City of Watertown | Request for Action

Watertown City Council

January 13, 2026

Agenda Item:	**Wastewater Treatment Plant Clarifier Rehabilitation**
Request for Action:	**Authorization to Perform Preliminary Assessment, Inspection, & Preliminary Design**
Employee/Dept.:	**Philip Schrupp, Engineering**

Background:

The 2026 Capital Improvement Plan (CIP) has identified the Rehabilitation of the Wastewater Treatment Plant Clarifiers. Clarifiers are large tanks that play a key role in cleaning wastewater. Their job is simple but critical: they allow solids—such as grit, organic material, and other particles—to settle out of the water by gravity. This process produces cleaner water that can move on to the next treatment step.

- They remove most of the solids before the water is disinfected and discharged.
- They help the plant run efficiently and meet environmental standards.
- If clarifiers don't work properly, the plant can't produce clean water, which could lead to compliance issues and higher costs.

The clarifiers at the City's plant have been in service for approximately 30 years. They consist of a concrete settling tank which should last 60 years or more and a steel scraper mechanism to collect the settled solids. The scraper mechanism has moving wear parts and protective coatings that require periodic maintenance. While they were kept during the recent upgrade, rehabilitation were exposed during construction needed to maintain performance and reliability.

Currently, the two existing clarifiers are out of service. This presents an ideal opportunity to drain the tanks and thoroughly inspect both the structural and mechanical components of the clarifiers.

Having both clarifiers operational will improve the efficiency of the biosolid removal process. This will reduce the amount of biosolids produced at the plant, resulting in significant cost savings for the City on biosolids disposal fees. By rehabilitating and returning these clarifiers to service, the City can expect lower operational costs and improved overall plant performance.

If authorized, the completion of a Preliminary Assessment, Inspection, & Preliminary Design for the Wastewater Treatment Plant Clarifier Rehabilitation project will be completed this winter, and the findings will be presented to the City Council.

Budget Impact:

Estimated Preliminary Assessment, Inspection, & Preliminary Design:	$15,000

Funding Source:

Capital Improvement Sewer Capital Fund Clarifier Rehab	UC#079=	$800,000

Recommendation:
Staff recommends authorizing the completion of a preliminary Assessment, Inspection, & Preliminary Design for the Wastewater Treatment Plant Clarifier Rehabilitation project.

Motion Type:
Simple majority vote of members present.

Requested Action/Motion:
"I move to authorize staff to proceed with Preliminary Assessment, Inspection, & Preliminary Design for the Clarifier Rehabilitation project."

Attachments:
Wastewater Treatment Facility

Wastewater Treatment Facility Brochure

WASTEWATER TREATMENT FACILITY

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The City of Watertown's Wastewater Treatment Facility has been treating the City's wastewater at this location since 1977 when an aerated pond system was constructed. The City was then a small town with a population of about 1,600 people. The facility had a major upgrade to convert it to a mechanical activated sludge facility in 1994 as a result of both growth and new effluent limits. The population at that point had rose over 50% to 2,500 people. The current project has upgraded the facility to meet more stringent phosphorous limits and is designed for a population of 7,000 people. This is nearly 300% of the population at the time of the last upgrade.

The current project planning began in 2015. The City was receiving more stringent limits in the proposed National Pollutant Discharge Elimination System (NPDES) permit from the Minnesota Pollution Control Agency (MPCA) designed to protect the receiving water which is the South Fork of the Crow River. The environmental review, permitting and funding process took some time with the project initiating construction in 2022 and full operation in the fall of 2024. The project had a total cost of approximately $24 million with $7 million of that covered by the Point Source Implementation Grant (PSIG) and the remainder financing with State Revolving Fund (SRF) low interest loan program. Gridor Construction of Buffalo, Minnesota performed the construction work.

How the Facility Works

Preliminary Treatment

The City's wastewater treatment begins with pretreatment consisting of screening and grit removal. This equipment is located in a new building. The screening removes any foreign materials such as plastics or rags larger then a ¼-inch diameter. These are washed and compacted prior to discharge into a dumpster. The grit removal separates grit and washes that prior to discharge into a dumpster. The first steps protect downstream equipment and pumps from damage while also improving the value of the biosolids as a fertilizer product.

Biological Treatment

After the preliminary treatment the wastewater enters the activated sludge process where the biological treatment occurs. The first step is an anaerobic contactor that stimulates the biological uptake and removal of phosphorus. Utilizing this natural process reduces costs with lower chemical addition and higher fertilizer value in the biosolids. The second step is the activated sludge process. In this process, the contaminants in the wastewater are biologically treated with a wide variety of naturally occurring micro-organisms that feed on the contaminants converting them to an easily removed and beneficial biomass. The activated sludge utilizes aeration blowers to provide supplemental oxygen for the organisms. The combination of a high concentration of organisms and supplemental oxygen treat the raw wastewater in less than 18 hours versus what may take 180-days in wastewater ponds.

Clarification and Biosolids

Settling tanks also known as secondary clarifiers follow the aeration tanks and capture the solids generated by the biological treatment process. These solids referred to as biosolids are rich in active micro-organisms, nitrogen, phosphorus and carbon. Solids are recycled back through the aeration tanks for additional treatment while a portion of solids are wasted daily and pumped to the biosolids storage tanks. The biosolids are a valuable source of fertilizer nutrients and widely used on agricultural sites. Solids are typically stored for land application in spring and fall.

Phosphorus Removal

The City's phosphorus limit is quite low at 0.53 mg/L so an additional chemical is used to convert the soluble or dissolved phosphorus into particles that settle and can be filtered. This ensures more consistent compliance and protection of minor biological process variations.

Final Treatment

After the clarifiers the water is filtered in disk filters that capture almost all remaining solids further enhancing the phosphorus removal. The final treatment is disinfection with chlorine to protect public health for people that may contact the water in receiving water.