

VILLAGE OF HOMEWOOD



BOARD AGENDA MEMORANDUM

DATE OF MEETING: December 10, 2024

To: Village President and Board of Trustees

Through: Napoleon Haney, Village Manager

From: Joshua Burman, Director of Public Works

Topic: Stormwater Station 1 PLC and Radio Upgrades

PURPOSE

A Programmable Logic Controller (PLC) in stormwater management systems acts as the "brain" to automate and control various aspects of stormwater collection and treatment, like activating pumps based on water level sensors, adjusting flow rates, and monitoring system performance, essentially optimizing the entire process by reacting to real-time data from different sensors throughout the system.

The Programmable Logic Controller at Stormwater Station 1 is failing and many of the station's components are either obsolete or no longer manufactured. Staff requests the Village Board approve the replacement of a Programmable Logic Controller (PLC), Cellular Communication Upgrade, and adjustment of float switches for Stormwater Station 1 by Metropolitan Industries, Inc. of Romeoville, IL in an amount not to exceed \$56,139.

PROCESS

Stormwater stations play a vital role in managing excess rainwater during heavy rainfall. They are essential in areas where natural drainage isn't sufficient, and help to prevent flooding, protect infrastructure, and maintain proper water flow. It could be compared to a sump pump in a home, but on a much larger scale. Water collects in a basin or structure, then powerful pumps move it away, ensuring the area remains protected.

Stormwater Station 1 (directly west of Blueberry Hill restaurant) was constructed in 1985, and has faced significant challenges dating back to 2021-2022. The original PLC was failing, and many of the station's components were either obsolete or no longer manufactured. Fortunately, the station relied on float switches to control pump operations, providing staff enough time to thoroughly research and plan for necessary upgrades within budget constraints.

However, during the planning phase, the PLC completely failed. This revealed a critical issue: during large storms with heavy rainfall over a short period of time, the rush of water into the station caused the float switches to malfunction, leading to system-wide disruptions. These failures resulted in tripped breakers and prevented the pumps from activating when they were needed most.

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In response, a comprehensive evaluation was conducted, focusing on upgrading PLCs and communication systems across all Village stormwater stations. Due to the large area covered by Stormwater Station 1, it was identified as a priority and treated as a standalone project, with a separate budget allocated to ensure that its unique needs were addressed effectively.

On September 20, 2024 Public Works responded to reports of flooding at the south viaduct. Staff discovered that the station's breaker had tripped, so they reset the station but needed to remain on-site to ensure the station remained operational. This was the first major crisis event, reaffirming the urgency of upgrading the station.

On November 12, 2024, the Board approved Phase 1 of the PLC and Communications Upgrade for the water system. It's important to note that this project is separate from the one approved by the Board last month. The upgrades for Stormwater Station 1 were prioritized and budgeted for this year due to the critical urgency of addressing its operational challenges.

OUTCOME

Approval of this system upgrade will enable Public Works to replace an important stormwater asset which will ensure reliable stormwater management.

FINANCIAL IMPACT

- **Funding Source:** 2024 General Obligation Bond Proceeds
- **Budgeted Amount:** \$60,000
- **Cost:** \$56,139

LEGAL REVIEW

Not Required

RECOMMENDED BOARD ACTION

Waive competitive bidding for Programmable Logic Controller and Communication Upgrades at Stormwater Station 1 due to the utilization of a vendor currently under contract or that serves as the Village designated vendor for system maintenance; and, approve the replacement of a Programmable Logic Controller (PLC), Cellular Communication Upgrade, and adjustment of float switches for Stormwater Station 1 by Metropolitan Industries, Inc. of Romeoville, IL in an amount not to exceed \$56,139.

ATTACHMENT(S)

- Metropolitan Industries, Inc. Proposal
- Photos