



City of Grand Rapids



“The project is now delivering significant savings through improved efficiency, reduced energy costs, and unitary controls of all the HVAC systems at the Wastewater Treatment Plant.”

Michael Lunn, Manager of Environmental Services, City of Grand Rapids

The Opportunity

In 2013, the City of Grand Rapids, the second-largest city in Michigan, sought to institute an energy-saving program, which supported its broader vision for sustainability. The City identified potential upgrades at its Water Resource Recovery Facility (WRRF) as a starting point to make positive economic, environmental, and community impact. With a wastewater collection system that covers approximately 140 square miles and has over 1,100 miles of collection pipes, the City’s WRRF processes over 40 million gallons per day and serves approximately 272,000 customers.

In February of 2014, Leaders at the City’s WRRF contracted with OpTerra Energy Services to achieve substantial fiscal savings through the implementation of plant upgrades that focused on energy performance and curbing expected energy escalation rates. While the development of the project was centered on improving air controls and HVAC efficiency, the City and OpTerra worked together to identify energy efficiency opportunities that would best fit the needs of the City and achieve its rigorous sustainability goals.

The Partnership

Focusing on improving sustainability outcomes as a natural extension of effective city operations and increased quality of residential life, the City and OpTerra implemented a robust energy efficiency program. The program included building envelope enhancements that feature energy recovery from final effluent fluids to heat and cool the administrative building, as well as comprehensive boiler replacement and temperature controls across several buildings.

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Program Highlights

- Expected to achieve over \$2.2MM in energy savings over the program life
- Expected to reduce carbon emissions by 10,000 metric tons over the program life – equivalent to removing 2,112 cars from the road
- Expected to save more than 52,000 CCF in the first year of the program
- Improved working environment with better indoor air quality, comfort, and temperature controls

The Technical Scope

- New energy management system
- Expanded and reworked energy recovery HVAC system
- Replaced boilers
- New heat exchanger for final effluent fluids
- Upgraded ventilation systems
- Upgraded heat pumps
- New rooftop cooling system
- Building envelope improvements



The WRRF is the first City facility that has utilized a performance contract with a concentrated focus on measuring sustainability outcomes tied to economic, environmental, and social impacts as they relate to building performance. The City used the performance contract model to fund facility improvements at the WRRF, ensuring uninterrupted and reliable service to rate-payers.

The Impact

With this program, Michigan's second-largest city demonstrated that instituting sound sustainability measures is a wise economic move. The \$1.9 million program is expected to achieve \$2.2 million in energy savings over its life and has increased energy efficiency and conservation at City facilities by over 10 percent.

In 2015, the American Public Works Association (APWA) commended Grand Rapids for its sustainable work at the WRRF, naming it the 2015 Public Works Project of the Year. With project completion in February of 2016, Grand Rapids has set the bar for other municipalities across the country, and has shown how energy efficiency improvements can jumpstart a long-term sustainability plan with benefits to the environment, the economy, and the local community.

For more information:

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