



Assessment and Rehabilitation of WRRF yard piping and underground utilities

- ☒ Innovation

☐ Conceptual WW MP

☐ Water MP Right Sizing

☒ Reliability/Redundancy

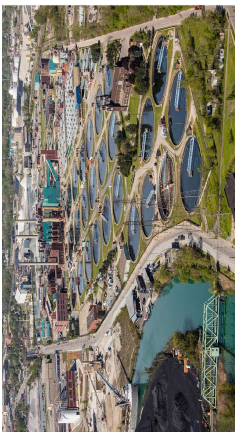
☐ NEWTP Repurposing

Project Status Active

CIP Type Project

☐ Project New To CIP

GLWA WRRF



Budget Wastewater

Project Engineer/Manager Charles Reinhart

Class Lvl 1 Wastewater

Director Dan Alford

Class Lvl 2 WRRF

Managing Dept WW Design Eng

Class Lvl 3 General Purpose

Date Original Business Case Prepared 7/27/2016

Location City of Detroit

Year Project Added to CIP 2017

Fund and Cost Center Wastewater - 5421-892211

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 pipelines are needed to make sure the integrity of these pipelines.

Challenges: Maintaining the adequate supply of our water systems required for treatment processes during assessment and rehabilitation of underground utilities will be the most significant challenge on this project. Temporary power, air, water, natural gas system shutdowns may also be required to perform the work.



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Related Project

There are currently no other specific projects for underground utilities, however many other projects require continuous service from these utilities and the ability to consistently supply the required quantities will need to be coordinated with these projects during construction of the improvements.

Primary Driver

1 - Condition

Driver Explanation

Some of the underground utilities are original to the plant and are critical to the plant treatment processes (e.g. incinerator air permit requirements).

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**PM Weighted
Score**

80.8

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

**RC Weighted
Score**

76.4

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



Assessment and Rehabilitation of WRRF yard piping and underground utilities

Phase GLWA Employees Project management

Contract NA

Status Future Planned Start

Title GLWA Salaries

Phase Budget Wastewater

Phase Status Future Planned Start

Start Date

End Date

Cost Allocation CTA

Funding Source Bond Proceeds

Fund Construction Bond Fund

Useful Life >20Yrs? No

Tot. Federal Loan Amount \$0

Cost Estimation Information

3 Cost Est. Class

10/1/2017 Cost Est. Date

Cost Est. Source

Ali Khraizat Cost Est. Prepared By

Program/Allowance Task Information

Project Manager

CIP Number

Description

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
GLWA Salaries CIP2021	FY19-	\$3			2021CIP
GLWA Salaries CIP2021	FY20	\$86			2021CIP
GLWA Salaries CIP2021	FY21	\$94			2021CIP
GLWA Salaries CIP2021	FY22	\$95			2021CIP
GLWA Salaries CIP2021	FY23	\$95			2021CIP
GLWA Salaries CIP2021	FY24	\$95			2021CIP
GLWA Salaries CIP2021	FY25	\$95			2021CIP
GLWA Salaries CIP2021	FY26+	\$2			2021CIP

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

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
3	86	94	95	95	95	95	2	565	474

Phase Task Dates



Assessment and Rehabilitation of WRRF yard piping and underground utilities

Phase Design & Construction Assistance

Contract NA

Status Future Planned Start

Title Assessment and Rehabilitation of WRRF yard piping and underground utilities

Phase Budget Wastewater

Phase Status Future Planned Start

Start Date9/13/2019

End Date10/19/2024

Cost Allocation CTA

Funding SourceBond Proceeds

FundConstruction Bond Fund

Useful Life >20Yrs?Yes

Tot. Federal Loan Amount

Cost Estimation Information

5Cost Est. Class

9/12/2018Cost Est. Date

EngCost Est. Source

Ali KhraizatCost Est. Prepared By

Program/Allowance Task Information

Project Manager

CIP Number

Description

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Engineering Services	FY20	\$184			2021CIP
Engineering Services	FY21	\$443			2021CIP
Engineering Services	FY22	\$443			2021CIP
Engineering Services	FY23	\$443			2021CIP
Engineering Services	FY24	\$444			2021CIP
Engineering Services	FY25	\$443			2021CIP
Engineering Services	FY26+	\$10			2021CIP

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

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	184	443	443	443	444	443	10	2,410	2,216

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Pre-Procurement	1/15/2019	8/15/2019	212



GLWA FY 2021-2025 CIP

216006 CIP#

Assessment and Rehabilitation of WRRF yard piping and underground utilities

Phase Task Name	Start Date	End Date	Duration
Procurement	8/16/2019	2/11/2020	179
Project Execution	2/12/2020	7/8/2025	1973



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Phase Construction

Contract TBD

Status Future Planned Start

Title Assessment and Rehabilitation of WRRF yard piping and underground utilities

Phase Budget Wastewater

Phase Status Future Planned Start

Start Date

End Date

Cost Allocation CTA

Funding Source Bond Proceeds

Fund Construction Bond Fund

Useful Life >20Yrs? Yes

Tot. Federal Loan Amount \$0

Cost Estimation Information

Cost Est. Class

Cost Est. Date

Cost Est. Source

Cost Est. Prepared By

Program/Allowance Task Information

Project Manager

CIP Number

Description

Cost Type	Fiscal Year	Expense	Fringe Benefit	NonPersonne	Comment
Construction	FY21	\$3,754			2021CIP
Construction	FY22	\$4,216			2021CIP
Construction	FY23	\$4,216			2021CIP
Construction	FY24	\$4,228			2021CIP
Construction	FY25	\$4,862			2021CIP
Construction	FY26+	\$261			2021CIP

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

Prior Yr Actual	FY20	FY21	FY22	FY23	FY24	FY25	FY26+	Total	5-Yr Total
0	0	3,754	4,216	4,216	4,228	4,862	261	21,537	21,276

Phase Task Dates

Phase Task Name	Start Date	End Date	Duration
Procurement	5/12/2020	8/9/2020	89
Project Execution	8/10/2020	5/9/2025	1733



GLWA FY 2021-2025 CIP

216006 CIP#

Assessment and Rehabilitation of WRRF yard piping and underground utilities

Phase Task Name	Start Date	End Date	Duration
Project Closeout	5/10/2025	7/8/2025	59