DRAFT NO.1 GLWA's FY2023– 2027 Capital Improvement Plan

GLWA
Great Lakes Water Authority

Asset Management Leadership Team (AMLT)
October 14, 2021
1:00 p.m.

AGENDA

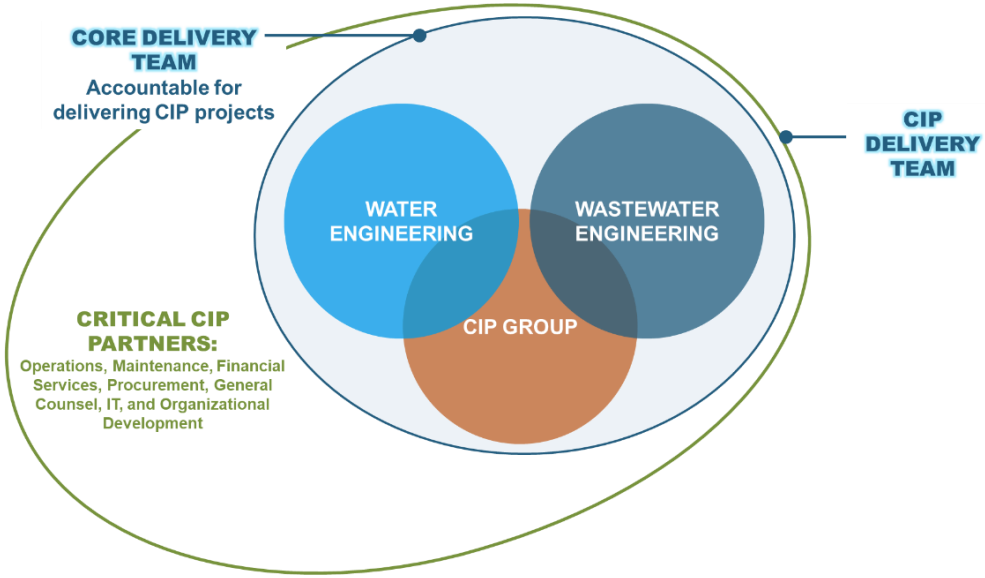
- **OVERVIEW OF FIRST DRAFT OF 2023-2027 CIP – DIMA EL-GAMAL**
- **HIGHLIGHTED WASTEWATER PROJECTS – DAN ALFORD**
- **HIGHLIGHTED WATER PROJECTS – GRANT GARTRELL**
- **HIGHLIGHTED FIELD SERVICES AND SYSTEMS CONTROL PROJECTS - TODD KING**
- **NEXT STEPS & CLOSING REMARKS – DIMA EL-GAMAL**

DESIRED OUTCOME

- Review and discuss FY23-27 CIP summary
- Familiarize the CIP Committee with the FY23-27 CIP document
- Identify schedule milestones
- Next steps

GOALS AND OBJECTIVES

- Address projects that promote improved redundancy, system resiliency, and health & safety
- Conformance with recommendations of long-term master plans
- Share information and solicit stakeholders input
- CIP alignment with the financial plan
- Meet regulatory and operational needs



The goal of the CIP is to provide regional collaboration & planning to balance capital expenditures demands without compromising our mission "implement best practices in the treatment and transmission/conveyance of water and wastewater".

GLWA Great Lakes Water Authority

CIP IMPROVEMENTS FY2023 – 2027

- CIP REPORT
  - Streamlined TOC
  - Project Breakdown
  - Acknowledgement Page
- Validation Updates
- Scoring Methodology

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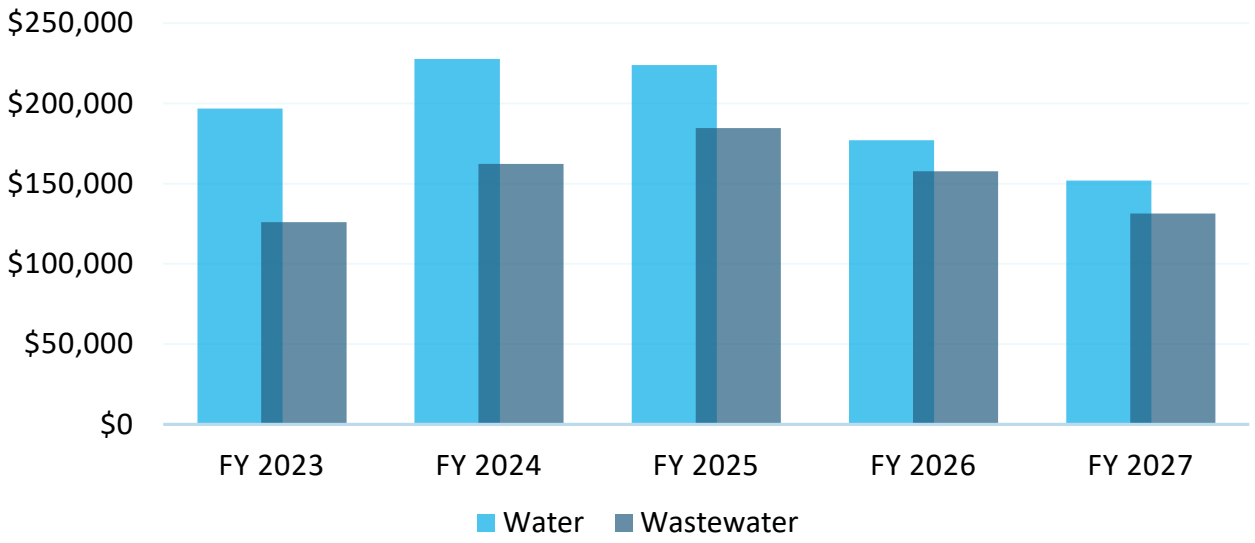
CIP SUMMARY

5-Year Outlook



WATER	($1,000's)
5-Year Total	**$977,264**
5-Year Average	$195,453
10-Year Total	**$1,893,299**
10-Year Average	$189,330

WASTEWATER	(1,000's)
5-Year Total	**$761,764**
5-Year Average	$152,353
10-Year Total	**$1,381,808**
10-Year Average	$138,181

36 New Projects*

14 Closed Projects

181 Projects**

*18 NEW PROJECTS FROM PROGRAM

** IN ADDITION TO THE 181 PROJECTS, THERE ARE:
+4 RECLASSIFIED PROJECTS
+1 CANCELLED PROJECT

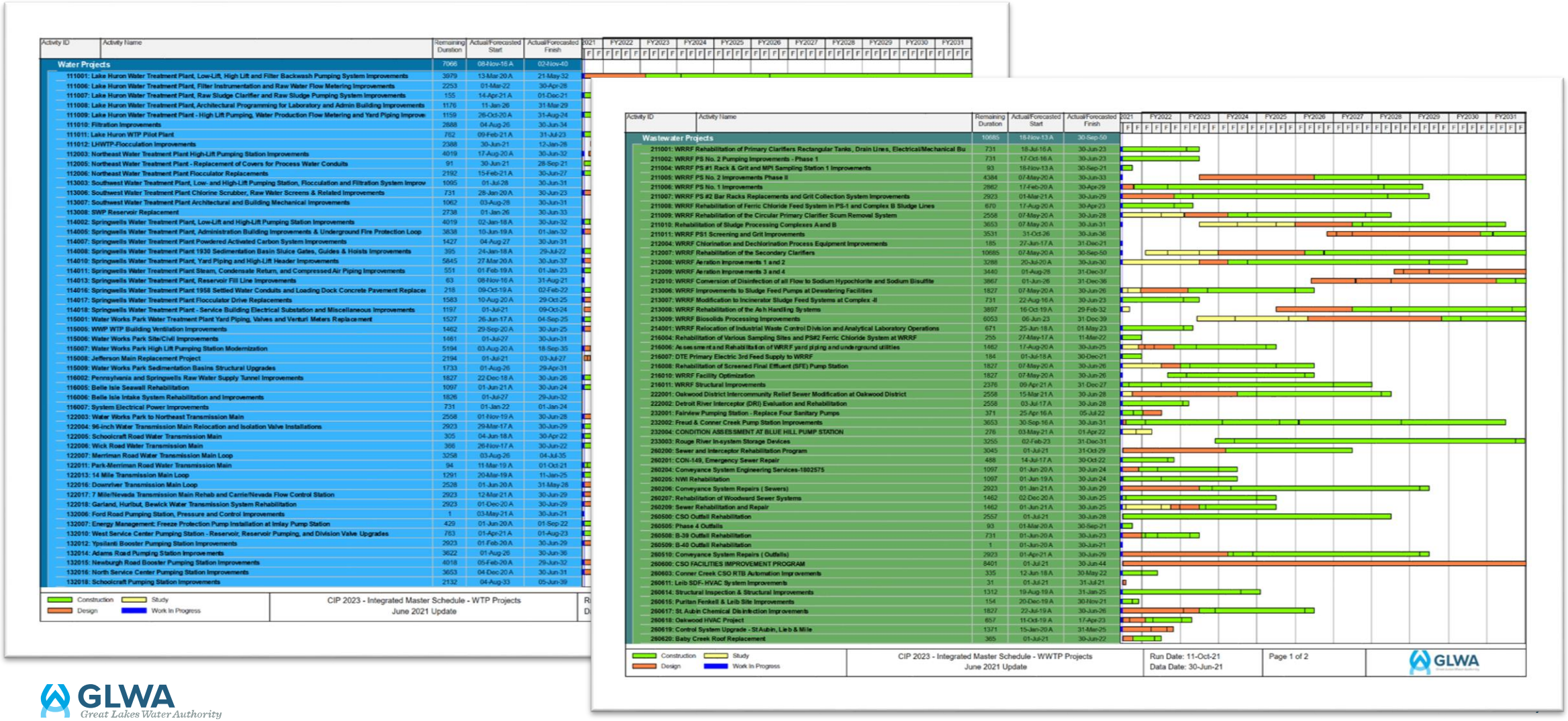
5-Year Total
$1.74 Billion
5-Year Annual Average
$348 Million

10-Year Total
$3.28 Billion
10-Year Annual Average
$328 Million

GLWA Great Lakes Water Authority

Financial figures in $1,000s and rounded

INTEGRATED MASTER SCHEDULE (IMS)



Activity ID	Activity Name	Remaining Duration	Actual/Forecasted Start	Actual/Forecasted Finish
Water Projects		7066	08-Nov-16 A	02-Nov-40
111001:	Lake Huron Water Treatment Plant, Low-Lift, High Lift and Filter Backwash Pumping System Improvements	3979	13-Mar-20 A	21-May-32
111006:	Lake Huron Water Treatment Plant, Filter Instrumentation and Raw Water Flow Metering Improvements	2253	01-Mar-22	30-Apr-28
111007:	Lake Huron Water Treatment Plant, Raw Sludge Clarifier and Raw Sludge Pumping System Improvements	155	14-Apr-21 A	01-Dec-21
111008:	Lake Huron Water Treatment Plant, Architectural Programming for Laboratory and Admin Building Improvements	1176	11-Jan-26	31-Mar-29
111009:	Lake Huron Water Treatment Plant - High Lift Pumping, Water Production Flow Metering and Yard Piping Improve	1159	26-Oct-20 A	31-Aug-24
111010:	Filtration Improvements	2688	04-Aug-26	30-Jun-34
111011:	Lake Huron WTP Pilot Plant	762	09-Feb-21 A	31-Jul-23
111012:	LHWTP-Flocculation Improvements	2388	30-Jun-21	12-Jan-28
112003:	Northeast Water Treatment Plant High-Lift Pumping Station Improvements	4019	17-Aug-20 A	30-Jun-32
112005:	Northeast Water Treatment Plant - Replacement of Covers for Process Water Conduits	91	30-Jun-21	28-Sep-21
112006:	Northeast Water Treatment Plant Flocculator Replacements	2192	15-Feb-21 A	30-Jun-27
113003:	Southwest Water Treatment Plant, Low- and High-Lift Pumping Station, Flocculation and Filtration System Improv	1095	01-Jul-26	30-Jun-31
113006:	Southwest Water Treatment Plant Chlorine Scrubber, Raw Water Screens & Related Improvements	731	28-Jan-20 A	30-Jun-23
113007:	Southwest Water Treatment Plant Architectural and Building Mechanical Improvements	1062	03-Aug-28	30-Jun-31
113008:	SWP Reservoir Replacement	2738	01-Jan-26	30-Jun-33
114002:	Springwells Water Treatment Plant, Low-Lift and High-Lift Pumping Station Improvements	4019	02-Jan-18 A	30-Jun-32
114005:	Springwells Water Treatment Plant, Administration Building Improvements & Underground Fire Protection Loop	3838	10-Jun-19 A	01-Jun-32
114007:	Springwells Water Treatment Plant Powdered Activated Carbon System Improvements	1427	04-Aug-27	30-Jun-31
114008:	Springwells Water Treatment Plant 1930 Sedimentation Basin Sluice Gates, Guides & Hoists Improvements	395	24-Jan-18 A	29-Jul-22
114010:	Springwells Water Treatment Plant, Yard Piping and High-Lift Header Improvements	5845	27-Mar-20 A	30-Jun-37
114011:	Springwells Water Treatment Plant Steam, Condensate Return, and Compressed Air Piping Improvements	551	01-Feb-19 A	01-Jun-23
114013:	Springwells Water Treatment Plant, Reservoir Fill Line Improvements	63	08-Nov-16 A	31-Aug-21
114016:	Springwells Water Treatment Plant 1958 Settled Water Conduits and Loading Dock Concrete Pavement Replace	218	09-Oct-19 A	02-Feb-22
114017:	Springwells Water Treatment Plant Flocculator Drive Replacements	1583	10-Aug-20 A	29-Oct-25
114018:	Springwells Water Treatment Plant - Service Building Electrical Substation and Miscellaneous Improvements	1197	01-Jul-21	09-Oct-24
115001:	Water Works Park Water Treatment Plant Yard Piping, Valves and Venturi Meters Replacement	1527	26-Jun-17 A	04-Sep-25
115005:	WWP WTP Building Ventilation Improvements	1462	29-Sep-20 A	30-Jun-25
115006:	Water Works Park Site/Civil Improvements	1461	01-Jul-27	30-Jun-31
115007:	Water Works Park High Lift Pumping Station Modernization	5194	03-Aug-20 A	18-Sep-35
115008:	Jefferson Main Replacement Project	2194	01-Jul-21	03-Jul-27
115009:	Water Works Park Sedimentation Basins Structural Upgrades	1733	01-Aug-26	29-Apr-31
116002:	Pennsylvania and Springwells Raw Water Supply Tunnel Improvements	1827	22-Dec-18 A	30-Jun-26
116005:	Belle Isle Seawall Rehabilitation	1097	01-Jun-21 A	30-Jun-24
116006:	Belle Isle Intake System Rehabilitation and Improvements	1826	01-Jul-27	29-Jun-32
116007:	System Electrical Power Improvements	731	01-Jan-22	01-Jan-24
122003:	Water Works Park to Northeast Transmission Main	2558	01-Nov-19 A	30-Jun-28
122004:	96-inch Water Transmission Main Relocation and Isolation Valve Installations	2923	29-Mar-17 A	30-Jun-29
122005:	Schoolcraft Road Water Transmission Main	305	04-Jun-18 A	30-Apr-22
122006:	Wick Road Water Transmission Main	366	26-Nov-17 A	30-Jun-22
122007:	Merriman Road Water Transmission Main Loop	3258	03-Aug-26	04-Jul-35
122011:	Park-Merriman Road Water Transmission Main	94	11-Mar-19 A	01-Oct-21
122013:	14 Mile Transmission Main Loop	1291	20-Mar-19 A	11-Jan-25
122016:	Downriver Transmission Main Loop	2528	01-Jun-20 A	31-May-28
122017:	7 Mile/Nevada Transmission Main Rehab and Carrie/Nevada Flow Control Station	2923	12-Mar-21 A	30-Jun-29
122018:	Garland, Hurlbut, Bewick Water Transmission System Rehabilitation	2923	01-Dec-20 A	30-Jun-29
132006:	Ford Road Pumping Station, Pressure and Control Improvements	1	03-May-21 A	30-Jun-21
132007:	Energy Management: Freeze Protection Pump Installation at Imlay Pump Station	429	01-Jun-20 A	01-Sep-22
132010:	West Service Center Pumping Station - Reservoir, Reservoir Pumping, and Division Valve Upgrades	763	01-Apr-21 A	01-Aug-23
132012:	Ypsilanti Booster Pumping Station Improvements	2923	01-Feb-20 A	30-Jun-29
132014:	Adams Road Pumping Station Improvements	3622	01-Aug-26	30-Jun-36
132015:	Newburgh Road Booster Pumping Station Improvements	4018	05-Feb-20 A	29-Jun-32
132016:	North Service Center Pumping Station Improvements	3653	04-Dec-20 A	30-Jun-31
132018:	Schoolcraft Pumping Station Improvements	2132	04-Aug-33	05-Jun-39

Construction | Study | Design | Work In Progress

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

Activity ID	Activity Name	Remaining Duration	Actual/Forecasted Start	Actual/Forecasted Finish
Wastewater Projects		10685	18-Nov-13 A	30-Sep-50
211001:	WRRF Rehabilitation of Primary Clarifiers Rectangular Tanks, Drain Lines, Electrical/Mechanical Bu	731	18-Jul-16 A	30-Jun-23
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	4384	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	3653	07-May-20 A	30-Jun-31
211011:	WRRF PS1 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:	WRRF 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	09-Apr-21 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
232001:	Fairview Pumping Station - Replace Four Sanitary Pumps	371	25-Apr-16 A	05-Jul-22
232002:	Freud & Conner Creek Pump Station Improvements	3653	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	1462	02-Dec-20 A	30-Jun-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
260619:	Control System Upgrade - St Aubin, Lieb & Mile	1371	15-Jan-20 A	31-Mar-25
260620:	Baby Creek Roof Replacement	365	01-Jul-21	30-Jun-22

Construction | Study | Design | Work In Progress

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

Run Date: 11-Oct-21
Data Date: 30-Jun-21

Page 1 of 2

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WATER SUMMARY

NEW PROJECTS
PROJECTS WITH SIGNIFICANT ADJUSTMENTS
HIGH LEVEL SUMMARY OF SPENDING PLAN
PROJECTS FROM WATER MASTER PLAN RIGHT SIZING

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WATER: NEW PROJECTS WITHIN 5 YEARS

CIP #	Title	Total Project $	Design Start	Construction Start	Construction End
115008	Jefferson Main Replacement Project	$ 29,700,001	FY22	FY26	FY28
116007	System Electrical Power Improvements	$ 4,000,000	FY24	TBD	TBD
170802*	Reservoir Inspection, Design, and Construction Management Services Phase II	$ 41,500,000	FY22	FY23	FY27
170304*	WWP Scada Infrastructure Upgrade	$ 318,626	FY22	FY23	FY25
170306*	SPW SCADA PLC Network Upgrade	$ 3,146,000	FY23	FY23	FY24
170601*	Linear System Integrity Program	$ 9,081,824	FY21	FY24	FY26
170803*	Reservoir Inspection, Design, and Construction Management Services Phase III	$ 93,916,000	FY27	FY29	+FY33

From Programs

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*Project created out of a program

WATER: NEW PROJECTS FUTURE PLANNED WITHIN 10 YRS

CIP #	Title	Total Project $	Design Start	Construction Start	Construction End
113008	SWP Reservoir Replacement	$ 45,000,001	FY28	FY30	+FY33**
115009	Water Works Park Sedimentation Basins Structural Upgrades	$ 18,339,223	FY28	FY28	FY31
170305*	WWP SCADA Network Upgrade	$ 7,336,000	FY28	FY28	FY30
170307*	NE SCADA Network Upgrade	$ 2,917,000	FY30	FY30	FY31
171502*	Lake Huron and Southwest Roof Replacement	$ 2,703,038	FY29	FY29	FY30

From Programs
***** End Date Beyond Planning Period***

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*Project created out of a program

WATER: PROJECTS W/SCHEDULE SHIFT 2 YRS OR MORE (1/3)

- 31 Total water projects with a schedule change of 2 years or more
- Shifts impacted by changing asset conditions, organizational priorities and financial alignment

CIP#	Title	CIP 2022		CIP 2023		Impact (yrs)	
		Start	End	Start	End	Start	End
111001	Lake Huron Water Treatment Plant, Low-Lift, High Lift and Filter Backwash Pumping System Improvements	FY19	FY29	FY20	+FY33	1	
111006	Lake Huron Water Treatment Plant, Filter Instrumentation and Raw Water Flow Metering Improvements	FY16	FY24	FY16	FY28	0	3
111008	Lake Huron Water Treatment Plant, Architectural Programming for Laboratory and Admin Building	FY26	FY30	FY28	FY29	2	-1
111010	Filtration Improvements	FY24	FY31	FY28	+FY33	4	
112006	Northeast Water Treatment Plant Flocculator Replacements	FY19	FY25	FY19	FY27	0	2
113003	Southwest Water Treatment Plant, Low- and High-Lift Pumping Station, Flocculation and Filtration	FY27	FY31	FY29	FY31	2	0
114005	Springwells Water Treatment Plant, Administration Building Improvements & Underground Fire Protection Loop	FY18	FY24	FY19	FY32	1	8
114010	Springwells Water Treatment Plant, Yard Piping and High-Lift Header Improvements	FY19	FY31	FY28	+FY33	1	
115001	Water Works Park Water Treatment Plant Yard Piping, Valves and Venturi Meters Replacement	FY16	FY28	FY16	FY26	0	-2
115005	WWP WTP Building Ventilation Improvements	FY19	FY27	FY21	FY25	2	-2
115007	Water Works Park High Lift Pumping Station Modernization	FY22	FY31	FY28	+FY33	6	

GLWA Great Lakes Water Authority

*Project created out of a program | **No end date, Program ongoing

WATER: PROJECTS W/SCHEDULE SHIFT 2 YRS OR MORE (2/3)

CIP#	Title	CIP 2022		CIP 2023		Impact (yrs)	
		Start	End	Start	End	Start	End
116006	Belle Isle Intake System Rehabilitation and Improvements	FY23	FY24	FY28	FY32	5	8
122007	Merriman Road Water Transmission Main Loop	FY20	FY31	FY28	+FY33	8	
122016	Downriver Transmission Main Loop	FY18	FY27	FY20	FY28	2	1
132007	Energy Management: Freeze Protection Pump Installation at Imlay Pump Station	FY18	FY23	FY20	FY23	2	0
132012	Ypsilanti Booster Pumping Station Improvements	FY18	FY27	FY20	FY29	2	2
132014	Adams Road Pumping Station Improvements	FY20	FY30	FY20	+FY33	0	
132015	Newburgh Road Booster Pumping Station Improvements	FY19	FY27	FY20	FY32	1	5
132016	North Service Center Pumping Station Improvements	FY20	FY29	FY21	FY31	1	2
132018	Schoolcraft Pumping Station Improvements	FY38	FY47	FY35	+FY33	-3	
132019	Wick Road Pumping Station Improvements	FY20	FY31	FY28	+FY33	8	
132021	Imlay Pumping Station Improvements	FY30	FY31	FY20	+FY33	-10	
132022	Joy Road Pumping Station Improvements	FY20	FY31	FY20	+FY33	0	
170109*	GLWA-CS-187: FK Eng: Raw Water Intake	FY16	FY20	FY16	FY23	0	3
170300	Water Treatment Plant Automation Program	FY21	FY22	FY21	**	0	
170400	Water Transmission Improvement Program	FY19	FY31	FY21	**	2	

GLWA Great Lakes Water Authority

*Project created out of a program | **No end date, Program ongoing

WATER: PROJECTS W/SCHEDULE SHIFT 2 YRS OR MORE (3/3)

CIP#	Title	CIP 2022		CIP 2023		Impact (yrs)	
		Start	End	Start	End	Start	End
170600	Water Transmission Main Asset Assessment Program	FY21	FY27	FY21	**	0	
170801*	Reservoir Inspection, Design and Construction Project at Imlay Station, Lake Huron Water Treatment Plant, SPWTP, SWWTP	FY21	FY28	FY19	FY24	-2	-4
170900	Suburban Water Meter Pit Rehabilitation and Meter Replacement	FY21	FY31	FY21	**	0	
171500	Roof Replacement at WWP, SP, LH, NE, SW, NSC, Orion, Franklin, and Conner Creek Facilities	FY18	FY31	FY21	**	3	
381000	Power Quality: Electric Metering Improvement Program	FY24	FY28	FY20	**	-4	

GLWA Great Lakes Water Authority

*Project created out of a program | **No end date, Program ongoing

WATER: PROJECTS FROM WATER MASTER PLAN RIGHT SIZING

CIPNumber	Title	Sum of CIP 2023 5 Yr Total	Sum of CIP 2023 10 Yr Total
111001	Lake Huron Water Treatment Plant, Low-Lift, High Lift and Filter Backwash Pumping System Improvements	$6,113,460	$55,064,815
111010	Filtration Improvements	$0	$14,661,120
111011	Lake Huron WTP Pilot Plant	$1,617,809	$1,617,809
112003	Northeast Water Treatment Plant High-Lift Pumping Station Improvements	$20,000,000	$71,748,677
113003	Southwest Water Treatment Plant, Low- and High-Lift Pumping Station, Flocculation and Filtration System Improvements	$0	$21,811,843
114002	Springwells Water Treatment Plant, Low-Lift and High-Lift Pumping Station Improvements	$108,952,140	$254,491,128
115001	Water Works Park Water Treatment Plant Yard Piping, Valves and Venturi Meters Replacement	$37,502,196	$37,502,196
115007	Water Works Park High Lift Pumping Station Modernization	$0	$38,350,000
122003	Water Works Park to Northeast Transmission Main	$100,233,422	$119,355,002
122007	Merriman Road Water Transmission Main Loop	$0	$11,446,942
122017	7 Mile/Nevada Transmission Main Rehab and Carrie/Nevada Flow Control Station	$39,994,888	$58,251,433
132007	Energy Management: Freeze Protection Pump Installation at Imlay Pump Station	$115,188	$115,188
132019	Wick Road Pumping Station Improvements	$0	$5,072,323
Grand Total		**$314,529,103**	**$689,488,476**

FY 23-27

Water: $977,263,932

Master Plan: $314,529,103: 32%

FY 28-32

Water: $916,035,555

Master Plan: $374,959,373: 41%

GLWA Great Lakes Water Authority

FY2023-2027 WATER SUMMARY

Financial figures in table are in $1,000s and rounded

CIP Document	FY2022	FY2023	FY2024	FY2025	FY 2026	FY 2027	5-Year Total
Approved Water CIP FY 2022-2026	$179,210	200,713	$199,165	$170,936	$182,430	$232,796	$932,454
Draft Water CIP FY 2023-2027		$196,693	$227,768	$223,934	$176,999	$151,870	$977,264
Difference ($)		($4)	$29	$53	($5)	($81)	$45
Difference (%)		-2%	14%	31%	-3%	-35%	5%
(Figures are shown in $1,000's.)							

- 5% Increase 5-year total between FY22-FY26 & Proposed FY23-27 CIP
- Total 5-year projected expenditures (FY23-27 is $977,263,932)
- 5-year annual average $195,452,786 FY23 (compared to $187,058,558 from FY22)

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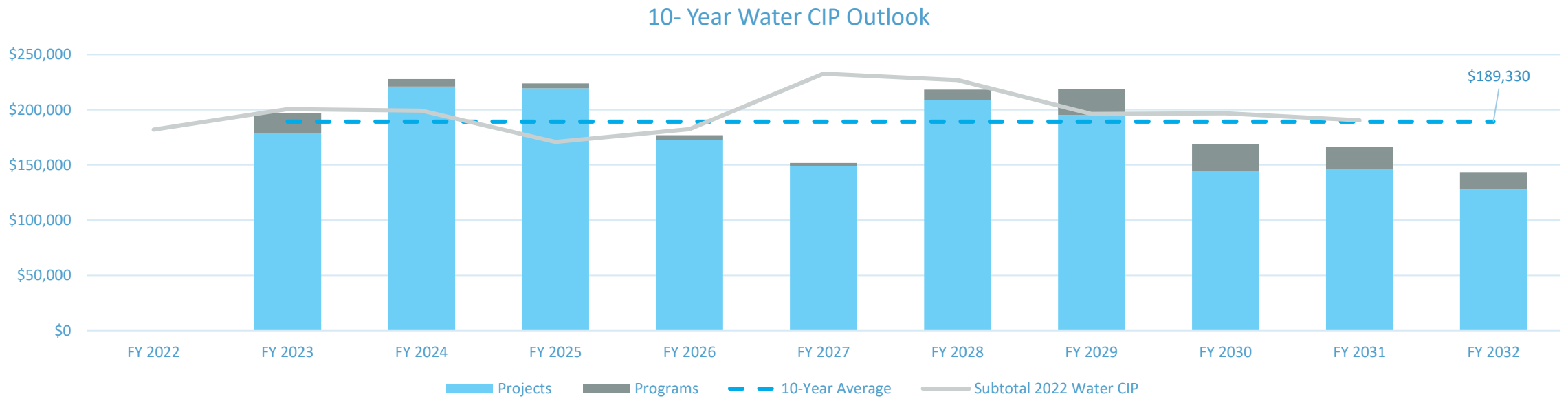
WATER: FY2023-2032 DRAFT 10-YEAR OUTLOOK

Financial figures in $1,000s and rounded

	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
Total	**$196,693**	**$227,768**	**$223,934**	**$176,999**	**$151,870**	**$218,354**	**$218,503**	**$169,253**	**$166,436**	**$143,489**



- 4% increase in 10-year total from FY2022 CIP

GLWA Great Lakes Water Authority

WASTEWATER SUMMARY

NEW PROJECTS
PROJECTS WITH SIGNIFICANT ADJUSTMENTS
HIGH LEVEL SUMMARY OF SPENDING PLAN

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WASTEWATER: NEW PROJECTS WITHIN 5 YEARS (1/2)

CIP #	Title	Total Project $	Design Start	Const. Start	Const. End
213009	WRRF Biosolids Processing Improvements	$ 180,000,002	FY26	FY30	+FY33
260209*	Sewer Rehabilitation and Repair	$ 12,200,000	FY23	FY24	FY25
260900*	WRRF Facility Optimization Program	$ 428,948	TBD	TBD	TBD
270005	CSO Facility Safety Improvements and Building Rehabilitation	$ 6,481,200	FY23	FY26	FY29
270006	Control System Upgrades at Baby Creek and Belle Isle CSO Facilities	$ 1,915,600	FY23	FY26	FY29
270007	Disinfection System Improvements at Baby Creek, Belle Isle, Conner Creek, and Puritan Fenkell	$ 8,216,300	FY25	FY29	FY32
270008	Flushing System Improvements at Conner Creek and St. Aubin CSO Facilities	$ 7,006,500	FY25	FY29	FY32
270009	Site Improvements at St. Aubin, Belle Isle, and Baby Creek CSO Facilities	$ 1,377,500	FY27	FY30	+FY33
270010	HVAC Improvements at Puritan Fenkell and Seven Mile CSO Facilities	$ 1,508,590	FY24	FY27	FY30

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*Project created out of a program

WASTEWATER: NEW PROJECTS WITHIN 5 YEARS (2/2)

CIP #	Title	Total Project $	Design Start	Const. Start	Const. End
270012	Control System Upgrades at Conner Creek, Oakwood, and Puritan Fenkell CSO Facilities	$ 5,921,080	FY27	FY30	FY33+
260207*	Rehabilitation of Woodward Sewer Systems	$ 19,160,077	FY20	FY22	FY25
260621*	Conner Creek Dike Improvements	$ 2,541,534	FY21	FY22	FY22
260622*	CSO Emergency Generator Improvements	$ 2,060,893	FY22	FY23	FY24
260623*	CSO Baby Creek Screen Rehabilitation	$ 2,174,900	FY22	FY23	FY24
260701*	Conveyance System Infrastructure Improvements	$ 55,630,839	FY22	FY23	FY26
260702*	Pump Station Assets Updates	$ 2,000,000	FY24	FY24	FY26
260902*	WRRF 4th Floor Renovation	$ 2,720,566	FY19	FY20	FY23
260903*	WRRF Front Entrance Rehabilitation	$ 1,004,587	FY19	FY20	FY23
273001*	Hubbell Southfield CSO Facility Improvements	$ 38,576,300	FY23	FY27	FY31
273002*	CSO Hubbell Southfield VR-8 Gate Improvements	$ 1,769,780	FY27	FY30	FY33+

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*Project created out of a program

WASTEWATER: NEW PROJECTS FUTURE PLANNED WITHIN 10 YEARS

CIP #	Title	Total Project $	Design Start	Const. Start	Const. End
270011	HVAC Improvements at Conner Creek and Belle Isle CSO Facilities	$ 383,600	FY31	FY33	+FY33
270013	Facility Improvements at Puritan Fenkell and Seven Mile CSO Facilities	$ 894,020	FY28	FY30	+FY33
270014	Conversion to Complete Capture Basin at Puritan Fenkell and Seven Mile CSO Facilities	$ 4,442,170	FY28	FY32	+FY33
277002	Baby Creek CSO Facility Influent Flushing System	$ 738,260	FY33	FY35	+FY33

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*Project created out of a program

WASTEWATER: PROJECTS W/SCHEDULE SHIFT 2 YRS OR MORE (1/2)

CIP#	Title	CIP 2022		CIP 2023		Impact (yrs)	
		Start	End	Start	End	Start	End
211005	WRRF PS No. 2 Improvements Phase II	FY19	FY31	FY20	FY33+	1	
211007	WRRF PS #2 Bar Racks Replacements and Grit Collection System Improvements	FY19	FY27	FY20	FY29	1	2
211009	WRRF Rehabilitation of the Circular Primary Clarifier Scum Removal System	FY20	FY25	FY20	FY28	0	3
211011	WRRF PS1 Screening and Grit Improvements	FY20	FY31	FY28	FY33+	8	
212007	WRRF Rehabilitation of the Secondary Clarifiers	FY20	FY31	FY20	FY33+	0	
212008	WRRF Aeration Improvements 1 and 2	FY20	FY27	FY21	FY30	1	3
212009	WRRF Aeration Improvements 3 and 4	FY25	FY31	FY30	FY33	5	
212010	WRRF Conversion of Disinfection of all Flow to Sodium Hypochlorite and Sodium Bisulfite	FY21	FY31	FY29	FY33+	8	
213006	WRRF Improvements to Sludge Feed Pumps at Dewatering Facilities	FY20	FY24	FY20	FY26	0	2
213008	WRRF Rehabilitation of the Ash Handling Systems	FY19	FY27	FY20	FY32	1	5
216006	Assessment and Rehabilitation of WRRF yard piping and underground utilities	FY19	FY26	FY21	FY25	2	-2
216007	DTE Primary Electric 3rd Feed Supply to WRRF	FY19	FY22	FY17	FY22	-2	0
232002	Freud & Conner Creek Pump Station Improvements	FY16	FY29	FY16	FY31	0	2
260200	Sewer and Interceptor Rehabilitation Program	FY21	FY27	FY21	**	0	

- 19 Total Wastewater projects with a schedule shift of 2 years or more.

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*Project created out of a program | **No end date, Program ongoing

WASTEWATER: PROJECTS W/SCHEDULE SHIFT 2 YRS OR MORE (2/2)

CIP#	Title	CIP 2022		CIP 2023		Impact (yrs)	
		Start	End	Start	End	Start	End
260510*	Conveyance System Repairs (Outfalls)	FY20	FY27	FY20	FY29	0	2
260600	CSO FACILITIES IMPROVEMENT PROGRAM	FY21	FY31	FY21	**	0	13
260619*	Control System Upgrade - St Aubin, Lieb & Mile	FY20	FY21	FY20	FY25	0	4
270002	Meldrum Sewer Diversion and VR-15 Improvements	FY22	FY29	FY25	FY30	3	1
270003	Long Term CSO Control Plan	FY20	FY25	FY20	FY25	0	-3

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*Project created out of a program | **No end date, Program ongoing

WASTEWATER: FLOOD MITIGATION PROJECTS

CIP No	Title	Sum of CIP 2023 5 Yr Total	Sum of CIP 2023 10 Yr Total
211006	WRRF PS No. 1 Improvements	$48,645,384	$65,949,998
211007	WRRF PS #2 Bar Racks Replacements and Grit Collection System Improvements	$54,878,238	$84,261,425
222001	Oakwood District Intercommunity Relief Sewer Modification at Oakwood District	$40,311,307	$51,808,793
222002	Detroit River Interceptor (DRI) Evaluation and Rehabilitation	$21,614,223	$29,614,223
232002	Freud & Conner Creek Pump Station Improvements	$126,094,513	$248,458,530
260204	Conveyance System Engineering Services-1802575	$47,833,293	$47,833,293
260205	NWI Rehabilitation	$10,074,425	$10,074,425
260206	Conveyance System Repairs (Sewers)	$20,610,660	$30,099,091
260207	Rehabilitation of Woodward Sewer Systems	$14,559,187	$14,559,187
260701	Conveyance System Infrastructure Improvements	$48,472,812	$48,472,812
		$433,094,042	**$631,131,777**

FY 23-27

Wastewater: $761,764,137

Flood Mitigation: $433,094,042: 57%

FY 28 – 32

Wastewater: $620,043,920

Flood Mitigation: $198,037,735: 32%

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FY2023-2027 WASTEWATER SUMMARY

CIP Document	FY2022	FY2023	FY2024	FY2025	FY 2026	FY 2027	5-Year Total
Approved Wastewater CIP FY 2022-2026	**$106,050**	**$123,190**	**$160,940**	**$173,024**	**$175,200**	**$210,615**	**$738,403**
Draft Wastewater CIP FY 2023-2027		$125,932	$162,313	$184,523	$157,689	$131,307	$761,764
Difference ($)		$3	$1	$11	($18)	($79)	$23
Difference (%)		2%	1%	7%	-10%	-38%	3%

(Figures are shown in $1,000's.)

- 3% Increase 5-year total between FY22-26 & proposed FY23-27 CIP
- Total 5-year projected expenditures (FY23-27 is $761,764,137)
- 5-year annual average $152,352,827 (compared to $147,875,352 from FY 22)

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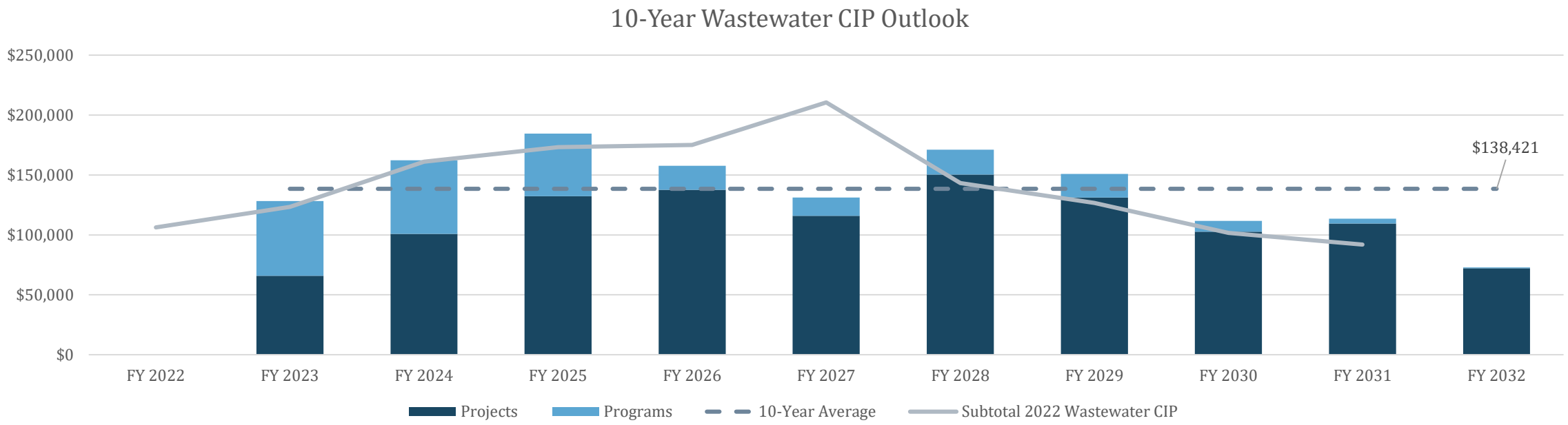
Financial figures in table are in $1,000s and rounded

WASTEWATER: FY23-27 DRAFT 10-YEAR OUTLOOK

Financial figures in $1,000s and rounded

	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032
Projects	$63,531	$100,953	$132,258	$137,670	$116,012	$150,285	$131,172	$102,649	$109,590	$72,232
Programs	$62,402	$61,361	$52,265	$20,019	$15,295	$20,783	$19,787	$9,058	$3,894	$594
Total	$125,932	$162,313	$184,523	$157,689	$131,307	$171,068	$150,958	$111,707	$113,484	$72,826



- 2% decrease in 10-year total from FY22 CIP

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PROJECT STATUS CHANGES

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WASTEWATER: PROJECT CHANGES – PENDING CLOSEOUT OR CLOSED (1/2)

DEPT	ProjectStatus	CIPNumbe	Title	Sum of Project Totals
WATER	**Closed**	111002	Lake Huron Water Treatment Plant, Miscellaneous Mechanical HVAC Improvements	$8,736,720
		112005	Northeast Water Treatment Plant - Replacement of Covers for Process Water Conduits	$937,879
		113002	Southwest Water Treatment Plant, High-Lift Pump Discharge Valve Actuators Replacement	$5,798,925
		114001	Springwells Water Treatment Plant, 1958 Filter Rehabilitation and Auxiliary Facilities Improvements	$99,764,892
		115004	Water Works Park Water Treatment Plant Chlorine System Upgrade	$6,966,596
		132003	West Service Center Pumping Station, Isolation Gate Valves for Line Pumps	$1,742,479
		170200	As-Needed Construction Materials, Environmental Media and Special Testing Services, Construction Inspection, and Other Technical Services	$0
	Closed Total			**$123,947,490**
	Pending Closeout	111007	Lake Huron Water Treatment Plant, Raw Sludge Clarifier and Raw Sludge Pumping System Improvements	$9,098,977
		114008	Springwells Water Treatment Plant 1930 Sedimentation Basin Sluice Gates, Guides & Hoists Improvements	$13,980,071
		114013	Springwells Water Treatment Plant, Reservoir Fill Line Improvements	$4,720,158
		132006	Ford Road Pumping Station, Pressure and Control Improvements	$3,226,045
		132026	Franklin Pumping Station Valve Replacement	$986,376
		341001	Security Infrastructure Improvements on Water Facilities	$4,238,914
	Pending Closeout Total			**$36,250,541**
WATER Total				**$160,198,031**

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WASTEWATER: PROJECT CHANGES – PENDING CLOSEOUT OR CLOSED (2/2)

DEPT	ProjectStatus	CIPNumbe	Title	Sum of Project Totals
SEWER	**Closed**	211004	WRRF PS #1 Rack & Grit and MPI Sampling Station 1 Improvements	$28,459,565
		212006	WRRF Rouge River Outfall (RRO) Disinfection (Alternative)	$43,788,731
		260601	Oakwood CSO Control Facility Drain Valve Improvements	$804,574
		260609	Seven Mile RTB - Parking Lot Replacement & Misc. Site Work	$429,557
		260610	Baby Creek SDF - HV Units Replacement	$275,151
		260611	Leib SDF- HVAC System Improvements	$412,590
		260616	Baby Creek Towards Treatment Sewer Improvements	$770,114
	Closed Total			**$74,940,282**
	Pending Closeout	212004	WRRF Chlorination and Dechlorination Process Equipment Improvements	$5,642,328
		216007	DTE Primary Electric 3rd Feed Supply to WRRF	$3,912,283
		260505	Phase 4 Outfalls	$5,707,478
		260509	B-40 Outfall Rehabilitation	$83,621
		341002	Security Infrastructure Improvements for Wastewater Facilities	$1,900,797
	Pending Closeout Total			**$17,246,508**
SEWER Total				**$92,186,790**
Grand Total				**$92,186,790**

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WASTEWATER: PROJECT CHANGES – RECLASSIFIED OR CANCELLED

DEPT	ProjectStatus	CIPNumber	Title	Sum of Project Totals
WATER	Cancelled	351001	LED Lighting and Lighting Control Improvements	$6,667
SEWER	Reclassified	216010	WRRF Facility Optimization	$0
		274001	Leib Improvements for Meldrum Diversion	$0
		278001	Oakwood Improvements for NWI Diversion	$0
Grand Total				$6,667

CIP	TITLE	2022 STATUS	2023 New Project #
216010	WRRF Facility Optimization	Active - Pre-Procurement - Design	260901, 260902, 260903
260208	Rehabilitation of Conner Creek Sewer Systems		260204
274001	Leib Improvements for Meldrum Diversion	Future Planned - Within 5 Year Plan	274004
278001	Oakwood Improvements for NWI Diversion	Future Planned - Within 5 Year Plan	274004

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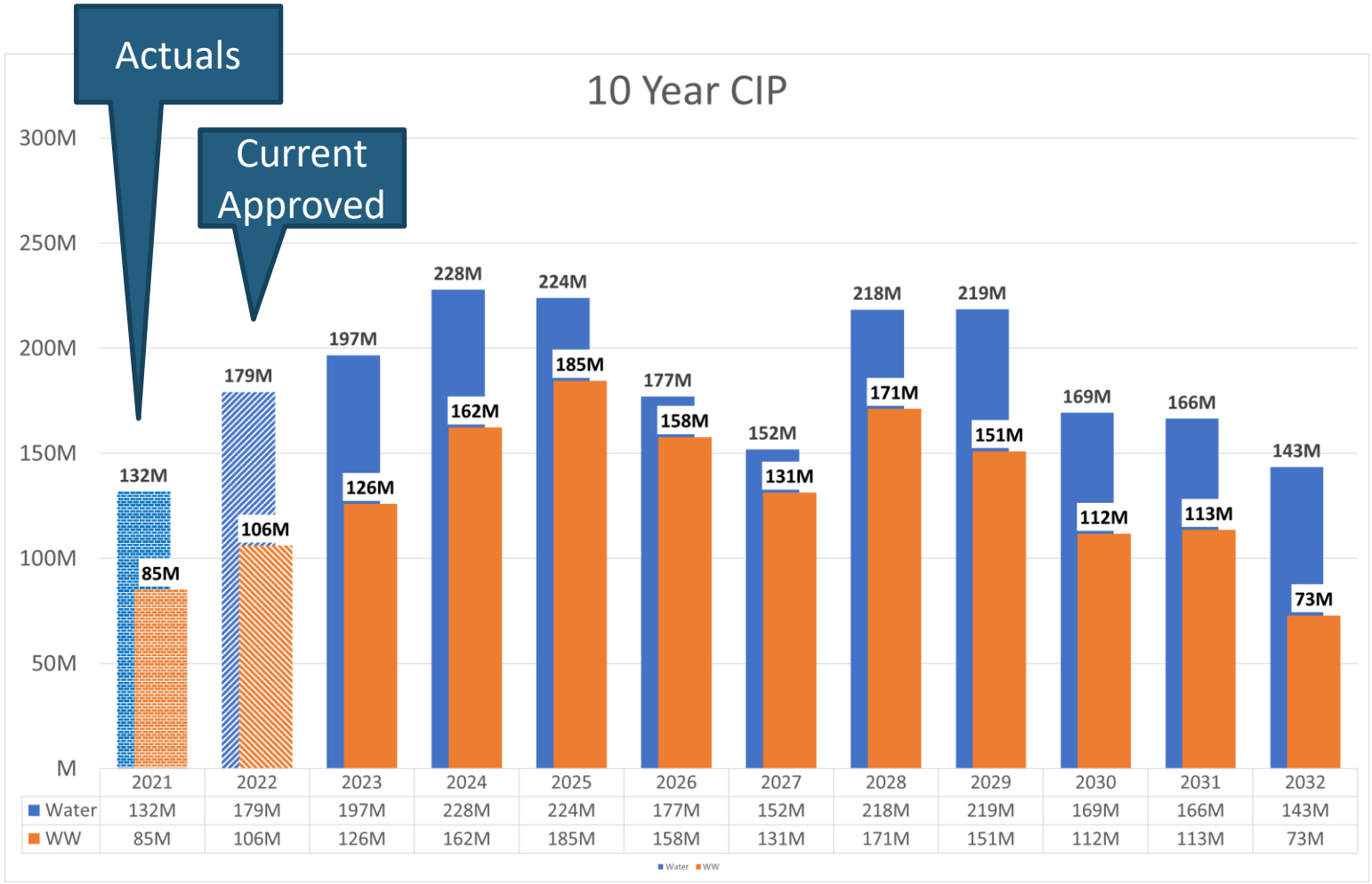
RECAP & NEXT STEPS

WATER & WASTEWATER FY23-32 (10-YEAR PROJECTIONS)



FY 23-27
Water: $977,263,932
WW: $761,764,137

FY 28–32
Water: $916,035,555
WW: $620,043,920

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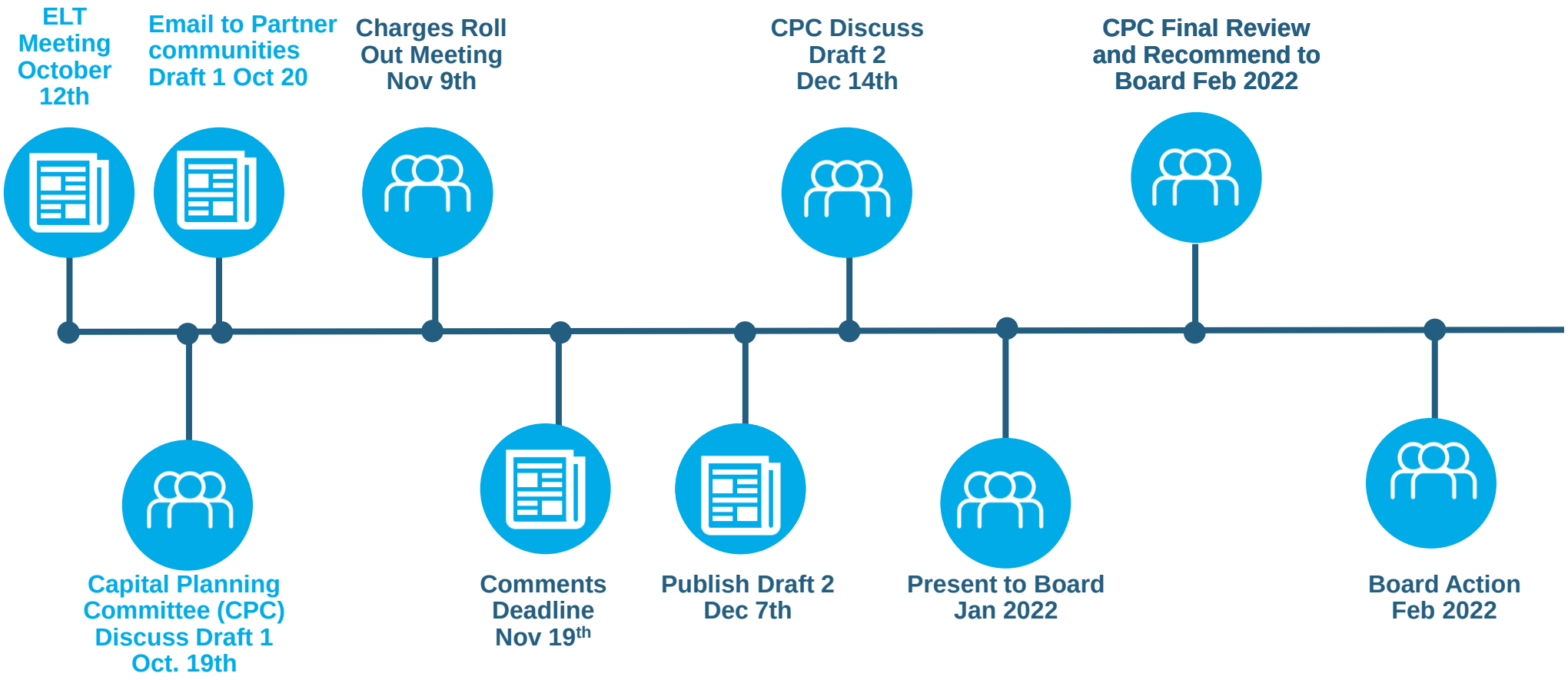
Financial figures in $1,000s

FY23-27 CIP SCHEDULE



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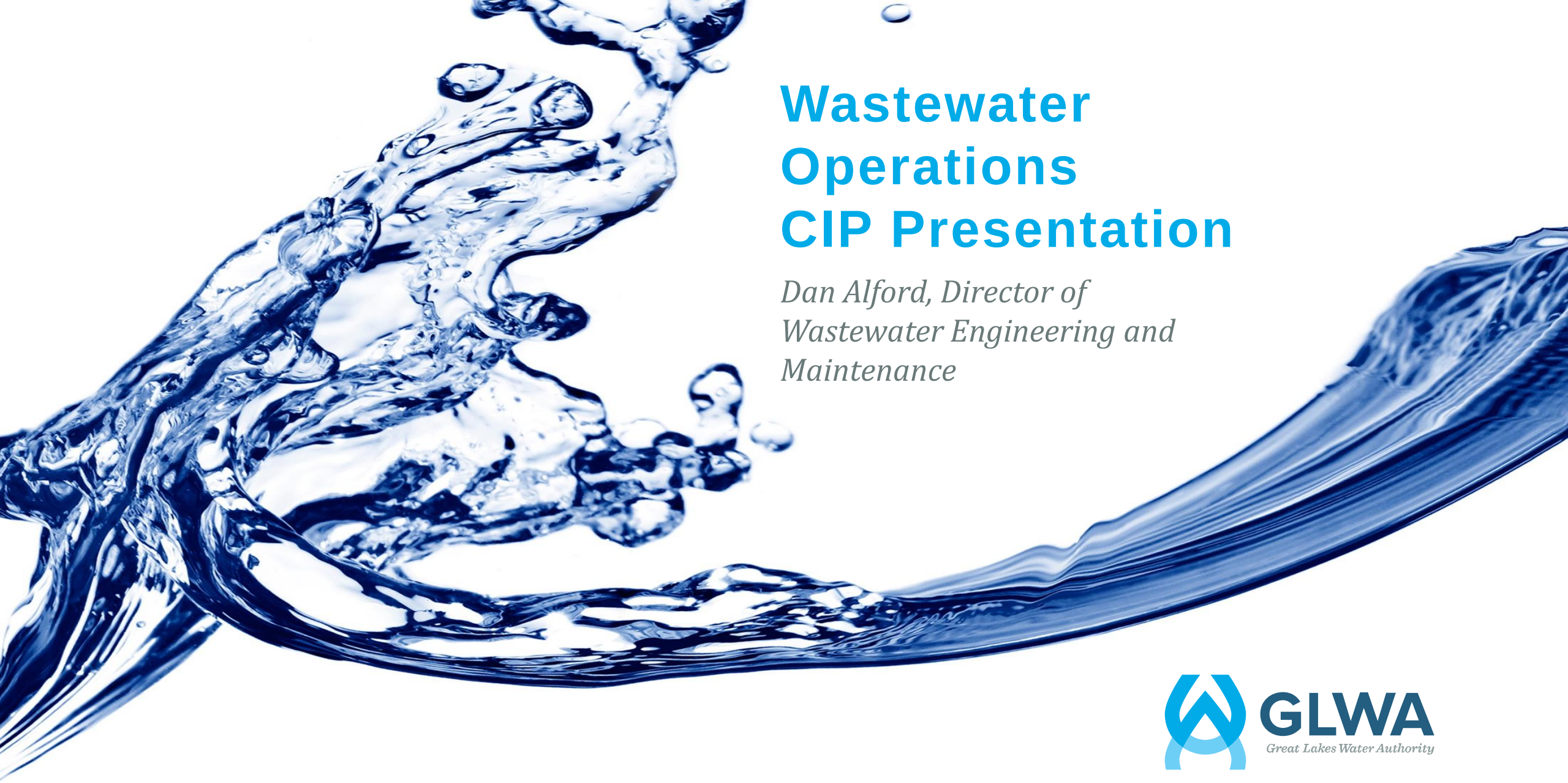
DESIRED OUTCOME RECAP

- Review and discuss FY23-27 CIP summary
- Familiarize the CIP Committee with the FY23-27 CIP document
- Identify schedule milestones
- Next steps



Wastewater Operations CIP Presentation

Dan Alford, Director of Wastewater Engineering and Maintenance

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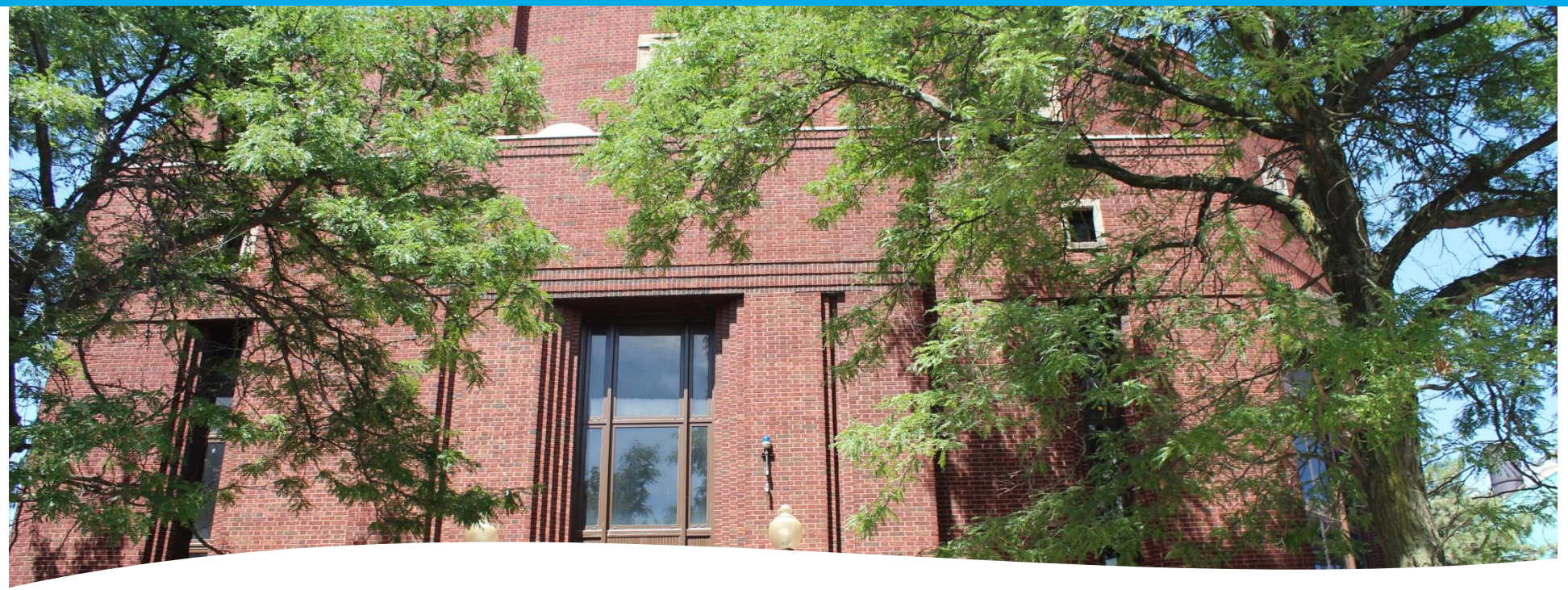


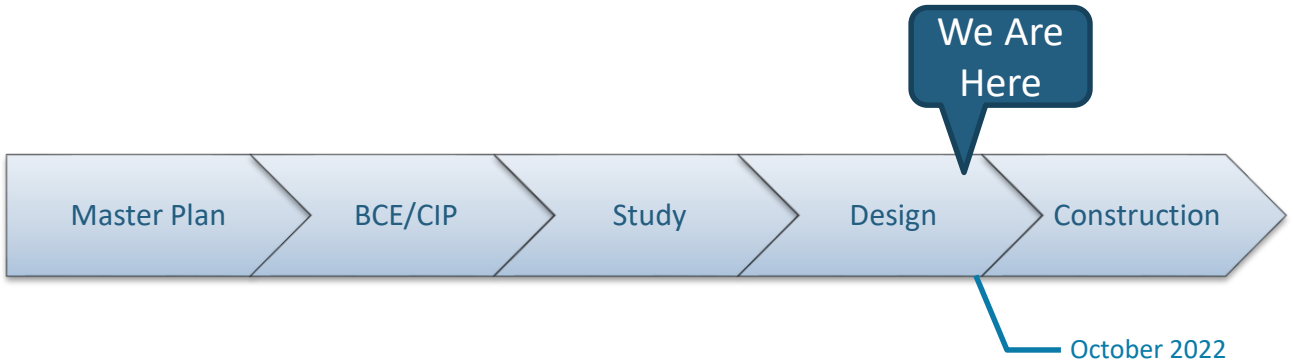
Capital Improvement Plan (CIP) Project Updates

- 211006, PS No. 1 Improvements
- 211007, PS #2 Bar Racks Replacements and Grit Collection System Improvements
- 213009, WRRF Biosolids Processing
- 216006, Assessment and Rehabilitation of WRRF Yard Piping and Underground Utilities
- 216008, Rehabilitation of Screen Final Effluent Pump Station
- CS-299
    - 270004, Oakwood and Leib CSO Facility Improvements
    - 270005, CSO Facility Safety and Facility Improvements

CIP Project Update, 211006
(PS No. 1 Improvements)

- Project Information
  - Type of Project: Design-Bid-Build

Contract	Contractor	Contract Amount	Earned Value	% Complete	Start	End	% Elapsed Time
•CS-102	•Wade Trim	•$4,986,249	•$3,411,173	•68.4%	•5/7/2019	•5/7/2024	•48.6%
•Future Construction	•TBD	•$65,250,000	•$0	•0.0%	•10/1/2022	•3/1/2029	•0.0%



CIP Project Update, 211006
(PS No. 1 Improvements)

Risk Driver (Reliability)

Main Lift Pump System failure

EVENT

Present

Wetwell levels increase causing levels within in-system storage interceptors to rise. Rising levels lead to street flooding and complete failure of collection system.

Future

Rehabilitation of facility will improve system reliability. The improved reliability minimizes possible system interruptions and reduces the likelihood of a complete collection system shutdown.

CIP Project Update, 211006

(PS No. 1 Improvements)

Risk Driver (Resiliency)

Extreme Precipitation to Service Area

EVENT

Present

Wetwell levels increase causing levels within in-system storage interceptors to rise. CSO Basins hold additional wastewater for longer periods of time and increasing likelihood of river discharge.

Future

Rehabilitation of both Motors and Pumps will improve pumping performance. The improved performance reduces system responses times and potential wetwell levels

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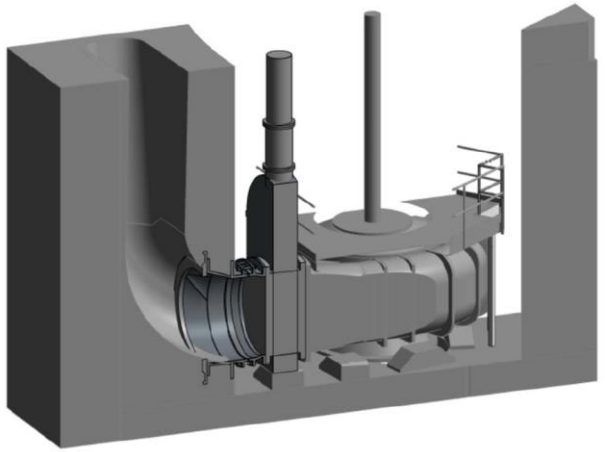
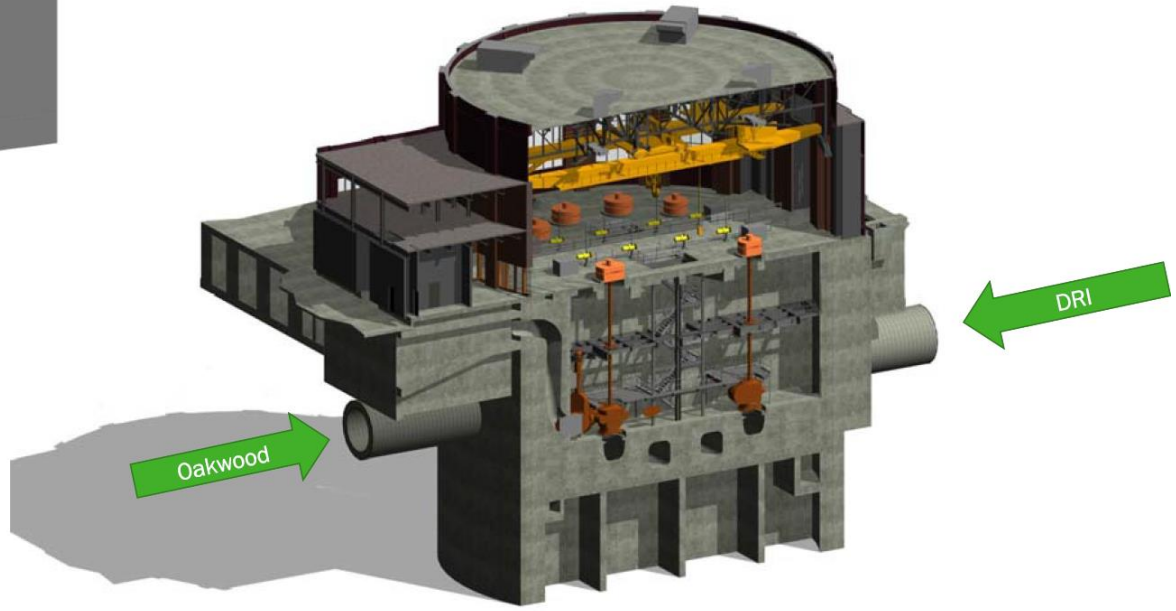
CIP Project Update, 211006

(PS No. 1 Improvements)



New Discharge Piping



Wetwell Section

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(PS No. 1 Improvements, Cont'd)

(PS No. 1 Improvements, Cont'd)

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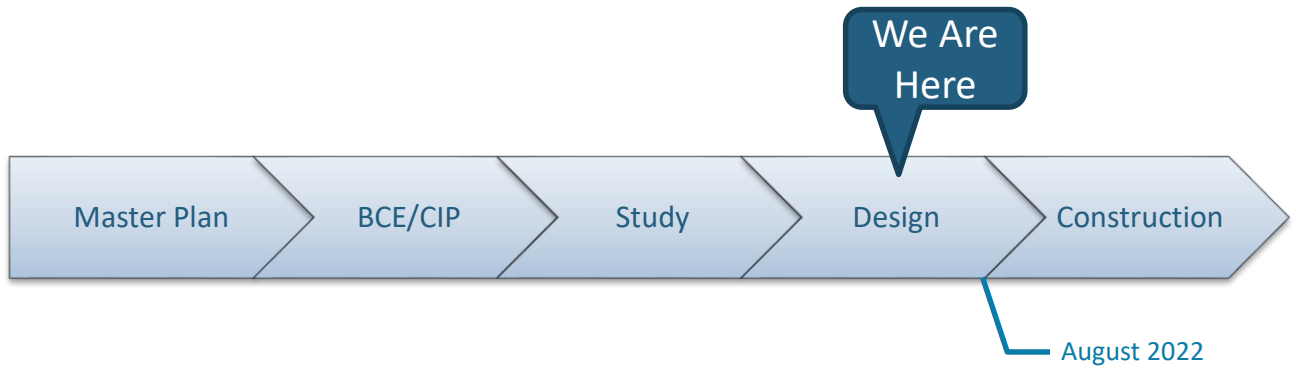
CIP Project Update, 211007

(PS #2 Bar Racks Replacements & Grit Collection System Improvements)

- Project Information
  - Type of Project: Design-Bid-Build

Contract	Contractor	Contract Amount	Earned Value	% Complete	Start	End	% Elapsed Time
•1904337 •Future Construction	•Hazen and Sawyer •TBD	•$11,307,128 •$82,000,000	•$2,055,375 •$0	•18.2% •0.0%	•10/20/2020 •4/1/2023	•5/19/2027 •7/2/2029	•14.8% •0.0%



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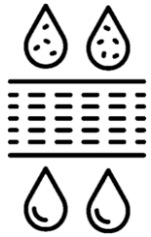
CIP Project Update, 211007

(PS #2 Bar Racks Replacements & Grit Collection System Improvements)

Risk Driver (Reliability)



Screening
System failure

EVENT

Present

Screens blinding leads to increase influent channel levels. Higher levels cause flow to overflow back to the wetwell and increases levels within NI-EA interceptors resulting in street flooding.

Future

Rehabilitation of facility will improve system reliability. The addition of bypass channels allows flow to continue past the screening system into the grit tanks.

Improving grit capture will improve down stream equipment reliability.

(PS #2 Bar Racks Replacements & Grit Collection System Improvements, Cont'd)

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(PS #2 Bar Racks Replacements & Grit Collection System Improvements, Cont'd)

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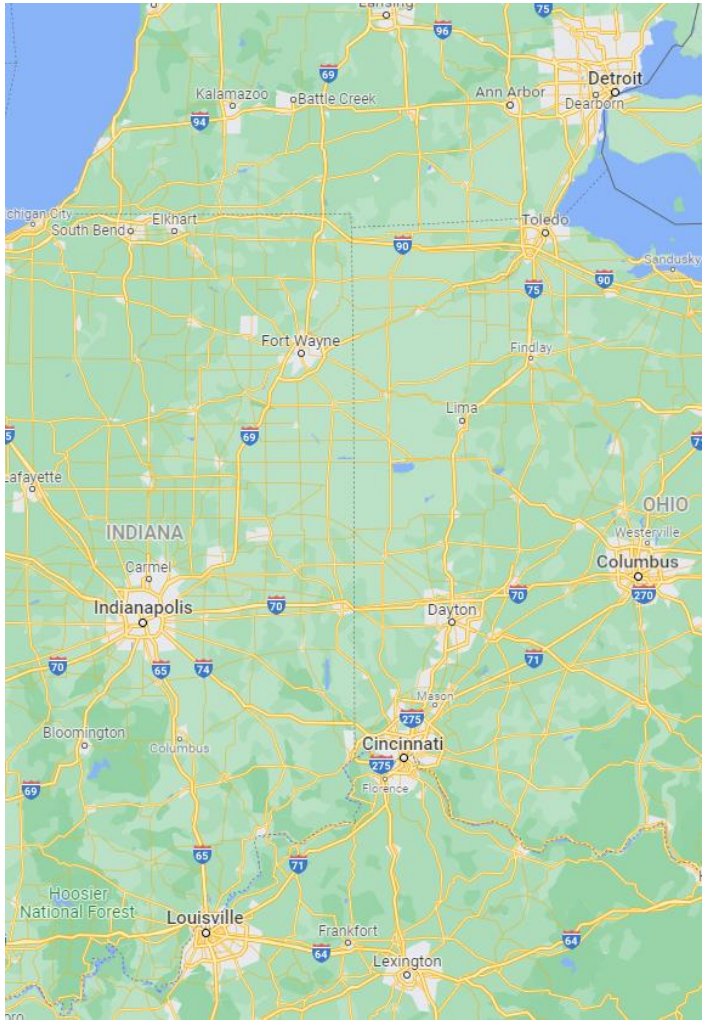
(PS #2 Bar Racks Replacements & Grit Collection System Improvements, Cont'd)



Visit and Virtual Meeting with Monroe, MI and Louisville, KY to see and discuss proposed technology

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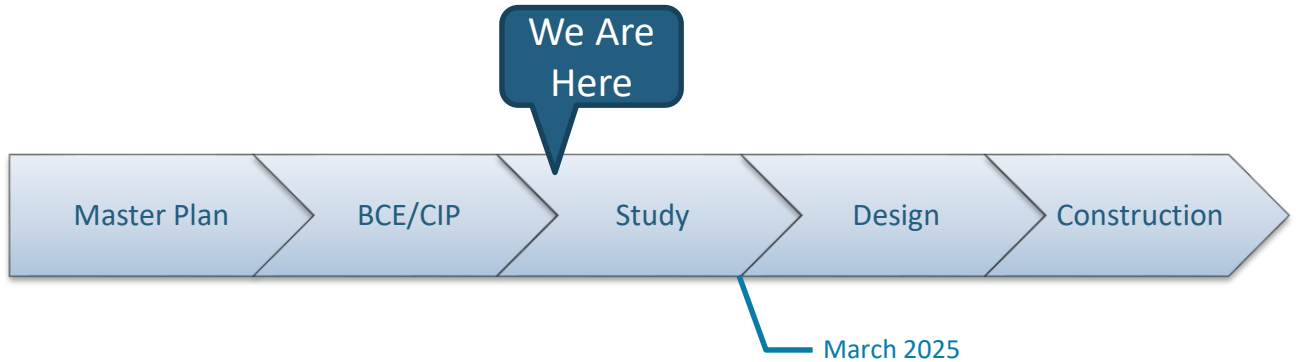
CIP Project Update, 213009
(WRRF Biosolids Processing)

- Project Information
  - Type of Project: Study-Design-Bid-Build

Contract	Contractor	Contract Amount	Earned Value	% Complete	Start	End	% Elapsed Time
•Future Design	•TBD	•$20,000,000	•$0	•0.0%	•2/1/2026	•2/1/2031	•0.0%
•Future Construction	•TBD	•$160,000,000	•$0	•0.0%	•1/1/2031	•1/1/2040	•0.0%



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CIP Project Update, 213009
(WRRF Biosolids Processing)

Risk Driver (Reliability)

Loss of Incineration at the WRRF

EVENT

Present

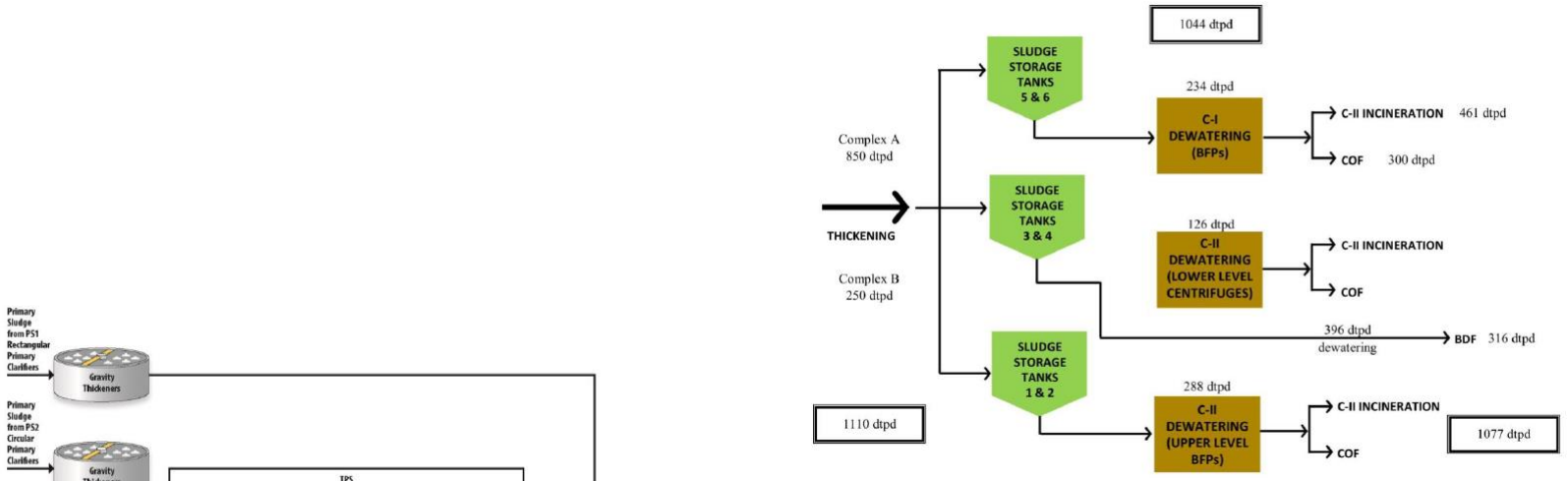
Bring Central Offloading Facility back into operations which leads to Waste Disposal Issues. Increase staff and hauling cost. Potentially increasing solids holdup and violating permit.

Future

Replacing End of Life Incinerators and adding Anerobic Digestion will reduce maintenance cost, improve number of units available for operations and capturing waste stream byproducts to generate additional income stream

CIP Project Update, 213009

(WRRF Biosolids Processing)



Simple Schematic of Solids Handling

THP + Mesophilic Digestion + Drying

CIP Project Update, 213009

(WRRF Biosolids Processing)

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CIP Project Update, 213009

(WRRF Biosolids Processing)

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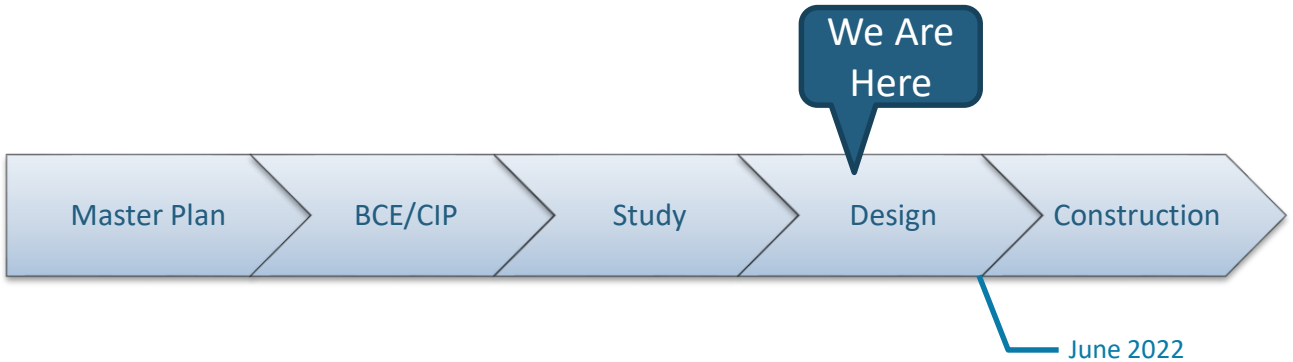
CIP Project Update, 216006

(Assessment and Rehab of WRRF Yard Piping and Underground Utilities)

- Project Information
  - Type of Project: Construction Management-At-Risk

Contract	Contractor	Contract Amount	Earned Value	% Complete	Start	End	% Elapsed Time
•1903601	•CDM Smith	•$1,647,815	•$534,305	•36.0%	•12/28/2020	•2/27/2023	•36.4%
•1903598	•Chrisman Company	•$4,863,051	•$493,444	•34.0%	•1/15/2021	•3/17/2023	•34.1%



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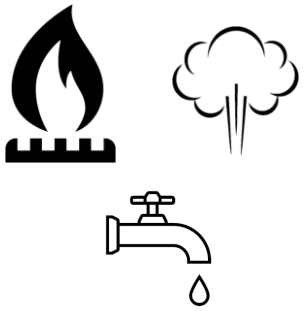
CIP Project Update, 216006

(Assessment and Rehab of WRRF Yard Piping and Underground Utilities)

Risk Driver (Reliability)



Natural Gas, Steam, Water Distribution System failure

EVENT

Present

Loss of Natural Gas Distribution shuts down Incineration.

Loss of Water shuts down incineration, disinfection and pumping systems.

Future

Rehabilitation of the following systems will minimize facility outages:

- Potable Water
- Secondary Water
- Screened Final Effluent
- Natural Gas
- Compressed Air
- Steam

CIP Project Update, 216006

(Assessment and Rehab of WRRF Yard Piping and Underground Utilities)

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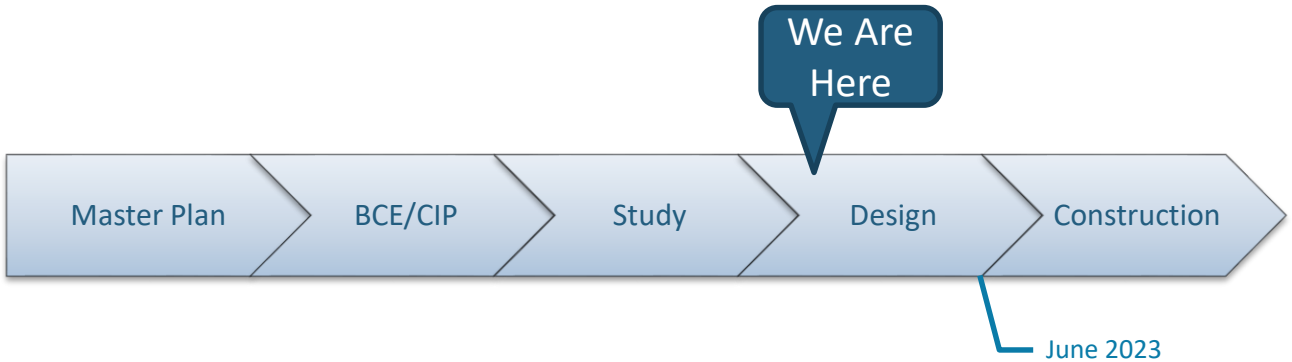
CIP Project Update, 216008

(Rehabilitation of Screened Final Effluent (SFE) Pump Station)

- Project Information
  - Type of Project: Progressive Design-Build

Contract	Contractor	Contract Amount	Earned Value	% Complete	Start	End	% Elapsed Time
•2000970	•Noresco	•$3,399,730.00	•$574,185.30	•16.8%	•4/5/2021	•2/20/2024	•5.7%



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CIP Project Update, 216008

(Rehabilitation of Screened Final Effluent (SFE) Pump Station)

Risk Driver (Resiliency)

Loss of Potable Utility Water Supply to WRRF

EVENT

Present

Secondary system shutdown. The following systems are offline:

- Incineration
- Chlorination
- Dechlorination
- Biosolds Drying Facility

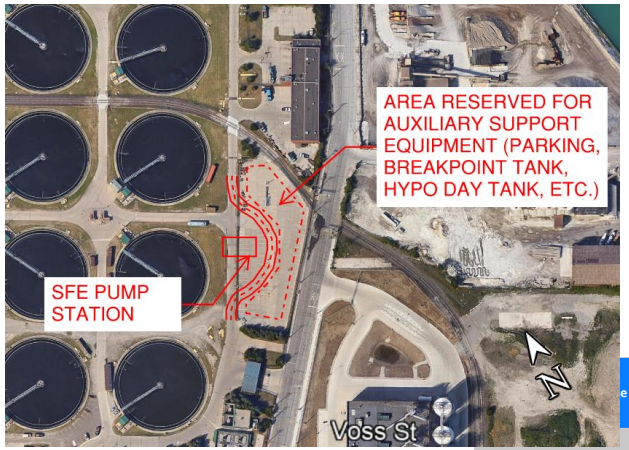
Future

Leveraging Existing WRRF Effluent Stream that can be further treated for reuse as a secondary source of water supply to the facility

Systems stay in Operations

CIP Project Update, 216008

(Rehabilitation of Screened Final Effluent (SFE) Pump Station)



Preliminary Conceptual SFE Pump Station and Auxiliary Buildings Site Plan

	Typ No. of Units In Service	Firm No. of Units In Service	Total No. of Units	Flow Per Unit		Typical SFE Usage	Firm SFE Usage	Source of Flow Information
				gpm	MGD			
C-II Incineration Scrubber Water	4	7	8	2120	3.1	12.2	21.4	Scrubber manufacturer P&ID; review of SCADA
C-II Incineration Strainer Backwash	--	--	--	--	--	0.6	1.1	5% of C-II Incineration Scrubber Water
Complex A Thickener Make-Up Water	4	6	6	500	0.7	2.9	4.3	Site observation and O&M staff input
Complex B Thickener Make-Up Water	4	6	6	500	0.7	2.9	4.3	Site observation and O&M staff input
Biosolids Drying Facility Scrubber Water	3	3.25	4	600	0.9	2.6	2.8	90 percentile of flow rate for each train from SCADA data
C-I BFP Washwater	0	8	10	100	0.1	0.0	1.2	From BFP manufacturer specs
C-I BFP Conveyor Washwater	0	1	1	50	0.1	0.0	0.1	Estimate of usage
C-II BFP (Upper Level) Washwater	6	10	12	100	0.1	0.9	1.4	From BFP manufacturer specs
C-II (Dewater & Incin) Conveyor Washdown	4	6	6	50	0.07	0.3	0.4	Estimate of usage
C-II BFP (Upper Level) Strainer Backwash	--	--	--	--	--	0.04	0.07	5% of C-II Dwatering Washwater
RRO Hypo Carrier Water	0	1	1	700	1.0	0.0	1.0	Maximum observed flow for RRO carrier water from SCADA data
RRO Bisulfite Carrier Water	0	1	1	700	1.0	0.0	1.0	Maximum observed flow for RRO carrier water from SCADA data
SFE Pump Station Strainer Backwash	--	--	--	--	--	1.0	2.0	5% of Current Use Flow
Subtotal of Current Uses		---	---	---	---	**23.4**	**41.1**	
Future Uses								
Chlor & Dechlor Carrier Water							0.0	*To be pumped by separate system*
Replacement of Secondary Water							0.0	*To be pumped by separate system*
PS-2 Screenings Sluice Water	2	2	2	400	0.6	1.2	1.2	400 gpm maximum per sluice trough
Subtotal of Future Uses							**1.2**	
Safety Factor							4.1	10% of firm capacity
Total							**46.4**	

SFE Pump Station Capacity

CIP Project Update, 216008

(Rehabilitation of Screened Final Effluent (SFE) Pump Station)

GLWA Great Lakes Water Authority

CS-299 Facilities Assessment

Schedule: July 2019 – Present (completes end of 2021)
Scope: Assess all nine CSO Facilities

- Multi-disciplinary facilities and equipment assessment
- O&M and condition assessment

Deliverables:
Updated Scheduled Replacement Plan to inform Capital Outlay (I&E) (repair programs)

- Informed CIP Plan based on facility, operational, and regulatory needs
- Asset audit, FMEAs, risk assessment of assets, GIS, 3-D scanning, etc.
- Quick win deliverables – to address most critical items found right away.
    - Baby Creek roof replacement (260620), Generator improvements (260623)

2023 – 2027 CIP Update includes CS-299 Projects

- 270004 – Oakwood and Leib CSO Facility Improvements
- 270005 – CSO Facility Safety and Building Improvements
- 270006 – Baby Creek and Belle Isle Instrumentation / Controls Improvements
- 270007 – Disinfection System Improvements @ Baby Creek, Belle Isle, Conner Creek, and Puritan Fenkell
- 270008 – Flushing System Improvements at Conner Creek & St. Aubin
- 270009 – Site Improvements at St. Aubin, Belle Isle, and Baby Creek CSO Facilities
- 270010 – HVAC Improvements at Puritan Fenkell & Seven Mile
- 270011 – HVAC Improvements @ Conner Creek and Belle Isle Facilities
- 270012 – Conner Creek, Oakwood and Puritan Fenkell Instrumentation / Controls Improvements
- Others added to CIP: 270013, 270014, 273001, 273002, 277002

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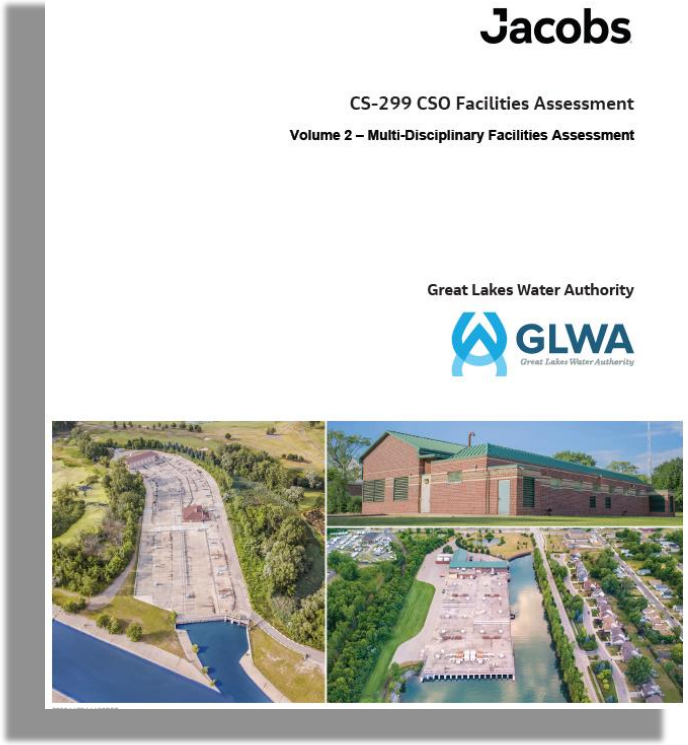
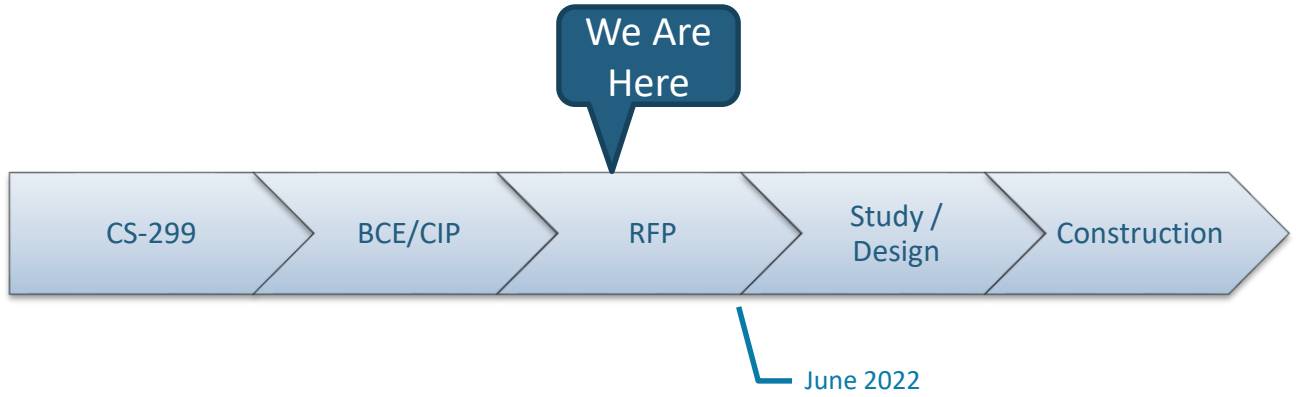


CIP Project Update, 270004

(Oakwood & Leib CSO Facility Improvements)

- Project Information
  - Type of Project: Design-Bid-Build

Contract	Contractor	Contract Estimates	Earned Value	% Complete	Start	End	% Elapsed Time
•Future Design	•TBD	•$4,830,000	•$0	•0.0%	•6/15/2022	•5/1/2025	•0.0%
•Future Construction	•TBD	•$10,300,000	•$0	•0.0%	•2/18/2026	•9/11/2030	•0.0%



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CIP Project Update, 270004

(Oakwood & Leib CSO Facility Improvements)

Risk Driver (Reliability)

Oakwood Pump System Failure or Leib Screen System Failure

EVENT

Present

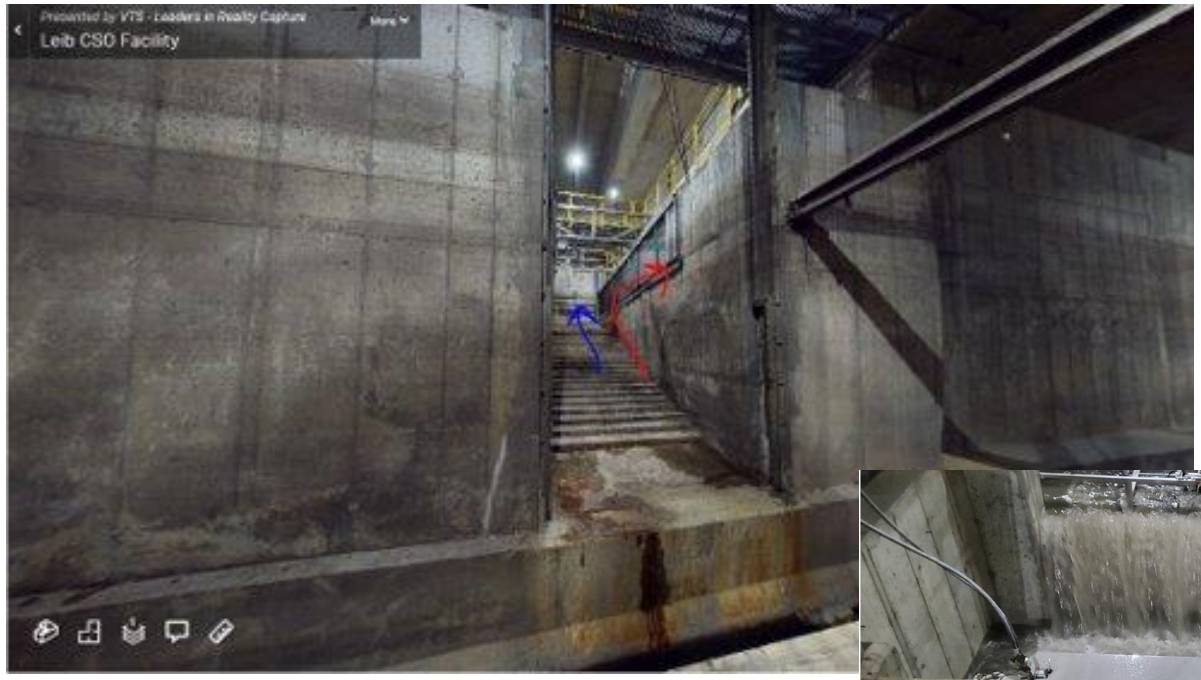
Facility HGL levels increase causing levels within the collection system to rise. Rising levels lead to street flooding and complete failure of collection system.

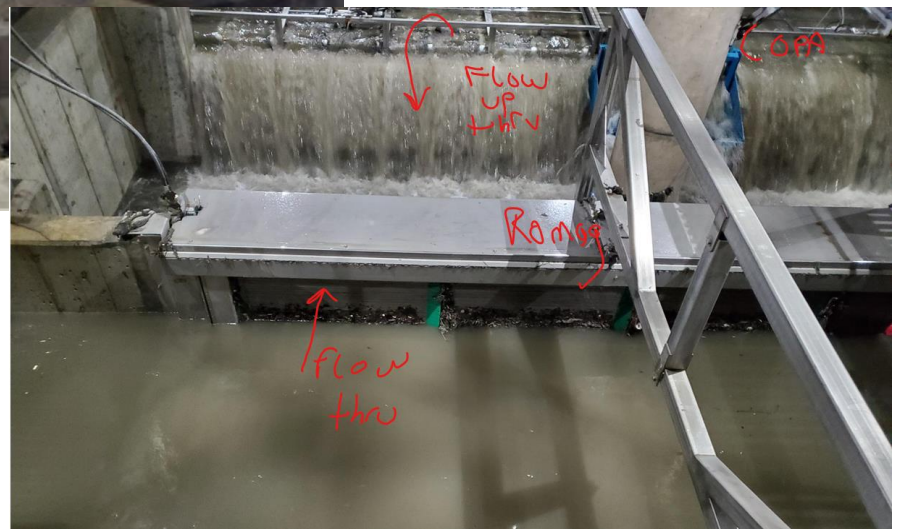
Future

Rehabilitation of the pumps, screens, and various processes at each facility will improve system reliability. The improved reliability minimizes possible system interruptions and reduces the likelihood of high system HGL due to the future diversion projects for the NWI Diversion to Oakwood and the Meldrum Diversion to Leib.

CIP Project Update, 270004

(Oakwood & Leib CSO Facility Improvements)





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CIP Project Update, 270004

(Oakwood & Leib CSO Facility Improvements)

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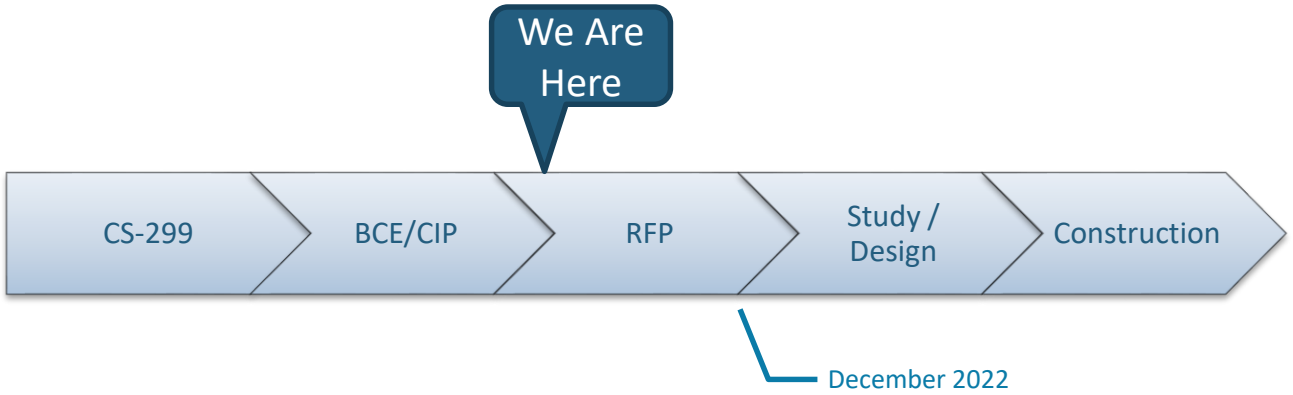
CIP Project Update, 270005

(CSO Facility Safety & Facility Improvements)

- Project Information
  - Type of Project: Design-Bid-Build

Contract	Contractor	Contract Estimates	Earned Value	% Complete	Start	End	% Elapsed Time
•Future Design	•TBD	•$1300,000	•$0	•0.0%	•12/15/2022	•2/15/2025	•0.0%
•Future Construction	•TBD	•$5,185,000	•$0	•0.0%	•12/18/2025	•2/19/2028	•0.0%



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CIP Project Update, 270005

(CSO Facility Safety & Facility Improvements)

Driver (GLWA Team Member Safety)

Open hatch or utilize ladder

EVENT

Present

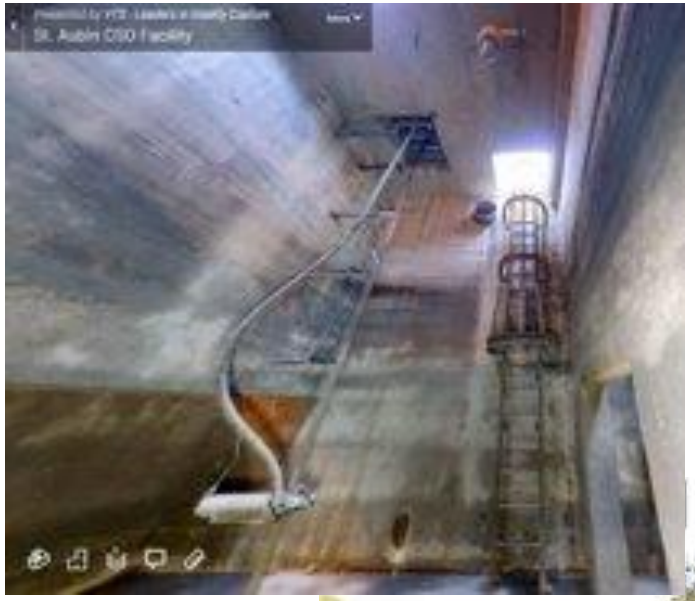
Operator opens heavy hatches, potentially loses balance and falls in. Or operator utilizes facility ladders with no fall-arrest mechanisms and if they fall they fall the whole way down.

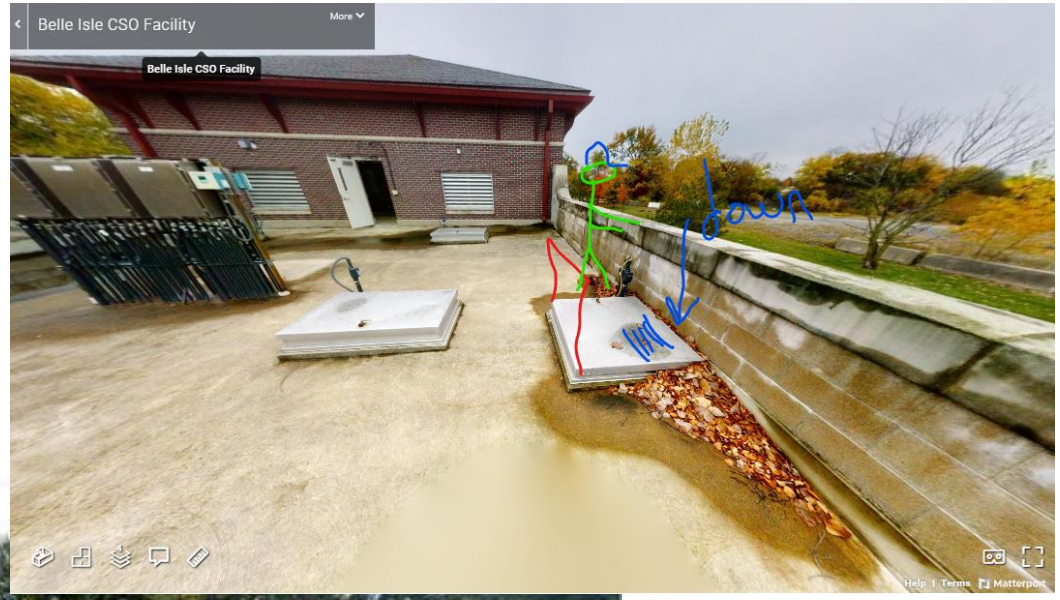
Future

Opening heavy hatches and losing your balance means you fall onto a lighter net or walkable grating below the hatch and avoid injury or death. The grating or netting is much easier to open safely than a heavy hatch. Utilizing a ladder with fall-arrest mechanisms will have a braking system and during a fall will not allow the operator to fall the entire distance, preventing serious injury or death.

CIP Project Update, 270005

(CSO Facility Safety & Facility Improvements)





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Water Supply Operations Highlighted CIP Projects

Grant Gartrell

Director of Water Engineering

GLWA
Great Lakes Water Authority

1803312 West Service Center Reservoirs, Reservoir Pump House & Division Valve Replacement

Project Manager: Andrew Juergens

Design-Build: Kokosing Industrial Inc. and Arcadis

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Project Description

The existing reservoirs at the West Service Center were constructed in the early 1960's and are past their intended service life. The existing reservoirs are in poor condition and continue to require periodic repairs despite numerous past repairs. Additionally, half of the existing reservoir pumps experience suction hydraulic issues when the reservoir level falls below half full.

Additionally, construction of new of West Service Center Division Valves is needed to convey flows originating from the Lake Huron Water Treatment Plant through the West Service Center to the Springwells high-pressure service area while the Springwells raw water tunnel is out of service for repairs.

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Project Team

GLWA Team:

Director of Engineering: Grant Gartrell, P.E.

Project Manager: Andrew Juergens

Design-Build Team:

Design-Build Project Manager: Jim Miller, Kokosing
Deputy Project Manager: Bob Gittinger, Kokosing
Project Superintendent: Adam Kolwicz, Kokosing
Design Manager: Tim Harmsen PE, Arcadis

Kokosing = Kokosing Industrial, Inc.

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Project Cost and Timeline

Cost:

Total Contract Amount= $44,900,000

Total Billed to Date= $11,773,385.85

Total Amount % Complete= 26%

Time:

Contract Start Date: March 15, 2020

Substantial Completion Date: March 14, 2024

Final Completion Date: July 12, 2024

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Existing Conditions Prior to Project Start

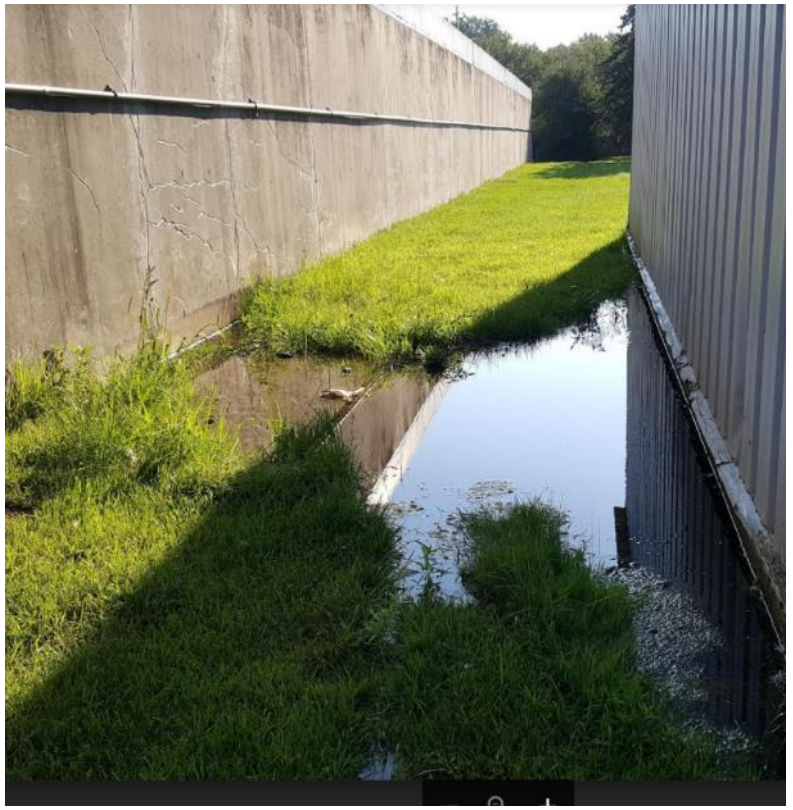
Existing Reservoir No. 1 East Exterior Wall

Existing Reservoir Condition – Exterior

Existing Conditions Prior to Project Start

Existing Reservoir Pump Houses No. 1 and No. 2

Ponding between Pump House No. 1 and Reservoir No. 1



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Existing Conditions Prior to Project Start

Existing Valve Well No. 3

Existing Valve Well No. 1

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April 2021

Excavation Underway for New Reservoir Pump House

Sheet Piling Installed at Valve Well No. 3

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May 2021

New Reservoir Pump House Base Slab Progress

Valve Well No. 3 Excavation Complete

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June 2021

New Reservoir Pump House Progress

Valve Well No. 3 Demolition Progress

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July 2021

New Reservoir Pump House Progress

Valve Well No. 3 Formwork Installation

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August 2021

New Reservoir Pump House – Pump Suction Piping Installed

New Reservoir Pump House – Fill Valve Slab Forms and Reinforcement

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1803538 – Ford Road Station Control and Isolation Valve Improvements

Project Manager: Eric Kramp

Contractor: Weiss Construction Company

Engineer: A. Benesch and Co.

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Project Description

Contract No. 1803835 addresses two primary concerns at the Ford Road Station, including (1) pump suction isolation valves failed to isolate, and (2) discharge pressure control valves were not readily controllable. All pump suction isolation and control valves, and the reservoir fill system in the Ford Road Station Building have been replaced with much more reliable equipment. The hydraulically-controlled valves were replaced with electrically-operated valves. A new backup generator was installed to close control valves during a power failure.

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Project Team

GLWA Team:

Director of Engineering: Grant Gartrell, P.E.
Project Manager: Eric Kramp

Contractor Team:

Project Manager: Rick Tagliaferri
Project Engineer: Jack Weiss
Project Superintendent: Dan Baranyai
Safety Manager: Keven Clarey

Weiss Construction Company

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Great Lakes Water Authority

Project Cost and Timeline

Cost:

Total Contract Amount= $2,650,866

Total Billed to Date= $2,575,677

Total Amount % Complete= 97%

Time:

Contract Start Date: July 13,2019

Substantial Completion Date: August 24, 2020

Final Completion Date: October 3, 2021

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Line Pump Isolation Valves

Original Isolation Butterfly Valves

New Triple Offset Butterfly Valves (TOBV)

Line Pump Isolation Valves

Original Isolation Butterfly Valves

New TOBV Isolation Valves

Reservoir Pump Isolation Valves

Original Isolation Butterfly Valves

New TOBV Isolation Valves

Reservoir Fill System

Existing Elevated Reservoir Fill System

New Reservoir Fill System

New Sleeve Valve

Pump Control Valves

Original Control Butterfly Valves and Hydraulic Control Panels

New Control Ball Valve and Electric Control Panel

Pump Control Valves

Original Hydraulic Control Panels

New Control Panel Interior

Highlighted Field Services and Systems Control Projects

Todd King, P.E., BCEE

Director of Field Services

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Highlighted
SCC and Field Projects

DB-226 Detroit River Intercept Rehab – CIP 222002

DB-150 Springwell, Northeast and Pennsylvania Raw Water Tunnel Rehab – CIP 116002

CS-120 Conner and Freud Pump Station Design – CIP 232002

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Contract DB 226: Rehabilitation of Detroit River Interceptor

Project Manager

Mini Panicker

CIP 222002 Related Contracts

Contract	Contractor	Contract Amount	Earned Value	% Complete	Start	End	% Elapsed Time
DB-226	Jay Dee	$47,993,835	$33,790,547	70%	5/24/18	5/24/23	70%

- Currently, negotiating GMP for Reach 3 – Approximately $30 million and two-year extension
- Total cost expected to be $80 million +/- in alignment with FY22-26 CIP

Detroit River Interceptor (DRI)

- 13 miles long from Alter Rd. to WRRF
- Interceptor ranges from 8 ft near Alter Rd to 16 ft at WRRF
- DRI was constructed in parallel to the Detroit River

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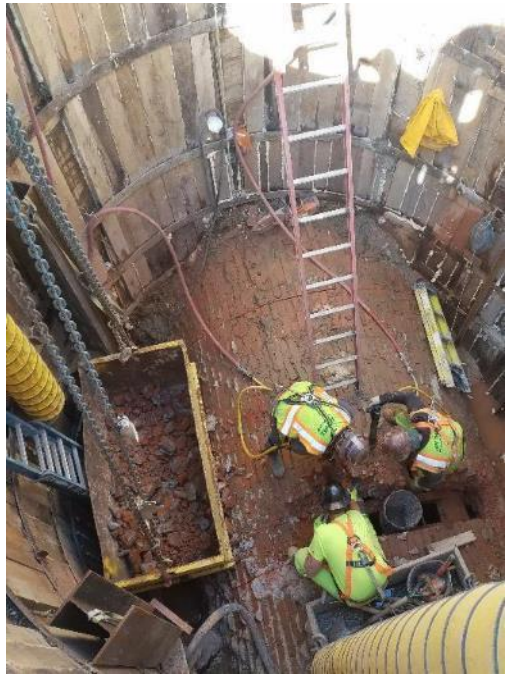
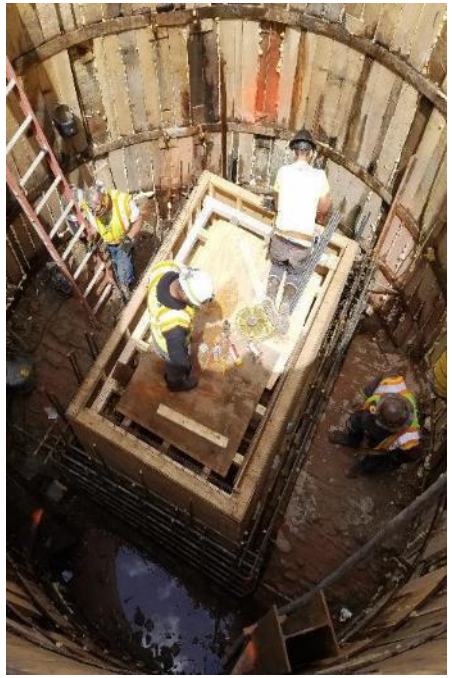
CONNOR CREEK ACCESS STRUCTURE CONSTRUCTION

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SEWER REPAIRS


Brick Repair


Grout Infiltration


Tap Repair

Debris Removal

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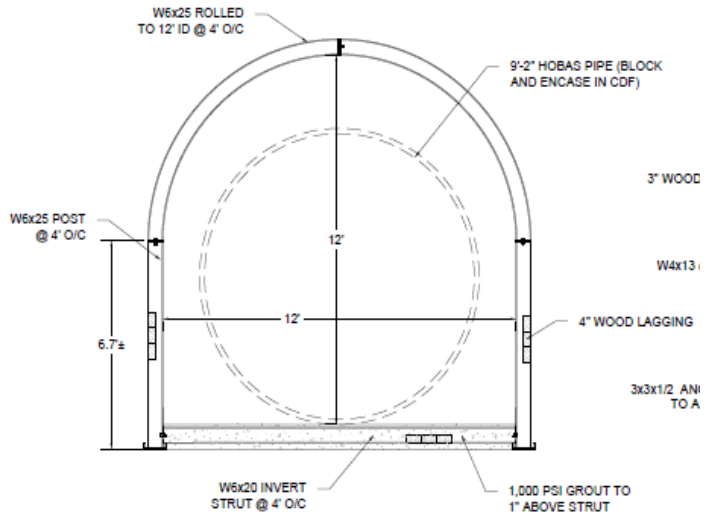
NIEA “GRAND CONNECTOR” TUNNEL DETAILS

- TBM excavation of 980 linear feet
- 9’-2” Internal Diameter Hobas Pipe grouted in tunnel with 12 ft Diameter rib and lagging tunnel liner between Fort St. and Jefferson
- Hand mine Tunnel excavation from North structure to NIEA about 80 ft under Fort Street
- TBM Launch Shaft at W. Grand Blvd East of Fort St
- TBM Retrieval Shaft and DRI gate shaft at W. Grand Blvd and Jefferson



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NIEA “GRAND CONNECTOR” STATUS




- North Shaft excavation started 8-10-2020
- North Shaft Concrete mud mat was placed on 9-3-2020
- Structures and Gates completed summer 2021

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Contract DB 150: Rehab/Repair of Raw Water Tunnels for Northeast, Springwells, and Pennsylvania Tunnels

Project Manager

Todd King, Nick Hoffman

CIP 116002 Related Contracts

Contract	Contractor	Contract Amount	Earned Value	% Complete	Start	End	% Elapsed Time
DB-150	Ballard	$94,577,477	$30,791,013	33%	1/29/18	3/28/25	45%

- Pennsylvania Tunnel Repairs – complete
- Northeast Tunnel Repairs – access shaft – complete
- Springwells Tunnel Repairs – utility relocations - complete
- Total costs expected to be $95 million +/- in alignment with FY22-26 CIP

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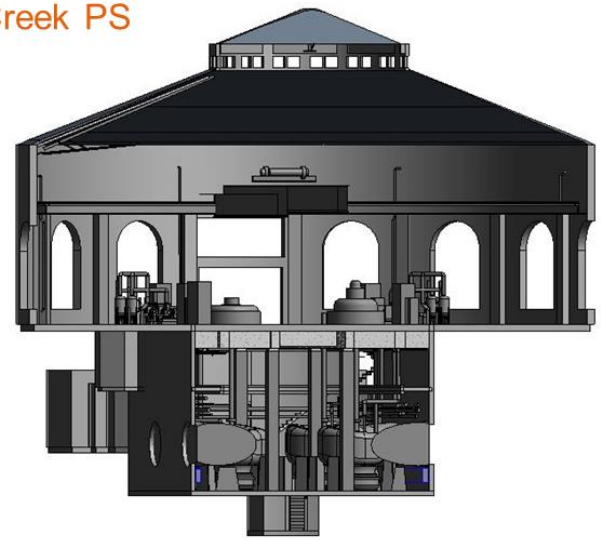
Contract CS-120: Freud and Conner Pump Station Rehabilitation and Replacement

Project Manager

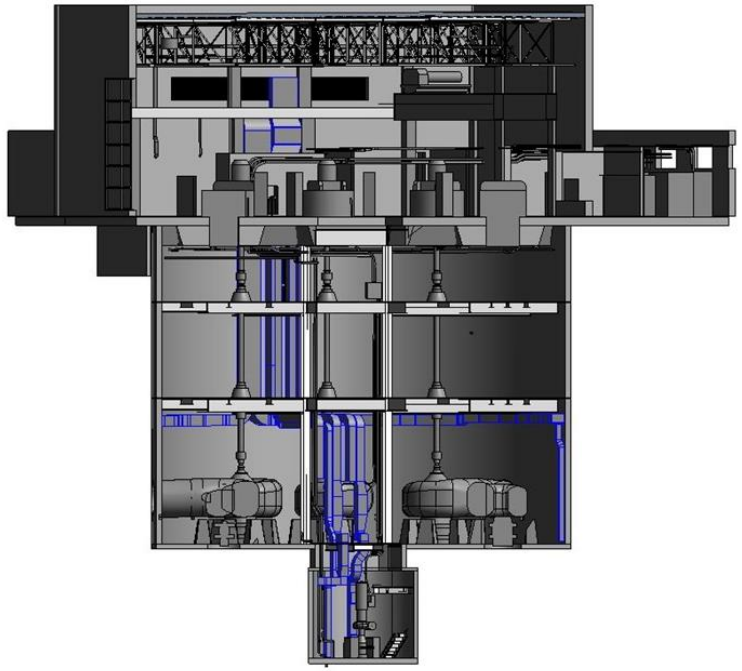
Mini Panicker

Conner Creek PS



Storm Wet Well Floor – El. 55

Freud PS



Storm Wet Well Floor – El. 20

CIP 232002 Related Contracts

Contract	Contractor	Contract Amount	Earned Value	% Complete	Start	End	% Elapsed Time
CS-120	Arcadis	$24,410,947	$4,871,686	20%	May 2017	July 2028	41%

- Property acquisition – Freud and Conner - underway
- Design of Freud Sanitary Pump Station – to be completed 1Q22
- Design of Conner Creek Pump Station replacement - underway
- Total costs expected to be $248 million +/-
  - $18 million – study/design/construction assistance
  - $72 million –construction – Freud
  - $158 million – construction - Conner

Stage	Freud	Conner
Design complete	1Q22	4Q23
Construction start	1Q23	4Q24
Complete	3Q26	4Q29

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CLOSING REMARKS

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Questions?

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Have a Great Day!