

# GLWA's FY 2020 - 2024 Capital Improvement Plan

*GLWA Board Meeting  
January 23, 2019, 6:00 p.m.*



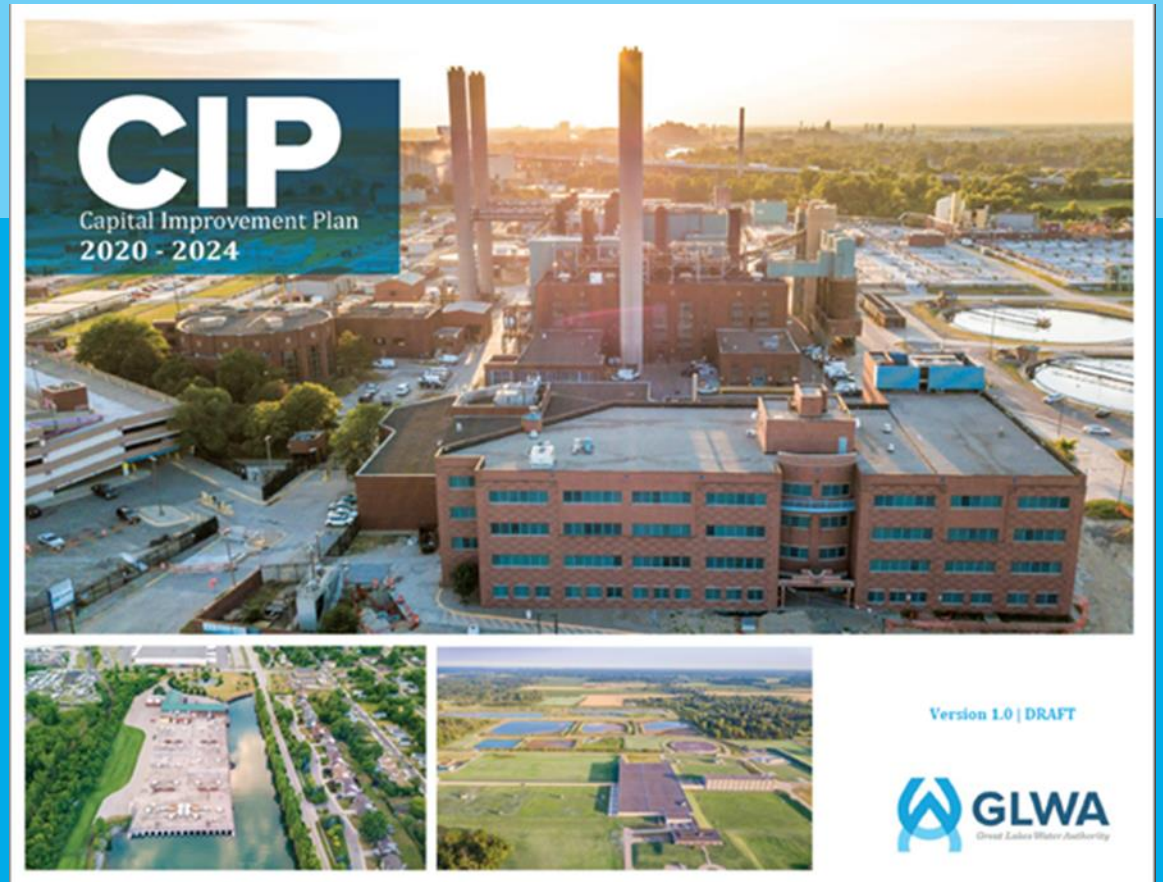
# OVERVIEW: What is the Capital Improvement Plan?

- Five year planning document (Now with a 10-year outlook)
- Requires alignment with our overall Financial Plan
- Includes large new projects or effectively gives new useful life for long-lived assets (asset useful life greater than 20 years)
- Compilation of projects from all areas of the organization
- Used by Financial Services Area to understand when we need to issue bonds

# OVERVIEW: What We Are Trying to Accomplish

- Increased redundancy, reliability & resiliency of water and wastewater systems
- Adherence with long-term planning document recommendations
- Provide opportunity for Board, Authority Members and stakeholders to provide input
- Best-in-class planning and execution of capital program
- Sharp financial focus in coordination with Financial Services Area

# CIP Features





# General CIP Features

## Robust Business Case Evaluation (BCE) for all projects

- Status
- Prioritization score
- Description
- Schedule
- Projected expenditures

CIP Number: 216007

Project Title DTE Primary Electric 3rd Feed Supply to WRRF

Project Status Active

Class Lvl 1 Wastewater

Class Lvl 2 WRRF

Class Lvl 3 General Purpose

Location City of Detroit

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

☐ Project New To CIP

Project Engineer/Manager Phillip Kora

Manager Philip Kora

Project Score 82.8


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.



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 Expenses Compared to Previous CIP Versions (All figures are in \$1,000's)

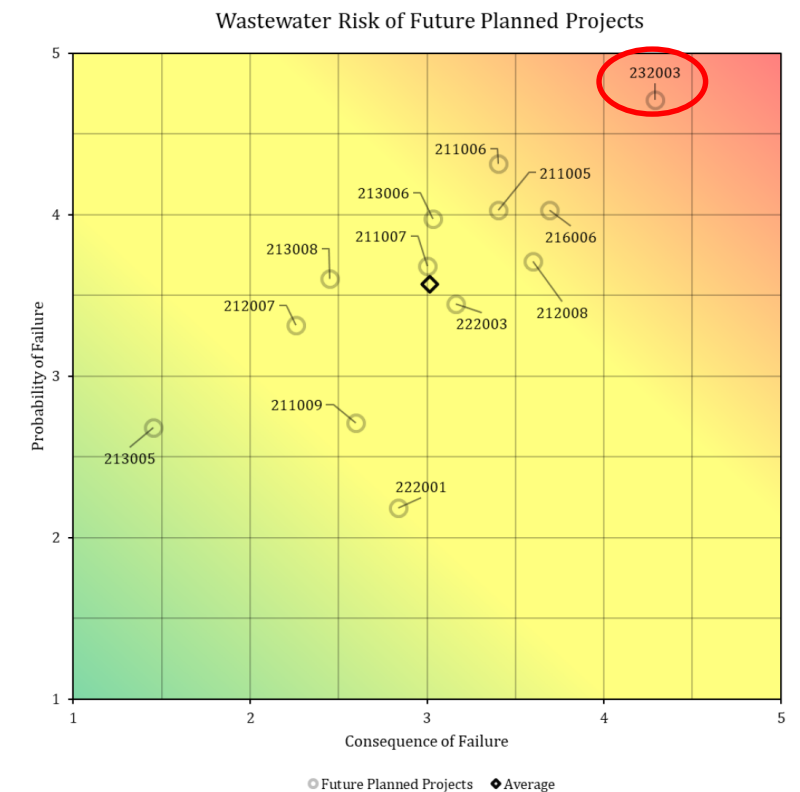
CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2018			3,500	3,500					0	0	7,000
2019	0	15		2,002	1,326	3,326				0	6,669
2020	0	0	584	2,108	1,381	3,374	0	0	0	0	7,447

# General CIP Features

Overall project prioritization including estimates of consequence & probability of failure

## SECTION 4 PROJECT MANAGER CRITERIA SCORES: WASTEWATER

Rank	CIP No.	Title		0	20	40	60	80	100
1	232003	Northeast Pumping Station	232003						
2	216006	Assessment & Rehab of WRRF yard piping and underground utilities	216006						
3	211006	WRRF PS No. 1 Improvements	211006						
4	212008	WRRF Rehabilitation of Intermediate Lift Pumps (ILPs)	212008						
5	211005	WRRF PS No. 2 Improvements Phase II	211005						
6	213006	WRRF Improvements to Sludge Feed Pumps at Dewatering Facilities	213006						
7	222003	North Interceptor East Arm (NIEA) Evaluation and Rehabilitation	222003						
8	211007	WRRF PS #2 Bar Racks Replacements & Grit Collection System Impr...	211007						
9	213008	WRRF Rehabilitation of the Ash Handling Systems	213008						
10	212007	WRRF Rehabilitation of the Secondary Clarifiers	212007						
11	211009	WRRF Rehab of the Circular Primary Clarifier Scum Removal System	211009						
12	222001	Oakwood Dist. Intercom. Relief Sewer Modification at Oakwood Dist.	222001						
13	213005	WRRF Complex I Incinerators Decommissioning and Reusability	213005						



CIP Number: 232003

Project Title Northeast Pumping Station

Project Status Future Planned

Class Lvl 1 Wastewater

Class Lvl 2 SCC

Class Lvl 3 Pumping Stations

Location City of Detroit

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

☐ Project New To CIP

Project Score

89



Pump at the Northeast Pumping Station

Project Engineer/Manager Mini Panicker

Manager Biren Saparia

**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 Expenses Compared to Previous CIP Versions (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
2020	0	0		1,000	7,000	10,500	10,500	2,500	0	0	31,500

# General CIP Features

Multiple types of informative project tables

**Table I-1. Water Projects with 2020-2024 CIP Total Greater than \$30M**

CIP #	Project Title	Lifetime Actual Thru FY18	FY19	Projected Expenditures							
				FY20	FY21	FY22	FY23	FY24	FY25+	2020-24 CIP Total	Project Total
<b>122003</b>	WWP to NE Transmission Main	1,655	1,121	871	15,786	24,115	29,615	29,994	30,115	100,381	133,272
<b>122004</b>	96-inch Main Relocation, Isolation Valves Installations, and New Parallel Main	1,130	837	5,000	6,000	26,453	35,886	23,453	33,907	96,792	132,666
<b>114002</b>	Springwells Water Treatment Plant, Low-Lift and High-Lift Pumping Station Improvements	498	2,607	5,985	9,302	13,724	13,724	26,145	42,831	68,880	114,816
<b>115001</b>	Water Works Park Water Treatment Plant Yard Piping, Valves and Venturi Meters Replacement	682	899	17,333	17,333	17,333	-	-	-	51,999	53,580
<b>122016</b>	Downriver Transmission Main Loop	-	-	297	964	3,051	10,763	22,122	-	37,197	37,197
<b>132010</b>	West Service Center Pumping Station - Reservoir, Reservoir Pumping, and Division Valve Upgrades	-	-	2,620	7,430	15,570	8,910	2,606	-	37,136	37,136
<b>122006</b>	Wick Road Water Transmission Main Construction	126	1,370	18,028	12,334	60	-	-	-	30,422	31,918



# General CIP Features

Multiple types of informative project tables

**Table IV-4. Projects Progressing to Closed Status**

CIP #	Title	2019 Status	2020 Status
116003	Genesee and Lapeer County Transmission System Improvements	Active	Closed
122014	Romulus 48-inch Water Main Installation	Pending Closeout	Closed
122015	30" Water main Replacement - Water main Replacement Under Jefferson & Rouge River	Pending Closeout	Closed
161001	Water Master Plan Update	Pending Closeout	Closed
170700	Reservoirs Inspection, Repair and Rehabilitation Program	Pending Closeout	Closed
212001	WRRF Returned Activated Sludge (RAS) Pumps, Influent Mixed Liquor System and Motor Control Centers (MCC) Improvements for Secondary Clarifiers	Pending Closeout	Closed
212002	WRRF Study, Design, & Construction Management Services for Modified Detroit River Outfall No. 2	Pending Closeout	Closed
212005	WRRF Rouge River Outfall No. 2 (RRO-2) Segment 1	Pending Closeout	Closed
213001	WRRF Replacement of Belt Filter Presses for Complex I and Upper Level Complex II	Pending Closeout	Closed
213003	WRRF Sewage Sludge Incinerator Air Quality Improvements	Pending Closeout	Closed
213004	WRRF Biosolids Dryer Facility	Pending Closeout	Closed
216001	Underground Electrical Duct Bank Repair and EB-1, EB-2 and EB-10 Primary Power Service Improvements	Pending Closeout	Closed

# General CIP Features

## Multiple types of informative project tables

**Table III-5. Project Status Analysis: Water**  
Financial figures are in thousands of dollars (\$1,000's).

Projected Capital Expenditures							Percent of Total
Phase Status	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Total FYs 2020-2024	
<b>Water</b>							
Active	\$ 63,984	\$ 53,846	\$ 28,753	\$ 11,666	\$ 11,427	\$ 169,676	20%
Future Planned Start	70,575	107,254	153,342	156,840	178,439	666,450	78%
Under Procurement	8,688	5,499	500	500	1,000	16,187	2%
<b>Grand Total</b>	<b>\$143,247</b>	<b>\$166,599</b>	<b>\$182,595</b>	<b>\$169,006</b>	<b>\$190,866</b>	<b>\$ 852,313</b>	<b>100%</b>

**Table III-6. Project Status Analysis: Wastewater**  
Financial figures are in thousands of dollars (\$1,000's).

Projected Capital Expenditures							Percent of Total
Phase Status	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Total FYs 2020-2024	
<b>Wastewater</b>							
Active	\$ 65,724	\$ 34,879	\$ 12,705	\$ 2,541	\$ 2,070	\$ 117,919	16%
Future Planned Start	90,864	93,716	137,472	156,843	128,089	606,984	83%
Pending Close-out	500	-	-	-	-	500	0%
Under Procurement	4,392	3,835	-	-	-	8,227	1%
<b>Grand Total</b>	<b>\$161,480</b>	<b>\$132,430</b>	<b>\$150,177</b>	<b>\$159,384</b>	<b>\$130,159</b>	<b>\$ 733,630</b>	<b>100%</b>

# General CIP Features

Multiple types of informative project tables

## SECTION 2 PROJECT MANAGER CRITERIA SCORES: WATER

Rank	CIP No.	Title		0	20	40	60	80	100
1	111001	LH WTP, Low-Lift, High Lift & Filter Backwash Pumping System Imp...	111001						
2	113003	SW WTP, Low- & High-Lift PS, Flocculation and Filtration System...	113003						
3	132025	NW BPS Yard Piping Improvements	132025						
4	114010	SP WTP, Yard Piping and High-Lift Header Improvements	114010						
5	132012	Ypsilanti Booster Pumping Station Improvements	132012						
6	112005	Northeast WTP - Replacement of Covers for Process Water Conduits	112005						
7	331001	Roofing Systems Replacement at Water Plants and BPS	331001						
8	122013	14 Mile Transmission Main Loop	122013						
9	122016	Downriver Transmission Main Loop	122016						
10	132016	North Service Center Pumping Station Improvements	132016						
11	132021	Imlay BPS - Replace Pumps, Motors, VFDs, and HVAC System	132021						
12	132017	NSC BPS - On-Site & Off-Site Yard Piping & Valve Replacement	132017						
13	122007	Newburgh Road Water Transmission Main	122007						
14	132014	Adams Road Booster Pumping Station Improvements	132014						
15	132015	Newburgh Road Booster Pumping Station Improvements	132015						
16	132020	Franklin BPS - Isolation Gate Valves & Electrical Actuator Improve...	132020						
17	132019	Wick Road BPS - Switchgear, Control Valves and Hydropneumatic...	132019						
18	132022	Joy Road BPS, Reservoir Pumping System Improvements	132022						
19	132018	Schoolcraft Booster Pumping Station Improvements	132018						
20	132010	WSC PS - Reservoir, Reservoir Pumping, and Division Valve Upgrades	132010						
21	112003	Northeast WTP High-Lift Pumping Station Electrical Improvements	112003						
22	114017	Springwells WTP Flocculator Drive Replacement	114017						
23	113006	Southwest WTP Chlorine Scrubber, Raw Water Screens & Related...	113006						
24	114007	Springwells WTP, Powdered Activated Carbon System Improvements	114007						
25	122017	7 Mile/Nevada TM Rehab and Carrie/Nevada Flow Control Station	122017						
26	111008	LH WTP, Architectural Programming for Lab & Admin Bldg Improve...	111008						
27	114016	SP WTP 1958 Settled Water Conduits Concrete Pavement Rplcmt.	114016						
28	113007	Southwest WTP Architectural and Building Mechanical Improvements	113007						

# General CIP Features

## Multiple types of informative project tables

**Table IV-10. Water CIP Categories**

Financial figures are in thousands of dollars (\$1,000's).

Category	Category Number	Lifetime Actual Thru FY 2018 (Unaudited)	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025 & Beyond	2020-2024 CIP Total	Project Total
<b>Water</b>											
<b>Treatment Plants &amp; Facilities</b>											
Lake Huron	111	\$ 3,102	\$ 5,071	\$ 23,602	\$ 19,641	\$ 13,532	\$ 4,450	\$ 10,000	\$ 33,057	\$ 71,225	\$112,455
Northeast	112	473	892	1,725	2,003	3	-	-	62,234	3,731	67,330
Southwest	113	447	1,476	3,256	1,145	6	-	-	192,654	4,407	198,984
Springwells	114	98,407	24,979	17,841	26,819	31,512	17,645	26,221	157,347	120,038	400,771
Water Works Park	115	3,649	5,364	20,040	21,241	17,983	-	-	-	59,264	68,277
General Purpose	116	2,178	7,513	5,467	5,467	5,467	3,998	-	-	20,399	30,090
<b>Treatment Plants &amp; Facilities Total</b>		<b>108,256</b>	<b>45,295</b>	<b>71,931</b>	<b>76,316</b>	<b>68,503</b>	<b>26,093</b>	<b>36,221</b>	<b>445,292</b>	<b>279,064</b>	<b>877,907</b>
<b>Field Services</b>											
General Purpose	121	-	-	-	-	-	-	-	-	-	-
Transmission System	122	48,006	5,534	38,824	53,831	62,735	93,464	95,528	89,455	344,382	487,377
<b>Field Services Total</b>		<b>48,006</b>	<b>5,534</b>	<b>38,824</b>	<b>53,831</b>	<b>62,735</b>	<b>93,464</b>	<b>95,528</b>	<b>89,455</b>	<b>344,382</b>	<b>487,377</b>
<b>SCC</b>											
General Purpose	131	-	-	-	-	-	-	-	-	-	-
Pump Station/Reservoir	132	1,570	2,262	6,824	12,609	27,242	23,629	30,799	48,821	101,103	153,756
<b>SCC Total</b>		<b>1,570</b>	<b>2,262</b>	<b>6,824</b>	<b>12,609</b>	<b>27,242</b>	<b>23,629</b>	<b>30,799</b>	<b>48,821</b>	<b>101,103</b>	<b>153,756</b>
<b>Water Quality</b>											
General Purpose	141	-	-	-	-	-	-	-	-	-	-

# General CIP Features

## Multiple types of informative project tables

Table VI-1. Water CIP Projects: Active, Ranked by 2020-2024 CIP Total

CIP #	Title	Project Status	Year Added	Lifetime Actual Thru FY 2018 (unaudited)	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025 & Beyond	2020-2024 CIP Total	Project Total	Percent of W/S CIP
122003	WWP to NE Transmission Main	A	2014	1,655	1,121	871	15,786	24,115	29,615	29,994	30,115	100,381	133,272	11.8%
122004	96-inch Main Relocation, Isolation Valves Installations, and New Parallel Main	A	2016	1,130	837	5,000	6,000	26,453	35,886	23,453	33,907	96,792	132,666	11.4%
114002	Springwells Water Treatment Plant, Low-Lift and High-Lift Pumping Station Improvements	A	2004	498	2,607	5,985	9,302	13,724	13,724	26,145	42,831	68,880	114,816	8.1%
115001	Water Works Park Water Treatment Plant Yard Piping, Valves and Venturi Meters Replacement	A	2007	682	899	17,333	17,333	17,333	-	-	-	51,999	53,580	6.1%
122006	Wick Road Water Transmission Main Construction	A	2016	126	1,370	18,028	12,334	60	-	-	-	30,422	31,918	3.6%
111009	<b>Lake Huron Water Treatment Plant, Two New High-Lift Pumps, Water Production Flow Meter, and Select Yard Piping Improvements</b>	A	2018	-	16	9,030	10,030	7,030	-	-	-	26,090	26,106	3.1%
170800	System-Wide Finished Water Reservoir Inspection, Design and Rehabilitation	A	2016	-	482	5,128	5,211	5,182	3,888	5,495	33,778	24,904	59,164	2.9%
114011	Springwells Water Treatment Plant Steam, Condensate Return, and Compressed Air Piping Improvements	A	2012	473	3,109	5,392	7,754	8,261	-	-	-	21,407	24,989	2.5%
170600	Water Transmission Main Asset Assessment Program	A	2017	-	2,500	3,000	4,000	4,000	5,000	5,000	25,000	21,000	48,500	2.5%
116002	Pennsylvania, Springwells and Northeast Raw Water Supply Tunnel Improvements	A	2016	2,178	7,513	5,467	5,467	5,467	3,998	-	-	20,399	30,090	2.4%
170900	Suburban Water Meter Pit Rehabilitation and Meter Replacement	A	2014	-	3,000	4,000	4,000	3,997	4,100	4,200	20,500	20,297	43,797	2.4%
170500	Transmission System Valve Rehabilitation and Replacement Program	A	2017	3,430	4,000	4,000	3,274	4,000	4,000	4,000	10,000	19,274	36,704	2.3%
122005	Schoolcraft Road Water Transmission Main Replacement	A	2016	4	180	8,100	9,145	633	-	-	-	17,878	18,062	2.1%
114008	Springwells Water Treatment Plant, 1930 Sedimentation Basin Sluice Gates, Guides & Hoists Improvements	A	2014	-	442	4,153	6,830	5,697	3	-	-	16,683	17,125	2.0%
170100	Water Treatment Plant /Pump Station Allowance	A	2012	6,635	3,176	3,000	3,000	3,000	3,000	3,000	15,000	15,000	39,811	1.8%



# General CIP Features

## Detailed asset & facility information

### 1.1.5. Water Works Park Water Treatment Plant

Water Works Park Water Treatment Plant can produce up to 240 million gallons of superior quality drinking water per day (MGD) with room for expansion to 320 MGD. The end result of the city's \$275 million investment in this state-of-the-art facility is water the way it is meant to be: colorless, odorless, and great tasting; even better tasting than the water for which DWSD has been justifiably lauded for more than 150 years.

GLWA's newest water treatment plant is located at 10100 E. Jefferson Avenue in Detroit. Water Works Park II began operating in 2003 as a conventional surface water treatment plant. The original Water Works Park water treatment plant was razed and a new facility was constructed on the same site. The raw water source for the plant is the Belle Isle intake on the Detroit River. The plant has a maximum rated capacity of 240 MGD and is GLWA's first facility with ozone disinfection facilities, as well as a Residuals Handling Facility to treat filter backwash wastewater and alum sludge residuals. Water Works Park is the largest plant in Michigan to use ozone as a disinfectant. The plant was designed to use independent process trains - a minimum of two process units are provided for each treatment process. In addition, all conveyance facilities such as pipelines, junction chambers, channels, and wet wells are configured to provide a minimum of two treatment pathways.



Figure VI-10. Water Works Park WTP

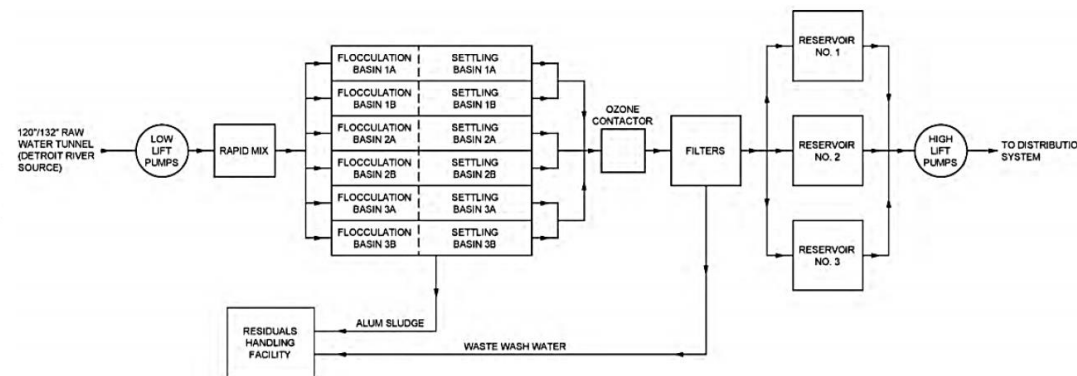


Figure VI-11. Water Works Park process diagram

# General CIP Features

## Detailed asset & facility information

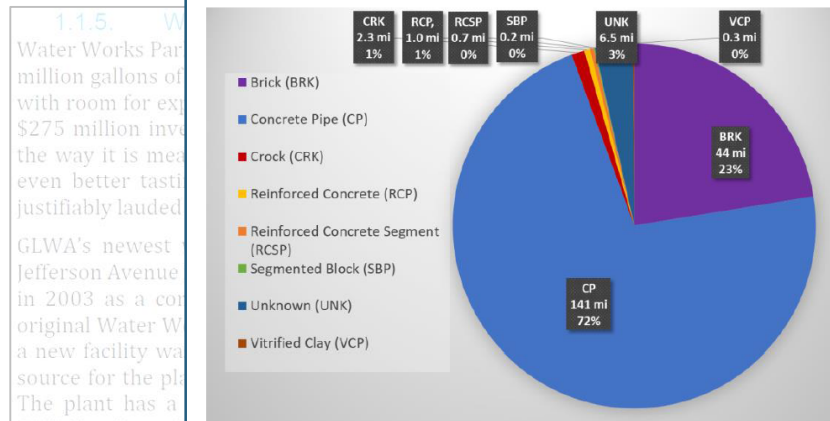


Figure VI-48. Collection system inventory by material

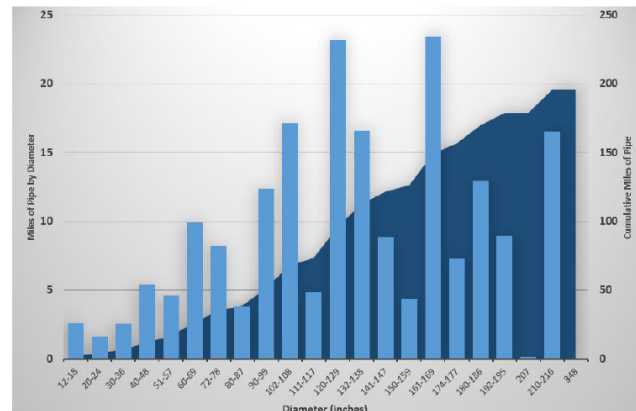


Figure VI-49. Collection system inventory by diameter / height

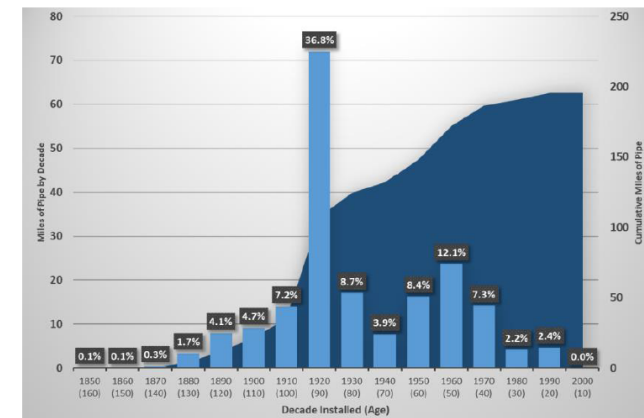


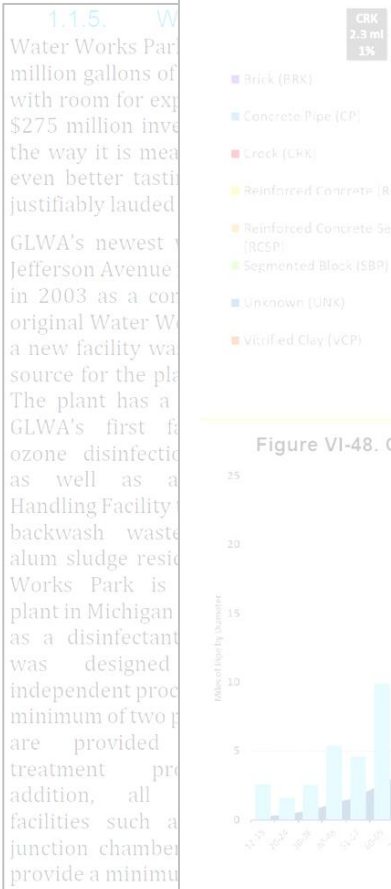
Figure VI-50. Collection system inventory by decade installed / age

Figure VI-51 depicts only those interceptors and trunk sewers operated/maintained (leased) by GLWA. The suburban communities own, operate, and maintain all of their collection system up to the points of connection to the RWCS.

There are three primary interceptors that make up the RWCS and ultimately serve all the combined drainage districts. Those interceptors are the Detroit River Interceptor (DRI), Oakwood-Northwest Interceptor (O-NWI), and North Interceptor East Arm (NI-EA). These interceptors are shown in red/green. These primary interceptors total approximately 44 miles in length with the remaining 151 miles being trunk sewers that primarily service the City of Detroit's 9 drainage districts.

# General CIP Features

## Detailed asset & facility information



Fairview Pump Station



Figure VI-57. Fairview Pump Station

Max Wet Well Level	20 ft
Sanitary Pumps	SN1 - 700 Hp, 96 MGD SN2 - 700 Hp, 96 MGD SN3 - 700 Hp, 96 MGD SN4 - 400 Hp, 48 MGD

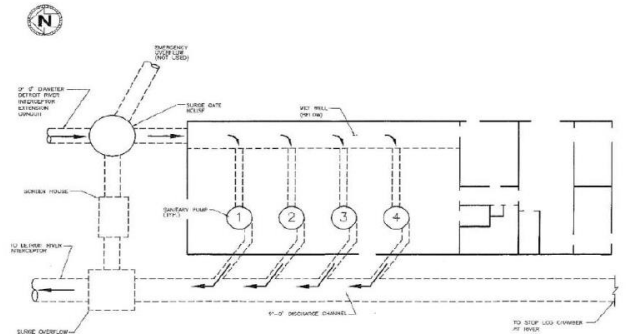


Figure VI-58. Fairview Pump Station Schematic

The Fairview Pumping Station is an interceptor pumping station on the DRI, which provides about 22 feet of lift. Wastewater flow from the DRI is lifted by pumps at the Fairview Pumping Station and discharged into the downstream DRI to continue on to the Detroit WWTP. The function of this station is to pump the wastewater received in the wet well and return it as efficiently and quickly as possible to the downstream DRI. The station facilities include the influent DRI, gatehouse, and pumping station. The pumping station consists of the pump house and wet well.

Table VI-16. Summary of Major Rehabilitation and Improvements Projects at the Fairview Pump Station

Contract No.	Contract Title	Work Summary	Year
PW	Fairview Pumping Station	Construction of Fairview Pump Station.	1913
PW-679	Fairview Additions and Alterations	Modification and upgrades at Fairview Pump Station.	1949
PC-264	Modifications to Fairview Pumping Station	Modification of riser chamber and cover, stop log chamber, and surge overflow.	Set of the drawings: April 1972
PC-606	Fairview Seawall Phase II	N/A.	
PC-684	Fairview Pumping Station Rehabilitation	Replacement of the Pump 2 and associated equipment.	1995
PC-713	Authority-Wide Instrumentation, Control and Computer Systems Program	Ovation System.	2007
PC-773	Ovation Control	Control Window upgrade from Window NT to Window 7.0.	2015
		AT&T's Wide Area Network Upgrade.	October 2016

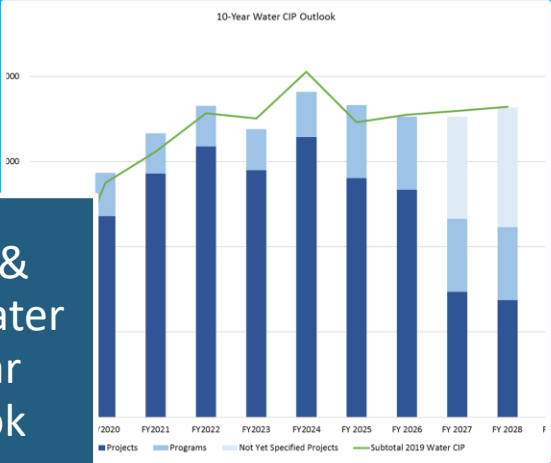
# New CIP Features



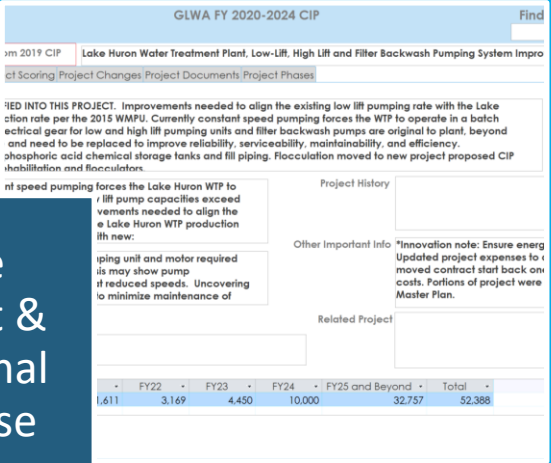
Refinement  
of projects  
with sharp  
financial  
focus

	All Figures are in \$1		
19	FY 20	FY 21	FY 22
	143,247	166,599	182,595
	137,583	155,734	178,300
	5,664	10,865	4,295
	4.1%	7.0%	2.4%

Water &  
Wastewater  
10-Year  
Outlook

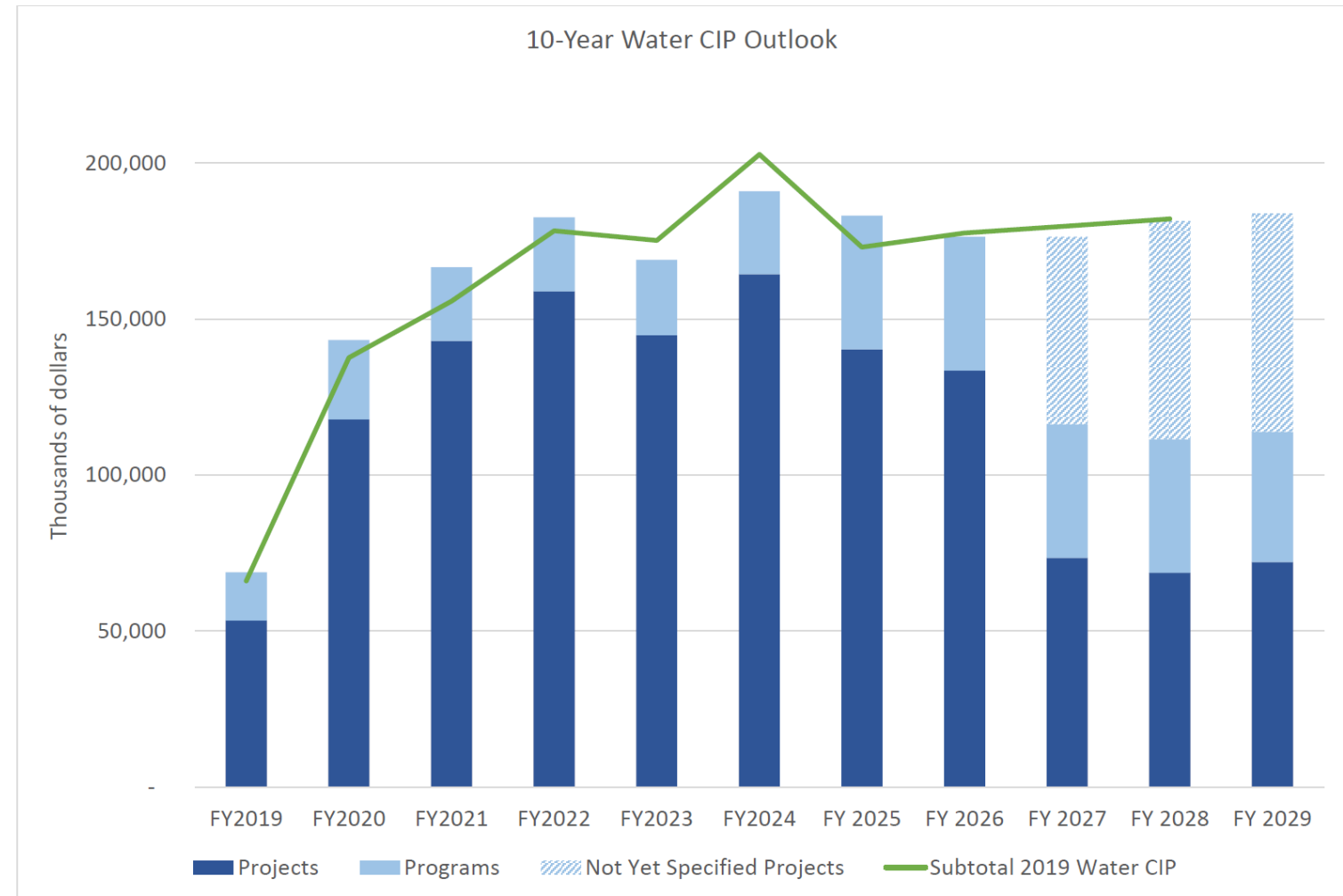


More  
Efficient &  
Functional  
Database



# New CIP Features

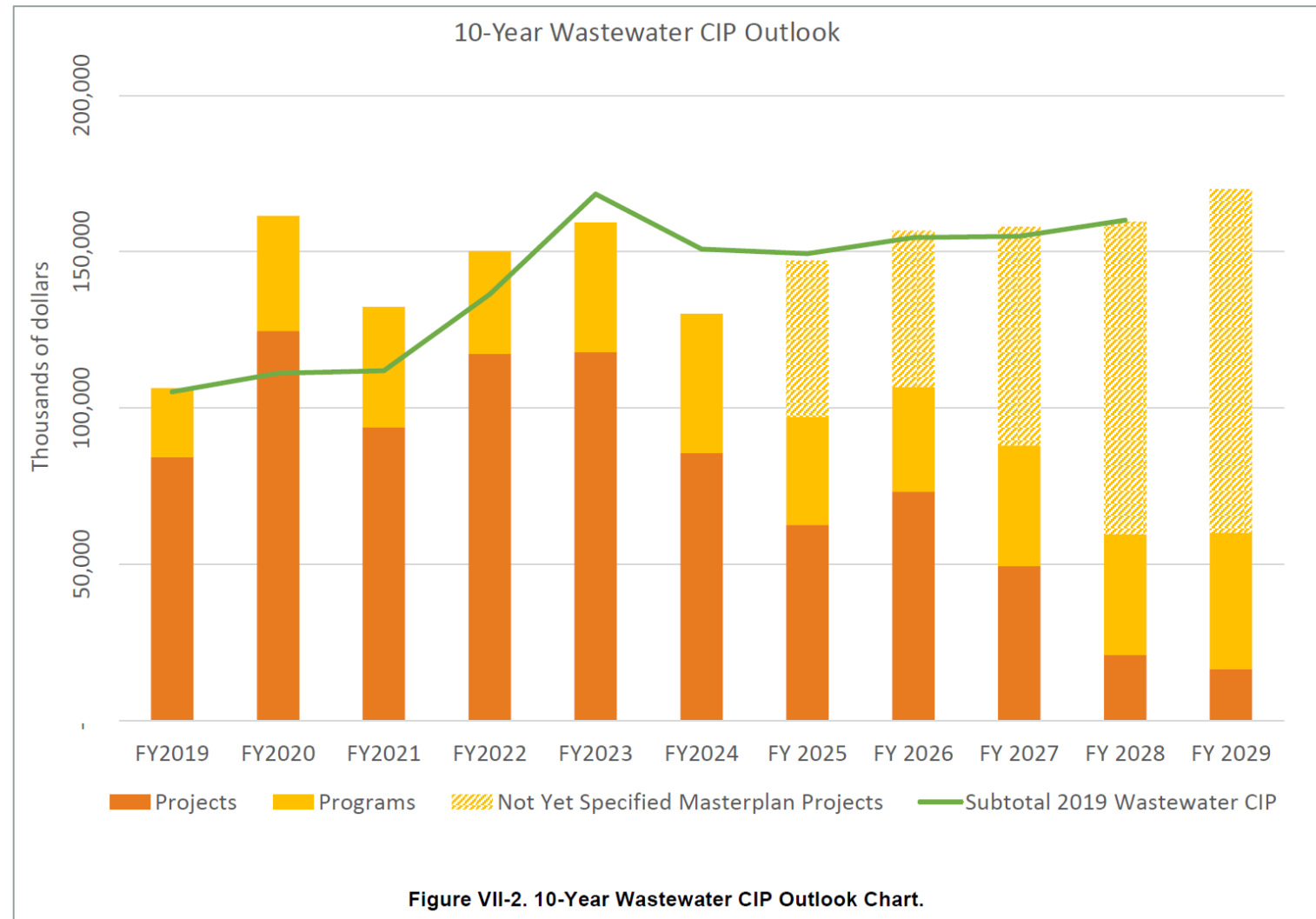
## 10-Year Water Outlook





# New CIP Features

## 10-Year Wastewater Outlook



# CIP Statistics

New Projects: 8 Water, 1 Wastewater

CIP #	Title	2020 Status
111009	Lake Huron Water Treatment Plant, Two New High-Lift Pumps, Water Production Flow Meter, and Select Yard Piping Improvements	Active
112005	Northeast Water Treatment Plant - Replacement of Covers for Process Water Conduits	Future Planned
112006	Northeast Water Treatment Plant Flocculator Replacements	Active
114016	Springwells Water Treatment Plant 1958 Settled Water Conduits Concrete Pavement Replacement	Future Planned
114017	Springwells Water Treatment Plant Flocculator Drive Replacement	Future Planned
115005	WWP WTP Building Ventilation Improvements	Active
122017	7 Mile/Nevada Transmission Main Rehab and Carrie/Nevada Flow Control Station	Future Planned
132025	Northwest Booster Station Yard Piping Improvements	Future Planned
216008	Rehabilitation of Screened Final Effluent (SFE) Pump Station	Active

# CIP Statistics

## General Project Statistics:

Projects	Water	Wastewater	Centralized Services
New Projects	8	1	0
Total Projects	78	34	10
Projects moved to Active Status	10	7	0
Projects moved to Pending Closeout Status	3	0	2
Projects moved to Closed Status	5	8	3
Five year project totals greater than \$30M	7	7	0
FY2020 totals greater than \$5M	8	12	0
Master Plan right-sizing projects	12	1	0
Projects with possible innovative solutions/process	4	13	2
Redundancy and Reliability Projects	29	32	2
Project necessary for Northeast Water Treatment Plant Repurposing	6	0	0

**CIP Number:** 122016  
**Project Title** Downriver Transmission Main Loop

**Project Status** Future Planned

**Class Lvl 1** Water

**Class Lvl 2** Field Services

**Class Lvl 3** Transmission System

**Location** Wayne County - Outside Detroit

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

☐ **Project New To CIP**

**Project Score** **58.4**

**Project Engineer/Manager** Timothy Kuhns

**Manager** Grant Gartrell



Example transmission main

**Project Significance** The Downriver Transmission Main that currently serves Brownstown, Riverview, Woodhaven, Trenton, Flat Rock, Gibraltar, Rockwood, South Rockwood, and Berlin Township is a single feed transmission system. If a disruption to service were to occur on this transmission main, many of the users along this main would experience a complete loss of pressure and flow. This project would provide a transmission main loop to the Downriver system to increase redundancy on this branch of the system.

**Scope of Work** Install approximately 6 Miles of 16-inch transmission main and 3 Miles of 24-inch transmission main from along the Electric Avenue corridor to parallel the existing transmission system in this branch of the system.

**Challenges** Assuming ownership of the 24-inch transmission main through the City of Trenton may require condition assessment of this portion of pipeline.

**Project Expenses Compared to Previous CIP Versions (All figures are in \$1,000's)**

CIP	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	Total
2019	0				297	964	3,051	10,763	22,122	0	37,197
2020	0	0		0	297	964	3,051	10,763	22,122	0	37,197

# CIP Statistics

## Projects Identified By Physical Jurisdiction:

Jurisdiction	Water	Wastewater	Centralized Services
City of Detroit	14	27	0
Lapeer County	2	0	0
Macomb County	1	0	0
Oakland County	8	0	0
Saint Clair County	7	0	0
Wayne County (Outside Detroit)	32	0	0
Multiple Counties	14	7	10
Total:	78	34	10



# 2020 – 2024 CIP PROJECT STATISTICS

Project Statistics:

System	Existing Projects (Active, Future Planned, Pending Close-out)	New Projects	Total FY 2020- 2024
Water Projects	70	8	78
Wastewater Projects	33	1	34
Centralized Services	10	0	10
<b>Total:</b>	<b>113</b>	<b>9</b>	<b>122</b>



# High Level Water & Wastewater Summaries



# FY2020-2024 WATER Summary

## FY 2020 - 2024 CIP Summary - WATER

*All Figures are in \$1,000's*

CIP Document	Lifetime Actual Through FY 18	FY 19	FY 20	FY 21	FY 22	FY 23	FY 24	FY 25 +	5-Year Total (2020-2024)	Project Total
<b>FY 2020-2024 CIP</b>	169,483	68,746	<b>143,247</b>	<b>166,599</b>	<b>182,595</b>	<b>169,006</b>	<b>190,866</b>	<b>798,122</b>	852,313	1,888,664
Approved CIP FY 2019-2023		66,038	137,583	155,734	178,300	175,174				
Difference (\$)		2,708	5,664	10,865	4,295	-6,168				
Difference (%)		4.1%	4.1%	7.0%	2.4%	-3.5%				

# FY2020-2024 WASTEWATER Summary

## FY 2020 - 2024 CIP Summary - WASTEWATER

*All Figures are in \$1,000's*

CIP Document	Lifetime Actual Through FY 18	FY 19	FY 20	FY 21	FY 22	FY 23	FY 24	FY 25 +	5-Year Total (2020-2024)	Project Total
<b>FY 2020-2024 CIP</b>	137,135	106,409	<b>161,480</b>	<b>132,430</b>	<b>150,177</b>	<b>159,384</b>	<b>130,159</b>	<b>269,515</b>	733,630	1,246,689
Approved CIP FY 2019-2023		105,183	111,155	111,952	136,411	168,458				
Difference (\$)		1,226	50,325	20,478	13,766	-9,074				
Difference (%)		1.2%	45.3%	18.3%	10.1%	-5.4%				



# CIP and the Financial Plan



# Cost Allocation

Projected Capital Expenditures							Percent of Five Year Total
Cost Allocation	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Total FYs 2020-2024	
Water							
Common-to-all	\$ 139,247	\$ 162,599	\$ 178,598	\$ 164,906	\$ 186,666	\$ 832,016	98%
Suburban Only	4,000	4,000	3,997	4,100	4,200	20,297	2%
Grand Total	\$ 143,247	\$ 166,599	\$182,595	\$ 169,006	\$ 190,866	\$ 852,313	100%

Projected Capital Expenditures							Percent of Five Year Total
Cost Allocation	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Total FYs 2020-2024	
Wastewater							
Common-to-all	\$ 133,876	\$ 102,877	\$ 133,852	\$ 146,559	\$ 116,798	\$ 633,962	86%
OMID	22,000	25,000	10,500	2,500	-	60,000	8%
CSO 83/17	5,604	4,553	5,825	10,325	13,361	39,668	5%
Grand Total	\$ 161,480	\$ 132,430	\$150,177	\$ 159,384	\$ 130,159	\$ 733,630	100%

# CIP by Phase Status

Projected Capital Expenditures							
Phase Status	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Total FYs 2020-2024	Percent of Total
<b>Water</b>							
Active	\$ 63,984	\$ 53,846	\$ 28,753	\$ 11,666	\$ 11,427	\$ 169,676	20%
Future Planned Start	70,575	107,254	153,342	156,840	178,439	666,450	78%
Under Procurement	8,688	5,499	500	500	1,000	16,187	2%
<b>Grand Total</b>	<b>\$143,247</b>	<b>\$166,599</b>	<b>\$182,595</b>	<b>\$169,006</b>	<b>\$190,866</b>	<b>\$ 852,313</b>	<b>100%</b>

Projected Capital Expenditures							
Phase Status	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Total FYs 2020-2024	Percent of Total
<b>Wastewater</b>							
Active	\$ 65,724	\$ 34,879	\$ 12,705	\$ 2,541	\$ 2,070	\$ 117,919	16%
Future Planned Start	90,864	93,716	137,472	156,843	128,089	606,984	83%
Pending Close-out	500	-	-	-	-	500	0%
Under Procurement	4,392	3,835	-	-	-	8,227	1%
<b>Grand Total</b>	<b>\$161,480</b>	<b>\$132,430</b>	<b>\$150,177</b>	<b>\$159,384</b>	<b>\$130,159</b>	<b>\$ 733,630</b>	<b>100%</b>

# Capital Spend Rate Assumption

**Capital Program Spend Rate Assumption Policy Purpose:** The Spend Rate Assumption (SRA) policy provides an analytical approach to bridge the total dollar amount of projects in the CIP with what can realistically be spent due to limitations beyond GLWA's control and/or delayed for non-budgetary reasons. Those limitations, whether financial or nonfinancial, necessitate the SRA for budgetary purposes, despite the prioritization established in the CIP. The outcome is a reasoned balance between a desired level of capital investment with financial strategies to manage debt levels and control adjustments to customer charges.

**Policy:** Annually, a projected spend rate assumption for the financial plan related to the proposed capital improvement plan will be established based upon pertinent factors and data available at that time. Such pertinent factors and data will include the mix of projects and phases in the proposed CIP, interdependency risk, criticality, and other measures provided by the GLWA team members that develop and manage the CIP projects. That spend rate assumption will be presented to the Audit Committee no later than December 31st each year after the GLWA Board, Capital Improvement Planning Committee, and member partners have had the opportunity to review the draft capital improvement plan.



# GLWA Capital Program Management



# Capital Improvement Program Management Services

## RFP CS-272 Tasks As Advertised

- CIP Business Process/Organizational Improvement Tasks
  - Task 1 CIP Business Process Improvements
  - Task 2 CIP Delivery Standard Operating Procedure (SOP) Development
  - Task 3 CIP Delivery Resource Evaluation
- CIP Business Systems/Information Technology Integration
  - Task 4 Project Management Information System (PMIS) Selection and Implementation (assistance)
  - Task 5 Project Controls and Reporting Support
- CIP Engineering and Construction Assistance
  - Task 6 CIP Validation
  - Task 7 Engineering and Construction Staff Augmentation
  - Task 8 Advanced Facilities Planning

# Questions





**GLWA**

*Great Lakes Water Authority*

**Have a Great Day!**