

Improving the efficiency and quality of asset maintenance

Thames Water

The Challenge

- Improve the accuracy, completeness and consistency of pipe bridge survey data

The Benefits

- Data collection process reduced from 7-10 days to 2-3 hours
- Proactive, condition-based asset maintenance, contributing to enhanced customer satisfaction
- Cost efficiencies in maintenance programmes from better work planning
- Greater hazard awareness to improve employee, contractor and public safety



Thames Water, the UK's largest water and wastewater services provider, has cut the time required to survey a pipe bridge from 7-10 days to 2-3 hours, while also improving data quality. Consequently, it can now implement a proactive, condition-based maintenance programme to significantly reduce costs and enhance customer satisfaction.

The Challenge

Throughout London and the Thames Valley region there are over 5,000 bridges that convey fresh or waste water pipes over roads, rivers, canals and gorges. Thames Water wanted to implement a more proactive programme of repairs and upgrades to improve the condition of these bridge-based assets, but did not have a complete, centralised source of information about them that it could use to inform its maintenance planning.

Previously, pipe bridges had been surveyed by Thames Water's regional teams using paper-based sheets in the field. Employees then typed up their surveys when they returned to the office, wasting time with the potential of manual data entry errors. By centralising its pipe bridge survey process, Thames Water aimed to furnish its master asset database with accurate information on all 5,000 pipe bridges and filter out regional variations in the type and quality of data collected.

The Solution

Thames Water decided to use a GIS-based mobile data collection app that would integrate with its existing centralised ArcGIS database. The solution had to be highly intuitive as it would be used by employees and contractors within eight2O, an alliance of Thames Water, industry partners and joint ventures, formed to deliver a suite of infrastructure investment programmes on behalf of Thames Water.

With minimal consultancy support from Esri UK's Professional Services team, Thames Water succeeded in developing a Pipe Bridges Validation app in just 14 working days, while also gaining invaluable new GIS skills. "This was our first foray into GIS online and we saw the project as a pilot with intent," says Dr Lawrence Smith, Technical Information Manager at Thames Water. "With Esri UK's help, not only did we solve the problem of the pipe bridges project, but we also gained a degree of self-sufficiency so that we can go on to develop similar projects within the business in the future."

Now in use throughout all of Thames Water's regions, the Pipe Bridges Validation app draws in existing asset information from ArcGIS Server to partially populate the survey 'form' on mobile devices. Employees edit, correct and supplement this information while in the field and, as key fields are mandatory, Thames Water is able to ensure that each pipe bridge survey records the same attributes and information. The data collected is then made available to a secondary app in ArcGIS Online for checking and verification, before being transferred without any additional data entry, into the master database in ArcGIS Server. Managers have a range of reporting tools that they can use to track the progress of surveys and see where survey teams are working at all times.

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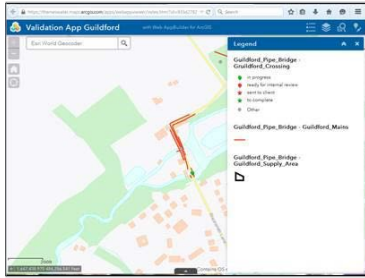
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“ We now have incredibly rapid access to survey data that is complete, accurate and consistent for all the thousands of pipe bridges under our responsibility.” ”

Lawrence Smith, Technical Information Manager, Thames Water



Thames Water's Pipe Bridges Validation app

Benefits

Rapid collection of accurate asset information

The new Pipe Bridge Validation app has significantly reduced the time lapse between data collection in the field and the availability of that data at head office. Thames Water estimates that it used to take 7 to 10 days to capture survey information using the previous paper-driven method, but now validated data from completed pipe bridge surveys is available centrally in just 2 or 3 hours. “We now have incredibly rapid access to survey data that is complete, accurate and consistent for all the thousands of pipe bridges under our responsibility,” Smith says.

Proactive asset maintenance to enhance customer satisfaction

With improved pipe bridge data, Thames Water is now able to implement a proactive, condition-based asset maintenance programme that is, in time, expected to contribute to enhanced customer satisfaction. The company can prioritise repairs on the pipe bridges that are in the worst condition, minimising the likelihood of sudden pipe bursts or pollution incidents that might lead to customer complaints or reputational damage. With fewer complaints and service issues, Thames Water can improve its Ofwat customer index score.

Sustainable cost efficiencies in planned maintenance activities

Maintenance activities can also be undertaken far more cost efficiently, due to effective planning. Managers within both Thames Water and eight2O have better information to enable them to assign the correct maintenance plan to each pipe bridge, gain the necessary access permissions in advance and dispatch the right teams with the appropriate equipment and materials. Consequently, engineers are less likely to waste time sitting in their vans waiting for landowners to unlock access gates and will avoid having to make unnecessary repeat trips because they have the wrong materials in their vans for the type of pipe on the bridge.

Greater employee, contractor and public safety

In the new GIS-led process, surveyors take photos of pipe bridges and these images – along with supplementary data captured in the field – help to improve understanding of potential hazards at pipe bridges. When going out to each new maintenance job, employees and contractors from Thames Water and eight2O will now be better informed about what to expect and can ensure they have the right safety equipment with them to protect themselves and the general public during essential works.