

Industry: Rail and Transit

Products: MicroStation, ProjectWise, AECOsim Building Designer, Bentley Navigator, Descartes, Bentley Pointools View

User: London Underground Limited

Country: United Kingdom

November 2, 2015

Jubilee Line Remains Operational while London Underground Replace Tunnels Lining

Following public criticism for passenger disruption caused by long-term engineering programs, this project was a first for London Underground Limited (LUL) as it replaced the tunnel lining over a 215-meter section of the Jubilee Line, while it remained fully operational.

With working times in the tunnel limited to 2.5 hours per night, it was essential that LUL build a cohesive team and leverage its collective intelligence. Deployed via ProjectWise, the common data environment (CDE) and workflows defined within British Standard 1192 ensured a single source of truth for all project data, and helped LUL effectively execute the project.

With the use of Bentley technology for 3D visualization and animation, 4D planning, 3D printing, and virtual reality, all stakeholders and decision makers understood the design and project intent without ambiguity. LUL realised these advantages on the project:

- A complete 3D laser scanned model of the site and infrastructure enabled the creation of a 3D model, eliminating the need for additional site inspections and surveys.
- Time savings of up to 15-20 percent were realized by starting many design and assurance processes earlier in the project lifecycle, which resulted in creation of a highly coordinated design solution and project plan early in the project timeline.
- Design reviews, 4D scheduling, and other steps taken to evaluate constructability compressed timelines. For example, by commissioning two segment handling plants (SHPs) the team was able to reline the tunnel from both ends, which doubled productivity and resulted in completing the project four months earlier than originally scheduled.

Garry Pratt, project manager, Bond Street to Baker Street Tunnel Remediation Project, concluded that “Bentley Systems solutions helped LUL build a cohesive, collaborative design, assurance, and construction delivery team, allowing us to leverage the collective intelligence of the group. Their software ensured that we were able to manage



uncertainties inherent in today's complex infrastructure projects, and deliver with confidence.”

Image Link: <https://www.hightail.com/download/bXBhYnU1TIFrYUNjZDhUQw>

Caption: London Underground Limited - Bond Street to Baker Street Tunnel Remediation Project