



EdgeWise Software Saves Modeling Time and Money for City of Toledo

Project Background

The management team at the Municipal Water Treatment Plant in Toledo, Ohio was preparing to expand operations. To ensure the project started on the right foot, the team enlisted the help of Ohio based TruePoint Laser Scanning to scan and model the facility's as-built conditions. The final deliverable would be used as the basis for contractor bids and eventual construction during the design and build phases of the expansion. While disparate sets of construction drawings had accumulated since the early 1900's when the plant was originally opened, they had become unreliable for today's design and construction purposes. The Scope of Work dictated that TruePoint Laser Scanning deliver Level of Definition (LOD) 300 and, at times, LOD 400.



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Challenges

The water treatment plant required several weeks of scanning during which over 300 scans were captured, processed, and modeled. Trenches and corridors with overhead or obscured piping and ductwork caused line of sight challenges for the scan team. Sophisticated jibs were required to position the scanner into cramped openings.

The plant plays an important role in the community by providing 500,000 people with potable water. It runs 24/7/365 without exception, so the team needed to complete their work without any impact to

operations. While simple in layout, the facility contains more than 76,000 pipes over a large subterranean expanse. Ongoing construction and maintenance meant setup, breakdown, and maneuvering would

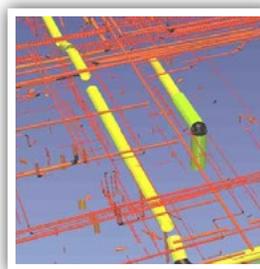
TruePoint Laser Scanning Workflow



Leica ScanStation



Faro SCENE



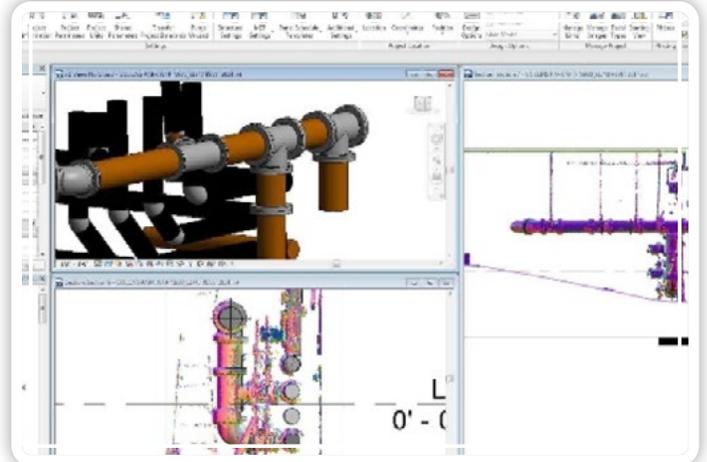
EdgeWise



Autodesk Revit



Caption?



Caption?

be difficult at times. The scan team coordinated with other trades and companies to ensure good access at pre-scheduled scan locations.

Back in the office, six modelers were working simultaneously on the Municipal Water Treatment model. Moving scan data and coordinating to ensure no rework was a difficult challenge. Due to the size of the point cloud files, the team did not use networks to transfer data files. Instead, they opted for external hard drives equipped with USB 3.0 technology and 7200 RPM drives. To ensure that no two modelers were working on the same section of the project at the same time, the team subdivided the facility by trade and location. Each modeler completed one section before moving onto the next.

Workflow

A survey-grade Leica ScanStation scanner with occupied survey control was used on the project. This scanner fit well with the project requirements and workflow at TruePoint Laser Scanning, especially the PTG scanner output. PTG files actually contain multiple files and a folder which enables continuous processing and provides certain workflow benefits. Learn more

about the PTG file format at www.xdesy.de/freeware/PTG-DLL/PTG-1.0.pdf.

A mix of targeting techniques including self-adhesive, magnetic, and paper targets were used throughout the project. Point cloud registration was performed in Leica Cyclone and then moved to EdgeWise for automated feature extraction, assistive modeling, QA, and export to Autodesk Revit.

Results

Project complexities and the sheer number of pipes, conduit, and ductwork at the water treatment facility would present cause pause for many scanning service providers. TruePoint Laser Scanning, however, is using technology to overcome the complexities and create sustained competitive advantage. With EdgeWise on their side, they delivered the scans and an intelligent model on schedule and within budget. Ryan Hacker, President of TruePoint Laser Scanning noted, **“EdgeWise reduced our modeling time requirement by 60%, if not more.”** EdgeWise brings confidence, accuracy and speed to the modeling team at TruePoint. Hacker continued, **“We loved it. In 4 hours of computer processing time, EdgeWise found over 70,000 pipes.”**

To learn more or request a software demonstration, visit clearedge3d.com or contact us at sales@clearedge3d.com or +1 866.944.8210.