

BRIDGE OWNERS FORUM

MINUTES OF MEETING BOF33: TUESDAY 1st FEBRUARY 2011 AT THE HICKS ROOM, CAMBRIDGE UNIVERSITY CENTRE

PRESENT

Campbell Middleton	CHAIRMAN & Cambridge University Engineering Department (CUED)
Graham Bessant	London Underground
Brian Bell	Network Rail
Graeme Brown	DoRD(NI)
Peter Brown	ADEPT and Oxfordshire County Council
Graham Cole	ADEPT and Surrey County Council
John Clarke	BRB (Residuary) Ltd.
Richard Fish	TECHNICAL SECRETARY
Peter Hill	Large Bridges Group and Humber Bridge Board
Rod Howe	British Waterways
Neil Loudon	Highways Agency (HA)
Graeme Muir	Society of Chief Officers of Transportation in Scotland (SCOTS)
Andrew Oldland	DfT
Andy Phillips	Welsh Assembly Government
Stephen Pottle	Transport for London
Bill Valentine	Transport Scotland
Paul Williams	LoBEG
Paul Fidler	CUED
Graham Webb	CUED

INTRODUCTION

The Chairman welcomed BOF members to the meeting and outlined the day's agenda. As well as the presentations by Su Taylor and Lindsey Wilson in the Technical Session, one of the key objectives of the meeting was to revisit the future of BOF with respect to the DfT position on funding.

The Chairman introduced Graham Webb as an observer at the meeting who was undertaking a PhD on sensor monitoring as part of the ESPRC grant to CUED.

1. APOLOGIES FOR ABSENCE

Albert Daly	NRA (Ireland)
Robert Humphreys	ADEPT (Wales)

2. PREVIOUS MINUTES – BOF32 21 SEPTEMBER 2010

The minutes of BOF32 were accepted subject to the following corrections:

Page 7 Item 5 Upper boxed action

Substitute “Brain” for “Brian”.

Page 8 Item 7c

The recorded action (Surveyor Conference paper to BOF website) should be applied to Item 7a.

Page 9 Item 8a (and Action BOF32, Section 8a, Action 1)

Substitute “Charles” for “Childs”.

Page 10 Item 8c

Substitute “ERANET” for “Euronet”

3. ACTIONS FROM BOF32

The following includes both Actions not completed and record of discussion on some of those that had. Other actions, particularly on research topics were covered later on the agenda:

BOF32, Section2, Action 1: Paul Fidler issued copies of a “dashboard” showing volume and frequency of website hits. This was widely welcomed and there was general agreement that there had been more hits than had been expected. The Chairman asked Andrew Oldland to report this to his DfT colleagues.

ACTION 1: Andrew Oldland

Brian Bell noted that the collapse database had achieved most hits but was concerned over the quality of the data and considered that it was too reliant on out of date information. The Chairman replied that he tracked worldwide collapses via Google and was alarmed at the frequency of bridge collapses around the globe but especially in the USA. After discussion, it was agreed that a refresh of the database and a regular review of new information would be helpful. Resourcing this could be a problem and Stephen Pottle agreed to raise at UKRLG to see if the CIHT secretariat could help. It was also agreed that all BOF members should email the Chairman as soon as any erroneous information was found on the website and that a health warning should be added regarding the accuracy of data therein. Graham Cole referred to a recent paper in the ICE Municipal Engineering Journal on the future of engineering papers in view of the rise of the internet and sites such as Wikipedia.

ACTION 2: Stephen Pottle ACTION 3: All ACTION 4: Paul Fidler
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BOF32, Section 3, Action 1: Referring to the statement on research procurement given by Paul Foskett at BOF32, Andrew Oldland suggested that it was unlikely that anything further would have been done in view of Government cuts. The chairman reiterated the role that BOF should play in the research process. Neil Loudon reported that he had seen a draft DfT Research Strategy Document but was unsure of its present status. Stephen Pottle suggested that a summary of BOF's workload and achievements should be sent to Steve Berry (Paul Foskett's replacement) at DfT. Andrew Oldland felt that Steve Berry would be keen to discuss BOF's role with the Chairman.

ACTION: Chairman

BOF32, Section 5, Actions 1 & 2: The Chairman tabled a revised breakdown of BOF expenditure, which included as many budget reductions as possible. In his view, the priorities were the website and technical secretary with other expenses either kept to a minimum or absorbed in other ways. The outcome of this exercise was that BOF could be funded for £9,950 per year. Compared with present DfT funding of £30,000 pa, this illustrated the level of cuts he had been able to achieve. The only comparator was the Geotechnical Forum which was believed to operate on a budget of c£9,000 pa. Action 2, with regard to possible contributions from BOF members was deferred to Item 4 on the BOF33 agenda.

BOF32, Section 5, Action 3: The Chairman reported that he had attempted to meet with John Dowie and/or Mustaq Ahmed at DfT without success but he was working on the assumption that BOF funding would cease at the end of this financial year. He agreed to try to meet with Steve Berry as noted above but asked Andrew Oldland whether he thought DfT might be a subscribing member of BOF: Andrew thought that this might be possible.

ACTION: Chairman

BOF32, Section 7c, Action 1: See also Item 2 above. It was considered that the uploading of the masonry parapet research presentations to the BOF website was no longer worthwhile.

BOF32, Section 8d: Paul Williams reported that he had sent the LoBEG report on bridge deterioration after the last meeting but agreed to send an updated version.

ACTION: Paul Williams

4. Future of UKRLG, UK Bridges Board & BOF

The Chairman reported that he had received the latest minutes of the UKRLG and UKBB as well as an email from the latter's chairman, Mike Winter. He had the impression that DfT wanted to see RLG become more strategic, be managed by a consultant and become non-commissioning whereas Mike Winter expects CIHT to continue in its secretarial role, the RLG and Boards to continue to prioritise research and other workload and to move to a subscription system for funding which would include the Highways Agency and the devolved governments.

Andrew Oldland believed that the secretariat was not being tendered but confirmed that any level of funding from DfT was unlikely. Stephen Pottle pointed out that any

subscriptions would only be for the RLG and Boards and not their research programmes. These would continue to be funded through collaborative contributions which might still include DfT on a bespoke basis.

Whilst acknowledging that RLG and Boards were likely to continue, the Chairman also pointed out that DfT budgets included millions of pounds allocated to research and yet none of this seemed to be channelled through RLG. Andrew Oldland was unsure of these budget allocations.

The Chairman reported on the outcome of discussions with Brian Kidd of CIRIA and the options to consider ESPRC and associated funding for BOF related research. Brian Bell warned that fixed research programmes are already in place and this may not be an easy option. He suggested that it was better to investigate EU funding, as Network Rail do. Neil Loudon reported that the Highways Agency were engaged in some EU collaborative projects via ERANET but these were mostly in areas of pavement research and not seen as high priority. Brian Bell also suggested investigating the Modern Built Environment Knowledge Transfer Network (MBEKTN) and it was agreed that an option here would be for all fora (BOF, Geotechnical etc.) to feed into MBEKTN.

The Chairman mooted the option of BOF sponsorship but the meeting agreed that this was not preferred and that BOF should retain a degree of independence.

The Chairman then asked for informal commitments from BOF members on possible subscriptions. In terms of timing, with his reduced costs, there were sufficient funds for 2 further meetings but beyond that subscriptions seemed the only option. He noted that he had received 2 positive responses at the last meeting but considered that subscription levels of c£500 per year per organisation would be appropriate or c£150 per meeting. He invited responses from the meeting:

Brian Bell compared the Network Rail commitment to the Geotechnical Forum which was £2,500 and considered that a similar sum could be approved for BOF.

Graeme Muir had received no word from the SCOTS Executive but thought that any contribution was unlikely.

Neil Loudon pointed out that the Highways Agency's subscriptions budget was already under pressure but considered a figure of £500 achievable.

Peter Brown/Graham Cole pointed out that ADEPT represented some 150 local authorities of varying sizes. A bid for BOF funding from the ADEPT Research Fund had been rejected.

Andrew Oldland thought that a DfT contribution of £500 was possible.

Graeme Brown considered a contribution of £500 was achievable as long as other parties were paying a similar figure.

Bill Valentine agreed that Transport Scotland should be able to pay £500.

John Clarke thought that £500 was not a problem in the next 6 months or so but would be more problematic when BRB merges with the Highways Agency, the details of which remained unclear.

Stephen Pottle reported that all TfL subscriptions had been cancelled and that finding money for BOF was highly unlikely.

Rod Howe thought that probable contribution of up to £900 was likely, as long as other members were also contributing.

Peter Hill agreed that £500 should be acceptable.

Graham Bessant suggested that he could secure up to £2,000 via the LUL Research budget but his problems were more to do with restrictions on personal attendance.

Andy Phillips was reasonably confident that £500 could be secured.

Paul Williams also suggested that £500 could be found

The Chairman thanked members for this indication and suggested that the future of BOF should be achievable. The meeting agreed that, in return for subscriptions, it would be necessary for BOF to be more focussed on delivering its outputs and outcomes

5. Technical Session

a. Lindsey Wilson (Atkins) – Great Bridges Revisited

The Chairman introduced Lindsey who had recently graduated from CUED and now worked for Atkins Rail. For her final year project Lindsey had reviewed the “Great Bridges” book, published in 1965 and listed 103 UK bridges built in the previous decade. At the time, those bridges had been hailed as engineering successes but Lindsey demonstrated how little attention had generally been paid to inspection and maintenance issues at the time of design and how some had been neglected, even in terms of regular inspections, by their current owners. Lindsey also drew attention to the number of structures that had needed major maintenance, strengthening or widening. Her presentation will be placed on the BOF website.

ACTION: Paul Fidler

In response to the Chairman’s invitation for comments and questions, Stephen Pottle suggested that some of the works required in the interim had been due to wider issues such as the need to bypass the bridge or to increase traffic capacity. Brian Bell agreed, pointing out that there were 2 issues with bridge capacity: volume and loading. He also questioned what a similar review of Victorian bridges might have found; all being over 100 years old and generally still performing well. Discussion continued on the subjects of contemporary political pressures and the desire to minimise initial costs, current budget levels for bridge management which were barely sufficient to safely manage the bridge stock, despite improvements in terms of guidance on bridge management over recent years.

Neil Loudon expressed concern over the general lack of continuity between consecutive inspections. He reported that the Highways Agency were considering a repeat of the 1989 Maunsell report.

The Chairman suggested that some of the key messages in Lindsey's presentation could be used to raise concerns and to brief Ministers and senior civil servants. Richard Fish proposed that a more up to date position might harden the impact of the message and that comparisons with other countries might be helpful.

The Chairman thanked Lindsey for her presentation and agreed to consider how best to take these issues forward.

ACTION: Chairman

b. Dr Su Taylor – Queen's University, Belfast.

The Chairman introduced Su Taylor who had been undertaking the BOF research project into the use of non-metallic rebar in bridge decks. Su gave a presentation (which will be posted on the BOF website) which covered the trial on Thompson's bridge as well as other structural health monitoring ESPRC research on reducing chloride attack, monitoring of a flexi-arch at Tievenameena bridge, the development of low energy concrete (a TSB project) and some KTP (Knowledge Transfer Project) work on developing double radius and skew flexi-arches.

ACTION: Paul Fidler

After Su's presentation, the Chairman invited questions and comments:

Neil Loudon asked about the use of optical fibre sensors and whether they should be fitted from new or retrospectively. Su Taylor said that both were possible but the former was preferred. Brian Bell agreed, citing problems with intrusive drilling and backfilling which tended to change the local structural behaviour and could give misleading readings. Peter Brown mentioned Oxfordshire County Council's experience of using FO sensors on 3 concrete bridges and 1 new FRP bridge. The Chairman advocated the use of FO sensors, suggesting that they would inform design methods and provide improved structural understanding, especially with regard to soil interaction on substructures.

The Chairman also asked about the derivation of the K value in determining compressive membrane action. Su replied that the figure had been derived via numerical modelling.

Questions were also asked about bond and bends: the former was achieved through sand coating and, as the FRP bars were formed by extrusion, there was some capability to make bends during the manufacturing process.

The Chairman thanked Su for her presentation.

6. BOF Research Projects Update

The Chairman introduced this item which had had to be truncated due to time constraints. He invited BOF members for each project to summarise the position before a brief discussion.

a. Revision of BS6779 Part 4 (Masonry Bridge Parapets)

Brian Bell reported that there had been no meaningful progress: he had spoken to Aecom's Project Manager who had reported that problems were being experienced with the risk ranking model. Brian himself had concerns on the performance of Sheffield University and agreed to chase the various parties.

ACTION: Brian Bell

Brian also expressed concerns about the fact the Aecom were due to speak on this work at the Surveyor Conference in March and was minded to refuse permission to present. Graham Cole agreed, noting that the Steering Group had not been kept informed of progress and that it would not be right for the Surveyor Conference to be told that little progress had been made. He agreed to raise this with the conference organisers.

ACTION: Graham Cole

Andrew Oldland confirmed that he was the named DfT Project Manager now that Edward Bunting had moved on.

b. Bridge deck slabs with non-metallic reinforcement

Graeme Brown had nothing more to add to Su Taylor's presentation but he would chase the final project report.

ACTION: Graeme Brown

Bill Valentine suggested that it would need a change of standards if this research was going to lead to practical solutions. The Chairman agreed that there were still further considerations such as costs, minimum percentages, ductility, alternative materials (such as stainless steel) etc. that needed to be taken into account. There was also a problem getting the full benefits of whole life costing when initial capital cost still seemed to drive procurement. He suggested putting these issues to an expert group. Brian Bell considered using Bill Harvey's IStructE Bridge Study Group but the chairman felt that it would be better to keep the topic within BOF: Graham Cole agreed – it would be an opportunity for BOF to demonstrate a role which would not be suited to Bridges Board. The chairman agreed to consider this option and asked Richard Fish to assist with a list of possible names for an expert panel. Initial suggestions included Su Taylor, Peter Sheard, Chris Burgoyne and Graham Gedge.

ACTION: Chairman
ACTION: Richard Fish

c. Carbon composites for strengthening steel structures

Brian Bell reported good progress with excellent work from the PhD student at Herriot-Watt University. The work was focussing on the enhancement of shear in deep steel beams by the bonding of vertical web stiffeners, intended for use in retro-fit. He was attending a meeting of the Steering Group on 11 March 2011 and was hoping to have the chance to see Lab work in progress. Andrew Oldland was asked who was now the DfT Project Manager and he agreed to advise the Chairman.

ACTION: Andrew Oldland

d. Automatic Bridge Inspections

Stephen Pottle reported that the contractor (TRL) had asked for additional funding to complete the work. Andrew Oldland advised that he was now Project Manager and confirmed that requests had been received for £7,500 in order to finish and a further £7,500 for some additional work. This had been queried by DfT but no decision on expenditure had been taken. It was unanimously agreed that TRL should complete what they had contracted to do, if necessary at their own cost. It was also agreed that Andrew should advise TRL that they must deliver to their contractual obligations and that they must present a robust financial case if they required an extension. Copies of these requests to TRL should be sent to Stephen Pottle as Steering Group chair. Andrew was also asked to send copies of the contract and specification to the Chairman, Stephen Pottle and Richard Fish.

ACTIONS 1 & 2: Andrew Oldland

e. Scanning of HA Research Reports

Neil Loudon reported no progress but agreed to arrange a date to meet the Chairman at HA's Bedford office.

ACTION: Chairman/Neil Loudon

Neil also reported that the budget for this work could not be spent by the end of the financial year and there remained issues over the exact amount and the authorisation process within DfT. Andrew Oldland was asked to confirm.

ACTION: Andrew Oldland

It was noted that it was now general policy and best practice for all current reports to be submitted as Word and PDF files as well as hard copies.

f. Bridge Inspector Qualification (Part II)

Stephen Pottle reported that most funding was in place but he was still waiting for DfT approval. He also expressed concerns about the Irish NRA contribution of €25,000 in view of their fiscal position. Andrew Oldland agreed to find out the DfT position and report to the Chairman, Stephen Pottle and Richard Fish as a matter of urgency.

ACTIONS 1 & 2: Andrew Oldland

In the event that the anticipated project budget allocations could not be drawn down, Stephen would look to review and pare back the specification. Brian Bell warned that such an action might question the validity of the original tendering process.

Bill Valentine warned that contributions from other funding bodies would have to be committed by the end of the financial year. It was agreed that as soon as the financial position was clear the contract should be confirmed with TRL/Atkins.

Stephen reported that he had been trying to meet with Steve Berry at DfT on this project but without success. The Chairman agreed to raise his concerns with John Dowie.

ACTION: Chairman

It was confirmed that the Part I report was now on the BOF website.

7. Other Bridge Research Update

The chairman invited BOF members to advise the meeting of their current and proposed initiatives:

a. TfL

Stephen Pottle gave a presentation on ongoing work at TfL. The presentation will be placed on the BOF website.

ACTION: Paul Fidler

He advised on progress on deriving inspection frequencies on a risk based approach: a Phase 1 trial had been completed and Atkins were due to start work on Phase 2 in February 2011. Risk was also being used to assess parapets, to consider interim measures and to prioritise upgrading work.

TfL had also had considerable problems with joint failures, both asphaltic plug and mechanical, which had been given a “good” rating on recent inspections. He was compiling a Guidance Note for bridge joint inspections which he would make available in due course.

ACTION: Stephen Pottle

The Chairman asked if any forensic analysis had been carried out on the joints; Stephen replied in the negative but pointed out that some joints only had a very short design life, some even less than the 6 year Principal Inspection frequency. Neil Loudon cited various reasons for joint problems: poor installation, blocked drainage and a significant change in level with the adjacent surfacing. He agreed to consider how best to promulgate advice on dealing with joint problems.

ACTION: Neil Loudon

As part of the discussion on this item, questions were asked on the DfT position with regard to investment in the national bridge assets based on the CIPFA guidance.

ACTION: Andrew Oldland

b. Network Rail

Brian Bell gave a brief presentation on Network Rail ongoing research: Mott MacDonald were working on a project investigating spandrel wall separation and Network Rail were one of 20 partners bidding for European money for a project on Cost Effective Maintenance and Renewal of Railway Infrastructure. He was also aware of a similar call for submissions for a project on Highway Infrastructure.

c. Highways Agency

Neil Loudon reported that the Agency were also working on a methodology for risk based inspections and were planning some work on infrastructure resilience. A review of the Maunsell report on the state of UK bridges was also being considered.

Neil was unable to report whether the Transport Select Committee would publish its conclusions from the inquiry into the Cumbria floods. It was agreed that the Chairman should ask that UKBB make a formal request in this regard.

ACTION: Chairman

Neil also reported that the draft BD 74 revised scour design note was available and noted that the workshop with bridge owners held last summer had been a useful way of engaging practitioners.

d. Other

The Chairman asked for other updates:

Graham Bessant reported that LUL had undertaken some earlier work on concrete bridges to consider changes in porosity, carbonation etc. and one of the original investigators from the University of Glamorgan was interested in reviewing and updating the results. He would keep BOF advised of progress.

Graham Cole reported that ADEPT had published some draft guidance on the use of structural Eurocodes which was available on ADEPTNET.org.uk. Brian Bell said that Network Rail's initial view was that they were not altogether happy with this document. Graham asked for any comments to be fed back to Peter Clapham. Neil Loudon noted that there were some grey areas in Eurocodes with respect to proprietary or temporary bridges and the precast industry. The chairman would consider this as a topic for BOF34.

ACTION: Chairman

The **Chairman** reported briefly on some discussions with ESPRC and would be inviting some member organisations of BOF to join a bid from a consortium of academic and industry partners.

The **Chairman** also reported on a discussion with Mike Winter on possible BOF research which included work on concealed metal connections in bearings etc.

Brian Bell reported that Network Rail already had a draft guidance document on this subject for internal use and the Chairman asked for this to be shared with BOF members once it had been cleared for use.

ACTION: Brian Bell

8. Any Other Business

None.

9. Proposed dates for other 2011 meetings

May	BOF34	Tuesday 24 th May 2011
September	BOF35	Tuesday 27 th September 2011