

How GIS is supporting Tideway

Thames Tideway Tunnel

The Challenge

- Create one single access point for all data for this huge infrastructure project, supporting better information management and more efficient project delivery.

The Benefits

- Improved outcomes
- Enhanced community engagement
- Fulfilled regulatory requirements
- Speed of deployment

London's super sewer is designed to protect the River Thames and serve London's residents for the next 120 years. GIS has been used on the project from the start, providing a huge range of applications for enabling and recording activities while providing one platform for stakeholder engagement, helping Tideway to manage and monitor this extraordinary infrastructure project with greater efficiency.

The Challenge

During the scorching summer of 1858 an episode known as 'The Great Stink' took place in Victorian London. The smell of human waste and industrial effluent pouring into the River Thames reached an unbearable level, even the Houses of Parliament was affected. The politicians acted, and the result was the extensive Victorian sewer network, an engineering marvel of its time. However, it was designed to serve the needs of four million people, not the nine million residents and workers who currently rely on the system.

Unsurprisingly, every year, the equivalent of eight billion toilet flushes enter the Thames in central London. But the long wait for London's Super Sewer is almost over; at 25km long and 7.2m in diameter, running mostly under the tidal section of the Thames and due for completion in 2025, it will capture, store and convey almost all the raw sewage and rainwater that currently overflows into the estuary. It has been designed to protect the river for at least the next 120 years.

Bazalgette Tunnel Ltd (BTL) is the licensed infrastructure provider set up to finance, build, and maintain the Thames Tideway Tunnel. Back in 2011 the project team, commonly known as Tideway, identified that a geospatial strategy was vital to the success of this massive infrastructure project.

Esri's ArcGIS System has supported Tideway's needs during every phase of the project from concept planning with Desktop GIS, implementing web mapping supporting the public planning hearings in 2013 in the early days of digital construction to a modern, integrated information management portal-based tool..

The Solution

Tideway's geospatial strategy means that the company can deliver one consistent means of engagement with its stakeholders including its three construction joint venture partners, the systems integrator, Thames Water - the future operator - as well as government, public and community groups. At any one time, hundreds of Tideway and partner colleagues use the centralised information portal, GeoViewer, where data pertaining to many aspects of the project can be accessed. This includes, but not exclusively, planning records, tender selection and the acquisition of construction sites, riverbed surveys and construction progress tracking.

GeoViewer has been used at every single stage of Tideway, one of Europe's biggest environmental infrastructure projects, and gives users a quick, simple and easy way to share and view data and interrogate the status of activities. Maps and dashboards provide intuitive means of sharing information, and tools to run business functions as well as supporting workflow management are used by more than one in three people involved in the project, from accountants to engineers on the ground.

During the public planning enquiry in 2013, the web platform was used as a tool for participants to view hundreds of digital maps, rather than producing analogue printed versions, saving time and money during the hearings and speeding up the Development Consent Order process. Additional tools were added when the project tendered for construction and supporting services,

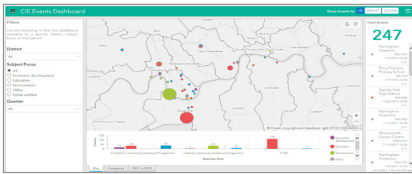
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“Geospatial is the one discipline that ties different elements of the project together. Our GeoViewer platform remains a key tool that everyone from accountants and engineers, to the public viewing our latest work, have access to and use”

Harriet Branson, Technical Specialist, Remote Sensing and GIS, Fauna & Flora



Community engagement activity dashboard used to support regulatory reporting for Legacy investment.

enabling the Tideway team to plan for and visualise the next five-year cycle and beyond sharing the same, consistent information with its partners.

As ArcGIS Enterprise itself developed, GeoViewer's functionality became further enhanced. Web applications were built to record and support different enabling activities including land acquisition, site preparation and environmental consents. Dashboards have been quickly spun up to clearly show progress of works and activities. The GeoViewer platform also ensures that all plans and activities are retained and can be archived, fulfilling regulatory requirements and enabling Tideway to fulfil its statutory obligations.

ArcGIS Online continues to be used principally for public engagement with the publication of StoryMaps, such as the live-screen dataset map published during the tunneling period, letting the public see the location of the tunnel boring machines during different stages excavations. This one StoryMap gained over 2.4 million hits in the four years it ran live.

The Benefits

Improved outcomes

Having one, single repository for data means that all stakeholders have access to the same information across the entire project, from beginning to the end. Consistent, accurate data reduces the risk of data duplication and potential for error, helping all four joint ventures and stakeholders to make better decisions, contributing towards the best possible outcomes for a successful project.

Enhanced community engagement

Details and activities can be shared externally through tools including StoryMaps resulting in high levels of public engagement such as the 2.4 million hits for the Tunnel Boring Machine Map.

Fulfilling regulatory requirements

The GeoViewer portal consolidates all records of activity throughout the duration of entire infrastructure construction process, creating a contemporaneous history of what happened, when and why. These evidential records of activity can be quickly and easily accessed and referred to as required, acting as a record of proof and demonstrating that all regulatory requirements have been met.

Speed of deployment

The GeoViewer platform has supported Tideway during every single phase of the project. The ability to quickly spin up tools and dashboards means that all business needs are supported as and when required and having a centralised view in an easily digestible format means Tideway can monitor overall efficiency, with users needing no specialist GIS skills to access information.

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