



## Project Summary

**Organization**  
United Utilities

**Location**  
Warrington, England, UK

### Project Objectives

- Implement a GBP 6 billion AMP6 program that includes the delivery of more than 200 capital projects.
- Adopt a collaborative BIM strategy to manage digital data and capital programs for optimal asset performance and more efficient project delivery.

### Products Used

ProjectWise and Bentley Navigator

## Fast Facts

- ProjectWise enabled the United Utilities team to enforce a common data structure in a shared environment, providing secure access to information models for the multi-discipline project teams.
- Integrating design, simulation, and clash resolution technology instills confidence in designs and enhances data reliability, accelerating construction.

## ROI

- The implementation of ProjectWise enhances efficiencies in project delivery and is expected to yield GBP 40 million in savings on the five-year capital investment program.
- Having a uniform approach to digital data aligned with its business systems, United Utilities anticipates increased optimization of its asset base, delivering an even greater savings over the lifecycle of an asset.
- Relying on the interoperability of Bentley applications to implement its collaborative BIM strategy, United Utilities expects to save time and resources, minimize costly rework, and reduce health and safety risks through earlier design testing and better construction planning.

# United Utilities Adopts Collaborative BIM Strategy to Deliver over 200 Water Projects

ProjectWise® Advancements Estimated to Save over GBP 40 Million on Capital Delivery Projects

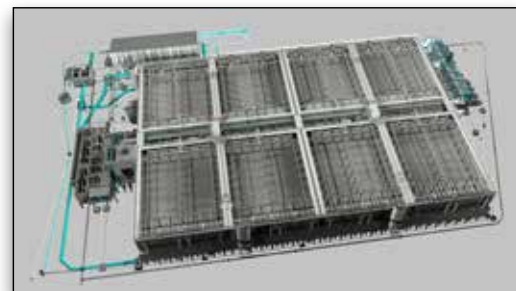
## Embracing BIM for Capital Project Delivery

Privatization of the United Kingdom's (UK) water industry 25 years ago required providers to implement asset management programs (AMP) whereby water boards tendered contracts to construction firms to update the industry's antiquated assets and help keep infrastructure properly maintained. Each AMP lasts for a five-year period, and in 2015, the industry moved into AMP6. Consistent with industry standard, United Utilities released its AMP6 program, investing GBP 6 billion for the five-year period ending 2020, with GBP 2.9 billion dedicated to delivering over 200 capital projects. As the UK's largest listed water company managing regulated water and wastewater treatment plants and networks for 3 million households and 200,000 businesses, United Utilities' investment will improve its massive water infrastructure to deliver better quality potable and bathing water, provide a cleaner environment, and lower customer bills over the next five years.

To ensure efficient implementation of its AMP6 program and improve delivery on capital projects, United Utilities recognized the need for a better data structure and optimal asset management. In an industry that delivers essential customer service through long-term operation and management of assets, United Utilities embraced a collaborative BIM approach to link operations with asset creation and capital maintenance. "United Utilities adopted BIM trying to leverage the efficiencies that BIM would deliver in project delivery," commented United Utilities lead BIM technologist (CDE), Gregg Yarnold.

## Digital Data Delivers Savings

With numerous construction delivery and engineering services partners working on a multitude of projects, varying in complexity and affecting many water infrastructure assets, United Utilities required collaborative, comprehensive project management tools. Using ProjectWise, United Utilities configured the BS 1192 module to align with its business requirements in accordance with AMP6. The organization developed a structured data naming convention in a connected data environment for the dispersed project teams to develop, share, and coordinate their design information. Working in



*Having a single source of truth accessible to all project team members in a secure environment via ProjectWise eliminated the need for data transmission, saving significant time and reducing risk.*

this setting, every team member has access to all approved data, removing the need to transmit data from one system to another, saving time and reducing risk by ensuring all team members are working on the most accurate and up-to-date information at all times.

ProjectWise allowed United Utilities to extract digital data about its assets from delivered projects and import it into corporate systems with minimal effort for complete data ownership. Owning the data from design conception through to commissioning combined with the ability to customize the system to enforce a data structure tailored to its business, United Utilities can more efficiently integrate new assets and soft land its projects – which is estimated to save GBP 40 million on the capital delivery program. In addition, a collaborative, uniform system for managing digital data allows for more efficient operation of its water infrastructure assets that potentially could dwarf the estimated savings on project delivery, yielding substantially more savings over the lifecycle of the asset.

## ProjectWise Enhances Data Security

With AMP6 focusing on asset resilience and prioritizing asset investment, the program has moved from being document centric in the past, to being dependent upon using the latest and best data. In a technology-driven age where information is susceptible to being compromised, optimizing data security

*“The integration of many of the design tools with ProjectWise increases efficiencies further and also forms the basis of our secure asset data storage. ProjectWise forms the cornerstone of the United Utilities BIM strategy for the AMP6 program.”*

*– Gregg Yarnold, lead BIM technologist (CDE), United Utilities*

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has become a priority for the industry. A collaborative BIM approach not only streamlines information management – aligning digital data with the physical asset and allowing new project data to be incorporated into existing asset information models – it also enhances data security. “As we move into the collaborative digital world, we have the opportunity to actually tighten the security around our asset data,” stated Yarnold.

Compared to previous models where contractors were working in their own environments with traditional methods of data sharing, ProjectWise provides a single source of truth accessible to all team members, eliminating the need to transmit outside United Utilities’ system increasing the security around the digital asset data. With assets of critical national infrastructure, United Utilities relies on the flexibility of ProjectWise to store its data on premises, behind company firewalls, while still making it accessible to appropriate team members. Says Yarnold, “If you consider the impact of a successful terrorist attack, this data security is priceless!”

### **Information Mobility Reinforces Design Confidence**

Integrating design, clash resolution, and construction sequencing helps give confidence to United Utilities’ digital asset data. Working in a federated BIM design environment, using Bentley Navigator to perform clash detection provides designers surety that the design can be constructed with minimal onsite changes. Project teams can test their design and construction methods in a connected digital world reducing cost, time, and waste, minimizing environmental impact, while facilitating confident engagement with the supply chain for more reliable off-site design for manufacturing and assembly (DfMA). The increased use of DfMA allows for the production of more project elements in a controlled

factory environment, reducing rework onsite, as well as noise pollution and impact to the local communities by minimizing construction vehicles needed to make site deliveries.

Using Bentley Navigator for construction simulation and sequencing not only facilitated construction efficiency but also helped optimize workflow processes enabling team members to understand in advance where each activity fits within the flow of the whole project. When used in conjunction with ProjectWise, all project participants at all levels of complexity have access to this critical information. The interoperability and information mobility of Bentley applications offer United Utilities quicker, cheaper, and safer construction methods, ultimately reducing time and costs delivering capital projects.

### **A BIM Model for the UK Water Industry**

With all four of its construction delivery partners adopting a BIM strategy for construction delivery projects under the AMP6 program, United Utilities is focusing its efforts on expanding the BIM approach to obtain buy-in from asset maintenance to further facilitate efficient delivery of capital projects. By creating its own BIM Academy, the utility intends to inform and educate all project participants on its BIM process to increase buy-in and cooperation across all project teams.

Using ProjectWise as the foundation for its strategy, United Utilities already expects to reap significant savings and efficiencies on capital delivery projects, providing a truly collaborative environment to manage all digital data in a shared asset information model. Integrating Bentley design and simulation technology further increases benefits, delivering a reliable and secure asset data system and a consistent approach that puts the company at the forefront of BIM in the UK water sector, with the hope that its AMP6 program will become a model for the industry.