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**PARKS, RECREATION & FACILITIES
MANAGEMENT**

Dean R. Gazza, Director

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To: Finance Committee

From: Dean R. Gazza, Director of Parks, Recreation and Facilities Management

Date: November 6, 2023

Re: Action: Accept 2022 WIPPI Energy Efficiency Grant in the amount of \$72,564 for the Appleton Water Treatment Plant Kathabar Replacement Project.

The 2024 Capital Improvement budget allocates \$850,000 to Replace the Kathabar Dehumidification Unit at the Water treatment Plant. The Kathabar dehumidification unit is at the end of its useful life and needs to be replaced. The Kathabar HVAC Unit conditions the Upper Membrane Room and the Lower Membrane room. The Kathabar HVAC Unit is no longer operating as a process space, therefore the need for full dehumidification no longer exists. Thus, the existing Kathabar dehumidification system and the oversized Air Handling Unit (AHU) can be removed. Our proposed solution to satisfy the Upper and Lower Membrane Rooms is to insulate the operational piping in the Lower Membrane Room and install a smaller AHU with chilled water cooling and hot water heating to satisfy space pressurization and general room conditions. There would be no dehumidification required with this unit, but the heating coil would be installed downstream of the cooling coil to allow for general moisture removal with reheat capabilities. Insulation specification for the operational process piping in the lower level would be 1-1/2" closed cell insulation with PVC jacketing.

Implementation of the Kathabar Replacement Project is guided by the following objectives and metrics:

1. **Reduce Grid Provided kWh Consumption:** This project anticipates to reduce the Water Treatment Facility purchases of grid provided electricity by 393,323 kWh per year.
2. **Reduce Grid Provided Natural Gas Consumption:** This project anticipates to reduce the Water Treatment Facility purchases of grid provided electricity by 3,100 therms per year.
3. **Mitigate Rate Increases:** Reduction of grid purchased energy will keep the costs of operating the Water Treatment Facility down.
4. **Improve Air Quality:** This project anticipates reducing CO2 emissions by 200 tons per year.
5. **Maintain the Water Treatment Facility in a cost-effective manner that meets or exceeds the process operations requirements.**

The proposed system has an estimated electrical energy savings of 393,230 kWh per year. This is based on the removal of the pumps associated with the Kathabar system, installing an AHU with smaller horsepower fan motor(s), and decreasing the load on the chillers and boilers. This is also associated with a 22kW drop in peak demand on the chillers, and another 8kW drop associated with the fan motor. Yearly savings is estimated at \$39,323 for a 393,230kWh reduction and \$2,417 for a 3,100-therm reduction for a total of \$41,745,80/year savings.

We are very excited about this funding as it assists with funding City efforts and commitments to implementation of energy efficiency within the City. Upon your approval we will acknowledge the requirements and accept the funds.

Please feel free to contact me at 832-5572 with any questions, or by email at dean.gazza@appleton.org.