

# MONMOUTH ILLINOIS

Date: October 13, 2021

To: Mayor Davies and Members of the Monmouth City Council

From: Lew Steinbrecher, City Administrator

RE: Replace High Service Motors For Primary Water Pumps

The municipal water distribution system relies on four (4) primary pumps at the two water plants to push water out to the elevated water tanks and all water customers. The high service motors that drive these pumps turn on and off so quickly that the surge and collapse of water pressure throughout the system is creating hydraulic pressure on many of the old, weak, and deteriorated water mains. Consequently, this is causing an excessively high number of water main breaks on a regular basis. These breaks are very costly to repair and have begun to financially burden the Water Fund.

In order to prevent these quick on and off surges of water under pressure and reduce the number of water main breaks, it is prudent to replace these high service motors with Variable Frequency Drive (VFD) motors that turn on and off very slowly to eliminate the hydraulic pressure upswings and collapses.

The cost of four (4) new VFD motors, installation, laser alignment, and SCADA integration is \$172,481 less an anticipated Ameren credit of \$60,750 for a total net cost of \$111,731. This item has been placed on the agenda for Monday night's City Council meeting for Council's approval. Richard Nelson, the City's Water Superintendent who discovered the cause-and-effect relationship between these high service pumps turning on and off, with the corresponding water main breaks, will be in attendance at Monday night's City Council meeting to explain the problem and how it can be solved with these new variable frequency drive motors.

On a related note, due to repeated water main breaks and a current leak (break), the existing six (6) inch water main on the 300 block of North 5<sup>th</sup> Street will require an emergency replacement. The estimated cost to replace this crippled section of pipe from so many breaks in the past, is \$48,780 and the work has been authorized and scheduled for next week.