



Bridge Owners' Forum

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## **Report No.6 to the Bridges Board on the activities of the Bridge Owners Forum (BOF) for 2008/09**

**For presentation at the Bridges Board Meeting, Wednesday 14<sup>th</sup> October 2009**

### **HIGHLIGHTS OF 2008/09**

#### **Membership changes**

Paul Williams from the London Borough of Brent and Chairman of the London Bridges Engineering Group (LoBEG) joined BOF as representative of LoBEG.

Current BOF member organisations are:

- BRB (Residuary) Ltd
- British Waterways
- CSS (County Surveyors Society)
- CSS Wales
- Department for Regional Development (Northern Ireland)
- Department for Transport
- Highways Agency
- Humber Bridge Board (representing UK Large Bridges Group)
- LoBEG (London Bridges Engineering Group)
- London Underground
- National Assembly for Wales
- National Roads Authority (Ireland)
- Network Rail Infrastructure Ltd
- SCOTS (Society of Chief Officers of Transportation in Scotland)
- Transport Scotland
- Transport for London

The primary areas of focus for BOF during 2008/09 have included the following:

## **Dissemination of information / Technical reviews**

**2008**

### **BOF25: May 2008**

- Introduction from CSS Wales
- Presentation from Myles O'Reilly and John Perry on the CIRIA Dry-Stone Retaining Wall best-practice guide.
- Presentation from Graham Tilly on the CIRIA Iron and Steel Bridges best-practice guide.
- Presentation from Fiona Steele (Serco) on the progress of the ESDAL (Electronic Service Delivery for Abnormal Loads) project.
- Research updates from Network Rail and the Highways Agency.

### **BOF26: September 2008**

- Discussion of BOF membership criteria, with respect to issues of conflicts of interest.
- Presentation from Martin Brown (London Rail) on the partial failure of the inclined bearing pads of the GE19 steel truss bridge near Liverpool Street station.
- Presentation from Eric Greveson and Simon Topp (Yotta) on the potential of computer vision technology to assist in asset management of roadside structures.
- Presentation by Dr Yusuke Kobiashi on the use of novel instrumentation of bridges in Japan for advanced weigh-in-motion-like detection of overweight vehicles and other novel research applications.

**2009**

### **BOF27: January 2009**

- Introduction of Paul Williams - new LoBEG representative to BOF
- New terms of reference proposed for BOF.
- Presentation by Graham Tilly on the outcomes of an EU funded research project titled CONREPNET on the effectiveness of various concrete repair and maintenance techniques.
- Research update from Network Rail.
- Graham Cole presented the paper 'CSS Research on the Assessment of Masonry Arch Bridges'. This paper was commissioned by CSS in response to criticism by Prof. W. Harvey of the MEXE method for masonry arch bridge analysis.

## **International co-operation**

### *US Scanning Tour – Assuring Bridge Safety and Serviceability*

The Chairmen hosted, on behalf of BOF, a one-day visit by a US delegation of senior bridge engineers from the FHWA, AASHTO, consultants and universities at King's College, Cambridge in June 2009. This visit was part of a European wide tour undertaken by the US group. A summary of the US findings should be available shortly and, subject of agreement from the US delegation, will be made available on the BOF website.

### *International Bridge Forum (IBF)*

The inaugural International Bridge Forum was held from 13<sup>th</sup> to 16<sup>th</sup> September 2009. Senior bridge engineers from major bridge authorities and research organisations from a number of different countries attended a 2½ day forum at King's College, Cambridge to allow detailed comparison of innovations and new technologies in bridge engineering.

## **Identifying research needs and priorities**

The Bridge Owners' Forum identified and prioritised five projects for consideration for funding in 2009/10. These were submitted to the UK Bridges Board meeting on 18<sup>th</sup> February 2009. All five proposals, together with a separate proposal for a Decision Support Tool were supported by the Bridges Board and forwarded to the UKRLG for approval. At the Bridges Board meeting of the 17<sup>th</sup> June 2009 it was announced that there was no funding available for 2009/10 so all six projects would have to be resubmitted for consideration in 2010/11.

## **Financial support for BOF and BOF research projects**

BOF was supported over the period from April 2006- March 2008 by a 3 year grant from the DfT. Following on from this the DfT renewed funding for one year (2009-10) by awarding a formal contract under a single tender action. BOF requests support from the Bridges Board in its application for continuing financial support from the DfT beyond the end of the current contract in March 2010. The level of support requested remains at the current funding level of £30k per annum.

## SUMMARY OF STATUS OF RESEARCH PROJECTS INITIATED BY BOF

### 2003/04 – one completed

1. *Masonry arch bridges: condition appraisal and remedial treatment (C656)*<sup>1</sup>  
**Published by CIRIA**

### 2004/05 – two completed

1. *Drystone retaining walls and their modifications: condition appraisal and remedial treatment (C676)*<sup>2</sup>  
**Published by CIRIA**  
Contractor: CIRIA/Mott Macdonald  
Joint funding (CSS, DfT, Network Rail, DoRD(NI))
2. *Iron and steel bridges: condition appraisal and remedial treatment (C664)*<sup>3</sup>  
**Published by CIRIA**

### 2005/06 – no new projects due to Ministerial moratorium on research funding

### 2006/07 – one completed, two started, documentation in preparation for one

1. *Revision of BS6779 Part 4* (requested £100k for each of 4 years)  
Contractor: AECOM. Lead: Amrit Ghose. Subcontractor: Matthew Gilbert
2. *Training and qualification of bridge inspectors (Phase 1)* (£50k)  
**Project completed** – report approved by steering group (Contractor: Atkins)
3. *Bridge deck slabs with non-metallic reinforcement* (£55k)  
**Contract awarded** to Queens University Belfast (Dr Su Taylor).
4. *Carbon composites for the strengthening of steel structures* (£65k)  
**Contract awarded** to Heriot-Watt University (Prof. Ian May). Project kick-off meeting held at Heriot-Watt University on Friday 4<sup>th</sup> September 2009.

### 2007/08 – one started , one project to be re-costed, one spec in preparation.

1. *Automating bridge inspections* (estimate £50k)  
**Contract awarded.** Contractor: TRL. Project started January 2009. TRL initial internal report produced so far.
2. *NDT of macalloy bars tying prestressed beams* (estimate £146k)  
BOF was advised on 16 September 2008 that this project was deleted from the list of projects being considered by DfT as it was deemed too expensive. Originator has been asked to reprice the project, but has not yet done so.
3. *Scanning of HA research reports* (consultancy project) (estimate £30k)  
Research reports are now in HA Bedford office. Draft specification with BOF Project Steering Group for finalisation.

<sup>1</sup> <http://www.ciria.org/SERVICE/Home/core/orders/product.aspx?catid=5&prodid=142>

<sup>2</sup> <http://www.ciria.org/SERVICE/Home/core/orders/product.aspx?catid=2&prodid=1712>

<sup>3</sup> <http://www.ciria.org/SERVICE/Home/core/orders/product.aspx?catid=3&prodid=147>

**2008/09 – no new research projects funded by DfT**

**2009/10 – DfT advised that no new research funding will be available**

**2010/11 – 5 projects prioritised for 2009/10 to be reconsidered for (2010/11)**

1. Bridge Inspector Competence and Training Phase 2 (£100K)
2. Review of Road Restraint Systems for Local Roads (£50K)
3. Best Practice for Specifying Long Life Road Surfacing for Bridges (£87K)
4. Design, Maintenance and Inspection of Concealed Metal Connectors and Bearing Pins in Moving Bridges (£90K)
5. Life-time considerations of FRP Strengthening of Bridges (£160K)

In addition, BOF identified the project on Training and Qualifications for Bridge Inspectors as being a high priority project which will enhance the Asset Management of bridges. Phase 1 was successfully completed and BOF wishes to pursue Phase II and introduce the actual schemes identified in Phase 1. As a result, members were asked to contribute towards funding of this project. To date financial contributions have been offered as follows:

HA - £10k; NRA (Ireland) – Euros 5k; TfL - £5k (may be able to contribute additional £5k); CSS - £10k (To be confirmed); Transport Scotland £10k (to be confirmed). Advice from the DfT. Contract documentation is in preparation by the BOF steering committee (Chairman: Stephen Pottle – TfL) for submission to the DfT.

## **Issues facing BOF**

The one major sticking point in the procurement of BOF recommended projects had been the need to obtain approval from the DfT to procure these projects, selected by BOF's competitive evaluation procedure, by Single Tender Action. A detailed case presenting the arguments in support of this procurement method was submitted to the DfT. The selection procedure used by BOF has now been accepted by the DfT's procurement experts as acceptable and an number of projects that were previously stalled awaiting STA approval have now been procured.

It is recognised that the DfT is under significant pressure to deliver a substantial road and bridge maintenance programme with very limited manpower available. BOF has continued to offer assistance to the DfT in their efforts to deliver their research programme. In particular the BOF Technical Secretary, Dr John Menzies, has continued to prepare technical specifications, in discussion with the DfT and project proposers, for the various BOF projects.

## **The future role of BOF**

The Technical Secretary and Chairman of BOF have continued discussions aimed at identifying how best to enhance the role and effectiveness of BOF. At present they believe BOF could fulfil the role of a "think-tank" on issues of long term infrastructure management – putting forward to the Bridges Board and UKRLG papers/proposals on future directions and how to achieve desired outcomes. This activity would run alongside BOF's role in initiating and overseeing high priority bridge related research projects. These ideas will be raised for discussion at the next BOF meeting. It is considered essential that BOF members continue to challenge the outputs and achievements of BOF to ensure it fulfils the role for which it was established.

## **BOF Recommendations to the Bridges Board**

1. A formal procedure still needs to be introduced by the DfT, UKRLG, Bridges Board and BOF for positive notification of the outcomes of each stage of the decision process and the amount of funding allocated to each project in the budget. All parties need to be advised on a realistic timeframe in which a contract can be let. Ideally the DfT would provide a written summary of the decision process and timeframe involved in commissioning research projects via the UKRLG to the Bridges Board and BOF on an annual basis.
2. Support is requested from the Bridges Board for renewal of funding for BOF for one year from April 2010 until the end of March 2011 at the current level of £30K per annum.

## **Bridge Owners' Forum**

The overall goal of the Bridge Owners Forum is to provide a framework whereby there is wide dissemination of bridge research information and discussion on the technical merits of

research developments. It also provides a conduit and filter for research proposals to be vetted and promoted to appropriate funding organisations. Finally it can provide the technical expertise and ability to evaluate key issues facing the UK in relation to bridges, such as the lessons to be learned from the Minnesota bridge collapse, appropriate response to concerns raised about the MEXE method of analysis for arch bridges and, quite recently, concerns raised about current code provisions for shear.

The net gains to the UK are (i) better co-operation between owners (ii) managers who are kept abreast of the latest research and technological developments and (iii) the more effective use of the UK's resources in managing this key element in the national infrastructure. The meetings have been very well supported with members attending the majority of the meetings to date. In view of the time demands on managers today this is possibly the best indicator of the importance and relevance of the Bridge Owners Forum in fulfilling its role to help bridge owners more effectively manage the nation's bridges.

Campbell Middleton  
Chairman  
Bridge Owners Forum  
14/10/2009