

Traverse City Regional Wastewater Treatment Plant Partnership Facts

The City of Traverse City Regional Wastewater Treatment Plant (TCRWWTP) serves 50,000 residents, plus local industries. Originally built in 1932, the 8.5-million-gallon-per-day facility has been upgraded several times, and now employs advanced membrane filtration technology to produce high-quality treated effluent that helps sustain public and environmental health.

CH2M and the City of Traverse City have enjoyed a productive partnership—resulting in cost savings, awards, industry firsts, and ongoing community support. We have worked with the city to design upgrades that maximize efficient use of limited space at the plant. The operations team has minimized energy use in plant operations and managed ratepayer funds responsibly.

CH2M's objective is to partner with the City in its endeavors to sustain and improve our community's quality of life and protect its sensitive environment. CH2M services include:

- Operations, maintenance and repair for the plant, eight lift stations and one seasonal lift station
- Monitoring influent loadings, effluent quality at TCRWWTP to assure regulatory compliance
- Monitoring of city/township wastewater strength
- Industrial-pretreatment-program administration
- Residuals management program—biosolids for land application
- Regular communications with the City's Department of Public Works—weekly update memorandum, interim updates in person and via telephone, monthly reports

Operations Challenges and Solutions

The City of Traverse City worked with CH2M, technology vendor GE Water and industry experts to address functional issues with the membrane bioreactor (MBR) filtration system at the TCRWWTP. The functional issues we encountered result from a physical retrofit of newer membrane technology into existing membrane layout. We also are working on a separate operations challenge related to bacterial blooms that affect membrane performance.

Exhibit 1 summarizes actions taken to identify and address issues, and assure continued compliant operations.

Note that there has been no spill, pollutant discharge or other threat to waterways or public health resulting from the work underway on the membranes and treatment systems. The plant continues to operate well within all regulatory parameters. That performance has continued throughout all challenges regarding permeability and membrane replacement.



Key contract features:

- High level of fiscal transparency – total direct cost and profit margins are known
- CH2M assumes financial risk for operations and rebates unused repairs budget to the City

Exhibit 1
TCRWWTP challenges and solutions summary

Challenge	Solution	Next Steps
Treatment train 1 membrane didn't perform to design specification —MBR replacement plan called for new filtration membranes. The first of these membranes was installed in treatment train 1 in 2014. During peak-flow tests, train 1 did not perform according to its design specifications.	Examined and adjusted installation —GE Water corrected performance issues, and train 1 is functioning as designed. GE Water also will credit the City \$16,667 on its membrane order.	Assure subsequent membrane installations won't experience similar performance issues —Treatment trains 2 and 3 are performing as designed.
Bacterial blooms impact membrane permeability —Inquiries throughout the field indicate gram-positive bacteria condition is unique to the Traverse City treatment system.	Develop management and abatement strategy —Work with GE Water, industry experts and Traverse City operations team to examine blooms and form a management/abatement strategy.	Evaluate funding options and determine approach for further investigation —Goal is to isolate cause of blooms and reduce or eliminate them.

Economic Impact

Since 2006, CH2M has made it an operational objective to reduce costs at the WWTP. Team members have produced a multi-year downward trend in electrical and natural gas consumption (Exhibits 2 and 3), minimized biosolids volume, and reduced chemical usage and potable water consumption. These efficiencies have saved the City hundreds of thousands of dollars. We continue seeking opportunities to save costs and protect the environment—a demonstration of the commitment and skill of the team serving Traverse City.

Community Involvement

We are driven to serve Traverse City and surrounding communities with the best and highest-value service because we are part of the community ourselves. Our team members live, work and raise their families here. We support important community and environmental activities including:

- Inland Seas Education Association's Schoolship
- Northern Michigan College Freshwater Studies Program
- Adopt-a-Stream
- The City's water-bottle filling station
- The Buddy Walk benefiting families dealing with Down's Syndrome

Contact us

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Exhibit 2

Electrical consumption at WWTP since 2006*

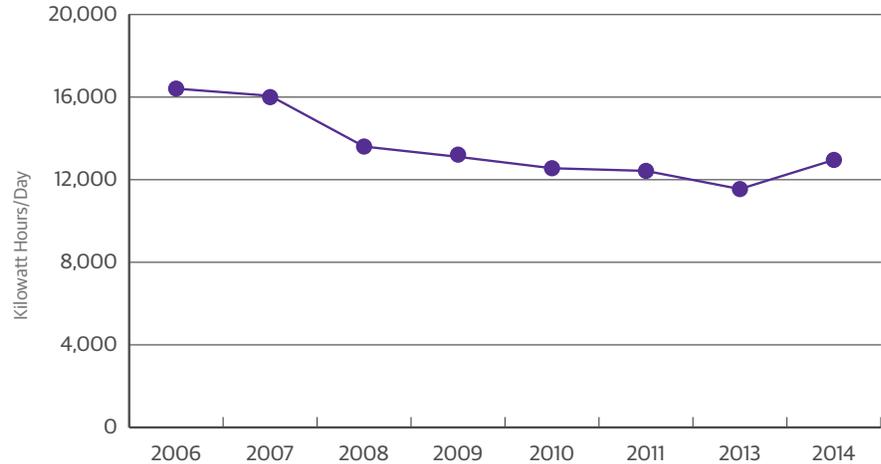
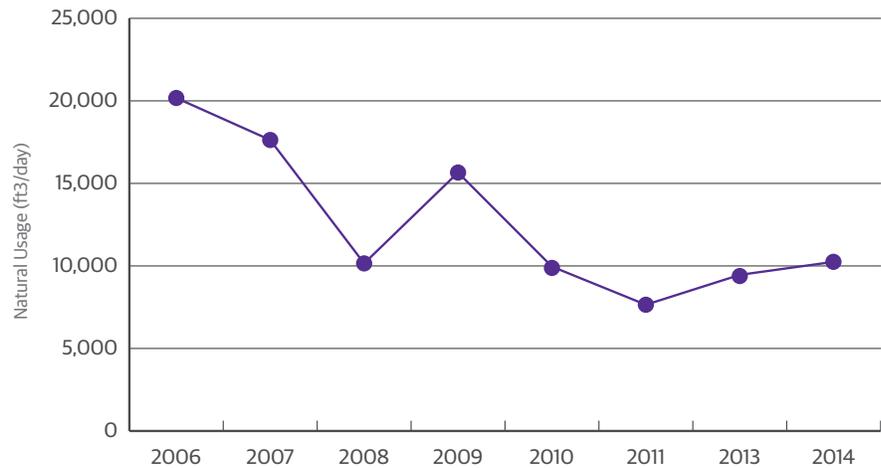


Exhibit 3

Natural gas consumption at WWTP since 2006*



* Increased electrical and natural-gas usage in 2014 is due to increased flows. Energy and fuel consumption per gallon of water treated have remained steady.

Partners for the Future

The Traverse City-CH2M partnership exemplifies how effective and beneficial a contract operations relationship can be for the community. Under our responsible care, the TCRWWTP has produced effluent with undetectable levels of biochemical oxygen demand and total suspended solids for more than 11 years. We will continue to work with the City to assure that plant operations comply with all regulations. We share your goals for sound and well-documented operation that outperforms standard compliance, manages costs and strengthens community ties.

