

BRIDGE OWNERS FORUM
MINUTES OF MEETING BOF 56:
TUESDAY 13 MARCH 2018 AT
THE BOARD ROOM, RICOH ARENA, COVENTRY

PRESENT:

Henry Dempsey	SCOTS
Richard Fish	Technical Secretary
Tomas Garcia	HS2
Jim Hall	CSS Wales
Keith Harwood	ADEPT
Daniel Healy	Department for Infrastructure - Northern Ireland
Jason Hibbert	Welsh Government
Wayne Hindshaw	Transport Scotland
Campbell Middleton	Cambridge University Engineering Department (Chairman)
Paul Thomas	Railway Paths Ltd.

Paul Fidler CUED

Guest:

Liz Kirkham Chair of UKBB and ADEPT Bridge Committee

1. Welcome, Introductions and Apologies

The Chairman welcomed everyone to this additional meeting hosted by the organisers of the Annual Bridges Conference. He noted the relatively poor level of attendance and suggested that this should be discussed at a full BOF meeting before committing to a similar event next year. Partly because of this, the agenda had been designed to enable a wider debate on BOF topics and minutes and matters arising from BOF 55 would be deferred to the agenda for BOF 57 in May.

ACTION 1: Richard Fish

The Chairman then welcomed Liz Kirkham who had been invited not only to give her views on the current issues facing bridge owners but also to seek to strengthen links between BOF and the groups which she chairs.

The Chairman also noted that this was to be Wayne Hindshaw's last meeting before he retires from Transport Scotland in April.

Attending his first meeting, the Chairman introduced Daniel Healy who had replaced John McRobert as the BOF member from Northern Ireland. He invited Daniel to give a brief resumé of his career: Daniel advised that he had attended Queens University, Belfast, and worked with a contractor before joining what is now the Department for Infrastructure. He left to work for Hyder in London before returning to the DfI. Among bridge interests, Daniel cited arches (including the flexi-arch QUB development), general maintenance issues and extending the life of structures on reducing budgets.

Richard Fish noted that apologies had been received from the following:

Nick Burgess	LUL
Graham Cole	ADEPT
Rob Dean	Network Rail
Liam Duffy	Transport Infrastructure Ireland
Andy Featherby	Canal and River Trust
Nicola Head	TfL
David List	Big Bridge Group
Neil Loudon	Highways England

2. Liz Kirkham Overview

Liz gave an excellent overview of the issues facing Local Authority bridge engineers, including:

- There are about 55,000 bridges in the ownership of the English Counties.
- The average bridge age is 80 to 100 years.
- Those built in the 1960s and 70s are generally poor quality and are unlikely to reach even average age.
- Councils have significant capacity issues; many have no Chartered Engineers and rely on outsourced support.
- This in turn makes working for public sector employers less attractive and therefore harder to “grow your own” engineers.

Liz welcomed the close working relationship between UKBB and BOF, recognising the good fit with the respective Terms of Reference.

The Chairman thanked Liz for her excellent summary of the problems facing the bridge community and questioned the commitment of DfT to funding research, Liz noted that a proposal to top slice the national capital budget to enable this to happen had been mooted by DfT at a recent UKBB meeting.

3. Review of BOF: Function, Form and Future

Linked to Liz's comments, the Chairman reported on the recent Government Industrial Strategy which should be pushing money into key sectors, one of which is construction (although presently nothing on the website – partly due to the Carillion issue). There were three key areas which should be of interest to bridge owners:

- i. The Government were pushing BIM and Digital agendas. In this context, the Cambridge Centre for Digital Built Britain has been established and the Chairman had volunteered bridges as a study opportunity.
- ii. There was a need to look at comparators with the manufacturing sector which had received a significant grant.
- iii. The overall skills shortage and poor productivity levels could be applied across all sectors.

Returning to the work of BOF, the Chairman reprised its history and, in particular, the role in promoting research. Most of the bridge related research projects in the last 15 years or so had originated with BOF and had been prioritised through a rigorous and objective process. BOF had also given the opportunity for owners from all sectors to contribute funding. The process had then seen proposals move to UKBB and then to UKRLG but had recently stalled, mostly through lack of DfT commitment and funding as noted in the previous item.

The Chairman noted other recent initiatives at Cambridge University: CSIC and a new Centre for Strategy and Policy. He also commented that, since the closure of the TRL, the UK was probably the only developed country not to have its own national research facility.

In terms of the need to embrace manufacturing processes, Tomas Garcia noted that, whilst HS2 planned to utilise off-site manufacturing, there remained the issue of in-situ joints which had generally been a maintenance issue. Wayne Hindshaw noted that a successful outcome required better performance from contractors which in turn needed to be addressed as part of the procurement process: the requirement for Most Economic Advantageous Tenders tended to restrict innovation. The Chairman agreed but stressed that, in order to make such points, there was a need for evidence.

Henry Dempsey reported that Network Rail had developed fully precast bridge construction – including abutments. Tomas Garcia noted that many such bridges had been built in Spain and commented that the UK was generally poor at learning from other countries. The Chairman agreed: the UK mindset tended to favour the traditional approaches.

Liz Kirkham noted that another issue with the lack of Local Government engineering capacity was that it was left to framework consultants to specify

works in the context of contractual arrangements which tended to stifle innovation.

Henry Dempsey suggested that new builds were relatively easier to manage compared to the problems in developing maintenance or strengthening solutions for smaller bridges and even in the day to day management of a bridge stock. Keith Harwood suggested that this was the area in which digital technology and sensors needed to be developed and would offer good value in terms of bridge management. Wayne Hindshaw agreed and suggested that the benefits to public safety should dictate which technologies should be employed.

Liz Kirkham suggested that this approach could be applied through the revised Code of Practice which adopted a risk based approach to decision making. She returned, however, to her point about capacity issues in smaller Local Authorities. The Chairman suggested that the capacity issue might be helped by combining bridge stocks which might eventually lead to a national bridge database but recognised that there would be many issues to resolve, not least the need for consistency of definitions. Wayne Hindshaw noted that new databases are being established for the Queensferry Crossing bridges with an aim to extend it eventually to all Transport Scotland bridges.

The Chairman posed the question as to where the bridge owning community would want to be in a 10 or 20 year horizon, and how we would get there. Paul Thomas suggested that the most important issue was communication and to keep communicating the important issues in simple terms at every opportunity.

Wayne Hindshaw could only see costs escalating, pointing out that the inspection costs alone for the new Queensferry Crossing would be £5m to £7m per year.

Discussion turned to how sensors might be employed to make bridge management more efficient. As aired at BOF 55, the Chairman considered that the UtterBerry type of sensor might be a workable solution but it was agreed that there was a need for evidence that the stated accuracy could be achieved in regular use. It was also pointed out that other similar systems were being used in Japan.

Keith Harwood suggested that we should aim to bring owners and researchers closer together, concentrating on immediate needs. This was agreed, citing scour and fatigue detection as major issues. The Chairman noted that on the latter, CUED was working with Network Rail with sensors on a steel bridge. Henry Dempsey noted that Glasgow has SMART city status and there could be opportunities for sensor applications. In this context, the Chairman suggested that closer links with local universities would be beneficial.

The Chairman also referred to the Walton-on-Thames bridge where there had been an opportunity to install sensors but this was removed from the capital budget on the basis that a new bridge should have no problems and therefore there

was no need for sensors. He also offered a Network Rail example in which it had been proved that a pre-stressed edge beam was working at only 6% capacity whereas the assessing consultant had concluded that there was nothing to spare.

Wayne Hindshaw returned to Liz Kirkham's point on the lack of experienced engineering resources in smaller organisations and the ever diminishing number of intelligent clients. Liz noted that the revised Code of Practice had shifted the emphasis to management and repeated her earlier point about the need to attract younger engineers. Her other point was that bridge owners are doing too good a job and what was needed was a few headlines of bridge failures. The Chairman recalled his efforts to establish a bridge failure database but a consistent reporting system was needed. Richard Fish noted that Helena Russell, editor of Bridge Design and Engineering maintained a comprehensive database of collapses around the world. Discussion then moved to the need to have an open investigative system, similar to the RAIB, but for *all* bridges as had been proposed by Graham Cole at recent BOF meetings. The Chairman suggested that this should be kept on the UKBB agenda but also said that reported collapses should be a standing item at BOF meetings.

ACTION 2: Richard Fish

Finally, in this part of the meeting, BICS was discussed and Liz Kirkham gave the commitment that it was fully supported by UKBB but accepting that the uptake had not been as good as might have been hoped.

The Chairman concluded this item by thanking all contributors to the discussions which, although a little unstructured, had covered a number of important issues.

4. Overweight Vehicle Strategy

Wayne Hindshaw reported on some alarming statistics from the weigh-in-motion (and ANPR) sensors on the new Queensferry Crossing: of some 40,000 trucks using the bridge, some 25% had been heavier than 44 tonnes with the heaviest weighing in at 118 tonnes. Although Wayne acknowledged that this total had probably included some pre-notified AILs, it was agreed that such figures were a great concern. Wayne also expressed some concerns about mobile cranes, for example 80 tonne cranes on four axles which were often seen on the highway network and mostly without prior notification. He also noted the ongoing pressure from the road haulage lobby, including a recent transport policy proposal that had come from DfT and seen by UKBB that there should be a trial of increasing the load within a 44 tonne vehicle.

Wayne Hindshaw had previously emailed a paper to Richard Fish which would be issued.

ACTION 3: Richard Fish

Paul Thomas expressed concern at Wayne's statistics, noting that this meant that some 2% of HGVs were overloaded. Wayne suggested that the main cause for concern should be the increased risk of fatigue failure.

The Chairman referred to the Australian system of regulation that seemed to work well but was highly dependent on monitoring. If apprehended, all parties (client, haulier, driver) would be charged and, if proved guilty, suitably punished.

5. Overview of Parapet Height Issues and Self Harming

Wayne referred to a Media Briefing Sheet produced by SCOTS' Drew Strang and recently shared with ADEPT. This had been linked to a Scottish Government report and guidance entitled "Choose Life". Wayne agreed that previously issued papers could be sent to BOF members.

ACTION 4: Richard Fish

6. BOF Subscriptions 2018/19

Not taken at this meeting and to be added to BOF 57 agenda.

ACTION 5: Richard Fish

7. Any Other Business

a) Derailment Impact Loads on Overbridges

Tomas Garcia referred to ongoing Eurocode work on this topic.

b) BOF and International Engagement

Jason Hibbert questioned whether BOF was engaging sufficiently well with international counterparts and contacts. The Chairman agreed that any liaison tended to be ad hoc and opportunistic relying on contacts made at international conferences etc. but was open to any ideas from others. Keith Harwood questioned whether the World Road Organisation (WRO - formerly PIARC) was a suitable forum. It was understood that UKRLG was the link with WRO.

c) BOF & UKBB

Liz Lirkham thanked all present for the opportunity to attend and participate in today's meeting. The Chairman extended an invitation for Liz to join a full day BOF meeting in Cambridge in due course.

8. Next meeting: BOF 57; 15 May 2018; Cambridge

The Chairman gave a reminder that the next meeting was to be an arch bridge special with a number of expert guests attending the morning session in the same

format as had successfully been used for the BOF 54 Scour meeting. A full programme would be prepared in due course.

ACTION 6: Richard Fish

9. Close

Before closing the meeting, the Chairman paid tribute to the many contributions to BOF and to wider UK bridge issues made by Wayne Hindshaw over the last few years. He noted Wayne's family bridge pedigree as well as the various bridges he had worked on throughout his career.

Wayne reflected on his time with BOF which he regarded as an excellent forum not only for good debate but also for pushing research and other initiatives. He offered to give Richard Fish his personal email which could then be shared with anyone who needed to contact him.

ACTION 7: Wayne Hindshaw/Richard Fish

Richard Fish,

BOF Technical Secretary,
10th April 2018