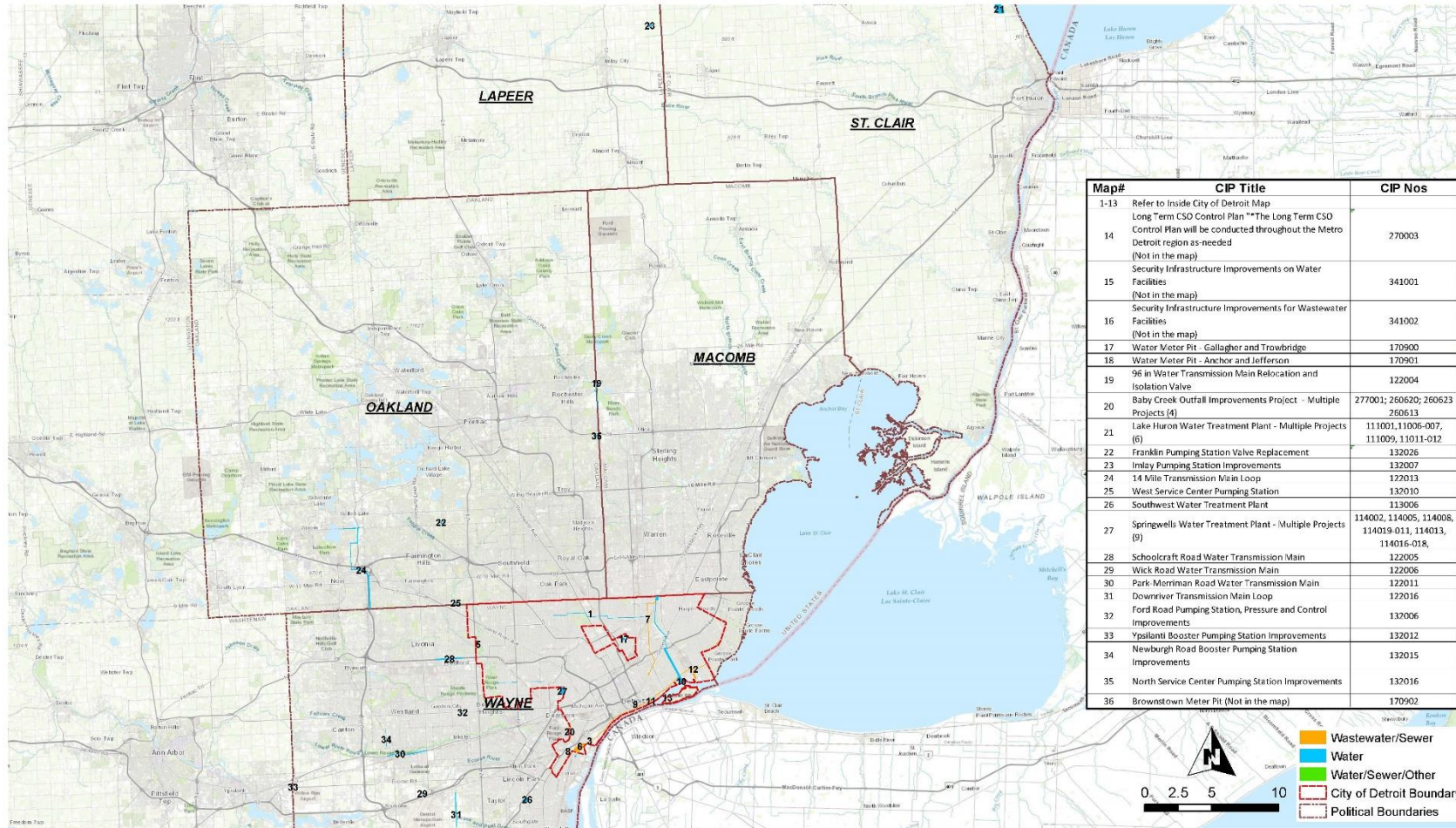
	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032
Projects	\$63,409	\$99,807	\$131,168	\$135,845	\$111,536	\$148,525	\$131,078	\$102,649	\$109,590	\$72,232
Programs	\$62,524	\$62,506	\$53,354	\$21,844	\$19,771	\$22,543	\$19,880	\$9,058	\$3,894	\$594
<b>Total</b>	<b>\$125,932</b>	<b>\$162,313</b>	<b>\$184,523</b>	<b>\$157,689</b>	<b>\$131,307</b>	<b>\$171,068</b>	<b>\$150,958</b>	<b>\$111,707</b>	<b>\$113,484</b>	<b>\$72,826</b>

10-Year Wastewater CIP Outlook





# GIS Map- All Counties



Map#	CIP Title	CIP Nos
1-13	Refer to Inside City of Detroit Map Long Term CSO Control Plan **The Long Term CSO Control Plan will be conducted throughout the Metro Detroit region as-needed (Not in the map)	270003
14	Security Infrastructure Improvements on Water Facilities (Not in the map)	341001
15	Security Infrastructure Improvements for Wastewater Facilities (Not in the map)	341002
16	Water Meter Pit - Gallagher and Trowbridge	170900
17	Water Meter Pit - Anchor and Jefferson	170901
18	96 in Water Transmission Main Relocation and Isolation Valve	122004
19	Baby Creek Outfall Improvements Project - Multiple Projects (4)	277001; 260620; 260623 260613
20	Lake Huron Water Treatment Plant - Multiple Projects (6)	111001, 11006-007, 111009, 11011-012
21	Franklin Pumping Station Valve Replacement	132026
22	Irmlay Pumping Station Improvements	132007
23	14 Mile Transmission Main Loop	122013
24	West Service Center Pumping Station	132010
25	Southwest Water Treatment Plant	113006
26	Springwells Water Treatment Plant - Multiple Projects (9)	114002, 114005, 114008, 114019-011, 114013, 114016-018,
27	Schoolcraft Road Water Transmission Main	122005
28	Wick Road Water Transmission Main	122006
29	Park Merriman Road Water Transmission Main	122011
30	Downriver Transmission Main Loop	122016
31	Ford Road Pumping Station, Pressure and Control Improvements	132006
32	Ypsilanti Booster Pumping Station Improvements	132012
33	Newburgh Road Booster Pumping Station Improvements	132015
34	North Service Center Pumping Station Improvements	132016
35	Brownstown Meter Pit (Not in the map)	170902

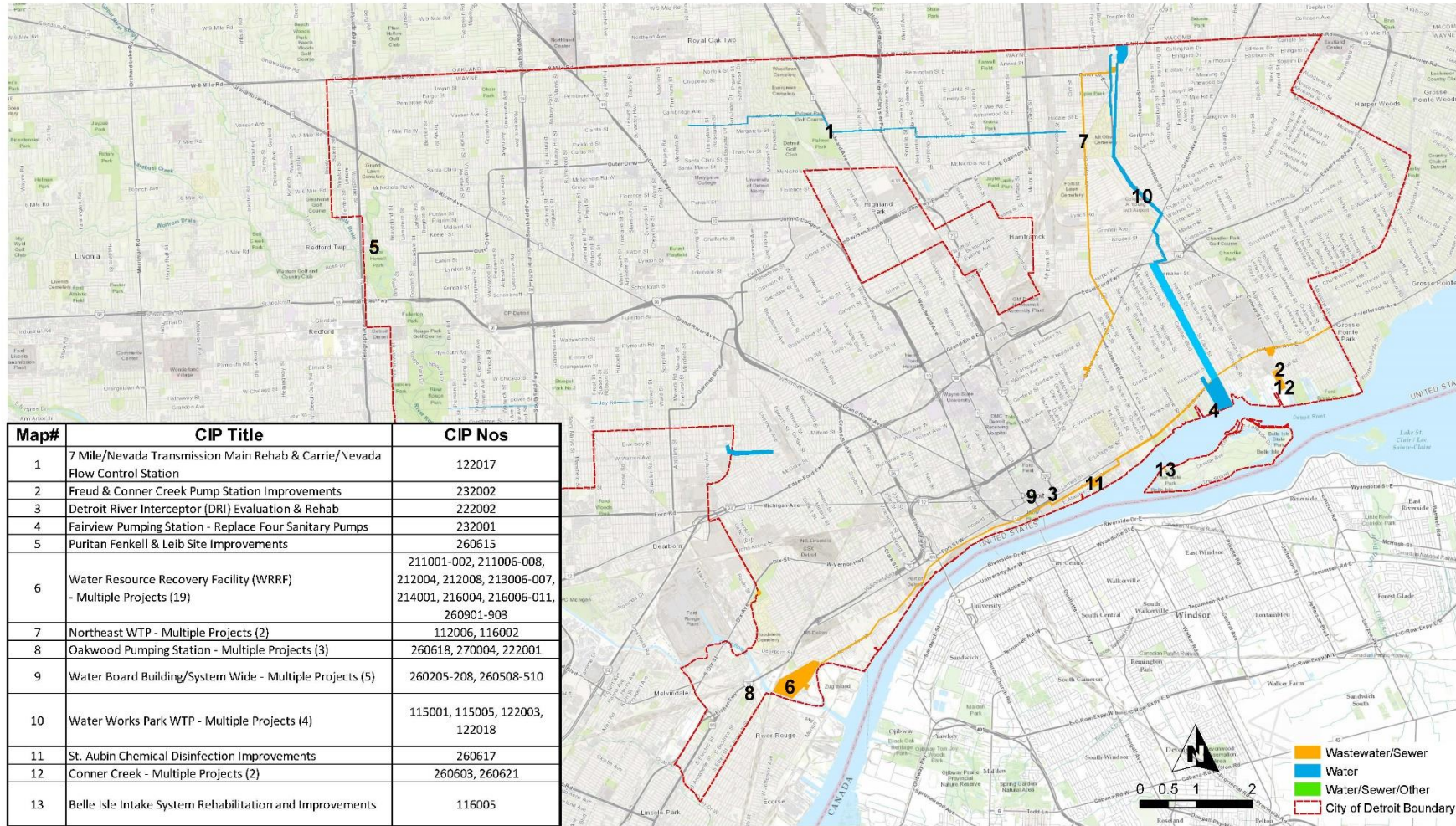


## CURRENT GLWA FY 2023-2027 CIP PROJECTS - ALL COUNTIES

Notes: Projects depicted on this map are based on the best available data at this time. They may not be completely accurate including spatial representations, leased statuses or attribute values. The user accepts responsibility for accuracy of any referenced information, spatial or otherwise.

USER: YTHOMAS - DATE: 12/8/2021

# GIS Map- City of Detroit (COD)



## CURRENT GLWA FY 2023-2027 CIP PROJECTS - INSIDE CITY OF DETROIT

Notes: Projects depicted on this map are based on the best available data at this time. They may not be completely accurate including spatial representations, leased statuses or attribute values. The user accepts responsibility for accuracy of any referenced information, spatial or otherwise.



# Integrated Master Schedule (IMS) Wastewater

Activity ID	Activity Name	Remaining Duration	Actual/Forecasted Start	Actual/Forecasted Finish	2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028	FY2029	FY2030	FY2031
					F	F	F	F	F	F	F	F	F	F	F
<b>Wastewater Projects</b>															
21001:	WRRF Rehabilitation of Primary Clarifiers Rectangular Tanks, Drain Lines, Electrical/Mechanical Bu	731	18-Nov-13 A	30-Sep-50											
211002:	WRRF PS No. 2 Pumping Improvements - Phase 1	731	17-Oct-16 A	30-Jun-23											
211004:	WRRF PS #1 Rack & Grit and MPI Sampling Station 1 Improvements	93	18-Nov-13 A	30-Sep-21											
211005:	WRRF PS No. 2 Improvements Phase II	4394	07-May-20 A	30-Jun-33											
211006:	WRRF PS No. 1 Improvements	2862	17-Feb-20 A	30-Apr-29											
211007:	WRRF PS #2 Bar Racks Replacements and Grit Collection System Improvements	2923	01-Mar-21 A	30-Jun-29											
211008:	WRRF Rehabilitation of Ferric Chloride Feed System in PS-1 and Complex B Sludge Lines	670	17-Aug-20 A	30-Apr-23											
211009:	WRRF Rehabilitation of the Circular Primary Clarifier Scum Removal System	2558	07-May-20 A	30-Jun-28											
211010:	Rehabilitation of Sludge Processing Complexes A and B	3853	07-May-20 A	30-Jun-31											
211011:	WRRF PS 1 Screening and Grit Improvements	3531	31-Oct-26	30-Jun-36											
212004:	WRRF Chlorination and Dechlorination Process Equipment Improvements	185	27-Jun-17 A	31-Dec-21											
212007:	WRRF Rehabilitation of the Secondary Clarifiers	10685	07-May-20 A	30-Sep-50											
212008:	WRRF Aeration Improvements 1 and 2	3288	20-Jul-20 A	30-Jun-30											
212009:	WRRF Aeration Improvements 3 and 4	3440	01-Aug-28	31-Dec-37											
212010:	WRRF Conversion of Disinfection of all Flow to Sodium Hypochlorite and Sodium Bisulfite	3867	01-Jun-26	31-Dec-36											
213006:	WRRF Improvements to Sludge Feed Pumps at Dewatering Facilities	1827	07-May-20 A	30-Jun-26											
213007:	WRRF Modification to Incinerator Sludge Feed Systems at Complex -II	731	22-Aug-16 A	30-Jun-23											
213008:	WRRF Rehabilitation of the Ash Handling Systems	3897	16-Oct-19 A	29-Feb-32											
213009:	Biosolids Processing Improvements	6053	06-Jun-23	31-Dec-39											
214001:	WRRF Relocation of Industrial Waste Control Division and Analytical Laboratory Operations	671	25-Jun-18 A	01-May-23											
216004:	Rehabilitation of Various Sampling Sites and PS#2 Ferric Chloride System at WRRF	255	27-May-17 A	11-Mar-22											
216006:	Assessment and Rehabilitation of WRRF yard piping and underground utilities	1462	17-Aug-20 A	30-Jun-25											
216007:	DTE Primary Electric 3rd Feed Supply to WRRF	184	01-Jul-18 A	30-Dec-21											
216008:	Rehabilitation of Screened Final Effluent (SFE) Pump Station	1827	07-May-20 A	30-Jun-26											
216010:	WRRF Facility Optimization	1827	07-May-20 A	30-Jun-26											
216011:	WRRF Structural Improvements	2376	07-May-20 A	31-Dec-27											
222001:	Oakwood District Intercommunity Relief Sewer Modification at Oakwood District	2558	15-Mar-21 A	30-Jun-28											
222002:	Detroit River Interceptor (DRI) Evaluation and Rehabilitation	2558	03-Jul-17 A	30-Jun-28											
222004:	Sewer System Infrastructure Improvements	1462	14-Oct-19 A	30-Jun-25											
222004:	Sewer System Infrastructure Improvements 222004	2558	01-Jul-20 A	30-Jun-28											
232001:	Fairview Pumping Station - Replace Four Sanitary Pumps	371	25-Apr-16 A	05-Jul-22											
232002:	Freud & Conner Creek Pump Station Improvements	3853	30-Sep-16 A	30-Jun-31											
232004:	CONDITION ASSESSMENT AT BLUE HILL PUMP STATION	276	03-May-21 A	01-Apr-22											
233003:	Rouge River In-system Storage Devices	3255	02-Feb-23	31-Dec-31											
260200:	Sewer and Interceptor Rehabilitation Program	3045	01-Jul-21	31-Oct-29											
260201:	CON-149, Emergency Sewer Repair	488	14-Jul-17 A	30-Oct-22											
260204:	Conveyance System Engineering Services-1802575	1097	01-Jun-20 A	30-Jun-24											
260205:	NWI Rehabilitation	1097	01-Jun-19 A	30-Jun-24											
260206:	Conveyance System Repairs (Sewers)	2923	01-Jan-21 A	30-Jun-29											
260207:	Rehabilitation of Woodward Sewer Systems	1536	02-Dec-20 A	12-Sep-25											
260209:	Sewer Rehabilitation and Repair	1462	01-Jun-21 A	30-Jun-25											
260500:	CSO Outfall Rehabilitation	2557	01-Jul-21	30-Jun-28											
260505:	Phase 4 Outfalls	93	01-Mar-20 A	30-Sep-21											
260508:	B-39 Outfall Rehabilitation	731	01-Jun-20 A	30-Jun-23											
260509:	B-40 Outfall Rehabilitation	1	01-Jun-20 A	30-Jun-21											
260510:	Conveyance System Repairs (Outfalls)	2923	01-Apr-21 A	30-Jun-29											
260600:	CSO FACILITIES IMPROVEMENT PROGRAM	8401	01-Jul-21	30-Jun-44											
260603:	Conner Creek CSO RTB Automation Improvements	335	12-Jun-18 A	30-May-22											
260611:	Leib SDF HVAC System Improvements	31	01-Jul-21	31-Jul-21											
260614:	Structural Inspection & Structural Improvements	1312	19-Aug-19 A	31-Jan-25											
260615:	Puritan Fenkell & Leib Site Improvements	154	20-Dec-19 A	30-Nov-21											
260617:	St. Aubin Chemical Disinfection Improvements	1827	22-Jul-19 A	30-Jun-26											
260618:	Oakwood HVAC Project	657	11-Oct-19 A	17-Apr-23											

■ Construction    ■ Study  
■ Design    ■ Work In Progress

CIP 2023 - Integrated Master Schedule - WWTP Projects  
June 2021 Update

Run Date: 08-Dec-21  
Data Date: 30-Jun-21

Page 1 of 2



# CIP DEVELOPMENT SCHEDULE

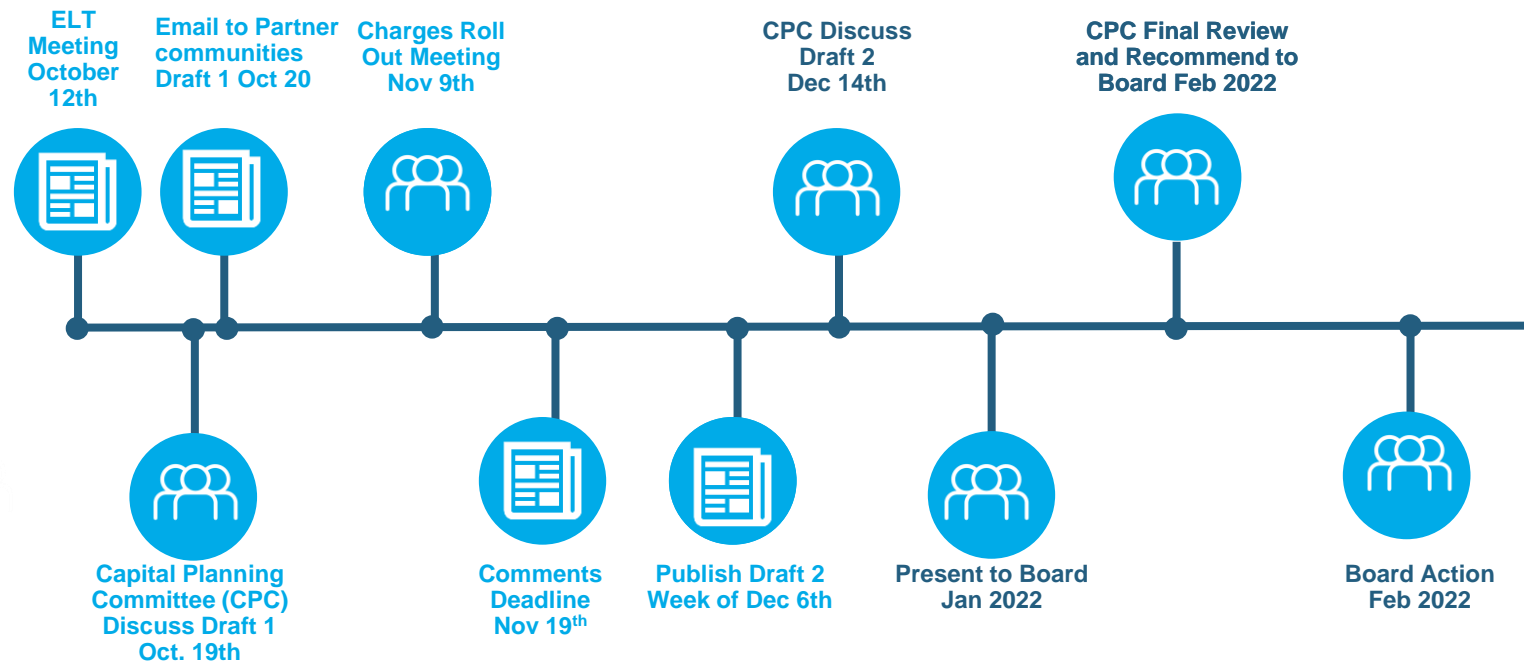


Lake Huron Water Treatment, Filter Instrumentation  
and Raw Water Flow Metering Improvements  
Photo by Erik Kramp

Lowering the Control Gate into Grand Connection Tunnel  
Photo by Mini Panicker

**CIP**  
CAPITAL IMPROVEMENT PLAN  
**2023 - 2027**

# FY 23-27 CIP SCHEDULE



# QUESTIONS?



Lake Huron Water Treatment, Filter Instrumentation  
and Raw Water Flow Metering Improvements  
Photo by Erik Kramp

Lowering the Control Gate into Grand Connection Tunnel  
Photo by Mini Panicker

**CIP**  
CAPITAL IMPROVEMENT PLAN  
**2023 - 2027**

Thank You



Lake Huron Water Treatment, Filter Instrumentation and Raw Water Flow Metering Improvements  
Photo by Erik Kramp

Lowering the Control Gate into Grand Connection Tunnel  
Photo by Mini Panicker

**CIP**  
CAPITAL IMPROVEMENT PLAN  
**2023 - 2027**