

Transforming asset management



Liverpool Wastewater Treatment Works. Picture courtesy of Liverpool Wastewater Treatment Works

Infrastructure futureproofing tool and Liverpool Wastewater Treatment Works

CSIC with Industry Partners Costain and United Utilities

The project

CSIC Asset Management team has successfully piloted its infrastructure futureproofing tool on the Liverpool Wastewater Treatment Works (LWwTW) to assess the organisation's assets against defined futureproofing criteria. LWwTW is a £200 million extension project which will keep the River Mersey clean for generations to come. The new plant at Wellington Dock will serve around 600,000 residents and be able to cope with 11,000 litres of waste a second, equivalent to filling an average family car 200 times every second.

The challenge

LWwTW must meet increasing wastewater treatment demand due to long-term population growth while keeping the River Mersey clean - it was one of the most polluted rivers in the UK in 1980s but now sustains a wide range of fish including salmon, trout, lamprey and dace. The existing wastewater treatment works at Sandon Dock became operational in 1991 and was upgraded to its current form in 2000, but by 2015 the works needed replacement.

The approach

CSIC's futureproofing assessment tool assists asset intensive infrastructure companies to develop strategies to futureproof assets and information. The tool enables decision makers to assess the state of infrastructure futureproofing and identify gaps in current and targeted futureproofing goals. This further helps in identifying and collecting data and securing its long-term availability, also identifying what the lasting value will be for an infrastructure.

Taking this innovative approach the CSIC Asset Management team has identified possible future changes that might affect LWwTW infrastructure and defined futureproofing criteria to address resilience, adaptability, replace ability, reusability, system stability, operability and information futureproofing. The tool assessed various assets, e.g. pumps, buildings, piping and screens, against the futureproofing criteria and defined futureproofing targets for different assets. Gap analysis of current and targeted futureproofing goals for assets was conducted and the usability and usefulness of the infrastructure futureproofing tool was tested.

The benefits

Application of the futureproofing tool has provided direct benefits to LWwTW infrastructure providing information to support:

- assessment of the suitability of pump, building, piping and screen assets when considering the design of upgrades and new facilities for long-term use and maintenance
- selection of a variety of water and wastewater process asset upgrades
- embedding the infrastructure futureproofing tool/criteria in 'risk management process'/'risk register' and 'stakeholder management process'/'stakeholder map'
- helping drive innovation and improvement in the industry for future projects
- informed decision making
- delivery of through-life value benefits
- improved infrastructure futureproofing strategies to enhance:
 - resilience of infrastructure to climate change impacts

- change management capability of the infrastructure in terms of adaptability, replaceability, reusability, system stability, operability and information futureproofing.

CSIC's futureproofing tool has also been applied at London Underground's Camden Town Station upgrade project and can be applied more widely by asset owners.

Impact

"The use of CSIC's infrastructure futureproofing tool provides real value in the assessment of the suitability of assets when considering the design of upgrades and new facilities for long-term use and maintenance. The use of the tool should help with the selection of a variety of water and wastewater process asset upgrades thus helping drive innovation and improvement in the industry for future projects."

Andy Fielding, Performance Manager for Costain Water Sector

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