



CITY OF CONCORD

New Hampshire's Main Street™

REPORT TO MAYOR AND CITY COUNCIL

FROM: Earle M. Chesley, P. E., General Services Director

DATE: November 30, 2023

SUBJECT: Screw Pump Lower Bearing Replacement Exceptional Staff Accomplishment

Project Description

The Hall Street Wastewater Treatment Facility utilizes three large diameter screw pumps to lift wastewater from the plant's influent wet well to the treatment process. In February 2023, one of these pumps, Screw Pump C, experienced a critical failure and was placed out of service. At that time, this pump was scheduled for replacement and the Department immediately accelerated the project so it could be replaced and put back in service by June 2024. Until that time, the plant would need to operate with the two remaining pumps.

On July 18, 2023, wastewater staff discovered during a routine preventative maintenance activity a failure of the lip seals and significant wear to the lower bearing of one of the two remaining pumps, Screw Pump A. While the pump could remain operational, it was no longer considered reliable and was only used during high flow events at the plant.

The combination of Screw Pump C being out of service and Screw Pump A having a compromised lower bearing placed the Hall Street Wastewater Plant in a position of high risk for service interruptions.

At the September 2023 City Council meeting and with General Services' recommendation, City Council provided emergency funds in the amount of \$620,000 from fund balance to immediately procure a temporary pump and set a public hearing in October to authorize bonding in the amount of \$820,000 to replace the lower bearing plate of Screw Pump A by a private contractor.

Team Performance

Although the replacement of large wastewater components has not historically been completed by in-house wastewater staff, a team of employees comprised of both operational and maintenance personnel reviewed the project.

The team, and Division leadership, utilized their relationships with equipment vendors to locate and acquire an in-kind replacement bearing for the project. An in-kind bearing replacement provided a simpler and more cost-effective approach to the full bearing replacement originally proposed by the contractor.

Upon securing the bearing, the team reviewed the existing design, met with the bearing manufacturer, inspected the work area, and developed a work/safety plan. The work/safety plan was reviewed by the Wastewater Plant Superintendent and discussed with General Services Administration prior to authorizing the in-house staff to proceed with replacing the lower bearing.

On November 8, 2023, a team of six wastewater maintenance and operations staff executed their safety/work plan for the removal and replacement of the lower bearing. The team completed the bearing replacement according to the work/safety plan in less time than anticipated.

The project required the use of long-standing vendor relationship to acquire scarcely available parts, detailed planning to ensure a safe work environment, highly skilled labor to complete the complex tasks involved, and an underlying desire to perform at an exceptionally high level of professionalism on behalf of the city.

Team members included:

David Webber, Operations Supervisor
Joe Mulleavey, Maintenance Supervisor
Derek Emerson, Crew Leader
Shane Szilagyi, Utility Technician
Mike Sanborn, Utility Technician
Troy Hardy, Maintenance Technician

Each of these individuals were instrumental in the successful completion of this project.

Through this team's extraordinary efforts, the city was able to save over \$800,000.

Cc Daniel Driscoll, Wastewater Superintendent

Hall Street Large Diameter Screw Pumps

