Update on NCHRP Project 12-100
Guidelines for Maintaining Small Movement Bridge Expansion Joints

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Technical Committee T-2
April 21, 2015
Acknowledgements

AASHTO, States & FHWA
Waseem & the NCHRP Panel members
Tripp Shenton, UD PI
Pete Weykamp, GPI Co-PI
Keith & T-2 members
Research Objectives

The objectives of the research are to develop guidelines with commentary for evaluating and maintaining small-movement bridge expansion joints.

“Small-movement” refers to a maximum total movement of 4 inches or less.
The proposed guidelines will include:

- **joint failure mechanisms,**
- **performance metrics to select the optimal performing joints considering the bridge geometry, environmental factors, and other factors; and**
- **procedures for maintenance, repair, and replacement of bridge joints.**
Project Tasks

1) Survey the literature
2) Survey stakeholders
3) Prepare technical memorandum for NCHRP
4) Develop procedures for maintenance, repair, and replacement of joints
5) Prepare an outline of proposed guidelines
6) Prepare an interim report on Tasks 1 – 5
7) Develop proposed guidelines with commentary
8) Prepare final deliverables
The Task 3 technical memorandum was submitted in late January 2015.

The literature review identified two studies closely related to this project:

Dahir and Mellot (1987) developed a framework for quantitatively evaluating SMEJ’s in PA.

Barnard and Cuninghame (1997) developed life-cycle costs of joints in the UK.
The stakeholder survey suggests:

- **Strip seals are by far the most popular for new construction followed by preformed silicone and poured silicone.**
- **There is a high level of satisfaction with strip seals with a long service life (17 years on average).**
- **Strip seals are also the most popular for maintenance, repair, and replacement with open cell foam usage growing.**
The stakeholder survey suggests:

• Regular concrete and armored headers are the popular designs for new construction and also for maintenance, repair, and replacement.

• The most frequent failures are bond failure/separation for any type of seal that is bonded to the header, and tearing of the strip seal.
Finally, 14 unique “strawman” performance metrics were presented in the survey. The stakeholders assessed the metrics on ease of collecting data and effectiveness as a performance metric. There was not consensus. Life-cycle cost, service-life of the joint, quality of the installation, and ride quality all scored high in more than one category.
The research team is proceeding with Tasks 4, 5 and 6.

The interim report will be submitted for NCHRP review in early fall.
Questions or Comments?