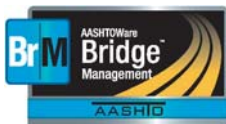


Minutes Of The
AASHTOWare Bridge Management Task Force Meeting
June 14 and 16, 2016 **Madison, WI**

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General Information – Meeting of the Bridge Task Force

Date: Tuesday, June 14, 2016

Participants:

AASHTO	Judy Skeen	AASHTO	Project Manager
	Arpine Baghdasarian	AASHTO	Marketing Manager
T&AA	Wally Ballou	Kansas DOT	T&AA Liaison
BrM Task Force	Eric Christie	Alabama DOT	Vice-Chair
	Beckie Curtis	Michigan DOT	Bridge Management
	Mark Faulhaber	Kentucky TC	Bridge Management
	Bruce Novakovich	Oregon DOT	Bridge Management
	Thomas Martin	Minnesota DOT	Bridge Management
BrDR Task Force	Todd Thompson	Bentley	Bridge Design-Rating
BrM Contractor	Jeremy Shaffer	Bentley	Bridge Management
	Josh Lang	Bentley	Bridge Management
	Josh Johnson	Bentley	Bridge Management
	Zac Boyle	Bentley	Bridge Management
	Vasil Papakroni	Bentley	Bridge Management
Guests	Phillip Meinel		

General Discussion

The meeting was convened 10:30am.

Agenda Item 01: Review Agenda / Assign Minutes Recorder

The AASHTO Project Manager and a Bentley Representative will take the meeting minutes.

The agenda was reviewed and the following agenda items were added:

- Agenda Item 5: 5.2.2 Release 2
- Agenda Item 7: 5.2.3 Manual and Training
- Agenda Item 12a: BrM Presentations

Agenda Item 02: Prior Business

2a. Review April Meeting Minutes

Minutes from April 2016 Task Force meeting held in Lake Tahoe, NV were reviewed and approved as is.

2b. Review April Meeting Summary Minutes

The Summary Minutes for the April Task Force Meeting in Lake Tahoe, NV have not yet been developed.

The AASHTO Project Manager will draft the redacted minutes for review and comments and then post them on SharePoint for Task Force review and approval.

Agenda Item 03: Project Update

3a. Budget and Schedule

Bentley presented budget reports for the FY16 MSE and the BrM 5.2.3 Project. All billings reported include invoices issued through 05/31/16. The May 2016 Core invoices were forwarded to AASHTO on 06/13/16.



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Bentley staff time spent on the 5.2.3 project in support of TRT/TAG (TRT, multi-media, testing, tunnels, reports, and database) conference calls is currently being charged against 5.2.3 TM4 (Meetings and AdHoc Reports). General / overview TRT conference calls will be cancelled. TAGs and TRTs with current actions on the table (ie, Tunnel, Database and Testing) will continue, all others (Reports, multimedia) will continue without Bentley participation until the TAG or TRT has something to present to Bentley such as a list of Business User Needs and Functions.

3b. Customer Support Statistics

Bentley presented an overview of the customer support hours by agency for FY2016. Agencies with the highest support levels include Alabama, Colorado, Delaware, Florida, Idaho, Illinois, Kansas, Michigan, New Hampshire, Oregon, Utah, Virginia, and Wyoming. Bentley staff was onsite with an upper Midwest-state DOT last week and was able to successfully address a majority of their issues. One outstanding issue related to the current version of Oracle and the lack of Oracle support for a feature required by MIDOT to support their encrypted bridge database.

3c. Service Unit Status

Bentley presented the service status report as of 06/10/16. In general, a majority of the service unit projects are on track. Several projects have been placed on hold at the request of the agencies. The AASHTO Project Manager will continue to work with Bentley to keep the service unit status up to date on a monthly basis.

3d. License Revenue Report

Bentley presented a summary of license fee and service unit activity as of 06/10/16.

Agenda Item 04: FHWA Update

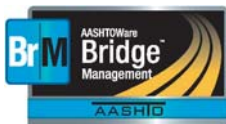
The FHWA liaison provided an update on FHWA activities.

FHWA STAFFING CHANGES:

- Butch Waidelich is the new Executive Director taking the place of retired Jeff Paniati. Butch was formerly Associate Administrator for Infrastructure
- Dr. Dayi Wang is the new Steel Bridge Design Specialist. Dr. Wang was formerly with Jacobs Engineering.

REGULATORY AND OTHER FEDERAL ACTIONS:

- ***National Bridge Inspection Standards:*** Tentative release of NPRM for the NBIS update is listed as **October 2016**. This provides an opportunity for public comment. Updated SNBI (coding guide) will be released for public comment either with NPRM or in advance.
- ***National Tunnel Inspection Standards:*** Plan to complete full NTI XML submittal format and error checker this summer after which will be able to accept state NTI submittals.
- ***Asset Management Rulemaking:*** NPRM closed May 29, 2015. Final Rule tentative release **November 2016**. Keep in mind that if language in NPRM stands, you will need to submit an asset management plan within 12 months of the final rule effective date.
- ***Performance Measures Rulemaking:*** NPRM for bridges and pavement closed May 8, 2015. Final Rule tentative release moved to **November 2016**. Rule works in concert with Asset Management Plan Rule. If language in NPRM stands, measures and targets will need selected by States within 12 months of the final rule effective date.



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- **NBI Coding Guide:** Update will be provided to T-18 at SCOBS. New draft guide near complete with the expectation of making it available for public comment with the NBIS NPRM or in advance of NPRM. Significant changes include: consistency with NBIS NPRM, XML file format, and multiple new items to assist in data driven risk-based oversight, ex. substructure material and design type, scour POA, seismic vulnerability, load rating date, posting date, posting loads, complex feature inspection and frequency type, railing, bearing, joint condition ratings, etc.
- **Bridge Inspector's Reference Manual:** Manual update to revise element inspection sections is ongoing. App for Android and IOS is in development. Both should be available this summer.

FHWA TRAINING DELIVERY & DEVELOPMENT:

- **Element-Level Bridge Inspection:** FHWA Resource Center has completed 83 sessions with approximately 3,700 participants. Requests continue with future sessions scheduled.
- **NHI Bridge Inspection Course:** A comprehensive course update will be available in **2016**. It will incorporate criteria from the 2016 AASHTO Manual for Bridge Element Inspection and will include current information on post-tensioning systems. Minor refresher course updates have already been made to reflect the above.
- **NHI Tunnel Inspection:** Refresher course is in development and is tentatively expected to be available in **2017**. The course will satisfy the NTIS requirement for 18 hour refresher training at five (5) year frequency.
- **NHI Bridge Preservation Web-Based Courses:** Three courses were released in June 2015, \$50 each.
 - 130106A Bridge Preservation Fundamentals (5 hours) - Defines preservation work activities and categories, explains benefits of preservation and how to transition from a reactive to proactive program, and provides information on cost-effective deck, superstructure, substructure and culvert activities.
 - 130106B Establishing a Bridge Preservation Program (4 hours) - Provides a framework for a program including identifying objectives, goals and performance measures, conducting needs assessments developing a program strategy and prioritizing activities. Discusses logistics of data collection, data management, budgeting and resource allocation, work plan development, implementation and monitoring.
 - 130106C Communication Strategies for Bridge Preservation (3 hours) - Discusses strategies to gain and maintain support for a program including identifying agency champions, target customers and stakeholders, conducting market research and communicating needs and benefits to stakeholders and the public.
- **NHI Bridge Maintenance Course Update:** This four (4) day instructor-led training course and reference manual are under major revision to bring up to current standard and practice. Manual will include more procedural steps and job-site checklists for different maintenance actions. Will also include web-based training specific to steel coatings, movable bridges and masonry (2-3 hours each). Pilot is scheduled for April with tentative release **summer 2016**.
- **NHI Bridge Management Fundamentals & Performance Based Management of Bridges:** These two new web-based courses were made available in 2015. They are approximately 4 hours each.
 - Bridge Management Fundamentals is a high level course that presents bridge management concepts with respect to its benefits, the organizational structure and components of a bridge management approach, the analytic aspects of a BMS including types of data input, computational models and output, considerations when selecting a BMS tool, steps to implementing a BMS, and effectively using a BMS and its output. Agency perspectives are also presented.



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- Performance Based Management of Bridges is a high level course that presents how bridge management tools assist with performance management, the use of performance measures, assessment of cost-effectiveness using life cycle cost analysis and benefit cost analysis concepts, the assessment of risk, and communicating the benefits of bridge management tools and performance based bridge management. The course does not address proposed regulatory requirements on performance measures.
- **NHI Transportation Performance Management for Bridges:** This one (1) day course is in expected to be released when the final rule for NHS bridge performance measures and asset management plan rules are released. It will address MAP-21 and regulatory requirements for performance measure target setting and reporting. It will present information on bridge performance data, performance measures, FHWA NHS performance measures, the process of target setting (which will have its basis in the asset management analysis, incl. use of BMS, and selected asset management investment strategy), and development of bridge programs in response to selected targets.

OTHER:

- Conferences
 - **11th International Bridge & Structure Management Conference: Planned for 04/17** at TBD location. Organized by TRB Bridge Management Committee chaired by Bruce Johnson. Tentative co-sponsors include AASHTOWare, TRB, FHWA.
 - **11th National Conference on Transportation Asset Management: July 10-12, 2016.** Minneapolis, MN. Sponsored by TRB.
 - **NDE/NDT for Highways and Bridges: Structural Materials Technology Conference:** Aug 29 - Sept 1, 2016. Portland, Oregon. Sponsored by American Society for Non-Destructive Testing.
- NCHRP projects:
 - **NCHRP Report 668 – Framework for a National Database System for Maintenance Actions on Highway Bridges.** Published 2010.
 - **NCHRP Report 742 – Communicating the Value of Preservation: A Playbook.** Published 2012. A guide that addresses formulating an effective strategy for communicating the importance of highway maintenance and preservation, criteria and methods for evaluating the effectiveness of a communication strategy, and adjusting and ensuring its effectiveness.
 - **NCHRP Report 806 – Cross-Asset Resource Allocation and the Impact on System Performance:** Provides a framework and tool for allocating resources among asset classes. The optimization uses a multi-objective analysis approach with utility functions to define benefits. Uses information and prioritization from applicable management systems however the process is not dynamic as it lacks communication with the different systems beyond using the initial priorities data. Therefore, if initial asset priorities are not selected because are not found to be optimum in the cross asset optimization, the tool is unable to include and analyze less than optimum solutions and incorporate LCC implications for each asset type. Published 05/15. Can also refer to 2012 NCHRP Report 736 Resource Allocation Logic to Meet Highway Asset Preservation.
 - **NCHRP Report 816 – Guide for Preservation of Highway Tunnel Systems.** Published October 2015.
 - **NCHRP 08-36 – Development of Transportation Asset Management Plan Templates:** Will result in development of a guidebook on preparing an asset management plan and electronic templates for use by agencies to assist them with the preparation of the plans required by MAP-21. Both the guidebook and templates will supplement the AASHTO Transportation Asset Management Guide: A Focus on Implementation, *Chapter 4*, Transportation Asset Management Plan. Tentative completion 06/15.

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- **NCHRP Synthesis 20-05/Topic 46** – *15 Life Cycle Cost Analysis of Preservation and Replacement of Highway Assets*: Objective is to develop an inventory of quantitative asset-level or project-level models for predicting LCC It will synthesize literature including methods for estimating agency, user, and non-user costs, for selecting a discount rate, and for quantitatively modeling the uncertainty of costs. It will also gather literature on deterioration and effectiveness of actions, and information on existing LCCA tools in use by agencies. 2014 start.
- **NCHRP 20-07** – *Task 378 Assessing Risk for Bridge Management*: The objective is to develop a framework for inclusion in a BMS that assesses probability of occurrence and consequence to bridges and public. PI selected 06/15. Western Management & Consulting assisted by Paul Thompson and Countermeasures Assessment and Security.
- **NCHRP 14-36** – *Proposed AASHTO Guide for Bridge Preservation Actions*: The objective is to develop a bridge preservation guide for possible adoption by AASHTO. The guide will include: (1) a catalog of bridge element preservation actions and (2) the criteria and selection methodology of bridge preservation actions with associated costs and benefits for use in life-cycle cost analysis and in a BMS. PI selected 06/15. George Hearn.
- **NCHRP 20-07** – *Task 380 – Update of the AASHTO Maintenance Manual for Roadways and Bridges*. In progress.
- **NCHRP 12-104** – *Guidelines to Improve the Quality of Element-Level Bridge Inspection Data*: The objective is to develop guidelines to improve the quality of element data collection. Guidelines should include recommendations to: (1) improve consistency in data collection and (2) establish accuracy levels for element conditions and defect quantities to support BMS deterioration forecasting and evaluation. PI selected 08/15. Glenn Washer. Tentative completion 11/17.
- **NCHRP 24-46** – *Development of an Implementation Manual for Geotechnical Asset Management for Transportation Agencies*: Responses to RFP received early 2016.

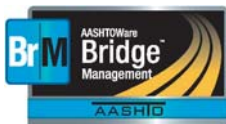
Agenda Item 05: BrM 5.2.2 Release 2

- Release 2 is ready to be disseminated; however, one New England state DOT has not yet provided feedback on whether or not their issues have been resolved.
- The error associated with the Multi-Media notes attached to pictures has been corrected in 5.2.2 Release 2.
- One Atlantic South state DOT advised that an option on 4.X was available to make adjustments to the format of the display of NBI could be altered without affect the data value. This data justification feature was not included in 5.X versions of BrM. The NBE export does not include an option to justify the data. (The justification actually involves the inclusion of 'front loaded' spaces in the NBE data field to effectively right-justify the data.)

Agenda Item 06: BrM 5.2.3 – Testing TAG Discussion

The Testing TAG will have a conference call tomorrow. The issues associated with Bentley testing against user test databases have been resolved. The Testing TAG is still waiting for Bentley to provide step-by-step instructions. Bentley is continuing to update and add to the 'Golden Family' Walk-Throughs.

With all the potential changes discussed during beta testing his week, the release candidate will be delayed. A Task Force call is scheduled for Thursday, June 23 to discuss 5.2.3 enhancements.



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An updated 5.2.3 testing and release schedule will be developed once 5.2.3 enhancement decisions have been made. The Testing TAG has requested a new role be added to BrM, the Planner Role to support access similar to admin access. The Task Force would like to have the capability to copy a role and tweak and save as a new role. The Testing TAG has asked to have the functions within a role reorganized.

Agenda Item 07: BrM 5.2.3 – Manual and Training

Bentley will develop basic use case examples, based on a sample database of 12-15 bridges, that will be included as an appendix to the User Manual. The 5.2.3 User Manual is a work in progress. The current version is very likely to change given the anticipated changes discussed this week.

Agenda Item 08: Software Development Process

8a. TRT/TAG Input and Recommendations

The level of TRT/TAG involvement has grown as BrM has matured, the conversation was brought forward to seek clarification as to how the Task Force envisioned future TRT/TAG involvement.

After discussing this issue with the Task Force it was agreed that the process going forward should be as follows:

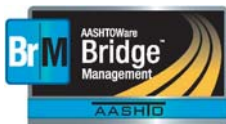
- An enhancement, feature, etc. to be incorporated into the product is identified
- The TF and Bentley will agree upon a Time and Materials contract which will be for developing the requirements documents, functional design specifications, mockups, ERDs, and any other items deemed necessary prior to starting development
- Bentley will work with the Task Force and TRTs/TAGs as necessary to get approval of the aforementioned requirements. It was discussed and determined that the role of the TRTs/TAGs are to provide input from practitioners' perspective, while the Task Force will determine and approve the development of the software.
- Upon approval, by the Task Force, of the requirements, the Task Force and Bentley will agree upon a Fixed Fee/Time and Materials contract to complete the development which will include the estimated cost and project schedule.

Agenda Item 09: Tunnels

The Tunnels TRT has had a couple of meetings, reviewed mock-ups and provided feedback on changes to be made and enhancements to be added. The following features were not included in the original estimate for tunnels.

- Add Structure Units to Tunnels
- Add Defects to Element Tracking
- New Inspection Screen
- Add Maintenance Needs
- Add Multimedia
- Simple Crystal Reports

The Task Force made the decision to proceed with development for the top three enhancements, which will address the basic tunnel functions described in the initial incorporation of tunnels into BrM communique. A portion of the enhancement will be paid for under the 5.2.3 Contract, TM2D (Tunnels)



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and the remaining will be funded from TM1 (Deterioration Modeling Enhancements) and TM3 (Scenario Explorer and Setup).

Agenda Item 10: Testing – Day 2

Agenda Item 11: Beyond 5.2

The BrM end users were surveyed to request suggestions for BrM enhancements post 5.2.3. Several members have forwarded first-draft requirements for a 'menu'. Some of the highlights:

- Security to secure file server from the public internet
- Don't break current functionality
- Web service standard display
- End storage dependent web services
- Ability to add a link a drawing to photos or drawings

In addition see agenda item 06

11a. Multimedia TRT

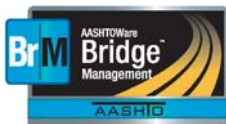
It was decided that Multi-media TRT conference call are no longer needed at the current time.

11b. Enhancements

Task Force Requested Features for Post-5.2.3. In addition to the following list see agenda item 06.

- Pre-Update Check Script
- Import / Export Forms (included in 5.2.3)
- Update Script separate from Update Data
- Reports in a location not wiped out in upgrades
- User Configured Data not eliminated in updates
- New Multimedia Tab
- Clearance Tab
- Cross Section Tab
- Task Scheduler
- Load Rating
- 3D Inspection

A conference call between the Bridge Task Force, Michigan DOT, AASHTO, and Michigan Tech University was held on May 19 to discuss potential opportunities to incorporate the Michigan 3D BRIDGE APP into the AASHTOWare BrM product. Conference call participants: BrM Task Force Chair and Vice-Chair), Michigan DOT (Task Force Member), AASHTO Project Manager and Michigan Tech University (Prime Investigators/Developers). Action items from the call were 1) AASHTO Program Manager to provide MTU with an outline of potential terms and conditions for the incorporation of the software into BrM with a) AASHTO obtaining the IP and b) MTU retaining the IP; and 2) MTU Investigator to develop a proposal for Task Force consideration to include the breakdown of costs to a) genericize the product, b) provide yearly maintenance of the software (i.e. new software versions), and c) enhance the software for increased functionality.



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AASHTO Program Manager forwarded the AASHTO terms and conditions for a) AASHTO obtaining the IP and b) MTU retaining the IP to the conference call participants on 05/24/16. To date, the MTU proposal from Investigator has not been received.

MTU provided a response to the Bridge Task Force on 06/14/16 advising that MTU would like for AASHTO to consider entering into a contractual agreement such that MTU would receive royalty profits from the licensing of the 3D Mobile Inspection Module within BrM. The Task Force discussed the non-profit nature of the AASHTOWare product suite and agreed that a Royalty arrangement would not be in our best interest.

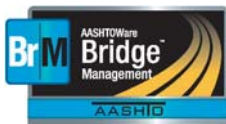
The Task Force was also recently made aware of the fact that the MIDOT 3D Mobile Inspection product uses a third party rendering engine, Unreal Engine, to support their rendering needs. The use of this engine in a commercial software release would require the licensing of the background engine for all licenses sold. Further discussion on the license royalties, as well as use of the Unreal rendering engine between MTU and AASHTO is needed. A conference call with the affected parties was scheduled for June 23 at 10:00am Eastern time.

The Task Force does not know the level of interest in (and desire to help fund) the incorporation of the 3D Mobil Inspection module. The Task Force discussed looking for opportunities to get the word out on the availability of the 3D Mobil Inspection software. The Task Force also discussed the need to secure the project proposal from MTU to gain a better understanding of the scope, level of effort, costs, and time frame in which MTU could make the software available to other DOTs. The MTU proposal is needed in order to better describe the scope and cost of the project to State Bridge Engineers for the purpose of securing support for the incorporation of the software into BrM. BrM Vice Chair will include a brief overview of this anticipated effort during his SCOBS presentation next week.

Agenda Item 12: Marketing Strategies for BrM

12a. Presentations

- T-18 BrM Presentation – Bentley will deliver this presentation to BrM Vice Chair by 06/24/16.
- T-20 Tunnel Presentation – Bentley will deliver this presentation to BrM Vice Chair by 06/23/16.
- 11th National Conference on Transportation Asset Management (July 9 – 12, 2016, Minneapolis, MN) – Our abstract was accepted for their poster session. Bentley will create the poster overview of BRM. Bentley representative and FHWA Liason will attend.
- IHEEP Presentation – The agenda includes a 50 minute slot for both BrM and BrDR. Two BrM Task Force members will present.
- Mid-West Bridge Preservation Partnership Presentation – BrM Chairman will present on BrM and BrDR.
- International Bridge and Structures Management Conference (April 24-28, 2017) – Call for Abstracts was sent out recently. BrM Vice Chair will forward the abstract call email to the Task Force. The Task Force made the decision to submit abstracts for the following.
 - BrM Overview
 - BrM Walk-Through



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- Deterioration Modeling

In addition to presentations, AASHTO, the BrM Task Force and Bentley should visit alternative methods of licensing for different features (similar to BrDR) and develop a strategic plan to obtain more users (such as consultants and local agencies).

Agenda Item 13: User Group Meeting and Survey

13a. BrMUG Agenda (Call TxDOT Host, at 3:00pm on June 14, 2016)

The Task Force discussed the meeting format and reviewed the draft agenda. Several changes were incorporated and the agenda was finalized.

13b. 2016 BrMUG End User Survey

The content of the 2015 BrMUG survey was reviewed and changes were made to update the agenda for the 2016 meeting.

The Task Force reviewed the BrM User Conclave items from the 2015 BrMUG. BrM Vice Chair will discuss the status of the conclave issues during his presentation at the BrMUG.

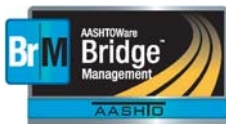
Agenda Item 14: Quarterly Status Report

Given the fact that the last quarterly status report was distributed in mid-May, the Task Force made the decision to use the same topic areas as was used in May, with updates to the information presented. In addition, it was decided to make the following changes.

- Re-write the tunnels article from the last report to focus more on the status of the development effort, to include planned enhancements.
- Replace the section on User Group Priorities with information on the 2016 BrMUG
- Remove the section on the Multimedia TAG
- Re-write the BrM Webinars section to BrM Videos, highlighting the new tutorials that are available on the website.

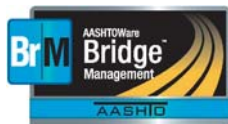
BrM Vice Chair will continue to send the communicate from his email account and Judy will continue to post the update on the aashtoware.org website.

Bentley will develop draft quarterly status reports prior to future Task Force meetings for Task Force initial review during the meeting.



Attachment A: Listing of Bridge Task Force, TRT, TAG and User Group Personnel

<u>AASHTOWare Bridge Task Force</u>		
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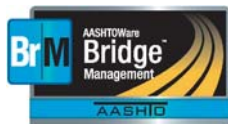
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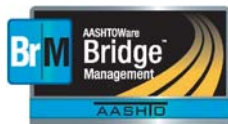
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