

WASTEWATER FACILITY PLANNING & DESIGN

Sturbridge, Massachusetts



Client

Town of Sturbridge

Description

In recent years, the Town of Sturbridge has experienced significant population growth due to its proximity to major highways and the availability of relatively affordable housing. Concurrent with this growth, the Town has also begun to notice deterioration in the water quality of several local lakes and ponds. In order to address problems associated with community growth and deteriorating water quality, the Town implemented several sewer extension projects. The construction of these projects and growth within existing sewer service areas, utilized much of the existing capacity at the Town's 0.75 MGD treatment facility.

Facing a potential treatment capacity shortfall, more stringent NPDES permit limits, and continued population growth, the Town hired Tighe & Bond to evaluate WWTF expansion options. The subsequent evaluation considered a number of technologies, including membrane bioreactor (MBR) treatment and a new treatment process called BioMag.

Through pilot testing, Tighe & Bond determined that BioMag could achieve compliance with all of the facility's effluent limits, including a phosphorous limit of less than 0.2 mg/l, while simultaneously increasing plant capacity from 0.75 MGD to 1.3 MGD without extensive new process tankage.

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Following the pilot phase of the project, Tighe & Bond completed design documents under a tight schedule to qualify the Town for ARRA funding. The grant portion of this funding, combined with a competitive bid environment and attractive BioMag system pricing to reduce the overall project cost from \$20M to \$15M. This project is currently under construction by the Town at a 20 to 30% savings over comparable treatment technologies.

The facility upgrade is presently under construction with a planned completion date of early 2012. Notable components of the plant upgrade include:

- Extensive bypass piping for both influent wastewater and process air
- New influent fine screens and grit removal channel
- New low speed mixer-aerators and blowers
- New secondary clarifiers
- New chemical feed system
- New tertiary chemical mix tanks and clarifiers
- New UV disinfection system
- New gravity thickeners and sludge load-out equipment
- New plant SCADA