DISCUSSION DRAFT NO. 2

December 15, 2020

CIP

CAPITAL IMPROVEMENT PLAN

2022 - 2026

GLWA

Great Lakes Water Authority

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1 INTRODUCTION

December 11, 2020

Board Members, GLWA Team Members, Member Partners, and Service Area Communities,

I take great pleasure in introducing to you the Great Lakes Water Authority (GLWA) Capital Improvement Plan (CIP), a five-year plan that supports the continuation of major capital asset investments in the regional water and wastewater systems. We have a CIP team that coordinates the development, planning and execution of the CIP document and plan. The GLWA FY2022-2026 CIP will provide updates on the work being conducted under this project. I wanted to highlight some of the goals for the CIP, including:

- New levels of transparency
- A single source document for project and program goals, needs and spending plan
- Alignment with GLWA long-term financial plans
- A program wide Integrated Master Schedule of all projects water and wastewater related

This year we have initiated changes to the design and functionality of the CIP to enhance reader engagement, including the addition of two new Appendices:

- Appendix D: GLWA Systems – Moves the system information previously included in the main document to an appendix and shortens the main document.
- Appendix E: CIP Validation – Explains the new CIP Project Validation process and provides details on the methodology and recommendations.

Throughout the CIP process this year, we continue to engage with Member Partners and the vendor community through the CIP Work Group. It is our goal that the FY2022-2026 CIP continues to provide useful and accurate information for all stakeholders, internal and external alike. Preliminary Draft 1 was released in October 2020. Preliminary Draft 2 is scheduled for release in December 2020. Submission for Board Approval of the CIP is anticipated in February 2021.

Questions regarding the CIP may be sent to CIP@glwater.org. To speak to me, please contact me directly at ali.khraizat@glwater.org or (313) 297.8819.

Sincerely,

Ali Khraizat, Director of CIP

1.1 EXECUTIVE SUMMARY

We are pleased to submit the Great Lakes Water Authority (GLWA) Capital Improvement Plan (CIP) for fiscal years 2022-2026. This document serves as a guide for the effective and efficient provision of capital assets and infrastructure, outlining timing, and financing for the five-year plan.

GLWA is the largest water system in the United States in production and population served. To collaboratively ensure a One Water system approach to our regional water and wastewater systems GLWA has a dedicated Member Outreach Program that collaborates with its Member Partners. Work groups are used to involve members in technical service and financial discussions that support decision making at GLWA.

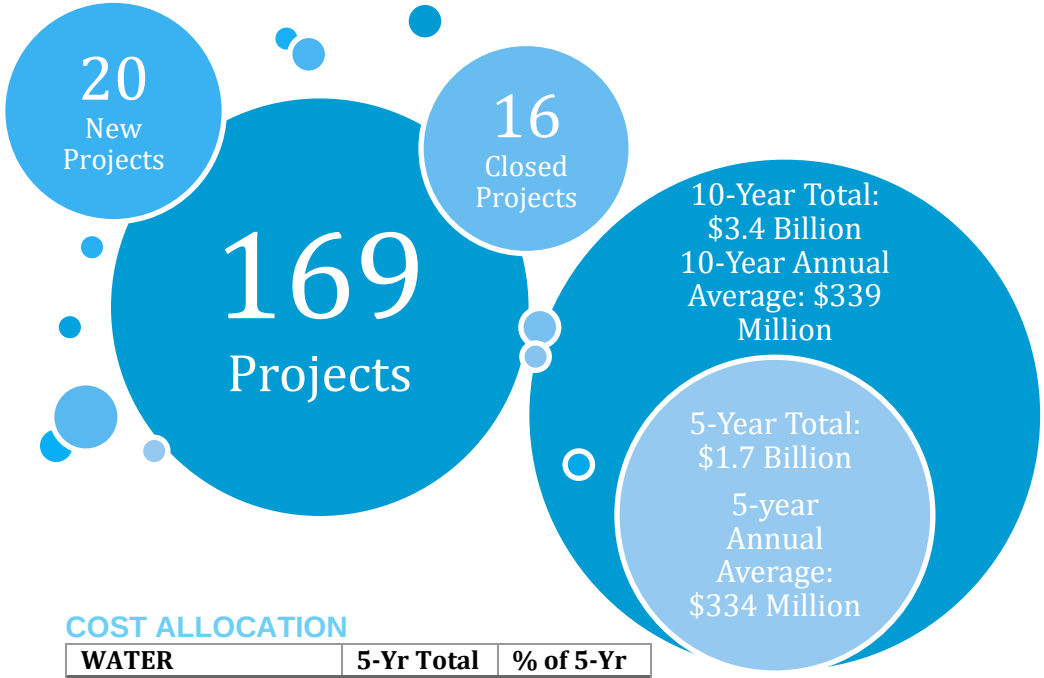
Four committees have been established by GLWA's six-member Board of Directors to provide oversight and policy guidance:

- Audit Committee
- Capital Planning Committee
- Legal Committee
- Operations and Resources Committee

GLWA's commitment to improved performance in the water and wastewater systems, environmental compliance, and Member Partner satisfaction aligns with the goals of the organization to contribute to the economic success and the public health and safety of the region it serves.

CIP AT A GLANCE

GLWA's Capital Improvement Plan (CIP) supports the continuation of major capital asset investments in programs and projects that will upgrade the Authority's aging water and wastewater system infrastructure, as well as the overarching centralized service infrastructure that supports both systems. The CIP is a five-year plan which identifies capital projects and programs and their respective financing options. Annually, this plan is updated to reflect changing system needs, priorities and funding opportunities.



COST ALLOCATION

WATER	5-Yr Total	% of 5-Yr
CTA	911,407	97.7%
Suburban Only	21,048	2.3%
Sub-total	932,455	100.0%

WASTEWATER	5-Yr Total	% of 5-Yr
CTA	645,650	87.4%
83/17	62,778	8.5%
TBD	29,975	4.1%
Sub-total	738,403	100.0%

PLAN SPENDING SUMMARY

5-Year Total:	**$1.7 Billion**	10-Year Total:	**$3.4 Billion**
5-Year Annual Average:	**$334 Million**	10-Year Annual Average:	**$339 Million**

5-YEAR TOTAL OF WATER & WASTEWATER CAPITAL PROJECTS MATCHED THE 2021-2025 CIP

Ongoing efforts to stabilize rates and plan realistically for what can be achieved led to the current capital improvement spending plan. Considerations for minimizing capital expenditures without compromising our best-in-class water services were balanced during the CIP development process.

WATER

CIP Document	FY2021	FY2022	FY2023	FY2024	FY 2025	FY 2026	5-Year Total
Approved Water CIP FY 2021-2025	147,567	179,920	201,894	212,849	193,187	167,750	935,417
Draft Water CIP FY 2022-2026		179,210	200,713	199,165	170,936	182,430	**932,455**
Difference ($)		(709)	(1,181)	(13,684)	(22,251)	14,679	(2,962)
Difference (%)		(0%)	(1%)	(6%)	(12%)	9%	-0.3%

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

WASTEWATER

CIP Document	FY2021	FY2022	FY2023	FY2024	FY 2025	FY 2026	5-Year Total
Approved Wastewater CIP FY 2021-2025	110,640	112,758	140,841	203,259	171,938	149,267	739,436
Draft Wastewater CIP FY 2022-2026		106,050	123,190	160,940	173,024	175,200	**738,403**
Difference ($)		(6,708)	(17,652)	(42,319)	1,085	25,932	(1,034)
Difference (%)		(6%)	(13%)	(21%)	1%	17%	(0.1%)

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

THE STRATEGY

Utilizing the capital replacement strategy to increase resiliency of water and wastewater systems, adhere to long-term planning, solicit stakeholder inputs, and to be best-in-class in planning and execution, the CIP identifies capital investments necessary to enhance and maintain system-wide assets. Key sources of identifying capital requirements include GLWA's comprehensive wastewater and water master plans, condition and needs assessments, regulatory, and operational needs.

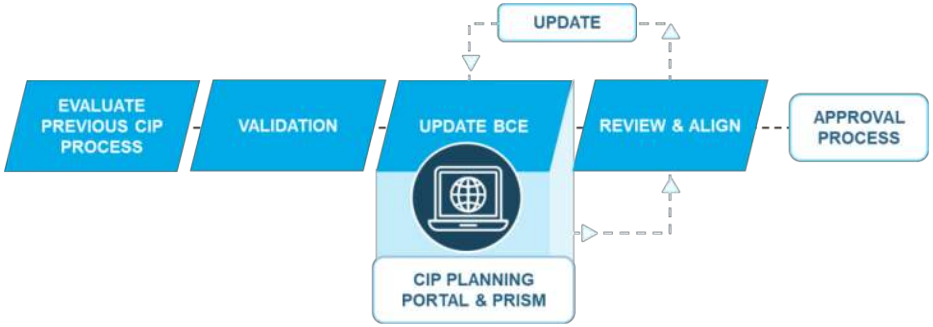
Capital projects may include land acquisitions, new construction, additions, and renovations to existing buildings. Construction and/or the rehabilitation or replacement of existing equipment or infrastructure. Because of the size and magnitude of the projects or programs GLWA has implemented a financing strategy that aligns capital project financing sources that is subject to change based on the system needs and financial resources available at the time. The financing goals of the CIP are identified below:

- Recovering the cost of capital investments over the useful life of those capital assets by:
  - Minimizing the impact of capital programs on water and sewage revenue requirements
  - Protecting and enhancing GLWA's financial position
- Maintaining affordable charges by planning the renewal and revitalization of assets at a minimum of costs while avoiding the far greater costs and disruptions associated with system asset failures.

Recognizing the difference in scope between the CIP and the tactical financial plan, GLWA implemented a "Capital Spend Rate Assumption Policy" adopted in 2018 by the Board of Directors. This 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. This rate is assessed annually and presented to the Board of Directors.

THE DEVELOPMENT

The process for creating the Capital Improvement Plan begins with the review of the previous water and wastewater CIP and process, validation of existing and proposed need and new projects, and concludes with the comprehensive proposed CIP ready for rigorous approval as outlined below:



1.2 PRIMARY GOALS OF THE CIP

The primary goals of the GLWA's Capital Improvement Plan (CIP) are the following:

- Provide a condensed volume of projects in a central location.
- Demonstrate alignment with the GLWA financial plan.
- Share the GLWA integrated master schedule.
- Provide transparency to the organizational goals.
- Meet regulatory and operational needs.
- Provide an opportunity to member communities to contribute to the plan.

This CIP should be considered a planning document – it is a dynamic and evolving plan that requires continual review and improvement. The estimates indicated in the early years of the report are likely more precise than those in the later years because anticipated projects in the early years are typically better defined by studies or scoped by design than projects conceptual in nature in the out years of the plan. The project descriptions and summaries represent brief synopses of the entire project scope; these descriptions are generally more precise for ongoing active projects than for newly planned projects, where specific project activities may have yet to be determined. Based upon the execution of programs and projects identified in the CIP, existing levels of service currently provided will be met or exceeded. Copies of this CIP and past CIPs are available on GLWA's website at https://www.glwater.org/cip/.

1.3 TEAM MEMBERS & PARTNERS

Our members include GLWA team members, board members, water and wastewater partners, associated stakeholders, elected officials, consultants and regulatory agencies. GLWA has a dedicated Member Outreach Program that collaborates with its members on water and wastewater activities. The Capital Improvement Group at GLWA works to develop and execute the plan. The team members are listed below along with their contact information:

- Ali Khraizat, Director, ali.khraizat@glwater.org;
- Anjanette Custard, anjanette.custard@glwater.org;
- Zi Lang, zi.liang@glwater.org;
- Dana Thurman, dana.thurman@glwater.org.

2 STRATEGY & PROCESS

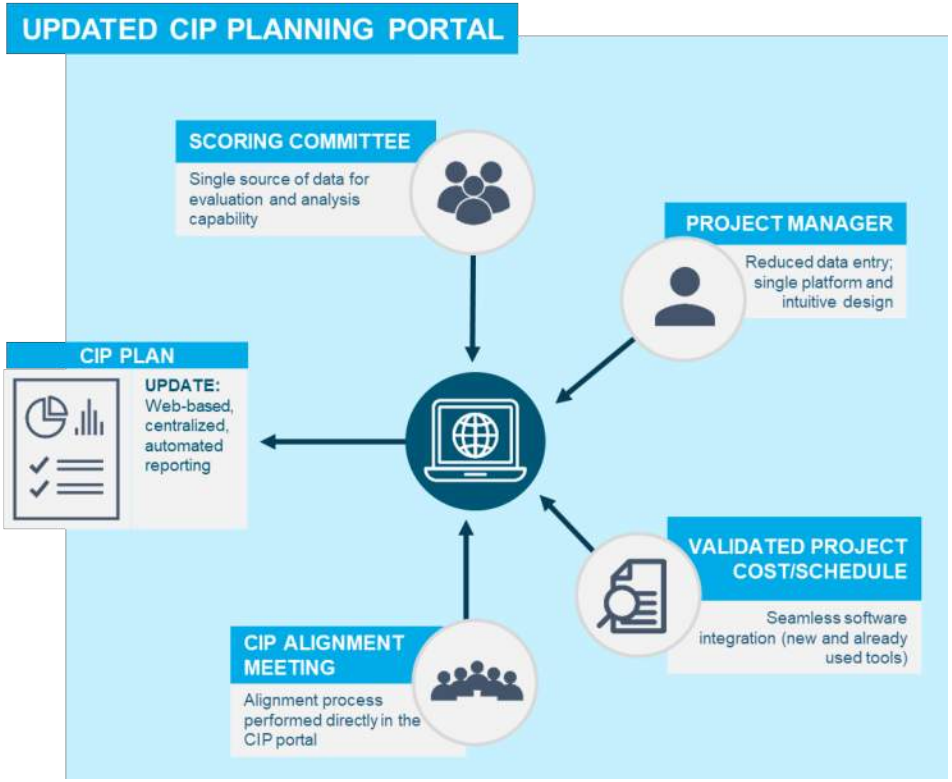
2.1 CIP STRATEGY

GLWA's CIP supports the capital asset investment in programs and projects within the entire organization. The CIP identifies capital projects and programs and their respective funding sources. This plan is updated annually to reflect the changing needs of the organization as it pertains to system needs, priorities, and financing opportunities. The Comprehensive Water Master Plan and the Comprehensive Regional Wastewater Master Plan are long term strategic planning tools that provide regional collaboration and planning to minimize capital expenditures while exceeding levels of service.

This plan spans a five-year period from fiscal year 2022 through fiscal year 2026, inclusive. The CIP review process also includes an extensive review of the total project, or "lifetime" projected costs and spending plan, which reflects historical spending prior to, during, and beyond the current five-year period. The goal of the Authority's capital financing strategy is to align capital project financing sources with multiple goals including: (a) recovering the costs of capital investment over the useful lives of the capital assets; (b) minimizing the impact of the capital programs on water and sewage revenue requirements; and (c) protecting and enhancing the Authority's financial position. The potential funding source identified for each project is subject to change based upon the systems need and financial resources available at the time.

CHANGES & IMPROVEMENTS TO THE CIP

There were five major changes in the CIP process this year. First, the most visible change to the CIP process is the document itself: the order of content is different and has been condensed. Second, a new web-based tool was implemented to take the place of the Access Database used in previous years: the CIP web portal provided all those involved in the development easy access and one source of data inputs for all phases of the CIP update process. Third, the CIP validation process was implemented into the CIP process this year. Fourth, two new Appendices are included in the CIP Plan – Appendix D: Systems Background Information, formerly section 6 of the document; and E: CIP Validation Report, a standalone document from that provides details of the CIP validation process and recommendations. The final change is the creation of a separate quick reference guide on how to navigate the CIP, which provides readers with a quick understanding of the CIP sections on planned spend and schedule. The validation process also includes recommendations to GLWA. The CIP validation process consisted of the review of project scopes, procurement packaging, and cost estimates.



The FY 2021-2025 Board Approved CIP was the benchmark for the analysis for the current FY 2022-2026 CIP Plan.

The CIP validation team reviewed 91 active and future planned projects in total. The breakout per system consisted of (54) Water projects and (37) Wastewater projects which were grouped into four categories:

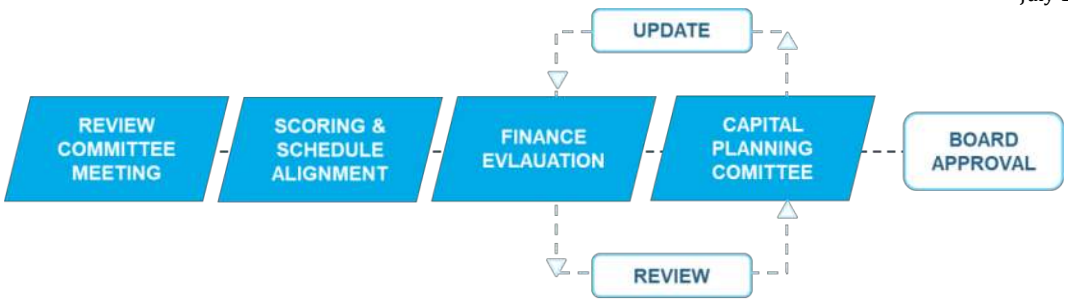
- Construction
- Engineering (Study/Design)
- Procurement
- Future Planned

The validated information was used to update the Integrated Master Schedule, project sequencing, and funding requirements.

The CIP continues to improve and evolve to provide the various stakeholders accurate and timely information.

2.2 CIP DEVELOPMENT PROCESS

The annual CIP development process begins the summer prior to its effective fiscal year. As a part of annual CIP updates, business case evaluations (BCEs) are evaluated, updated, and approved before being scored, prioritized, and scheduled in the GLWA Water and Wastewater groups. The scoring occurs in the Review Committee Meetings, one for Water and one for Wastewater. Subsequently, a scoring and schedule alignment meeting was held to align or explain any schedules out of sync with the prioritization results. The project data received from project managers is then used to update the CIP Document. Once a draft CIP is created, it is reviewed, approved, printed, and distributed for use.



CALENDAR

The following calendar, for planning purposes and subject to change, reflects intended approval dates and coordination with the GLWA Board of Directors necessary for the ultimate approval of the 2022-2026 CIP.

DATE	DESCRIPTION
July 7-8, 2020	Distribute & Train Team Members on Business Case Evaluation Database
August 28, 2020	Team Members BCE's are Due
Sept. 14 & 16, 2020	Water and Wastewater Review Committee Meetings
Sept 24 & 25, 2020	Alignment of scoring & project schedules
Sept 29, 2020	Internal review with Executive Leadership
October 8, 2020	Provide Preliminary Draft #1 Data to Financial Services
October 19, 2020	Upload Preliminary Draft #1 to Legistar & share with Member Outreach (without Chapter 5)
October 27, 2020	Capital Planning Committee Meeting - Review of Preliminary Draft #1
November 10, 2020	First Member Partner Review of CIP – Preliminary Draft #1 at Charges Rollout Meeting #1
November 12, 2020	Provide Preliminary Draft #2 Data to Financial Services
November 19, 2020	Questions/Comments Due
December 11, 2020	Upload Preliminary Draft #2 to Legistar and share with Member Outreach
December 15, 2020	Capital Planning Committee Meeting– Preliminary Draft #2
January 2021	Request Board approval of the 2022-2026 CIP
July 1, 2021	Effective Date of 2022- 2026 CIP

2.3 REPORT FORMAT

The 2022-2026 CIP has been reformatted since the 2021-2025 CIP. The document, projects and programs are portrayed in varying degrees of detail that should meet the needs of most readers. Projects can be viewed in the basic line item format that provides general information about the project and the projected expenditures. Within this format, projects have been rolled up by their major category of Water, Wastewater and Centralized Services, and totals are provided. Projects have also been identified separately within each category to provide the reader more information on the type and amount of each project within specific service areas. One-page summaries of each project gives the reader more detail of the project phases, purpose, scope of work and potential challenges. For greater detail on each project, the BCE documents are provided in Appendix A, B and C. Appendix D includes system background information formerly included in the body of the report. Appendix E holds the findings of the CIP validation process this year.

3 CIP SUMMARY

3.1 CIP 5-YEAR SUMMARY TABLES

The Great Lakes Water Authority 2022-2026 Capital Improvement Plan overall summary tables can be seen below. Please note that projected expenses and project categories shown in the Centralized Services CIP Categories table are also included in the Water CIP Categories and Wastewater CIP Categories tables.

WATER

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

CATEGORY	CATEGORY NUMBER	LIFETIME ACTUAL THRU FY 2020 (UNAUDITED)	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027 & BEYOND	2022-2026 CIP TOTAL	PROJECT TOTAL
WATER											
Treatment Plants & Facilities											
Lake Huron	111	$ 19,868	$ 6,081	$ 10,661	$ 18,803	$ 27,104	$ 23,325	$ 23,403	$ 70,172	$ 103,297	$ 199,417
Northeast	112	1,803	979	2,700	3,237	3,883	4,440	1,721	66,360	15,981	85,123
Southwest	113	5,402	268	5,184	2,244	840	78	42	24,979	8,389	39,038
Springwells	114	116,720	32,393	30,650	34,928	38,462	35,906	34,449	267,934	174,394	591,440
Water Works Park	115	9,797	4,752	7,124	8,472	8,444	7,502	17,974	97,908	49,516	161,973
General Purpose	116	15,411	7,024	8,678	18,926	23,635	18,016	5,372	-	74,627	97,062
TREATMENT PLANTS & FACILITIES TOTAL		**169,002**	**51,497**	**64,997**	**86,609**	**102,368**	**89,267**	**82,962**	**527,352**	**426,203**	**1,174,053**
Field Services											
General Purpose	121	-	-	-	-	-	-	-	-	-	-
Transmission System	122	33,372	46,312	71,317	64,199	61,193	43,350	59,995	244,239	300,054	623,978
FIELD SERVICES TOTAL		**33,372**	**46,312**	**71,317**	**64,199**	**61,193**	**43,350**	**59,995**	**244,239**	**300,054**	**623,978**
Systems Control Center (SCC)											
General Purpose	131	-	-	-	-	-	-	-	-	-	-
Pump Station/Reservoir	132	9,971	9,929	23,582	32,681	23,322	25,793	24,294	162,635	129,672	312,207
SCC TOTAL		**9,971**	**9,929**	**23,582**	**32,681**	**23,322**	**25,793**	**24,294**	**162,635**	**129,672**	**312,207**
Water Quality											
General Purpose	141	-	-	-	-	-	-	-	-	-	-
WATER QUALITY TOTAL		-	-	-	-	-	-	-	-	-	-
Metering											
General Purpose	151	-	-	-	-	-	-	-	-	-	-
METERING TOTAL		-	-	-	-	-	-	-	-	-	-
General Purpose											
General Purpose	161	-	-	-	-	-	-	-	-	-	-
GENERAL PURPOSE TOTAL		-	-	-	-	-	-	-	-	-	-
Programs											
Programs	170	7,030	36,733	18,242	13,912	10,226	11,722	11,129	68,603	65,231	177,597
Programs	171	3,216	654	11	3,090	1,808	369	2,920	14,127	8,199	26,195
PROGRAMS TOTAL		**10,246**	**37,387**	**18,253**	**17,002**	**12,034**	**12,091**	**14,050**	**82,730**	**73,430**	**203,792**
WATER TOTAL		**222,591**	**145,125**	**178,150**	**200,491**	**198,917**	**170,500**	**181,301**	**1,016,956**	**929,358**	**2,314,030**
WATER CENTRAL SERVICES											

CATEGORY	CATEGORY NUMBER	LIFETIME ACTUAL THRU FY 2020 (UNAUDITED)	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027 & BEYOND	2022-2026 CIP TOTAL	PROJECT TOTAL
Information Technology	31X	-	-	-	-	-	-	-	-	-	-
Fleet	32X	-	-	-	-	-	-	-	-	-	-
Facilities	33X	-	-	-	-	-	-	-	25,000	-	25,000
Security	34X	3,944	4,656	567	2	-	-	-	-	569	9,170
Energy Management	35X	7	-	38	221	221	213	-	-	693	700
Engineering	36X	-	-	-	-	-	-	-	-	-	-
General Purpose	371	-	-	-	-	-	-	-	-	-	-
Programs	38XX	771	959	456	-	27	223	1,129	1,245	1,835	4,810
WATER CENTRAL SERVICES TOTAL		**4,722**	**5,616**	**1,061**	**223**	**248**	**436**	**1,129**	**26,245**	**3,097**	**39,679**
GRAND TOTAL		**227,313**	**150,740**	**179,210**	**200,713**	**199,165**	**170,936**	**182,430**	**1,043,201**	**932,455**	**2,353,709**

WASTEWATER

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

CATEGORY	CATEGORY NUMBER	LIFETIME ACTUAL THRU FY 2020 (UNAUDITED)	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027 & BEYOND	2022-2026 CIP TOTAL	PROJECT TOTAL
WASTEWATER											
Water Resource Recovery Facility (WRRF)											
Primary Treatment	211	$67,197	$23,154	$11,198	$18,728	$31,913	$30,039	$25,200	$163,636	$117,078	$371,065
Secondary Treatment & Disinfection	212	62,252	4,203	2,577	5,516	19,663	19,715	23,263	138,143	70,733	275,331
Residuals Management	213	15,537	4,703	3,137	2,547	2,234	1,518	3,979	1,429	13,415	35,084
Industrial Waste Control	214	10,584	2,067	-	-	-	-	-	-	-	12,651
CSO RTB & SDF	215	-	-	-	-	-	-	-	-	-	-
General Purpose	216	4,784	7,343	4,043	13,261	23,871	19,304	10,610	15,436	71,090	98,654
WRRF TOTAL		**160,355**	**41,470**	**20,955**	**40,052**	**77,682**	**70,577**	**63,051**	**318,644**	**272,317**	**792,785**
Field Services											
General Purpose	221	-	-	-	-	-	-	-	-	-	-
Interceptors	222	20,151	12,117	11,982	10,843	6,475	10,106	20,119	34,380	59,525	126,172
FIELD SERVICES TOTAL		**20,151**	**12,117**	**11,982**	**10,843**	**6,475**	**10,106**	**20,119**	**34,380**	**59,525**	**126,172**
SCC											
General Purpose	231	-	-	-	-	-	-	-	-	-	-
Pumping Stations	232	21,616	19,693	16,138	12,674	17,446	23,446	34,146	124,450	103,850	269,610
In System Devices	233	-	-	-	-	1,026	1,024	1,024	43,243	3,075	46,317
SCC TOTAL		**21,616**	**19,693**	**16,138**	**12,674**	**18,472**	**24,470**	**35,170**	**167,693**	**106,925**	**315,927**
Metering											
General Purpose	241	-	-	-	-	-	-	-	-	-	-
METERING TOTAL		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
General Purpose											

CATEGORY	CATEGORY NUMBER	LIFETIME ACTUAL THRU FY 2020 (UNAUDITED)	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027 & BEYOND	2022-2026 CIP TOTAL	PROJECT TOTAL
General Purpose	251	-	-	-	-	-	-	-	-	-	-
GENERAL PURPOSE TOTAL		**-**	-	-	-	-	-	-	-	-	-
Programs											
Programs	260	37,624	47,820	48,842	52,538	46,975	53,794	44,041	138,540	246,190	470,173
PROGRAMS TOTAL		**37,624**	**47,820**	**48,842**	**52,538**	**46,975**	**53,794**	**44,041**	**138,540**	**246,190**	**470,173**
CSO Facilities											
CSO Facilities	27X	6	4,693	6,134	5,805	10,060	12,801	11,542	13,633	46,342	64,674
CSO FACILITIES TOTAL		**6**	**4,693**	**6,134**	**5,805**	**10,060**	**12,801**	**11,542**	**13,633**	**46,342**	**64,674**
WASTEWATER TOTAL		**239,751**	**125,793**	**104,051**	**121,913**	**159,664**	**171,747**	**173,923**	**672,889**	**731,298**	**1,769,731**
WASTEWATER CENTRAL SERVICES											
Information Technology	31X	-	-	-	-	-	-	-	-	-	-
Fleet	32X	-	-	-	-	-	-	-	-	-	-
Facilities	33X	1,123	148	1,277	1,277	1,276	1,277	1,277	1,234	6,383	8,888
Security	34X	1,015	1,796	722	-	-	-	-	-	722	3,534
Energy Management	35X	-	-	-	-	-	-	-	-	-	-
Engineering	36X	-	-	-	-	-	-	-	-	-	-
General Purpose	37X	-	-	-	-	-	-	-	-	-	-
Programs	38XX										
CENTRAL SERVICES TOTAL		**2,138**	**1,945**	**1,999**	**1,277**	**1,276**	**1,277**	**1,277**	**1,234**	**7,105**	**12,422**
GRAND TOTAL		**241,889**	**127,738**	**106,050**	**123,190**	**160,940**	**173,024**	**175,200**	**674,124**	**738,403**	**1,782,153**

CENTRALIZED SERVICES

Please note that these project categories and projected expenses also appear in Water and Wastewater tables above.

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

CATEGORY	CATEGORY NUMBER	LIFETIME ACTUAL THRU FY 2020 (UNAUDITED)	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027 & BEYOND	2022-2026 CIP TOTAL	PROJECT TOTAL
INFORMATION TECHNOLOGY	**31X**										
Water		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wastewater		-	-	-	-	-	-	-	-	-	-
INFORMATION TECHNOLOGY TOTAL		-	-	-	-	-	-	-	-	-	-
FLEET	**32X**										
Water		-	-	-	-	-	-	-	-	-	-
Wastewater		-	-	-	-	-	-	-	-	-	-
FLEET TOTAL		-	-	-	-	-	-	-	-	-	-
FACILITIES	**33X**										
Water		-	-	-	-	-	-	-	25,000	-	25,000
Wastewater		1,123	148	1,277	1,277	1,276	1,277	1,277	1,234	6,383	8,888
FACILITIES TOTAL		**1,123**	**148**	**1,277**	**1,277**	**1,276**	**1,277**	**1,277**	**26,234**	**6,383**	**33,888**
SECURITY	**34X**										
Water		3,944	4,656	567	2	-	-	-	-	569	9,170
Wastewater		1,015	1,796	722	-	-	-	-	-	722	3,534
SECURITY TOTAL		**4,959**	**6,453**	**1,290**	**2**	-	-	-	-	**1,291**	**12,703**
ENERGY MANAGEMENT	**35X**										
Water		7	-	38	221	221	213	-	-	693	700
Wastewater		-	-	-	-	-	-	-	-	-	-
ENERGY MANAGEMENT TOTAL		7	-	38	221	221	213	-	-	693	700
ENGINEERING	**36X**										
Water		-	-	-	-	-	-	-	-	-	-
Wastewater		-	-	-	-	-	-	-	-	-	-
ENGINEERING TOTAL		-	-	-	-	-	-	-	-	-	-
GENERAL PURPOSE	**37X**										
Water		-	-	-	-	-	-	-	-	-	-
Wastewater		-	-	-	-	-	-	-	-	-	-
GENERAL PURPOSE TOTAL		-	-	-	-	-	-	-	-	-	-
PROGRAMS	**38XX**										
Water		771	959	456	-	27	223	1,129	1,245	1,835	4,810
Wastewater		-	-	-	-	-	-	-	-	-	-
GENERAL PURPOSE TOTAL		**771**	**959**	**456**	-	**27**	**223**	**1,129**	**1,245**	**1,835**	**4,810**
Grand Total		**6,860**	**7,560**	**3,059**	**1,499**	**1,524**	**1,713**	**2,405**	**27,479**	**10,202**	**52,101**

3.2 PROJECT STATUS

A status is assigned to each project or program within the CIP. The project status designation provides a high-level understanding of the progress of the project or program. Projects are categorized by activity levels within the Work Breakdown Structure multiple activity levels are based on the contract type. As such, each activity level of a project will have its own status and contract number. Descriptions of each status are provided below. Projects that have been newly introduced into the CIP this year have been designed as "New to the CIP" based upon a checkmark within the Business Case Evaluation.

PROJECT STATUS	DESCRIPTION
Future Planned – Within 5 Year Plan	The project is planned to begin within the 5 Year CIP Plan.
Future Planned – Ten-Year CIP	The project is planned to begin within the 10 Year CIP Outlook.
Active – Pre-Procurement – Design	A scope of work or RFP is being developed.
Active – Procurement – Design	Out for Solicitation of Bids.
Active – Procurement – Negotiation Phase – Design	The intended Consultant has been selected and is in negotiations.
Active – Procurement – Board Approved – Design	A project over $1,000,000 requires Board Approval to execute the contract.
Project Execution – Design	The project's contract has been executed.
Active – Pre-Procurement – Construction	A scope of work or RFB is being developed.
Active – Procurement – Construction	Solicitation of Bids is underway.
Active – Procurement – Negotiation Phase – Construction	The intended low bid Contractor has been selected and is in negotiations.
Active – Procurement – Board Approved – Construction	A project over $1,000,000 requires Board Approval to execute the contract.
Project Execution – Construction	The project's contract has been executed.
Pending Close-out	Project that has an assigned BS&A Project Number, a Notice to Start Work has been issued, has projected expenditures for the current fiscal year equal to $100,000 or less - with no future projected expenditures and has reached substantial completion.
Closed	Project that has been officially completed.
Reclassified	Project that has been merged into the scope of work of an existing project.
Cancelled	Project that has been completely cancelled and/or removed from the CIP.

Multiple CIP types are necessary to distinguish the differences in intent of how a CIP item is to be used. This CIP contains two primary CIP types: Projects and Programs. A typical project that has a specific scope and timeframe is considered a Project. Whereas Programs do not have specifically developed scopes and typically extend over many years.

CIP TYPE	DESCRIPTION
Project	A "Project" consists of the replacement and/or rehabilitation of specific capital assets within a finite timeframe and scope.
Program	A "Program" consists of the replacement and/or rehabilitation of specific capital assets on an ongoing or reoccurring basis. The program scope and/or projected expenses may vary from year-to-year depending on the needs identified within the program and as newly established programs develop consistent schedules, requirements, and history over time. Although not typically identified in the CIP future years projected expenses, these programs will typically be funded in perpetuity.

Many projects have changed status since the last CIP update. These projects are shown in the following tables:

NEW PROJECTS ADDED TO THE CIP

CIP	TITLE	2022 STATUS
111012	LHWTP-Flocculation Improvements	Active - Pre-Procurement - Design
115007	Water Works Park High Lift Pumping Station Modernization	Future Planned - Within 5 Year Plan
116005	Belle Isle Seawall Rehabilitation	Future Planned - Within 5 Year Plan
116006	Belle Isle Intake System Rehabilitation and Improvements	Future Planned - Within 5 Year Plan
170303[1]	Power Monitoring Installation for Water Treatment Plants	Active - Pre-Procurement - Design
170902[1]	Brownstown Meter Pit	Active - Pre-Procurement - Construction
171501[1]	Roof Replacements at SP, WWP, Orion, Franklin, and Conner Creek	Project Execution - Construction
216011	WRRF Structural Improvements	Active - Pre-Procurement - Design
260205[1]	NWI Rehabilitation	Future Planned - Within 5 Year Plan
260206[1]	Conveyance System Repairs (Sewers)	Active - Pre-Procurement - Design
260508[1]	B-39 Outfall Rehabilitation	Project Execution - Design
260509[1]	B-40 Outfall Rehabilitation	Project Execution - Design
260510[1]	Conveyance System Repairs (Outfalls)	Active - Pre-Procurement - Design
260620[1]	Baby Creek Roof Replacement	Active - Pre-Procurement - Construction
260700	Sewer System Infrastructure Improvements and Pumping Stations	Project Execution – Design
260701	Conveyance System Infrastructure Improvements	Project Execution – Design
260702	Pump Station Asset Updates	Active – Pre-Procurement – Construction
274001[1]	Leib Improvements for Meldrum Diversion	Future Planned - Within 5 Year Plan
278001[1]	Oakwood Improvements for NWI Diversion	Future Planned - Within 5 Year Plan
331003	Masonry Replacement and Rehabilitation	Future Planned - Within 10-Year Outlook

[1]Project created out of a program

PROJECTS PROGRESSED TO ACTIVE STATUS

CIP	TITLE	2021 STATUS	2022 STATUS
111011	Lake Huron WTP Pilot Plant	Future Planned	Active - Procurement - Negotiation Phase - Design
111012	LHWTP-Flocculation Improvements	n/a	Active - Pre-Procurement - Design
113006	Southwest Water Treatment Plant Chlorine Scrubber, Raw Water Screens & Related Improvements	Future Planned	Active - Procurement - Construction
114010	Springwells Water Treatment Plant, Yard Piping and High-Lift Header Improvements	Future Planned	Active - Pre-Procurement - Design
114016	Springwells Water Treatment Plant 1958 Settled Water Conduits and Loading Dock Concrete Pavement Replacement	Future Planned	Project Execution - Design
114017	Springwells Water Treatment Plant Flocculator Drive Replacements	Future Planned	Active - Procurement - Board Approved - Design
170109	GLWA-CS-187: FK Eng: Raw Water Intake	n/a	Project Execution - Design
170302	SW SCADA System Upgrade	n/a	Project Execution - Design
170303	Power Monitoring Installation for Water Treatment Plants	n/a	Active - Pre-Procurement - Design
170503	Transmission System Valve Replacement	n/a	Project Execution - Construction
170901	Suburban Water Meter Pit Rehabilitation and Meter Replacement	n/a	Project Execution - Construction
170902	Brownstown Meter Pit	n/a	Active - Pre-Procurement - Construction
171501	Roof Replacements at SP, WWP, Orion, Franklin, and Conner Creek	n/a	Project Execution - Construction
212008	WRRF Aeration Improvements 1 and 2	Future Planned	Project Execution - Design
213006	WRRF Improvements to Sludge Feed Pumps at Dewatering Facilities	Future Planned	Project Execution - Design
216008	Rehabilitation of Screened Final Effluent (SFE) Pump Station	Future Planned	Active - Procurement - Negotiation Phase - Design
216010	WRRF Facility Optimization	Future Planned	Active - Pre-Procurement - Design
216011	WRRF Structural Improvements	n/a	Active - Pre-Procurement - Design

CIP	TITLE	2021 STATUS	2022 STATUS
222001	Oakwood District Intercommunity Relief Sewer Modification at Oakwood District	Future Planned	Active - Procurement - Design
260201	CON-149, Emergency Sewer Repair	n/a	Project Execution - Construction
260204	Conveyance System Engineering Services-1802575	n/a	Project Execution - Design
260206	Conveyance System Repairs (Sewers)	n/a	Active - Pre-Procurement - Design
260504	Phase 2 Outfalls- 19000796	n/a	Project Execution - Construction
260505	Phase 4 Outfalls	n/a	Project Execution - Construction
260508	B-39 Outfall Rehabilitation	n/a	Project Execution - Design
260509	B-40 Outfall Rehabilitation	n/a	Project Execution - Design
260510	Conveyance System Repairs (Outfalls)	n/a	Active - Pre-Procurement - Design
260603	Conner Creek CSO RTB Automation Improvements	n/a	Project Execution - Construction
260611	Leib SDF- HVAC System Improvements	n/a	Project Execution - Construction
260613	Baby Creek HVAC Improvements	n/a	Project Execution - Construction
260614	Structural Inspection & Structural Improvements	n/a	Active - Procurement - Construction
260615	Puritan Fenkell & Leib Site Improvements	n/a	Project Execution - Construction
260617	St. Aubin Chemical Disinfection Improvements	n/a	Active - Pre-Procurement - Design
260618	Oakwood HVAC Project	n/a	Project Execution - Design
260619	Control System Upgrade - St Aubin, Lieb & Mile	n/a	Project Execution - Design
260620	Baby Creek Roof Replacement	n/a	Active - Pre-Procurement - Construction
270003	Long Term CSO Control Plan	Future Planned	Active – Procurement – Negotiation Phase – Design
381000	Power Quality: Electric Metering Improvement Program	Future Planned	Active - Pre-Procurement - Design

PROJECTS PROGRESSED TO PENDING CLOSEOUT STATUS

CIP	TITLE	2021 STATUS	2022 STATUS
111002	Lake Huron Water Treatment Plant, Miscellaneous Mechanical HVAC Improvements	Active	Pending Closeout
113002	Southwest Water Treatment Plant, High-Lift Pump Discharge Valve Actuators Replacement	Active	Pending Closeout
114001	Springwells Water Treatment Plant, 1958 Filter Rehabilitation and Auxiliary Facilities Improvements	Active	Pending Closeout
114003	Water Production Flow Metering Improvements at Northeast, Southwest and Springwells Water Treatment Plants	Active	Pending Closeout
115004	Water Works Park Water Treatment Plant Chlorine System Upgrade	Active	Pending Closeout
132003	West Service Center Pumping Station, Isolation Gate Valves for Line Pumps	Active	Pending Closeout
132026	Franklin Pumping Station Valve Replacement	Active	Pending Closeout
212006	WRRF Rouge River Outfall (RRO) Disinfection (Alternative)	Active	Pending Closeout
260601	Oakwood CSO Control Facility Drain Valve Improvements	n/a	Pending Closeout
260609	Seven Mile RTB - Parking Lot Replacement & Misc. Site Work	n/a	Pending Closeout
260610	Baby Creek SDF - HV Units Replacement	n/a	Pending Closeout
260616	Baby Creek Towards Treatment Sewer Improvements	n/a	Pending Closeout

PROJECTS PROGRESSED TO CANCELLED STATUS

This includes projects cancelled and projects removed from the CIP to be funded through other sources.

CIP	TITLE	2021 STATUS	2022 STATUS
170100	Water Treatment Plant /Pump Station Allowance	Active	Cancelled
380600	As-Needed General Engineering Services	Active	Cancelled

PROJECTS PROGRESSED TO CLOSED STATUS

CIP	TITLE	2021 STATUS	2022 STATUS
111004	Lake Huron Water Treatment Plant, Electrical Tunnel Rehabilitation	Active	Closed
112002	Northeast Water Treatment Plant, Low-Lift Pumping Plant Caisson Rehabilitation	Active	Closed
114012	SPW WTP Water Treatment Plant 1930 Filter Building-Roof Replacement	Active	Closed
115003	Water Works Park Water Treatment Plant Comprehensive Condition Assessment	Active	Closed
212003	WRRF Aeration System Improvements	Active	Closed
216009	LM Facilities Assessment and Rehabilitation/Replacement	Active	Closed
170108	DWS-063 Adam Roads Water Isolation Gate	n/a	Closed
170117	Instrument Air Compressor	n/a	Closed
170120	Phosphoric Acid SCP-CS-1692	n/a	Closed
170301	Water Treatment Plant Automation	n/a	Closed
260602	CSO Fire Alarm Improvement Project	n/a	Closed
260606	Puritan Fenkell Roof Replacement	n/a	Closed
260607	Leib Electrical Improvements	n/a	Closed
260608	7 Mile CSO Facilities - Roof Replacement	n/a	Closed
122012	36-inch Water Main in Telegraph Road	Pending Closeout	Closed
132008	Various Pumping Stations - Needs Assessment Study	Pending Closeout	Closed

3.3 LINEAR ASSETS

Many projects included in the CIP take place at GLWA facilities and on what GLWA considers to be vertical assets. However, GLWA manages many miles of water transmission mains and sewer interceptors. Projects on these linear assets are listed below. A spatial view and understanding of these project locations, can be found in the CIP Viewer located within the WAMR and GDRSS Member Outreach Portals after the Board Approval and adoption of the yearly CIP Plan.

CIP	TITLE
222002	Detroit River Interceptor (DRI) Evaluation and Rehabilitation
122005	Schoolcraft Road Water Transmission Main
122004	96-inch Water Transmission Main Relocation and Isolation Valve Installations
122011	Park-Merriman Road Water Transmission Main
122006	Wick Road Water Transmission Main
116002	Pennsylvania and Springwells Raw Water Supply Tunnel Improvements
122003	Water Works Park to Northeast Transmission Main
122016	Downriver Transmission Main Loop
122013	14 Mile Transmission Main Loop
260201	CON-149, Emergency Sewer Repair
170400	Water Transmission Improvement Program
122018	Garland, Hurlbut, Bewick Water Transmission System Rehabilitation
122007	Merriman Road Water Transmission Main Loop
122017	7 Mile/Nevada Transmission Main Rehab and Carrie/Nevada Flow Control Station
260204	Conveyance System Engineering Services-1802575

3.4 PROJECTS BY JURISDICTION

Projects listed below are under the jurisdiction of the physical location of the project. Projects that are planned for multiple facilities within multiple jurisdictions are identified as “Multiple Counties”. A spatial view and understanding of these project locations, will be able to be found in the CIP Viewer located within the WAMR and GDRSS Member Outreach Portals after the Board Approval and adoption of the yearly CIP Plan.

JURISDICTION	CIP PROJECTS				
City of Detroit					
112002	116006	211008	213007	232002	260617
112003	122003	211009	213008	232004	260618
112005	122017	211010	214001	260205	270001
112006	122018	211011	216004	260206	270002
115001	170117	212003	216006	260508	274001
115003	170301	212004	216007	260510	278001
115004	211001	212006	216008	260601	331002
115005	211002	212007	216009	260602	
115006	211004	212008	216010	260603	
115007	211005	212009	216011	260607	
116002	211006	212010	222002	260611	
116005	211007	213006	232001	260615	
Lapeer County					
132007	132021				
Macomb County					
-					
Oakland County					

JURISDICTION	CIP PROJECTS				
122013	132010	132016	132026		
132003	132014	132020	170108		
Saint Clair County					
111001	111004	111007	111009	111011	
111002	111006	111008	111010	111012	
Wayne County - Outside Detroit					
113002	114005	114013	122007	132015	170902
113003	114007	114016	122011	132018	233003
113006	114008	114017	122012	132019	260610
113007	114010	114018	122016	132022	260613
114001	114011	122005	132006	170120	260620

JURISDICTION	CIP PROJECTS				
114002	114012	122006	132012	170302	
Multiple Counties					
114003	170300	170900	260201	260608	331003
122004	170303	170901	260204	260609	341001
132008	170400	171500	260500	260614	341002
170100	170500	171501	260504	260616	351001
170102	170503	222001	260505	260619	380600
170109	170600	222004	260600	270003	380700
170200	170800	260200	260606	277001	381000

Map #	CIP Title	CIP Nos
1	7 Mile/Nevada Transmission Main Rehab & Carrie/Nevada Flow Control Station	122017
2	Freud & Conner Creek Pump Station Improvements	232002
3	Detroit River Interceptor (DRI) Evaluation & Rehab	222002
4	Fairview Pumping Station - Replace Four Sanitary Pumps	232001
5	Puritan Fenkell & Leib Site Improvements	260615
6	Water Resource Recovery Facility (WRRF) - Multiple Projects (25)	211001-011;212004, 212007-010; 213006-008; 214001; 216004; 216006-011; 331002
7	Northeast WTP - Multiple Projects (4)	112003-006; 116002
8	Oakwood Pumping Station - Multiple Projects (3)	222001; 260618; 278001
9	Water Works Park (WTP) to Northeast WTP Transmission Main (Alignment not finalized)	122003
10	Water Board Building/System Wide - Multiple Projects (31)	170109; 170200; 170300; 170302; 170303; 170400; 170500; 170503; 170600; 170800; 170801; 170900; 171500-001; 222004; 233003; 260200-260206; 260500-260510; 260600; 260614; 260619; 331002; 331003; 370001; 380700; 381000
11	Water Works Park WTP - Multiple Projects (5)	115001; 115005-007
12	Garland, Hurlbut, Bewick Water Transmission System Rehabilitation	122018
13	Condition Assessment at Blue Hill Pump Station	232004
14	Meldrum Sewer Diversion and VR-15 Improvements	270002
15	St. Aubin Chemical Disinfection Improvements	260617
16	Leib CSO - Multiple Projects (2)	260611; 274001
17	Conner Creek CSO RTB Automation Improvements	260603
18	Belle Isle Intake System Rehabilitation and Improvements	116005; 116006
19	Long Term CSO Control Plan "*The Long Term CSO Control Plan will be conducted throughout the Metro Detroit region as-needed (Not in the map)	270003
20	Security Infrastructure Improvements on Water Facilities (Not in the map)	341001

Wastewater/Sewer
Water
Water/Sewer/Other
City of Detroit Boundary

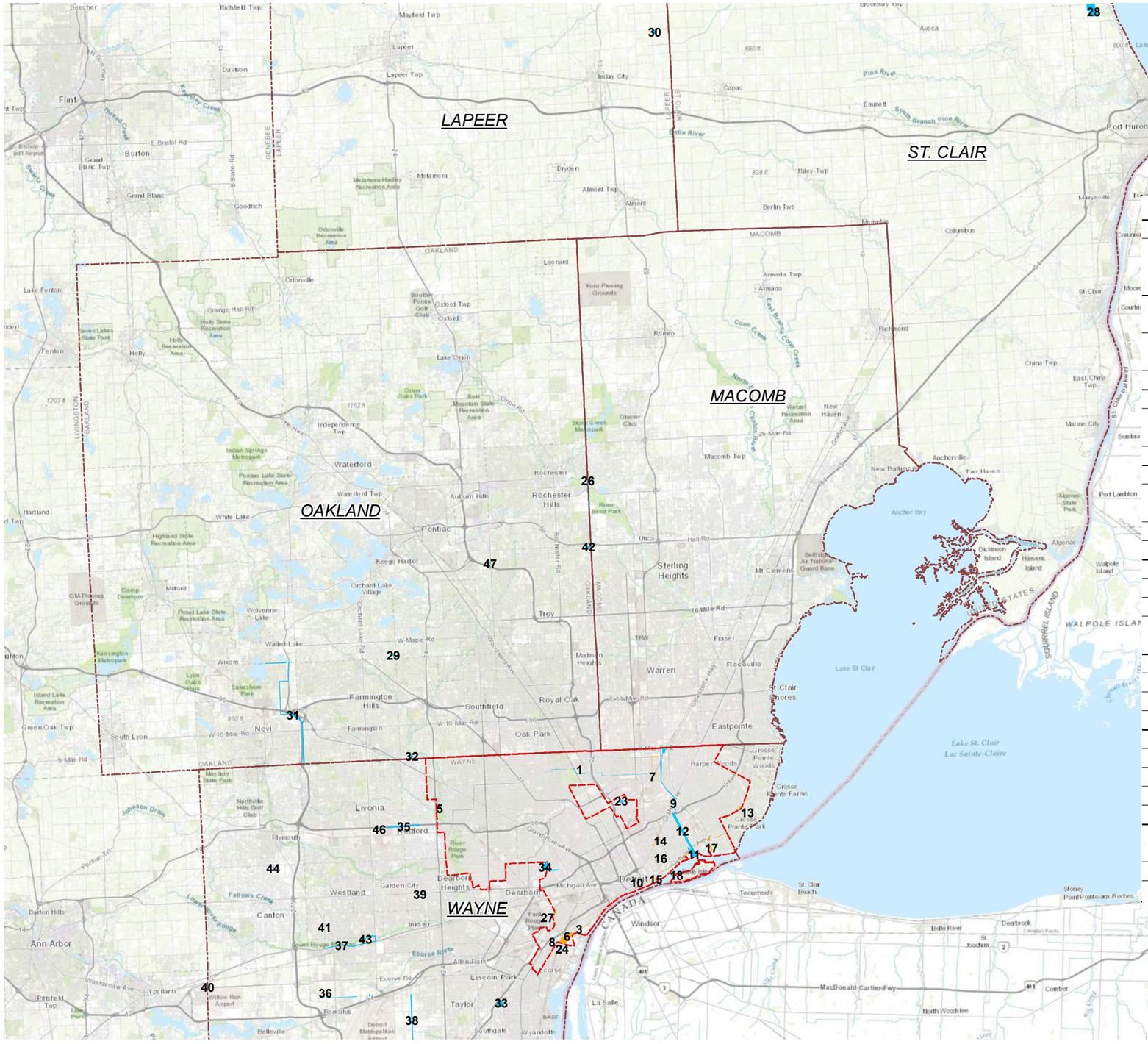
0 0.5 1 2

CURRENT GLWA 2021-25 (FY 2022-2026) CIP PROJECTS - INSIDE CITY OF DETROIT

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

GLWA Great Lakes Water Authority

USER: YTHOMAS-LADMIN - DATE: 11/18/2020



Map #	CIP Title	CIP Nos
1-18	Refer to Inside City of Detroit Map	
20	Long Term CSO Control Plan "*The Long Term CSO Control Plan will be conducted throughout the Metro Detroit region as-needed (Not in the map)	270003
21	Security Infrastructure Improvements on Water Facilities (Not in the map)	341001
22	Security Infrastructure Improvements for Wastewater Facilities (Not in the map)	341002
23	Water Meter Pit - Gallagher and Trowbridge	170901
24	Water Meter Pit - Anchor and Jefferson	170901
25	Rouge River In-system Storage Devices (Not in the map)	233003
26	96 in Water Transmission Main Relocation and Isolation Valve	122004
27	Baby Creek Outfall Improvements Project - Multiple Projects (3)	277001; 260620; 260613
28	Lake Huron Water Treatment Plant - Multiple Projects (8)	111001; 111006; 111007; 111008; 111009; 111010; 111011; 111012
29	Franklin Booster Station Improvements	132020
30	Imlay Pumping Station Improvements - Multiple Porjects (2)	132007; 132021
31	14 Mile Transmission Main Loop	122013
32	West Service Center Pumping Station - Multiple Projects (2)	132003; 132010
33	Southwest Water Treatment Plant - Multiple Projects (4)	113003; 113006; 113007; 170302
34	Springwells Water Treatment Plant - Multiple Projects (12)	114002; 114005; 114007-011; 114013; 114016-114018; 116002
35	Schoolcraft Road Water Transmission Main	122005
36	Wick Road Water Transmission Main - Multiple Projects (2)	122006; 132019
37	Park-Merriman Road Water Transmission Main	122011
38	Downriver Transmission Main Loop	122016
39	Ford Road Pumping Station, Pressure and Control Improvements	132006
40	Ypsilanti Booster Pumping Station Improvements	132012
41	Newburgh Road Booster Pumping Station Improvements	132015
42	North Service Center Pumping Station Improvements	132016
43	Merriman Road Water Transmission Main Loop	122007
44	Joy Road Pumping Station Improvements	132022
45	Brownstown Meter Pit (Not in the map)	170902
46	Schoolcraft Pumping Station Improvements	132018
47	Adams Road Pumping Station Improvements	132014

- Wastewater/Sewer
- Water
- Water/Sewer/Other
- City of Detroit Boundary
- County Boundary

CURRENT GLWA 2021-25 (FY 2022-2026) CIP PROJECTS - ALL COUNTIES

GLWA Great Lakes Water Authority

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

USER: YTHOMAS-LADMIN - DATE: 11/18/2020

3.5 SPECIALTY PROJECTS

PROJECTS WITH POTENTIAL TO BE INNOVATIVE

One of the GLWA's main organizational guiding pillars is to provide high quality through innovation. To ensure CIP projects are being considered for new and innovative technologies, during the project review process, projects that may be considered for innovative technologies, practices or procedures were identified by the GLWA Energy, Research & Innovation Group. The following projects will be further evaluated for innovative opportunities during scope development process:

CIP	TITLE
111001	Lake Huron WTP, Low-Lift, High Lift and Filter Backwash Pumping System Improvements
111006	Lake Huron WTP, Filter Instrumentation and Raw Water Flow Metering Improvements
111011	Lake Huron WTP Pilot Plant
111012	LHWTP-Flocculation Improvements
113003	Southwest WTP, Low- and High-Lift Pumping Station, Flocculation and Filtration System Improvements
113007	Southwest WTP Architectural and Building Mechanical Improvements
122018	Garland, Hurlbut, Bewick Water Transmission System Rehabilitation
132007	Energy Management: Freeze Protection Pump Installation at Imlay Pump Station
132021	Imlay Pumping Station Improvements
132022	Joy Road Pumping Station Improvements
170600	Water Transmission Main Asset Assessment Program
211006	WRRF PS No. 1 Improvements
211007	WRRF PS #2 Bar Racks Replacements and Grit Collection System Improvements
211008	WRRF Rehabilitation of Ferric Chloride Feed System in PS-1 and Complex B Sludge Lines
211009	WRRF Rehabilitation of the Circular Primary Clarifier Scum Removal System
211011	WRRF PS1 Screening and Grit Improvements
212004	WRRF Chlorination and Dechlorination Process Equipment Improvements
212008	WRRF Aeration Improvements 1 and 2
212009	WRRF Aeration Improvements 3 and 4
212010	WRRF Conversion of Disinfection of all Flow to Sodium Hypochlorite and Sodium Bisulfite
213008	WRRF Rehabilitation of the Ash Handling Systems
216004	Rehabilitation of Various Sampling Sites and PS#2 Ferric Chloride System at WRRF
216006	Assessment and Rehabilitation of WRRF yard piping and underground utilities
216008	Rehabilitation of Screened Final Effluent (SFE) Pump Station
216010	WRRF Facility Optimization
331002	Roofing Systems Replacement at GLWA WRRF, CSO Retention Treatment Basins (RTB) and Screening Disinfection Facilities (SDF)
351001	LED Lighting and Lighting Control Improvements

WATER MASTER PLAN RIGHT-SIZING PROJECTS

Based upon the completion and acceptance of the 2015 Comprehensive Water Master Plan, many water projects are being considered with reduced capital investment in order to reduce the rated capacity to master plan identified levels based upon current population and water usage. The following projects have capital expenditure avoidance based upon water master planning efforts to right-size the system for current needs:

CIP	TITLE
111001	Lake Huron WTP, Low-Lift, High Lift and Filter Backwash Pumping System Improvements
111010	Filtration Improvements
111011	Lake Huron WTP Pilot Plant
112003	Northeast WTP High-Lift Pumping Station Improvements
113003	Southwest WTP, Low- and High-Lift Pumping Station, Flocculation and Filtration System Improvements
114002	Springwells WTP, Low-Lift and High-Lift Pumping Station Improvements
114013	Springwells WTP, Reservoir Fill Line Improvements
115001	Water Works Park WTP Yard Piping, Valves and Venturi Meters Replacement
122003	Water Works Park to Northeast Transmission Main
122007	Merriman Road Water Transmission Main Loop
122017	7 Mile/Nevada Transmission Main Rehab and Carrie/Nevada Flow Control Station
132007	Energy Management: Freeze Protection Pump Installation at Imlay Pump Station
132019	Wick Road Pumping Station Improvements
132021	Imlay Pumping Station Improvements

WASTEWATER MASTER PLAN PROJECTS

GLWA has recently completed the first Wastewater Master Plan. The following projects have come about due to recommendations in this Master Plan:

CIP	TITLE
216010	WRRF Facility Optimization
216008	Rehabilitation of Screened Final Effluent (SFE) Pump Station
222001	Oakwood District Intercommunity Relief Sewer Modification at Oakwood District
232004	Condition Assessment at Blue Hill Pump Station
233003	Rouge River In-system Storage Devices
270001	Pilot CSO Netting Facility
270002	Meldrum Sewer Diversion and VR-15 Improvements
274001	Leib Improvements for Meldrum Diversion
278001	Oakwood Improvements for NWI Diversion

NORTHEAST WATER TREATMENT PLANT REPURPOSING RELATED PROJECTS

The 2015 Comprehensive Water Master Plan has identified the ability to reduce the number of water treatment facilities in full operation at GLWA. Initially, for long-term capital expenditure avoidance, the plan has identified the repurposing of the Northeast Water Treatment Plant. In order to repurpose this facility into a reservoir and pump station, several capital projects are necessary to achieve the savings identified in the master plan. The following projects are associated with the repurposing of the Northeast Water Treatment Plant:

CIP	TITLE
112003	Northeast WTP High-Lift Pumping Station Improvements
114002	Springwells WTP, Low-Lift and High-Lift Pumping Station Improvements
114013	Springwells WTP, Reservoir Fill Line Improvements
115001	Water Works Park WTP Yard Piping, Valves and Venturi Meters Replacement
122003	Water Works Park to Northeast Transmission Main
122018	Garland, Hurlbut, Bewick Water Transmission System Rehabilitation

REDUNDANCY PROJECTS

Projects which will increase the redundancy of GLWA infrastructure are listed below:

CIP	TITLE
111001	Lake Huron WTP, Low-Lift, High Lift and Filter Backwash Pumping System Improvements
111004	Lake Huron WTP, Electrical Tunnel Rehabilitation
111006	Lake Huron WTP, Filter Instrumentation and Raw Water Flow Metering Improvements
111007	Lake Huron WTP, Raw Sludge Clarifier and Raw Sludge Pumping System Improvements
111009	Lake Huron WTP - High Lift Pumping, Water Production Flow Metering and Yard Piping Improvements
111010	Filtration Improvements
112003	Northeast WTP High-Lift Pumping Station Improvements
114002	Springwells WTP, Low-Lift and High-Lift Pumping Station Improvements
114003	Water Production Flow Metering Improvements at Northeast, Southwest and Springwells WTPs
114010	Springwells WTP, Yard Piping and High-Lift Header Improvements
114013	Springwells WTP, Reservoir Fill Line Improvements
115001	Water Works Park WTP Yard Piping, Valves and Venturi Meters Replacement
116002	Pennsylvania and Springwells Raw Water Supply Tunnel Improvements
122003	Water Works Park to Northeast Transmission Main
122004	96-inch Water Transmission Main Relocation and Isolation Valve Installations
122005	Schoolcraft Road Water Transmission Main
122006	Wick Road Water Transmission Main
122007	Merriman Road Water Transmission Main Loop
122011	Park-Merriman Road Water Transmission Main
122012	36-inch Water Main in Telegraph Road
122013	14 Mile Transmission Main Loop
122016	Downriver Transmission Main Loop
122017	7 Mile/Nevada Transmission Main Rehab and Carrie/Nevada Flow Control Station
122018	Garland, Hurlbut, Bewick Water Transmission System Rehabilitation
132003	West Service Center Pumping Station, Isolation Gate Valves for Line Pumps
132006	Ford Road Pumping Station, Pressure and Control Improvements
132007	Energy Management: Freeze Protection Pump Installation at Imlay Pump Station
132008	Various Pumping Stations - Needs Assessment Study
132010	West Service Center Pumping Station - Reservoir, Reservoir Pumping, and Division Valve Upgrades
132012	Ypsilanti Booster Pumping Station Improvements
132015	Newburgh Road Booster Pumping Station Improvements

CIP	TITLE
132016	North Service Center Pumping Station Improvements
132018	Schoolcraft Pumping Station Improvements
132019	Wick Road Pumping Station Improvements
132021	Imlay Pumping Station Improvements
132022	Joy Road Pumping Station Improvements
170400	Water Transmission Improvement Program
170500	Transmission System Valve Rehabilitation and Replacement Program
170800	System-Wide Finished Water Reservoir Inspection, Design and Rehabilitation
211001	WRRF Rehabilitation of Primary Clarifiers Rectangular Tanks, Drain Lines, Electrical/Mechanical Building and Pipe Gallery
211002	WRRF PS No. 2 Pumping Improvements - Phase 1
211004	WRRF PS #1 Rack & Grit and MPI Sampling Station 1 Improvements
211005	WRRF PS No. 2 Improvements Phase II
211006	WRRF PS No. 1 Improvements
211007	WRRF PS #2 Bar Racks Replacements and Grit Collection System Improvements
211008	WRRF Rehabilitation of Ferric Chloride Feed System in PS-1 and Complex B Sludge Lines
211009	WRRF Rehabilitation of the Circular Primary Clarifier Scum Removal System
211010	Rehabilitation of Sludge Processing Complexes A and B
211011	WRRF PS1 Screening and Grit Improvements
212003	WRRF Aeration System Improvements
212004	WRRF Chlorination and Dechlorination Process Equipment Improvements
212006	WRRF Rouge River Outfall (RRO) Disinfection (Alternative)
212007	WRRF Rehabilitation of the Secondary Clarifiers
212008	WRRF Aeration Improvements 1 and 2
212009	WRRF Aeration Improvements 3 and 4
213006	WRRF Improvements to Sludge Feed Pumps at Dewatering Facilities
213007	WRRF Modification to Incinerator Sludge Feed Systems at Complex -II
213008	WRRF Rehabilitation of the Ash Handling Systems

CIP	TITLE
214001	WRRF Relocation of Industrial Waste Control Division and Analytical Laboratory Operations
216004	Rehabilitation of Various Sampling Sites and PS#2 Ferric Chloride System at WRRF
216006	Assessment and Rehabilitation of WRRF yard piping and underground utilities
216007	DTE Primary Electric 3rd Feed Supply to WRRF
222001	Oakwood District Intercommunity Relief Sewer Modification at Oakwood District
222002	Detroit River Interceptor (DRI) Evaluation and Rehabilitation
232001	Fairview Pumping Station - Replace Four Sanitary Pumps
232002	Freud & Conner Creek Pump Station Improvements
232004	Condition Assessment at Blue Hill Pump Station
260200	Sewer and Interceptor Rehabilitation Program
260500	CSO Outfall Rehabilitation
260510	Conveyance System Repairs (Outfalls)
260600	CSO FACILITIES IMPROVEMENT PROGRAM
260619	Control System Upgrade - St Aubin, Lieb & Mile
270002	Meldrum Sewer Diversion and VR-15 Improvements
331002	Roofing Systems Replacement at GLWA WRRF, CSO Retention Treatment Basins (RTB) and Screening Disinfection Facilities (SDF)
381000	Power Quality: Electric Metering Improvement Program

3.6 PROJECT RISK

Project risks are identified specifically related to their Probability of Failure (PoF) and Consequence of Failure (CoF) and portrayed on an overall Risk Matrix. The overall criteria remain unchanged, however, in order to show each project on the risk matrix, the eight criteria used in the project prioritization framework are designated as either a PoF or CoF primary risk driver. The designation of PoF and CoF to each criterion as primary risk driver is shown in Table 1.

After each criterion is scored for each project, the weighted PoF and CoF factors were calculated. This provided a 1 to 5 vertical axis value for probability of failure and a 1 to 5 horizontal axis value for the consequence of failure. This point was plotted with the other projects to show its relative position compared to others within the matrix. A sample of the matrix is shown in Figure 1.

This provides the varying audiences additional information related to the overall project risk as it relates to its consequence and probability of failure.

New water and wastewater projects were prioritized based upon eight criteria. Projects already existing in the CIP were evaluated using scores applied in the previous CIP cycle.

Figure 2 and Figure 3 display the distribution of project risk in terms of Probability and Consequence. For the Probability of Failure coordinate on the plot, an equally weighted average was taken of the scores for the Condition, Performance, and O&M criteria. For the Consequence of Failure coordinate, the Regulatory, Public Health & Safety, Public Benefit, Financial, and Efficiency & Innovation criteria were averaged. These plots provide the reader a better understanding of which function (probability or consequence of failure) of the overall risk is driving the need for the project.

In addition, the following pages provide the detailed prioritization of each project compared to one another along with the individual score by Project Manager and by the Review Committee.

Table 1. Project Prioritization

NO.	WEIGHT	CRITERIA	RISK FACTOR
1	12%	Condition	Probability
2	15%	Performance (Service Level/Reliability)	Probability
3	18%	Regulatory (Environmental/Legal)	Consequence
4	11%	O&M	Probability
5	17%	Public Health & Safety	Consequence
6	8%	Public Benefit	Consequence
7	10%	Financial	Consequence
8	9%	Efficiency & Innovation	Consequence

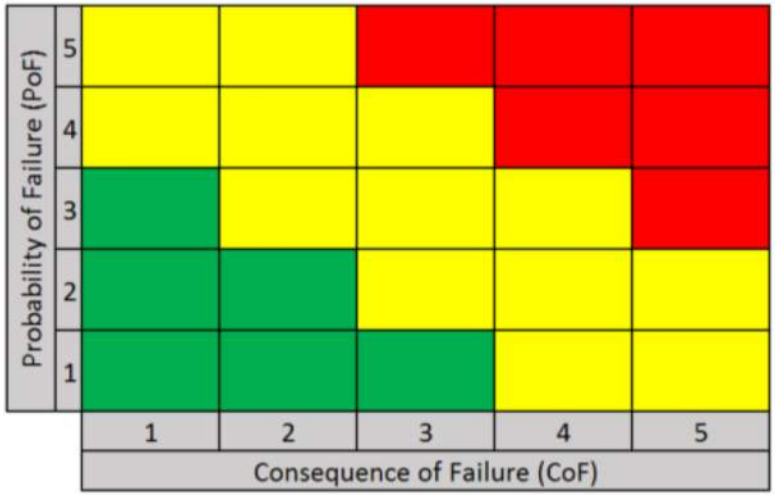


Figure 1. Risk Matrix

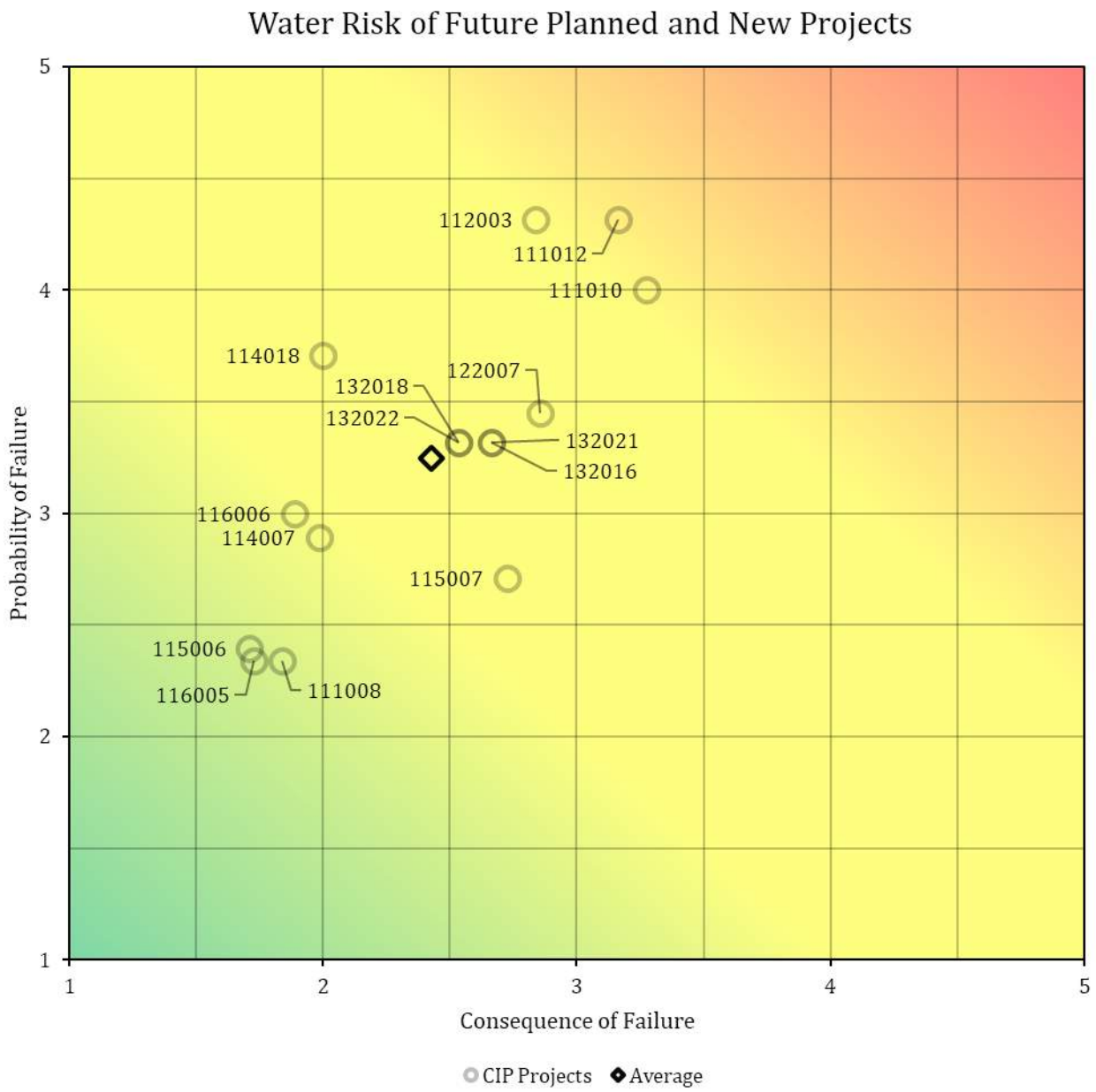


Figure 2. Water Project Risk Matrix

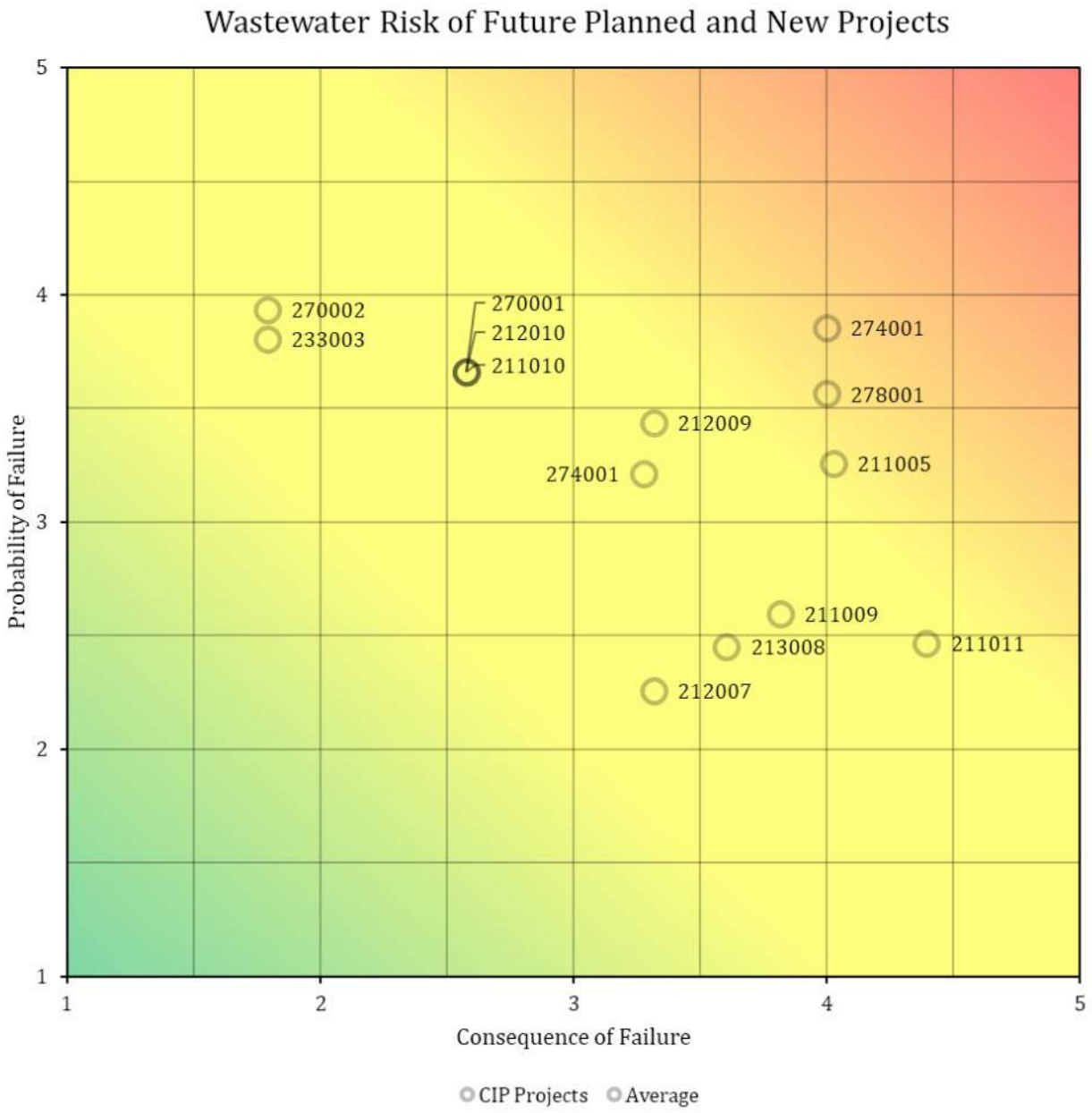


Figure 3. Wastewater Project Risk Matrix

Table 2. Project Manager Criteria Scores: Water

RANK	CIP NO.	TITLE	
1	111012	LHWTP-Flocculation Improvements	111012
2	111010	Filtration Improvements	111010
3	112003	NEWTP High-Lift Pumping Station Improvements	112003
4	122007	Merriman Road Water Transmission Main Loop	122007
5	132016	North Service Center Pumping Station Improvements	132016
6	132021	Imlay Pumping Station Improvements	132021
7	132022	Joy Road Pumping Station Improvements	132022
8	132018	Schoolcraft Pumping Station Improvements	132018
9	115007	Water Works Park High Lift Pumping Station Modernization	115007
10	114018	SPWTP - Service Bldg Electrical Substation and Misc. Improvements	114018
11	114007	SPWTP Powdered Activated Carbon System Improvements	114007
12	116006	Belle Isle Intake System Rehabilitation and Improvements	116006
13	111008	LHWTP, Arch. Programming for Lab and Admin Bldg Improvements	111008
14	115006	Water Works Park Site/Civil Improvements	115006
15	116005	Belle Isle Seawall Rehabilitation	116005

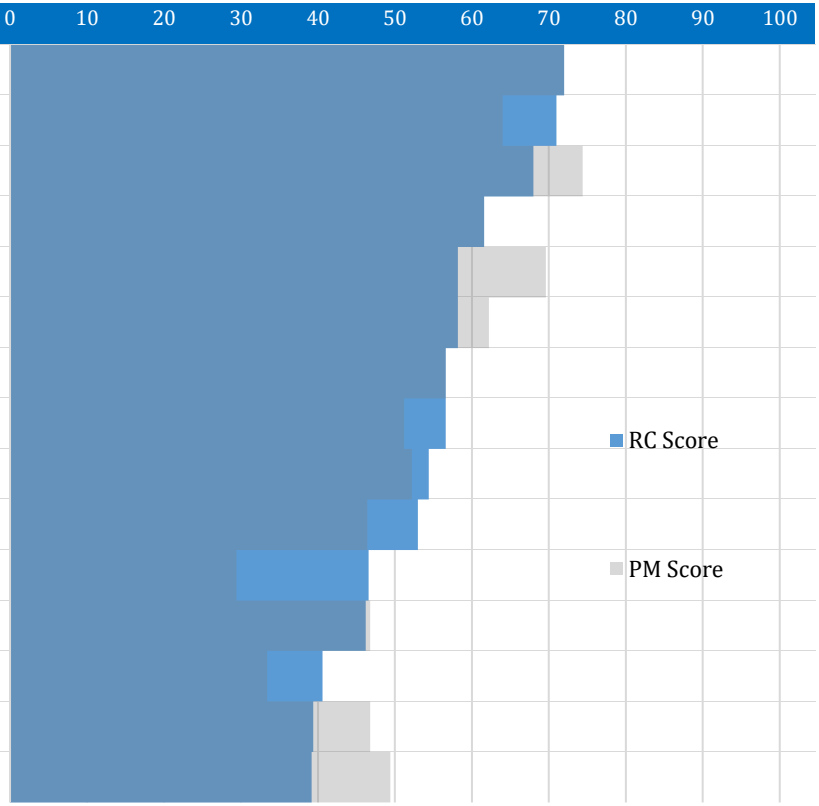


Table 3. Project Manager Criteria Score Breakdown: Water

RANK	CIP NO.	TITLE	1	2	3	4	5	6	7	8	PM SCORE	1	2	3	4	5	6	7	8	RC SCORE
1	111012	LHWTP-Flocculation Improvements	5	4	5	4	2	2	2	4	72.0	5	4	5	4	2	2	2	4	72.0
2	111010	Filtration Improvements	4	4	3	4	3	2	2	3	64.0	4	4	4	4	4	2	2	3	71.0
3	112003	NEWTP High-Lift Pumping Station Improvements	5	5	2	4	5	2	2	4	74.4	5	4	2	4	4	2	2	4	68.0
4	122007	Merriman Road Water Transmission Main Loop	1	5	1	4	3	4	4	4	61.6	1	5	1	4	3	4	4	4	61.6
5	132016	North Service Center Pumping Station Improvements	5	4	2	4	3	4	2	5	69.6	4	3	2	3	3	4	1	4	58.2
6	132021	Imlay Pumping Station Improvements	4	4	1	4	3	3	3	4	62.2	4	3	2	3	3	4	1	4	58.2
7	132022	Joy Road Pumping Station Improvements	4	4	1	3	3	2	3	3	56.6	4	3	2	3	3	3	1	4	56.6
8	132018	Schoolcraft Pumping Station Improvements	3	3	1	4	3	3	2	2	51.2	4	3	2	3	3	3	1	4	56.6
9	115007	Water Works Park High Lift Pumping Station Modernization	3	3	2	2	3	3	2	3	52.2	3	3	2	2	3	2	3	4	54.4
10	114018	SPWTP - Service Bldg Electrical Substation and Misc. Improvements	4	3	1	3	3	1	2	1	46.4	4	4	2	3	3	1	2	1	53.0
11	114007	SPWTP Powdered Activated Carbon System Improvements	3	2	1	1	1	2	1	1	29.4	3	2	3	4	2	2	1	1	46.6
12	116006	Belle Isle Intake System Rehabilitation and Improvements	3	2	3	3	1	1	2	4	46.8	3	3	3	3	1	1	2	2	46.2
13	111008	LHWTP, Arch. Programming for Lab and Admin Bldg Improvements	3	2	1	2	2	1	1	1	33.4	4	2	2	1	2	2	1	2	40.6
14	115006	Water Works Park Site/Civil Improvements	4	3	1	3	2	1	3	2	46.8	2	3	1	2	3	1	2	1	39.4
15	116005	Belle Isle Seawall Rehabilitation	3	2	4	1	3	1	3	1	49.4	4	2	2	1	2	1	2	1	39.2

Table 4. Project Manager Criteria Scores: Wastewater

RANK	CIP NO.	TITLE	
1	274001	Leib Improvements for Meldrum Diversion	274001
2	278001	Oakwood Improvements for NWI Diversion	278001
3	211005	WRRF PS No. 2 Improvements Phase II	211005
4	212009	WRRF Aeration Improvements 3 and 4	212009
5	211010	Rehabilitation of Sludge Processing Complexes A and B	211010
6	212010	WRRF Conversion of Disinfection of all Flow to NaOCl and NaHSO4	212010
7	270001	Pilot CSO Netting Facility	270001
8	211011	WRRF PS1 Screening and Grit Improvements	211011
9	270002	Meldrum Sewer Diversion and VR-15 Improvements	270002
10	211009	WRRF Rehabilitation of the Circular Primary Clarifier Scum Removal System	211009
11	233003	Rouge River In-system Storage Devices	233003
12	213008	WRRF Rehabilitation of the Ash Handling Systems	213008
13	212007	WRRF Rehabilitation of the Secondary Clarifiers	212007

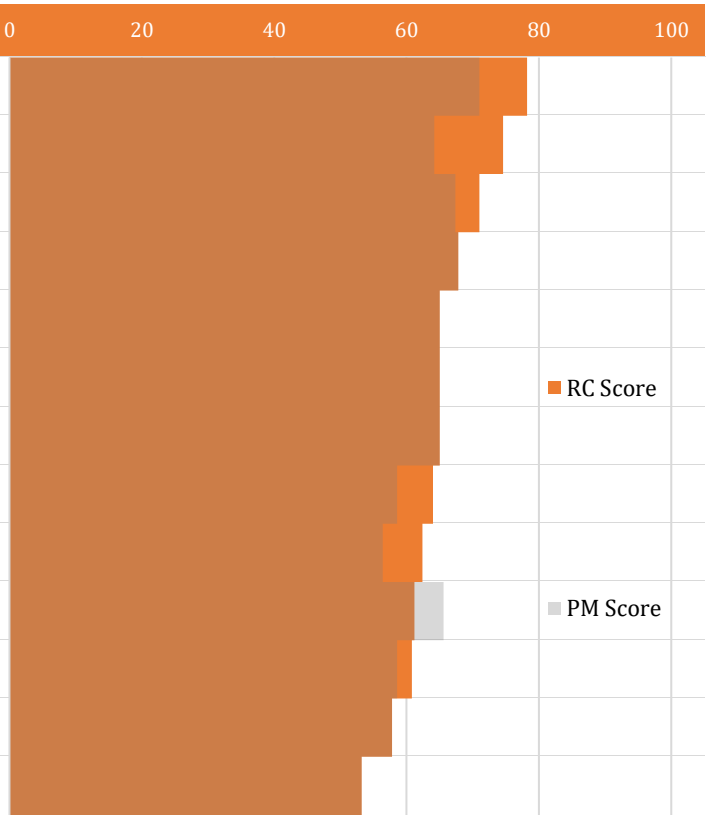


Table 5. Project Manager Criteria Score Breakdown: Wastewater

RANK	CIP NO.	TITLE	1	2	3	4	5	6	7	8	PM SCORE	1	2	3	4	5	6	7	8	RC SCORE
1	274001	Leib Improvements for Meldrum Diversion	4	4	3	4	3	5	4	2	71.0	4	4	4	4	3	5	4	4	78.2
2	278001	Oakwood Improvements for NWI Diversion	4	3	4	4	2	5	2	2	64.2	4	4	4	4	3	5	4	2	74.6
3	211005	WRRF PS No. 2 Improvements Phase II	4	3	4	3	4	3	2	3	67.4	5	4	4	3	4	3	2	2	71.0
4	212009	WRRF Aeration Improvements 3 and 4	4	3	4	3	3	3	3	4	67.8	4	3	4	3	3	3	3	4	67.8
5	211010	Rehabilitation of Sludge Processing Complexes A and B	2	2	4	4	5	4	2	2	65.0	2	2	4	4	5	4	2	2	65.0
6	212010	WRRF Conversion of Disinfection of all Flow to NaOCl and NaHSO4	2	2	4	4	5	4	2	2	65.0	2	2	4	4	5	4	2	2	65.0
7	270001	Pilot CSO Netting Facility	1	5	5	1	4	4	1	3	65.0	1	5	5	1	4	4	1	3	65.0
8	211011	WRRF PS1 Screening and Grit Improvements	3	4	2	4	2	2	4	3	58.6	4	5	2	4	2	2	4	3	64.0
9	270002	Meldrum Sewer Diversion and VR-15 Improvements	1	1	5	1	4	5	1	4	56.4	1	3	5	1	4	5	1	4	62.4
10	211009	WRRF Rehabilitation of the Circular Primary Clarifier Scum Removal System	4	5	3	4	2	2	3	3	65.6	4	5	3	2	2	2	3	3	61.2
11	233003	Rouge River In-system Storage Devices	1	1	5	1	4	4	2	5	58.6	1	3	5	1	4	4	1	4	60.8
12	213008	WRRF Rehabilitation of the Ash Handling Systems	4	3	3	4	3	1	3	1	57.8	4	3	3	4	3	1	3	1	57.8
13	212007	WRRF Rehabilitation of the Secondary Clarifiers	4	3	4	3	1	4	1	1	53.2	4	3	4	3	1	4	1	1	53.2

4 CIP PROJECTS BY CATEGORY

4.1 LARGEST CIP PROJECTS

The Water and Wastewater projects included in the FY2022-2026 CIP with the largest projected lifetime spend (the top five for each) are listed below.

Table 6. Water Projects with top lifetime planned spend

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

CIP #	PROJECT TITLE	LIFETIME PLAN SPEND
114002	Springwells Water Treatment Plant, Low-Lift and High-Lift Pumping Station Improvements	$ 224,222
114010	Springwells Water Treatment Plant, Yard Piping and High-Lift Header Improvements	200,472
122004	96-inch Water Transmission Main Relocation and Isolation Valve Installations	144,852
122003	Water Works Park to Northeast Transmission Main	143,217
122013	14 Mile Transmission Main Loop	105,180

Table 7. Wastewater Projects with top lifetime planned spend

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

CIP #	PROJECT TITLE	LIFETIME PLAN SPEND
232002	Freud & Conner Creek Pump Station Improvements	$ 229,279
260600	CSO Facilities Improvement Program	126,400
211011	WRRF PS1 Screening and Grit Improvements	93,303
212008	WRRF Aeration Improvements 1 and 2	81,931
211007	WRRF PS #2 Bar Racks Replacements and Grit Collection System Improvements	76,229

4.2 LARGEST DOLLAR PROJECTS (GREATER THAN $30M)

The Water and Wastewater projects with the largest projected spend for the FY2022-2026 CIP are listed below. These projects are planned for greater than $30 Million over the FY2022-2026 time period. There are nine (9) projects in the Water category and seven (7) projects in the Wastewater category.

Table 8. Water Projects with 5-Year Total Greater than $30M

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

CIP #	PROJECT TITLE	PROJECTED EXPENDITURES									
		LIFETIME ACTUAL THRU FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27+	2022-26 CIP TOTAL	PROJECT TOTAL
111001	Lake Huron WTP, Low-Lift, High Lift and Filter Backwash Pumping System Improvements	$ 212	$ 1,993	$ 1,962	$ 4,581	$ 8,867	$ 10,837	$ 10,837	$ 17,889	$ 37,085	$ 57,178
114002	Springwells WTP, Low-Lift and High-Lift Pumping Station Improvements	5,496	11,812	16,546	18,135	19,954	18,584	18,391	115,303	91,611	224,222
114010	Springwells WTP, Yard Piping and High-Lift Header Improvements	241	$267	1,568	4,614	13,057	16,057	16,057	148,610	51,354	200,472
116002	Pennsylvania and Springwells Raw Water Supply Tunnel Improvements	15,411	7,024	8,360	17,395	23,304	18,016	5,372	-	72,446	94,880
122003	Water Works Park to Northeast Transmission Main	5,190	11,234	14,593	9,214	14,535	13,835	21,695	52,921	73,871	143,217
122004	96-inch Water Transmission Main Relocation and Isolation Valve Installations	1,816	2,077	2,577	7,614	10,625	12,581	12,581	94,980	45,978	144,852
122013	14 Mile Transmission Main Loop	3,759	6,064	37,593	36,390	21,374	-	-	-	95,357	105,180
132010	West Service Center Pumping Station - Reservoir, Reservoir Pumping, and Division Valve Upgrades	2,149	5,266	17,149	19,927	$650	-	-	-	37,727	45,142
132015	Newburgh Road Booster Pumping Station Improvements	350	852	733	2,365	8,839	12,524	12,000	7,380	36,462	45,044

Table 9. Wastewater Projects with 5-Year Total Greater than $30M

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

CIP #	PROJECT TITLE	PROJECTED EXPENDITURES									
		LIFETIME ACTUAL THRU FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27+	2022-26 CIP TOTAL	PROJECT TOTAL
211006	WRRF PS No. 1 Improvements	$ 1,284	$ 623	$ 3,061	$ 7,987	$ 8,009	$ 7,199	$ 7,559	$ 32,987	$ 33,816	$ 68,709
211007	WRRF PS #2 Bar Racks Replacements and Grit Collection System Improvements	5	2,323	2,303	6,987	18,173	18,122	15,052	13,263	60,638	76,229
212008	WRRF Aeration Improvements 1 and 2	16	2,264	2,567	5,392	19,423	19,370	18,576	14,323	65,328	81,931
232002	Freud & Conner Creek Pump Station Improvements	7,342	6,445	3,357	12,646	17,446	23,446	34,146	124,450	91,041	229,279
260204	Conveyance System Engineering Services-1802575	913	11,656	11,646	9,476	9,249	9,217	-	-	39,589	52,157
260510	Conveyance System Repairs (Outfalls)	-	557	7,710	7,710	7,728	7,710	9,240	8,210	40,096	48,863
260700	Sewer System Infrastructure Improvements and Pumping Stations	-	1,403	3,661	9,050	9.021	7,234	1,844	3,689	30,810	35,901

4.3 LARGEST 2022 PROJECTED SPEND (GREATER THAN $5M)

The Water and Wastewater projects with the largest projected spend for 2022 are listed below. These projects are planned for greater than $5 Million in FY 2022. There are eight (8) projects in the Water category and seven (7) projects in the Wastewater category.

Table 10. Water Projects with 2022 Projected Spend Greater than $5M

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

CIP #	PROJECT TITLE	PROJECTED EXPENDITURES									
		LIFETIME ACTUAL THRU FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27+	2022-26 CIP TOTAL	PROJECT TOTAL
114002	Springwells WTP, Low-Lift and High-Lift Pumping Station Improvements	$ 5,496	$ 11,812	$ 16,546	$ 18,135	$ 19,954	$ 18,584	$ 18,391	$ 115,303	$ 91,611	$ 224,222
115001	Water Works Park WTP Yard Piping, Valves and Venturi Meters Replacement	2,389	4,372	6,322	6,322	6,321	6,322	6,163	16,605	31,449	54,815
116002	Pennsylvania and Springwells Raw Water Supply Tunnel Improvements	15,411	7,024	8,360	17,395	23,304	18,016	5,372	-	72,446	94,880
122003	Water Works Park to Northeast Transmission Main	5,190	11,234	14,593	9,214	14,535	13,835	21,695	52,921	73,871	143,217
122005	Schoolcraft Road Water Transmission Main	1,382	6,338	7,607	-	-	-	-	-	7,607	15,326
122013	14 Mile Transmission Main Loop	3,759	6,064	37,593	36,390	21,374	-	-	-	95,357	105,180
132010	West Service Center Pumping Station - Reservoir, Reservoir Pumping, and Division Valve Upgrades	2,149	5,266	17,149	19,927	650	-	-	-	37,727	45,142
170300	WTP Automation Program	-	7,098	6,151	-	-	-	-	-	6,151	13,249

Table 11. Wastewater Projects with 2022 Projected Spend Greater than $5M

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

CIP #	PROJECT TITLE	PROJECTED EXPENDITURES									
		LIFETIME ACTUAL THRU FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27+	2022-26 CIP TOTAL	PROJECT TOTAL
232001	Fairview Pumping Station - Replace Four Sanitary Pumps	$ 14,274	$ 12,990	$ 12,781	$ 28	$ -	$ -	$ -	$ -	$ 12,809	$ 40,073
260204	Conveyance System Engineering Services-1802575	913	11,656	11,646	9,476	9,249	9,217	0	0	39,589	52,157
222002	Detroit River Interceptor (DRI) Evaluation and Rehabilitation	20,151	11,192	11,192	10,057	5,696	5,235	3,645	5,608	35,824	72,775
260510	Conveyance System Repairs (Outfalls)	0	557	7,710	7,710	7,728	7,710	9,240	8,210	40,096	48,863
260206	Conveyance System Repairs (Sewers)	0	523	7,046	7,046	7,046	7,046	8,046	11,069	36,230	47,821
211008	WRRF Rehabilitation of Ferric Chloride Feed System in PS-1 and Complex B Sludge Lines	1,630	3,428	5,358	972	-	-	-	-	6,330	11,388
260205	NWI Rehabilitation	79	1,767	5,046	4,046	-	-	-	-	9,092	10,938

4.4 WATER PROJECTS BY STATUS

All financial figures are in thousands of dollars ($1,000's). The Project Status column shows which projects are Active (A), Future Planned (FP), or Pending Closeout (PC). Projects that have been Reclassified to a different number, Closed, or Cancelled are not shown in this list; a list of Closed projects can be found in Chapter 3. For projects in the "Centralized Services" category (CIP number begins with 3), only portions of projects funded by the water planned spend are included in this section. Following these tables is a chart from the Integrated Master Schedule showing the planned sequencing of projects.

Table 12. Water CIP Projects: Active, ranked by 5-Year CIP Total

CIP #	TITLE	PROJECT STATUS	YEAR ADDED	LIFETIME ACTUAL THRU FY 2020 (UNAUDITED)	PROJECTED EXPENDITURES							2022-2026 CIP TOTAL	PROJECT TOTAL	PERCENT OF W/S CIP
					FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027 & BEYOND			
122013	14 Mile Transmission Main Loop	Project Execution - Design	2017	$3,759	$6,064	$37,593	$36,390	$21,374	$ 0	$ 0	$ 0	$95,357	$105,180	4.47%
114002	Springwells Water Treatment Plant, Low-Lift and High-Lift Pumping Station Improvements	Project Execution - Design	2004	5,496	11,812	16,546	18,135	19,954	18,584	18,391	115,303	91,611	224,222	9.53%
122003	Water Works Park to Northeast Transmission Main	Project Execution - Construction	2014	5,190	11,234	14,593	9,214	14,535	13,835	21,695	52,921	73,871	143,217	6.09%
116002	Pennsylvania and Springwells Raw Water Supply Tunnel Improvements	Project Execution - Design	2016	15,411	7,024	8,360	17,395	23,304	18,016	5,372	0	72,446	94,880	4.03%
114010	Springwells Water Treatment Plant, Yard Piping and High-Lift Header Improvements	Active - Pre-Procurement - Design	2012	241	267	1,568	4,614	13,057	16,057	16,057	148,610	51,354	200,472	8.52%
122004	96-inch Water Transmission Main Relocation and Isolation Valve Installations	Project Execution - Design	2016	1,816	2,077	2,577	7,614	10,625	12,581	12,581	94,980	45,978	144,852	6.16%
132010	West Service Center Pumping Station - Reservoir, Reservoir Pumping, and Division Valve Upgrades	Project Execution - Design	2017	2,149	5,266	17,149	19,927	650	0	0	0	37,727	45,142	1.92%
111001	Lake Huron Water Treatment Plant, Low-Lift, High Lift and Filter Backwash Pumping System Improvements	Project Execution - Design	2010	212	1,993	1,962	4,581	8,867	10,837	10,837	17,889	37,085	57,178	2.43%
132015	Newburgh Road Booster Pumping Station Improvements	Project Execution - Design	2018	350	852	733	2,365	8,839	12,524	12,000	7,380	36,462	45,044	1.92%
122016	Downriver Transmission Main Loop	Project Execution - Design	2017	225	1,683	665	7,482	8,074	8,544	7,470	2,924	32,235	37,067	1.58%
115001	Water Works Park Water Treatment Plant Yard Piping, Valves and Venturi Meters Replacement	Project Execution - Construction	2007	2,389	4,372	6,322	6,322	6,321	6,322	6,163	16,605	31,449	54,815	2.33%
111009	Lake Huron Water Treatment Plant - High Lift Pumping, Water Production Flow Metering and Yard Piping Improvements	Active - Procurement - Board Approved - Construction	2018	117	640	1,061	7,060	7,582	7,021	7,000	0	29,724	30,481	1.30%
132012	Ypsilanti Booster Pumping Station Improvements	Project Execution - Design	2017	334	615	584	6,718	9,797	9,771	2,574	5,000	29,445	35,393	1.50%
170900	Suburban Water Meter Pit Rehabilitation and Meter Replacement	Project Execution - Construction	2014	0	2,535	1,159	4,112	4,113	4,113	4,113	20,573	17,610	40,719	1.73%
111012	LHWTP-Flocculation Improvements	Active - Pre-Procurement - Design	2021	0	46	538	469	5,564	5,428	5,428	9,065	17,427	26,538	1.13%
111006	Lake Huron Water Treatment Plant, Filter Instrumentation and Raw Water Flow Metering Improvements	Active - Pre-Procurement - Construction	2014	1,073	215	5,196	5,222	5,082	1	0	0	15,502	16,790	0.71%

CIP #	TITLE	PROJECT STATUS	YEAR ADDED	LIFETIME ACTUAL THRU FY 2020 (UNAUDITED)	PROJECTED EXPENDITURES							2022-2026 CIP TOTAL	PROJECT TOTAL	PERCENT OF W/S CIP
					FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027 & BEYOND			
170800	System-Wide Finished Water Reservoir Inspection, Design and Rehabilitation	Project Execution - Design	2016	0	46	322	2,322	3,321	3,317	3,300	11,200	12,581	23,827	1.01%
114017	Springwells Water Treatment Plant Flocculator Drive Replacements	Active - Procurement - Board Approved - Design	2018	1	567	371	6,474	4,943	2	0	0	11,790	12,358	0.53%
112006	Northeast Water Treatment Plant Flocculator Replacements	Project Execution - Design	2018	186	55	2,522	3,022	3,022	2,509	0	0	11,075	11,316	0.48%
171500	Roof Replacement at WWP, SP, LH, NE, SW, NSC, Orion, Franklin, and Conner Creek Facilities	Project Execution - Construction	2018	0	386	11	3,090	1,808	369	2,920	14,127	8,199	22,711	0.97%
114005	Springwells Water Treatment Plant, Administration Building Improvements & Underground Fire Protection Loop	Project Execution - Design	2014	944	376	3,660	3,780	500	0	0	0	7,940	9,260	0.39%
122005	Schoolcraft Road Water Transmission Main	Project Execution - Design	2016	1,382	6,338	7,607	0	0	0	0	0	7,607	15,326	0.65%
170302	SW SCADA System Upgrade	Project Execution - Design	2017	0	1,788	3,606	3,606	0	0	0	0	7,212	9,000	0.38%
113006	Southwest Water Treatment Plant Chlorine Scrubber, Raw Water Screens & Related Improvements	Active - Procurement - Construction	2017	130	245	4,683	1,595	557	78	42	0	6,956	7,331	0.31%
170300	Water Treatment Plant Automation Program	Project Execution - Construction	2017	0	7,098	6,151	0	0	0	0	0	6,151	13,249	0.56%
114011	Springwells Water Treatment Plant Steam, Condensate Return, and Compressed Air Piping Improvements	Project Execution - Construction	2012	10,084	9,756	5,374	327	0	0	0	0	5,701	25,540	1.09%
170801	0	Project Execution - Design	2020	0	8,420	463	2,075	1,000	1,000	1,000	1,132	5,538	15,090	0.64%
122006	Wick Road Water Transmission Main	Project Execution - Construction	2016	5,903	11,743	4,774	0	0	0	0	0	4,774	22,420	0.95%
115005	WWP WTP Building Ventilation Improvements	Project Execution - Design	2018	1	380	523	1,620	1,592	400	100	307	4,235	4,924	0.21%
132007	Energy Management: Freeze Protection Pump Installation at Imlay Pump Station	Project Execution - Design	2014	168	974	3,962	84	0	0	0	0	4,046	5,187	0.22%
111011	Lake Huron WTP Pilot Plant	Active - Procurement - Negotiation Phase - Design	2019	0	58	1,719	1,471	0	0	0	0	3,190	3,248	0.14%
170901	Suburban Water Meter Pit Rehabilitation and Meter Replacement	Project Execution - Construction	2014	4,530	3,248	2,838	0	0	0	0	0	2,838	10,616	0.45%
114008	Springwells Water Treatment Plant 1930 Sedimentation Basin Sluice Gates, Guides & Hoists Improvements	Project Execution - Construction	2014	3,382	7,989	2,485	67	0	0	0	0	2,552	13,923	0.59%
114016	Springwells Water Treatment Plant 1958 Settled Water Conduits and Loading Dock Concrete Pavement Replacement	Project Execution - Design	2018	91	189	566	1,435	0	0	0	0	2,001	2,281	0.10%
381000	Power Quality: Electric Metering Improvement Program	Active - Pre-Procurement - Design	2016	0	0	0	0	27	223	1,129	1,245	1,379	2,624	0.11%
170503	Transition System Valve Replacement	Project Execution - Construction	2017	394	8,373	1,305	0	0	0	0	0	1,305	10,072	0.43%
170500	Transmission System Valve Rehabilitation and Replacement Program	Project Execution - Construction	2017	0	280	232	232	232	232	151	3,990	1,080	5,350	0.23%
351001	LED Lighting and Lighting Control Improvements	Active - Pre-Procurement - Construction	2017	7	0	38	221	221	213	0	0	693	700	0.03%

CIP #	TITLE	PROJECT STATUS	YEAR ADDED	LIFETIME ACTUAL THRU FY 2020 (UNAUDITED)	PROJECTED EXPENDITURES							2022-2026 CIP TOTAL	PROJECT TOTAL	PERCENT OF W/S CIP
					FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027 & BEYOND			
170902	Brownstown Meter Pit	Active - Pre-Procurement - Construction	2020	76	570	594	5	0	0	0	0	599	1,245	0.05%
341001	Security Infrastructure Improvements on Water Facilities	Project Execution - Construction	2019	3,944	4,656	567	2	0	0	0	0	569	9,170	0.39%
170303	Power Monitoring Installation for Water Treatment Plants	Active - Pre-Procurement - Design	2020	0	1,186	514	0	0	0	0	0	514	1,700	0.07%
380700	As-Needed Geotechnical and Related Engineering Services	Project Execution - Design	2006	771	904	456	0	0	0	0	0	456	2,131	0.09%
111007	Lake Huron Water Treatment Plant, Raw Sludge Clarifier and Raw Sludge Pumping System Improvements	Project Execution - Construction	2016	5,888	3,109	184	0	0	0	0	0	184	9,181	0.39%
122011	Park-Merriman Road Water Transmission Main	Project Execution - Construction	2015	5,222	4,370	8	0	0	0	0	0	8	9,600	0.41%
112005	Northeast Water Treatment Plant - Replacement of Covers for Process Water Conduits	Project Execution - Construction	2018	438	645	5	0	0	0	0	0	5	1,089	0.05%
170200	As-Needed Construction Materials, Environmental Media and Special Testing Services, Construction Inspection, and Other Technical Services	Project Execution - Design	2014	0	1,427	0	0	0	0	0	0	0	1,427	0.06%
114013	Springwells Water Treatment Plant, Reservoir Fill Line Improvements	Project Execution - Construction	2016	3,586	1,338	0	0	0	0	0	0	0	4,924	0.21%
132006	Ford Road Pumping Station, Pressure and Control Improvements	Project Execution - Construction	2014	1,884	1,480	0	0	0	0	0	0	0	3,364	0.14%
170109	GLWA-CS-187: FK Eng: Raw Water Intake	Project Execution - Design	2012	1,656	0	0	0	0	0	0	0	0	1,656	0.07%
171501	Roof Replacements at SP, WWP,Orion,Franklin,and Conner Creek	Project Execution - Construction	2020	3,216	269	0	0	0	0	0	0	0	3,484	0.15%
ACTIVE WATER PROJECTS TOTAL				**92,646**	**144,956**	**172,146**	**189,049**	**184,962**	**151,977**	**138,326**	**523,252**	**836,459**	**1,597,313**	**68%**

Table 13. Water CIP Projects: Pending Closeout, Ranked by Total Cost

CIP #	TITLE	PROJECT STATUS	YEAR ADDED	LIFETIME ACTUAL THRU FY 2020 (UNAUDITED)	PROJECTED EXPENDITURES							2022-2026 CIP TOTAL	PROJECT TOTAL	PERCENT OF W/S CIP
					FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027 & BEYOND			
114001	Springwells WTP, 1958 Filter Rehabilitation and Auxiliary Facilities Improvements	Pending Closeout	2002	$ 80,828	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 80,828	3.4%
111002	Lake Huron WTP, Miscellaneous Mechanical HVAC Improvements	Pending Closeout	2014	8,685	20	0	0	0	0	0	0	0	8,705	0.4%
114003	Water Production Flow Metering Improvements at Northeast, Southwest and Springwells WTPs	Pending Closeout	2014	8,156	0	0	0	0	0	0	0	0	8,156	0.3%
115004	Water Works Park WTP Chlorine System Upgrade	Pending Closeout	2017	6,893	0	0	0	0	0	0	0	0	6,893	0.3%
113002	Southwest WTP, High-Lift Pump Discharge Valve Actuators Replacement	Pending Closeout	2014	5,272	23	501	649	283	0	0	0	1,433	6,728	0.3%
132003	West Service Center Pumping Station, Isolation Gate Valves for Line Pumps	Pending Closeout	2014	1,744	218	0	0	0	0	0	0	0	1,962	0.1%
132026	Franklin Pumping Station Valve Replacement	Pending Closeout	2019	821	185	0	0	0	0	0	0	0	1,006	0.0%
PENDING CLOSEOUT WATER PROJECTS TOTAL				**112,399**	**446**	**501**	**649**	**283**	**0**	**0**	**0**	**1,433**	**114,279**	**4.9%**

Table 14. Water CIP Projects: Future Planned, Ranked by Prioritization Score

CIP #	TITLE	PROJECT STATUS	YEAR ADDED	LIFETIME ACTUAL THRU FY 2020 (UNAUDITED)	PROJECTED EXPENDITURES							2022-2026 CIP TOTAL	PROJECT TOTAL	PERCENT OF W/S CIP	PRIORITIZATION SCORE (RC)
					FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027 & BEYOND				
122018	Garland, Hurlbut, Bewick Water Transmission System Rehabilitation	Future Planned - Within 5 Year Plan	2019	$ 0	$1,578	$1,530	$1,528	$ 1,528	$ 3,995	$ 3,995	$ 39,947	$12,578	$ 54,103	2.3%	89.0
122017	7 Mile/Nevada Transmission Main Rehab and Carrie/Nevada Flow Control Station	Future Planned - Within 5 Year Plan	2019	3	1,167	1,944	1,944	4,784	3,505	13,363	33,479	25,539	60,189	2.6%	84.2
111010	Filtration Improvements	Future Planned - Within 5 Year Plan	2019	0	0	0	0	9	38	61	42,099	108	42,207	1.8%	71.0
132019	Wick Road Pumping Station Improvements	Future Planned - Within 5 Year Plan	2018	57	0	0	0	0	0	13	9,288	13	9,358	0.4%	68.4
112003	Northeast WTP High-Lift Pumping Station Improvements	Future Planned - Within 5 Year Plan	2017	6	279	173	215	862	1,931	1,721	66,360	4,901	71,546	3.0%	68.0
132014	Adams Road Pumping Station Improvements	Future Planned - Within 5 Year Plan	2017	83	0	203	1,332	1,158	1,129	1,129	47,830	4,951	52,865	2.2%	64.6
132020	Franklin Pumping Station Improvements	Future Planned - Within 5 Year Plan	2018	93	0	0	0	0	0	0	2,451	0	2,545	0.1%	64.6
122007	Merriman Road Water Transmission Main Loop	Future Planned - Within 5 Year Plan	2016	2	57	27	27	273	890	890	19,988	2,107	22,154	0.9%	61.6
132016	North Service Center Pumping Station Improvements	Future Planned - Within 5 Year Plan	2017	266	282	673	1,726	2,351	2,247	8,503	52,206	15,501	68,255	2.9%	58.2
132021	Imlay Pumping Station Improvements	Future Planned - Within 5 Year Plan	2018	227	0	0	0	0	0	0	522	0	750	0.0%	58.2
132018	Schoolcraft Pumping Station Improvements	Future Planned - Within 5 Year Plan	2018	47	0	0	0	0	0	0	0	0	47	0.0%	56.6
132022	Joy Road Pumping Station Improvements	Future Planned - Within 5 Year Plan	2018	71	57	277	527	527	122	75	37,958	1,527	39,613	1.7%	56.6
115007	Water Works Park High Lift Pumping Station Modernization	Future Planned - Within 5 Year Plan	2021	0	0	280	530	530	780	11,705	75,120	13,826	88,946	3.8%	54.4
114018	Springwells WTP - Service Building Electrical Substation and Miscellaneous Improvements	Future Planned - Within 5 Year Plan	2019	0	100	80	95	7	1,263	0	0	1,445	1,545	0.1%	53.0
114007	Springwells WTP Powdered Activated Carbon System Improvements	Future Planned - Within 5 Year Plan	2014	0	0	0	0	0	0	0	4,021	0	4,021	0.2%	46.6
116006	Belle Isle Intake System Rehabilitation and Improvements	Future Planned - Within 5 Year Plan	2021	0	0	0	300	50	0	0	0	350	350	0.0%	46.2
111008	Lake Huron WTP, Architectural Programming for Laboratory and Admin Building Improvements	Future Planned - Within 5 Year Plan	2017	0	0	0	0	0	0	77	1,119	77	1,196	0.1%	40.6
115006	Water Works Park Site/Civil Improvements	Future Planned - Within 5 Year Plan	2019	0	0	0	0	0	0	6	5,875	6	5,882	0.2%	39.4
116005	Belle Isle Seawall Rehabilitation	Future Planned - Within 5 Year Plan	2020	0	0	319	1,231	281	0	0	0	1,832	1,832	0.1%	39.2
FUTURE PLANNED WATER PROJECTS TOTAL				**857**	**3,521**	**5,506**	**9,456**	**12,361**	**15,900**	**41,539**	**438,263**	**84,761**	**527,402**	**22.4%**	

Table 15. Water CIP Projects: Totals

TITLE	LIFETIME ACTUAL THRU FY 2020 (UNAUDITED)	PROJECTED EXPENDITURES							2022-2026 CIP TOTAL	PROJECT TOTAL	PERCENT OF W/S CIP
		FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027 & BEYOND			
Active Water Projects Total	$92,646	$144,956	$172,146	$189,049	$184,962	$151,977	$138,326	$523,252	$836,459	$1,597,313	67.91%
Pending Closeout Water Projects Total	112,399	446	501	649	283	0	0	0	1,433	114,279	4.86%
Future Planned Water Projects Total	856.99209	3,621	6,564	11,016	13,920	18,959	44,104	494,949	94,563	593,991	25.25%
Listed as Cancelled/Closed/Reclassified	21,411	1,716	0	0	0	0	0	25,000	0	48,127	2.05%
WATER PROJECTS TOTAL	**227,313**	**150,740**	**179,210**	**200,713**	**199,165**	**170,936**	**182,430**	**1,043,201**	**932,455**	**2,353,709**	**100%**

4.5 WASTEWATER PROJECTS BY STATUS

All financial figures are in thousands of dollars ($1,000's). The Project Status column shows which projects are Active (A), Future Planned (FP), or Pending Closeout (PC). Projects that have been Reclassified to a different number, Closed, or Cancelled are not shown in this list; a list of Closed projects can be found in Chapter 3. For projects in the "Centralized Services" category (CIP number begins with 3), only portions of projects funded by the wastewater planned spend are included in this section. Following these tables is a chart from the Integrated Master Schedule showing the planned sequencing of projects.

Table 16. Wastewater/Sewer Projects: Active, Ranked by 2022-2026 CIP Total

CIP #	TITLE	PROJECT STATUS	YEAR ADDED	LIFETIME ACTUAL THRU FY 2020 (UNAUDITED)	FY 2021	PROJECTED EXPENDITURES						2022-2026 CIP TOTAL	PROJECT TOTAL	PERCENT OF W/S CIP
						FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027 & BEYOND			
232002	Freud & Conner Creek Pump Station Improvements	Project Execution - Design	2016	$7,342	$6,445	$3,357	$12,646	$17,446	$23,446	$34,146	$124,450	$91,041	$229,279	12.87%
212008	WRRF Aeration Improvements 1 and 2	Project Execution - Design	2017	16	2,264	2,567	5,392	19,423	19,370	18,576	14,323	65,328	81,931	4.60%
211007	WRRF PS #2 Bar Racks Replacements and Grit Collection System Improvements	Active - Procurement - Board Approved - Design	2016	5	2,323	2,303	6,987	18,173	18,122	15,052	13,263	60,638	76,229	4.28%
260510	Conveyance System Repairs (Outfalls)	Active - Pre-Procurement - Design	2020	0	557	7,710	7,710	7,728	7,710	9,240	8,210	40,096	48,863	2.74%
260204	Conveyance System Engineering Services-1802575	Project Execution - Design	2013	913	11,656	11,646	9,476	9,249	9,217	0	0	39,589	52,157	2.93%
260200	Sewer and Interceptor Rehabilitation Program	Project Execution - Construction	2013	0	3,138	0	7,214	7,915	10,695	11,547	13,240	37,371	53,749	3.02%
260206	Conveyance System Repairs (Sewers)	Active - Pre-Procurement - Design	2020	0	523	7,046	7,046	7,046	7,046	8,046	11,069	36,230	47,821	2.68%
222002	Detroit River Interceptor (DRI) Evaluation and Rehabilitation	Project Execution - Construction	2016	20,151	11,192	11,192	10,057	5,696	5,235	3,645	5,608	35,824	72,775	4.08%
211006	WRRF PS No. 1 Improvements	Project Execution - Design	2016	1,284	623	3,061	7,987	8,009	7,199	7,559	32,987	33,816	68,709	3.86%
260700	Sewer System Infrastructure Improvements and Pumping Stations	Project Execution - Design	0	0	1,403	3,661	9,050	9,021	7,234	1,844	3,689	30,810	35,901	2.01%
216008	Rehabilitation of Screened Final Effluent (SFE) Pump Station	Active - Procurement - Negotiation Phase - Design	2018	6	501	906	6,504	6,504	6,504	6,504	13,391	26,923	40,821	2.29%
222001	Oakwood District Intercommunity Relief Sewer Modification at Oakwood District	Active - Procurement - Design	2014	0	925	791	786	779	4,870	16,474	28,772	23,700	53,397	3.00%
216006	Assessment and Rehabilitation of WRRF yard piping and underground utilities	Project Execution - Design	2017	73	580	558	2,858	9,808	9,782	214	0	23,221	23,874	1.34%
232001	Fairview Pumping Station - Replace Four Sanitary Pumps	Project Execution - Construction	2011	14,274	12,990	12,781	28	0	0	0	0	12,809	40,073	2.25%
260614	Structural Inspection & Structural Improvements	Active - Procurement - Construction	2017	304	3,047	4,422	3,872	1,397	752	0	0	10,443	13,794	0.77%
216010	WRRF Facility Optimization	Active - Pre-Procurement - Design	2019	4	25	57	1,853	5,513	972	1,845	0	10,241	10,271	0.58%
216011	WRRF Structural Improvements	Active - Pre-Procurement - Design	2020	0	52	2,052	2,046	2,046	2,046	2,046	2,046	10,235	12,333	0.69%
331002	Roofing Systems Replacement at GLWA WRRF, CSO Retention Treatment Basins (RTB) and Screening Disinfection Facilities (SDF)	Project Execution - Construction	2017	1,123	148	1,277	1,277	1,276	1,277	1,277	1,234	6,383	8,888	0.50%
211008	WRRF Rehabilitation of Ferric Chloride Feed System in PS-1 and Complex B Sludge Lines	Active - Pre-Procurement - Construction	2017	1,630	3,428	5,358	972	0	0	0	0	6,330	11,388	0.64%
260617	St. Aubin Chemical Disinfection Improvements	Active - Pre-Procurement - Design	2017	250	443	387	237	1,709	2,808	1,131	0	6,273	6,966	0.39%
270003	Long Term CSO Control Plan	Active - Procurement - Negotiation Phase - Design	2019	4	3,500	3,799	1,749	144	73	0	0	5,764	9,268	0.52%

CIP #	TITLE	PROJECT STATUS	YEAR ADDED	LIFETIME ACTUAL THRU FY 2020 (UNAUDITED)	FY 2021	PROJECTED EXPENDITURES						2022-2026 CIP TOTAL	PROJECT TOTAL	PERCENT OF W/S CIP
						FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027 & BEYOND			
213006	WRRF Improvements to Sludge Feed Pumps at Dewatering Facilities	Project Execution - Design	2016	6	109	342	2,252	1,781	0	0	0	4,375	4,490	0.25%
260500	CSO Outfall Rehabilitation	Active - Procurement - Construction	2017	0	0	833	833	835	833	833	833	4,167	5,000	0.28%
260618	Oakwood HVAC Project	Project Execution - Design	2017	76	639	3,235	17	0	0	0	0	3,252	3,967	0.22%
260701	Conveyance System Infrastructure Improvements	Project Execution - Design	0	469	1,356	1,356	1,356	48	0	0	0	2,761	4,586	0.26%
213007	WRRF Modification to Incinerator Sludge Feed Systems at Complex -II	Project Execution - Construction	2016	15,420	4,243	2,499	0	0	0	0	0	2,499	22,162	1.24%
260201	CON-149, Emergency Sewer Repair	Project Execution - Construction	2013	19,503	11,301	1,479	0	0	0	0	0	1,479	32,282	1.81%
341002	Security Infrastructure Improvements for Wastewater Facilities	Project Execution - Construction	2019	1,015	1,796	722	0	0	0	0	0	722	3,534	0.20%
260505	Phase 4 Outfalls	Project Execution - Construction	2017	1,586	3,491	641	0	0	0	0	0	641	5,718	0.32%
216007	DTE Primary Electric 3rd Feed Supply to WRRF	Project Execution - Construction	2017	2,898	1,252	394	0	0	0	0	0	394	4,544	0.25%
260508	B-39 Outfall Rehabilitation	Project Execution - Design	2021	0	181	181	181	27	0	0	0	388	569	0.03%
260615	Puritan Fenkell & Leib Site Improvements	Project Execution - Construction	2017	110	492	199	0	0	0	0	0	199	801	0.04%
216004	Rehabilitation of Various Sampling Sites and PS#2 Ferric Chloride System at WRRF	Project Execution - Construction	2010	1,638	4,932	76	0	0	0	0	0	76	6,645	0.37%
211001	WRRF Rehabilitation of Primary Clarifiers Rectangular Tanks, Drain Lines, Electrical/Mechanical Building and Pipe Gallery	Project Execution - Construction	1999	51,185	2,876	0	0	0	0	0	0	0	54,061	3.03%
211002	WRRF PS No. 2 Pumping Improvements - Phase 1	Project Execution - Construction	2003	2,014	1,326	0	0	0	0	0	0	0	3,340	0.19%
211004	WRRF PS #1 Rack & Grit and MPI Sampling Station 1 Improvements	Project Execution - Construction	2008	11,035	12,261	0	0	0	0	0	0	0	23,295	1.31%
212004	WRRF Chlorination and Dechlorination Process Equipment Improvements	Project Execution - Construction	2010	3,803	1,939	0	0	0	0	0	0	0	5,742	0.32%
214001	WRRF Relocation of Industrial Waste Control Division and Analytical Laboratory Operations	Project Execution - Construction	2014	10,584	2,067	0	0	0	0	0	0	0	12,651	0.71%
260504	Phase 2 Outfalls- 19000796	Project Execution - Construction	2017	2,202	2,849	0	0	0	0	0	0	0	5,051	0.28%
260509	B-40 Outfall Rehabilitation	Project Execution - Design	2022	66	22	0	0	0	0	0	0	0	89	0.00%
260603	Conner Creek CSO RTB Automation Improvements	Project Execution - Construction	2017	6,990	908	0	0	0	0	0	0	0	7,898	0.44%
260611	Leib SDF- HVAC System Improvements	Project Execution - Construction	2018	96	300	0	0	0	0	0	0	0	396	0.02%
260613	Baby Creek HVAC Improvements	Project Execution - Construction	2017	51	536	0	0	0	0	0	0	0	588	0.03%
260619	Control System Upgrade - St Aubin, Lieb & Mile	Project Execution - Design	2017	62	55	0	0	0	0	0	0	0	116	0.01%
260620	Baby Creek Roof Replacement	Active - Pre-Procurement - Construction	2021	0	641	0	0	0	0	0	0	0	641	0.04%
260702	Pump Station Assets Updates	Active - Pre-Procurement - Construction	0	0	669	0	0	0	0	0	0	0	669	0.04%
ACTIVE WASTEWATER PROJECTS TOTAL				178,187	122,006	96,887	110,387	141,573	145,191	139,980	273,114	634,018	1,207,325	67.8%

Table 17. Wastewater/Sewer CIP Projects: Pending Closeout, Ranked by Total Cost

CIP #	TITLE	PROJECT STATUS	YEAR ADDED	LIFETIME ACTUAL THRU FY 2020 (UNAUDITED)	PROJECTED EXPENDITURES								PROJECT TOTAL	PERCENT OF W/S CIP
					FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027 & BEYOND	2022-2026 CIP TOTAL		
212006	WRRF Rouge River Outfall (RRO) Disinfection (Alternative)	Pending Closeout	2014	$ 43,789	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 43,789	2.5%
260601	Oakwood CSO Control Facility Drain Valve Improvements	Pending Closeout	2017	682	183	0	0	0	0	0	0	0	864	0.0%
260616	Baby Creek Towards Treatment Sewer Improvements	Pending Closeout	2017	666	116	0	0	0	0	0	0	0	783	0.0%
260609	Seven Mile RTB - Parking Lot Replacement & Misc. Site Work	Pending Closeout	2017	370	47	0	0	0	0	0	0	0	417	0.0%
260610	Baby Creek SDF - HV Units Replacement	Pending Closeout	2017	275	0	0	0	0	0	0	0	0	275	0.0%
PENDING CLOSEOUT WASTEWATER PROJECTS TOTAL				45,782	346	0	0	0	0	0	0	0	46,128	2.6%

Table 18. Wastewater/Sewer Projects: Future Planned, Ranked by Prioritization Score

CIP #	TITLE	PROJECT STATUS	YEAR ADDED	LIFETIME ACTUAL THRU FY 2020 (UNAUDITED)	PROJECTED EXPENDITURES								PROJECT TOTAL	PERCENT OF W/S CIP	PRIORITIZATION (RC) SCORE
					FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027 & BEYOND	2022-2026 CIP TOTAL			
274001	Leib Improvements for Meldrum Diversion	Future Planned - Within 5 Year Plan	2020	$ 0	$ 25	$ 254	$1,228	$ 649	$ 2,713	$ 3,396	$ 2,677	$ 8,240	$ 10,942	0.6%	78.2
278001	Oakwood Improvements for NWI Diversion	Future Planned - Within 5 Year Plan	2020	0	25	252	1,205	631	2,545	2,194	3,373	6,828	10,226	0.6%	74.6
277001	Baby Creek Outfall Improvements Project	Future Planned - Within 5 Year Plan	2019	2	1,143	1,807	1,507	6,796	6,796	774	0	17,680	18,826	1.1%	72.8
211005	WRRF PS No. 2 Improvements Phase II	Future Planned - Within 5 Year Plan	2014	0	10	0	0	0	461	461	12,865	922	13,797	0.8%	71.0
212009	WRRF Aeration Improvements 3 and 4	Future Planned - Within 5 Year Plan	2019	0	0	0	0	0	52	1,239	72,297	1,291	73,589	4.1%	67.8
211010	Rehabilitation of Sludge Processing Complexes A and B	Future Planned - Within 5 Year Plan	2019	42	64	0	42	112	287	1,995	11,393	2,436	13,934	0.8%	65.0
212010	WRRF Conversion of Disinfection of all Flow to Sodium Hypochlorite and Sodium Bisulfite	Future Planned - Within 5 Year Plan	2019	0	0	0	0	0	52	132	5,581	184	5,765	0.3%	65.0
270001	Pilot CSO Netting Facility	Future Planned - Within 5 Year Plan	2019	0	0	13	57	1,557	107	3,203	4,635	4,939	9,573	0.5%	65.0
211011	WRRF PS1 Screening and Grit Improvements	Future Planned - Within 5 Year Plan	2019	0	0	0	0	0	42	132	93,129	175	93,303	5.2%	64.0
270002	Meldrum Sewer Diversion and VR-15 Improvements	Future Planned - Within 5 Year Plan	2019	0	0	9	57	283	568	1,975	2,949	2,891	5,840	0.3%	62.4
211009	WRRF Rehabilitation of the Circular Primary Clarifier Scum Removal System	Future Planned - Within 5 Year Plan	2017	3	243	476	2,740	5,619	3,927	0	0	12,762	13,008	0.7%	61.2
233003	Rouge River In-system Storage Devices	Future Planned - Within 5 Year Plan	2019	0	0	0	0	1,026	1,024	1,024	43,243	3,075	46,317	2.6%	60.8
213008	WRRF Rehabilitation of the Ash Handling Systems	Future Planned - Within 5 Year Plan	2017	111	351	295	295	453	1,518	3,979	1,429	6,540	8,432	0.5%	57.8
212007	WRRF Rehabilitation of the Secondary Clarifiers	Future Planned - Within 5 Year Plan	2017	0	0	10	124	240	240	3,316	45,941	3,930	49,871	2.8%	53.2
FUTURE PLANNED WASTEWATER PROJECTS TOTAL				159	1,861	3,117	7,257	17,367	20,333	23,820	299,510	71,893	373,423	21.0%	

Table 19. Wastewater/Sewer CIP Projects: Subtotals

SUBTOTALS	LIFETIME ACTUAL THRU FY 2020 (UNAUDITED)	PROJECTED EXPENDITURES							2022-2026 CIP TOTAL	PROJECT TOTAL	PERCENT OF W/S CIP
		FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027 & BEYOND			
Active Wastewater Projects Total	$178,187	$122,006	$96,887	$110,387	$141,573	$145,191	$139,980	$273,114	$634,018	$1,207,325	67.75%
Pending Closeout Wastewater Projects Total	45,782	345.989	0	0	0	0	0	0	0	46,128	2.59%
Future Planned Wastewater Projects Total	238	5,385	9,163	12,803	19,367	27,833	35,220	401,010	104,385	511,019	28.67%
Listed as Cancelled/Closed/Reclassified	18,083	0	0	0	0	0	0	0	0	18,083	0.77%
TOTAL WASTEWATER PROJECTS	242,290	127,738	106,050	123,190	160,940	173,024	175,200	674,124	738,403	1,782,554	100%

4.6 CENTRALIZED SERVICES PROJECTS

All financial figures are in thousands of dollars ($1,000's). The planned spend column denotes whether this item is funded by the Water (W) or Wastewater (S). The Project Status column shows which projects are Active (A), Future Planned (FP), or Pending Closeout (PC). Projects that have been Reclassified to a different number, Closed, or Cancelled are not shown in this list; a list of Closed projects can be found in Chapter 3, Section 3.2. Projects new to the CIP this year are denoted by bolded CIP number and title.

Table 20. Centralized Services Projects

CIP #	TITLE	PLANNED SPEND	PROJECT STATUS	YEAR ADDED	LIFETIME ACTUAL THRU FY 2020 (UNAUDITED)	PROJECTED EXPENDITURES							2022-2026 CIP TOTAL	PROJECT TOTAL	PERCENT OF W/S CIP
						FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027 & BEYOND			
Water Centralized Services															
331003	Masonry Replacement and Rehabilitation	25,000	Future Planned – Ten-Year	2020	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$25,000	$ 0	$25,000	1.1%
341001	Security Infrastructure Improvements on Water Facilities	9,170	Project Execution - Construction	2019	3,944	4,656	567	2	0	0	0	0	569	9,170	0.4%
351001	LED Lighting and Lighting Control Improvements	700	Active - Pre-Procurement - Construction	2017	7	0	38	221	221	213	0	0	693	700	0.0%
380600	As-Needed General Engineering Services	55	DRAFT 2 REVISION	2004	0	55	0	0	0	0	0	0	0	55	0.0%
380700	As-Needed Geotechnical and Related Engineering Services	2,131	Project Execution - Design	2006	771	904	456	0	0	0	0	0	456	2,131	0.1%
381000	Power Quality: Electric Metering Improvement Program	2,624	Active - Pre-Procurement - Design	2016	0	0	0	0	27	223	1,129	1,245	1,379	2,624	0.1%
					4,722	**5,616**	**1,061**	**223**	**248**	**436**	**1,129**	**26,245**	**3,097**	**39,679**	**1.7%**
Wastewater Centralized Services															
331002	Roofing Systems Replacement at GLWA WRRF, CSO Retention Treatment Basins (RTB) and Screening Disinfection Facilities (SDF)	8,888	Project Execution - Construction	2017	1,123	148	1,277	1,277	1,276	1,277	1,277	1,234	6,383	8,888	0.5%
341002	Security Infrastructure Improvements for Wastewater Facilities	3,534	Project Execution - Construction	2019	1,015	1,796	722	0	0	0	0	0	722	3,534	0.2%
					2,138	**1,945**	**1,999**	**1,277**	**1,276**	**1,277**	**1,277**	**1,234**	**7,105**	**12,422**	**0.7%**
Total Centralized Services					**6,860**	**7,560**	**3,059**	**1,499**	**1,524**	**1,713**	**2,405**	**27,479**	**10,202**	**52,101**	

4.7 INTEGRATED MASTER SCHEDULES

The Integrated master schedules show the intended timing and order of planned CIP projects.

Table 21. Primavera P6 Integrated Master Schedule for Water Projects

Activity ID	Activity Name	Remaining Duration	Actual/ Forecasted Start	Actual/ Forecasted Finish
Water Projects		9584	Sep-21-2015 A	Sep-26-2046
111001	Lake Huron Water Treatment Plant, Low-Lift, High Lift and Filter Backwash Pumping System Improvements	2553	Aug-15-2018 A	Jun-27-2027
111002	Lake Huron Water Treatment Plant, Miscellaneous Mechanical HVAC Improvements	115	Aug-21-2017 A	Oct-23-2020
111006	Lake Huron Water Treatment Plant, Filter Instrumentation and Raw Water Flow Metering Improvements	1644	Sep-21-2015 A	Dec-31-2024
111007	Lake Huron Water Treatment Plant, Raw Sludge Clarifier and Raw Sludge Pumping System Improvements	519	Jun-12-2019 A	Dec-01-2021
111008	Lake Huron Water Treatment Plant, Architectural Programming for Laboratory and Admin Building	1826	Jul-01-2025	Jul-01-2030
111009	Lake Huron Water Treatment Plant, Two New High-Lift Pumps, Water Production Flow Meter, and Select Yard	1587	Jan-01-2019 A	Nov-03-2024
111010	Lake Huron Filtration & Pretreat Improv	4472	Apr-01-2024	Jun-28-2036
111011	Lake Huron WTP Pilot Plant	898	Oct-15-2019 A	Dec-15-2022
111012	LHWTP-Flocculation Improvements	2126	Dec-04-2020	Sep-29-2026
112002	Northeast Water Treatment Plant, Low-Lift Pumping Plant Caisson Rehabilitation	274	May-25-2018 A	Mar-31-2021
112003	Northeast Water Treatment Plant High-Lift Pumping Station Electrical Improvements	3377	Aug-03-2020	Oct-31-2029
112005	NE - Replacement of Covers for Process Water Conduits	454	Feb-01-2019 A	Sep-27-2021
112006	NE Plant Flocculator Replacements	1615	Mar-08-2019 A	Dec-01-2024
113002	Southwest Water Treatment Plant, High-Lift Pump Discharge Valve Actuators Replacement	490	Oct-01-2018 A	Nov-02-2021
113003	Southwest Water Treatment Plant, Low- and High-Lift Pumping Station, Flocculation and Filtration System	4475	Apr-01-2027	Jul-01-2039
113006	Southwest Water Treatment Plant Chlorine Scrubber, Raw Water Screens & Related Improvements	2024	Jan-28-2020 A	Jan-14-2026
113007	Southwest Water Treatment Plant Architectural and Building Mechanical Improvements	2387	May-11-2029	Nov-02-2035
114001	Springwells Water Treatment Plant, 1958 Filter Rehabilitation and Auxiliary Facilities Improvements	30	Jul-01-2020	Jul-30-2020
114002	Springwells Water Treatment Plant, Low-Lift and High-Lift Pumping Station Improvements	4625	Jan-02-2018 A	Feb-27-2033
114003	Water Production Flow Metering Improvements at Northeast, Southwest and Springwells Water Treatment Plants	31	Jul-21-2017 A	Jul-31-2020
114005	Springwells Water Treatment Plant, Administration Building Improvements & Underground Fire Protection Loop	1098	Feb-24-2018 A	Jul-03-2023
114007	Springwells Water Treatment Plant, Powdered Activated Carbon System Improvements	1380	Oct-08-2024	Jul-16-2028
114008	Springwells Water Treatment Plant, 1930 Sedimentation Basin Sluice Gates, Guides & Hoists Improvements	787	Jun-07-2020 A	Aug-26-2022
114010	Springwells Water Treatment Plant, Yard Piping and High-Lift Header Improvements	4910	Apr-01-2019 A	Dec-09-2033
114011	Springwells Water Treatment Plant Steam, Condensate Return, and Compressed Air Piping Improvements	1023	Feb-01-2019 A	Apr-19-2023
114013	Springwells Water Treatment Plant, Reservoir Fill Line Improvements	244	Jan-22-2018 A	Mar-01-2021
114016	Springwells 1958 Settled Water Conduits Concrete Pavement	609	May-01-2019 A	Mar-01-2022
114017	Springwells Floculator Replacement	1494	Jan-28-2020 A	Aug-02-2024
114018	Springwells Substation	725	Sep-30-2021	Sep-24-2023
115001	Water Works Park Water Treatment Plant Yard Piping, Valves and Venturi Meters Replacement	2040	Mar-26-2018 A	Jan-30-2026
115004	Water Works Park Water Treatment Plant Chlorine System Upgrade	30	Jul-01-2018 A	Jul-30-2020
115005	WWp Building Ventilation Improv	1185	Jan-01-2019 A	Sep-28-2023
115006	Water Works Park Site Improvments	1339	May-01-2025	Dec-29-2028
116002	Pennsylvania, Springwells and Northeast Raw Water Supply Tunnel Improvements	1732	Dec-21-2018 A	Mar-28-2025
122003	WWP to NE Transmission Main	3202	Sep-14-2017 A	Apr-06-2029
122004	96-inch Main Relocation, Isolation Valves Installations, and New Parallel Main	2694	Apr-22-2017 A	Nov-15-2027
122005	Schoolcraft Road Water Transmission Main Replacement	696	Oct-21-2019 A	May-27-2022
122006	Wick Road Water Transmission Main Construction	936	Nov-26-2017 A	Jan-22-2023
122007	Newburgh Road Water Transmission Main	3798	Aug-01-2019 A	Nov-23-2030
122011	Park-Merriman Water Transmission Main Construction	498	Mar-11-2019 A	Nov-10-2021
122013	14 Mile Transmission Main Loop	1370	Dec-07-2017 A	Mar-31-2024
122016	Downriver Transmission Main Loop	1949	Apr-05-2019 A	Oct-31-2025
122017	7 Mile/Nevada Transmission Main Rehab and Carrie/Nevada Flow Control Station	3197	Mar-01-2019 A	Apr-01-2029
122018	Garland Hurlbut Bewick WTM Rehab	3481	Oct-01-2019 A	Dec-21-2029

FY2021 FY2022 FY2023 FY2024 FY2025 FY2026 FY2027 FY2028 FY2029 FY2030 FY2031

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Activity ID	Activity Name	Remaining Duration	Actual/ Forecasted Start	Actual/ Forecasted Finish
132003	West Service Center Pumping Station, Isolation Gate Valves for Line Pumps	184	Nov-26-2018 A	Dec-31-2020
132006	Ford Road Pumping Station, Pressure and Control Improvements	365	Aug-23-2019 A	Jun-30-2021
132007	Imlay Pumping Station - Energy Management: Freeze Protection Pump Installation	700	Jun-01-2020 A	May-31-2022
132010	West Service Center Pumping Station - Reservoir, Reservoir Pumping, and Division Valve Upgrades	1311	Jul-17-2018 A	Feb-02-2024
132012	Ypsilanti Booster Pumping Station Improvements	2127	Mar-05-2018 A	Apr-27-2026
132014	Adams Road Booster Pumping Station Improvements	2221	Sep-01-2021	Sep-30-2027
132015	Newburgh Road Booster Pumping Station Improvements	1795	Jan-01-2019 A	May-30-2025
132016	North Service Center Pumping Station Improvements	2192	Aug-03-2020	Aug-04-2026
132018	Schoolcraft Booster Pumping Station Improvements	3376	Jun-30-2037	Sep-26-2046
132019	Wick Road Booster Pumping Station - Switchgear, Control Valves and Hydropneumatic Tank Replacement	3926	Jan-01-2024	Sep-30-2034
132020	Franklin Booster Pumping Station - Isolation Gate Valves & Electrical Actuator Improvements	3281	Oct-04-2026	Sep-27-2035
132021	Imlay Booster Pumping Station - Replace Pumps, Motors, VFDs, and HVAC System	4163	May-02-2030	Sep-23-2041
132022	Joy Road Booster Pumping Station, Reservoir Pumping System Improvements	2830	Jul-01-2029	Mar-30-2037
132026	Franklin Pumping Value Replace	183	Nov-01-2019 A	Dec-30-2020
170100	Water Treatment Plant /Pump Station Allowance	2556	Jul-01-2018 A	Jun-30-2027
170102	CS-1656 Flow Measurement	31	Sep-09-2017 A	Jul-31-2020
170109	Water Treatment Plant CS-187	791	Nov-30-2016 A	Aug-30-2022
170200	As Needed Construction Materials, Environmental Media and Special Testing Services, Construction	370	Sep-29-2017 A	Jul-06-2021
170300	Water Treatment Plant Automation Program	1732	May-31-2017 A	Mar-28-2025
170400	Water Transmission Improvement Program	7065	Nov-22-2016 A	Nov-03-2039
170500	Transmission System Valve Rehabilitation and Replacement Program	8174	Jul-01-2018 A	Nov-16-2042
170503	Transmission System Valve Replacement	455	May-01-2020 A	Sep-28-2021
170600	Water Transmission Main Asset Assessment Program	5062	Jul-01-2018 A	May-10-2034
170800	System-Wide Finished Water Reservoir Inspection, Design and Rehabilitation	2556	Oct-15-2019 A	Jun-30-2027
170901	Subu	599	Jan-01-2018 A	Feb-19-2022
170902	Brownstown Meter Pit	822	Feb-24-2018 A	Sep-30-2022
171500	Roof Replacement - Various Water Facilities	4108	Jan-01-2018 A	Sep-29-2031
Water Projects - Central Services		2585	Jul-01-2015 A	Jul-29-2027
341001	Secuity Upgrades Project - Water	752	Apr-15-2019 A	Jul-22-2022
351001	LED Lighting and Lighting Control Improvements	1441	Jun-30-2017 A	Jun-10-2024
380600	As-Needed General Engineering Services	1277	Jul-01-2015 A	Dec-29-2023
380700	As-needed Geotechnical Services	640	Jun-01-2016 A	Apr-01-2022
381000	Energy Management - Water - Electric Metering Improvement Program	1490	Jul-01-2023	Jul-29-2027

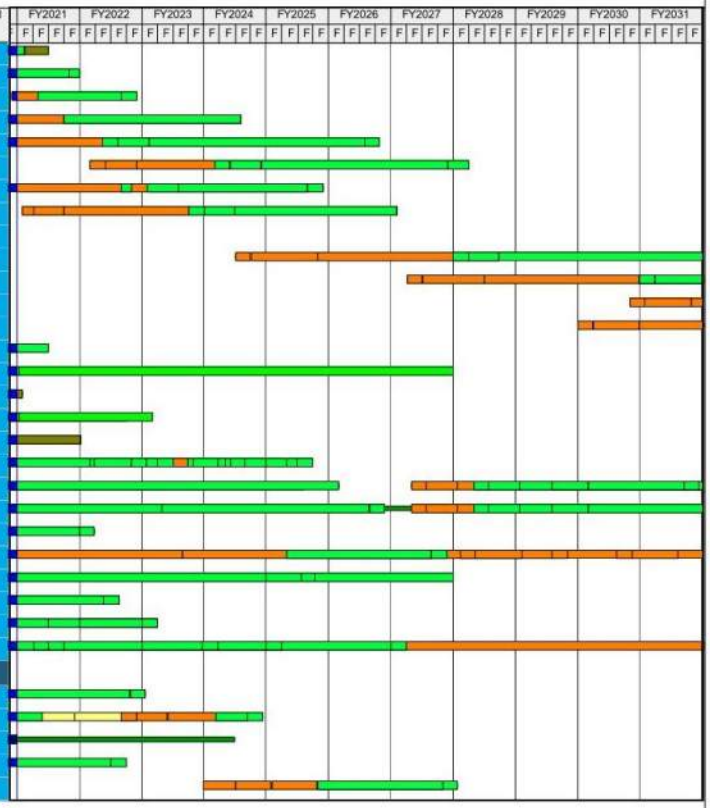

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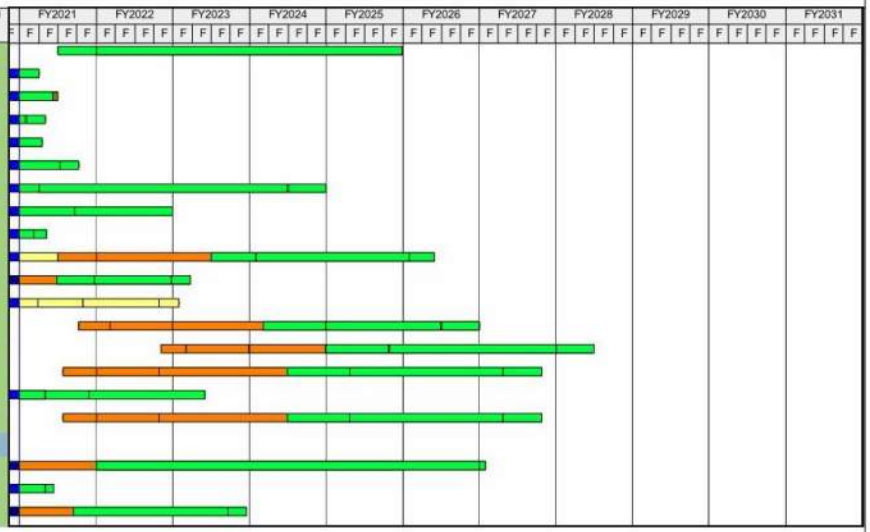
Table 22. Primavera P6 Integrated Master Schedule for Wastewater Projects

Activity ID	Activity Name	Remaining Duration	Actual/ Forecasted Start	Actual/ Forecasted Finish
	Wastewater Projects	3832	Nov-18-2013 A	Dec-27-2030
211001	WRRF Rehabilitation of Primary Clarifiers Rect Tanks, Drain Lines, Elec/Mech Build, Pipe Gal	214	Jul-18-2016 A	Jan-30-2021
211004	WRRF PS #1 Rack & Grit and MPI Sampling Station 1 Improvements	122	Nov-18-2013 A	Oct-30-2020
211005	WRRF PS No. 2 Improvements Phase II	2088	Jul-01-2022	Mar-18-2028
211006	WRRF PS No. 1 Improvements	2556	May-02-2019 A	Jun-30-2027
211007	WRRF PS #2 Bar Racks Replacements and Grit Collection System Improvements	2286	Sep-02-2019 A	Oct-03-2026
211008	WRRF Rehabilitation of Ferric Chloride Feed System in PS-1 and Complex B Sludge Lines	821	May-23-2019 A	Sep-29-2022
211009	WRRF Rehabilitation of the Circular Primary Clarifier Scum Removal System	1811	Mar-31-2020 A	Jun-15-2025
211010	Rehabilitation of Sludge Processing Complexes A and B	1982	Dec-13-2022	May-16-2028
211011	WRRF PS1 Screening and Grit Improvements	2159	Oct-04-2023	Aug-31-2029
212004	WRRF Chlorination and Dechlorination Process Equipment Improvements	356	Jun-27-2017 A	Jun-21-2021
212007	WRRF Rehabilitation of the Secondary Clarifiers	2355	Apr-29-2022	Oct-08-2028
212008	WRRF Aeration Improvements 1 & 2	1881	Jun-24-2019 A	Aug-24-2025
212009	WRRF Aeration Improvements 3 & 4	2131	Aug-01-2024	Jun-01-2030
212010	WRRF Conversion of Disinfection of all Flow to Sodium Hypochlorite and Sodium Bisulfite	2131	Aug-01-2024	Jun-01-2030
213006	WRRF Improvements to Sludge Feed Pumps at Dewatering Facilities	1362	Jul-01-2020	Mar-23-2024
213007	WRRF Modification to Incinerator Sludge Feed Systems at Complex -II	580	Oct-30-2017 A	Jan-31-2022
213008	WRRF Rehabilitation of the Ash Handling Systems	2191	Mar-31-2019 A	Jun-30-2026
214001	WRRF Relocation of Industrial Waste Control Division and Analytical Laboratory Operations	365	Oct-12-2016 A	Jun-30-2021
216004	Rehabilitation of Various Sampling Sites and PS#2 Ferric Chloride System at WRRF	730	Jan-01-2017 A	Jun-30-2022
216005	Main Plant Maintenance Bldg Rehabiliation	667	May-01-2020 A	Apr-28-2022
216006	Rehabilitation of WRRF yard piping and underground utilities	1834	Apr-01-2019 A	Jul-08-2025
216007	DTE Primary Electric 3rd Feed Supply to WRRF	549	May-02-2020 A	Dec-31-2021
216008	Rehabilitation of Screened Final Effluent (SFE) Pump Station	1628	Jul-01-2019 A	Dec-14-2024
216010	WRRF Facility Optimization	1462	Apr-02-2020 A	Jul-01-2024
216011	WRRF Structural Improvements	2554	Aug-01-2020 A	Jun-28-2027
222001	Oakwood District Intercommunity Relief Sewer Modification at Oakwood District	2191	May-01-2020 A	Jun-30-2026
222002	Detroit River Interceptor (DRI) Evaluation and Rehabilitation	1826	May-21-2018 A	Jun-30-2025
222004A	Conveyance System Infrastructure Improvements	1108	Oct-01-2018 A	Jul-13-2023
222004B	Regulator Expansions	2191	Jul-01-2020	Jun-30-2026
232001	Fairview Pumping Station - Replace Four Sanitary Pumps	735	Jan-01-2019 A	Jul-05-2022
232002A	CON-109 Freud & Conner Creek Pump Station Improvements	366	Feb-01-2019 A	Jul-01-2021
232002B	CS-120 Freud & Conner Creek Pump Station Improvements	2922	Mar-27-2017 A	Jun-30-2028
232004	Condition Assessment at Blue Hill Pump Station	365	Jul-01-2020	Jun-30-2021
233003	Rouge River In-system Storage Devices	3237	Feb-16-2022	Dec-27-2030
260201	CON-149, Emergency Sewer Repair	1149	Jul-14-2017 A	Aug-23-2023
260204	Conveyance System Engineering Services-1802575	1400	Jun-01-2019 A	Apr-30-2024
260205	NWI Rehabilitation	2008	Dec-31-2020	Jun-30-2026
260206	Study and Design of Conveyance System Repairs	2191	Dec-31-2020	Dec-30-2026
260200A	TBD-Sewer and Interceptor Evaluation and Rehabilitation Program	1826	Jul-01-2021	Jun-30-2026
260504	Phase 2 Outfalls- 19000796	1149	Nov-01-2019 A	Aug-23-2023
260505	Phase 4 Outfalls	1149	Jan-01-2020 A	Aug-23-2023
260507	NEW Outfalls Rehabilitation	1149	Jun-01-2020 A	Aug-23-2023
260508	B-39 Outfall Rehabilitation	821	Jun-01-2020 A	Aug-23-2023
260509	B-40 Outfalls Rehabilitation	336	Jun-01-2020 A	Jun-01-2021

Activity ID	Activity Name	Remaining Duration	Actual/ Forecasted Start	Actual/ Forecasted Finish
260500B:TBD		1643	Dec-31-2020	Jun-30-2025
260601: Oakwood CSO Control Facility Drain Valve Improvements		92	Jun-18-2018 A	Sep-30-2020
260603: Conner Creek CSO RTB Automation Improvements		184	Feb-27-2017 A	Dec-31-2020
260609: Seven Mile RTB - Parking Lot Replacement & Misc. Site Work		122	May-01-2019 A	Oct-30-2020
260611: Leib SDF - HVAC System Improvements		109	Feb-01-2019 A	Oct-17-2020
260613: Baby Creek HVAC Improvements		284	Jul-31-2019 A	Apr-10-2021
260614: Structural Inspection & Structural Improvements		1461	Nov-01-2018 A	Jun-30-2024
260615: Puritan Fenkell & Leib Site Improvements		730	Sep-27-2018 A	Jun-30-2022
260616: Baby Creek Towards Treatment Sewer Improvements		129	Nov-01-2018 A	Nov-06-2020
260617: St. Aubin Chemical Disinfection Improvements		1979	Oct-09-2019 A	Nov-30-2025
260618: Oakwood HVAC Project		814	Jan-01-2020 A	Sep-22-2022
260619: Control System Upgrade - St. Aubin, Leib & 7 Mile		758	Apr-01-2020 A	Jul-28-2022
270001: Pilot Netting Facility		1910	Apr-07-2021	Jun-29-2026
270002: Meldrum Diversion & VR-15 Connection (WWMP)		2065	May-07-2022	Dec-31-2027
274001: Leib Improvements for Meldrum Diversion		2280	Jan-25-2021	Apr-23-2027
277001: Baby Creek - Outfall Improvements		882	Dec-01-2019 A	Nov-29-2022
278001: Oakwood Improvements for NWI Diversion		2280	Jan-25-2021	Apr-23-2027
Wastewater Projects - Central Services		2220	Aug-01-2018 A	Jul-29-2026
331002: Roofing Systems Replacement at GLWA WRRF, CSO Retention Treatment Basins (RTB)		2220	Aug-01-2018 A	Jul-29-2026
341002: Security Improvements - WasteWater		164	Mar-11-2020 A	Dec-11-2020
381000: Energy Management - WasteWater - Electric Metering Improvement Program		1082	Nov-01-2019 A	Jun-17-2023



Study Construction
Design Work In Progress

CIP 2022 - Integrated Master Schedule - WWTP Projects
June 2020 Update

Run Date: Oct-13-2020
Data Date: Jul-01-2020

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GLWA

4.8 TEN-YEAR WATER OUTLOOK

In this section you will find ten-year outlooks for CIP projects. These ten-year outlooks rely heavily on input from long-term needs assessments, master plans and condition assessment documents. The planning horizon for these outlooks extend from FY2022 through FY2031. Projects within the 2022-2026 CIP that carry over into the FY2027+ are shown within the following tables by the anticipated fiscal year in which projected expenditures are anticipated.

Only project level data will be provided within these outlooks. These are subject to change and are based upon the best available data at the time of compiling this report.

The primary source of longer-term projects used for the 10-Year Water Outlook are from the 2015 Water Master Plan.

In addition, it is anticipated that most programs will continue into the ten-year horizon. The project level data can be seen in Table 23.

In addition, a graphical representation of this summary is shown in Figure 4.

Table 23. Water 10-Year Outlook Projects; All figures are in $1,000's

CIP #	LIFETIME PLANNED SPEND	TITLE	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	2022-2026 TOTAL	2027 – 2031 TOTAL	TOTAL 2022-2031
111001	57,178	Lake Huron WTP, Low-Lift, High Lift and Filter Backwash Pumping System Improvements	1,993	1,962	4,581	8,867	10,837	10,837	11,490	4,329	2,069	0	0	37,085	17,889	54,973
111002	8,705	Lake Huron WTP, Miscellaneous Mechanical HVAC Improvements	20	0	0	0	0	0	0	0	0	0	0	0	0	0
111006	16,790	Lake Huron WTP, Filter Instrumentation and Raw Water Flow Metering Improvements	215	5,196	5,222	5,082	1	0	0	0	0	0	0	15,502	0	15,502
111007	9,181	Lake Huron WTP, Raw Sludge Clarifier and Raw Sludge Pumping System Improvements	3,109	184	0	0	0	0	0	0	0	0	0	184	0	184
111008	1,196	Lake Huron WTP, Architectural Programming for Laboratory and Admin Building Improvements	0	0	0	0	0	77	310	271	270	270	0	77	1,119	1,196
111009	30,481	Lake Huron WTP - High Lift Pumping, Water Production Flow Metering and Yard Piping Improvements	640	1,061	7,060	7,582	7,021	7,000	0	0	0	0	0	29,724	0	29,724
111010	42,207	Filtration Improvements	0	0	0	9	38	61	104	104	104	20,894	20,894	108	42,099	42,207
111011	3,248	Lake Huron WTP Pilot Plant	58	1,719	1,471	0	0	0	0	0	0	0	0	3,190	0	3,190
111012	26,538	LHWTP-Flocculation Improvements	46	538	469	5,564	5,428	5,428	5,065	4,000	0	0	0	17,427	9,065	26,492
112003	71,546	Northeast WTP High-Lift Pumping Station Improvements	279	173	215	862	1,931	1,721	4,376	7,251	13,248	19,243	22,242	4,901	66,360	71,261
112005	1,089	Northeast WTP - Replacement of Covers for Process Water Conduits	645	5	0	0	0	0	0	0	0	0	0	5	0	5
112006	11,316	Northeast WTP Flocculator Replacements	55	2,522	3,022	3,022	2,509	0	0	0	0	0	0	11,075	0	11,075
113002	6,728	Southwest WTP, High-Lift Pump Discharge Valve Actuators Replacement	23	501	649	283	0	0	0	0	0	0	0	1,433	0	1,433
113003	21,812	Southwest WTP, Low- and High-Lift Pumping Station, Flocculation and Filtration System Improvements	0	0	0	0	0	0	20	81	7,237	7,237	7,237	0	21,812	21,812
113006	7,331	Southwest WTP Chlorine Scrubber, Raw Water Screens & Related Improvements	245	4,683	1,595	557	78	42	0	0	0	0	0	6,956	0	6,956
113007	3,167	Southwest WTP Architectural and Building Mechanical Improvements	0	0	0	0	0	0	0	0	8	1,491	1,668	0	3,167	3,167
114001	80,828	Springwells WTP, 1958 Filter Rehabilitation and Auxiliary Facilities Improvements	0	0	0	0	0	0	0	0	0	0	0	0	0	0

CIP #	LIFETIME PLANNED SPEND	TITLE	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	2022-2026 TOTAL	2027 – 2031 TOTAL	TOTAL 2022-2031
114002	224,222	Springwells WTP, Low-Lift and High-Lift Pumping Station Improvements	11,812	16,546	18,135	19,954	18,584	18,391	21,032	21,033	21,032	22,049	30,157	91,611	115,303	206,914
114003	8,156	Water Production Flow Metering Improvements at Northeast, Southwest and Springwells WTPs	0	0	0	0	0	0	0	0	0	0	0	0	0	0
114005	9,260	Springwells WTP, Administration Building Improvements & Underground Fire Protection Loop	376	3,660	3,780	500	0	0	0	0	0	0	0	7,940	0	7,940
114007	4,021	Springwells WTP Powdered Activated Carbon System Improvements	0	0	0	0	0	0	0	42	331	1,173	2,474	0	4,021	4,021
114008	13,923	Springwells WTP 1930 Sedimentation Basin Sluice Gates, Guides & Hoists Improvements	7,989	2,485	67	0	0	0	0	0	0	0	0	2,552	0	2,552
114010	200,472	Springwells WTP, Yard Piping and High-Lift Header Improvements	267	1,568	4,614	13,057	16,057	16,057	22,122	22,123	22,122	22,122	60,122	51,354	148,610	199,964
114011	25,540	Springwells WTP Steam, Condensate Return, and Compressed Air Piping Improvements	9,756	5,374	327	0	0	0	0	0	0	0	0	5,701	0	5,701
114013	4,924	Springwells WTP, Reservoir Fill Line Improvements	1,338	0	0	0	0	0	0	0	0	0	0	0	0	0
114016	2,281	Springwells WTP 1958 Settled Water Conduits and Loading Dock Concrete Pavement Replacement	189	566	1,435	0	0	0	0	0	0	0	0	2,001	0	2,001
114017	12,358	Springwells WTP Flocculator Drive Replacements	567	371	6,474	4,943	2	0	0	0	0	0	0	11,790	0	11,790
114018	1,545	Springwells WTP - Service Building Electrical Substation and Miscellaneous Improvements	100	80	95	7	1,263	0	0	0	0	0	0	1,445	0	1,445
115001	54,815	Water Works Park WTP Yard Piping, Valves and Venturi Meters Replacement	4,372	6,322	6,322	6,321	6,322	6,163	6,500	10,105	0	0	0	31,449	16,605	48,054
115004	6,893	Water Works Park WTP Chlorine System Upgrade	0	0	0	0	0	0	0	0	0	0	0	0	0	0
115005	4,924	WWP WTP Building Ventilation Improvements	380	523	1,620	1,592	400	100	307	0	0	0	0	4,235	307	4,542
115006	5,882	Water Works Park Site/Civil Improvements	0	0	0	0	0	6	298	805	3,801	971	0	6	5,875	5,882
115007	88,946	Water Works Park High Lift Pumping Station Modernization	0	280	530	530	780	11,705	18,495	18,310	18,187	18,064	2,064	13,826	75,120	88,946
116002	94,880	Pennsylvania and Springwells Raw Water Supply Tunnel Improvements	7,024	8,360	17,395	23,304	18,016	5,372	0	0	0	0	0	72,446	0	72,446
116005	1,832	Belle Isle Seawall Rehabilitation	0	319	1,231	281	0	0	0	0	0	0	0	1,832	0	1,832
116006	350	Belle Isle Intake System Rehabilitation and Improvements	0	0	300	50	0	0	0	0	0	0	0	350	0	350
122003	143,217	Water Works Park to Northeast Transmission Main	11,234	14,593	9,214	14,535	13,835	21,695	27,212	25,685	24	0	0	73,871	52,921	126,793
122004	144,852	96-inch Water Transmission Main Relocation and Isolation Valve Installations	2,077	2,577	7,614	10,625	12,581	12,581	24,606	24,620	26,049	19,706	0	45,978	94,980	140,959
122005	15,326	Schoolcraft Road Water Transmission Main	6,338	7,607	0	0	0	0	0	0	0	0	0	7,607	0	7,607
122006	22,420	Wick Road Water Transmission Main	11,743	4,774	0	0	0	0	0	0	0	0	0	4,774	0	4,774
122007	22,154	Merriman Road Water Transmission Main Loop	57	27	27	273	890	890	4,810	4,823	4,809	4,809	736	2,107	19,988	22,095
122011	9,600	Park-Merriman Road Water Transmission Main	4,370	8	0	0	0	0	0	0	0	0	0	8	0	8
122013	105,180	14 Mile Transmission Main Loop	6,064	37,593	36,390	21,374	0	0	0	0	0	0	0	95,357	0	95,357
122016	37,067	Downriver Transmission Main Loop	1,683	665	7,482	8,074	8,544	7,470	2,924	0	0	0	0	32,235	2,924	35,159
122017	60,189	7 Mile/Nevada Transmission Main Rehab and Carrie/Nevada Flow Control Station	1,167	1,944	1,944	4,784	3,505	13,363	13,387	13,387	6,705	0	0	25,539	33,479	59,018
122018	54,103	Garland, Hurlbut, Bewick Water Transmission System Rehabilitation	1,578	1,530	1,528	1,528	3,995	3,995	15,960	15,961	7,995	31	0	12,578	39,947	52,524
132003	1,962	West Service Center Pumping Station, Isolation Gate Valves for Line Pumps	218	0	0	0	0	0	0	0	0	0	0	0	0	0
132006	3,364	Ford Road Pumping Station, Pressure and Control Improvements	1,480	0	0	0	0	0	0	0	0	0	0	0	0	0

CIP #	LIFETIME PLANNED SPEND	TITLE	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	2022-2026 TOTAL	2027 – 2031 TOTAL	TOTAL 2022-2031
132007	5,187	Energy Management: Freeze Protection Pump Installation at Imlay Pump Station	974	3,962	84	0	0	0	0	0	0	0	0	4,046	0	4,046
132010	45,142	West Service Center Pumping Station - Reservoir, Reservoir Pumping, and Division Valve Upgrades	5,266	17,149	19,927	650	0	0	0	0	0	0	0	37,727	0	37,727
132012	35,393	Ypsilanti Booster Pumping Station Improvements	615	584	6,718	9,797	9,771	2,574	5,000	0	0	0	0	29,445	5,000	34,445
132014	52,865	Adams Road Pumping Station Improvements	0	203	1,332	1,158	1,129	1,129	1,459	15,918	15,879	14,574	0	4,951	47,830	52,781
132015	45,044	Newburgh Road Booster Pumping Station Improvements	852	733	2,365	8,839	12,524	12,000	7,380	0	0	0	0	36,462	7,380	43,842
132016	68,255	North Service Center Pumping Station Improvements	282	673	1,726	2,351	2,247	8,503	20,803	20,803	10,600	0	0	15,501	52,206	67,706
132018	47	Schoolcraft Pumping Station Improvements	0	0	0	0	0	0	0	0	0	0	0	0	0	0
132019	9,358	Wick Road Pumping Station Improvements	0	0	0	0	0	13	550	553	551	1,663	5,971	13	9,288	9,301
132020	2,545	Franklin Pumping Station Improvements	0	0	0	0	0	0	42	364	682	682	682	0	2,451	2,451
132021	750	Imlay Pumping Station Improvements	0	0	0	0	0	0	0	0	0	9	513	0	522	522
132022	39,613	Joy Road Pumping Station Improvements	57	277	527	527	122	75	1,046	5,034	15,000	15,000	1,877	1,527	37,958	39,485
132026	1,006	Franklin Pumping Station Valve Replacement	185	0	0	0	0	0	0	0	0	0	0	0	0	0
170109	1,656	GLWA-CS-187: FK Eng: Raw Water Intake	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170200	1,427	As-Needed Construction Materials, Environmental Media and Special Testing Services, Construction Inspection, and Other Technical Services	1,427	0	0	0	0	0	0	0	0	0	0	0	0	0
170300	13,249	WTP Automation Program	7,098	6,151	0	0	0	0	0	0	0	0	0	6,151	0	6,151
170301	0	WTP Automation	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170302	9,000	SW SCADA System Upgrade	1,788	3,606	3,606	0	0	0	0	0	0	0	0	7,212	0	7,212
170303	1,700	Power Monitoring Installation for WTPs	1,186	514	0	0	0	0	0	0	0	0	0	514	0	514
170400	33,171	Water Transmission Improvement Program	49	1,034	1,034	1,034	1,034	39	72	98	7,685	12,096	8,996	4,175	28,948	33,123
170401	1,661	-	1,661	0	0	0	0	0	0	0	0	0	0	0	0	0
170500	5,350	Transmission System Valve Rehabilitation and Replacement Program	280	232	232	232	232	151	45	378	1,152	1,208	1,208	1,080	3,990	5,070
170503	10,072	Transmission System Valve Replacement	8,373	1,305	0	0	0	0	0	0	0	0	0	1,305	0	1,305
170600	8,438	Water Transmission Main Asset Assessment Program	52	24	526	526	2,026	2,526	2,553	52	51	51	52	5,627	2,760	8,387
170800	23,827	System-Wide Finished Water Reservoir Inspection, Design and Rehabilitation	46	322	2,322	3,321	3,317	3,300	3,600	2,600	2,000	2,000	1,000	12,581	11,200	23,781
170801	15,090	Reservoir Inspection, Design & Construction at Imlay Station; Lake Huron, Springwells, & Southwest WTPs	8,420	463	2,075	1,000	1,000	1,000	1,000	132	0	0	0	5,538	1,132	6,670
170900	40,719	Suburban Water Meter Pit Rehabilitation and Meter Replacement	2,535	1,159	4,112	4,113	4,113	4,113	4,115	4,115	4,115	4,115	4,115	17,610	20,573	38,184
170901	10,616	Suburban Water Meter Pit Rehabilitation and Meter Replacement	3,248	2,838	0	0	0	0	0	0	0	0	0	2,838	0	2,838
170902	1,245	Brownstown Meter Pit	570	594	5	0	0	0	0	0	0	0	0	599	0	599
171500	22,711	Roof Replacement at WWP, SP, LH, NE, SW, NSC, Orion, Franklin, and Conner Creek Facilities	386	11	3,090	1,808	369	2,920	3,961	2,810	2,452	2,452	2,452	8,199	14,127	22,325
171501	3,484	Roof Replacements at SP, WWP, Orion, Franklin, and Conner Creek	269	0	0	0	0	0	0	0	0	0	0	0	0	0
331003	25,000	Masonry Replacement and Rehabilitation	0	0	0	0	0	0	1,000	1,000	2,000	5,000	16,000	0	25,000	25,000
341001	9,170	Security Infrastructure Improvements on Water Facilities	4,656	567	2	0	0	0	0	0	0	0	0	569	0	569
351001	700	LED Lighting and Lighting Control Improvements	0	38	221	221	213	0	0	0	0	0	0	693	0	693
380600	55	As-Needed General Engineering Services	55	0	0	0	0	0	0	0	0	0	0	0	0	0
380700	2,131	As-Needed Geotechnical and Related Engineering Services	904	456	0	0	0	0	0	0	0	0	0	456	0	456
381000	2,624	Power Quality: Electric Metering Improvement Program	0	0	0	27	223	1,129	1,153	92	0	0	0	1,379	1,245	2,624
		TOTALS	**150,740**	**179,210**	**200,713**	**199,165**	**170,936**	**182,430**	**232,796**	**226,878**	**196,158**	**196,909**	**190,461**	**932,455**	**1,043,201**	**1,975,656**

10-Year Water CIP Outlook

Note: Figures below are in thousands of dollars
Water CS Projects/Programs are included here.
Slight variances in totals may be noted due to showing numbers in thousands of dollars.

2021 Outlook	FY2021	FY2022	FY2023	FY2024	FY 2025	FY 2026	FY2027	FY2028	FY2029	FY2030	FY 2031	Total 2021-2030
Projects	127,426	161,722	183,465	193,765	168,059	130,249	118,228	128,240	102,887	98,319	NA	1,412,360
Programs	20,141	18,198	18,429	19,084	25,128	37,502	57,256	4,007	15,756	19,660	NA	235,160
Not Yet Specified Projects								30,000	20,000	19,348	NA	69,348
Subtotal 2021 Water CIP	**147,567**	**179,920**	**201,894**	**212,849**	**193,187**	**167,750**	**175,485**	**162,246**	**138,642**	**137,327**	**NA**	**1,716,868**

Proposed 2022 Outlook	FY2021	FY2022	FY2023	FY2024	FY 2025	FY 2026	FY2027	FY2028	FY2029	FY2030	FY 2031	Total 2022-2031
Projects	NA	160,502	183,710	187,103	158,623	167,248	216,298	216,602	178,703	174,988	172,637	1,816,419
Programs	NA	18,709	17,002	12,061	12,314	15,178	16,499	10,277	17,455	21,922	17,823	159,239
Not Yet Specified Projects	NA											-
Subtotal 2022 Water CIP	**NA**	**179,210**	**200,713**	**199,165**	**170,936**	**182,430**	**232,796**	**226,878**	**196,158**	**196,909**	**190,461**	**1,975,656**

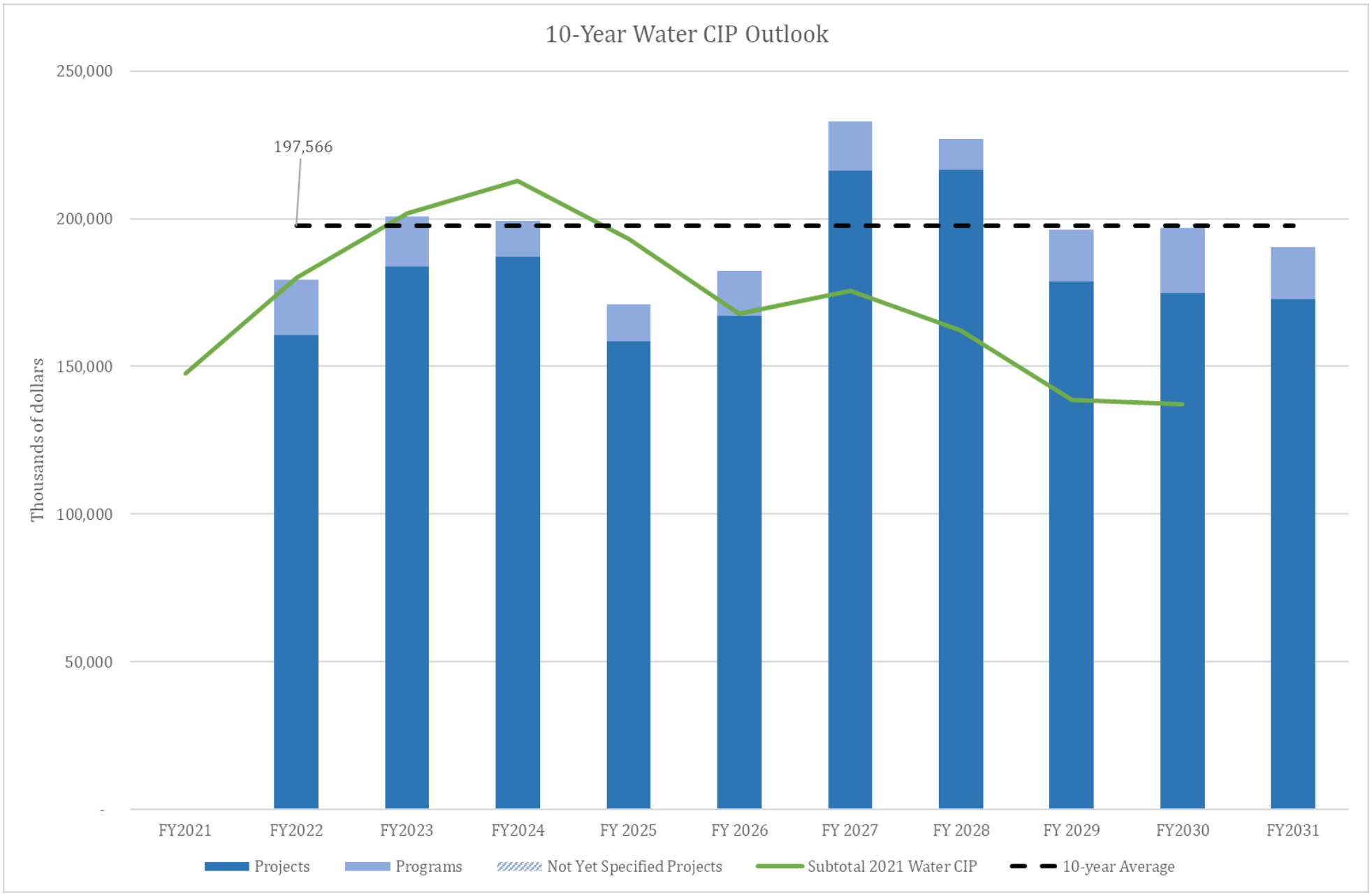

Figure 4. 10-Year Water CIP Outlook Chart

4.9 TEN-YEAR WASTEWATER OUTLOOK

In this section you will find ten-year outlooks for CIP projects. These ten-year outlooks rely heavily on input from long-term needs assessments, master plans and condition assessment documents. The planning horizon for these outlooks extend from FY2022 through FY2031. Projects within the 2022-2026 CIP that carry over into the FY2027+ are shown within the following tables by the anticipated fiscal year in which projected expenditures are anticipated.

Only project level data will be provided within these outlooks. These are subject to change and are based upon the best available data at the time of compiling this report.

The primary source of long-term projects used for the 10-Year Wastewater Outlook are from the Regional Wastewater Master Plan Assessment and various condition assessments that have been performed. The project level data used in the development of this outlook can be seen in Table 24.

In addition, a graphical representation of this summary is shown in Figure 5. 10-Year Wastewater CIP Outlook Chart.

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Table 24. 10-Year Wastewater CIP Outlook Projects; All figures are in $1,000's

CIP #	LIFETIME PLANNED SPEND	TITLE	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	2022-2026 TOTAL	2027 – 2031 TOTAL	TOTAL 2022-2031
211001	54,061	WRRF Rehabilitation of Primary Clarifiers Rectangular Tanks, Drain Lines, Electrical/Mechanical Building and Pipe Gallery	2,876	0	0	0	0	0	0	0	0	0	0	0	0	0
211002	3,340	WRRF PS No. 2 Pumping Improvements - Phase 1	1,326	0	0	0	0	0	0	0	0	0	0	0	0	0
211004	23,295	WRRF PS #1 Rack & Grit and MPI Sampling Station 1 Improvements	12,261	0	0	0	0	0	0	0	0	0	0	0	0	0
211005	13,797	WRRF PS No. 2 Improvements Phase II	10	0	0	0	461	461	2,544	2,544	2,537	2,537	2,702	922	12,865	13,787
211006	68,709	WRRF PS No. 1 Improvements	623	3,061	7,987	8,009	7,199	7,559	21,461	11,526	0	0	0	33,816	32,987	66,803
211007	76,229	WRRF PS #2 Bar Racks Replacements and Grit Collection System Improvements	2,323	2,303	6,987	18,173	18,122	15,052	13,263	0	0	0	0	60,638	13,263	73,900
211008	11,388	WRRF Rehabilitation of Ferric Chloride Feed System in PS-1 and Complex B Sludge Lines	3,428	5,358	972	0	0	0	0	0	0	0	0	6,330	0	6,330
211009	13,008	WRRF Rehabilitation of the Circular Primary Clarifier Scum Removal System	243	476	2,740	5,619	3,927	0	0	0	0	0	0	12,762	0	12,762
211010	13,934	Rehabilitation of Sludge Processing Complexes A and B	64	0	42	112	287	1,995	4,711	4,728	1,415	538	0	2,436	11,393	13,828
211011	93,303	WRRF PS1 Screening and Grit Improvements	0	0	0	0	42	132	3,639	15,446	27,329	27,329	19,385	175	93,129	93,303
212004	5,742	WRRF Chlorination and Dechlorination Process Equipment Improvements	1,939	0	0	0	0	0	0	0	0	0	0	0	0	0
212007	49,871	WRRF Rehabilitation of the Secondary Clarifiers	0	10	124	240	240	3,316	4,032	10,281	10,281	10,281	11,065	3,930	45,941	49,871
212008	81,931	WRRF Aeration Improvements 1 and 2	2,264	2,567	5,392	19,423	19,370	18,576	14,323	0	0	0	0	65,328	14,323	79,651
212009	73,589	WRRF Aeration Improvements 3 and 4	0	0	0	0	52	1,239	2,960	11,861	20,799	20,799	15,878	1,291	72,297	73,589
212010	5,765	WRRF Conversion of Disinfection of all Flow to Sodium Hypochlorite and Sodium Bisulfite	0	0	0	0	52	132	238	940	1,653	1,649	1,102	184	5,581	5,765
213006	4,490	WRRF Improvements to Sludge Feed Pumps at Dewatering Facilities	109	342	2,252	1,781	0	0	0	0	0	0	0	4,375	0	4,375
213007	22,162	WRRF Modification to Incinerator Sludge Feed Systems at Complex -II	4,243	2,499	0	0	0	0	0	0	0	0	0	2,499	0	2,499
213008	8,432	WRRF Rehabilitation of the Ash Handling Systems	351	295	295	453	1,518	3,979	1,429	0	0	0	0	6,540	1,429	7,969

CIP #	LIFETIME PLANNED SPEND	TITLE	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	2022-2026 TOTAL	2027 – 2031 TOTAL	TOTAL 2022-2031
214001	12,651	WRRF Relocation of Industrial Waste Control Division and Analytical Laboratory Operations	2,067	0	0	0	0	0	0	0	0	0	0	0	0	0
216004	6,645	Rehabilitation of Various Sampling Sites and PS#2 Ferric Chloride System at WRRF	4,932	76	0	0	0	0	0	0	0	0	0	76	0	76
216006	23,874	Assessment and Rehabilitation of WRRF yard piping and underground utilities	580	558	2,858	9,808	9,782	214	0	0	0	0	0	23,221	0	23,221
216007	4,544	DTE Primary Electric 3rd Feed Supply to WRRF	1,252	394	0	0	0	0	0	0	0	0	0	394	0	394
216008	40,821	Rehabilitation of Screened Final Effluent Pump Station	501	906	6,504	6,504	6,504	6,504	13,391	0	0	0	0	26,923	13,391	40,314
216010	10,271	WRRF Facility Optimization	25	57	1,853	5,513	972	1,845	0	0	0	0	0	10,241	0	10,241
216011	12,333	WRRF Structural Improvements	52	2,052	2,046	2,046	2,046	2,046	2,046	0	0	0	0	10,235	2,046	12,281
222001	53,397	Oakwood District Intercommunity Relief Sewer Modification at Oakwood District	925	791	786	779	4,870	16,474	16,431	12,340	0	0	0	23,700	28,772	52,472
222002	72,775	Detroit River Interceptor (DRI) Evaluation & Rehabilitation	11,192	11,192	10,057	5,696	5,235	3,645	5,608	0	0	0	0	35,824	5,608	41,432
222004	0	Sewer System Infrastructure Improvements and Pumping Stations	0	0	0	0	0	0	0	0	0	0	0	0	0	0
232001	40,073	Fairview Pumping Station - Replace Four Sanitary Pumps	12,990	12,781	28	0	0	0	0	0	0	0	0	12,809	0	12,809
232002	229,279	Freud & Conner Creek Pump Station Improvements	6,445	3,357	12,646	17,446	23,446	34,146	41,846	41,846	40,758	0	0	91,041	124,450	215,491
232004	257	Condition Assessment at Blue Hill Pump Station	257	0	0	0	0	0	0	0	0	0	0	0	0	0
233003	46,317	Rouge River In-system Storage Devices	0	0	0	1,026	1,024	1,024	9,477	9,503	9,476	9,476	5,311	3,075	43,243	46,317
260200	53,749	Sewer and Interceptor Rehabilitation Program	3,138	0	7,214	7,915	10,695	11,547	13,240	0	0	0	0	37,371	13,240	50,611
260201	32,282	CON-149, Emergency Sewer Repair	11,301	1,479	0	0	0	0	0	0	0	0	0	1,479	0	1,479
260204	52,157	Conveyance System Engineering Services-1802575	11,656	11,646	9,476	9,249	9,217	0	0	0	0	0	0	39,589	0	39,589
260205	10,938	NWI Rehabilitation	1,767	5,046	4,046	0	0	0	0	0	0	0	0	9,092	0	9,092
260206	47,821	Conveyance System Repairs (Sewers)	523	7,046	7,046	7,046	7,046	8,046	6,046	5,023	0	0	0	36,230	11,069	47,298
260500	5,000	CSO Outfall Rehabilitation	0	833	833	835	833	833	833	0	0	0	0	4,167	833	5,000
260504	5,051	Phase 2 Outfalls- 19000796	2,849	0	0	0	0	0	0	0	0	0	0	0	0	0
260505	5,718	Phase 4 Outfalls	3,491	641	0	0	0	0	0	0	0	0	0	641	0	641
260508	569	B-39 Outfall Rehabilitation	181	181	181	27	0	0	0	0	0	0	0	388	0	388
260509	89	B-40 Outfall Rehabilitation	22	0	0	0	0	0	0	0	0	0	0	0	0	0
260510	48,863	Conveyance System Repairs (Outfalls)	557	7,710	7,710	7,728	7,710	9,240	8,210	0	0	0	0	40,096	8,210	48,306
260600	126,400	CSO Facilities Improvement Program	1,500	1,000	1,500	2,000	7,500	11,400	12,000	12,000	12,000	29,000	36,500	23,400	101,500	124,900
260601	864	Oakwood CSO Control Facility Drain Valve Improvements	183	0	0	0	0	0	0	0	0	0	0	0	0	0
260603	7,898	Conner Creek CSO RTB Automation Improvements	908	0	0	0	0	0	0	0	0	0	0	0	0	0
260608	497	7 Mile CSO Facilities - Roof Replacement	1	0	0	0	0	0	0	0	0	0	0	0	0	0
260609	417	Seven Mile RTB - Parking Lot Replacement & Misc. Site Work	47	0	0	0	0	0	0	0	0	0	0	0	0	0
260611	396	Leib SDF- HVAC System Improvements	300	0	0	0	0	0	0	0	0	0	0	0	0	0
260613	588	Baby Creek HVAC Improvements	536	0	0	0	0	0	0	0	0	0	0	0	0	0
260614	13,794	Structural Inspection & Structural Improvements	3,047	4,422	3,872	1,397	752	0	0	0	0	0	0	10,443	0	10,443
260615	801	Puritan Fenkell & Leib Site Improvements	492	199	0	0	0	0	0	0	0	0	0	199	0	199
260616	783	Baby Creek Towards Treatment Sewer Improvements	116	0	0	0	0	0	0	0	0	0	0	0	0	0
260617	6,966	St. Aubin Chemical Disinfection Improvements	443	387	237	1,709	2,808	1,131	0	0	0	0	0	6,273	0	6,273
260618	3,967	Oakwood HVAC Project	639	3,235	17	0	0	0	0	0	0	0	0	3,252	0	3,252
260619	116	Control System Upgrade - St Aubin, Lieb & Mile	55	0	0	0	0	0	0	0	0	0	0	0	0	0
260620	641	Baby Creek Roof Replacement	641	0	0	0	0	0	0	0	0	0	0	0	0	0
260700	35,901	Sewer System Infrastructure Improvements and Pumping Stations	1,403	3,661	9,050	9,021	7,234	1,844	1,844	1,844	0	0	0	30,810	3,689	34,499
260701	4,586	Conveyance System Infrastructure Improvements	1,356	1,356	1,356	48	0	0	0	0	0	0	0	2,761	0	2,761

CIP #	LIFETIME PLANNED SPEND	TITLE	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	2022-2026 TOTAL	2027 – 2031 TOTAL	TOTAL 2022-2031
260702	669	Pump Station Assets Updates	669	0	0	0	0	0	0	0	0	0	0	0	0	0
270001	9,573	Pilot CSO Netting Facility	0	13	57	1,557	107	3,203	3,896	739	0	0	0	4,939	4,635	9,573
270002	5,840	Meldrum Sewer Diversion and VR-15 Improvements	0	9	57	283	568	1,975	2,288	162	499	0	0	2,891	2,949	5,840
270003	9,268	Long Term CSO Control Plan	3,500	3,799	1,749	144	73	0	0	0	0	0	0	5,764	0	5,764
274001	10,942	Leib Improvements for Meldrum Diversion	25	254	1,228	649	2,713	3,396	1,414	1,263	0	0	0	8,240	2,677	10,917
277001	18,826	Baby Creek Outfall Improvements Project	1,143	1,807	1,507	6,796	6,796	774	0	0	0	0	0	17,680	0	17,680
278001	10,226	Oakwood Improvements for NWI Diversion	25	252	1,205	631	2,545	2,194	2,211	1,162	0	0	0	6,828	3,373	10,201
331002	8,888	Roofing Systems Replacement at GLWA WRRF, CSO Retention Treatment Basins (RTB) and Screening Disinfection Facilities (SDF)	148	1,277	1,277	1,276	1,277	1,277	1,234	0	0	0	0	6,383	1,234	7,617
341002	3,534	Security Infrastructure Improvements for Wastewater Facilities	1,796	722	0	0	0	0	0	0	0	0	0	722	0	722
		TOTALS	**127,735**	**106,050**	**123,187**	**160,939**	**173,023**	**175,199**	**210,615**	**143,208**	**126,747**	**101,609**	**91,943**	**738,403**	**674,127**	**1,412,525**

Table 26. 10-Year Wastewater CIP Outlook Summary

10-Year Wastewater CIP Outlook

Note: Figures below are in thousands of dollars
Water CS Projects/Programs are included here.
Slight variances in totals may be noted due to showing numbers in thousands of dollars.

FY2021 Outlook	FY2021	FY2022	FY2023	FY2024	FY 2025	FY 2026	FY2027	FY2028	FY2029	FY2030	FY2031	2021-2030
Projects	78,021	55,725	92,062	172,003	129,068	101,580	115,656	92,711	90,875	76,308		1,004,008
Programs	32,610	57,033	48,770	31,256	42,870	37,680	12,000	12,000	12,0000	29,000		312,24

Proposed FY2022 Outlook	FY2021	FY2022	FY2023	FY2024	FY 2025	FY 2026	FY2027	FY2028	FY2029	FY2030	FY 2031	2022-2031
Projects		57,208	70,651	113,965	119,230	131,159	168,442	124,341	114,748	72,611	55,442	1,027,797
Programs		48,842	52,538	46,975	53,794	44,041	42,173	18,867	12,000	29,000	36,500	384,730
Not Yet Specified Masterplan Projects												
Subtotal 2022 Wastewater CIP		**106,050**	**123,190**	**160,940**	**173,024**	**175,200**	**210,615**	**143,208**	**126,748**	**101,611**	**91,942**	**1,412,527**

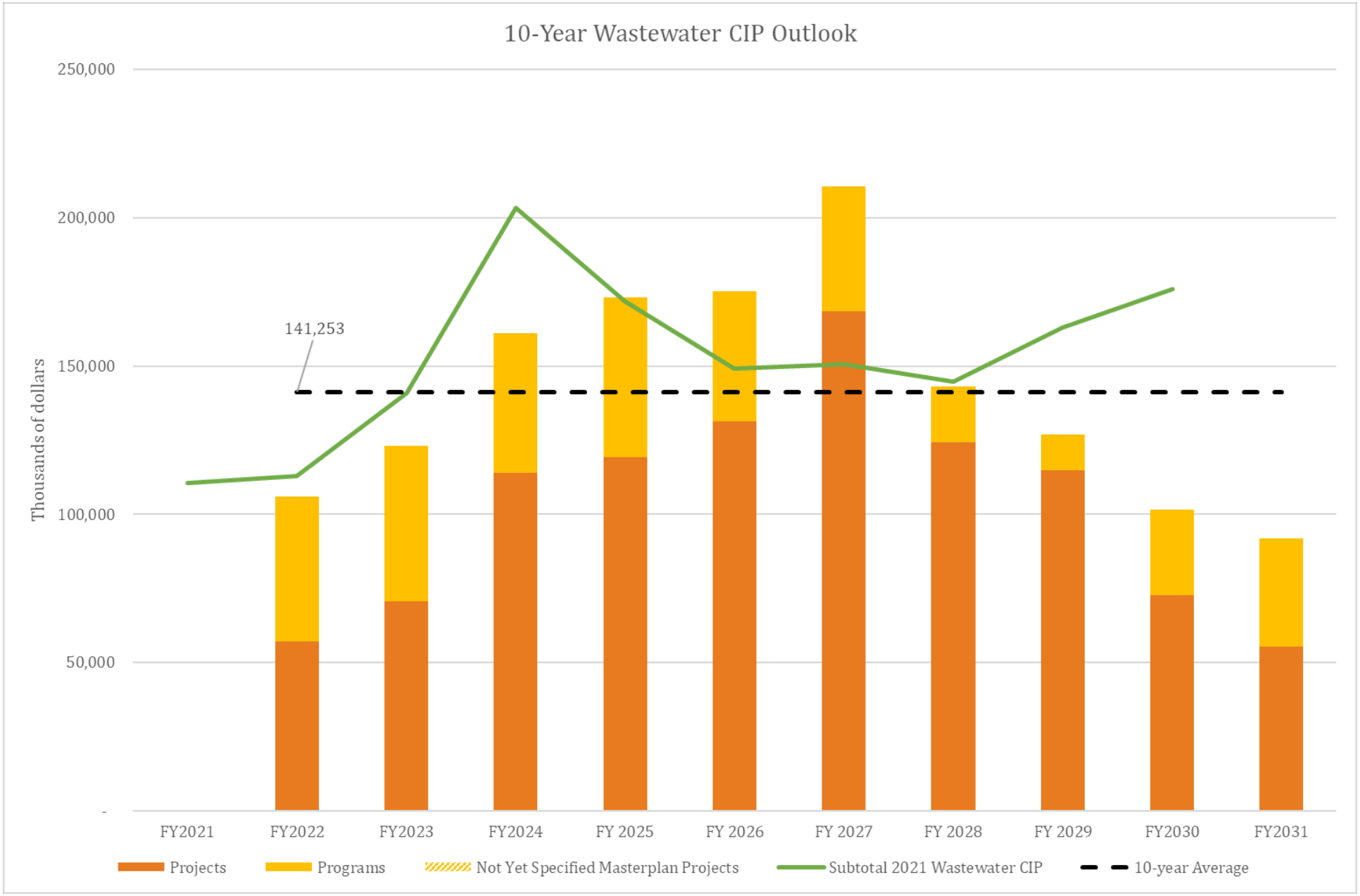


Figure 5. 10-Year Wastewater CIP Outlook Chart.

5 FINANCE

5.1 INTRODUCTION

The intersection of the CIP and the GLWA's overall financial plan balances several objectives to support the Authority's mission. Those objectives include the following:

- ✓ Transparency in the development of the financial plan
- ✓ Collaboration internally and externally
- ✓ Ensure sustainability
- ✓ Reduce the debt burden
- ✓ Smoothing of annual adjustments to service charges
- ✓ Improve the Authority's financial position

The Authority draws upon five sources of funding for its CIP:

1. **Bond Proceeds**: The Authority uses an incremental method of funding long-lived capital projects through a bond financing program. The Authority issues revenue bonds pursuant to Michigan Public Act 94 of 1933 (the Revenue Bond Act). The Act provides a pledge of "net revenues" for the payment of the bond principal and interest. "Net revenues" is the revenues of the system remaining after deducting the reasonable expenses of administration, operation, and maintenance of the system.
2. **Revenue Financed Capital (Improvement & Extension Fund):** Based upon ongoing expense, capital, and revenue optimization efforts, the Authority is able to build reserves to use pay-as-you go funding for shorter-lived and lower-dollar capital expenditures as well as to reduce the level of borrowing for longer-lived assets. These funds are not budgeted for use until received and recorded in the Improvement & Extension Fund for the water or the sewer system.
3. **Federal Loan Programs:** The Authority's sources of funding include lower cost financing programs including the State Revolving Fund (SRF) Loan Program and the Drinking Water Revolving Fund (DWRF) Loan Program.
4. **Grants:** The Authority utilizes public grants programs such as the State of Michigan's Stormwater, Asset Management, and Wastewater Program (provides both grants and loans) and is pursuing federal and private grants for energy optimization.
5. **Contribution in Aid of Construction:** Periodically, the Authority has the opportunity to partner with other entities for the design and construction or improvement of an asset. Depending on the nature of the shared financing strategy, the Authority may offset the cost of System expansion or improvements with direct or indirect capital from that partner.

To ensure proper accountability of funding sources and uses, the Authority utilizes two funds for its capital program for each system: the Construction Bond Fund and the Improvement & Extension (I&E) Fund.

- ✓ **Construction Bond Fund:** This fund represents the proceeds of bond issuances and related interest earnings for the purposes of financing capital improvements. New with this CIP, GLWA has made a concentrated effort to implement a CIP financial plan strategy where long-lived assets, defined as constructed infrastructure and plant facilities with an estimated useful life greater than 20 years, are eligible for bond funding.
- ✓ **Improvement & Extension (I&E) Fund:** The I&E Fund is defined by the Authority's Master Bond Ordinance (MBO) as the "fund used for improvements, enlargements, extensions or betterment" of the System. Cash receipts of the Authority are transferred into the I&E Fund pursuant to a flow of funds after commitments are met for a monthly allocation of operations and maintenance expense, debt service, pension, WRAP, budget stabilization fund, and extraordinary repair and replacement fund as administered by a trustee. Capital outlay items are funded with I&E Funds. Capital outlay are items that are generally purchased (rather than constructed) and with an estimated useful life of less than 20 years.

The basis of accounting for the capital spending is the accrual basis. Under this basis of accounting, revenues are recognized when earned and measurable regardless of when collected; and expenses are recorded, or accrued, on a matching basis when incurred. Accrued expenses are expected to be paid in a subsequent accounting period. For purposes of this CIP, the terms expenses and expenditures are used interchangeably.

5.2 SUMMARY CIP FINANCIAL PLAN REVIEW AND ANALYSIS

The GLWA CIP financial plan document is based on a foundational database of capital projects and programs to support improved analysis and decision-making, provide transparency, balance risk and opportunity, and demonstrate greater clarity in the long-term GLWA financial strategy. With the ultimate performance measure of lowering the cost of capital, a better-executed financial plan optimizes the use of bonds, revenue financial capital, revolving fund loans, and grants. It also contemplates execution risk (actual rate of capital project delivery) versus inherent risk in project cost estimating. Lastly, a sustainable financial plan encompasses flexibility to allow for strategic timing of new debt, pace of cash flow needs, and adequate reserves for system needs.

While the GLWA Board of Directors approves the plan, the authority to spend does not occur until additional project review processes are completed prior to the procurement process. Depending on the scope and dollar amount of the project, final approval to proceed may include customer engagement, Chief Executive Officer review, and GLWA Board CIP Committee review and/or GLWA Board action.

Recognizing the difference scope between the CIP, which has a broader strategic view of system needs versus the tactical financial plan which models use of cash reserves and future borrowing, GLWA is utilizes "capital spend rate assumption policy". This policy, further discussed below, was adopted by the GLWA Board of Directors on November 28, 2018 and was first implemented three years ago with the FY 2020 – 2024 CIP.

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 Capital Improvement Plan (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 non-financial, 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.

The remainder of this chapter provides an analysis of information in the CIP database that will inform the spend rate assumption for future financial plans.

COST POOL RESPONSIBILITY

Revenue requirements are the basis for establishing customer charges. Included in that calculation are operations and maintenance expense, debt service, Master Bond Ordinance (MBO) reserve requirements, system lease requirements, revenue financed capital targets, water residential assistance program commitments, and legacy obligations. The cost of capital improvements is allocated to customers among four general cost pools as described following:

1. ***Common-to-All (CTA)*** represents costs that are allocable to all customers.
2. ***Oakland-Macomb Interceptor Drainage District (OMID)*** represents costs that are allocable to a portion of the sewer system that receives flows from OMID's system.
3. ***Suburban Only*** represents costs that are allocable to wholesale customers outside the City of Detroit.
4. ***CSO 83/17*** represents capital costs that are allocated based upon terms of a 1999 rate settlement agreement sanctioned by a federal court. The outcome was an allocation of 83% of "combined sewer overflow control facilities" (CSO) costs to City of Detroit customers and 17% to other customers.

As shown in Table 25 and Table 26 below, the majority of the proposed capital improvements are allocated to the common-to-all cost pool.

Table 25. Water Cost Allocation

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

COST ALLOCATION	PROJECTED CAPITAL EXPENDITURES					TOTAL FY'S 2022-2026	PERCENT OF FIVE-YEAR TOTAL
	FY22	FY23	FY24	FY25	FY26		
WATER							
Common-To-All	$ 174,619	$ 196,596	$ 195,052	$ 166,823	$ 178,316	$ 911,407	97.7%
Suburban Only	4,591	4,117	4,113	4,113	4,113	21,048	2.3%
Grand Total	**179,210**	**200,713**	**199,165**	**170,936**	**182,430**	**932,455**	**100.0%**

Table 26. Wastewater Cost Allocation

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

COST ALLOCATION	PROJECTED CAPITAL EXPENDITURES					TOTAL FY'S 2022-2026	PERCENT OF FIVE-YEAR TOTAL
	FY22	FY23	FY24	FY25	FY26		
SEWER							
Common-To-All	$ 90,730	$ 111,816	$ 144,793	$ 148,184	$ 150,126	$ 645,650	87.4%
CSO 83/17	13,367	8,718	7,514	14,002	19,176	62,778	8.5%
TBD	1,953	2,655	8,633	10,837	5,897	29,975	4.1%
Grand Total	**106,050**	**123,190**	**160,940**	**173,024**	**175,200**	**738,403**	**100.0%**

CIP FUNDING BASED ON ESTIMATED USEFUL LIFE

The long-term financial plan differentiates between appropriate uses of long-term debt versus revenue financed capital in the Improvement & Extension (I&E) Fund as defined in the MBO. As a general rule, assets with a life of less than 20 years are funded with I&E Funds. Assets with a life greater than 20 years are funded with a blend of debt and I&E Funds. Building I&E Funds over time allows GLWA to position itself to further reduce reliance on debt. Exceptions to that plan may be to take advantage of lower cost borrowings from the revolving fund loan programs or a revision of the plan to optimize refunding savings. For this reason, the five-year financial plan is regularly reviewed during the fiscal year. Updates may also occur due to grant awards, collaboration opportunities, and changes in budgetary conditions. The financial plan reflects grants and federal and state loans only after approval is received by the grantor or authorizing party.

As shown in Table 27 and Table 28, most of the CIP projects are longer-lived assets, defined as greater than a 20-year estimated useful life. Shorter-lived assets scheduled for acquisition or replacement are identified in the five-year capital outlay plan provided in the GLWA Biennial Budget and Five-Year Plan document.

Table 27. Asset Life and Eligibility for Funding with Long-Term Debt: Water

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

ASSET LIFE RANGE	PROJECTED CAPITAL EXPENDITURES					TOTAL FY'S 2022-2026	PERCENT OF FIVE-YEAR TOTAL
	FY22	FY23	FY24	FY25	FY26		
WATER							
<20 Years	$ 24,813	$ 20,769	$ 20,583	$ 16,214	$ 19,872	$ 102,251	11.0%
>20 Years	154,398	179,944	178,582	154,722	162,557	830,203	89.0%
Grand Total	**179,210**	**200,713**	**199,165**	**170,936**	**182,430**	**932,455**	**100.0%**

Table 28. Asset Life and Eligibility for Funding with Long-Term Debt: Wastewater

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

ASSET LIFE RANGE	PROJECTED CAPITAL EXPENDITURES					TOTAL FY'S 2022-2026	PERCENT OF FIVE-YEAR TOTAL
	FY22	FY23	FY24	FY25	FY26		
SEWER							
<20 Years	$ 5,175	$ 5,640	$ 3,104	$ 4,599	$ 5,019	$ 23,536	3.2%
>20 Years	100,875	117,550	157,836	168,425	170,181	714,866	96.8%
Grand Total	**106,050**	**123,190**	**160,940**	**173,024**	**175,200**	**738,403**	**100.0%**

PROJECT STATUS ANALYSIS

As shown in Table 29. and Table 30. below, approximately 10% of the water system projects and 14% of the wastewater system projects are classified as "Future Planned Start". Note that a project designated as "Active" includes all projects where at least one phase is active, including GLWA Salaries phases.

Table 29. Project Status Analysis: Water

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

PROJECT STATUS	PROJECTED CAPITAL EXPENDITURES					TOTAL FY'S 2022-2026	PERCENT OF FIVE-YEAR TOTAL
	FY22	FY23	FY24	FY25	FY26		
WATER							
Active	$ 164,812	$ 173,098	$ 172,162	$ 144,877	$ 131,283	$ 786,232	84.3%
Under Procurement	7,834	16,600	13,083	7,101	7,042	51,660	5.5%
Future Planned Start	6,564	11,016	13,920	18,959	44,104	94,563	10.1%
Grand Total	**179,210**	**200,713**	**199,165**	**170,936**	**182,430**	**932,455**	**100.0%**

Table 30. Project Status Analysis: Wastewater

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

PROJECT STATUS	PROJECTED CAPITAL EXPENDITURES					TOTAL FY'S 2022-2026	PERCENT OF FIVE-YEAR TOTAL
	FY22	FY23	FY24	FY25	FY26		
SEWER							
Active	$ 83,834	$ 89,655	$ 113,741	$ 114,036	$ 101,116	$ 502,382	68.0%
Under Procurement	13,054	20,731	27,832	31,155	38,863	131,636	17.8%
Future Planned Start	9,163	12,803	19,367	27,833	35,220	104,385	14.1%
Grand Total	**106,050**	**123,190**	**160,940**	**173,024**	**175,200**	**738,403**	**100.0%**

PHASE CATEGORY ANALYSIS

Often projects are broken up into several phases related to how the project will be delivered and managed. Categories may be grouped to align with work to be performed within each individual phase. Individual categories are identified and named below, however, several categories may exist for each phase. In this case, this implies the same vendor, under one contract, will be performing multiple categories of the overall project. The current project categories are identified in the sidebar to the right.

As shown in Table 31. and Table 32. below, the majority of the dollars are allocated to construction and design build. From a financial standpoint, this increases the validity of the projected CIP spend once a contract is awarded as there are significantly less dollars assigned to pre-construction activities.

PROJECT CATEGORIES

- Study (S)
- Design (D)
- Construction (C)
- Construction Assistance (CA)
- Design and Build (DB)
- Design Build Assistance (DBA)
- Construction Management (CM)
- Project Management (PM)
- To Be Determined (TBD)

Table 31. Phase Category Analysis: Water

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

PHASE CATEGORY	PROJECTED CAPITAL EXPENDITURES					TOTAL FY'S 2022-2026	PERCENT OF FIVE-YEAR TOTAL
	FY22	FY23	FY24	FY25	FY26		
WATER							
Study	$ 3,118	$ 2,588	$ 2,527	$ 2,527	$ 2,561	$ 13,322	1.4%
Study, Design & Construction Assistance	5,229	3,532	3,010	1,638	1,824	15,232	1.6%
Design	1,114	1,000	1,000	1,000	5	4,120	0.4%
Design & Construction Assistance	7,610	11,747	12,427	8,988	6,770	47,543	5.1%
Design & Construction Management	0	0	0	0	0	0	0.0%
Design-Build	61,739	79,210	65,367	56,375	66,162	328,854	35.3%
Construction	72,150	83,544	95,191	81,610	78,570	411,066	44.1%
Construction Assistance & Management	0	0	0	0	0	0	0.0%
GLWA Salaries	2,247	2,181	1,016	873	751	7,067	0.8%
TBD	26,002	16,911	18,626	17,926	25,787	105,252	11.3%
Grand Total	**179,210**	**200,713**	**199,165**	**170,936**	**182,430**	**932,455**	**100.0%**

Table 32. Phase Category Analysis: Wastewater

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

PHASE CATEGORY	PROJECTED CAPITAL EXPENDITURES					TOTAL FY'S 2022-2026	PERCENT OF FIVE-YEAR TOTAL
	FY22	FY23	FY24	FY25	FY26		
SEWER							
Study	$ 604	$ 604	$ 675	$ 1,254	$ 1,254	$ 4,391	0.6%
Study, Design & Construction Assistance	11,933	8,648	9,517	7,764	7,071	44,932	6.1%
Design	3,300	4,200	2,000	3,400	4,100	17,000	2.3%
Design & Construction Assistance	6,324	4,340	2,145	1,619	2,296	16,724	2.3%
Design & Construction Management	501	501	502	501	11	2,016	0.3%
Design-Build	26,219	21,966	14,950	14,355	8,750	86,240	11.7%
Construction	34,749	54,224	100,014	106,915	110,133	406,036	55.0%
Construction Assistance & Management	447	350	175	125	0	1,097	0.1%
GLWA Salaries	1,779	1,448	1,288	1,424	1,226	7,164	1.0%
TBD	20,193	26,908	29,674	35,668	40,360	152,802	20.7%
Grand Total	**106,050**	**123,190**	**160,940**	**173,024**	**175,200**	**738,403**	**100.0%**

6 PROJECT DESCRIPTIONS

WATER PROJECTS

88 PROJECTS

5-YEAR CIP
$935 Million

10-YEAR OUTLOOK
$2.0 Billion

FOR MORE: APPENDIX A
Find the full Business Case Evaluations for Water Projects in Appendix A.

CIP Number: 111001

Project Title: Lake Huron Water Treatment Plant, Low-Lift, High Lift and Filter Backwash Pumping System Improvements

Project Status: Project Execution - Design
Class Lvl 1: Water
Class Lvl 2: Treatment Plants and Facilities
Class Lvl 3: Lake Huron
Lookup Location: Lake Huron WTP

☐ **Project New to CIP:**

☑ **Innovation**
☐ **WW Master Plan**
☑ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Representative Switchgear to be Replaced under CIP 111001

Project Engineer/Manager: Eric Kramp

Director: Grant Gartrell

Project Score
71.6

Problem Statement:

Improvements needed to align the existing low lift pumping rate with the Lake Huron WTP production rate per the 2015 Water Master Plan Update.

Currently, constant speed pumping at the low-lift portion of the plant can force it to operate in a semi -batch mode during night-time, low-demand periods. Existing electrical gear for low- and high-lift pumping units and filter backwash pumps are original to plant, beyond useful service life and need to be replaced to improve reliability, serviceabil...

Scope of Work/Project Alternatives:

This CIP will be delivered using a design-bid-build project delivery method. The project's scope of improvements will generally include rehabilitation or replacement of the following systems and equipment:
1. High and medium voltage electrical system at the facility
2. Low-lift pumps, right-sized to current and projected demands.
3. High-lift pumping units, right-sized to current and projected demands.
4. Filter wash water pumps and related equipment.
5. Phosphoric acid storage tanks and f...

Other Important Info:

*Innovation note: Ensure energy efficiency. Coordination between existing pumping unit and motor required during design. Critical speed analysis may show pump improvements needed to operate at reduced speeds. Uncovering an innovative rehabilitation design to minimize maintenance of existing drives.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$268	$48	$48	$57	$27	$26	$21	$22	$22	$117	$45
Design & Construction Assistance # 1	$10,466	$164	$164	$1,935	$1,935	$1,656	$793	$791	$791	$5,966	$2,400
Construction (Build) # 1	$46,444	$0	$0	$0	$0	$2,899	$8,052	$10,025	$10,025	$31,001	$15,443

CIP Number: 111002

Project Title: Lake Huron Water Treatment Plant, Miscellaneous Mechanical HVAC Improvements

Project Status: Pending Closeout
Class Lvl 1: Water
Class Lvl 2: Treatment Plants and Facilities
Class Lvl 3: Lake Huron
Lookup Location: Lake Huron WTP

☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Mechanical Room - New WCHP and Boilers

Project Engineer/Manager: Brian VanHall

Director: Grant Gartrell

Project Score
78.6

Problem Statement:

Existing heating, ventilating and air-conditioning systems Lake Huron are 40 years old and are either not operable or are energy-inefficient. Ventilation is inadequate in the filter areas of the plant. Indoor summer-time temperatures exceed 90F in the administration building and process control laboratory due to no air conditioning in this building. These elevated temperatures make for very uncomfortable working conditions for the chemists stationed in the laboratory full-time and plant team me...

Scope of Work/Project Alternatives:

This CIP project is being delivered using a design-bid-build project delivery model. The scope of work generally includes installing:
1. High-efficiency, natural gas-fired hot-water boilers, hot-water radiators, and hot-water and cold -water return piping throughout the facility.
2. Air-conditioning system for the administration building, including the process control laboratory and control room.
3. Roof-top mounted air handlers to ventilate the filter buliding.
4. Heating and ventilating sy...

Other Important Info:

There are three contracts associated with this CIP, including:
CS-1732 Engineering Design and Construction Administration Contract (active)
CON-182 Backflow Preventer Construction Contract (closed)
CON-212 HVAC Construction Contract (active)

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$146	$126	$126	$20	$0	$0	$0	$0	$0	$0	$0
Study & Design & Construction Assistance # 1	$746	$746	$746	$0	$0	$0	$0	$0	$0	$0	$0
Construction (Build) # 2	$7,813	$7,813	$7,813	$0	$0	$0	$0	$0	$0	$0	$0

CIP Number: 111004

Project Title: Lake Huron Water Treatment Plant, Electrical Tunnel Rehabilitation

Project Status: Closed
Class Lvl 1: Water
Class Lvl 2: Treatment Plants and Facilities
Class Lvl 3: Lake Huron
Lookup Location: Lake Huron WTP

☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

New staircase well access to Tunnel

Project Engineer/Manager: Jorge Nicolas

Director: Grant Gartrell

Project Score
0

Problem Statement:

Existing electrical tunnel concrete has failed in the past and has seen emergency repairs. This project will provide permanent concrete and structural improvements to this tunnel that carries the primary electrical feed to the entire plant. The existing medium voltage two electrical feeders are old and beyond their 30-years service life. This project will replace the two electrical feeders with new.

Scope of Work/Project Alternatives:

This CIP project is being delivered using a design-bid-build project delivery model. The scope of work generally includes restoring concrete within the medium-voltage feeder electrical tunnel to prevent water intrusion and further damage to concrete, electrical cables, conduits, duct banks, and cable trays. The work also includes replacing the medium-voltage electrical feeders between the site's primary transformers and the low-lift pumping plant.

Other Important Info:

Moved construction start to FY2019, added GLWA costs. JN 2019

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$106	$106	$106	$0	$0	$0	$0	$0	$0	$0	$0
Design & Construction Assistance # 1	$159	$159	$159	$0	$0	$0	$0	$0	$0	$0	$0
Construction (Build) # 1	$3,627	$3,627	$3,627	$0	$0	$0	$0	$0	$0	$0	$0

CIP Number: 111006

Project Title: Lake Huron Water Treatment Plant, Filter Instrumentation and Raw Water Flow Metering Improvements

Project Status: Active - Pre-Procurement - Construction
Class Lvl 1: Water
Class Lvl 2: Treatment Plants and Facilities
Class Lvl 3: Lake Huron
Lookup Location: Lake Huron WTP

☐ **Project New to CIP:**

☑ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Ariadna Risher

Director: Grant Gartrell

Project Score
62.2

Problem Statement:
The filter instrumentation and raw water metering at the Lake Huron WTP is not functioning and is in need of replacement.

Scope of Work/Project Alternatives:
Contract is being redeveloped for full integration with CS-108 guidelines.

Other Important Info:
Contract is being redeveloped for full integration with CS-108 guidelines.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$520	$66	$66	$190	$117	$143	$3	$1	$0	$264	$0
Study & Design & Construction Assistance # 1	$1,007	$1,007	$1,007	$0	$0	$0	$0	$0	$0	$0	$0
Future Design Build	$15,262	$0	$0	$25	$5,079	$5,079	$5,079	$0	$0	$15,237	$0

CIP Number: 111007

Project Title: Lake Huron Water Treatment Plant, Raw Sludge Clarifier and Raw Sludge Pumping System Improvements

Project Status: Project Execution - Construction
Class Lvl 1: Water
Class Lvl 2: Treatment Plants and Facilities
Class Lvl 3: Lake Huron
Lookup Location: Lake Huron WTP

☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Overall progress photo that shows new WWRB, JS1, JS2 and SPS 8/20/20

Project Engineer/Manager: Brian VanHall

Director: Grant Gartrell

Project Score
53.2

Problem Statement:

The existing WWRB and clarifiers have noticeable deteriorating concrete and walls that have permanently deflected. There is also concrete deterioration in the sludge pumping station as well as difficulties with maintenance and operation of the existing pumps. For example, the existing pumps are not equipped with permanent lifting mechanisms. A truck with a crane has to be mobilized to the plant to pull an existing pump when maintenance or repairs are needed. The new sludge pumping units will be...

Scope of Work/Project Alternatives:

This project will be delivered using a design-bid-build project delivery method. GLWA retained an engineering consultant under GLWA Contract No. CS-171 “Raw Sludge Clarifiers and Raw Sludge Pumping Station Improvements” to conduct a condition assessment and design improvements for LH raw sludge handling. The WWRB, Clarifier Nos. 1 and 2, and the sludge pumping station all require improvement. The scope of construction involves:
1. Demolish existing clarifiers and sludge pumping station
2. Con...

Other Important Info:

This project should be completed prior to cessation of treatment at the Northeast WTP.

Project History: The clarifier/backwash structure is original to the plant. The tank walls appear to have been inadequately designed and/or constructed to withstand the loading of the surround soils.

Challenges: Improvements will require coordination with plant operations (filter backwashing, sedimentation basin cleaning) and requires bypass pumping due to signficant leakage from filter outlet valves.

Current Expenses (All figures are in $1,000’s)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$171	$58	$58	$100	$13	$0	$0	$0	$0	$13	$0
Study & Design & Construction Assistance # 1	$1,556	$1,049	$1,049	$430	$76	$0	$0	$0	$0	$76	$0
Construction (Build) # 1	$7,454	$4,780	$4,780	$2,579	$95	$0	$0	$0	$0	$95	$0

CIP Number: 111008

Project Title: Lake Huron Water Treatment Plant, Architectural Programming for Laboratory and Admin Building Improvements

Project Status: Future Planned - Within 5 Year Plan
Class Lvl 1: Water
Class Lvl 2: Treatment Plants and Facilities
Class Lvl 3: Lake Huron
Lookup Location:

☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: TBD

Director: Grant Gartrell

Project Score
40.6

Problem Statement:

The Lake Huron Water Treatment Plant was constructed in the early 1970s and started operating in 1976. The existing process control laboratory and administration building interiors are original construction, including but not limited to flooring, wall coverings, ceilings, lab cabinetry, control room boards, bathroom fixtures, and lighting fixtures. The original control room board is still located in the laboratory and consumes a large amount of space that is not used and inefficient. The archit...

Scope of Work/Project Alternatives:

This will be a study phase project that will involve architectural programming to determine the most efficient architectural layout that meets current process laboratory control technology and administrative workflow practices; and that can be provided through a construction renovation project within the existing building footprint.

Other Important Info:

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$256	$0	$0	$0	$0	$0	$0	$0	$27	$27	$229
Study # 1	$940	$0	$0	$0	$0	$0	$0	$0	$50	$50	$890

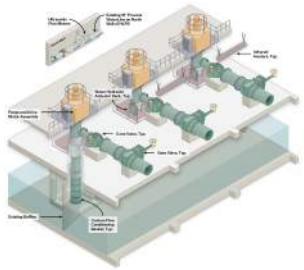
CIP Number: 111009

Project Title: Lake Huron Water Treatment Plant - High Lift Pumping, Water Production Flow Metering and Yard Piping Improvements

Project Status: Active - Procurement - Board Approved - Construction
Class Lvl 1: Water
Class Lvl 2: Treatment Plants and Facilities
Class Lvl 3: Lake Huron
Lookup Location: Lake Huron WTP

☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**



Conceptual new h/L pump arrangement

Project Engineer/Manager: Brian VanHall

Director: Grant Gartrell

Project Score
62.2

Problem Statement:
Three new, smaller capacity, high-lift pumping units are needed to provide reduced finished water flows out of Lake Huron WTP to accommodate the relocation of the 96-inch transmission main south of Dorsey-Dickenson valve and to accommodate the installation of a new water production flow meter at the Lake Huron WTP. The three, new smaller capacity high-lift pumping units will also serve a longer term need to better match lower diurnal demands seen at the Lake Huron WTP. Installation of the new w...

Scope of Work/Project Alternatives:
This project will be delivered using a design-build project delivery method. The scope of work involves designing and building a new water production flow meter and associated meter vault to more accurately measure finished water production flows from the facility. This work will also entail constructing additional high-lift, finished water header piping, valves and appurtenances to facilitate construction of the new metering infrastructure. The scope also includes installing three new 35 milli...

Other Important Info:
N/A

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$458	$117	$117	$140	$61	$60	$60	$21	$0	$201	$0
Design-Build # 1	$30,023	$0	$0	$500	$1,000	$7,000	$7,523	$7,000	$7,000	$29,523	$0

CIP Number: 111010

Project Title: Filtration Improvements

Project Status: Future Planned - Within 5 Year Plan
Class Lvl 1: Water
Class Lvl 2: Treatment Plants and Facilities
Class Lvl 3: Lake Huron
Lookup Location: Lake Huron WTP

☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☑ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Eric Kramp

Director: Grant Gartrell

Project Score
71

Problem Statement:

Significant issues exist in the filtration process of the LHWTP:
Filter influent and drain valves do not seal well, creating water loss
Filter underdrains and media have not been evaluated and require confirmation of condition
Isolation valves between the filters, filtered water conduit, filter to drain, and clearwells are known to leak heavily

Scope of Work/Project Alternatives:

This project will be delivered using a design-bid-build project delivery method. The scope of work will generally include the following:
2. Construct filtration improvements, including filter media, filter auxiliary scoring equipment, filter wash water troughs,and other filter tank work.
3. Replace the existing filter control valves and valve operators with new.
4. Rehabilitate concrete associated with the filters.

Replace isolation and valves as necessary
Repaint WW Conduit
Replace und...

Other Important Info:

n/a

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$470	$0	$0	$9	$38	$38	$85	$386
Design & Construction Assistance # 1	$4,298	$0	$0	$0	$0	$23	$23	$4,275
Construction (Build) # 1	$37,438	$0	$0	$0	$0	$0	$0	$37,438

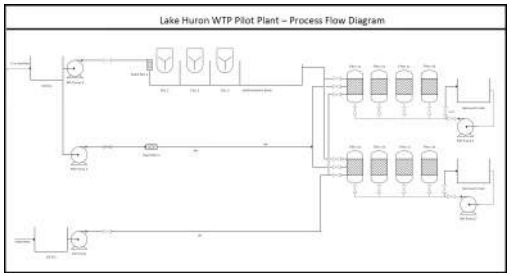
CIP Number: 111011

Project Title: Lake Huron WTP Pilot Plant

Project Status: Active - Procurement - Negotiation Phase - Design
Class Lvl 1: Water
Class Lvl 2: Treatment Plants and Facilities
Class Lvl 3: Lake Huron
Lookup Location: Lake Huron WTP

☐ **Project New to CIP:**

- ☑ **Innovation**
- ☐ **WW Master Plan**
- ☑ **Water Master Plan Right Sizing**
- ☐ **Redundancy**
- ☐ **NE WTP Repurposing**
- ☐ **Linear Assets Outside of Facilities**
- ☐ **Predecessor Project(s)**



Lake Huron WTP Pilot Plant - Process Flow Diagram

Project Engineer/Manager: Nichole Sajdak

Director: John Norton

Project Score
0

Problem Statement:
Water Operations staff at Lake Huron would benefit from the ability to test potential changes to existing water treatment practices and investigate new and innovative treatment advances.

Scope of Work/Project Alternatives:
A small scale pilot plant provides opportunity for testing and investigation without disruption to the full scale facility. Skid mounted units mimicking treatment at Lake Huron: Chemical addition, modified direct filtration facilities and data monitoring and recording would be provided for team education and training.

Other Important Info:
Scope of work to include engineering services for planning, construction and training.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY26	5 Year Total	FY27+
GLWA Salaries	$91	$0	$0	$58	$23	$10	$0	$33	$0
Design-Build # 1	$3,157	$0	$0	$0	$1,697	$1,460	$0	$3,157	$0

CIP Number: 111012

Project Title: LHWTP-Flocculation Improvements

Project Status: Active - Pre-Procurement - Design
Class Lvl 1: Water
Class Lvl 2: Treatment Plants and Facilities
Class Lvl 3: Lake Huron
Lookup Location: Lake Huron
☑ **Project New to CIP:**

☑ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☑ **Predecessor Project(s)**

Project Engineer/Manager: Eric Kramp

Director: Grant Gartrell

Project Score
72

Problem Statement:
The flocculators at the Lake Huron Water Treatment Plant are non-functional. While the plant has been able to maintain water quality, the State of Michigan has flagged this a serious issue. This CIP Project corrects this issue and addresses other issues around the flocculation systems such as any found defects in process and structure.

Scope of Work/Project Alternatives:
The project will be executed on a traditional design/bid/build delivery process. Design/build would be ineffective as the selection of flocculation technology will be the primary driver of overall cost, and is unknown.

Other Important Info:
The contract will also correct a process defect in the plant, where a section of the station conduits can never be taken out of service without loss of the entire station. This will entail the construction of approximately 150 lineal feet of new parallel raw water conduit

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$228	$0	$0	$46	$38	$38	$35	$28	$28	$167	$15
Design & Construction Assistance	$2,212	$0	$0	$0	$500	$431	$431	$400	$400	$2,162	$50
Construction (Build)	$24,097	$0	$0	$0	$0	$0	$5,097	$5,000	$5,000	$15,097	$9,000

CIP Number: 112002

Project Title: Northeast Water Treatment Plant, Low-Lift Pumping Plant Caisson Rehabilitation

Project Status: Closed
Class Lvl 1: Water
Class Lvl 2: Treatment Plants and Facilities
Class Lvl 3: Northeast
Lookup Location: Northeast WTP

☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Govind Patel

Director: Grant Gartrell

Project Score
0

Problem Statement:
Low Lift Pump Discharge flumes were leaking and had significant concrete deterioration within the Low-Lift Pumping Plant Caisson at the Northeast WTP. Water leaks posed hazards to nearby electrical equipment as well as presented potential slip hazards for employees. Additionally, the glazed tile at the upper elevations of the low-lift motor floor were unstable which presented a safety hazard to those working on the low lift pump motor floor.

Scope of Work/Project Alternatives:
The low lift pump discharge flumes have been lined with stainless steel plates to stop water leakage into the low lift pump station operating floors. The unstable glazed tile blocks were replaced with new.

Other Important Info:
The project is under construction and is substantially complete.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$63	$63	$63	$0	$0	$0	$0	$0	$0	$0	$0
Study & Design & Construction Assistance # 1	$277	$277	$277	$0	$0	$0	$0	$0	$0	$0	$0
Construction (Build) # 1	$833	$833	$833	$0	$0	$0	$0	$0	$0	$0	$0

CIP Number: 112003

Project Title: Northeast Water Treatment Plant High-Lift Pumping Station Improvements

Project Status: Future Planned - Within 5 Year Plan
Class Lvl 1: Water
Class Lvl 2: Treatment Plants and Facilities
Class Lvl 3: Northeast
Lookup Location: Northeast WTP

☐ **Project New to CIP:**

- ☐ **Innovation**
- ☐ **WW Master Plan**
- ☑ **Water Master Plan Right Sizing**
- ☑ **Redundancy**
- ☑ **NE WTP Repurposing**
- ☐ **Linear Assets Outside of Facilities**
- ☐ **Predecessor Project(s)**

Project Engineer/Manager: Ariadna Risher

Director: Grant Gartrell

Project Score
68

Problem Statement:

Existing mechanical, electrical, instrumentation, and control system equipment within the high-lift pumping plant at the Northeast Water Treatment Plant is mostly original (i.e. 1956). Both medium-voltage and low-voltage switchgear are beyond their useful service life. Stock replacement parts are no longer available. When repairs are needed to the switchgear, then either un-used redundant gear are used for parts or custom-manufactured gear is obtained at a high cost with long lead times. In som...

Scope of Work/Project Alternatives:

This project will be delivered using a design-bid-build project delivery method. The scope of work generally includes:
1) Replace medium voltage switchgear, Unit Substation 1, all motor control centers (MCCs), power panels, transformers, and lighting panels.
2) Replace HL Pumps and size according to projected demands.
3) Replace pump motor controls to accommodate remote operation.
4) Replace primary transformers and test/replace feeders to property lines. Coordinate with DTE to ensure th...

Other Important Info:

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$701	$6	$6	$279	$173	$215	$5	$3	$3	$398	$18
Design & Construction Assistance # 1	$10,845	$0	$0	$0	$0	$0	$857	$1,928	$1,718	$4,503	$6,342
Construction (Build) # 1	$60,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$60,000

CIP Number: 112005

Project Title: Northeast Water Treatment Plant - Replacement of Covers for Process Water Conduits

Project Status: Project Execution - Construction
Class Lvl 1: Water
Class Lvl 2: Treatment Plants and Facilities
Class Lvl 3: Northeast
Lookup Location: Northeast WTP

☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Peter Fromm

Director: Grant Gartrell

Project Score
61

Problem Statement:
The existing steel covers that cover the entry openings into filtered water conduits at the plant are significantly deteriorated to the point where the covers are not water-tight and require replacement. Therefore, these covers are unsafe and have been identified by the EGLE in the most recent sanitary survey as requiring replacement. Temporary barricades are in place to prevent injury and further damage.

Scope of Work/Project Alternatives:
Replace steel covers, frames and associated structural support beams over the filtered water conduits.

Other Important Info:
Challenges: Temporary support of sluice gate operators and partial shutdown of certain portions of the plant to facilitate replacement of the existing steel covers, frames,and associated structural supports that are located immediately above the filtered water conduits.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$74	$26	$26	$43	$5	$0	$0	$0	$0	$5	$0
Construction (Build) # 1	$1,015	$413	$413	$602	$0	$0	$0	$0	$0	$0	$0

CIP Number: 112006

Project Title: Northeast Water Treatment Plant Flocculator Replacements

Project Status: Project Execution - Design
Class Lvl 1: Water
Class Lvl 2: Treatment Plants and Facilities
Class Lvl 3: Northeast
Lookup Location: Northeast WTP

☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Peter Fromm

Director: Grant Gartrell

Project Score
67.4

Problem Statement:

Most of the existing flocculators are not operable and are beyond repair, which reduces sedimentation effectiveness and creates a greater load on the filtration process. It should be noted that treatment at the Northeast Water Treatment Plant is planned to be decommissioning, as recommended in the 2015 Water Master Plan Update, in order to align overall system water treatment capacity with current as well as 20-year projected water demands. As such, the scope of improvements to flocculation und...

Scope of Work/Project Alternatives:

This CIP project is being delivered under a design-bid-build project delivery method and generally includes the following scope of work:
1. Demolition of all existing flocculators including drives, motors, shafts, and paddles.
2. Installation of all the flocculators including drives, motors, shafts, and paddles.
3. Associated architectural, structural, and electrical upgrades within both of the flocculator buildings.

Other Important Info:

All existing flocculators will be replaced under this CIP because the treatment works at Northeast are slated for decommissioning.

Challenges: Water production during construction.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$316	$186	$186	$55	$22	$22	$22	$9	$0	$75	$0
Construction (Build) # 1	$11,000	$0	$0	$0	$2,500	$3,000	$3,000	$2,500	$0	$11,000	$0

CIP Number: 113002

Project Title: Southwest Water Treatment Plant, High-Lift Pump Discharge Valve Actuators Replacement

Project Status: Pending Closeout
Class Lvl 1: Water
Class Lvl 2: Treatment Plants and Facilities
Class Lvl 3: Southwest
Lookup Location: Southwest WTP

☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Shakil Ahmed

Director: Terry Daniel

Project Score
0

Problem Statement:
Existing oil hydraulic high lift valve actuators are leaking oil and at the end of service life. The leaking actuators pose safety concerns and replacement of valve actuators is needed.

Scope of Work/Project Alternatives:
This project involves replacement of the existing oil hydraulic actuators on the high lift pumping units with electric motor operators. A new gas-fired generator is being installed to provide backup power to the electric motor operators. In addition, a section of new high lift header is being installed along with header isolation valves for the high lift pumps.

Other Important Info:
The construction contract, CON-281, for this CIP project was awarded to Weiss Construction and the notice to proceed issued on October 1, 2018. The project is scheduled for completion by November 2021.

Challenges: Sequencing the demolition and replacement of the existing oil hydraulic power system will require shutdown of individual high lift pumping units.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$202	$175	$175	$23	$4	$0	$0	$0	$0	$4	$0
Design & Construction Assistance # 1	$1,074	$584	$584	$0	$124	$366	$0	$0	$0	$491	$0
Construction (Build) # 1	$5,452	$4,514	$4,514	$0	$373	$283	$283	$0	$0	$938	$0

CIP Number: 113003

Project Title: Southwest Water Treatment Plant, Low- and High-Lift Pumping Station, Flocculation and Filtration System Improvements

Project Status: Future Planned - Within 5 Year Plan
Class Lvl 1: Water
Class Lvl 2: Treatment Plants and Facilities
Class Lvl 3: Southwest
Lookup Location: Southwest WTP

☐ **Project New to CIP:**

☑ **Innovation**
☐ **WW Master Plan**
☑ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Shakil Ahmed

Director: Grant Gartrell

Project Score
0

Problem Statement:
Most of the plant's process mechanical, building mechanical and electrical systems are original to the plant (circa1962) and are nearing or are past end of useful service life. As a result, additional plant maintenance effort is necessary to meet plant operational needs.

Scope of Work/Project Alternatives:
The work includes design and construction services for the replacement of numerous large-diameter butterfly valves and water-control gates throughout the low-lift, high-lift, filtration, and flocculator buildings. The low- and high-lift pumping units, flocculators and filters will all be improved considered the current and 20-year projected demands so that they are all right sized.

Other Important Info:
This work is included in the 2015 water master plan update. The aforementioned water master plan update also recommends that GLWA consider decommissioning treatment at the Southwest Water Treatment Plant if water demand continues to trend in a downward direction, which has been the case.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$342	$0	$0	$0	$0	$0	$0	$0	$0	$0	$341
Design & Construction Assistance # 1	$21,470	$0	$0	$0	$0	$0	$0	$0	$0	$0	$21,470

CIP Number: 113006

Project Title: Southwest Water Treatment Plant Chlorine Scrubber, Raw Water Screens & Related Improvements

Project Status: Active - Procurement - Construction
Class Lvl 1: Water
Class Lvl 2: Treatment Plants and Facilities
Class Lvl 3: Southwest
Lookup Location: Southwest WTP

☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Erich Klun

Director: Grant Gartrell

Project Score
0

Problem Statement:
The existing chlorine gas scrubber is nearing its end of useful service life and its absorption media will be expiring within the next few years; and therefore requires replacement. Similarly, the existing raw water screening system are original to the plant (circa 1962), are not functional, and are beyond repair. As a result, this system also requires replacement. Both the chlorine gas scrubber and raw water screening systems will require ancillary equipment improvements related to electrical,...

Scope of Work/Project Alternatives:
This project will be delivered under a design-build project delivery model. The existing gas chlorine scubber and raw water screens will be replaced with new system equipment meeting current building codes and industry best practices. The new gas chlorine scrubber and raw water screens that will be installed will be designed for current and projected water demans in accordance with the recommendations of the 2015 Water Master Plan Update project; therefore this new equipment will be right-sized...

Other Important Info:
GLWA intends to use the services of AECOM under its CIP program management contract to implement this design-build project.

E. Klun 8/27/20 update as follows:
1. RFP for DB contract delivery underway by AECOM under CS-272 Task 71011A.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total
GLWA Salaries	$702	$130	$130	$245	$115	$34	$57	$78	$42	$327
Study	$629	$0	$0	$0	$568	$61	$0	$0	$0	$629
Design-Build # 1	$6,000	$0	$0	$0	$4,000	$1,500	$500	$0	$0	$6,000

CIP Number: 113007

Project Title: Southwest Water Treatment Plant Architectural and Building Mechanical Improvements

Project Status: Future Planned - Within 5 Year Plan
Class Lvl 1: Water
Class Lvl 2: Treatment Plants and Facilities
Class Lvl 3: Southwest
Lookup Location: Southwest WTP

☐ **Project New to CIP:**

☑ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Shakil Ahmed

Director: Grant Gartrell

Project Score
0

Problem Statement:

Most of the existing low- and high- lift pumping station and administration buildings' mechanical equipment (HVAC, dehumidification, plumbing) and architectural components such as doors, windows, floors, and furnishings, are over 50 years old; and therefore are beyond their normal useful service life. Additional architectural improvements at Southwest Water Treatment Plant will include renovation of staff locker rooms and bathrooms, including a restroom designed for female staff.

Scope of Work/Project Alternatives:

This project would be delivered using a design-bid-build project delivery method. The scope of work would generally include:
1. Design of the project.
2. Remove existing building mechanical and architectural systems.
3. Install new heating and ventilating systems process and administration areas.
4. Install new air-conditioning systems for administration areas.
5. Install new dehumidification systems for the high -lift header vault.
6. Install new interior and exterior doors and windows.
...

Other Important Info:

CS-1528 water master plan update included these improvements.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY27+
GLWA Salaries	$123	$0	$0	$123
Design & Construction Assistance # 1	$3,044	$0	$0	$3,044

CIP Number: 114001

Project Title: Springwells Water Treatment Plant, 1958 Filter Rehabilitation and Auxiliary Facilities Improvements

Project Status: Pending Closeout
Class Lvl 1: Water
Class Lvl 2: Treatment Plants and Facilities
Class Lvl 3: Springwells
Lookup Location: Springwells WTP

☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Erich Klun

Director: Grant Gartrell

Project Score
0

Problem Statement:
The existing filtration system equipment (i.e. filter media, surface wash sweeps, filter piping, filter control valves & operators, electrical, lighting, instrumentation and controls) in the 1958 Filter Plant are original to construction and are all well beyond their useful service life. Reconstruction of the 40 filters in the 1958 Filter Plant and 19 filters in the 1930 Filter Plant that have experienced failures to their plastic-block underdrains is required to maintain reliable water product...

Scope of Work/Project Alternatives:
This project includes the study, design (CS-1425) and construction assistance (CS-1425 and CS-200) of improvements to the Springwells WTP that includes the rehabilitation of the 1958 Filters, rehabilitation of failed 1930s Filters, update of Operation and Maintenance Manuals, and replacement of Phosphoric Acid feed system. Provide construction services to furnish and install new filter media, underdrains, filter valves, and rate controllers; replace the existing filter control consoles, hydraul...

Other Important Info:
There are a total of 108 filters at the Springwells Water Treatment Plant. This project has reconstructed 59 of these filters, including all 40 filters at the 1958 filter building and 19 filters at the 1930 filter building. The 19 filters at the 1930 filter building were previously equipped with plastic-block underdrains with porous plates. These underdrains failed and were replaced with low-profile type 316 stainless steel, slotted direct-media retaining underdrains.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$1,192	$1,192	$1,192	$0	$0	$0	$0	$0	$0	$0	$0
Design & Construction Assistance # 1	$2,788	$2,788	$2,788	$0	$0	$0	$0	$0	$0	$0	$0
Construction (Build) # 1	$76,848	$76,848	$76,848	$0	$0	$0	$0	$0	$0	$0	$0

CIP Number: 114002

Project Title: Springwells Water Treatment Plant, Low-Lift and High-Lift Pumping Station Improvements

Project Status: Project Execution - Design
Class Lvl 1: Water
Class Lvl 2: Treatment Plants and Facilities
Class Lvl 3: Springwells
Lookup Location: Springwells WTP

☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☑ **Water Master Plan Right Sizing**
☑ **Redundancy**
☑ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Erich Klun

Director: Grant Gartrell

Project Score
69.2

Problem Statement:

Existing low- and high-lift pumping system electrical switchgear is original (1930s) and are well beyond their useful service life. This switchgear is unsafe, not reliable and is oversized for current and projected demands. In addition, the existing pumping units are a mix of 1930s and 1950s units and are also in need of either replacement or in the case of the pumps rehabilitation. The exterior windows on the pumping plant building are also original (1930s), are in poor condition and are not w...

Scope of Work/Project Alternatives:

This CIP project will be delivered under a design-bid-build project delivery using a single-prime engineering consultant and multiple prime construction contracts to deliver the entire built project. The scope of work generally includes:
1. Replacement of low- and high-lift pumping units, including pumps, motors, valves, and piping.
2. Replacement of exterior windows in the pump house, turbine house, boiler house, and switch house.
3. Replacement of medium-voltage electrical system.
4. Repl...

Other Important Info:

E. Klun 8/19/20 updates:
1. Scope updates are being added to the design being completed under Contract CS-103 via Amendment No. 2 that is expected to go for approval in September of October 2020. Cashflow and schedule updates herein reflect both the engineering and construction impacts of an approved CS-103 Amendment No. 2.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$2,668	$357	$357	$248	$184	$197	$132	$132	$132	$777	$1,286
Study & Design & Construction Assistance # 1	$18,492	$3,292	$3,292	$2,859	$3,362	$1,938	$1,822	$451	$750	$8,324	$4,017
Design-Build # 1 (Contract A)	$203,062	$1,847	$1,847	$8,706	$13,000	$16,000	$18,000	$18,000	$17,509	$82,509	$110,000

CIP Number: 114003

Project Title: Water Production Flow Metering Improvements at Northeast, Southwest and Springwells Water Treatment Plants

Project Status: Pending Closeout
Class Lvl 1: Water
Class Lvl 2: Treatment Plants and Facilities
Class Lvl 3: Springwells
Lookup Location: Springwells, Northeast and Southwest WTP
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Jorge Nicolas

Director: Grant Gartrell

Project Score
0

Problem Statement:
Existing water production flow meters need to be rehabilitated to place back into reliable and accurate service.

Scope of Work/Project Alternatives:
Northeast Water Plant: rehabilitate 4 venturi meters, associated vaults, and replace 4 isolation gate valves.
Springwells Water Plant: rehabilitate 7 venturi meters and associated vaults.
Southwest Water Plant replace 4 venturi meters with new, including rehabilitation of the existing vaults.

Other Important Info:
Challenges: Removing and replacing existing meters in original piping requires isolation using existing yard piping and valving.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$169	$169	$169	$0	$0	$0	$0	$0	$0	$0	$0
Design & Construction Assistance # 1	$1,141	$1,141	$1,141	$0	$0	$0	$0	$0	$0	$0	$0
Construction (Build) # 1	$6,846	$6,846	$6,846	$0	$0	$0	$0	$0	$0	$0	$0

CIP Number: 114005

Project Title: Springwells Water Treatment Plant, Administration Building Improvements & Underground Fire Protection Loop

Project Status: Project Execution - Design
Class Lvl 1: Water
Class Lvl 2: Treatment Plants and Facilities
Class Lvl 3: Springwells
Lookup Location: Springwells WTP

☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Peter Fromm

Director: Grant Gartrell

Project Score
67.4

Problem Statement:

Existing administration building is nearly 90 years old with many of its facilities being original. The building needs architectural, plumbing and electrical improvements. Improvements will provide reliable fire protection to all plant facilities, replace non-functioning isolation valves and hydrants, provide fire system backflow protection, and bring the fire system into conformance with the requirements of the Dearborn Fire Marshal.

Scope of Work/Project Alternatives:

The work includes, but not necessarily limited to, removal and replacement of the existing plumbing piping, fittings, valves, plumbing fixtures, and any other necessary accessories. The existing underground fire protection line loops the Pump, Switch, Boiler and Turbine houses and is supplied water off the high lift headers in the Pump House Header Vault. The supply does not currently have backflow prevention and several branches off the loop used to feed an irrigation system serving the grassy...

Other Important Info:

The project was first identified in the November 2002 Needs Assessment completed by Hazen & Sawyer under CS-1304. The opinion of probable construction at that time for just replacing the existing piping was $1,076,400.

Project History: The fire loop and appurtenances are original to the existing plant commissioned around 1930. The loop crosses the construction staging area (blue tarps shown in the Project Map from Contract SP-563) in the northeast corner of the site and has been exposed to ...

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$367	$68	$68	$154	$66	$79	$0	$0	$0	$145	$0
Study & Design & Construction Assistance # 1	$1,893	$876	$876	$222	$344	$451	$0	$0	$0	$795	$0
Construction (Build) # 1	$7,000	$0	$0	$0	$3,250	$3,250	$500	$0	$0	$7,000	$0

CIP Number: 114007

Project Title: Springwells Water Treatment Plant Powdered Activated Carbon System Improvements

Project Status: Future Planned - Within 5 Year Plan
Class Lvl 1: Water
Class Lvl 2: Treatment Plants and Facilities
Class Lvl 3: Springwells
Lookup Location: Springwells WTP

☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**


Picture

Project Engineer/Manager: Justin Kietur

Director: Grant Gartrell

Project Score
46.6

Problem Statement:

Powdered activated carbon (PAC) is added to the treatment process to control taste and odor issues in the raw water supply. Taste and odor issues are infrequent, but the existing PAC system is difficult to operate and maintain when called upon for use. A more operator friendly and easier to maintain system is needed. The plant is only able to feed PAC through extraordinary measures due to deficiencies in the system. These extraordinary measures create additional operations and maintenance expen...

Scope of Work/Project Alternatives:

Replacement of the existing powdered activated carbon system with a new system of a design that provides improved operations and maintainability when PAC dosing is needed.
The scope of work will generally include the following:
1)Repair of concrete and piping at the dry carbon delivery station and replacement of dust collectors.
2)Inspection of underground carbon slurry tanks and repair of damage to concrete and fiberglass lining.
3)Replacement of PAC transfer pumps and associated piping, ...

Other Important Info:

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$201	$0	$0	$0	$0	$0	$201
Study & Design & Construction Assistance # 1	$820	$0	$0	$0	$0	$0	$820
Construction (Build) # 1	$3,000	$0	$0	$0	$0	$0	$3,000

CIP Number: 114008

Project Title: Springwells Water Treatment Plant 1930 Sedimentation Basin Sluice Gates, Guides & Hoists Improvements

Project Status: Project Execution - Construction
Class Lvl 1: Water
Class Lvl 2: Treatment Plants and Facilities
Class Lvl 3: Springwells
Lookup Location: Springwells WTP

☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**


Updated project photo

Project Engineer/Manager: Peter Fromm

Director: Grant Gartrell

Project Score
52.8

Problem Statement:
Existing sedimentation basin gates, guides and hoists are early 1930s and are in need of replacement. Also, operation of the sluice gates in their existing condition and design does not meet current best practices for safe maintenance and operation.

Scope of Work/Project Alternatives:
This CIP project is being delivered under a design-build project delivery method and generally includes the following scope of work:
1. Demolition of the existing eight (8) 1930 sedimentation basins gates, guides, and hoist.
2. Installation of the new eight (8) 1930 sedimentation basins gates, guides, and actuators.
3. Concrete restoration within the four (4) 1930 sedimentation basins.
4. Concrete repairs to the air vents, access ramp, access hatches on top of the 1930 sedimentation basin...

Other Important Info:
Challenges: Work will require the 1930's plant to be shutdown during three low demand seasons to complete the work. This contractor will need to coordination with CON-170: Sludge Removal and Disposal for cleaning the sedimentation basins, SP-563, CON-253, and other construction projects to ensure that the system can handle the long duration shutdown.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$387	$112	$112	$138	$70	$67	$0	$0	$0	$137	$0
Design # 1	$11	$0	$0	$11	$0	$0	$0	$0	$0	$0	$0
Design-Build # 1	$13,526	$3,270	$3,270	$7,841	$2,415	$0	$0	$0	$0	$2,415	$0

CIP Number: 114010

Project Title: Springwells Water Treatment Plant, Yard Piping and High-Lift Header Improvements

Project Status: Active - Pre-Procurement - Design
Class Lvl 1: Water
Class Lvl 2: Treatment Plants and Facilities
Class Lvl 3: Springwells
Lookup Location: Springwells WTP

☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Erich Klun

Director: Grant Gartrell

Project Score
72.2

Problem Statement:

Six (6) of the seven (7) 72-inch mains leaving the site are original to the 1930 plant construction and consist of riveted steel pipe material. Main No. 7 is a prestressed concrete cylinder pipe material installed in 1958. The steel mains are known to be leaking and are in need of replacement to maintain system reliability. Additionally, isolation valves associated with the 72-inch mains need to be replaced because several are known to leak to the point where they are unable to isolate flow. It...

Scope of Work/Project Alternatives:

"This project consists of removal and replacement of the HPZ and IPZ discharge header piping and yard piping with additional replacement occurring outside the Springwell's Property to locations that minimize the number of isolation points required for work to be completed. The scope will be divided between IPZ and HPZ to maintain operations during construction. This project also includes misc. site infrastructure improvements such as the 12" Fire Loop, new guardhouse, secondary entrance off o...

Other Important Info:

E. Klun 8/28/20 update based on the outcome of AECOM's effort on CS-272 Task 71013A, Phase I is as follows:

The project will be delivered by multiple projects comprised of equipment procurement, DB construction, consultant services, and DBB construction contracts as follows:

1.Contract A, Procurement Contract for Header Sectional/Isolation Butterfly Valves – includes the procurement of large diameter, high-performance butterfly valves to be installed under Contract D.
2.Contract B, Pro...

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$1,472	$241	$241	$267	$68	$114	$57	$57	$57	$354	$610
Design & Construction Assistance # 1	$18,000	$0	$0	$0	$500	$2,500	$3,000	$1,000	$1,000	$8,000	$10,000
Construction (Build) # 1	$181,000	$0	$0	$0	$1,000	$2,000	$10,000	$15,000	$15,000	$43,000	$138,000

CIP Number: 114011

Project Title: Springwells Water Treatment Plant Steam, Condensate Return, and Compressed Air Piping Improvements

Project Status: Project Execution - Construction
Class Lvl 1: Water
Class Lvl 2: Treatment Plants and Facilities
Class Lvl 3: Springwells
Lookup Location: Springwells WTP

☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Maintenance building photo 1 of finished section of piping

Project Engineer/Manager: Brian VanHall

Director: Grant Gartrell

Project Score
0

Problem Statement:

The steam, condensate return, compressed air, and natural gas piping systems at the Springwells Water Treatment Plant need to be replaced to ensure overall reliability of the plant. These systems are original to the plant (i.e. from 1930s or 1950s) and are beyond their useful life. These existing steam and condensate systems are in poor condition and require multiple repairs each heating season due to frequent failures. These repairs often require taking the entire steam system out of service w...

Scope of Work/Project Alternatives:

This project is being delivered using a design-bid-build project delivery method. This engineering services contract involves designing a new, more energy-efficient steam heating system for the entire Springwells Water Treatment Plant, including all steam unit heaters, steam piping, condensate return piping, condensate return pumping stations, steam pressure reducing valves, and appurtenances. This project also involves replacing the compressed air piping in the plant used for service air. Once...

Other Important Info:

Many components of the existing system are original to the existing heating system, are not functioning and need to be demolished/removed. Seasonal work and sequencing with the heating season is required.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$526	$115	$115	$206	$101	$105	$0	$0	$0	$206	$0
Study & Design & Construction Assistance # 1	$1,385	$765	$765	$258	$289	$73	$0	$0	$0	$362	$0
Construction (Build) # 1	$23,629	$9,204	$9,204	$9,292	$4,983	$150	$0	$0	$0	$5,133	$0

CIP Number: 114012

Project Title: SPW WTP Water Treatment Plant 1930 Filter Building-Roof Replacement

Project Status: Closed
Class Lvl 1: Water
Class Lvl 2: Treatment Plants and Facilities
Class Lvl 3: Springwells
Lookup Location: Springwells WTP

☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Peter Fromm

Director: Paula Anderson

Project Score
0

Problem Statement:
The existing roof over the 1930 filters is leaking in places and poses water quality concerns due to roof leaks.

Scope of Work/Project Alternatives:
This project encompasses replacement of the existing 1930 Filter Building roofing system, including the built-up roofing material, flashing, roof drains/conductors and sealing cap stones to prevent water from penetrating the building envelop and causing water damage. Construction activity under Contract SP-563 in 2014-2015 revealed that water damage has been on-going and is causing clerestory window lintel deterioration. Additionally, construction traffic under Contract SP-563 has shown the bu...

Other Important Info:
Challenges: Seasonal construction work, and construction will require working around new rooftop equipment installed under SP-563.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs
GLWA Salaries	$11	$11	$11
Design-Build # 1	$3,900	$3,900	$3,900

CIP Number: 114013

Project Title: Springwells Water Treatment Plant, Reservoir Fill Line Improvements

Project Status: Project Execution - Construction
Class Lvl 1: Water
Class Lvl 2: Treatment Plants and Facilities
Class Lvl 3: Springwells
Lookup Location: SPW WTP
☐ **Project New to CIP:**

- ☐ **Innovation**
- ☐ **WW Master Plan**
- ☑ **Water Master Plan Right Sizing**
- ☑ **Redundancy**
- ☑ **NE WTP Repurposing**
- ☐ **Linear Assets Outside of Facilities**
- ☐ **Predecessor Project(s)**

Project Engineer/Manager: Erich Klun

Director: Grant Gartrell

Project Score
77.2

Problem Statement:
A new reservoir fill line to the Springwells Water Treatment Plant is needed to provide finished water to the Springwells high service area from the GLWA Southwest and Waterworks Park treatment plants while the Springwells raw water tunnel is rehabilitated under a separate contract. The new reservoir fill line will allow the Springwells high-lift pumping facility to operate and feed its high-pressure district while the treament works at Springwells are temporairly out of service. For example, t...

Scope of Work/Project Alternatives:
This project is being delivered under a design-bid-build project delivery method. The scope of work generally includes:
1. Designing the project.
2. Constructing the new reservoir fill piping, flow control energy disappaiting valves, valve vault, and appurtenances.
3. Connecting new piping to existing 72-inch diameter steel water transmission main.
4. Commissioning and testing the new reservoir filling facility.
5. Restoring the site.

E. Klun 8/20/20 updates as follows:
1. Add system w...

Other Important Info:
Potential delays due to isolation of 1926 main and coordination with CON-133 (WTP metering) requiring expercising and using old valves. Control of the reservoir filling operation by SCC with significant roles played by SWP, WWP, NEP and SPP operators.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$295	$233	$233	$62	$0	$0	$0	$0	$0	$0	$0
Design & Construction Assistance # 1	$359	$335	$335	$24	$0	$0	$0	$0	$0	$0	$0
Construction (Build) # 1	$4,271	$3,018	$3,018	$1,252	$0	$0	$0	$0	$0	$0	$0

CIP Number: 114016

Project Title: Springwells Water Treatment Plant 1958 Settled Water Conduits and Loading Dock Concrete Pavement Replacement

Project Status: Project Execution - Design
Class Lvl 1: Water
Class Lvl 2: Treatment Plants and Facilities
Class Lvl 3: Springwells
Lookup Location: Springwells WTP

☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Peter Fromm

Director: Grant Gartrell

Project Score
52

Problem Statement:

The existing concrete pavement that covers the 1958 settled water conduits has failed with significant concrete deterioration and corrosion of the reinforcement embedded steel. The condition of the concrete pavement has become much worse over the past 12 months. The condition of the concrete is poor and is crumbling in many major areas. The conditions in certain areas are such that there are now potential safety hazards to those who have to walk on the pavement. The plant chemists have to walk ...

Scope of Work/Project Alternatives:

This CIP project is being delivered under a design-bid-build project delivery method and generally includes the following scope of work:
1. Demolition of the existing concrete pavement that covers the 1958 settled water conduit and the loading dock.
2. Placement of new concrete pavement that covers the 1958 settled water conduit and the loading dock.
3. Demolition and installation of handrail around the 1958 settled water conduit.
4. Demolition of the existing concrete loading dock.
5....

Other Important Info:

Challenge: Equipment limitations on the settled water conduit and not damaging the structure concrete of the settled water conduit.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$411	$91	$91	$189	$66	$65	$0	$0	$0	$131	$0
Construction (Build) # 1	$1,870	$0	$0	$0	$500	$1,370	$0	$0	$0	$1,870	$0

CIP Number: 114017

Project Title: Springwells Water Treatment Plant Flocculator Drive Replacements

Project Status: Active - Procurement - Board Approved - Design
Class Lvl 1: Water
Class Lvl 2: Treatment Plants and Facilities
Class Lvl 3: Springwells
Lookup Location: Springwells WTP

☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Peter Fromm

Director: Grant Gartrell

Project Score
47

Problem Statement:
The existing flocculator drives, motors, and control panels are beyond useful service life.

Scope of Work/Project Alternatives:
This CIP will be delivered under a design-bid-build project delivery model. The scope of work will generally include the following:
1. Replacement of the existing flocculator drives, motors, and control panels.
2. Replacement of all drive shaft bearings and associated grease lines.
3. Replacement of access doors between the flocculator chambers
4. Replacement of ladder rungs into all flocculators.
5. Improvement of flocculation system related instrumentation and controls.

Other Important Info:
Implementation of this CIP project is being sequenced and coordinated with another Springwells WTP CIP project, namely the 1930 Sedimentation Basins Sluice Gate Improvements Project.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	5 Year Total
GLWA Salaries	$340	$1	$1	$154	$77	$85	$20	$2	$185
Design & Construction Assistance # 1	$1,893	$0	$0	$413	$244	$618	$618	$0	$1,480
Construction (Build) # 1	$10,125	$0	$0	$0	$50	$5,771	$4,304	$0	$10,125

CIP Number: 114018

Project Title: Springwells Water Treatment Plant - Service Building Electrical Substation and Miscellaneous Improvements

Project Status: Future Planned - Within 5 Year Plan
Class Lvl 1: Water
Class Lvl 2: Treatment Plants and Facilities
Class Lvl 3: Springwells
Lookup Location: Water Treatment Plants
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**


Picture

Project Engineer/Manager: Justin Kietur

Director: Terry Daniel

Project Score
53

Problem Statement:
The electrical substation located inside the Service Building provides electrical service to the entire service building including the filter wash water pumping units. The existing electrical substation is a double-ended unit that has experienced corrosion to its interior components and electrical cables. As a result the substation does not automatically switch-over during power trips and requires manual switch-over, which defeats the purpose of the automatic switch-over feature of the substati...

Scope of Work/Project Alternatives:
Project will be delivered using a design-build project delivery. The scope of improvements will generally include:
1. Replacement of the electrical substation in the 1958 Service Building
2. Connection of replacement electrical substation to Ovation for status monitoring
3. Replacement of electrical panel in 1930 plant and new conduit and cable runs to the associated equipment
4. Rehab of masonry on exterior of phosphoric acid fill station
5. Insulation of piping and pipe chase behind phos...

Other Important Info:

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	5 Year Total
GLWA Salaries	$282	$0	$0	$100	$80	$95	$7	$0	$182
Design-Build # 1	$1,263	$0	$0	$0	$0	$0	$0	$1,263	$1,263

CIP Number: 115001

Project Title: Water Works Park Water Treatment Plant Yard Piping, Valves and Venturi Meters Replacement

Project Status: Project Execution - Construction
Class Lvl 1: Water
Class Lvl 2: Treatment Plants and Facilities
Class Lvl 3: Water Works Park
Lookup Location: Waterworks Park WTP
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☑ **Water Master Plan Right Sizing**
☑ **Redundancy**
☑ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Timothy Kuhns

Director: Grant Gartrell

Project Score
65.4

Problem Statement:
The existing yard piping is 80-140 years old and requires replacement with new piping installed in a more efficient configuration.

Scope of Work/Project Alternatives:
This project is being delivered using a design-bid-build project delivery method. The scope of work generally includes:
1. Designing the project.
2. Removing existing yard piping, valves and buried venturi meters and related vaults.
3. Constructing new yard piping, valves, water production flow meters, buried valve and meter vaults, and related system equipment.
4. Connecting to existing transmission main piping.
5. Testing and commissioning the new main, valves and water production flow m...

Other Important Info:
This project is being coordinated with the new Waterworks Park to Northeast Transmission Main.

Challenges: Complicated sequence of construction, and demands of DWSD must be maintained along with coordination transmission system between Water Works Park and Northeast WTPs. Condition of existing valves required to complete the work is unknown. Complex construction staging is accounted for in the design to avoid loss of service and delays to the construction contract. Multiple line stops are in...

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$206	$57	$57	$51	$22	$22	$21	$22	$13	$99	$0
Study & Design & Construction Assistance # 1	$5,041	$2,333	$2,333	$321	$300	$300	$300	$300	$150	$1,350	$1,037
Construction (Build) # 1	$49,568	$0	$0	$4,000	$6,000	$6,000	$6,000	$6,000	$6,000	$30,000	$15,568

CIP Number: 115003

Project Title: Water Works Park Water Treatment Plant Comprehensive Condition Assessment

Project Status: Closed
Class Lvl 1: Water
Class Lvl 2: Treatment Plants and Facilities
Class Lvl 3: Water Works Park
Lookup Location: Waterworks Park WTP
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Michael Dunne

Director: Grant Gartrell

Project Score
0

Problem Statement:
A condition assessment of Waterworks Park Water Treatment Plant has not been completed since the 2004 reconstruction. Condition assessment is needed to identify critical assets in need of repair or replacement.

Scope of Work/Project Alternatives:
A condition assessment of Waterworks Park Water Treatment Plant has not been completed since the 2004 reconstruction. Continued and periodic inspection of the Water Treatment Plant is needed to maintain a reliable production system, especially given the reliance on Waterworks Park to provide finish water to the Northeast Service Area.

Other Important Info:
Contract No. 147 with Hubbell, Roth & Clark is underway.

Challenges: Coordinating shutdowns required for condition assessment inspections.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$19	$19	$19	$0	$0	$0	$0	$0	$0	$0	$0
Study # 1	$495	$495	$495	$0	$0	$0	$0	$0	$0	$0	$0

CIP Number: 115004

Project Title: Water Works Park Water Treatment Plant Chlorine System Upgrade

Project Status: Pending Closeout
Class Lvl 1: Water
Class Lvl 2: Treatment Plants and Facilities
Class Lvl 3: Water Works Park
Lookup Location: Waterworks Park WTP
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Michael Dunne

Director: Grant Gartrell

Project Score
0

Problem Statement:
The existing gas chlorine feed system has experienced numerous leaks and has compromised the safety of plant personnel. In addition, the chlorine gas leaks caused significant damage to all equipment inside the chlorine storage room. Secondary damage also occurred to equipment in adjacent rooms.

Scope of Work/Project Alternatives:
This project is being delivered under a design-bid-build project delivery method. The scope of work generally includes the following:
1. Removal of existing chlorine feed system, including evaporators, feeders and associated electrical, instrumentation and control equipment.
2. Installation of new chlorine evaporators, feeders, and associated electrical, instrumentation and control equipment.
3. Installation of new heating, ventilating and air-conditioning system equipment in the chlorine st...

Other Important Info:
Project History: The WWP facility began serving customers with finished water in 2003. More recently, the chlorine system has had one major leak and several minor leaks on a recurring and more frequent basis. Since chlorine is a highly toxic material, yet integral for providing finished water in accordance with the Safe Drinking Water Act, a study and design project was initiated under the CIP allowance as project CS-1721. This construction project will be based on the study and design conducte...

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$61	$61	$61	$0	$0	$0	$0	$0	$0	$0	$0
Design & Construction Assistance # 1	$924	$924	$924	$0	$0	$0	$0	$0	$0	$0	$0
Construction (Build) # 1	$5,908	$5,908	$5,908	$0	$0	$0	$0	$0	$0	$0	$0

CIP Number: 115005

Project Title: WWP WTP Building Ventilation Improvements

Project Status: Project Execution - Design
Class Lvl 1: Water
Class Lvl 2: Treatment Plants and Facilities
Class Lvl 3: Water Works Park
Lookup Location: Waterworks Park WTP
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Michael Dunne

Director: Terry Daniel

Project Score
76

Problem Statement:
The existing ventilation systems are not adequate for the chemical storage rooms, the ozone generator room, ozone destruct room, laboratory rooms, pilot plant rooms, flocculation and sedimentation rooms, and filter galleries at the Water Works Park Water Treatment Plant. Inadequate ventilation poses safety hazards to employees and visitors alike.

Scope of Work/Project Alternatives:
This project will be delivered using a design-bid-build project delivery method. The scope of work will generally include the following:
1) Design of the improved, new ventilation systems for the facility.
2) Selective removal of existing ventilation system equipment.
3) Construction of new mechanical ventilation systems.
4) Installation of electrical feeders for new mechanical ventilation equipment.
5) Installation of new instrumentation equipment for monitoring and alarms, including nec...

Other Important Info:
Operational components may be identified to reduce staff exposure and reduce complexity of ventilation system.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$155	$1	$1	$80	$36	$30	$7	$0	$0	$73	$0
Design & Construction Assistance # 1	$926	$0	$0	$300	$449	$92	$86	$0	$0	$626	$0
Construction (Build) # 1	$3,843	$0	$0	$0	$38	$1,499	$1,499	$400	$100	$3,536	$307

CIP Number: 115006

Project Title: Water Works Park Site/Civil Improvements

Project Status: Future Planned - Within 5 Year Plan
Class Lvl 1: Water
Class Lvl 2: Treatment Plants and Facilities
Class Lvl 3: Water Works Park
Lookup Location: Waterworks Park WTP
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Michael Dunne

Director: Grant Gartrell

Project Score
39.4

Problem Statement:
Many of the existing roadways and pedestrian sidewalks have substantial cracking, crumbling concrete and un-even surfaces whose condition becomes worse every year. The concrete bases for several portions of the site perimeter security fencing are also heavily deteriorated with crumbling concrete. Additionally, there is not sufficient employee and visitor parking space for the facility and new parking areas are needed to meet the needs of employees and visitors alike. Furthermore, there is no tr...

Scope of Work/Project Alternatives:
This project will be delivered using a design-build project delivery. The schedule is predicated on using AECOM's design build assistance services under its CIP Program Management Contract CS-272. The scope of work for this project generally includes the following:
1. Construct 30 car parking lot adjacent to plant employee lot.
2. Construct 20 car parking lot across from maintenance garage to serve as GLWA vehicle parking.
3. Construct 10 car parking lot across from engineering building to s...

Other Important Info:

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY26	5 Year Total	FY27+
GLWA Salaries	$239	$0	$0	$6	$6	$233
Design & Construction Assistance # 1	$1,321	$0	$0	$0	$0	$1,321
Construction (Build) # 1	$4,322	$0	$0	$0	$0	$4,322

CIP Number: 115007

Project Title: Water Works Park High Lift Pumping Station Modernization

Project Status: Future Planned - Within 5 Year Plan
Class Lvl 1: Water
Class Lvl 2: Treatment Plants and Facilities
Class Lvl 3: Water Works Park
Lookup Location: Waterworks Park WTP
☑ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**


High Lift Photo

Project Engineer/Manager: Michael Dunne

Director: Grant Gartrell

Project Score
54.4

Problem Statement:
In accordance with GLWA's Master Plan, the Northeast Water Treatment Plant is scheduled to be repurposed. Most of the water production and pumping burdens will be shifted to the Water Works Park Water Treatment Plant. There is an apparent need to identify opportunities and improve configurations, capacity, redundancy, electrical efficiency, instrumentation, monitoring and controls of the High Lift pumping system at Water Works Park.

Scope of Work/Project Alternatives:
This project will be delivered under a design-bid-build delivery method. In general, the scope will contain the following items:
1. Replace or re-engineer pumps and motors based on an evaluation of contemporary and future flow, pressure, and energy needs.
2. Replace or improve the current high-pressure water system to create a more robust process.
3. Improve ventilation in the pump room to allow pumping units to operate at proper working temperatures.
4. Replace or repair isolation gates i...

Other Important Info:
The current pumping system in the High Lift building at Water Works Park was constructed in the early 1960s. Now, 60 years later, it is necessary to realign Water Works Park's pumping system with contemporary and future flow, pressure, and energy requirements.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$502	$0	$0	$30	$30	$30	$30	$60	$181	$321
Design-Build	$88,444	$0	$0	$250	$500	$500	$750	$11,645	$13,645	$74,799

CIP Number: 116002

Project Title: Pennsylvania and Springwells Raw Water Supply Tunnel Improvements

Project Status: Project Execution - Design
Class Lvl 1: Water
Class Lvl 2: Treatment Plants and Facilities
Class Lvl 3: General Purpose
Lookup Location: Springwells, Northeast, & Pennsylvania raw water tunnels
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Nick Hoffman

Director: Grant Gartrell

Project Score
0

Problem Statement:

Significant structural distress in the form of cracking and ovality have been detected in the Pennsylvania, Northeast and Springwells raw water tunnels that deliver raw water to the Northeast and Springwells Water Treatment Plants. The extent and magnitude of the distress requires that these segments of tunnel be rehabilitated and restored to provide renewed structural integrity and consequently reliability.

Scope of Work/Project Alternatives:

This project is being delivered using a progressive design-build project delivery method. The scope of work generally includes supplemental remove operated vehicle (ROV) and personnel diver underwater, detailed investigations to determine the nature, magnitude and extent of total tunnel rehabilitation required. The detailed investigations are also used to collect sufficient information and data to determine the preferred design and construction approach best suited to the conditions identified ...

Other Important Info:

The tunnels are approximately 80 to 100 feet below ground surface. Dewatering the tunnels to repair them will create extensive stresses that must be considered prior to performing the work. Maintaining a supply of raw water to Springwells, Northeast and Water Works Park throughout construction to meet finished water production requirements/demands of the system. Specialized/complicated construction.

Project History: Portions of the Raw Water Tunnel system are approaching 100 years of servi...

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$202	$76	$76	$46	$22	$22	$21	$16	$0	$81	$0
Design-Build # 1	$94,678	$15,335	$15,335	$6,978	$8,338	$17,373	$23,282	$18,000	$5,372	$72,365	$0

CIP Number: 116005

Project Title: Belle Isle Seawall Rehabilitation

Project Status: Future Planned - Within 5 Year Plan
Class Lvl 1: Water
Class Lvl 2: Treatment Plants and Facilities
Class Lvl 3: Water Works Park
Lookup Location: Belle Isle Intake
☑ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**


Aerial image of Belle Isle intake structure and lagoon.

Project Engineer/Manager: Michael Dunne

Director: Terry Daniel

Project Score
39.2

Problem Statement:
The Belle Isle intake system is the source water entry point for three of the five GLWA water treatment plants. The intake is surrounded by a man-made dike system that creates a large lagoon on the northeast tip of Belle Isle. The dike system is showing signs of substantial erosion on the tip of the southern dike. Other areas on the southern dike are showing signs of erosion to a lesser degree. On the northern dike, vegetation is prominent that is likely to cause premature failures, if not ...

Scope of Work/Project Alternatives:
This design/build project will evaluate and recommend solutions to permanently correct ongoing erosion issues and current deficiencies that may result in future dike erosion and/or failure. The general scope will include.
1. Installing sheet piling, tie backs, and rip rap at the tip of the lagoon.
2. Removal of vegetation on north dike to prevent future damage.
3. Install armor stone where erosion is beginning, but not yet significant.
4. Grade and dress lagoon access road.

Other Important Info:
The Belle Isle lagoon, formed by the man-made dikes, was designed to prevent frazil ice from impeding water flow into the raw water tunnels. Continued erosion of the dike system will lead to short circuiting of the intake lagoon. The design intent of the lagoon, and its benefits, will be compromised and leave the raw water intake for three water treatment plants vulnerable.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY22	FY23	FY24	5 Year Total
GLWA Salaries	$92	$0	$0	$29	$31	$31	$92
Design-Build	$1,740	$0	$0	$290	$1,200	$250	$1,740

CIP Number: 116006

Project Title: Belle Isle Intake System Rehabilitation and Improvements

Project Status: Future Planned - Within 5 Year Plan
Class Lvl 1: Water
Class Lvl 2: Treatment Plants and Facilities
Class Lvl 3: Water Works Park
Lookup Location: Belle Isle
☑ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**


Belle Isle Photo

Project Engineer/Manager: Michael Dunne

Director: Terry Daniel

Project Score
46.2

Problem Statement:
The Belle Isle Intake structure and man-made lagoon were constructed in the 1930s. Periodic maintenance and improvements have taken place over the years to keep the building and lagoon in operating condition. As a result of recommendations from the State and CS-187 - Raw Water Condition Assessment, another such project is needed. The intake system has experienced a buildup of sediment in critical areas that needs to be removed, miscellaneous vegetation has grown on the dike system and needs ...

Scope of Work/Project Alternatives:
This CIP project will be delivered under a design-bid-build project delivery method and will generally include the following:
1. Removal of accumulated sediment in the intake building, emergency intake system, and tunnel system.
2. Electrical modernization on the intake grounds.
3. Architectural repairs to the intake building superstructure including, painting, masonry tuck-pointing, roofing, and stonework.
4. A code compliant emergency eyewash and shower station.
5. Roof structure to pro...

Other Important Info:
The intake system is the very first step in the water treatment process. A fully reliable and modern intake system is crucial in maintaining superior drinking water.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY23	FY24	5 Year Total
Design & Construction Assistance	$350	$0	$0	$300	$50	$350

CIP Number: 122003

Project Title: Water Works Park to Northeast Transmission Main

Project Status: Project Execution - Construction
Class Lvl 1: Water
Class Lvl 2: Field Services
Class Lvl 3: Transmission System
Lookup Location: WWP to NE WTP
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☑ **Water Master Plan Right Sizing**
☑ **Redundancy**
☑ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Timothy Kuhns

Director: Grant Gartrell

Project Score
62.4

Problem Statement:
The 2015 GLWA Water Master Plan update indicated that the regional system has significant excess capacity for water treatment compared to projected water demands. The analysis contained in the Water Mater Plan update indicated that for average day demand conditions, the five WTPs typically operate between 23 percent to 35 percent of the rated treatment capacity and for maximum day demand conditions, the five WTPs typically operate between 38 percent to 67 percent of the treatment rated capacity...

Scope of Work/Project Alternatives:
This project includes three separate construction phases for the completion of the overall water transmission system from Water Works Park to Northeast:
(1) Phase 1 - Construction of 84-inch yard piping and a Flow Control Facility at the Northeast site.
(2) Phase 2 - Construction of 4 miles of 81-inch water transmission main (WTM) from the Northeast site to I-94.
(3) Phase 3 - Construction of 6,000 feet of 60-inch/69-inch WTM along Hurlbut from I-94 to the intersection of Hurlbut/Sylvester.

Other Important Info:
Challenges: Construction of large diameter WTM in the road ROW north of I-94 and along Hurlbut south of I-94.
This project was recommended as part of the 2015 Water Master Plan Update to align treatment capacity with decreasing water demands.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$438	$158	$158	$57	$22	$22	$21	$22	$22	$108	$116
Phase #1	$26,078	$2,121	$2,121	$9,982	$11,978	$1,996	$0	$0	$0	$13,975	$0
Phase #2	$88,284	$0	$0	$558	$1,500	$4,308	$12,348	$11,648	$16,648	$46,450	$41,275
Phase #3	$28,418	$2,911	$2,911	$638	$1,093	$2,888	$2,166	$2,166	$5,026	$13,339	$11,530

CIP Number: 122004

Project Title: 96-inch Water Transmission Main Relocation and Isolation Valve Installations

Project Status: Project Execution - Design
Class Lvl 1: Water
Class Lvl 2: Field Services
Class Lvl 3: Transmission System
Lookup Location: Imlay Station to North Service Center
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Khader Hamad

Director: Grant Gartrell

Project Score
65.2

Problem Statement:
Project critical to providing isolation and redundancy to Lake Huron WTP supply, while protecting the water supply from potential contamination at the G&H Landfill. Project includes relocation around existing superfund landfill addition of isolation valves along the 96-inch water transmission main.

Scope of Work/Project Alternatives:
Relocate 2.5 miles of 96-inch transmission main currently located in an EPA NPL landfill, a portion of which is submerged in landfill leachate. Relocation includes crossing the Clinton River, coordination with many various authorities having jurisdiction and easement acquisition. Isolation valve installation portion of the project provides the ability to isolate segments of the 96-inch main between Imlay Station and North Service Center for maintenance while maintaining customer expected level ...

Other Important Info:
Challenges: Shutdown, continued customer service, isolation valve installations while maintaining the Lake Huron WTP supply to Rochester Station. Property acquisition will be required for the chesterfield temporary booster station and East Pond Creek discharge facility for relocation around the landfill.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$363	$129	$129	$57	$27	$22	$21	$22	$22	$114	$62
Study # 1	$28,321	$1,687	$1,687	$2,020	$2,550	$2,511	$2,511	$2,511	$2,511	$12,593	$12,022
Construction (Build) # 1	$116,168	$0	$0	$0	$0	$5,080	$8,093	$10,049	$10,049	$33,271	$82,897

CIP Number: 122005

Project Title: Schoolcraft Road Water Transmission Main

Project Status: Project Execution - Design
Class Lvl 1: Water
Class Lvl 2: Field Services
Class Lvl 3: Transmission System
Lookup Location: Schoolcraft water main
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☑ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Nick Hoffman

Director: Grant Gartrell

Project Score
42

Problem Statement:
We currently operate an existing 48-inch water transmission main on West Bound Schoolcraft Road. This existing PCCP transmission main was manufactured by Interpace Corporation which has a long-documented history of PCCP failures due to manufacturing means and methods of the pre-stressed wires. Due to excessive breaks over the years and the downstream effect on customers, we are improving the transmission system reliability and redundancy by installing a new 48-inch water transmission main on Ea...

Scope of Work/Project Alternatives:
Design and Construction of approximately 12,000 linear feet of new PCCP or Carbon Steel 48-inch water transmission main along Eastbound Schoolcraft service drive between Middlebelt and Beech Daly. Including isolation valves, blowoff's, valve vaults, manhole entrances and related appurtenances. Upon completion and tie-in of the new Eastbound Schoolcraft transmission main the existing will be abandoned in place.

Other Important Info:
Designed under CS-1488 by Somat Engineering

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$124	$52	$52	$57	$14	$0	$0	$0	$0	$14	$0
Design & Construction Assistance # 1	$711	$189	$189	$330	$192	$0	$0	$0	$0	$192	$0
Construction (Build) # 1	$14,491	$1,141	$1,141	$5,950	$7,400	$0	$0	$0	$0	$7,400	$0

CIP Number: 122006

Project Title: Wick Road Water Transmission Main

Project Status: Project Execution - Construction
Class Lvl 1: Water
Class Lvl 2: Field Services
Class Lvl 3: Transmission System
Lookup Location: Romulus
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Nick Hoffman

Director: Grant Gartrell

Project Score
54.2

Problem Statement:
Existing water main from Wick Station to Ypsilanti station has history of excessive breaks. Additionally, the main is the only primary connection between the two facilities with multiple community Master Meters along its alignment. A break in this line is disruptive to several communities dependent upon the failure location. The intent is to improve the transmission system reliability/redundancy by means of constructing a parallel 48-inch water main along Wick Road.

Scope of Work/Project Alternatives:
Design and Construction of the new 48-inch transmission main along Westbound Wick Road in Romulus, MI including isolation valves and interconnects that will tie-in with the existing main along the alignment. Completion of this project will alleviate pressures and potential transients between the two mains, as well as increase reliability/redundancies in the general area.

Other Important Info:

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$184	$129	$129	$46	$9	$0	$0	$0	$0	$9	$0
Design # 1	$1,274	$595	$595	$564	$114	$0	$0	$0	$0	$114	$0
Construction (Build) # 1	$20,962	$5,179	$5,179	$11,133	$4,651	$0	$0	$0	$0	$4,651	$0

CIP Number: 122007

Project Title: Merriman Road Water Transmission Main Loop

Project Status: Future Planned - Within 5 Year Plan
Class Lvl 1: Water
Class Lvl 2: Field Services
Class Lvl 3: Transmission System
Lookup Location: Merriman Rd, Marquette Rd to Lower Rouge River
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☑ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Jacob Mangum

Director: Grant Gartrell

Project Score
61.6

Problem Statement:
Currently, several member partners (served by master meters WL-08, WL-03, WL-01, WL-12, WY-01, RS-01, GC-03) are fed by a single 36-inch water transmission main along Michigan Avenue. Construction of this proposed Merriman Road transmission main will provide a second feed to these member partners and therefore provide redundancy. Additionally, construction of this proposed Merriman Road transmission main improves and reinforces water service delivery to the point where the Michigan Avenue Boost...

Scope of Work/Project Alternatives:
This project involves design and construction services associated with the installation of 2 miles of new 30-inch transmission main along Merriman Road between Lower Rouge River and Marquette Road. Alternatives evaluated included new main on either:
1. Hannon Road (rejected because of its poor route relative to other options)
2. Newburgh Road (rejected because it is not technically feasible as it will not meet contract pressures.
3. Merriman Road (accepted because it is superior in its trans...

Other Important Info:
None

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$396	$2	$2	$57	$27	$27	$27	$27	$27	$134	$202
Design & Construction Assistance # 1	$3,770	$0	$0	$0	$0	$0	$246	$863	$863	$1,973	$1,797
Construction (Build) # 1	$17,989	$0	$0	$0	$0	$0	$0	$0	$0	$0	$17,989

CIP Number: 122011

Project Title: Park-Merriman Road Water Transmission Main

Project Status: Project Execution - Construction
Class Lvl 1: Water
Class Lvl 2: Field Services
Class Lvl 3: Transmission System
Lookup Location: Venoy Road to Merriman Road to Michigan Ave. Booster Station.
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**


Updated photo

Project Engineer/Manager: Peter Fromm

Director: Grant Gartrell

Project Score
30.2

Problem Statement:
Currently, most of the wholesale master meters serving the cities of Wayne and Westland are fed off a single, "dead-end" transmission main, which provides no redundancy in service aside from customer lateral distribution opportunities. Additionally, Wayne, Westland and Inkster have deduct wholesale meters that are fed off the single, "dead-end" transmission main. Construction of this new 24-inch water main will create a loop for these member partners and thereby eliminate the single, "dead-end"...

Scope of Work/Project Alternatives:
This CIP project is being delivered under a design-bid-build project delivery method and generally includes the following scope of work:
1. Construction of 7,000 linear feet of 24-inch diameter ductile iron water transmission main, which includes 2 directional drills to install this main under the lower Rouge River, and 1 jack-and-bore to install this main under Michigan Avenue.
2. Constructing two new wholesale master meters and associated vaults for the city of Wayne.
3. Associated park im...

Other Important Info:
Challenges: Shutdowns to connect the two new meters with the City of Wayne. The water pressure during these two shutdowns will be reducers and coordination will need to take place with the City of Wayne, their residents and local businesses.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$188	$134	$134	$46	$8	$0	$0	$0	$0	$8	$0
Design & Construction Assistance # 1	$522	$458	$458	$63	$0	$0	$0	$0	$0	$0	$0
Construction (Build) # 1	$8,891	$4,630	$4,630	$4,261	$0	$0	$0	$0	$0	$0	$0

CIP Number: 122012

Project Title: 36-inch Water Main in Telegraph Road

Project Status: Closed
Class Lvl 1: Water
Class Lvl 2: Field Services
Class Lvl 3: Transmission System
Lookup Location: Telegraph Rd, Cherry Hill to Warren Ave
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Erich Klun

Director: Grant Gartrell

Project Score
0

Problem Statement:
Excessive joint leaks warrant replacement; new water line to be placed in greenbelt

Scope of Work/Project Alternatives:
This project includes installation of approximately 10,530 feet of 36-inch dia. water main in Telegraph Road from Cherry Hill to Warren Ave.

Other Important Info:
Challenges: N/A - Active

E. Klun 8/20/20 updates as follows:
1. None. Project closed out.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs
GLWA Salaries	$0	$0	$0
Design & Construction Assistance # 1	$567	$567	$567
Construction (Build) # 1	$9,304	$9,304	$9,304

CIP Number: 122013

Project Title: 14 Mile Transmission Main Loop

Project Status: Project Execution - Design
Class Lvl 1: Water
Class Lvl 2: Field Services
Class Lvl 3: Transmission System
Lookup Location: 8 Mile Rd/ I-275 to 14 Mile Rd/ Haggerty PS
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

14 Mile Loop Project Location

Project Engineer/Manager: Sara Mille

Director: Grant Gartrell

Project Score
58.4

Problem Statement:

The 14 Mile Transmission Main that currently serves West Bloomfield Township, Farmington Hills, Commerce Township, Novi, Walled Lake, and Wixom 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 14 Mile system to increase redundancy on this branch of the system.

Scope of Work/Project Alternatives:

Install approximately 8 Miles of 54-inch transmission main from 8 Mile Road to 14 Mile Road. It also includes construction of approximately 1 mile of new 24-inch parallel transmission main along 14 Mile from M-5 to west of Decker Road to reinforce the 14 Mile Transmission System.

The work will also include connections to the yard piping and reservoir fill line at the Haggerty Booster Station as well as control valves to regulate flows to and from the 14 Mile transmission main.

Other Important Info:

Project History: The 2015 Water Master Plan Update included a recommendation to evaluate options along this branch of the system to increase redundancy. Since that recommendation, GLWA Water Supply Operations Engineering performed a hydraulic analysis of redundancy alternatives for the 14 Mile Transmission System. The results of the hydraulic analysis was presented at the May 15, 2017 and September 19, 2017 Analytical Work Group Meetings and based on the discussion at these meetings, the Hagger...

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$289	$182	$182	$47	$22	$22	$16	$0	$0	$59	$0
Design & Construction Assistance # 1	$7,970	$3,576	$3,576	$1,242	$1,242	$1,242	$667	$0	$0	$3,151	$0
Construction (Build) # 1	$5,978	$0	$0	$4,775	$1,203	$0	$0	$0	$0	$1,203	$0
Construction (Build) # 2	$90,943	$0	$0	$0	$35,126	$35,126	$20,691	$0	$0	$90,943	$0

CIP Number: 122016

Project Title: Downriver Transmission Main Loop

Project Status: Project Execution - Design
Class Lvl 1: Water
Class Lvl 2: Field Services
Class Lvl 3: Transmission System
Lookup Location: Will be located on Inkster between Wick and Pennsylvania Road; on Allen Road/Dixie Highway between Pennsylvania Rd. and Ready Rd; and also at Electric Avenue.

☐ **Project New to CIP:**

- ☐ **Innovation**
- ☐ **WW Master Plan**
- ☐ **Water Master Plan Right Sizing**
- ☑ **Redundancy**
- ☐ **NE WTP Repurposing**
- ☐ **Linear Assets Outside of Facilities**
- ☐ **Predecessor Project(s)**

Project Engineer/Manager: Vittoria Hogue

Director: Grant Gartrell

Project Score
58.4

Problem Statement:
The Downriver Transmission Main that currently serves Brownstown, Riverview, Woodhaven, Trenton, Flat Rock, Gibraltar, Rockwood, South Rockwood, Berlin Township, and Grosse Isle 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. The number of users that would experience pressure loss would depend on the location of the break. This project would provide ...

Scope of Work/Project Alternatives:
This project will be delivered using a design-bid-build project delivery method. The scope of work generally includes: installing approximately 9 miles of 16-inch transmission main and 1 mile of 24-inch transmission main paralleling the existing Allen Road/Dixie Highway transmission main and install 4 miles of 30-inch transmission main along Inkster road between Wick and Pennsylvania road. This will provide redundancy to the Downriver communities of Brownstown, Riverview, Woodhaven, Trenton, Fl...

Other Important Info:
Completion of the Downriver Transmission main loop is predicated on acquiring ownership of a portion of 24-inch transmission main owned but not used by the City of Trenton. As of this CIP update, the acquisition of this Trenton main has been completed.

Project History: The 2015 Water Master Plan Update included a recommendation to evaluate options along this branch of the system to increase redundancy. Since that recommendation, GLWA Water Supply Operations Engineering performed a hydraulic...

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$198	$42	$42	$57	$26	$22	$21	$22	$7	$98	$0
Design & Construction Assistance # 1	$4,645	$183	$183	$1,625	$638	$570	$569	$1,059	$0	$2,836	$0
Construction (Build) # 1	$32,224	$0	$0	$0	$0	$6,891	$7,484	$7,463	$7,463	$29,301	$2,924

CIP Number: 122017

Project Title: 7 Mile/Nevada Transmission Main Rehab and Carrie/Nevada Flow Control Station

Project Status: Future Planned - Within 5 Year Plan
Class Lvl 1: Water
Class Lvl 2: Field Services
Class Lvl 3: Transmission System
Lookup Location:

☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☑ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Timothy Kuhns

Director: Grant Gartrell

Project Score
84.2

Problem Statement:

The primary driver of this project is to provide back up water service from Springwells WTP to the Water Works and Northeast Service Areas in case of loss of service to the Water Works Park WTP or Northeast WTP.
The secondary driver to this project is to support Northeast WTP repurposing by providing a second finished water supply main to the Northeast site to support maximum day demands for the Northeast service area, which can be as high as 190 MGD. With the upcoming decommissioning of treatm...

Scope of Work/Project Alternatives:

Project includes inspection and rehab of the 7 Mile/Nevada Transmission Main and construction of a new flow control station at Carrie/Nevada.

Other Important Info:

This project highlights the need to reinforce the transmission system in order to reliably provide service during existing conditions and after treatment is decommissioned at the Northeast WTP. This project would be completed regardless of whether the Northeast WTP treatment is decommissioned.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$288	$3	$3	$51	$22	$22	$21	$22	$22	$108	$126
Design-Build # 1	$59,901	$0	$0	$1,116	$1,922	$1,922	$4,763	$3,483	$13,341	$25,431	$33,353

CIP Number: 122018

Project Title: Garland, Hurlbut, Bewick Water Transmission System Rehabilitation

Project Status: Future Planned - Within 5 Year Plan
Class Lvl 1: Water
Class Lvl 2: Field Services
Class Lvl 3: Transmission System
Lookup Location: Transmission Mains
☐ **Project New to CIP:**

☑ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☑ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Timothy Kuhns

Director: Grant Gartrell

Project Score
89

Problem Statement:
A large proportion of the water transmission mains (WTM) within the City of Detroit were constructed between the decades of 1870 and 1930. Mains constructed during this period have exceeded their service life and will require replacement in the near term. Several WTM within this age of construction have strategic importance as they can be used to transmit flows between the Water Works Park WTP and the Northeast WTP.

Scope of Work/Project Alternatives:
This project involves rehab of WTM along Garland Street, Hurlbut Street, and Bewick Street between Jefferson Avenue and I-94 within the east side of the City of Detroit. This project will include a detailed condition assessment of these WTM to evaluate the appropriate rehabilitation method.

Other Important Info:
This project will be implemented concurrently with Phase 3 of CIP:122003 WWP to NE Transmision Main Project.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$456	$0	$0	$80	$32	$30	$30	$30	$30	$152	$224
Design-Build # 1	$53,646	$0	$0	$1,498	$1,498	$1,498	$1,498	$3,965	$3,965	$12,425	$39,723

CIP Number: 132003

Project Title: West Service Center Pumping Station, Isolation Gate Valves for Line Pumps

Project Status: Pending Closeout
Class Lvl 1: Water
Class Lvl 2: Systems Control Center
Class Lvl 3: Pump Station/Reservoir
Lookup Location: West Service Center
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Andrew Juergens

Director: Grant Gartrell

Project Score
0

Problem Statement:
There are six line pumping units in the main pump house at the West Service Center Booster Pumping Station. There are butterfly valves located on the suction side all six line pumps, and resilient seated gate valves on the discharge side of three of the six line pumps. Three of the line pumps do not have a valve on their discharge side and therefore no immediate means of isolation. The existing butterfly and resilient seated gate valves are all leaking and not reliable for isolating pumps. More...

Scope of Work/Project Alternatives:
This project is being delivered using a design-bid-build project delivery. The scope of work generally includes removing 6 existing butterfly valves from the pump suction piping and 3 existing gate valves from the high-pressure pumping system discharge piping; and providing 6 new double-disc gate valves on the pump suction piping and 6 new double disc gate valves on the pump discharge piping.

Other Important Info:
Challenges: Sequence of construction and meeting system demands will need to be coordinated with operations.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$56	$50	$50	$6	$0	$0	$0	$0	$0	$0	$0
Design & Construction Assistance # 1	$317	$212	$212	$106	$0	$0	$0	$0	$0	$0	$0
Construction (Build) # 1	$1,589	$1,483	$1,483	$106	$0	$0	$0	$0	$0	$0	$0

CIP Number: 132006

Project Title: Ford Road Pumping Station, Pressure and Control Improvements

Project Status: Project Execution - Construction
Class Lvl 1: Water
Class Lvl 2: Systems Control Center
Class Lvl 3: Pump Station/Reservoir
Lookup Location: Water Booster Pumping Stations
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☑ **Predecessor Project(s)**

Project Engineer/Manager: Eric Kramp

Director: Grant Gartrell

Project Score
43.4

Problem Statement:
Design of isolation, pressure and flow control equipment for efficient delivery of consistent pressures to wholesale customers at Ford Road water booster pumping station

Scope of Work/Project Alternatives:
The project generally consists of:
Replacing all pump suction butterfly valves with new triple offset high performance butterfly valves (10)
Replacing all control butterfly valves with new metal seated ball valves (10)
Replacement of the existing 16-inch cone valve-driven reservoir fill line a new 20-inch plunger valve controlled fill line
New 75 KW generator and appurtenances and related work.

Other Important Info:
The project is currently under construction, and is predecessor to any work along the Newburgh water main and Michigan Avenue Station. The two major observed challenges (isolation and procurement) have been overcome successfully. The next major element of the work is the installation of the control valves expected to begin in September 2020.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$122	$76	$76	$46	$0	$0	$0	$0	$0	$0	$0
Design & Construction Assistance # 1	$500	$441	$441	$59	$0	$0	$0	$0	$0	$0	$0
Construction (Build) # 1	$2,742	$1,367	$1,367	$1,375	$0	$0	$0	$0	$0	$0	$0

CIP Number: 132007

Project Title: Energy Management: Freeze Protection Pump Installation at Imlay Pump Station

Project Status: Project Execution - Design
Class Lvl 1: Water
Class Lvl 2: Systems Control Center
Class Lvl 3: Pump Station/Reservoir
Lookup Location: Imlay Pumping Station
☐ **Project New to CIP:**

- ☑ **Innovation**
- ☐ **WW Master Plan**
- ☑ **Water Master Plan Right Sizing**
- ☑ **Redundancy**
- ☐ **NE WTP Repurposing**
- ☐ **Linear Assets Outside of Facilities**
- ☐ **Predecessor Project(s)**

Project Engineer/Manager: Vittoria Hogue

Director: Grant Gartrell

Project Score
37.6

Problem Statement:
This CIP project will address two principle needs. The first is the need to replace an existing large pumping units with a smaller pumping unit for the purpose of recirculating finished water inside the station's reservoir. Recirculation of reservoir water is required during the low-demand season to maintain water quality. Recirculation of reservoir water using a smaller suitability sized pumping unit will reduce operating complexity and the possibility for damage to the larger pump units. The ...

Scope of Work/Project Alternatives:
This project is being delivered using a design-build project delivery method. The scope of work generally includes replacing one of Imlay Sation's 75 MGD pump's and 6,000 HP motor's with a smaller 22.5 MGD pump with 1,500 HP motor. The associated VFD, valves, piping and appurtenences will also be removed and replaced to accommodate the new smaller pump.

Other Important Info:
N/A

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$187	$121	$121	$46	$20	$0	$0	$0	$0	$20	$0
Design-Build # 1	$5,001	$47	$47	$928	$3,943	$84	$0	$0	$0	$4,026	$0

CIP Number: 132008

Project Title: Various Pumping Stations - Needs Assessment Study

Project Status: Closed
Class Lvl 1: Water
Class Lvl 2: Systems Control Center
Class Lvl 3: Pump Station/Reservoir
Lookup Location: Booster Pumping Stations
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Erich Klun

Director: Grant Gartrell

Project Score
0

Problem Statement:
Existing pumping stations were constructed in the 1960s and 1970s and most of the pumping units were sized to meet maximum hydraulic condition and perceived to be inefficient.

Scope of Work/Project Alternatives:
This project includes a comprehensive condition and needs assessment study of all water booster stations, exclusive of reservoirs. System wide modelling will confirm station decommissioning as recommended by the 2015 Water Master Plan Update. The condition assessments will include all engineering disciplines, with a focus on variable speed pumping applications to meet changing station demands, DTE rate incentive identification, station metering, valve and yard piping improvements and station by...

Other Important Info:
Challenges: Shutdown, operation and manpower required to cover the condition assessment inspections to complete the work.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs
GLWA Salaries	$100	$100	$100
Study # 1	$1,575	$1,575	$1,575

CIP Number: 132010

Project Title: West Service Center Pumping Station - Reservoir, Reservoir Pumping, and Division Valve Upgrades

Project Status: Project Execution - Design
Class Lvl 1: Water
Class Lvl 2: Systems Control Center
Class Lvl 3: Pump Station/Reservoir
Lookup Location: West Service Center
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Andrew Juergens

Director: Grant Gartrell

Project Score
54

Problem Statement:

Construction 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. The existing reservoirs at the West Service Center are in poor condition and continue to require periodic structural repairs despite numerous past repairs. Additionally, half of the existing reservoir pumps experience s...

Scope of Work/Project Alternatives:

This project is being delivered using a design-build project delivery method. The scope of work generally involves:
1. Rehabilitating Valve Vaults #1, #4, and #7.
2. Demolishing existing Valve Vault #3.
3. Constructing a new Valve Vault #3 containing a new 30-inch cone valve.
4. Demolishing two existing 10 MG reservoirs and the associated Reservoir Pump Houses #1 and #2, and the associated yard piping.
5. Constructing two new 5 MG reservoirs.
6. Constructing a new Reservoir Pump House, i...

Other Important Info:

Challenges: Water storage capacity and reservoir pumping capacity need to be maintained during construction. Sequence of construction and meeting system demands will need to be coordinated with operations. Construction of the new reservoirs is subject to the city of Southfield's zoning ordinances especially related to the height of the reservoirs.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$242	$111	$111	$48	$32	$32	$19	$0	$0	$84	$0
Design-Build # 1	$44,900	$2,038	$2,038	$5,219	$17,117	$19,895	$631	$0	$0	$37,643	$0

CIP Number: 132012

Project Title: Ypsilanti Booster Pumping Station Improvements

Project Status: Project Execution - Design
Class Lvl 1: Water
Class Lvl 2: Systems Control Center
Class Lvl 3: Pump Station/Reservoir
Lookup Location: Water Plants & Booster Pump Stations
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**


Existing Ypsi station

Project Engineer/Manager: Jorge Nicolas

Director: Grant Gartrell

Project Score
61.2

Problem Statement:
The Ypsilanti Booster Pumping Station does not have backup power generation and needs one in the event of a power loss to the site so that system pressure loss is avoided during these conditions. The entire station and its pumping and electrical system equipment are are original to the facility and are past their useful service life. The existing electrical system requires substantial maintenance to keep it in service. The existing pumps and motors are in poor condition and also require cumbers...

Scope of Work/Project Alternatives:
This project is being delivered using a design-bid-build project delivery method. The scope of work generally includes building a new booster pumping station that meets current water system demands, current building and electrical codes, and best industry practices for water pumping station design, operation and maintenance needs. The new station will be equipped with all new pumps, motors, drives, electrical switchgear, power distribution system, building mechanical, station passive bypass, an...

Other Important Info:
Impact to member partners

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$204	$36	$36	$57	$27	$22	$21	$22	$18	$110	$0
Study & Design & Construction Assistance # 1	$3,680	$297	$297	$557	$557	$470	$588	$586	$624	$2,825	$0
Construction (Build) # 1	$31,510	$0	$0	$0	$0	$6,226	$9,188	$9,163	$1,933	$26,510	$5,000

CIP Number: 132014

Project Title: Adams Road Pumping Station Improvements

Project Status: Future Planned - Within 5 Year Plan
Class Lvl 1: Water
Class Lvl 2: Systems Control Center
Class Lvl 3: Pump Station/Reservoir
Lookup Location: Adams Road BPS

☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Timothy Kuhns

Director: Grant Gartrell

Project Score
64.6

Problem Statement:

The Adams Road booster pumping station was constructed in 1971 and is nearing the end of its service life. Recent condition assessment of the station indicates that there are several needs at the site that need to be addressed due to aging infrastructure. Improvements required at the site include site drive improvements, site valve replacements, building sump replacement, site drain PS replacement, structural improvements, pumping system improvements, flow metering improvements, bypass upgrades...

Scope of Work/Project Alternatives:

This project will be delivered using a design-bid-build project delivery method. The scope of work generally includes reconstructing a new pumping station next to the existing station on the current site. The new station will be designed to bring it up to current building and electrical codes, industry standards, and best practices for operation and maintenance of pumping stations.

Other Important Info:

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$176	$0	$0	$22	$27	$26	$22	$22	$119	$58
Design & Construction Assistance # 1	$7,840	$83	$83	$181	$1,305	$1,131	$1,108	$1,108	$4,832	$2,925
Construction (Build) # 1	$44,848	$0	$0	$0	$0	$0	$0	$0	$0	$44,848

CIP Number: 132015

Project Title: Newburgh Road Booster Pumping Station Improvements

Project Status: Project Execution - Design
Class Lvl 1: Water
Class Lvl 2: Systems Control Center
Class Lvl 3: Pump Station/Reservoir
Lookup Location: Newburgh Road Booster Pumping Station
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Andrew Juergens

Director: Grant Gartrell

Project Score
56.6

Problem Statement:
Existing pumps, motors and electrical gear are beyond useful service life. The existing pump manufacturer has discontinued maintenance support of the pumps, increasing the difficulty and cost of maintenance. Additionally, a new transmission main will be designed to allow the Newburgh Station to pump flows to the Haggerty Station reservoir. The Haggerty reservoir fill operation may require additional pumps at the Newburgh Station that are rated to higher discharge pressures.

Scope of Work/Project Alternatives:
Construct a new Newburgh Road Booster Pumping Station, including new pumps, motors, VFDs, electrical gear, building mechanical equipment, and backup power generation. Alternatives include constructing a new Newburgh Road Booster Pumping Station on the existing site, expanding the existing site to accommodate a new station, or construction of the new station on a new site.

Other Important Info:
Challenges: The existing site is not large enough to construct the new Newburgh Station. Coordination with the 14-Mile Road Transmission Main Loop Contract will be required.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$161	$10	$10	$57	$27	$25	$21	$20	$0	$93	$0
Design & Construction Assistance # 1	$3,503	$340	$340	$794	$706	$341	$818	$505	$0	$2,369	$0
Construction (Build) # 1	$41,380	$0	$0	$0	$0	$2,000	$8,000	$12,000	$12,000	$34,000	$7,380

CIP Number: 132016

Project Title: North Service Center Pumping Station Improvements

Project Status: Future Planned - Within 5 Year Plan
Class Lvl 1: Water
Class Lvl 2: Systems Control Center
Class Lvl 3: Pump Station/Reservoir
Lookup Location: North Service Center
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Ariadna Risher

Director: Grant Gartrell

Project Score
58.2

Problem Statement:
The North Service Center was constructed in 1962 and is nearing the end of its service life.

Recent condition assessment of the station indicates that there are several needs at the site that need to be addressed due to aging infrastructure. Improvements required at the site include site drive improvements, site valve replacements, valve operator replacement, abandonment of pitot tube well, belt drain replacement, septic tank and well field replacement, electric room improvements, station w...

Scope of Work/Project Alternatives:
This project includes complete reconstruction of the North Service Center Pumping Station, and replacement of two ten million gallon reservoirs.

Other Important Info:
Proposed changes focus on optimization of energy efficiency in the system by removing waste and conserving energy already put into the system.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$689	$9	$9	$282	$173	$215	$4	$3	$3	$397	$1
Design & Construction Assistance # 1	$8,150	$257	$257	$0	$500	$1,512	$2,347	$1,234	$500	$6,093	$1,800
Construction (Build) # 1	$59,415	$0	$0	$0	$0	$0	$0	$1,010	$8,000	$9,010	$50,405

CIP Number: 132018

Project Title: Schoolcraft Pumping Station Improvements

Project Status: Future Planned - Within 5 Year Plan
Class Lvl 1: Water
Class Lvl 2: Systems Control Center
Class Lvl 3: Pump Station/Reservoir
Lookup Location: Booster Pumping Stations
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Eric Kramp

Director: Grant Gartrell

Project Score
56.6

Problem Statement:
Following the Pump Station Condition Survey and Needs Assesment, significant issues were observed in the Schoolcraft Pumping Station. This needs assesment has found several significant areas of necessary improvement to the station as described in the project scope fo work:

Scope of Work/Project Alternatives:
This project will be delivered using a design-bid-build project delivery method. The scope of work will generally include replacing existing pumps, motors, drives, electrical switchgear, motor control centers, valves, valve operators, yard piping, and yard valves with new infrastructure. Additionally, the underdrain system that serves the finished water reservoirs will either be rehabilitated in place or replaced with new.

Other Important Info:

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs
GLWA Salaries	$0	$0	$0
Design	$47	$47	$47

CIP Number: 132019

Project Title: Wick Road Pumping Station Improvements

Project Status: Future Planned - Within 5 Year Plan
Class Lvl 1: Water
Class Lvl 2: Systems Control Center
Class Lvl 3: Pump Station/Reservoir
Lookup Location: Romulus
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☑ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Vittoria Hogue

Director: Grant Gartrell

Project Score
68.4

Problem Statement:
Wick Pump Station is currently oversized based on the demands it experiences, has poor valve isolation capabilities and much of its equipment was installed in 1981 and is passed its useful service life. This project's intent is to right size the station and replace valves and other aging equipment.

Scope of Work/Project Alternatives:
This project will be delivered under a design-bid-build delivery method. This project's scope of work will be rightsizing the station's pumping capacity, improving valve control and isolation, and replacing and/or upgrading equipment that is at the end of its useful life. The improvements intended to right size the station include replacing reservoir pumping units and installing another small line pump (jockey pump) to accommodate low flow conditions. Valve control and isolation work will invol...

Other Important Info:
Refer to CS-052A Condition Assessment for additional details on the scope of project.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$286	$0	$0	$0	$13	$13	$273
Design & Construction Assistance # 1	$2,459	$57	$57	$0	$0	$0	$2,402
Construction (Build) # 1	$6,613	$0	$0	$0	$0	$0	$6,613

CIP Number: 132020

Project Title: Franklin Pumping Station Improvements

Project Status: Future Planned - Within 5 Year Plan
Class Lvl 1: Water
Class Lvl 2: Systems Control Center
Class Lvl 3: Pump Station/Reservoir
Lookup Location:
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Grant Gartrell

Director: Grant Gartrell

Project Score
64.6

Problem Statement:
The Franklin Booster Pumping Station was constructed in 1968 and is nearing the end of its service life.

Recent condition assessment of the station indicates that there are several needs at the site that need to be addressed due to aging infrastructure. Improvements required at the site include site drive improvements, sanitary holding tank improvements, site valve replacements, mezzanine valve access improvements, electrical room upgrades, building structure improvements, pumping improveme...

Scope of Work/Project Alternatives:
This project includes complete reconstruction of the Franklin Booster Station.

Other Important Info:

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY27+
GLWA Salaries	$272	$0	$0	$272
Design	$2,273	$93	$93	$2,179

CIP Number: 132021

Project Title: Imlay Pumping Station Improvements

Project Status: Future Planned - Within 5 Year Plan
Class Lvl 1: Water
Class Lvl 2: Systems Control Center
Class Lvl 3: Pump Station/Reservoir
Lookup Location: Imlay Pumping Station
☐ **Project New to CIP:**

☑ **Innovation**
☐ **WW Master Plan**
☑ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Eric Kramp

Director: Grant Gartrell

Project Score
58.2

Problem Statement:

Following completion of the 2018 Booster Station Condition Assessment, several significant issues have been documented at the Imlay Booster Station. In addition to the updates to the VFD systems identified in the FY 2020 CIP. Site/civil, mechanical, and electrical improvements have been identified far in excess of the initial 2020 CIP, including the complete replacement of all outdated electrical switchgear.

It was recently documented that approximatly half of the reservoir fill system is w...

Scope of Work/Project Alternatives:

Significant improvementst to the site/civil, mechanical, and electrical systems at the Imlay Booster Station. Highlights in each discipline are indentified as follows:
Site/Civil -- Replace crumbling retaining walls. Roofing rehabilitation
Pumping -- "Right size" remaining pump and motor units based on 2015 WMPU. Rehabilitate any pumping units that are determined to be correctly sized.
Mechanical -- Improvements to HVAC. Replacement or reinforcement of all station isolation gate and butterf...

Other Important Info:

VFD size is unusual in the marketplace and cooling systems are complex for the VFDs.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY27+
GLWA Salaries	$67	$0	$0	$67
Design	$683	$227	$227	$456

CIP Number: 132022

Project Title: Joy Road Pumping Station Improvements

Project Status: Future Planned - Within 5 Year Plan
Class Lvl 1: Water
Class Lvl 2: Systems Control Center
Class Lvl 3: Pump Station/Reservoir
Lookup Location: Joy Rd Water Pumping Station
☐ **Project New to CIP:**

- ☑ **Innovation**
- ☐ **WW Master Plan**
- ☐ **Water Master Plan Right Sizing**
- ☑ **Redundancy**
- ☐ **NE WTP Repurposing**
- ☐ **Linear Assets Outside of Facilities**
- ☐ **Predecessor Project(s)**

Project Engineer/Manager: Jacob Mangum

Director: Grant Gartrell

Project Score
56.6

Problem Statement:
The station is undersized with limited space for maintenance and personnel access. The main walkway inside the station is built on top of the discharge header and six stairways connected to it are non-code compliant. There is not enough room to install normal stairs. The electrical room addition was partially built on top of the pump station top slab and blocks access to the reservoir fill line valves. The pump station roof hatches leak and drip onto equipment below. The discharge header is hea...

Scope of Work/Project Alternatives:
Design contract will consider life-cycle costs of rehabilitating the current station versus building a new station on available land located to the south of the current station. A listing of the type of station improvements by discipline is provided below.
Site Drive Improvements - The existing site drive geometry needs to be improved to allow for a mobile crane or semi-trailer truck.
Site Drain Lift Station - Installation of a new site drain pump station next to existing with removal of the ...

Other Important Info:
There is space on the site for building a new pump station to the south of the existing.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$261	$0	$0	$57	$27	$27	$27	$22	$21	$124	$80
Design & Construction Assistance # 1	$3,352	$71	$71	$0	$250	$500	$500	$100	$53	$1,403	$1,877
Construction (Build) # 1	$36,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$36,000

CIP Number: 132026

Project Title: Franklin Pumping Station Valve Replacement

Project Status: Pending Closeout
Class Lvl 1: Water
Class Lvl 2: Systems Control Center
Class Lvl 3: Pump Station/Reservoir
Lookup Location: Booster Pumping Stations
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Mini Panicker

Director: Biren Saparia

Project Score
0

Problem Statement:
The existing gate valves and butterfly (suction) valves that service the four (4) line pumps and two (2) reservoir pumps in the Franklin Pumping Station have exceeded their useful life and are in need of replacement.

Scope of Work/Project Alternatives:
Scope of work is demolition and replacement of six (6) 24” manually operated gate valves, demolition and replacement of three (3) 24” and three (3) 30” manually operated butterfly (suction) valves, demolition and replacement of two (2) 30” electrically actuated butterfly (suction) valves and rebuild of the existing gate valves.

Other Important Info:
Just in kind replacement of valves. There is another CIP for the complete rebuild of the station. CIP 132020

Current Expenses (All figures are in $1,000’s)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$43	$11	$11	$32	$0	$0	$0	$0	$0	$0	$0
Construction (Build) # 1	$963	$810	$810	$153	$0	$0	$0	$0	$0	$0	$0

CIP Number: 170100

Project Title: Water Treatment Plant /Pump Station Allowance

Project Status: Cancelled
Class Lvl 1: Water
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location: WTPs and Boosters

☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Grant Gartrell

Director: Grant Gartrell

Project Score
0

Problem Statement:
This allowance is reserved for unplanned, emergency and critical project needs that need to be addressed quickly.

Scope of Work/Project Alternatives:
This project is an allowance for unplanned, critical projects that may occur at the Water Treatment Plants and Booster Pump Stations throughout the system. These projects may include repair, replacement or rehabilitation of key assets as required to allow the Authority to provide sufficient water quality, quantity and pressure to meet customer demands in accordance with federal and state requirements under the Safe Drinking Water Act.

Other Important Info:
Challenges: Close coordination with operations and ability to jump on needs.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs
GLWA Salaries	$0	$0	$0

CIP Number: 170102

Project Title: CS-1656: Flow Measurement

Project Status: Reclassified
Class Lvl 1: Water
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location:

☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Jorge Nicolas

Director: Grant Gartrell

Project Score
20

Problem Statement:
Design and Oversee construction of water production flow meters at Northeast, Southwest, and Springwells Water Treatment Plants.

Scope of Work/Project Alternatives:

Other Important Info:

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$40	$40	$40	$0	$0	$0	$0	$0	$0	$0	$0
Design & Construction Assistance # 1	$332	$332	$332	$0	$0	$0	$0	$0	$0	$0	$0

CIP Number: 170108

Project Title: DWS-063 Adam Roads Water Isolation Gate

Project Status: Closed
Class Lvl 1: Water
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location: Booster Pumping Stations
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Mini Panicker

Director: Biren Saparia

Project Score
20

Problem Statement:
Renovation and Upgrade Suction and Discharge Valves for Adams Road Water Booster Station.

Scope of Work/Project Alternatives:
None

Other Important Info:
Completed under an as-needed maintenance contract

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs

CIP Number: 170109

Project Title: GLWA-CS-187: FK Eng: Raw Water Intake

Project Status: Project Execution - Design
Class Lvl 1: Water
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location: WTPs and Boosters
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Nick Hoffman

Director: Grant Gartrell

Project Score
0

Problem Statement:
This allowance is reserved for unplanned, emergency and critical project needs that need to be addressed quickly.

Scope of Work/Project Alternatives:
This project is an allowance for unplanned, critical projects that may occur at the Water Treatment Plants and Booster Pump Stations throughout the system. These projects may include repair, replacement or rehabilitation of key assets as required to allow the Authority to provide sufficient water quality, quantity and pressure to meet customer demands in accordance with federal and state requirements under the Safe Drinking Water Act.

Other Important Info:
Challenges: Close coordination with operations and ability to jump on needs.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$50	$50	$50	$0	$0	$0	$0	$0	$0	$0	$0
Study # 1	$1,606	$1,606	$1,606	$0	$0	$0	$0	$0	$0	$0	$0

CIP Number: 170117

Project Title: Instrument Air Compressor

Project Status: Closed
Class Lvl 1: Water
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location:

☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Grant Gartrell

Director: Grant Gartrell

Project Score
20

Problem Statement:
Installation of new instrument air compressor system at Northeast Water Treatment Plant.

Scope of Work/Project Alternatives:

Other Important Info:

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs

CIP Number: 170120

Project Title: Phosphoric Acid SCP-CS-1692

Project Status: Closed
Class Lvl 1: Water
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location:

☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Shakil Ahmed

Director: Grant Gartrell

Project Score
20

Problem Statement:
Engineering Design and Construction Phase Services for the replacement of the existing phosphoric acid feed system equipment, replacement of chlorine feed system valves, and concrete restoration for the phosphoric acid secondary containment area.

Scope of Work/Project Alternatives:

Other Important Info:

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs
GLWA Salaries	$2	$2	$2

CIP Number: 170200

Project Title: As-Needed Construction Materials, Environmental Media and Special Testing Services, Construction Inspection, and Other Technical Services

Project Status: Project Execution - Design
Class Lvl 1: Water
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location: System-wide
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Peter Fromm

Director: Grant Gartrell

Project Score
0

Problem Statement:
GLWA engineering and operations need a contract mechanism to obtain professional engineering services in a timely manner to investigate environmental, geotechnical and specialized engineering problems that occur on a regular basis throughout the system.

Scope of Work/Project Alternatives:
This engineering/technical services contract involves as-needed engineering and technical services related to geotechnical investigations and related geotechnical engineering, construction materials sampling and testing, environmental media sampling and testing, soils sampling and testing, land surveying, corrosion testing and inspection, computer-aided design, and construction inspection.

Other Important Info:
N/A

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$27	$0	$0	$27	$0	$0	$0	$0	$0	$0	$0
Study & Design & Construction Assistance # 1	$1,400	$0	$0	$1,400	$0	$0	$0	$0	$0	$0	$0

CIP Number: 170300

Project Title: Water Treatment Plant Automation Program

Project Status: Project Execution - Construction
Class Lvl 1: Water
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location: Water Treatment Plants
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Jeffrey Dorsey

Director: Terry Daniel

Project Score
0

Problem Statement:
The automation design and construction project comes from recommendations that identified existing station process data conditions, station needs, GLWA mission critical assets, alternative improvement options to address identified needs, recommended improvements to address the needs, prioritized projects based on the GLWA CIP scoring tool, and scheduling for making the improvements along with associated capital improvement budgets associated with each project established under CS-108.

Scope of Work/Project Alternatives:
The purpose of this project is to implement the recommendations from CS-108 that are prioritized in five (5) year increments with an estimated cost of $1 million dollars per year over a twenty (20) year span.

Other Important Info:
Challenge: Standardization of multiple different data process equipment already installed throughout the 5 plants could be a problem.

Project History: The GLWA Water Operations division is comprised of five water treatment plants. Each plant has process areas ranging from intake, sedimentation, chlorination, filtration and distribution systems. One of the directives from the organizational objectives is to provide the treatment plants with automation. This automation would be one of the mai...

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	5 Year Total
TBD / Future Allocation / General Holding TBD	$13,249	$0	$0	$7,098	$6,151	$6,151

CIP Number: 170301

Project Title: Water Treatment Plant Automation

Project Status: Closed
Class Lvl 1: Water
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location:

☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Jeffrey Dorsey

Director: Terry Daniel

Project Score
20

Problem Statement:

Project was formerly 170113. This project will provide auditing and a condition assessment of process data networks at each water plant. Additionally, it will provide recommendations on the conductivity of each process area within those plants using the model of Ovation as supervisory monitoring and or control and PLC's for process control where applicable.

Scope of Work/Project Alternatives:

Other Important Info:

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	5 Year Total
GLWA Salaries	$0	$0	$0	$0	$0	$0	$0	$0	$0
Design	$0	$0	$0	$0	$0	$0	$0	$0	$0

CIP Number: 170302

Project Title: SW SCADA System Upgrade

Project Status: Project Execution - Design
Class Lvl 1: Water
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location:
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**


SW SCADA System Upgrade

Project Engineer/Manager: Jeffrey Dorsey

Director: Terry Daniel

Project Score
20

Problem Statement:
This project will upgrade SW WTP SCADA system.

Scope of Work/Project Alternatives:
The upgrade of network devices and removable of device net to the SCADA system.

Other Important Info:

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	5 Year Total
TBD / Future Allocation / General Holding	$9,000	$0	$0	$1,788	$3,606	$3,606	$7,212

CIP Number: 170303

Project Title: Power Monitoring Installation for Water Treatment Plants

Project Status: Active - Pre-Procurement - Design
Class Lvl 1: Water
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location:
☑ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Jeffrey Dorsey

Director: Terry Daniel

Project Score
0

Problem Statement:
Looking to achieve efficiency of our power usage at our water treatment plants.

Scope of Work/Project Alternatives:
This project will install power monitoring meters on electrical switch gear for critical pumping units at Water Works Park, Northeast, and Soutwest.

Other Important Info:

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	5 Year Total
TBD / Future Allocation / General Holding	$1,700	$0	$0	$1,186	$514	$514

CIP Number: 170400

Project Title: Water Transmission Improvement Program

Project Status: Future Planned - Within 5 Year Plan
Class Lvl 1: Water
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location: Transmission System
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☑ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Todd King

Director: Todd King

Project Score
0

Problem Statement:
Assessing, rehabilitating or replacing aging transmission mains in the water system

Scope of Work/Project Alternatives:
This project is a yearly funding allocation for the design and/or construction work for the rehabilitation or replacement/construction of aging water transmission lines and all appurtenances, connections and related structures.

Other Important Info:
O&M manuals, GIS, Section Maps and Gate Books are available for reference.

Project History: There are many critical assets that are required to be operated in the transmission system and this yearly allowance is needed to meet the critical needs of these assets.

Challenges: May require shut down of large pumps, isolation or shutdown of large mains etc.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$580	$0	$0	$49	$34	$34	$34	$34	$34	$170	$362
Design # 2	$96	$0	$0	$0	$0	$0	$0	$0	$0	$0	$96
Design # 3	$4,005	$0	$0	$0	$1,000	$1,000	$1,000	$1,000	$5	$4,005	$0
Construction (Build) # 2	$10,900	$0	$0	$0	$0	$0	$0	$0	$0	$0	$10,900
Construction (Build) # 6	$17,590	$0	$0	$0	$0	$0	$0	$0	$0	$0	$17,590

CIP Number: 170500

Project Title: Transmission System Valve Rehabilitation and Replacement Program

Project Status: Project Execution - Construction
Class Lvl 1: Water
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location: Transmission System Gate Valves
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☑ **Predecessor Project(s)**

Project Engineer/Manager: Todd King

Director: Todd King

Project Score
0

Problem Statement:
Replacement/Rehabilitation of GLWA Transmission System Gate Valves will aid in implementing a regular valve exercising program as recommended by AWWA as well as increase the reliability of the transmission system.

Scope of Work/Project Alternatives:
Evaluate the existing conditions, provide the necessary replacement/ rehabilitation option, design and implement them.

Other Important Info:
GIS, Section Maps and Gate Books are available for reference.

Project History: There are critical valves that are required to be closed during a main break or an emergency situation. There has not been a regular valve exercising program in past 15 years in the DWSD/GLWA System.

Challenges: May require shutdown of large transmission mains.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$510	$0	$0	$91	$42	$42	$42	$42	$26	$196	$223
Design # 1	$1,332	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,332
Design-Build # 1	$1,073	$0	$0	$190	$190	$190	$190	$190	$125	$884	$0
Construction (Build) # 3	$2,435	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,435

CIP Number: 170503

Project Title: TRANSMISSION SYSTEM VALVE REPLACEMENT

Project Status: Project Execution - Construction
Class Lvl 1: Water
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location: Transmission System Gate Valves
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Todd King

Director: Todd King

Project Score
0

Problem Statement:
Replacement/Rehabilitation of GLWA Transmission System Gate Valves will aid in implementing a regular valve exercising program as recommended by AWWA as well as increase the reliability of the transmission system.

Scope of Work/Project Alternatives:
Evaluate the existing conditions, provide the necessary replacement/ rehabilitation option, design and implement them.

Other Important Info:
GIS, Section Maps and Gate Books are available for reference.

Project History: There are critical valves that are required to be closed during a main break or an emergency situation. There has not been a regular valve exercising program in past 15 years in the DWSD/GLWA System.

Challenges: May require shutdown of large transmission mains.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	5 Year Total
GLWA Salaries	$72	$0	$0	$64	$7	$7
Construction (Build)	$10,000	$394	$394	$8,309	$1,298	$1,298

CIP Number: 170600

Project Title: Water Transmission Main Asset Assessment Program

Project Status: Future Planned - Within 5 Year Plan
Class Lvl 1: Water
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location: Transmission Mains
☐ **Project New to CIP:**

☑ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Todd King

Director: Todd King

Project Score
0

Problem Statement:
Many of the water mains serving the GLWA service area were installed in the early part of the 20th century or the later part of the 19th century, and are now reaching the end of their useful life span. This project will pilot and utilize new technologies to accurately identify the condition of these buried assets by constructing access ways for inspection and the installation of sensors and fiber optic cables for real-time monitoring of condition. It's essential for cost-efficient repair and r...

Scope of Work/Project Alternatives:
Construct access structures and utilize new technology to evaluate the existing conditions of the transmission system. Construction of in place sensors and cables may be necessary to adequately access condition. Provide the necessary recommendation for replacement and rehabilitation.

Other Important Info:
*Innovation Note: Consider new techniques for water main assessment.
GIS, Section Maps and Gate Books are available for reference.
Challenges: Gaining access to inspect buried pipes is difficult, disruptive and costly. However, there are ways to monitor and test the condition of the piping and methods of performing condition assessment.
Project History: There are many critical assets that are required to be operated in the transmission main, but the authority doesn't know the existing condi...

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$431	$0	$0	$52	$24	$24	$24	$24	$24	$121	$258
Design-Build # 1	$8,007	$0	$0	$0	$0	$501	$501	$2,001	$2,501	$5,506	$2,501

CIP Number: 170800

Project Title: System-Wide Finished Water Reservoir Inspection, Design and Rehabilitation

Project Status: Project Execution - Design
Class Lvl 1: Water
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location: LHP, SPP, SWP and IMC
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Erich Klun

Director: Grant Gartrell

Project Score
0

Problem Statement:
This project merges all CIPs associated with Reservoir Rehabilitation into a single, compreshensive CIP Project. This new project is being managed against a overall repair schedule to mitigate conflicts in the transmission system so as to minimize the impact for MDEQ Mandated inspections and repairs to GLWA Reservoirs at Booster Stations and Water Treatment Plants. ECK 7/2018

Adjust the cost of this CIP this fiscal year to account for the contract award amount for engineering services relate...

Scope of Work/Project Alternatives:
The project will provide inspection, rehabilitation, and maintenance for all 33 finished (potable) reservoirs in the GLWA system on a MDEQ mandated 5 year revolving inspection cycle.

Other Important Info:
Scope applies to the Lake Huron WTP (LHP), Springwells WTP (SPP), Southwest WTP (SWP) and the Imlay Pumping Station (IMC) reservoirs.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$127	$0	$0	$46	$22	$22	$21	$17	$0	$81	$0
Study & Design & Construction Assistance # 1	$2,700	$0	$0	$0	$300	$300	$300	$300	$300	$1,500	$1,200
Construction (Build) # 1	$21,000	$0	$0	$0	$0	$2,000	$3,000	$3,000	$3,000	$11,000	$10,000

CIP Number: 170801

Project Title:

Project Status: Project Execution - Design
Class Lvl 1: Water
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location:
☑ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Erich Klun

Director: Grant Gartrell

Project Score
0

Problem Statement:
CIP#170801 is the first in a series of facility improvements related to reservoirs at the water treatment plants and booster stations assigned to the System-Wide Finished Water Reservoir Inspection, Design and Rehabilitation Program under CIP#170800.

Scope of Work/Project Alternatives:
CIP#170801 is specifically related to inspection, design and construction of improvements to the reservoirs at the Springwells WTP, Southwest WTP, Lake Huron WTP and Imlay Station. CIP#170801 is currently being executed and is expected to be completed mid-FY25.

Other Important Info:
Inspection and design of improvements is being executed under Contract CS-151A held by Hazen.

Construction of improvements is being executed under Contract 1900744 held by Pullman SST, Inc.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Design/Engineering & Construction	$15,090	$0	$0	$8,420	$463	$2,075	$1,000	$1,000	$1,000	$5,538	$1,132

CIP Number: 170900

Project Title: Suburban Water Meter Pit Rehabilitation and Meter Replacement

Project Status: Project Execution - Construction
Class Lvl 1: Water
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location: Various meter locations in Transmission System
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Chandan Sood

Director: Chandan Sood

Project Score
0

Problem Statement:
Improving meter data reliability, ensuring accurate billing, improving customer service and allow high quality analysis of the system

Scope of Work/Project Alternatives:
The Proposed improvements should include the following; The replacements of meters that have surpassed their life expectancy, and or the current flow rates exceed the mechanical limits of the meter. Installing entrance hatches that allow safer ingress, and egress, and that can be locked for security. Sand blasting and painting of piping and walls. Waterproofing meter vaults to keep the ground water out. Provide a proper floor slope in meter chambers that allow water to settle in puddles. Repair...

Other Important Info:
Challenges: Requires temporary shutdown of the water supply through the meter.

Project History: Currently GLWA provides water service to 126 communities, and measures flows and volumes by the utilization of 290 wholesale water meters now in service; 17 of these meters are venturi-orifice type meters, 26 of these are dual venturi type meters, 48 of these single venturi type meters, 97 of these are magnetic flow type meters, and 102 of these are turbine or mechanical type meters. Meters were ...

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
TBD / Future Allocation / General Holding TBD	$40,719	$0	$0	$2,535	$1,159	$4,112	$4,113	$4,113	$4,113	$17,610	$20,573

CIP Number: 170901

Project Title: Suburban Water Meter Pit Rehabilitation and Meter Replacement

Project Status: Project Execution - Construction
Class Lvl 1: Water
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location: Various meter locations in Transmission System
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Chandan Sood

Director: Chandan Sood

Project Score
0

Problem Statement:
Improving meter data reliability, ensuring accurate billing, improving customer service and allow high quality analysis of the system

Scope of Work/Project Alternatives:
The Proposed improvements should include the following; The replacements of meters that have surpassed their life expectancy, and or the current flow rates exceed the mechanical limits of the meter. Installing entrance hatches that allow safer ingress, and egress, and that can be locked for security. Sand blasting and painting of piping and walls. Waterproofing meter vaults to keep the ground water out. Provide a proper floor slope in meter chambers that allow water to settle in puddles. Repair...

Other Important Info:
Challenges: Requires temporary shutdown of the water supply through the meter.

Project History: Currently GLWA provides water service to 126 communities, and measures flows and volumes by the utilization of 290 wholesale water meters now in service; 17 of these meters are venturi-orifice type meters, 26 of these are dual venturi type meters, 48 of these single venturi type meters, 97 of these are magnetic flow type meters, and 102 of these are turbine or mechanical type meters. Meters were ...

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$157	$1	$1	$121	$36	$0	$0	$0	$0	$36	$0
Construction (Build) TBD	$10,459	$4,529	$4,529	$3,128	$2,802	$0	$0	$0	$0	$2,802	$0

CIP Number: 170902

Project Title: Brownstown Meter Pit

Project Status: Active - Pre-Procurement - Construction
Class Lvl 1: Water
Class Lvl 2: Metering
Class Lvl 3: General Purpose
Lookup Location: Brownstown Township
☑ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Peter Fromm

Director: Chandan Sood

Project Score
0

Problem Statement:
BR-01 is a deduct meter pit that serves Brownstown Charter Township. Deduct meter pits are more difficult to track water usage. BR-01 will be abandon and BR-08 will be installed has a direct meter pit to Brownstown Charter Township.

Scope of Work/Project Alternatives:
Abandoning the existing BR-01 deduct meter pit with building a new direct meter pit BR-08 for serving Brownstown Charter Township. The new direct meter pit (BR-08) will have a new magnetic flow meter, 12-inch gate valves, and 8-inch check valve. There will be installation of 6-inch, 8-inch, and 12-inch piping for the new meter pit. There will be a new water pressure reducing valve vault for Brownstown Charter Township with only installing the piping in the vault.

Other Important Info:
None at this time.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	5 Year Total
GLWA Salaries	$365	$5	$5	$334	$21	$5	$26
Design & Construction Assistance	$456	$71	$71	$236	$148	$0	$148
Construction (Build)	$425	$0	$0	$0	$425	$0	$425

CIP Number: 171500

Project Title: Roof Replacement at WWP, SP, LH, NE, SW, NSC, Orion, Franklin, and Conner Creek Facilities

Project Status: Project Execution - Construction
Class Lvl 1: Water
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location:
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Nick Hoffman

Director: Grant Gartrell

Project Score
0

Problem Statement:
This design build project will replace roofing systems on GLWA water plants, water booster pumping stations and sewage pumping stations that were determined to need replacement over the next 5 to 7 years based on the CS-1674 Roofing Assesment Contract. Replacement is needed to protect the facilities interigty with regards to interiors, sensitive electrical equipment and process mechanical equipment vital to operations.

Scope of Work/Project Alternatives:
Tear off of existing roofing systems and replace with new roofing systems as follows:
Water Works Park- High Lift Building, standing metal seam roof, Raw Water Booster Pump Station, built-up roof
Springwells - Turbine House, built-up roof, 1930 Machine Room
Conner Sewage Lift Station, built-up roof
Franklin Water Booster Pump Station, built-up roof
Orion Water Booster Pump Station, standing metal seam roof

Other Important Info:
The total estimated replacement value (2016 dollars) of the 1,682,727 square feet of roofing at the water treatment plants, sewage pumping stations and water booster pumping stations is $33,142,054.

Project History: A condition assessment was performed and completed under Contract No. CS -1674 in 2016 that included all roofs located at GLWA's 5 water treatment plants, 19 water booster pumping stations and 11 sewage pumping stations. There were 268 separate roof sections totaling 1,682,727 s...

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$253	$0	$0	$84	$11	$11	$11	$11	$11	$54	$115
Design & Bid Assistance	$2,092	$0	$0	$0	$0	$314	$314	$0	$314	$942	$1,151
Design-Build # 1	$33	$0	$0	$33	$0	$0	$0	$0	$0	$0	$0
Design-Build # 2	$20,333	$0	$0	$269	$0	$2,766	$1,483	$359	$2,596	$7,203	$12,861

CIP Number: 171501

Project Title: Roof Replacements at SP, WWP,Orion,Franklin,and Conner Creek

Project Status: Project Execution - Construction
Class Lvl 1: Water
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location:
☑ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Nick Hoffman

Director: Grant Gartrell

Project Score
0

Problem Statement:
This design build project will replace roofing systems on GLWA water plants, water booster pumping stations and sewage pumping stations that were determined to need replacement over the next 5 to 7 years based on the CS-1674 Roofing Assessment Contract. Replacement is needed to protect the facilities integrity with regards to interiors, sensitive electrical equipment and process mechanical equipment vital to operations.

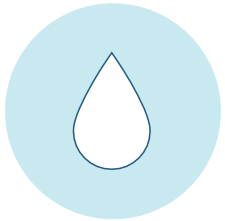
Scope of Work/Project Alternatives:
Tear off of existing roofing systems and replace with new roofing systems as follows:
Water Works Park- High Lift Building, standing metal seam roof, Raw Water Booster Pump Station, built-up roof Springwells - Turbine House, built-up roof, 1930 Machine Room
Conner Sewage Lift Station, built-up roof
Franklin Water Booster Pump Station, built-up roof
Orion Water Booster Pump Station, standing metal seam roof

Other Important Info:

Current Expenses (All figures are in $1,000's)

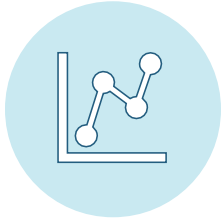
Activity Name	Total Costs	Actual Costs	Prior FYs	FY21
GLWA Salaries	$32	$32	$32	$0
Design-Build	$3,452	$3,184	$3,184	$269

WASTEWATER PROJECTS



70 PROJECTS

5-YEAR CIP
$738 Million



10-YEAR OUTLOOK
$1.4 Billion

FOR MORE: APPENDIX B

Find the full Business Case Evaluations for Wastewater Projects in Appendix B.

CIP Number: 211001

Project Title: WRRF Rehabilitation of Primary Clarifiers Rectangular Tanks, Drain Lines, Electrical/Mechanical Building and Pipe Gallery

Project Status: Project Execution - Construction
Class Lvl 1: Wastewater
Class Lvl 2: WRRF
Class Lvl 3: Primary Treatment
Lookup Location: WRRF

☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Phillip Kora

Director: Philip Kora

Project Score
0

Problem Statement:
Rehabilitation for meeting NPDES Permit and NEC requirements

Scope of Work/Project Alternatives:
The work to be completed under this project will include installing ventilation and atmospheric control for the pipe gallery, providing new lights and installing new fire alarm system. Rehabilitation of the twelve rectangular primary clarifiers and rehabilitation of circular primary clarifiers 15 and 16 are also part of the scope of this project.

Other Important Info:
Challenges: N/A - Active

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$767	$740	$740	$27	$0	$0	$0	$0	$0	$0	$0
Construction Assistance # 1	$1,790	$741	$741	$1,049	$0	$0	$0	$0	$0	$0	$0
Construction (Build) # 1	$51,504	$49,704	$49,704	$1,800	$0	$0	$0	$0	$0	$0	$0

CIP Number: 211002

Project Title: WRRF PS No. 2 Pumping Improvements - Phase 1

Project Status: Project Execution - Construction
Class Lvl 1: Wastewater
Class Lvl 2: WRRF
Class Lvl 3: Primary Treatment
Lookup Location: WRRF

☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Phillip Kora

Director: Philip Kora

Project Score
0

Problem Statement:
Correct drifting issues of pumps and meet long term wet weather capacity needs

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

Other Important Info:
Challenges: Unable to improve the drift issues experienced at pump station 2.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$174	$174	$174	$0	$0	$0	$0	$0	$0	$0	$0
Design & Construction Assistance # 1	$241	$241	$241	$0	$0	$0	$0	$0	$0	$0	$0
Construction (Build) # 1	$2,925	$1,599	$1,599	$1,326	$0	$0	$0	$0	$0	$0	$0

CIP Number: 211004

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

Project Status: Project Execution - Construction
Class Lvl 1: Wastewater
Class Lvl 2: WRRF
Class Lvl 3: Primary Treatment
Lookup Location: WRRF
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Phillip Kora

Director: Philip Kora

Project Score
0

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

Scope of Work/Project Alternatives:
The scope of work includes modifications and improvements of the existing grit and screening handling system at Pump Station 1 and MPI Sampling Station 1.

Other Important Info:
Challenges: N/A - Active

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$813	$798	$798	$15	$0	$0	$0	$0	$0	$0	$0
Construction (Build) # 1	$22,180	$9,935	$9,935	$12,245	$0	$0	$0	$0	$0	$0	$0
TBD / Future Allocation / General Holding TBD	$302	$302	$302	$0	$0	$0	$0	$0	$0	$0	$0

CIP Number: 211005

Project Title: WRRF PS No. 2 Improvements Phase II

Project Status: Future Planned - Within 5 Year Plan
Class Lvl 1: Wastewater
Class Lvl 2: WRRF
Class Lvl 3: Primary Treatment
Lookup Location: WRRF
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☑ **Predecessor Project(s)**


Main Raw Sewage Pumps at Pump Station 2

Project Engineer/Manager: Chris Wilson

Director: Dan Alford

Project Score
71

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

Scope of Work/Project Alternatives:
The preliminary scope of this project is to provide basis of design (study) report for rehabilitation/rebuilding plan for existing pump and its control and any associated equipment. The study will look into the addition of VFD to the three constant speed pumps. The study will not be limited to increasing the capacity of existing pumps to meet the long-term goal for wet weather capacity. The Scope also include: Provide engineering design for rehabilitation/rebuilding of the pumps, replacement...

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

Project History: Pump Station No. 2 was built in 1994. Seven out of eight pumps were running since 1994. These pumps never attained the design capacity due to an unidentified drifting problem. The eighth pump (Pump No. 10) was installed under PC-740 with a modified suction elbow that prov...

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$348	$0	$0	$10	$0	$0	$0	$57	$57	$115	$223
Study # 1	$3,449	$0	$0	$0	$0	$0	$0	$404	$404	$808	$2,641
Construction (Build) # 1	$10,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$10,000

CIP Number: 211006

Project Title: WRRF PS No. 1 Improvements

Project Status: Project Execution - Design
Class Lvl 1: Wastewater
Class Lvl 2: WRRF
Class Lvl 3: Primary Treatment
Lookup Location: WRRF
☐ **Project New to CIP:**

☑ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**


Pump Station 1

Project Engineer/Manager: Chris Wilson

Director: Dan Alford

Project Score
75

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

Scope of Work/Project Alternatives:
The study/design work will identify all major parts including impellers and wear rings to be refurbished for each pump and all related appurtenances. The construction services will provide rehabilitation and/or replacement as determined in the study and design along with the sequencing of pump shutdown throughout the rehabilitation period.
Investigation and evaluation of all the inlet gates, outlet gates and associated actuators, Motor Control Centers (MCCs) and other related equipment, HVAC s...

Other Important Info:
Challenges: Maintaining the adequate pumping capacity during construction.

Project History: GLWA operate two raw sewage pumping stations: PS-1 and PS-2, at the Water Resources Recovery Facility. Raw wastewater (influent) from the collection system flows to the Influent Pumping Station through the Detroit River Interceptor (16 feet in diameter), Oakwood Interceptor (12.5 feet in diameter) and North Interceptor East Arm (NIEA). The main Influent Pumping Station No. 1 (PS-1) was constructed in...

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$321	$30	$30	$90	$45	$26	$26	$26	$26	$149	$52
Study & Design & Construction Assistance # 1	$4,986	$1,254	$1,254	$533	$533	$533	$534	$533	$533	$2,666	$533
Construction (Build) # 1	$63,402	$0	$0	$0	$2,483	$7,428	$7,449	$6,640	$7,000	$31,000	$32,402

CIP Number: 211007

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

Project Status: Active - Procurement - Board Approved - Design
Class Lvl 1: Wastewater
Class Lvl 2: WRRF
Class Lvl 3: Primary Treatment
Lookup Location: WRRF
☐ **Project New to CIP:**

☑ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**


Pump Station 2, Grit channels

Project Engineer/Manager: Chris Wilson

Director: Dan Alford

Project Score
65.2

Problem Statement:
Replacement of all bar racks and associated equipment and addition of fine screens (1/4 inch) for more reliable and efficient screenings removal. Addition of screenings washing and compaction to reduce truck traffic and cost of disposal. Improvement of grit collection system with more efficient, state-of-the-art, grit collection and pumping system, and grit washing and classification to reduce truck traffic and cost of disposal. Improvements to the grit screenings and grit removal and handling ...

Scope of Work/Project Alternatives:
The work consists of evaluation, design and construction of the replacement of the existing bar racks and ancillary equipment and gates, addition of new fine screens (1/4 inch) downstream of the bar racks, addition of screenings washing and compaction, inclusion of stacked tray grit removal or other technology within the aerated grit tank and grit washing and/or classification. Work also includes the upgrade and expansion as necessary of the existing building that houses the screens and the scr...

Other Important Info:
*Innovation note: Include new grit removal equipment rather than replacement in kind (cyclonic).
The CIP Project Proposal – CIP 1314 – "Replacement of Bar Racks at Pump Station No. 2" and CIP Project Proposal – CIP 1223 – "Rehabilitation of Grit and Screening System at PS-2 and Rehabilitation of Sampling Sites at WWTP" are combined into one project under CIP 1314. That combined new budget for CIP 1314 (CIP 1223 and 1314) has a total amount of $11,617,000. The design of "Rehabilitation of Sampl...

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$329	$5	$5	$57	$57	$57	$47	$46	$46	$254	$12
Study & Design & Construction Assistance # 1	$15,501	$0	$0	$2,266	$2,246	$2,246	$2,252	$2,246	$1,864	$10,853	$2,382
Construction (Build) # 1	$60,399	$0	$0	$0	$0	$4,684	$15,874	$15,831	$13,142	$49,530	$10,869

CIP Number: 211008

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

Project Status: Active - Pre-Procurement - Construction
Class Lvl 1: Wastewater
Class Lvl 2: WRRF
Class Lvl 3: Primary Treatment
Lookup Location: WRRF
☐ **Project New to CIP:**

☑ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☑ **Predecessor Project(s)**

Ferric Chloride Storage and Containment Area

Project Engineer/Manager: Chris Wilson

Director: Dan Alford

Project Score
74.2

Problem Statement:
The Ferric Chloride Systems at PS-1 is used to reduce phosphorus to the required permit levels. The system, which includes chemical storage tanks, secondary containment, valves, and piping is in need of rehabilitation. The Complex B sludge lines are clogged due to Struvite and need rehabilitation/replacement.

Scope of Work/Project Alternatives:
The scope of work will include study design and construction for the ferric chloride feed system at PS-1. Specifically it will include: a study to evaluate alternative locations for application of ferric chloride, a pilot study to test alternative application points, and inspection of the existing chemical feed systems, a study to provide recommendations for system modifications and improvements, design of recommended system improvements, and construction of chemical feed system improvements. ...

Other Important Info:
*Innovation note: Align sizing & design with U of M phosphorus & enhanced carbon capture studies, as well as improved mixing of the ferric with primary influent.

Challenges: Maintaining capacity of the existing feed system during construction will be a challenge. Also, determining the simplest system that will meet current and future phosphorous limits for both primary and secondary effluent will be a challenge.

Project History: There are phosphorous effluent permit limits for both prim...

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$397	$136	$136	$204	$46	$11	$0	$0	$0	$57	$0
Study & Design & Construction Assistance # 1	$2,357	$1,494	$1,494	$396	$396	$72	$0	$0	$0	$467	$0
Construction (Build) # 1	$8,634	$0	$0	$2,829	$4,916	$889	$0	$0	$0	$5,805	$0

CIP Number: 211009

Project Title: WRRF Rehabilitation of the Circular Primary Clarifier Scum Removal System

Project Status: Future Planned - Within 5 Year Plan
Class Lvl 1: Wastewater
Class Lvl 2: WRRF
Class Lvl 3: Primary Treatment
Lookup Location: WRRF
☐ **Project New to CIP:**

☑ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**


Primary Circular Scum House, Inside

Project Engineer/Manager: Chris Wilson

Director: Dan Alford

Project Score
61.2

Problem Statement:
The circular clarifiers scum removal system is over 10 years old and need to be rehabilitated. They will help protect the secondary treatment process by preventing scum from entering the aeration tanks.

Scope of Work/Project Alternatives:
This project will provide for the study, design, and construction of new scum equipment in the Scum Buildings for the circular clarifiers. The study will consist of an evaluation of the existing process and simplified alternative systems for scum removal including the scum removal from the buildings. Future alternatives for scum disposal, such as addition to an anaerobic digestion process, will be considered. All alternatives will be evaluated for energy efficiency (reduction of electrical u...

Other Important Info:
*Innovation note: See project write-up -- evaluate alternatives for energy efficiency.

Project History: There are 12 rectangular PCs (1-12) and 6 circular PCs (13-18) clarifiers at the WRRF. PCs remove TSS, BOD, and phosphorous through a chemically enhanced settling process. The clarifiers also remove fats, oils, and grease (FOG or scum) by skimming the surface of the clarifiers and transporting the scum to a SB where it can be concentrated and pumped again to be hauled off site. The SBs fo...

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	5 Year Total
GLWA Salaries	$258	$3	$3	$62	$52	$51	$46	$44	$193
Study & Design & Construction Assistance # 1	$1,750	$0	$0	$181	$424	$424	$425	$296	$1,569
Construction (Build) # 1	$11,000	$0	$0	$0	$0	$2,265	$5,148	$3,587	$11,000

CIP Number: 211010

Project Title: Rehabilitation of Sludge Processing Complexes A and B

Project Status: Future Planned - Within 5 Year Plan
Class Lvl 1: Wastewater
Class Lvl 2: WRRF
Class Lvl 3: Primary Treatment
Lookup Location: WRRF
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**


Complex B, Basement

Project Engineer/Manager: Chris Wilson

Director: Dan Alford

Project Score
65

Problem Statement:
Both Complex A and Complex B have reached the end of their design life. The majority of the equipment for the two processes are located below grade in areas prone to flooding. Tanks are located above grade and have little to no access around the perimeter, this limits and reduces cleaning effectiveness. Both the valves and the pumps used to transfer sludge to the BDF are past their design life. Equipment breakage affects the plant ability to process sludge.

Scope of Work/Project Alternatives:
The work consists of evaluation, design and rehabilitation of both Complex A and Complex B. Scope to include tank repair to improving tank access and increase life, building and process repair to including structural, mechanical, process, electrical, and instrumentation replacement. Scope should focused on relocating the sludge pumps from below grade to above grade which could include new above grade structures and cross connecting pumps to allow for additional flexibility in feeding the BDF ...

Other Important Info:
Maintaining the MDEQ-NPDES required capacity during the construction phase of the project.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$446	$42	$42	$64	$42	$42	$42	$42	$167	$173
Study # 1	$1,370	$0	$0	$0	$0	$70	$245	$245	$560	$810
Construction (Build) # 1	$12,118	$0	$0	$0	$0	$0	$0	$1,709	$1,709	$10,409

CIP Number: 211011

Project Title: WRRF PS1 Screening and Grit Improvements

Project Status: Future Planned - Within 5 Year Plan
Class Lvl 1: Wastewater
Class Lvl 2: WRRF
Class Lvl 3: Primary Treatment
Lookup Location: WRRF
☐ **Project New to CIP:**

☑ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Chris Wilson

Director: Dan Alford

Project Score
64

Problem Statement:
Addition of fine screens (1/4 inch) for more reliable and efficient screenings removal. Addition of screenings washing and compaction to reduce truck traffic and cost of disposal. Improvement of grit collection system with more efficient, state-of-the-art, grit collection and pumping system, and grit washing and classification to reduce truck traffic and cost of disposal. Improvements to the grit screenings and grit removal and handling systems will improve the performance of all downstream pro...

Scope of Work/Project Alternatives:
The work consists of evaluation, design and construction of the addition of new fine screens (1/4 inch) downstream of the bar racks, addition of screenings washing and compaction, inclusion of stacked tray grit removal within the aerated grit tank and grit washing and/or classification. Work also includes the upgrade and expansion as necessary of the existing building that houses the screens and the screenings and grit handling and load out, including all lighting, HVAC, plumbing, electrical, a...

Other Important Info:
Maintaining the MDEQ-NPDES required capacity during the construction phase of the project. Coordination with the CIP Number 211006

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$303	$0	$0	$42	$57	$100	$203
Design & Construction Assistance # 1	$18,000	$0	$0	$0	$75	$75	$17,925
Construction (Build) # 1	$75,000	$0	$0	$0	$0	$0	$75,000

CIP Number: 212003

Project Title: WRRF Aeration System Improvements

Project Status: Closed
Class Lvl 1: Wastewater
Class Lvl 2: WRRF
Class Lvl 3: Secondary Treatment and Disinfection
Lookup Location: WRRF

☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Phillip Kora

Director: Philip Kora

Project Score
0

Problem Statement:
Improve aeration system and provide necessary inter-connections

Scope of Work/Project Alternatives:
The scope of work includes study, design, and construction assistance for the oxygen baffle on Bay 10 of A1 & A2 decks, replacement of influent, Return Activated Sludge (RAS) piping, isolation gate and valves for decks Nos. 3 & 4, replace RAS and influent magmeters for Intermediate Lift Pumps (ILP) Nos. 3, 4 & 7. The work also includes replacement of influent gates and operators on Aeration Deck No. 1 & 2.

Other Important Info:
Challenges: N/A

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$355	$355	$355	$0	$0	$0	$0	$0	$0	$0	$0
Study & Design & Construction Assistance # 1	$405	$405	$405	$0	$0	$0	$0	$0	$0	$0	$0
Construction (Build) # 1	$13,883	$13,883	$13,883	$0	$0	$0	$0	$0	$0	$0	$0

CIP Number: 212004

Project Title: WRRF Chlorination and Dechlorination Process Equipment Improvements

Project Status: Project Execution - Construction
Class Lvl 1: Wastewater
Class Lvl 2: WRRF
Class Lvl 3: Secondary Treatment and Disinfection
Lookup Location: WRRF

☐ **Project New to CIP:**

☑ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Phillip Kora

Director: Philip Kora

Project Score
0

Problem Statement:
The disinfection complex equipment condition has deteriorated because of the corrosive characteristics of the chemicals utilized in the operations of the area. This project is needed to restore equipment performance to OEM levels.

Scope of Work/Project Alternatives:
Scope of Work is to refurbish evaporators, chlorinators/sulfonators, replace regulating check valves, ejectors, process water valves, gas safety panels, compressors, gas flow meters, and all accessories and appurtenances. This proposed CIP budget is for construction only. The design and construction assistance services are budgeted through "As Needed Engineering Services Contract CS-1481, Task #23".

Other Important Info:
*Innovation note: Align with considerations of alternative disinfection.
The maintenance of the equipment hasn't been performed at the recommended intervals. Rebuilding the equipment and maintaining them according to OEM specifications would provide reliable performance.

Challenges: Chlorine and sulfur dioxide are both extremely hazardous toxic chemicals that can impact staff and the public if an uncontrolled gas release occurs. Maintaining staff safety, regulatory compliance, and meeting p...

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$109	$64	$64	$45	$0	$0	$0	$0	$0	$0	$0
Construction Assistance # 1	$351	$238	$238	$113	$0	$0	$0	$0	$0	$0	$0
Construction (Build) # 1	$5,282	$3,501	$3,501	$1,782	$0	$0	$0	$0	$0	$0	$0

CIP Number: 212006

Project Title: WRRF Rouge River Outfall (RRO) Disinfection (Alternative)

Project Status: Pending Closeout
Class Lvl 1: Wastewater
Class Lvl 2: WRRF
Class Lvl 3: Secondary Treatment and Disinfection
Lookup Location: Rouge River Outfall

☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Phillip Kora

Director: Philip Kora

Project Score
0

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

Scope of Work/Project Alternatives:
The consultant shall provide comprehensive professional services for project oversight and Owner's representation for the PC-797 RRO Disinfection Progressive Design-Build Contract. The scope of work consists of completing basis of design, design and construction services to develop and implement a solution that will result in 100% disinfection of wet weather flow discharged from WRRF to Detroit River outfall and Rouge River Outfall in order to meet NPDES Permit requirements.

Other Important Info:
Challenges: N/A - Under Procurement.

Project History: The DR0-2 Outfall was originally designed in 1998 under CS-1150, and construction began in 1999 under PC-709. Some surface construction work and substantial underground work were performed, including construction of the entrance shaft, two access shafts, six diffuser riser shafts in the Detroit River, and about half of the length of the tunnel. On April 23, 2003, uncontrollable high rates of ground water mixed with Hydrogen Sulfide (H2S)...

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$594	$594	$594	$0	$0	$0	$0	$0	$0	$0	$0
Construction (Build) # 1	$40,702	$40,702	$40,702	$0	$0	$0	$0	$0	$0	$0	$0
Construction Management # 1	$2,493	$2,493	$2,493	$0	$0	$0	$0	$0	$0	$0	$0

CIP Number: 212007

Project Title: WRRF Rehabilitation of the Secondary Clarifiers

Project Status: Future Planned - Within 5 Year Plan
Class Lvl 1: Wastewater
Class Lvl 2: WRRF
Class Lvl 3: Secondary Treatment and Disinfection
Lookup Location: WRRF

☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**


Secondary Clarifier

Project Engineer/Manager: Chris Wilson

Director: Dan Alford

Project Score
53.2

Problem Statement:
The secondary clarifiers need to be inspected and rehabilitated for certain components such as the rake arms.

Scope of Work/Project Alternatives:
This project will provide for inspection, study, design, and construction for refurbishing the secondary clarifiers. A key component will be the inspection of the concrete and the rake arms. Once the condition of these components is determined, alternatives will be evaluated, and the selected alternative will be designed and constructed. The scope will also include evaluating and designing isolation gates for the individual clarifiers. The B Houses have energy intensive HVAC units. These w...

Other Important Info:
Challenges: This will be a long-term project because only one or two clarifiers can be taken out of service at a time. Also, there may be different levels of rehabilitation for each clarifier depending upon the results of the inspection.

Project History: There are 25 secondary clarifiers at the GLWA WRRF. They have been rehabilitated in the past for other components such as RAS pumps, troughs and weirs, and center drives. It is time to refurbish some of the other key components.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$402	$0	$0	$10	$47	$47	$47	$50	$201	$200
Study & Design & Construction Assistance # 1	$1,974	$0	$0	$0	$77	$193	$193	$193	$655	$1,319
Construction (Build) # 1	$47,495	$0	$0	$0	$0	$0	$0	$3,073	$3,073	$44,422

CIP Number: 212008

Project Title: WRRF Aeration Improvements 1 and 2

Project Status: Project Execution - Design
Class Lvl 1: Wastewater
Class Lvl 2: WRRF
Class Lvl 3: Secondary Treatment and Disinfection
Lookup Location: WRRF

☐ **Project New to CIP:**

☑ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**


Aeration Basin 1 and ILP's 1 and 2

Project Engineer/Manager: Chris Wilson

Director: Dan Alford

Project Score
67.8

Problem Statement:
The ILPs convey primary effluent to the secondary bioreactors (aeration decks). These pumps have reached their useful life and are in need of replacement. The pump selection is integrally connected to improvements in the aeration decks related to the conversion to biological phosphorus removal, implementation of step feed and overall improved hydraulic control in the aeration decks and flow control through the secondary system. Implementation of biological phosphorus removal will reduce oxygen ...

Scope of Work/Project Alternatives:
The work consists of evaluation, design and construction of the replacement of ILPs 1 & 2, conversion of aeration decks 1 & 2 to incorporate biological phosphorus removal, including replacement of mixers in Bays 1, 2 and 3, relocation of the oxygen feed, and a new purge blower. Incorporation of step feed includes modification of the influent conditions to allow primary effluent to be directed to Bay 1, as well as two other locations down the length of the tank. Weir length will be increased to ...

Other Important Info:
Opportunity for a common header system to allow for any ILP to supply any bioreactor. If feasible provide ILPs that can meet the regulatory and dry weather needs without the need for speed control.

Challenges: Maintaining the required wet weather secondary capacity of 930 MGD while operating efficiently during dry weather flows.

Project History: ILP Station No. 1 houses ILP Nos. 1 and 2. The pumps are vertical turbine type each with a maximum capacity of 365 MGD and a motor size of 2,5...

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$1,163	$16	$16	$828	$82	$47	$47	$47	$47	$272	$47
Study & Design & Construction Assistance # 1	$16,467	$0	$0	$1,436	$2,484	$2,484	$2,491	$2,484	$2,382	$12,326	$2,705
Construction (Build) # 1	$64,301	$0	$0	$0	$0	$2,860	$16,885	$16,839	$16,147	$52,730	$11,571

CIP Number: 212009

Project Title: WRRF Aeration Improvements 3 and 4

Project Status: Future Planned - Within 5 Year Plan
Class Lvl 1: Wastewater
Class Lvl 2: WRRF
Class Lvl 3: Secondary Treatment and Disinfection
Lookup Location: WRRF

☐ **Project New to CIP:**

☑ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☑ **Predecessor Project(s)**

Aeration Basin 4, and ILP's 3, 4, and 7

Project Engineer/Manager: Chris Wilson

Director: Dan Alford

Project Score
67.8

Problem Statement:

The ILPs convey primary effluent to the secondary bioreactors (aeration decks). These pumps have reached their useful life and are in need of replacement. The pump selection is integrally connected to improvements in the aeration decks related to the conversion to biological phosphorus removal, implementation of step feed and overall improved hydraulic control in the aeration decks and flow control through the secondary system. Implementation of biological phosphorus removal will reduce oxygen ...

Scope of Work/Project Alternatives:

The work consists of evaluation, design and construction of the replacement of ILPs 3, 4 & 7, conversion of aeration decks 3 & 4 to incorporate biological phosphorus removal, including replacement of mixers in Bays 1 and 2, relocation of the oxygen feed, and a new purge blower. Incorporation of step feed includes modification of the influent conditions to allow primary effluent to be directed to Bay 1, as well as two other locations down the length of the tank. An assessment of reconfiguring de...

Other Important Info:

Maintaining the MDEQ-NPDES required capacity during the construction phase of the project.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$356	$0	$0	$52	$57	$110	$246
Design & Construction Assistance # 1	$15,250	$0	$0	$0	$1,181	$1,181	$14,069
Construction (Build) # 1	$57,983	$0	$0	$0	$0	$0	$57,983

CIP Number: 212010

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

Project Status: Future Planned - Within 5 Year Plan
Class Lvl 1: Wastewater
Class Lvl 2: WRRF
Class Lvl 3: Secondary Treatment and Disinfection
Lookup Location: WRRF

☐ **Project New to CIP:**

☑ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**


Chlorination Building, Inside

Project Engineer/Manager: TBD

Director: Dan Alford

Project Score
65

Problem Statement:
With the completion of the RRO Disinfection Project (CIP 212006), storage and feed of sodium hypochlorite to the primary effluent bypass with sodium bisulfite for dechlorination has been enabled. Elimination of the use of gaseous chlorine for disinfection of the secondary effluent and replacement with sodium hypochlorite will increase operator and public safety in and around the plant site.

Scope of Work/Project Alternatives:
The work consists of evaluation of sodium hypochlorite and sodium bisulfite usage over the first three years of operation of the new system to assess actual dosage required to achieve permit compliance and storage available with the existing system. The assessment will include preliminary design of modifications required to enable sodium hypochlorite feed to the secondary treatment effluent and an assessment of the storage requirements at varying sodium hypochlorite concentrations. The assessme...

Other Important Info:
None

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$309	$0	$0	$52	$57	$110	$200
Design & Construction Assistance # 1	$947	$0	$0	$0	$75	$75	$872
Construction (Build) # 1	$4,509	$0	$0	$0	$0	$0	$4,509

CIP Number: 213006

Project Title: WRRF Improvements to Sludge Feed Pumps at Dewatering Facilities

Project Status: Project Execution - Design
Class Lvl 1: Wastewater
Class Lvl 2: WRRF
Class Lvl 3: Residuals Management
Lookup Location: WRRF

☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**


Sludge Feed pump in Complex A

Project Engineer/Manager: Chris Wilson

Director: Dan Alford

Project Score
69.2

Problem Statement:
Improved sludge feed pumping system will provide wide range of operating conditions. Variable Frequency drive and Hydraulic drive units for SFP 1 and 2 are located below grade and the area has flooded. A single recycle valve for SFP 3 and 4 puts the plant at a higher risk for system outages.

Scope of Work/Project Alternatives:
The scope of work includes study, design, and construction for the replacement of sludge feed pumps SFP 1, 2, 3, 4, 5 and 6 and other modifications to the pumping system at the WRRF.

Other Important Info:
Challenges: Maintaining Plant Operational Capacity during construction.

Project History: Water Resource Recovery Facility (WRRF) has six (6) Sludge Storage Tanks (SST-1, 2, 3, 4, 5 &6), which feed sludge to the dewatering facilities (i.e. belt filter presses complexes and complex II centrifuges.) Typically, sludge from Storage Tanks 1 & 2 supplies the centrifuges on dewatering complex II upper level; sludge from Storage Tanks 3 & 4 supplies the centrifuges on the lower level of Dewatering...

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$211	$6	$6	$67	$57	$47	$33	$0	$0	$138	$0
Study & Design & Construction Assistance # 1	$820	$0	$0	$41	$285	$285	$209	$0	$0	$779	$0
Construction (Build) # 1	$3,459	$0	$0	$0	$0	$1,920	$1,539	$0	$0	$3,459	$0

CIP Number: 213007

Project Title: WRRF Modification to Incinerator Sludge Feed Systems at Complex -II

Project Status: Project Execution - Construction
Class Lvl 1: Wastewater
Class Lvl 2: WRRF
Class Lvl 3: Residuals Management
Lookup Location: WRRF
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Phillip Kora

Director: Philip Kora

Project Score
0

Problem Statement:
GLWA have an ongoing study and design of sludge cake conveyance system improvements project after the March 4, 2016 fire incident in Complex –II Incinerators building. The construction of this project will provide a cleaner, fire resistant, reliable and safe sludge feed to the incinerators.

Scope of Work/Project Alternatives:
The restoration of sludge conveying capacity, which was lost due to the fire damage and to provide improved sludge conveyance from each dewatering facility to the incinerators. Replacement of 19 MCCs and Replacement of the Unit Substation EB-26 in Incineration Complex II.

Other Important Info:
Challenges: Maintaining the sludge conveyance capacity to meet permit requirements during the construction of these improvements, will be the most significant challenge on this project.

Project History: The C-II Incineration complex is over 40 years old. Major rehabilitation had been deferred over the years in anticipation of an alternative Biosolids disposal solution to handle all the solids. The Complex-II have many major pieces of equipment that are nearing the end of their useful life a...

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$539	$391	$391	$93	$55	$0	$0	$0	$0	$55	$0
Study & Design & Construction Assistance # 1	$2,086	$797	$797	$811	$478	$0	$0	$0	$0	$478	$0
Construction (Build) # 1	$19,537	$14,231	$14,231	$3,339	$1,967	$0	$0	$0	$0	$1,967	$0

CIP Number: 213008

Project Title: WRRF Rehabilitation of the Ash Handling Systems

Project Status: Future Planned - Within 5 Year Plan
Class Lvl 1: Wastewater
Class Lvl 2: WRRF
Class Lvl 3: Residuals Management
Lookup Location: WRRF
☐ **Project New to CIP:**

☑ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**


Incineration Complex II, Ash System

Project Engineer/Manager: Chris Wilson

Director: Dan Alford

Project Score
57.8

Problem Statement:
The ash systems convey and store ash for ultimate disposal. The incinerators cannot be used if both the systems are not working.

Scope of Work/Project Alternatives:
The scope of work will include study, design, and construction for the rehabilitation of the wet and dry ash systems. The scope will also include the piping, valves, isolation gates, vacuum pumps, air filters, HVAC, boilers, miscellaneous silo repairs (concrete, access, etc.) site work and drainage, and miscellaneous structural repairs (foot bridge, spalling concrete, etc.) at the dry ash handling system. It will also include the pumps, piping, and sluicing system at the wet ash system.

Other Important Info:
*Innovation note: Due to only 10-15 years remaining useful life on Complex I, reconsider recommissioning wet ash. Recom.

Project History: The C-I and C-II Incinerators have been the primary source for processing Biosolids at the GLWA WRF since the plant was first built. The original ash handling system was a wet ash/sluicing process. The dry ash system was constructed in the 1960s and expanded with the construction of the C-II Incinerators in the 1970s. The wet ash system has not been in us...

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$272	$17	$17	$40	$40	$40	$33	$33	$33	$181	$33
Study # 1	$1,960	$94	$94	$311	$255	$255	$256	$255	$255	$1,275	$280
Construction (Build) # 1	$6,200	$0	$0	$0	$0	$0	$164	$1,230	$3,690	$5,084	$1,116

CIP Number: 214001

Project Title: WRRF Relocation of Industrial Waste Control Division and Analytical Laboratory Operations

Project Status: Project Execution - Construction
Class Lvl 1: Wastewater
Class Lvl 2: WRRF
Class Lvl 3: Industrial Waste Control
Lookup Location: System Wide
☐ **Project New to CIP:**

- ☐ **Innovation**
- ☐ **WW Master Plan**
- ☐ **Water Master Plan Right Sizing**
- ☑ **Redundancy**
- ☐ **NE WTP Repurposing**
- ☐ **Linear Assets Outside of Facilities**
- ☐ **Predecessor Project(s)**

Project Engineer/Manager: Phillip Kora

Director: Philip Kora

Project Score
0

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

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

Other Important Info:
Challenges: Maintaining the laboratory operations during relocation.

Project History: In accordance with the NPDES Permit, GLWA implements and enforces an Industrial Pretreatment Program (IPP), and regulates the discharge of wastewater from commercial and industrial sources throughout the service area. A key component of the IPP includes the performance of analytical testing on wastewater samples collected from industrial and commercial sources, in-system samples from the sewer system and...

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$202	$133	$133	$69	$0	$0	$0	$0	$0	$0	$0
Design & Construction Assistance # 1	$950	$950	$950	$0	$0	$0	$0	$0	$0	$0	$0
Construction (Build) # 2	$11,499	$9,501	$9,501	$1,998	$0	$0	$0	$0	$0	$0	$0

CIP Number: 216004

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

Project Status: Project Execution - Construction
Class Lvl 1: Wastewater
Class Lvl 2: WRRF
Class Lvl 3: General Purpose
Lookup Location: WRRF
☐ **Project New to CIP:**

☑ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Phillip Kora

Director: Philip Kora

Project Score
0

Problem Statement:
Rehabilitation of the sampling facilities will improve system reliability and allow for consistent and accurate sampling. This will help to submit an accurate report to MDEQ. The rehabilitation of Ferric Chloride system will improve the phosphorous removal to comply with the Permit.

Scope of Work/Project Alternatives:
The scope of work includes:
Replacement of existing sampling equipment, installing new samplers, pumps, piping, housing and support equipment such as I&C, HVAC, etc. at the various sampling sites.
The scope also include:
Replacement of existing two steel Ferric Chloride tanks at PS#2 with four (4) smaller tanks.
Provide new piping layout, gravity feed, and self-cleaning strainer.
Rehabilitate Ferric Chloride Unloading station, associat...

Other Important Info:
*Innovation note: Rehab may include alternative online/real-time sampling & analysis, as well as improved mixing of the ferric with primary influent.
The original CIP Project Proposal CIP-1223, “Rehabilitation of Grit and Screening System at PS-2 and Rehabilitation of Sampling Sites at WWTP” included two major scope items; Rehabilitation of Grit & Bar Screening System and Sampling Stations. That construction budget for CIP-1223 amount $11 M was set aside in CIP. The design for Grit & Screenin...

Current Expenses (All figures are in $1,000’s)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$162	$105	$105	$29	$29	$0	$0	$0	$0	$29	$0
Construction Assistance # 1	$921	$778	$778	$96	$47	$0	$0	$0	$0	$47	$0
Construction (Build) # 1	$5,562	$755	$755	$4,807	$0	$0	$0	$0	$0	$0	$0

CIP Number: 216006

Project Title: Assessment and Rehabilitation of WRRF yard piping and underground utilities

Project Status: Project Execution - Design
Class Lvl 1: Wastewater
Class Lvl 2: WRRF
Class Lvl 3: General Purpose
Lookup Location: WRRF
☐ **Project New to CIP:**

☑ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**


Secondary Area

Project Engineer/Manager: Chris Wilson

Director: Dan Alford

Project Score
76.4

Problem Statement:
Yard piping and underground utilities are vital to the operations of the WRRF. The integrity of these systems will be maintained with this project. The Secondary Water system needs to be relocated or completely refurbished to provide uninterrupted water for fire protection and process applications such as seal water to the pumps. Some of the yard piping is original to the plant and requires a condition assessment.

Scope of Work/Project Alternatives:
This project will include the study, design, and construction for the needed improvements to yard piping and underground utilities. This includes right sizing, as-built confirmation and condition assessment of our yard piping and underground utilities. It is possible that the secondary water system may need to be relocated. The distribution models for the water systems will also be updated. A redundant potable water feed to the WRRF will also be evaluated.

Other Important Info:
Reliable utility is a critical aspect of O&M for the facility and to avoid outages.

Project History: Some of the pipe lines at the WRRF have been inexistence since the plant was built and have been found on record dating back to 1938. As the plant has grown, so have the systems. In general, the majority of the changes to the multiple systems occurred when the specific buildings or components to the plant were built or renovated. Therefore, an evaluation and necessary replacement of these p...

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$467	$44	$44	$218	$57	$55	$46	$46	$1	$205	$0
Design & Construction Management # 1	$2,408	$29	$29	$362	$501	$501	$502	$501	$11	$2,016	$0
Construction (Build) # 1	$21,000	$0	$0	$0	$0	$2,302	$9,260	$9,235	$202	$21,000	$0

CIP Number: 216007

Project Title: DTE Primary Electric 3rd Feed Supply to WRRF

Project Status: Project Execution - Construction
Class Lvl 1: Wastewater
Class Lvl 2: WRRF
Class Lvl 3: General Purpose
Lookup Location: WRRF
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Phillip Kora

Director: Philip Kora

Project Score
0

Problem Statement:
The scope of this project includes design and construction of 3rd 120 KV primary electric supply transmission line (design, build and maintain 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 per the agreement between DTE and GLWA dated May 2, 2019. GLWA is responsible to secure the property right-of-way from the property owners as well as environmental remediation and cleanup including hauling and disposal of any soil.

Scope of Work/Project Alternatives:
GLWA also is responsible to provide the connection from the service point (last steel pole installed by DTE) to GLWA's equipment on GLWA's property. This primary transmission power line will energize the already installed new 120-13.8 industrial substation owned by GLWA near EB-1.

Other Important Info:
Challenges: Negotiation with private property owners and testing of the automatic switch over will require co-ordination with operations. Keep everything in this section except the last sentence 'In order to speed design and construction GLWA is proposing a design-build project'. Delete that last sentence and replace with 'GLWA and DTE has renegotiated the agreement and executed the new agreement on May 2, 2019'.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	5 Year Total
GLWA Salaries	$77	$31	$31	$31	$15	$15
Design & Construction Assistance # 1	$40	$40	$40	$0	$0	$0
Construction (Build) # 1	$4,427	$2,827	$2,827	$1,222	$378	$378

CIP Number: 216008

Project Title: Rehabilitation of Screened Final Effluent (SFE) Pump Station

Project Status: Active - Procurement - Negotiation Phase - Design
Class Lvl 1: Wastewater
Class Lvl 2: WRRF
Class Lvl 3: General Purpose
Lookup Location: WRRF
☐ **Project New to CIP:**

- ☑ **Innovation**
- ☐ **WW Master Plan**
- ☑ **Water Master Plan Right Sizing**
- ☐ **Redundancy**
- ☐ **NE WTP Repurposing**
- ☐ **Linear Assets Outside of Facilities**
- ☐ **Predecessor Project(s)**


SFE Building, Basement

Project Engineer/Manager: Chris Wilson

Director: Dan Alford

Project Score
55.8

Problem Statement:
The SFE Pump Station provides SFE water to many of the GLWA WRRF treatment processes and needs to be completely rehabilitated to maintain uninterrupted supply of SFE water to these processes.

Scope of Work/Project Alternatives:
This project will include the study, design, and construction for the needed improvements to the SFE pump station. This includes required capacity, pumps, strainers, piping, controls, building improvements, and electrical supply. This will also include a study to evaluate the potential for replacing the secondary water utilization with SFE utilization where feasible and an alternative analysis to the existing carrier water at chlorination/dechlorination facility, seal water, recovery needs wh...

Other Important Info:
*Innovation note: optimize of a valuable resource recovered for facility needs. Project History: The SFE pump station has eight pumps with a total capacity of approximately 135 MGD. Pumps 1,2,4, and 6 were installed in 1973, pumps 3 and 5 in 1980, and pumps 7 and 8 in 1998. The older pumps were rebuilt in 1998. Strainers have been reconditioned as necessary over time. Due to the critical nature of the SFE pump station and the elapsed time since a major rehabilitation (over 15 years), a signifi...

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$327	$6	$6	$57	$57	$41	$41	$41	$41	$222	$41
Study # 1	$2,540	$0	$0	$443	$349	$349	$349	$349	$349	$1,747	$349
Construction (Build) # 1	$37,954	$0	$0	$0	$500	$6,114	$6,114	$6,114	$6,114	$24,954	$13,000

CIP Number: 216009

Project Title: LM Facilities Assessment and Rehabilitation/Replacement

Project Status: Closed
Class Lvl 1: Wastewater
Class Lvl 2: WRRF
Class Lvl 3: General Purpose
Lookup Location: WRRF

☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Chris Wilson

Director: Dan Alford

Project Score
0

Problem Statement:

The warehouse buildings that stores equipment and supplies for GLWA are located at different facilities. The physical condition of the existing buildings, specifically the McKinstry warehouse (SSS), seems to be in poor condition with extensive roof leaking and other issues. There is an assessment of the L&M Facilities going on to determine whether it makes economic sense to continue to operate these facilities at the existing sites or if these facilities can be downsized into one central site.

Scope of Work/Project Alternatives:

Evaluate the existing conditions of the warehouse facilities throughout GLWA. Provide recommendations to improve the facility environment to store the assets safely and efficiently. The various building systems, including heating, ventilation, electrical, and lighting shall be evaluated to be in compliance with applicable building codes and regulations.
Design and Construction of the suggested modifications, based on the evaluation, shall follow.

Other Important Info:

None

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	5 Year Total
GLWA Salaries	$162	$162	$162	$0	$0	$0	$0
Study & Design & Construction Assistance # 1	$3	$3	$3	$0	$0	$0	$0

CIP Number: 216010

Project Title: WRRF Facility Optimization

Project Status: Active - Pre-Procurement - Design
Class Lvl 1: Wastewater
Class Lvl 2: WRRF
Class Lvl 3: General Purpose
Lookup Location: WRRF
☐ **Project New to CIP:**

☑ **Innovation**
☑ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Beena Chackunkal

Director: Dan Alford

Project Score
63.6

Problem Statement:
The existing WRRF is a product of countless construction projects over nearly 90 years and consists of numerous process and non-process buildings with varying levels of use and practicality. As WRRF across the nation come out of the shadows and into the light of the public and elected officials it is critical to convey an image that reflects the pride and importance of the work that is done every day at this facility. As such, this project will work on the softer side of the facility, create a...

Scope of Work/Project Alternatives:
The work consists of extending the evaluation performed as a part of Master Planning to design and construct site modifications including but not limited to a new visitor center, demolition or repurposing of existing structures that are no longer used, consolidation and or reconfiguration of administration, operations and maintenence staff and spaces, vehicle and equipment storage spaces, shops, etc. The project also includes site modifications to include improved site circulation, parking and ...

Other Important Info:
None

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total
GLWA Salaries	$271	$4	$4	$25	$57	$46	$46	$46	$46	$241
Design & Construction Assistance # 1	$1,000	$0	$0	$0	$0	$181	$547	$93	$180	$1,000
Construction (Build) # 1	$9,000	$0	$0	$0	$0	$1,627	$4,920	$833	$1,620	$9,000

CIP Number: 216011

Project Title: WRRF Structural Improvements

Project Status: Active - Pre-Procurement - Design
Class Lvl 1: Wastewater
Class Lvl 2: WRRF
Class Lvl 3: General Purpose
Lookup Location: WRRF
☑ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**


Incineration Building

Project Engineer/Manager: Chris Wilson

Director: Dan Alford

Project Score
0

Problem Statement:
The WRRF facilities are some of the oldest facilities within the GLWA infrastructure and are outside the initial design lives. In order to assure the safety of GLWA personnel working at the WRRF and to increase operational reliability, GLWA is initiating a long-term structural maintenance program. The program will start with a full structural needs assessment, inclusive of a four-year program of implementing the highest priority repairs in successive order.

Scope of Work/Project Alternatives:
The program will include a complete field assessment and structural condition report, classification of recommended repairs into levels of urgency, estimating quantities and the costs of repairs, developing a three-year repair program to address high priority repairs, design and implementation of repairs, preparation of as-built's and final project report, in connection with the Work. The Work includes improvements to be designed, administered, and constructed by the D/B Contractor, inclusive o...

Other Important Info:
None

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$333	$0	$0	$52	$52	$46	$46	$46	$46	$235	$46
TBD / Future Allocation / General Holding	$12,000	$0	$0	$0	$2,000	$2,000	$2,000	$2,000	$2,000	$10,000	$2,000

CIP Number: 222001

Project Title: Oakwood District Intercommunity Relief Sewer Modification at Oakwood District

Project Status: Active - Procurement - Design
Class Lvl 1: Wastewater
Class Lvl 2: Field Services
Class Lvl 3: Interceptor
Lookup Location: Oakwood District
☐ **Project New to CIP:**

☐ **Innovation**
☑ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Overall Plan for NWI Diversion to Oakwood Facilities

Project Engineer/Manager: Mini Panicker

Director: Biren Saparia

Project Score
53.6

Problem Statement:

Improvements to the Oakwood District Sanitary Sewer system and implementation of various projects as recommended in report by Applied Sciences, Inc. Dated 2/26/16. Projects to include: 1) Clean & Inspect Trunk Sewers, 2) Analysis and improvement of Oakwood PS/RTB operations, 3) Second influent sewer to Oakwood PS, and 4) NWI Diversion for CSO Control. Projects to be prioritized and validated as part of Wastewater Master Plan Project (GLWA CS-036).

Scope of Work/Project Alternatives:

The work includes basis of design (study) report on alternative solution to proposed Oakwood District Intercommunity Relief Sewer, diversion of storm water flow, and construction assistance during construction phase of emerging projects. Coordinate with DWSD projects including catch basin restrictions and green spaces.

Other Important Info:

Refer to linked aerial photo of Oakwood District with overlay of proposed new sewers, as built drawings of recent construction in the District for PCS-79, PCS-80 and PC-755; map of Intercommunity Collection System including portion of Oakwood District shown above—and other select resources linked below.

Challenges: Maintaining the wet weather contract capacities and adequate CSO treatment during extreme storm events and mitigate basement and street flooding in the District and intercommunity...

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$397	$0	$0	$57	$57	$53	$46	$46	$46	$248	$92
Study & Design & Construction Assistance # 1	$6,000	$0	$0	$868	$733	$733	$733	$733	$733	$3,666	$1,466
Construction (Build) # 1	$47,000	$0	$0	$0	$0	$0	$0	$4,091	$15,695	$19,786	$27,214

CIP Number: 222002

Project Title: Detroit River Interceptor (DRI) Evaluation and Rehabilitation

Project Status: Project Execution - Construction
Class Lvl 1: Wastewater
Class Lvl 2: Field Services
Class Lvl 3: Interceptor
Lookup Location: Detroit River Interceptor
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**


DRI Shaft Construction

Project Engineer/Manager: Mini Panicker

Director: Todd King

Project Score
65.4

Problem Statement:
Evaluation of the existing condition of the Detroit River interceptor (DRI), and rehabilitation/replacement of portions based on the evaluation results are essential to optimize the transportation capacity of the GLWA collection system and to increase its service life.

Scope of Work/Project Alternatives:
Preliminary Scope of Work of the Project is as follows: Review the existing records, investigate the existing conditions , provide the necessary cleaning/rehabilitation/replacement to optimize the design capacity of the collection system and to minimize the inflow and infiltration into the collection system.

Other Important Info:
Challenges: DRI may have flow control challenges for both inspection and rehabilitation. Recommendations from these inspections may reveal further need for cleaning, rehabilitation or replacement.

Project History: The installation of some of the GLWA interceptors and sewers are dated back to 1912 under various contracts.
Detroit River Interceptor inspection was completed in 5 different phases and there were portions deteriorated with visible surface aggregates, attached encrustation and i...

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$373	$56	$56	$46	$46	$41	$46	$46	$46	$225	$46
Design-Build # 2	$52,402	$20,095	$20,095	$11,146	$11,146	$10,016	$0	$0	$0	$21,162	$0
TBD / Future Allocation / General Holding # 1	$20,000	$0	$0	$0	$0	$0	$5,650	$5,189	$3,599	$14,438	$5,562

CIP Number: 222004

Project Title: SEWER SYSTEM INFRASTRUCTURE IMPROVEMENTS and Pumping Stations

Project Status: Reclassified
Class Lvl 1: Wastewater
Class Lvl 2: Field Services
Class Lvl 3: Interceptor
Lookup Location: VRs, ISDs, Access Hatches, Backwater Gates
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Mini Panicker

Director: Todd King

Project Score
68.2

Problem Statement:
VR-Gates, ISDs, and backwater gates are operational elements in the collection system that help in minimizing the untreated overflows and maximizing the flows to the WRRF and CSO control facilities. They have reached their life expectancy and needs rehabilitation.

Scope of Work/Project Alternatives:
Evaluate the existing conditions of the VR-Gates, ISDs, Backwater Gates and Access Hatches, provide the necessary design and the Construction Assistance for their replacement/rehabilitation.

Other Important Info:
Google map of VR-3 and VR-9 are included. VR-4, 5, 6, 10, 11 &13 are also part of the project.

Project History: GLWA interceptors and sewers were constructed in the early 1900s. The hatches and access covers secure operations and maintenance access points throughout the system for items such as the backwater gates, ISD, and VR. The backwater gates, ISD, and VR are all critical elements that control and divert flows throughout the system. Most of them have reached their life expectancy an...

CIP Number: 222004

Project Title: SEWER SYSTEM INFRASTRUCTURE IMPROVEMENTS and Pumping Stations

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Study & Design & Construction Assistance # 1	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Construction (Unallocated)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Study/Design/C.A./Construction (Unallocated)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

CIP Number: 232001

Project Title: Fairview Pumping Station - Replace Four Sanitary Pumps

Project Status: Project Execution - Construction
Class Lvl 1: Wastewater
Class Lvl 2: Systems Control Center
Class Lvl 3: Pump Stations
Lookup Location: Fairview Pumping Station
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Mike Graham

Director: Grant Gartrell

Project Score
0

Problem Statement:
Replacement and upgrade of pumping equipment's to improve transportation of waste water to the treatment plant

Scope of Work/Project Alternatives:
The scope of work consists of the study, design, and construction for four new pumping systems including inlet and discharge valves and wet well hydraulics. This will also include enlarging doorways, revamping roadways, and upgrading electrical and control systems.

Other Important Info:
Schedule delay due to Abnormally and excessively high dry weather flows exceed the planned design capacity of the temporary sewage by-pass pumping station. Delaying the installation of the new pumping units at Fairview Station while waiting for dry weather flows to subside to normal flows poses the risk of not being able to pump dry weather flows in the event that another sewage pump permanently fails at Fairview Station. Increasing the capacity of the temporary by-pass sewage pumping station, ...

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$250	$159	$159	$46	$45	$0	$0	$0	$0	$45	$0
Design & Construction Assistance # 1	$7,278	$3,107	$3,107	$2,071	$2,071	$28	$0	$0	$0	$2,100	$0
Construction (Build) # 1	$32,546	$11,007	$11,007	$10,873	$10,665	$0	$0	$0	$0	$10,665	$0

CIP Number: 232002

Project Title: Freud & Conner Creek Pump Station Improvements

Project Status: Project Execution - Design
Class Lvl 1: Wastewater
Class Lvl 2: Systems Control Center
Class Lvl 3: Pump Stations
Lookup Location: Conner Creek & Freud Pump Stations
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Both PSs pictures

Project Engineer/Manager: Mini Panicker

Director: Biren Saparia

Project Score
79.6

Problem Statement:
The primary objective of this project is to study the overall performance of Connor Creek and Freud sewage pumping stations and develop design, and build an operational strategy to optimize the utilization of interconnected piping and operation between both pumping stations and the Connor Creek Retention and Treatment Basin.

Scope of Work/Project Alternatives:
Provide basis of design, and final design for an operational strategy to optimize the utilization of interconnected piping and operation between Connor Creek and Freud pumping stations and the Connor Creek Retention and Treatment Basin. Provide construction of the emerging project and construction assistance during construction of the emerging project.

Other Important Info:
Challenges: Meeting the collection system transport capacity during the construction.

Project History: The Connor Creek Pump Station (CCPS) was originally built in 1928 with four storm water pumps, each with a rated capacity of 500 cubic feet per second (cfs). The CCPS was expanded in 1940 adding four more pumps of the same capacity. The pump station currently has a total capacity of 4,000 cfs and a firm capacity of 3,500 cfs. The pumps are primed using a vacuum system that relies on the f...

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$521	$84	$84	$57	$57	$46	$46	$46	$46	$241	$138
Design # 1	$34,122	$2,422	$2,422	$6,388	$3,300	$4,200	$2,000	$3,400	$4,100	$17,000	$8,312
Construction (Build) # 1	$194,636	$4,836	$4,836	$0	$0	$8,400	$15,400	$20,000	$30,000	$73,800	$116,000

CIP Number: 232004

Project Title: CONDITION ASSESSMENT AT BLUE HILL PUMP STATION

Project Status: Future Planned - Within 5 Year Plan
Class Lvl 1: Wastewater
Class Lvl 2: Systems Control Center
Class Lvl 3: Pump Stations
Lookup Location:
☐ **Project New to CIP:**

☐ **Innovation**
☑ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Todd King

Director: Todd King

Project Score
0

Problem Statement:
The condition of the Blue Hill PS has not been accurately established to the metrics being established for other GLWA pumping stations. A new condition assessment is required.

Scope of Work/Project Alternatives:
Perform station inspection by a multi-discipline team of specialists in pumps, valves, electrical, HVAC, structural, building envelope I&C, security, and building mechanical systems. Perform wire to water efficiency tests

Other Important Info:
Performance of this pumping station is related with flood control objectives for Conner and Freud Pumping Stations.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21
GLWA Salaries	$57	$0	$0	$57
Study # 1	$200	$0	$0	$200

CIP Number: 233003

Project Title: Rouge River In-system Storage Devices

Project Status: Future Planned - Within 5 Year Plan
Class Lvl 1: Wastewater
Class Lvl 2: Systems Control Center
Class Lvl 3: In System Devices (Dams, ISD's)
Lookup Location: Rouge Riiver

☐ **Project New to CIP:**

☐ **Innovation**
☑ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Mini Panicker

Director: Biren Saparia

Project Score
60.8

Problem Statement:

The Rouge River receives untreated CSO discharges from GLWA CSO outfalls and outfalls from other Member combined sewer systems during wet weather. CSO control strategies that deal with first flush capture from small storms is typically a cost-effective implementation step in a CSO control program. Studies for the Wastewater Master Plan have shown the effectiveness of controlling first flush for small storms with receiving water modeling. 9 locations on DWSD trunk sewers east of the Rouge R...

Scope of Work/Project Alternatives:

Perform sewer inspections, utility survey, and flow metering to establish and prioritize the siting of 9 new In-System Storage Devices (ISD)

Perform preliminary and final design of the ISDs, including upstream and downstream access points, power supply and instrumentation.

Construct 9 new inflatable dam in-system storage devices (ISD). Modify existing manholes or construct new access points upstream and downstream of each ISD. Provide electrical power, above ground structures for pneum...

Other Important Info:

The new ISD devices would be installed in trunk sewers owned and operated by DWSD. These are not GLWA leased sewers. A legal agreement may need to be prepared for GLWA to construct, operate, and maintain.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$378	$0	$0	$0	$0	$57	$57	$57	$172	$206
Study & Design & Construction Assistance # 1	$8,839	$0	$0	$0	$0	$969	$967	$967	$2,903	$5,936
Construction (Build) # 1	$37,100	$0	$0	$0	$0	$0	$0	$0	$0	$37,100

CIP Number: 260200

Project Title: Sewer and Interceptor Rehabilitation Program

Project Status: Project Execution - Construction
Class Lvl 1: Wastewater
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location: Sewers and Interceptors
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Mini Panicker

Director: Todd King

Project Score
0

Problem Statement:
Rehabilitation and replacement program of the existing sewers and interceptors is identified after the conditiio assessment. This replacement, rehabilitation and cleaning program is essential to optimize the transportation capacity of the GLWA collection system and to increase its life expectancy.

Scope of Work/Project Alternatives:
Provide CCTV and/or sonar inspection of the GLWA Collection System Interceptors and Trunk Sewers to reveal the existing conditions as per the National Association of Sewer Service Companies' (NASSCO) Pipeline Assessment Certification Program (PACP) standards, evaluate the existing conditions, and provide the necessary cleaning/rehabilitation/replace to optimize the design capacity of the collection system and to minimize the inflow and infiltration into the collection system.

Other Important Info:
Challegers: Large sewers and interceptors may have flow control challenges for both inspection and rehabilitation.

Project History: The installation of some of these interceptors and sewers are dated back to 1912 under various contracts. Detroit River Interceptor inspection was recently completed in 5 different phases and there were portions deteriorated with visible surface aggregates, attached encrustation and infiltration. Some trunk sewer inspection revealed sludge deposition with red...

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TBD / Future Allocation / General Holding	$53,749	$0	$0	$3,138	$0	$7,214	$7,915	$10,695	$11,547	$37,371	$13,240

CIP Number: 260201

Project Title: CON-149, Emergency Sewer Repair

Project Status: Project Execution - Construction
Class Lvl 1: Wastewater
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location: Sewers and Interceptors
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Mini Panicker

Director: Todd King

Project Score
0

Problem Statement:
Rehabilitation and replacement program of the existing sewers and interceptors is identified after the conditiio assessment. This replacement, rehabilitation and cleaning program is essential to optimize the transportation capacity of the GLWA collection system and to increase its life expectancy.

Scope of Work/Project Alternatives:
Provide CCTV and/or sonar inspection of the GLWA Collection System Interceptors and Trunk Sewers to reveal the existing conditions as per the National Association of Sewer Service Companies' (NASSCO) Pipeline Assessment Certification Program (PACP) standards, evaluate the existing conditions, and provide the necessary cleaning/rehabilitation/replace to optimize the design capacity of the collection system and to minimize the inflow and infiltration into the collection system.

Other Important Info:
Challegers: Large sewers and interceptors may have flow control challenges for both inspection and rehabilitation.

Project History: The installation of some of these interceptors and sewers are dated back to 1912 under various contracts. Detroit River Interceptor inspection was recently completed in 5 different phases and there were portions deteriorated with visible surface aggregates, attached encrustation and infiltration. Some trunk sewer inspection revealed sludge deposition with red...

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$347	$296	$296	$46	$6	$0	$0	$0	$0	$6	$0
Design-Build # 1	$31,935	$19,207	$19,207	$11,255	$1,473	$0	$0	$0	$0	$1,473	$0

CIP Number: 260204

Project Title: Conveyance System Engineering Services-1802575

Project Status: Project Execution - Design
Class Lvl 1: Wastewater
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location: Sewers and Interceptors
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Woodward Sewer System

Project Engineer/Manager: Mini Panicker

Director: Biren Saparia

Project Score
0

Problem Statement:
Rehabilitation and replacement program of the existing sewers and interceptors is identified after the conditiio assessment. This replacement, rehabilitation and cleaning program is essential to optimize the transportation capacity of the GLWA collection system and to increase its life expectancy.

Scope of Work/Project Alternatives:
Provide CCTV and/or sonar inspection of the GLWA Collection System Interceptors and Trunk Sewers to reveal the existing conditions as per the National Association of Sewer Service Companies' (NASSCO) Pipeline Assessment Certification Program (PACP) standards, evaluate the existing conditions, and provide the necessary cleaning/rehabilitation/replace to optimize the design capacity of the collection system and to minimize the inflow and infiltration into the collection system.

Other Important Info:
Challegers: Large sewers and interceptors may have flow control challenges for both inspection and rehabilitation.

Project History: The installation of some of these interceptors and sewers are dated back to 1912 under various contracts. Detroit River Interceptor inspection was recently completed in 5 different phases and there were portions deteriorated with visible surface aggregates, attached encrustation and infiltration. Some trunk sewer inspection revealed sludge deposition with red...

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$240	$9	$9	$56	$46	$46	$46	$38	$0	$176	$0
Study & Design & Construction Assistance # 1	$6,000	$904	$904	$2,422	$2,422	$252	$0	$0	$0	$2,674	$0
Construction (Build) # 1	$45,917	$0	$0	$9,178	$9,178	$9,178	$9,204	$9,178	$0	$36,739	$0

CIP Number: 260205

Project Title: NWI Rehabilitation

Project Status: Future Planned - Within 5 Year Plan
Class Lvl 1: Wastewater
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location:
☑ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Mini Panicker

Director: Biren Saparia

Project Score
0

Problem Statement:

Scope of Work/Project Alternatives:

Other Important Info:

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	5 Year Total
GLWA Salaries	$115	$0	$0	$23	$46	$46	$92
TBD / Future Allocation / General Holding	$10,823	$79	$79	$1,744	$5,000	$4,000	$9,000

CIP Number: 260206

Project Title: Conveyance System Repairs (Sewers)

Project Status: Active - Pre-Procurement - Design
Class Lvl 1: Wastewater
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location: Sewers and Interceptors
☑ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Mini Panicker

Director: Biren Saparia

Project Score
0

Problem Statement:
Rehabilitation program of the existing sewers and interceptors is identified after the condition assessment. This rehabilitation and cleaning program is essential to optimize the transportation capacity of the GLWA collection system and to increase its life expectancy.

Scope of Work/Project Alternatives:
Evaluate the existing conditions of Brush, Joy Road, &Seven Mile Sewers. Provide the necessary cleaning/rehabilitation/replacement to optimize the design capacity of the collection system and to minimize the inflow and infiltration into the collection system.

Other Important Info:
This Engineering Services contract also includes the remaining CSO outfalls which is being funded by the Outfall Program, 260500

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$321	$0	$0	$23	$46	$46	$46	$46	$46	$230	$69
Design & Construction	$47,500	$0	$0	$500	$7,000	$7,000	$7,000	$7,000	$8,000	$36,000	$11,000

CIP Number: 260500

Project Title: CSO Outfall Rehabilitation

Project Status: Active - Procurement - Construction
Class Lvl 1: Wastewater
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location: CSO Outfalls
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Mini Panicker

Director: Biren Saparia

Project Score
0

Problem Statement:
PROJECTS 222006 AND 233001 HAVE BEEN INCORPORATED INTO THIS PROJECT. Rehabilitation of the CSO outfalls is essential to properly discharge the uncontrollable combined sewer overflows to the receiving waters and to prevent sewer back up into the Conveyance System. Recent inspections of the outfalls revealed structural deficiencies like fractures, missing mortar from bricks etc. There are sediment and debris deposits in many of them.

Scope of Work/Project Alternatives:
Preliminary Scope of Work of the project is construction. Contract CS-168 will review the existing records, evaluate the existing conditions, and provide the necessary design to rehabilitate the outfalls. Another Engineering Services contract will be initiated after the CS-168 contract.

Other Important Info:
PROJECTS 222006 AND 233001 HAVE BEEN INCORPORATED INTO THIS PROJECT.

Project History: The construction of these outfalls are dated back to the early 1900s under various contracts.

Challenges: Some outfalls are below the river elevation; rehabilitation may be challenging.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TBD / Future Allocation / General Holding # 1	$5,000	$0	$0	$0	$833	$833	$835	$833	$833	$4,167	$833

CIP Number: 260504

Project Title: Phase 2 Outfalls- 19000796

Project Status: Project Execution - Construction
Class Lvl 1: Wastewater
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location: CSO Outfalls

☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Mini Panicker

Director: Biren Saparia

Project Score
0

Problem Statement:
PROJECTS 222006 AND 233001 HAVE BEEN INCORPORATED INTO THIS PROJECT. Rehabilitation of the CSO outfalls is essential to properly discharge the uncontrollable combined sewer overflows to the receiving waters and to prevent sewer back up into the Conveyance System. Recent inspections of the outfalls revealed structural deficiencies like fractures, missing mortar from bricks etc. There are sediment and debris deposits in many of them.

Scope of Work/Project Alternatives:
Preliminary Scope of Work of the project is construction. Contract CS-168 will review the existing records, evaluate the existing conditions, and provide the necessary design to rehabilitate the outfalls. Another Engineering Services contract will be initiated after the CS-168 contract.

Other Important Info:
PROJECTS 222006 AND 233001 HAVE BEEN INCORPORATED INTO THIS PROJECT.

Project History: The construction of these outfalls are dated back to the early 1900s under various contracts.

Challenges: Some outfalls are below the river elevation; rehabilitation may be challenging.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21
GLWA Salaries	$33	$6	$6	$26
Construction (Build) # 1	$5,018	$2,196	$2,196	$2,823

CIP Number: 260505

Project Title: Phase 4 Outfalls

Project Status: Project Execution - Construction
Class Lvl 1: Wastewater
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location: CSO Outfalls
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**


Phase IV construction at Outfall B-19

Project Engineer/Manager: Mini Panicker

Director: Biren Saparia

Project Score
0

Problem Statement:
PROJECTS 222006 AND 233001 HAVE BEEN INCORPORATED INTO THIS PROJECT. Rehabilitation of the CSO outfalls is essential to properly discharge the uncontrollable combined sewer overflows to the receiving waters and to prevent sewer back up into the Conveyance System. Recent inspections of the outfalls revealed structural deficiencies like fractures, missing mortar from bricks etc. There are sediment and debris deposits in many of them.

Scope of Work/Project Alternatives:
Preliminary Scope of Work of the project is construction. Contract CS-168 will review the existing records, evaluate the existing conditions, and provide the necessary design to rehabilitate the outfalls. Another Engineering Services contract will be initiated after the CS-168 contract.

Other Important Info:
PROJECTS 222006 AND 233001 HAVE BEEN INCORPORATED INTO THIS PROJECT.

Project History: The construction of these outfalls are dated back to the early 1900s under various contracts.

Challenges: Some outfalls are below the river elevation; rehabilitation may be challenging.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	5 Year Total
GLWA Salaries	$98	$6	$6	$46	$46	$0	$46
Construction (Build) # 1	$5,620	$1,580	$1,580	$3,445	$595	$0	$595

CIP Number: 260508

Project Title: B-39 Outfall Rehabilitation

Project Status: Project Execution - Design
Class Lvl 1: Wastewater
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location:
☑ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Mini Panicker

Director: Biren Saparia

Project Score
0

Problem Statement:

Scope of Work/Project Alternatives:

Other Important Info:

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	5 Year Total
GLWA Salaries	$181	$0	$0	$57	$57	$57	$8	$123
TBD / Future Allocation / General Holding	$388	$0	$0	$123	$123	$123	$18	$264

CIP Number: 260509

Project Title: B-40 Outfall Rehabilitation

Project Status: Project Execution - Design
Class Lvl 1: Wastewater
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location:
☑ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Mini Panicker

Director: Biren Saparia

Project Score
0

Problem Statement:

Scope of Work/Project Alternatives:

Other Important Info:

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21
GLWA Salaries	$6	$0	$0	$6
TBD / Future Allocation / General Holding	$83	$66	$66	$16

CIP Number: 260510

Project Title: Conveyance System Repairs (Outfalls)

Project Status: Active - Pre-Procurement - Design
Class Lvl 1: Wastewater
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location: CSO Outfalls
☑ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Mini Panicker

Director: Biren Saparia

Project Score
0

Problem Statement:
Rehabilitation program of the existing CSO outfalls, sewers and interceptors is identified after the condition assessment. This rehabilitation and cleaning program is essential to optimize the transportation capacity of the GLWA collection system and to increase its life expectancy

Scope of Work/Project Alternatives:
Evaluate the existing conditions of the remaining CSO outfalls, provide the necessary cleaning/rehabilitation to optimize the design capacity of the collection system and to minimize the uncontrolled CSO discharges to the rivers

Other Important Info:
This Engineering Services contract also includes Joy Rd, Seven Mile, and Bates sewers which is being funded by the Sewer and Interceptor Rehabilitation Program, 260200

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$333	$0	$0	$57	$46	$46	$46	$46	$46	$230	$46
TBD / Future Allocation / General Holding TBD	$48,530	$0	$0	$500	$7,664	$7,664	$7,682	$7,664	$9,194	$39,866	$8,164

CIP Number: 260600

Project Title: CSO FACILITIES IMPROVEMENT PROGRAM

Project Status: Future Planned - Ten-Year CIP
Class Lvl 1: Wastewater
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location: Conner Creek, Seven Mile, Puritan-Fenkell, Hubble-Southfield, Belle Isle, Oakwood CSO Basins, Baby Creek, Leib and St. Aubin Screening and Disinfection Facilities

☐ **Project New to CIP:**

- ☐ **Innovation**
- ☐ **WW Master Plan**
- ☐ **Water Master Plan Right Sizing**
- ☑ **Redundancy**
- ☐ **NE WTP Repurposing**
- ☐ **Linear Assets Outside of Facilities**
- ☐ **Predecessor Project(s)**

Conner Creek CSO Facility

Project Engineer/Manager: Chris Nastally

Director: Chris Nastally

Project Score
0

Problem Statement:
This program is being established to facilitate the study, design, construction administration, and construction of improvements necessary to maintain the facilities which contribute to the CSO Control Program and compliance herewith.

Scope of Work/Project Alternatives:
This program is established to fund projects which may pop up in the near term of each fiscal year that were not budgeted for previously. Scope of work will vary from roof replacement, to equipment replacement, to various other facility improvements.

Other Important Info:
N/A

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
TBD / Future Allocation / General Holding # 1	$126,400	$0	$0	$1,500	$1,000	$1,500	$2,000	$7,500	$11,400	$23,400	$101,500

CIP Number: 260601

Project Title: Oakwood CSO Control Facility Drain Valve Improvements

Project Status: Pending Closeout
Class Lvl 1: Wastewater
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location: Oakwood CSO

☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**


Leaking Conduit in Drain Vault

Project Engineer/Manager: Chris Nastally

Director: Chris Nastally

Project Score
20

Problem Statement:
Water infiltration through electrical conduits has caused cascading failures of vault valves, electrical and controls equipment. This has resulted in manual operation which creates difficulties operating and safety issues for continual access to this space (it's a deep vault).

Scope of Work/Project Alternatives:
This project will replace all electrical conduits that are compromised, valves, actuators, controls, sump pumps, and other items damaged from the vault flooding.

Other Important Info:
N/A

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$118	$103	$103	$15	$0	$0	$0	$0	$0	$0	$0
Design # 1	$21	$21	$21	$0	$0	$0	$0	$0	$0	$0	$0
Construction Assistance # 1	$10	$0	$0	$10	$0	$0	$0	$0	$0	$0	$0
Construction (Build) # 1	$715	$557	$557	$158	$0	$0	$0	$0	$0	$0	$0

CIP Number: 260602

Project Title: CSO Fire Alarm Improvement Project

Project Status: Closed
Class Lvl 1: Wastewater
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location: ALL CSO Facilities
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Seven Mile Failed and Outdated Fire Panel

Project Engineer/Manager: Chris Nastally

Director: Chris Nastally

Project Score
20

Problem Statement:
Project is to upgrade or replace the fire alarm panels at all CSO Facilities except Oakwood RTB. Oakwood is just receiving some repairs to get the system functional and to meet the standards set forth with the current system.

Scope of Work/Project Alternatives:
This project includes replacement/upgrading all CSO Fire Alarms to a standardized Johnson Controls (Simplex) Fire Alarm System. Eight of the CSO Facilities include replacement. The one facility in which the panel is not being replaced and only minor system repairs are occurring is Oakwood. The Oakwood panel is already the latest fire control panel system.

Other Important Info:
N/A

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$53	$53	$53	$0	$0	$0	$0	$0	$0	$0	$0
Design-Build # 1	$944	$944	$944	$0	$0	$0	$0	$0	$0	$0	$0

CIP Number: 260603

Project Title: Conner Creek CSO RTB Automation Improvements

Project Status: Project Execution - Construction
Class Lvl 1: Wastewater
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location: Conner Creek
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**


Effluent Relief Gate Repair

Project Engineer/Manager: Kashmira Patel

Director: Chris Nastally

Project Score
20

Problem Statement:
Effluent gates were leaking with river water in the basin. Based on CS-116 study, seals and seats of some of Effluent Relief gates found to be damaged. A data network style connection was used (versus hardwired) between the gates and the SCADA system. This network has been unreliable and difficult to maintain. Electrical and control cables were compromised due to their installation on the top of the concrete slab of RTB roof.

Scope of Work/Project Alternatives:
Scope work includes but not limited to replacement of existing seals and seats of effluent relief gates (ERGs) and effluent launder gates (ELGs), replacement and alignment of stems for ELGs, assessment and replacement of ERGs stems (based on assessment), existing pull boxes and cover replacement on top of RTB roof, existing fiber optic cable and conduit replacement, hard-wiring ELGs and ERGs actuators for reliable operation, secondary power feed for effluent gates, replacement of RIO5 and RIO6,...

Other Important Info:
CS-172 has been closed out as of 09/23/19. Influent flowmeters replacement work is added as part of CCD-A and CO No. 2 of this contract.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$222	$202	$202	$20	$0	$0	$0	$0	$0	$0	$0
Design & Construction Assistance # 1	$302	$302	$302	$0	$0	$0	$0	$0	$0	$0	$0
Design & Construction Assistance # 2	$108	$0	$0	$108	$0	$0	$0	$0	$0	$0	$0
Construction (Build) # 1	$7,267	$6,487	$6,487	$780	$0	$0	$0	$0	$0	$0	$0

CIP Number: 260606

Project Title: Puritan Fenkell Roof Replacement

Project Status: Closed
Class Lvl 1: Wastewater
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location: Puritan-Fenkell
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**


New Metal Roof

Project Engineer/Manager: Matthew Krieger

Director: Chris Nastally

Project Score
20

Problem Statement:
The facility roof leaks when it rains, the wood roof deck was fully exposed to the elements and allowed water to infiltrate the facility interior.

Scope of Work/Project Alternatives:
The Puritan Fenkell CSO roof was replaced with a metal roof with an estimated service life of >20 years. Repairs and upgrades were also made to the wood deck of the roof and the brick exterior near the roof interface to ensure the new roof remained watertight. Awnings and snow gems were included for personnel safety.

Other Important Info:
None

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$3	$3	$3	$0	$0	$0	$0	$0	$0	$0	$0
Construction (Build) # 1	$344	$344	$344	$0	$0	$0	$0	$0	$0	$0	$0

CIP Number: 260607

Project Title: Leib Electrical Improvements

Project Status: Closed
Class Lvl 1: Wastewater
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location: Leib CSO Facility
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**


Leib Electrical Improvements

Project Engineer/Manager: Kashmira Patel

Director: Chris Nastally

Project Score
20

Problem Statement:
The Leib CSO Facility electrical conduits have water intrusion which is causing failure of the end devices. Furthermore, the electrical conduit support system is regular steel and is severely corroded (risking possible catastrophic failure to all conduits if the support system fails).

Scope of Work/Project Alternatives:
Replacing conduits and equipment compromised by water infiltration into conduits. Replacing conduit support system which is severely corroded.

Other Important Info:
N/A

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$57	$57	$57	$0	$0	$0	$0	$0	$0	$0	$0
Design # 1	$5	$5	$5	$0	$0	$0	$0	$0	$0	$0	$0
Construction (Build) # 1	$971	$971	$971	$0	$0	$0	$0	$0	$0	$0	$0

CIP Number: 260608

Project Title: 7 Mile CSO Facilities - Roof Replacement

Project Status: Closed
Class Lvl 1: Wastewater
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location: 7 Mile CSO
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**


New metal roof

Project Engineer/Manager: Matthew Krieger

Director: Chris Nastally

Project Score
20

Problem Statement:
The 7 Mile roof was inspected in 2018 and determined to be at the at the end of it's service life. Water damage was occurring from leakage to the building's interior.

Scope of Work/Project Alternatives:
This project replaced the existing shingle roof with a longer lasting metal roof.

Other Important Info:
N/A

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$1	$1	$1	$0	$0	$0	$0	$0	$0	$0	$0
Construction (Build) # 1	$496	$496	$496	$0	$0	$0	$0	$0	$0	$0	$0

CIP Number: 260609

Project Title: Seven Mile RTB - Parking Lot Replacement & Misc. Site Work

Project Status: Pending Closeout
Class Lvl 1: Wastewater
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location: 7 Mile CSO
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**


New Parking Lot and Hatch Work

Project Engineer/Manager: Matthew Krieger

Director: Chris Nastally

Project Score
20

Problem Statement:
The 7 Mile Parking Lot is failing in many locations, traps water in many locations, and slopes towards the building directing water towards the building during rain. See scope of work for additional problems addressed by this project.

Scope of Work/Project Alternatives:
In addition to the problem statement, the grading in the front and side of the site slopes towards the building with no catch basins also creating water infiltration issues inside of the building. The sidewalk has completely failed and the hatch at the front entrance has damage to it leaving a hole to trip or injure someone. This project will fix the parking lot, grading issues, sidewalk, and hatch, This project will also address landscaping (because of regrading) and provide landscaping which...

Other Important Info:
Rain Water is pooling near the back up generator and presents a safety hazard.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$39	$24	$24	$15	$0	$0	$0	$0	$0	$0	$0
Construction (Build) # 1	$377	$346	$346	$32	$0	$0	$0	$0	$0	$0	$0

CIP Number: 260610

Project Title: Baby Creek SDF - HV Units Replacement

Project Status: Pending Closeout
Class Lvl 1: Wastewater
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location: Baby Creek CSO Facility
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**


New Air Handling Unit

Project Engineer/Manager: Kashmira Patel

Director: Chris Nastally

Project Score
20

Problem Statement:
Replace Make Up Air Units at Baby Creek as they are past their life and non-efficient due to their installation orientation.

Scope of Work/Project Alternatives:
Replacing existing make up air units with a newly designed unit to increase air flow to the space as well as increase temperature control in the screening area.

Other Important Info:
N/A

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$12	$12	$12	$0	$0	$0	$0	$0	$0	$0	$0
Construction (Build) # 1	$263	$263	$263	$0	$0	$0	$0	$0	$0	$0	$0

CIP Number: 260611

Project Title: Leib SDF- HVAC System Improvements

Project Status: Project Execution - Construction
Class Lvl 1: Wastewater
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location: Leib CSO Facility

☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**


Leib HVAC - Frozen Dampers

Project Engineer/Manager: Kashmira Patel

Director: Chris Nastally

Project Score
0

Problem Statement:
Many components of the Leib HVAC system have failed. These are causing ventilation issues, air quality issues, and likely are also a source of increased/accelerated corrosion of equipment in the facility. Two relief dampers on each end of the facility have been frozen and not in operation.

Scope of Work/Project Alternatives:
The scope of work includes but not limited to replacement of 60" damper with access door in thee basin, replacement of relief air dampers and actuators on existing louvers at both end of the facility, provide new HVAC DDC system, etc.

Other Important Info:
CO No.1 was issued in 03/2020 due to GLWA's denial of Decima as their subcontractor. Additional amount of $100,962 and time extension was added to this project as part of CO No. 1.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$50	$37	$37	$14	$0	$0	$0	$0	$0	$0	$0
Construction (Build) # 1	$345	$59	$59	$286	$0	$0	$0	$0	$0	$0	$0

CIP Number: 260613

Project Title: Baby Creek HVAC Improvements

Project Status: Project Execution - Construction
Class Lvl 1: Wastewater
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location: Baby Creek CSO Facility
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**


Existing Dampers

Project Engineer/Manager: Kashmira Patel

Director: Chris Nastally

Project Score
20

Problem Statement:
This project expands on the MAU replacement project by addressing other HVAC issues through out the facility, such as control building, screening building, etc.

Scope of Work/Project Alternatives:
The scope of work includes but not limited to modifications to ventilation system in the Electrical room, replacement of dampers and actuators in the screening building, replacement of actuators for dampers in chem room, installation of temp sensors throughout control buildings, installation of new DDC system.

Other Important Info:
N/A

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21
GLWA Salaries	$37	$13	$13	$24
Construction (Build) # 1	$551	$39	$39	$512

CIP Number: 260614

Project Title: Structural Inspection & Structural Improvements

Project Status: Active - Procurement - Construction
Class Lvl 1: Wastewater
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location: Conner Creek, Seven Mile, Puritan-Fenkell, Hubble-Southfield, Belle Isle, Oakwood CSO Basins, Baby Creek, Leib and St. Aubin Screening and Disinfection Facilities

☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**


Existing Structural Condition

Project Engineer/Manager: Kashmira Patel

Director: Chris Nastally

Project Score
20

Problem Statement:
A partial structural condition assessment has been performed and structural improvement (types) identified and prioritized. This project will provide Design-Build service to completely inspect all CSO Facilities (above and below ground) and prioritize to be carried out over a 3-5 year period.

Scope of Work/Project Alternatives:
The scope of work includes at each of nine CSO facilities such as a complete field assessment and structural condition report, classification of recommended repairs into levels of urgency, estimating quantities and the costs of repairs, developing a three-year repair program to address high priority repairs, design and implementation of agreed upon repairs, preparation of as-built drawings and final project report, etc. The Work includes improvements to be designed, administered, and constructe...

Other Important Info:
Consideration of Shared Service Agreement with DWSD regarding the costing for Belle Isle facility.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$130	$20	$20	$22	$22	$22	$22	$22	$0	$88	$0
Construction Assistance	$1,325	$0	$0	$275	$400	$350	$175	$125	$0	$1,050	$0
Design-Build # 1	$12,339	$283	$283	$2,750	$4,000	$3,500	$1,200	$605	$0	$9,305	$0

CIP Number: 260615

Project Title: Puritan Fenkell & Leib Site Improvements

Project Status: Project Execution - Construction
Class Lvl 1: Wastewater
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location: Puritan-Fenkell and Leib CSO Facilities
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**


Poor Drainage at Leib

Project Engineer/Manager: Kashmira Patel

Director: Chris Nastally

Project Score
0

Problem Statement:
There is an existing site drainage at both of these facilities creating standing water on top of basin. There is no lighting at the outfall at PF, which is needed for operation at nighttime during an event. The existing sidewalks at both of these facilities are damaged and need replacement. The perimeter fencing at PF is damaged at various spots and there is no fence at the outfall area to secure the facility from outsiders. At Leib, the existing ornamental fence at the entrance is damaged ...

Scope of Work/Project Alternatives:
The scope of work includes but not limited to creating positive drainage, installation of trench drains as well as replacement of existing side walks at both facilities. Additionally, at PF, the scope includes installation of pathway and lighting at outfall, perimeter fence replacement, etc. At Leib, the scope also includes the replacement of ornamental fence, and brick pavers, etc.

Other Important Info:
N/A

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$97	$12	$12	$42	$42	$0	$0	$0	$0	$42	$0
Design-Build # 1	$704	$97	$97	$450	$157	$0	$0	$0	$0	$157	$0

CIP Number: 260616

Project Title: Baby Creek Towards Treatment Sewer Improvements

Project Status: Pending Closeout
Class Lvl 1: Wastewater
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location: Baby Creek
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**


Installed Bracket

Project Engineer/Manager: Matthew Krieger

Director: Chris Nastally

Project Score
20

Problem Statement:
The West End Sewer inside the Baby Creek CSO Effluent Channel is supported by concrete anchors and support wedges.

Scope of Work/Project Alternatives:
These supports have become dislodged or eroded and need repair and replacement with improved anchoring devices. Without repair the sewer pipe will have inadequate support and may fail. The improved anchor devices are expected to extend the life of the sewer beyond 20 years. The project seeks to refurbish pipe support anchors and wedges.

Other Important Info:
N/A

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$38	$22	$22	$16	$0	$0	$0	$0	$0	$0	$0
Design-Build # 1	$745	$645	$645	$100	$0	$0	$0	$0	$0	$0	$0

CIP Number: 260617

Project Title: St. Aubin Chemical Disinfection Improvements

Project Status: Active - Pre-Procurement - Design
Class Lvl 1: Wastewater
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location: St. Aubin CSO Facility

☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**


Existing Screens

Project Engineer/Manager: Kashmira Patel

Director: Chris Nastally

Project Score
20

Problem Statement:
The St. Aubin CSO facility is nearly 20 years old. A study was conducted on the disinfection system and the screens were assessed by the manufacturer through a separate contract, and recommendations resulted in needed upgrade of these systems to restore operational control, flexibility, and reliability. The current pumping system for NaOCl is oversize (dose of 38 mg/L) when only 10 mg/l is required based on sampling study. The over-sized system makes it difficult to dial the pumps down on the...

Scope of Work/Project Alternatives:
The scope of work includes but not limited to replacement of existing chem feed pumps with better pump technology to meet the need for this facility, modification on chem feed piping system and control, installation of overhead trolley for maintenance, relining the chem storage tanks to extend the life of existing tanks, replacing evaluating different screening technologies if applicable, if not, replacing control system and hydraulic power-pack of existing screens, installing new screen flush...

Other Important Info:
Previous study was performed by Hazen and Sawyer. AECOM/DLZ is working to provide a study BOD and 20% Design documents.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total
GLWA Salaries	$576	$201	$201	$148	$57	$57	$47	$46	$19	$227
Study & Design & Construction Assistance # 1	$1,391	$50	$50	$295	$330	$180	$162	$262	$112	$1,046
Construction (Build) # 1	$5,000	$0	$0	$0	$0	$0	$1,500	$2,500	$1,000	$5,000

CIP Number: 260618

Project Title: Oakwood HVAC Project

Project Status: Project Execution - Design
Class Lvl 1: Wastewater
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location: Oakwood CSO Facility
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**


Coroded building crane from failed HVAC system

Project Engineer/Manager: Chris Nastally

Director: Chris Nastally

Project Score
20

Problem Statement:
Heavy corrosion and the gas detection system in the sanitary pump room is constantly going off causing operators to leave the overhead door open to keep the space ventilated and safe to enter. As a result of this, the door is left open nearly year round. HVAC system pulls gases from the sewer as currently operated. The wet-well supply fans have failed functionally and this is also resulting in heavy corrosion in the sanitary pump room.

Scope of Work/Project Alternatives:
The Odor Control unit intake will be reconfigured, various supply and exhaust fans will be replaced, access for the odor control units will be made for all three units to facilitate proper maintenance. The crane and building structural steel will be assessed and re-coated to ensure proper life.

Other Important Info:
This project design is under way by Hazen.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	5 Year Total
GLWA Salaries	$338	$76	$76	$162	$90	$11	$100
Study & Design & Construction Assistance # 1	$729	$0	$0	$478	$246	$6	$252
Construction (Build) # 1	$2,900	$0	$0	$0	$2,900	$0	$2,900

CIP Number: 260619

Project Title: Control System Upgrade - St Aubin, Lieb & Mile

Project Status: Project Execution - Design
Class Lvl 1: Wastewater
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location: Conner Creek, Seven Mile, Puritan-Fenkell, Hubble-Southfield, Belle Isle, Oakwood CSO Basins, Baby Creek, Leib and St. Aubin Screening and Disinfection Facilities

☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Christopher Vanpoppelen

Director: Chris Nastally

Project Score
0

Problem Statement:
This program is being established to facilitate the study, design, construction administration, and construction of improvements necessary to maintain the facilities which contribute to the CSO Control Program and compliance herewith.

Scope of Work/Project Alternatives:
This program is intended to include studies, design, construction administration, and construction projects which serve to improve process areas or functions of the CSO Facilities. The overall scope of this program is to complete the following: The CS-299 (Facilities Assessment Project) will have projects that need to be programmed into the CIP over time, Replacement of CSO Facilities Fire Alarm Systems; Structural Condition Assessment Design/Build project; and flushing improvements to Baby Cr...

Other Important Info:
(Replaces CIP1313).

Project History: The GLWA CSO Control Program consists of the operations of 6 CSO RTB's, and 3 Screening & Disinfection Facilities (SDF). The fundamental difference between the SDF's and the RTB's is the presence of a bonafied basin versus a large diameter, long effluent pipe/ outfall. The long outfall (SDF) functionally serves a purpose similar to the basin (RTB) in terms of storage of combined sewer overflow during a rain event. As a result, the SDF's are fundamenta...

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	5 Year Total
GLWA Salaries	$81	$62	$62	$19	$0	$0
Study & Design & Construction Assistance	$35	$0	$0	$35	$0	$0

CIP Number: 260620

Project Title: Baby Creek Roof Replacement

Project Status: Active - Pre-Procurement - Construction
Class Lvl 1: Wastewater
Class Lvl 2: CSO Facilities
Class Lvl 3: Baby Creek
Lookup Location: Baby Creek
☑ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

- The previous installment on roof area 2 also failed to follow the required "step-down" installation method. As seen in the picture above, the shingle seams fall >4" from each other. This is a very common mistake found on

Improper shingle installation.

Project Engineer/Manager: Chris Nastally

Director: Navid Mehram

Project Score
0

Problem Statement:
The Baby Creek roof leaks on electrical equipment when it rains. The laps in the shingles are sometimes as little as 2". The leaking roof over time has caused the substrate to rot and require replacement. Approximately 1/3 of the roof was previously replaced in 2017. The new portion of roof is sufficient. The remaining 2/3's of the roof is exhibiting failure per a roof inspection conducted by GLWA roofing contractor.

Scope of Work/Project Alternatives:
Replace the 2/3's of Baby Creek roof with matching asphalt shingles.

Other Important Info:
N/A

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21
TBD / Future Allocation / General Holding	$641	$0	$0	$641

CIP Number: 260700

Project Title: Sewer System Infrastructure Improvements and Pumping Stations

Project Status: Project Execution - Design
Class Lvl 1: Wastewater
Class Lvl 2: Field Services
Class Lvl 3: Interceptor
Lookup Location:
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**


Infrastructure

Project Engineer/Manager: Mini Panicker

Director: Todd King

Project Score
68.2

Problem Statement:
VR-Gates, ISDs, and backwater gates are operational elements in the collection system that help in minimizing the untreated overflows and maximizing the flows to the WRRF and CSO control facilities. They have reached their life expectancy and needs rehabilitation.

Scope of Work/Project Alternatives:
Evaluate the existing conditions of the VR-Gates, ISDs, Backwater Gates and Access Hatches, provide the necessary design and the Construction Assistance for their replacement/rehabilitation.

Other Important Info:
Google map of VR-3 and VR-9 are included. VR-4, 5, 6, 10, 11 &13 are also part of the project.

Project History: GLWA interceptors and sewers were constructed in the early 1900s. The hatches and access covers secure operations and maintenance access points throughout the system for items such as the backwater gates, ISD, and VR. The backwater gates, ISD, and VR are all critical elements that control and divert flows throughout the system. Most of them have reached their life expectancy an...

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$532	$0	$0	$72	$87	$87	$57	$57	$57	$346	$115
SEWER SYSTEM INFRASTRUCTURE IMPROVEMENTS AND PUMPING STATIONS	$17,869	$0	$0	$1,331	$3,574	$8,963	$8,963	$7,177	$1,787	$30,464	$3,574

CIP Number: 260701

Project Title: Conveyance System Infrastructure Improvements

Project Status: Project Execution - Design
Class Lvl 1: Wastewater
Class Lvl 2: Field Services
Class Lvl 3: Interceptor
Lookup Location: City of Detroit, Southfield, and others
☑ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Infrastructure

Project Engineer/Manager: Mini Panicker

Director: Todd King

Project Score
0

Problem Statement:

VR-Gates, ISDs, and backwater gates are operational elements in the collection system that help in minimizing the untreated overflows and maximizing the flows to the WRRF and CSO control facilities. They have reached their life expectancy and needs rehabilitation.

Scope of Work/Project Alternatives:

Assess the structure and functionality of
1) Outfalls with Regulator Gates
2) Outfalls with Diversion Dams/Backwater Gates
3) Valve Remote Gates
4) In-System Storage Devices
Evaluate the existing conditions of the VR-Gates, ISDs, Backwater Gates and Access Hatches, provide the necessary design and the Construction Assistance for their replacement/rehabilitation.

Other Important Info:

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	5 Year Total
GLWA Salaries	$10	$10	$10	$0	$0	$0	$0	$0
CONVEYANCE SYSTEM INFRASTRUCTURE IMPROVEMENTS	$4,576	$459	$459	$1,356	$1,356	$1,356	$48	$2,761

CIP Number: 260702

Project Title: Pump Station Assets Updates

Project Status: Active - Pre-Procurement - Construction
Class Lvl 1: Wastewater
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location:
☑ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Mini Panicker

Director: Biren Saparia

Project Score
0

Problem Statement:
Evaluation and upgrade of the Pumping Station elements are needed to improve the transportation of the wastewater to the WRRF.

Scope of Work/Project Alternatives:
On an as needed basis evaluate/upgrade/replace the Sewer Pump Station elements to keep up the collection system transport capacity.

Other Important Info:

Current Expenses (All figures are in $1,000's)

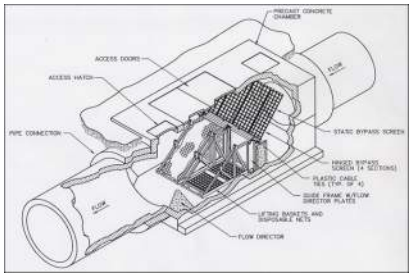
Activity Name	Total Costs	Actual Costs	Prior FYs	FY21
PUMP STATION ASSETS UPDATES	$669	$0	$0	$669

CIP Number: 270001

Project Title: Pilot CSO Netting Facility

Project Status: Future Planned - Within 5 Year Plan
Class Lvl 1: Wastewater
Class Lvl 2: CSO Facilities
Class Lvl 3: Multiple CSO Facilities
Lookup Location: Detroit River - East Side Downtown east of Ralph C. Wilson Park.
☐ **Project New to CIP:**

☐ **Innovation**
☑ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**


Netting Facility

Project Engineer/Manager: Chris Nastally

Director: Chris Nastally

Project Score
65

Problem Statement:
The First Street CSO Outfall (B-023) has been identified in the NPDES Permit for the Priority Non-Core Compliance schedule. It is also the nearest and most frequently discharging outfall upstream of the proposed Ralph C Wilson waterfront park on the Detroit River. A pilot facility to demonstrate the application of CSO outfall nets is proposed at this location to keep the sanitary trash from discharging close to this beach, and also to help minimize impacts from fecal coliform bacteria contai...

Scope of Work/Project Alternatives:
Inspect the two 10-ft by 10-foot box culverts that comprise this outfall and establish a location for installing the CSO nets, considering outfall structural condition, ease of access for net removal and replacement, and maintenance vehicle parking. Construct in-line netting facility under Convention Center Drive to the west of Cobo Convention Center. Construct access point for future Total Chlorine Residual monitoring to be installed in a second phase of this project. Provide electrical and ...

Other Important Info:
GLWA staff conducted a field inspection in 2019 of CSO outfall netting facilities constructed in Cleveland in 2004. There are different types of CSO net installations, and GLWA believes that in-line nets provide for the most efficient operation and maintenance.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$323	$0	$0	$0	$13	$57	$57	$57	$46	$231	$92
Study & Design & Construction Assistance # 1	$2,250	$0	$0	$0	$0	$0	$1,500	$50	$287	$1,837	$413
Construction (Build) # 1	$7,000	$0	$0	$0	$0	$0	$0	$0	$2,870	$2,870	$4,130

CIP Number: 270002

Project Title: Meldrum Sewer Diversion and VR-15 Improvements

Project Status: Future Planned - Within 5 Year Plan
Class Lvl 1: Wastewater
Class Lvl 2: CSO Facilities
Class Lvl 3: Multiple CSO Facilities
Lookup Location: Sewers and Interceptors
☐ **Project New to CIP:**

☐ **Innovation**
☑ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Mini Panicker

Director: Biren Saparia

Project Score
62.4

Problem Statement:
The Meldrum Sewer is an uncontrolled CSO that discharges through outfall B-07. Currently, this is an untreated CSO discharge. Untreated CSO discahrges let debris from the sewer and bacteria make their way into fresh water bodies and are not good for public health or the environment. The NPDES permit requires control of this outfall to Michigan water quality standards. The Leib Screening and Disinfection Facility was designed with capacity to screen and disinfect the Meldrum Sewer CSO flow...

Scope of Work/Project Alternatives:
The scope of work involves connecting the Meldrum sewer to the Conant-Mt. Elliot Sewer with a diversion pipe that is 5 feet in diameter. New gates would be installed in the Meldrum sewer which direct flow through this diversion and into the Conant-Mt. Elliot sewer, which would then be processed through the Leib Screening and Disinfection Facility. These gates would allow dry weather flow to take it's normal route through the Meldrum sewer to the DRI, and would divert wet-weather to Leib SDF. ...

Other Important Info:
Recommended in DWSD LTCSO Plan of 2008.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$340	$0	$0	$9	$57	$57	$55	$46	$225	$115
Design & Construction Assistance # 1	$1,000	$0	$0	$0	$0	$225	$212	$243	$680	$320
Construction (Build) # 1	$4,500	$0	$0	$0	$0	$0	$300	$1,686	$1,986	$2,514

CIP Number: 270003

Project Title: Long Term CSO Control Plan

Project Status: Active - Procurement - Negotiation Phase - Design
Class Lvl 1: Wastewater
Class Lvl 2: CSO Facilities
Class Lvl 3: Multiple CSO Facilities
Lookup Location: City of Detroit
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Chris Nastally

Director: Chris Nastally

Project Score
0

Problem Statement:
The NPDES permit which governs CSO Discharges for GLWA requires GLWA to provide for prohibition, elimination, or adequate treatment of combined sewer discharges containing raw sewage. The current plans of 2008 and 2010 were approved by the EGLE (formerly MDEQ) and are the current plans of record. The new NPDES permit issued in July of 2019 opened the door for GLWA to refresh the Long Term Plan and submit to EGLE for review and approval by 11/15/2022. There are 56 total untreated outfalls ope...

Scope of Work/Project Alternatives:
This project will be a predecessor project to executing a long term CSO control plan, as required by the NPDES permit. This project will include evaluation of the requirements and work done under the 2008 and 2010 current plans of record, evaluation of elements within the Wastewater Masterplan aimed at CSO Control, evaluation of affordability, evaluation and siting of specific projects to be executed, and evaluation and programming of recommended projects to address affordability. The RFP for...

Other Important Info:
The wastewater masterplan, currently in draft format, has identified in it elements that are a part of the Long Term Plan, including a new storage conduit on the west-side for first flush capture, in-system storage dams, system diversions, and some netting facilities locations strategically selected. These will need to be evaluated and further fleshed out under this project and also evaluated against current system requirements, and former Long Term requirements and plans set forth in 2008 and...

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	5 Year Total
GLWA Salaries	$4	$4	$4	$0	$0	$0	$0	$0	$0
Design & Construction Assistance	$9,264	$0	$0	$3,500	$3,799	$1,749	$144	$73	$5,764

CIP Number: 274001

Project Title: Leib Improvements for Meldrum Diversion

Project Status: Future Planned - Within 5 Year Plan
Class Lvl 1: Wastewater
Class Lvl 2: CSO Facilities
Class Lvl 3: Leib
Lookup Location: Leib CSO Facility
☑ **Project New to CIP:**

- ☐ **Innovation**
- ☑ **WW Master Plan**
- ☐ **Water Master Plan Right Sizing**
- ☐ **Redundancy**
- ☐ **NE WTP Repurposing**
- ☐ **Linear Assets Outside of Facilities**
- ☑ **Predecessor Project(s)**


Leib Screen

Project Engineer/Manager: Chris Nastally

Director: Chris Nastally

Project Score
78.2

Problem Statement:
The Leib CSO Facility has been under utilized for the last 20 years. The WWMP is recommending a diversion to the facility which will increase utilization and close an untreated CSO outfall. To be prepared for this increased utilization, improvements to the facility are required. The chemical system is functionally failed and the screening system presents operational and maintenance difficulties (pilot facility with different types of screens requiring different maintenance and having differe...

Scope of Work/Project Alternatives:
To be ready for the Meldrum Diversion project, the following will be improved. Replacement of fine screens, replacement of the chemical feed system, improved automation for chemical dosing, improved access and maintenance of equipment, miscelaneous electrical/hvac and I&C improvements, a new site access drive to improve safety, as well as various safety improvements to facility hatches.

Other Important Info:
This is a predecessor project to the Meldrum diversion project and ideally should be constructed prior to completion of the Meldrum Diversion to allow use of that and testing of equipment installed as a part of that project.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$376	$0	$0	$25	$57	$57	$57	$50	$46	$268	$83
Design & Construction Assistance # 1	$2,960	$0	$0	$0	$197	$1,171	$592	$586	$234	$2,780	$180
Construction # 1	$7,606	$0	$0	$0	$0	$0	$0	$2,077	$3,116	$5,193	$2,413

CIP Number: 277001

Project Title: Baby Creek Outfall Improvements Project

Project Status: Future Planned - Within 5 Year Plan
Class Lvl 1: Wastewater
Class Lvl 2: CSO Facilities
Class Lvl 3: Baby Creek
Lookup Location: Baby Creek CSO Facility
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Example of Proposed Facility

Project Engineer/Manager: Matthew Krieger

Director: Chris Nastally

Project Score
72.8

Problem Statement:
A facility is required to be constructed in order to ensure continued access to the Baby Creek Outfall. In addition to facility construction, system improvements which address sediment accumulation are needed to ensure the CSO can meet NPDES requirements. This system improvement will likely be a flushing system installed inside the outfall, but the best solution is not known at this time. The triple barrel Baby Creek Outfall consists of (3) 14'-6" wide by 17'-6" tall concrete box culverts which...

Scope of Work/Project Alternatives:
This project consists of a study and design. Construction is anticipated from the design, but since the flushing system solution cannot be known at this time this phase is not included in the project due to the variability in alternatives and their associated costs. The study and design will assess the proper ways to clean the pipes, facilitate future maintenace, flushing of the pipes after rain events, and perform assessments of the backwater gates and ensure proper instrumentation is instal...

Other Important Info:
The current outfall is not capable of being flushed and the solids level will build up after each rain event. Furthermore, the rising river level continues to impact this facility and the outfalls capacity. Having a build up of sludge does not favor Baby Creek in passing the necessary flows because the headloss through the pipes is small and the capacity of the pipes are reduced to to the reduction in cross-sectional area.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total
GLWA Salaries	$1,376	$2	$2	$1,143	$57	$57	$46	$46	$24	$230
Design-Build # 1	$17,450	$0	$0	$0	$1,750	$1,450	$6,750	$6,750	$750	$17,450

CIP Number: 278001

Project Title: Oakwood Improvements for NWI Diversion

Project Status: Future Planned - Within 5 Year Plan
Class Lvl 1: Wastewater
Class Lvl 2: CSO Facilities
Class Lvl 3: Oakwood
Lookup Location: Oakwood CSO Facility
☑ **Project New to CIP:**

- ☐ **Innovation**
- ☑ **WW Master Plan**
- ☐ **Water Master Plan Right Sizing**
- ☐ **Redundancy**
- ☐ **NE WTP Repurposing**
- ☐ **Linear Assets Outside of Facilities**
- ☑ **Predecessor Project(s)**


Oakwood Aerial

Project Engineer/Manager: Chris Nastally

Director: Chris Nastally

Project Score
74.6

Problem Statement:
The Oakwood Facility Construction was completed in 2012. Over the last 8 years, the facility has been under utilized. Proposed plans for the Oakwood-Northwest diversion to Oakwood coupled with a facility assessment require improvements to ensure the facility is prepared to handle flows over those historically observed over the last 8+ years.

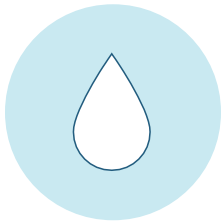
Scope of Work/Project Alternatives:
The scope of work is currently being refined under CS-299 (CSO Facilities Assessment Project). At this time, the following improvements will be planned for: The manual screening in the pump station will be replaced with a mechanically raked bar screen to reduce pump failures (currently the manual screens blind and build up head in the storm well until they are manually cleaned, causing issues with bearing submersion of the storm pumps when they are not in operation). The disinfection system w...

Other Important Info:
This project is intended to be completed plus/minus 12 months from the completion of the NWI diversion project. Given anticipated difficulties of that project, it is likely that this project will be completed much earlier than the NWI diversion. Ideally this project is to be completed before the NWI diversion to allow for proper testing/etc. needed when the NWI diversion is completed.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$376	$0	$0	$25	$57	$57	$57	$50	$46	$268	$83
Design & Construction Assistance # 1	$2,977	$0	$0	$0	$194	$1,148	$574	$593	$246	$2,755	$222
Construction # 1	$6,873	$0	$0	$0	$0	$0	$0	$1,903	$1,903	$3,805	$3,068

CENTRALIZED SERVICES PROJECTS



7 PROJECTS

Centralized Services Projects are funded by the Water or the Wastewater spend plans, or in the past could be split between the two.

FOR MORE: APPENDIX C

Find the full Business Case Evaluations for Centralized Services Projects in Appendix C.

CIP Number: 331002

Project Title: Roofing Systems Replacement at GLWA WRRF, CSO Retention Treatment Basins (RTB) and Screening Disinfection Facilities (SDF)

Project Status: Project Execution - Construction
Class Lvl 1: Centralized Services
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location: WRRF
☐ **Project New to CIP:**

☑ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Chris Wilson

Director: Dan Alford

Project Score
0

Problem Statement:
Some of the roofs at GLWA WRRF facilities are near its end of useful life. The roofs help to protect the expensive equipment by preventing rain water entering through roofs into the facilities.

Scope of Work/Project Alternatives:
Inspect the roofing system conditions and assess drainage conditions on all the GLWA wastewater related facility buildings. Document the roofing systems inspections by taking and submitting high-quality photographs, scaled drawings, sketches, and inspection notes to adequately describe the conditions and deficiencies of the roofing systems and their drainage facilities. Recommend the extent of the roofing repairs and replacements required. Document the roof for each building inspected on the pr...

Other Important Info:
*Innovation note: Use cool roofs.
Complex – II Incinerator ($1.8M) and Complex – II Dewatering ($1.0 M) replacement are under consideration to be part of fire remediation project.

Challenges: Roof material testing for asbestos before demolition and flashing will be challenge to manage as low levels of asbestos are very common in the GLWA's old roof type systems.

Project History: Majority of GLWA WRRF facilities have Built-Up-Roof (BUR) membranes systems commonly referred as "tar and gr...

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$298	$8	$8	$57	$46	$46	$46	$46	$46	$230	$4
Design & Construction Assistance # 1	$469	$0	$0	$91	$63	$63	$63	$63	$63	$315	$63
Construction (Build) # 1	$8,121	$1,115	$1,115	$0	$1,168	$1,168	$1,168	$1,168	$1,168	$5,838	$1,168

CIP Number: 331003

Project Title: Masonry Replacement and Rehabilitation

Project Status: Future Planned - Ten-Year CIP
Class Lvl 1: Water
Class Lvl 2: General Purpose
Class Lvl 3: General Purpose
Lookup Location:
☑ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**


Northeast Facility

Project Engineer/Manager: Douglas Atkinson

Director: Paula Anderson

Project Score
0

Problem Statement:
Cracks and deterioration in masonry walls,exterior concrete, retaining walls, concrete decks and floors needing repair or replacement causing concern for safety due to poor conditions.

Scope of Work/Project Alternatives:
For NE WTP: Assess, solve the movement and moisture penetration problem, rebuild portions of masonry and concrete walls, floors, roof parapets and deck elements.
For SW WTP: Assess the panels and support structure, replace panels, repair/restore rusted steel members.
For Imlay City: Remove or rebuild retaining walls to withstand soils pressure.

Other Important Info:
3 sites have been identified for this project all have some failing concrete.
1)Northeast WTP
2)Southwest WTP
3) Imlay City Pumping Station

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
TBD / Future Allocation / General Holding	$25,000	$0	$0	$0	$0	$0	$0	$0	$0	$25,000

CIP Number: 341001

Project Title: Security Infrastructure Improvements on Water Facilities

Project Status: Project Execution - Construction
Class Lvl 1: Centralized Services
Class Lvl 2: Security
Class Lvl 3: General Purpose
Lookup Location: System Wide

☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**


Project Photo

Project Engineer/Manager: Michael Lewis

Director: W. Barnett Jones

Project Score
0

Problem Statement:
GLWA facilities have been designated as "Critical Infrastructure" by the United States Department of Homeland Security (OHS). Critical Infrastructure is under constant threat by malicious people intent on disruption and destruction. GLWA staff is engag.ed in a continual process of threat and vulnerability assessment to our facilities, operations, and staff. Using several assessment tools including, OHS Site Assessments, incorporating AWWA security recommendations, and utilizing GLWA's historic...

Scope of Work/Project Alternatives:
Water Works Park: Additional coverage where boats dock and by the screening house. Video assessment wherever there are alarm points. Primary Building needs to be secured. Need video coverage. Switchgear room needs to be secured. Exterior video coverage of oxygen tanks and entrance lo chlorine room. Secure transformer enclosures -Raw water Booster Station. Interior intrusion detection devices need to be installed at high lift building- glass break, motion sensors, etc. Install Card reade...

Other Important Info:
GLWA has a responsibility in the layered approach to critical infrastructure security; partnering with Federal, State, and Local law enforcement entities to minimize and respond to threats. This partnership required GLWA to maintain a minimum security posture equating to the Critical Infrastructure designation. Implementation of the security protocols were none existent, and improving the GLWA security foot print can reduce our vulnerabilities and enhance our response to known threats.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$696	$334	$334	$330	$30	$2	$0	$0	$0	$32	$0
Design-Build # 1	$8,474	$3,610	$3,610	$4,326	$537	$0	$0	$0	$0	$537	$0

CIP Number: 341002

Project Title: Security Infrastructure Improvements for Wastewater Facilities

Project Status: Project Execution - Construction
Class Lvl 1: Centralized Services
Class Lvl 2: Security
Class Lvl 3: General Purpose
Lookup Location: System Wide

☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**


Project Photo

Project Engineer/Manager: Michael Lewis

Director: W. Barnett Jones

Project Score
0

Problem Statement:
GLWA facilities have been designated as "Critical Infrastructure" by the United States Department of Homeland Security (OHS). Critical Infrastructure is under constant threat by malicious people intent on disruption and destruction. GLWA staff is engag.ed in a continual process of threat and vulnerability assessment to our facilities, operations, and staff. Using several assessment tools including, OHS Site Assessments, incorporating AWWA security recommendations, and utilizing GLWA's historic...

Scope of Work/Project Alternatives:
Water Works Park: Additional coverage where boats dock and by the screening house. Video assessment wherever there are alarm points. Primary Building needs to be secured. Need video coverage. Switchgear room needs to be secured. Exterior video coverage of oxygen tanks and entrance lo chlorine room. Secure transformer enclosures -Raw water Booster Station. Interior intrusion detection devices need to be installed at high lift building- glass break, motion sensors, etc. Install Card reade...

Other Important Info:
GLWA has a responsibility in the layered approach to critical infrastructure security; partnering with Federal, State, and Local law enforcement entities to minimize and respond to threats. This partnership required GLWA to maintain a minimum security posture equating to the Critical Infrastructure designation. Implementation of the security protocols were none existent, and improving the GLWA security foot print can reduce our vulnerabilities and enhance our response to known threats.

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$58	$0	$0	$29	$29	$0	$0	$0	$0	$29	$0
Design-Build # 1	$3,476	$1,015	$1,015	$1,768	$693	$0	$0	$0	$0	$693	$0

CIP Number: 351001

Project Title: LED Lighting and Lighting Control Improvements

Project Status: Active - Pre-Procurement - Construction
Class Lvl 1: Centralized Services
Class Lvl 2: Energy Management
Class Lvl 3: General Purpose
Lookup Location: System Wide
☐ **Project New to CIP:**

☑ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**


LED Light

Project Engineer/Manager: Eric Griffin

Director: John Norton

Project Score
0

Problem Statement:
Energy savings, demand reduction improved visibility, safety, operational efficiency and worker productivity. Budget was cut to $500,000.00 we plan on reducing scope to 4 Booster stations only under this CIP.MFG 7/25/2019

Scope of Work/Project Alternatives:
Remove identified old fixtures and replace with new LED lamps and advanced control systems.

Other Important Info:
Challenges: Some outfalls are below the river elevation; installation may be challenging.

Project History: An audit was completed in 2010/2011 but little action was taken. Advancement in lighting technology since this audit has rendered it obsolete as to recent innovations, technology and cost. Across the system, equipment is in poor condition and exceeds its end of life. Some existing fixtures are antiques and compared to today's lighting, cannot meet minimum lighting standards.

A well...

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	5 Year Total
GLWA Salaries	$150	$7	$7	$0	$38	$38	$38	$30	$143
Study # 1	$50	$0	$0	$0	$0	$17	$17	$17	$50
Design-Build # 1	$500	$0	$0	$0	$0	$167	$167	$167	$500

CIP Number: 380600

Project Title: As-Needed General Engineering Services

Project Status: Cancelled
Class Lvl 1: Centralized Services
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location: System-wide
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Grant Gartrell

Director: Grant Gartrell

Project Score
0

Problem Statement:
Allowance for the study and design of critical projects throughout the system prior to bidding and construction.

Scope of Work/Project Alternatives:
As-needed engineering services for water and wastewater engineering.

Other Important Info:
Challenges: N/A - Active

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TBD / Future Allocation / General Holding TBD	$55	$0	$0	$55	$0	$0	$0	$0	$0	$0	$0

CIP Number: 380700

Project Title: As-Needed Geotechnical and Related Engineering Services

Project Status: Project Execution - Design
Class Lvl 1: Centralized Services
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location: System-wide
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☐ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Project Engineer/Manager: Peter Fromm

Director: Grant Gartrell

Project Score
0

Problem Statement:
GLWA engineering and operations need a contract mechanism to obtain professional engineering services in a timely manner to investigate environmental, geotechnical and specialized engineering problems that occur on a regular basis throughout the system.

Scope of Work/Project Alternatives:
This engineering/technical services contract involves as-needed engineering and technical services related to geotechnical investigations and related geotechnical engineering, construction materials sampling and testing, environmental media sampling and testing, soils sampling and testing, land surveying, corrosion testing and inspection, computer-aided design, and construction inspection. This contract includes design, construction services, and resident project representation for the follow...

Other Important Info:
N/A

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY21	FY22	FY23	FY24	FY25	FY26	5 Year Total	FY27+
Construction (Build) # 1	$2,131	$771	$771	$904	$456	$0	$0	$0	$0	$456	$0

CIP Number: 381000

Project Title: Power Quality: Electric Metering Improvement Program

Project Status: Active - Pre-Procurement - Design
Class Lvl 1: Centralized Services
Class Lvl 2: Programs
Class Lvl 3: Programs
Lookup Location: System-wide
☐ **Project New to CIP:**

☐ **Innovation**
☐ **WW Master Plan**
☐ **Water Master Plan Right Sizing**
☑ **Redundancy**
☐ **NE WTP Repurposing**
☐ **Linear Assets Outside of Facilities**
☐ **Predecessor Project(s)**

Power Quality Meters

Project Engineer/Manager: Eric Griffin

Director: John Norton

Project Score
0

Problem Statement:

Advanced meters for measuring power usage in real-time to reduce the electrical demands and further optimize load management practices, GLWA is experiencing a lot of power outages at our facilities. The installation of the New Power Monitors will give us real wave form data to determine why we are having outages and the time period of sagging or swelling voltage which effects the integrity of our equipment. MFG 7/25/2019

Scope of Work/Project Alternatives:

This program will increase the number of electric meters at pumping stations and treatment facilities to allow for active demand management to reduce electricity rates. The meters can be tied to the existing data management system for data archiving and use.
The installation of the New Power Monitors will give us real wave form data to determine why we are having outages and the time period of sagging or swelling voltage which effects the integrity of our equipment.MFG 07/25/2019

Other Important Info:

Project History: Project is in the works targeting high demand (kW) sites - all the water treatment plants (Phase 1)
We would like to change the project to design build and move up on the CIP. The outages we are having are affecting our preassuers that are causing water main breaks and boil water advisories, We need this to better communicate DTE problems that we are faced with and come up with solutions to improve the process or equipment.MFG 7/25/2019

Current Expenses (All figures are in $1,000's)

Activity Name	Total Costs	Actual Costs	Prior FYs	FY24	FY25	FY26	5 Year Total	FY27+
GLWA Salaries # 1	$124	$0	$0	$27	$26	$22	$74	$50
Design-Build # 1	$2,500	$0	$0	$0	$197	$1,107	$1,305	$1,195