

BALDWIN WATER WORKS:

Reconstructing Cleveland's Water System

Baldwin Water Works, the water system serving Cleveland, Ohio, USA, was in need of drastic renovation and modernization. The project faced many challenges, including the need to conduct construction while continuing to provide water to the city, and working around the many historical landmarks within the system. Project management provided the tools and benchmarks to ensure on-budget and on-time delivery, making this reconstruction project successful.

Background

Baldwin Water Works is comprised of four water treatment facilities, which are among the 10 largest in the country. Over 500 million gallons of water are pumped to Cleveland residents daily, and the treatment system, which was developed in 1856, was in need of renovations and improvements. In 1996 the city began a \$750 million (US) Plant Enhancement Program (PEP) to ensure that the facilities were cost effective and of high quality. The City of Cleveland Division of Water hired MWH Americas Inc., a resource management services provider, to be the PEP program management consultant. MWH would be responsible for all project activities including planning, design and construction, and cost, time and quality management. The PEP project goal was to evaluate and optimize the water supply. In addition, the MWH project team sought to meet, and exceed, existing and future water regulations set by state and federal governing bodies. The project team would rehabilitate and modernize the facilities, ensuring they were at their highest operational efficiency and safety.

Challenges

The design and construction teams' overall challenge was to construct new facilities at a cost resulting in the lowest water rates possible. The teams also wanted to limit future operational and maintenance costs, taking into account all future scenarios. Keeping the water facility operational during construction was one of the main challenges. Construction crews had to work heavily during the months when the city required the least amount of water, while ensuring there were no power outages during the months when water demand was at its highest. Modernizing the buildings, while maintaining their historical structure, was another challenge. The team conducted restoration and

modernization projects simultaneously: the Baldwin building project team made renovations to the roof and exterior wall while the filter rehabilitation team worked side-by-side to restore rooflines, for example. Another challenge was the limited space on the construction, and two separate contractors made work difficult, especially with the time sensitive completion date. The facility layout posed yet another challenge. The existing water reservoir bordered the section where most of the reconstruction was being performed, and delivery and preparation of materials could not take place near the actual site due to the delicate nature of the building. Both of these challenges added to the time and difficulty of the project.