

Bridging the gap: a value-based approach to maintenance

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St Ives Bridge, Cambridgeshire, a fifteenth century bridge forming part of the CSIC and Cambridge County Council bridge maintenance portfolio. Picture courtesy of Cambridge News, Cambridge Newspapers Ltd

The project

Cambridgeshire County Council is responsible for the maintenance of more than 1500 bridges of various types, ages, and usage patterns across the county. The bridges include some with heritage status and others of strategic importance with very high traffic volume.

Action and achievements

The council has to determine the annual maintenance tasks required across the bridge portfolio while working with pressing budget constraints; prioritising maintenance activities and justifying expenditure to funders is key. Last year CSIC's Asset Management team worked closely with maintenance engineers and planners at the council to develop a bridge maintenance prioritisation tool to order annual maintenance activities considering:

- the value generated by the task
- the cost of maintenance
- the risks posed by the condition of the bridge to the safety and functionality of the bridge
- factors including heritage status and wider impact on the road network incorporating the needs of all stakeholders

The tool complements a three-phase approach:

- develops a valuation scheme for bridges based on criticality to the network operation
- develops a value-map for the bridge that identifies how the condition of the bridge affects the various value drivers
- uses the value-map and the valuation scheme to quantify the effect of maintenance activities and prioritise activities on the basis of value-for-money

As the Excel-based tool uses a simple scoring scheme, it is practical and easy to understand and implement. Results from CSIC's tool

were compared with the council's previous prioritised list for bridges. This offered validation and revealed new data useful for future planning.

Impact and benefits

CSIC's bridge maintenance prioritisation tool enabled the council to make better-informed decisions:

- helped bridge managers at the council to justify the annual expenditure on bridge maintenance and to clearly prioritise maintenance activities to ensure maximum value for money spent
- engagement with asset managers at the council led to a wider appreciation of the value-based approach to asset management, potentially paving the way for establishing a step-change in the way assets are managed across the council's wider asset portfolio
- could be adapted for use by other councils and bridge owners potentially generating a wide-scale impact

“The tool will allow us to prioritise the maintenance activities on our bridges annually based on the provision of service to the bridge users, risk to structural integrity, and the cost of maintenance. It provides us with a degree of confidence to justify the expenditure and programming of our highway structures to target our limited resources to the benefit of the local communities.”

Gareth Guest, Area Bridge Manager at Cambridgeshire County Council