




## COOPER CITY UTILITIES DEPARTMENT MEMORANDUM

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DATE: November 3, 2021

TO: Joseph Napoli, City Manager

FROM: Michael F. Bailey, P.E., Utilities Director/City Engineer 

SUBJECT: Reprioritization of Utilities Capital Improvement Projects

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The following is a recommendation to authorize reprioritization of two capital improvement projects related to the City's wastewater transmission system.

The Water & Sewer Capital Improvement Fund (Fund 453) currently includes \$736,000 for the construction of a new sewer transmission main (aka "force main") on SW 90 Avenue. The purpose of the project is to re-route the discharge of six sewer pumping stations that do not have sufficient pumping capacity during extreme wet weather events to the suction side of Station 55, which is the primary booster pump station that serves most of eastern Cooper City.

Another project in the Water & Sewer Master Capital Improvement Plan, but not currently budgeted, is the rehabilitation of Station 55. As mentioned above, this is the primary booster pump station that serves most of eastern portion of the City. An engineering report, produced in 2020, examined the electrical and mechanical components of the station and concluded that it requires approximately \$2.5 million worth of rehabilitation and replacement equipment within the next 3-5 years.

In the engineering report, the work is broken into three phases to accommodate potential budget constraints. The first phase is replacement of the emergency generator since it was recognized that the existing generator is obsolete and is critical to operation of the station during power outages. The other two phases consist of replacement of the electrical switchgear, motor control center, and variable frequency drive systems, and the pump station control system.

Although this work is planned for future years, the emergency generator has deteriorated to the point that it is consuming large quantities of oil when it is running and cannot be relied upon to operate for more than a few hours. Based on this information, and the importance of this station to the overall sewer transmission system for a large part of the City, I recommend your approval to defer the SW 90 Avenue force main project and use the funds to move forward with the first phase of the Station 55 rehabilitation project. The budget estimate for this phase was \$434,000 in 2020 but, considering the increase in material and equipment costs over the past year, I think \$625,000 is a more reasonable cost estimate for this work.

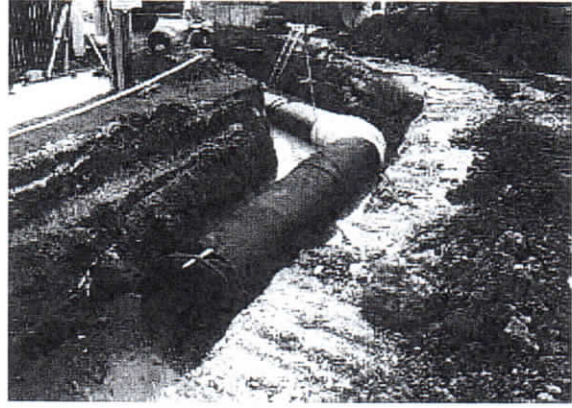
Please let me know if this recommendation meets with your approval, or if you have any questions.

453-930-563610-535-18003

FY 2021 - FY 2025  
CAPITAL IMPROVEMENT PROGRAM



PROJECT DETAIL	
<b>Project Name:</b>	Force Main re-rout to 90 Ave to Repump Station 55
<b>Project Dept./Division:</b>	Utilities - Wastewater Transmission & Collection (930)
<b>Project Duration (FY):</b>	FY 2021
<b>Project Location:</b>	90th Avenue
<b>Project Description/Purpose for Project:</b>	
Construct new forcemain to transmit sewer flow from five sewer pump stations to repump station to improve pumping capacity. Five sewer pumping stations do not have capacity to pump during high flow, high pressure events. An engineering analysis performed in 2018 determined that the most feasible solution is to construct a new forcemain to transmit flow from these stations to Repump Station 55.	



<b>Operating Budget Impact:</b>
No future impact on the operating budget.
<b>If competitive bidding or professional negotiation is required, explain:</b>
Engineering design and competitive bidding for construction will be required. Construction estimate is \$600,000. Engineering design and construction services estimate is \$136,000.

FUNDING SOURCES	PRIOR YEARS*	2021	2022	2023	2024	2025	Total FY 21-FY 25
<b>FUNDING</b>							
Grants	-	-	-	-	-	-	-
Water/Sewer CIP Fund	39,989	736,000	-	-	-	-	775,989
<b>Total Funding</b>	<b>39,989</b>	<b>736,000</b>	-	-	-	-	<b>775,989</b>
<b>PROJECT COSTS</b>							
Design	-	136,000	-	-	-	-	136,000
Construction	-	600,000	-	-	-	-	600,000
Other Costs	39,989	-	-	-	-	-	39,989
<b>Total Project Costs</b>	<b>39,989</b>	<b>736,000</b>	-	-	-	-	<b>775,989</b>

\*Prior years include a projected total for the most recent fiscal year, in addition to actual costs for previous fiscal years.



# Hazen *Technical Memorandum*

October 1, 2020

To: Michael Bailey, PE

From: Gary W. Bors, PE; John C. Burke, PE; Janeen Wietgreffe, PE

## **Cooper City East Wastewater Pump Station (LS 55) Electrical and Control System Rehabilitation**

### Summary

*A thorough assessment of electrical and control equipment serving the East Wastewater (WW) pump station, also referred to as Lift Station 55 (LS 55), has determined that critical elements are physically and functionally obsolete. Key electrical and control system components, most in service for over 30 years, are no longer supported through manufacturer supply channels, with limited, if any, spare parts availability through third party sources. If left unattended, a critical component failure could expose the City to significant operational liabilities; electrical and control upgrades and replacements are recommended for immediate action.*

### Introduction

The Cooper City LS 55 was constructed in the late 1980's as an in-line booster pump system which has continuously operated for over 30 years. Most of the original equipment is still in service and operating as originally installed. The station is critical to the utility infrastructure and serves to provide the hydraulic energy necessary to relay all wastewater collected from upstream lift stations through a pressurized force-main pipeline to the WWTP for treatment and disposal.

Prior to the completion of LS 55, a wastewater treatment plant constructed in the 1970's occupied the Cooper City Public Works site. Following the placement of LS 55 in service, most of the wastewater treatment plant structures were demolished apart from the original Florida Power and Light (FP&L) transformer, the generator building and the diesel fuel tank area. These facilities were repurposed to provide electrical service to LS 55 and ancillary facilities.

Job No. 4673-020



**Table 1: LS 55 and Stand-by Generator Facility Electrical and Control System Improvements  
“Preliminary Budgetary Estimate” Cost Summary**

	<b>LS 55 and Stand-by Generator Facility Improvements</b>	<b>LS 55 and Drop-in Outdoor Generator System Alternative</b>
<b>Stand-by Generator Facility Improvements</b>		
Structural / Architectural Remediation	\$57,600	n/a
Fuel Storage Tank Facility Improvements	\$69,300	n/a
Stand-by Generator System Replacement	\$164,400	n/a
MCC and Related Electrical System Improvements	\$46,200	n/a
Drop-in Outdoor Generator System and Tie-in	n/a	\$253,200
LS 01 Temporary Power System	\$26,400	\$26,400
Engineering/Administration/Permits (estimated at 25%)	\$90,975	\$69,900
Contingencies (estimated at 30%)	\$109,170	\$83,880
<b>BUDGETARY ESTIMATE</b>	<b>\$564,045</b>	<b>\$433,380</b>
<b>LS 55 Electrical and Control System Improvements</b>		
Switchgear, MCC, VFD System Replacements	\$324,000	\$324,000
Pump Station Control Panel Replacement	\$102,600	\$102,600
Field Instrumentation Replacements	\$74,400	\$74,400
Yard Piping Modifications (for temp. bypass pumps)	\$95,640	\$95,640
Temporary Bypass Pumping System	\$144,000	\$144,000
Engineering/Administration/Permits (estimated at 25%)	\$185,160	\$185,160
Contingencies (estimated at 30%)	\$222,192	\$222,192
<b>PRELIMINARY BUDGETARY ESTIMATE</b>	<b>\$1,147,992</b>	<b>\$1,147,992</b>
<b>LS 55 Miscellaneous Mechanical Improvements (Optional)</b>		
Pump discharge control valves	\$211,200	\$211,200
Automatic station bypass valve and piping system	\$70,860	\$70,860
Engineering/Administration/Permits (estimated at 25%)	\$70,515	\$70,515
Contingencies (estimated at 30%)	\$84,618	\$84,618
<b>PRELIMINARY BUDGETARY ESTIMATE</b>	<b>\$437,193</b>	<b>\$437,193</b>
<b>OVERALL PRELIMINARY BUDGETARY ESTIMATE</b>	<b>\$2,149,230</b>	<b>\$2,018,565</b>