Roads Liaison Group

Research Project Proposal

Project title	The Management of Older Metal Bridges

Sponsoring RLG Board	Bridges Board

Why is this research needed?	Many of the large number of older (pre-1960) metal structures are now in need of sympathetic strengthening. There is often a useful residual life that can be determined using modern analytical and assessment techniques that can be used to raise the assessed capacity and thus justify retention of the bridge in service. There is a need for comprehensive detailed guidance on these techniques and on suitable new and existing repair methods. There is also a need to review and update best practice in the area of inspection and maintenance of older metal structures. Older metal bridges represent a large proportion of the national bridge stock with a significant asset valuation. For example, there are 771 metal bridges owned by Rail Property Ltd., 16,000 owned by Network Rail (of which some 12,000 are estimated to predate the First World War) and at least 7,666 in the care of local government in England, Wales and Scotland.
How will it be used? What are the key objectives and intended outcomes of the project?	To provide advice to Engineers engaged in managing older metal bridges. To encourage methods of improved assessment that may enable avoidance of costly strengthening work. To review and promote effective strengthening techniques. To encourage appropriate repair and maintenance techniques including protective coating systems.
What are the project outputs? How will the project results be disseminated (website, report, seminar, code of practice)?	The outputs would include additional rules or guidance for the assessment, monitoring and management of the older types of metal bridge that take advantage of improved techniques. To be presented as a best practice guide for engineers and owners to the assessment, repair and strengthening of structures of this type. To be launched by open seminar and disseminated widely via the BoF web site.
Cost estimate (£K excluding VAT)	£80k
Suggested start date	May 2004
Duration of project	12 months

What is the project scope? Applicable only to certain countries, authority types, or road types, for example?	To cover all relevant structure types on the trunk road and local road networks as well as railway overline bridges including footbridges.

Briefly set out the proposed project methodology	Gathering information on improved techniques and procedures through literature review and discussions with engineers and owners responsible for the management of structures of this type. A selective audit of bridges with a low assessed capacity. An examination of existing experience and test data under service and collapse loading followed by analytical studies and proposals for improving assessments, including load testing techniques, and for the management and maintenance of the bridges concerned, including consideration of jack arches, hogging plates, trough decks, tie rods etc. A review of existing research programmes including web shear, rivet shear and fatigue. Gaps in the knowledge would be identified and the scope for the development of new methods determined. Improved understanding of the metallurgy involved is required and the effect on potential strengthening techniques would be considered.
How does this proposal relate to previous research (including literature reviews)?	There are a number of text books, HA BDs, Network Rail Current Information Sheets etc. However, current guidance on assessment, repair and strengthening is not comprehensive and up-to-date and there are no comprehensive texts on assessment, repair and strengthening of older metal highway and railway bridges. A great deal of experience exists with practitioners making this an ideal topic for a best practice review and update.

Has this project been brought forward from a previous year? If so, what has changed?	No
Are there potential financial partners? Who? What proportion of the cost might they meet?	No potential financial partners presently identified.
Would this project be best managed by DfT or by another body? If not DfT, by whom?	This project can be managed by a sub-group of the BoF.
Is this project likely to justify single tender action? If so, which organisation?	No.
Would this project benefit from OJEU notice or other open tender procurement? If so, how?	There are no obvious benefits from an OJEU notice.

Originating author	Graham Cole
Address	Surrey County Council County Hall Kingston upon Thames Surrey KT1 2DY
Phone	0208 541 7317
E-mail	graham.cole@surreycc.gov.uk

Board priority score	
RLG priority score	