

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

- Innovation
- Conceptual WW MP
- Water MP Right Sizing
- Reliability/Redundancy
- NEWTP Repurposing

**Project Status** Future Planned

**CIP Type** Project

**Project New To CIP**



**Budget** Wastewater

**Class Lvl 1** Wastewater

**Class Lvl 2** WRRF

**Class Lvl 3** General Purpose

**Location** City of Detroit

**Fund and Cost Center** Wastewater - 5421-892211

**Project Engineer/Manager** TBD

**Director** Dan Alford

**Managing Dept** WW Design Eng

**Date Original Business Case Prepared** 6/21/2017

**Year Project Added to CIP** 2018

### 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 which may include additional SFE treatment such as chemical addition to accommodate process needs.

### 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 significant upgrade/rehabilitation is required. In addition, the two 5 kV transformers that supply power from EB-3 are approximately 40 years old and are in need of replacement.

Challenges: Maintaining the adequate supply of SFE to the plant treatment processes during construction of the SFE improvements.

### Related Project

There are no other specific projects for the SFE pump station that need to be coordinated with, however many other projects require SFE to consistently supply the required quantities needed. This will need to be coordinated



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with these projects during construction of the improvements.

**Primary Driver**

1 - Condition

**Driver Explanation**

The SFE pump station is very old and is critical to other treatment processes meeting permit requirements (e.g. incinerator air permit requirements). The Secondary Water System is very corroded and needs to be rehabilitated or relocated.

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**PM Weighted Score**  
**55.8**

Criteria	Score	Comment
Condition	5	Some components are passed their useful life
Operations and Maintenance	4	Significant O&M is required to keep the SFE in
Financial	4	Exposure to multiple fines for permit violations
Performance (Service Level/Reliability)	2	Much of the equipment is out frequently out o
Regulatory (Environmental/Legal)	2	If the SFE pump station goes down, there is an
Efficiency and Innovation	4	Project will have a significant impact on efficie
Public Benefit	2	Public will benefit from improved air quality
Public Health and Safety	1	Permit violations would cause both air quality

**RC Weighted Score**  
**55.8**

Criteria	Score	Comment
Regulatory (Environmental/Legal)	2	
Efficiency and Innovation	4	
Condition	5	
Public Health and Safety	1	
Performance (Service Level/Reliability)	2	
Financial	4	
Operations and Maintenance	4	
Public Benefit	2	



Rehabilitation of Screened Final Effluent (SFE) Pump Station

**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

**Cost Estimation Information**

**Tot. Federal Loan Amount** \$0

**Cost Est. Class** 3

**Cost Est. Date** 10/1/2018

**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
GLWA Salaries CIP2021	FY20	\$86			2021 CIP
GLWA Salaries CIP2021	FY21	\$86			2021 CIP
GLWA Salaries CIP2021	FY22	\$104			2021 CIP
GLWA Salaries CIP2021	FY23	\$121			2021 CIP
GLWA Salaries CIP2021	FY24	\$118			2021 CIP

**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	86	86	104	121	118	0	0	515	429

**Phase Task Dates**



Rehabilitation of Screened Final Effluent (SFE) Pump Station

**Phase** Construction

**Contract** NA

**Status** Future Planned Start

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

**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** 5  
**Cost Est. Date** 9/12/2018  
**Cost Est. Source** Eng  
**Cost Est. Prepared By** Ali Khraizat

**Program/Allowance Task Information**

**Project Manager**  
**CIP Number**  
**Description**

Cost Type	Fiscal Year	Expense	Fringe	Benefit	NonPersonne	Comment
Construction	FY22	\$1,147				2021CIP
Construction	FY23	\$15,196				2021CIP
Construction	FY24	\$5,556				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	0	1,147	15,196	5,556	0	0	21,899	21,899

**Phase Task Dates**

Phase Task Name	Start Date	End Date	Duration
Procurement	6/28/2021	12/24/2021	179
Project Execution	12/25/2021	4/25/2024	852
Project Closeout	4/26/2024	6/24/2024	59



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

**Phase** Study and Design and Construction Assistance

**Contract** NA

**Status** Future Planned Start

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

**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

**Cost Estimation Information**

4 **Cost Est. Class**

9/12/2018 **Cost Est. Date**

Eng **Cost Est. Source**

Ali Khraizat **Cost Est. Prepared By**

**Tot. Federal Loan Amount**  \$0

**Program/Allowance Task Information**

**Project Manager**

**CIP Number**

**Description**

Cost Type	Fiscal Year	Expense	Fringe	Benefit	NonPersonne	Comment
Engineering Services	FY20	\$504				2021 CIP
Engineering Services	FY21	\$1,276				2021 CIP
Engineering Services	FY22	\$256				2021 CIP
Engineering Services	FY23	\$254				2021 CIP
Engineering Services	FY24	\$250				2021 CIP

**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	504	1,276	256	254	250	0	0	2,540	2,036

**Phase Task Dates**

Phase Task Name	Start Date	End Date	Duration
Pre-Procurement	7/1/2019	8/29/2019	59
Procurement	8/30/2019	2/25/2020	179
Project Execution	2/26/2020	6/24/2024	1580



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Project Total Expenses By FY Compared to Prior CIPs (All figures are in \$1,000's)

CIP Alias	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	Total	5-Yr Total
2021	0	0	0	0	590	1,362	1,507	15,571	5,924	0	0	24,954	24,364
2020	0	0		51	1,091	991	9,475	7,805	5,535		0	24,948	24,897

**Description of CIP Changes**

This project is separated from 2019 CIP 216006 and will label as a new project