Product Websites

Project websites contain additional information about AASHTOWare Bridge® products including access to technical support, general information, helpful links to other websites including the customer support centers and access to an end user mailing list. The mailing list provides end users an opportunity to be emailed product news.

AASHTOWare® Bridge Management: http://aashtowarebridge.com/

AASHTOWare® Bridge Rating and Design: http://aashto.mbakercorp.com

Upcoming AASHTOWare Bridge® User Group Meetings

Rating and Design User Group (RADBUG)

August 12-13, 2014

Location: Traverse City, MI

Bridge Management User Group (BrMUG)

September 16-17, 2014

Location: Rapid City, SD

Contractors for AASHTO Bridge Products

AASHTOWare Bridge Design and Rating
Michael Baker Jr., Inc.
100 Airside Drive
Moon Township, PA 15108
Contact: James A. Duray, Project Manager
Phone: 412-269-6410
Email: BrDR@mbakerintl.com

AASHTOWare Bridge Management
Bentley Systems, Incorporated
810 River Avenue, Suite 300
Pittsburgh, PA 15212
Contact: Jeremy Shaffer, Project Manager
Phone: 1-877-913-1550
Email: Jeremy.Shaffer@bentley.com

AASHTOWare Bridge® Task Force and Management Team

Tim Armbrecht – Illinois DOT	Bridge Products Task Force Chairman
Mike Johnson – Caltrans	Vice-Chairman/Task Force member - BrM
Mark Faulhaber – KY Transp. Cabinet	Task Force member - BrM
Bruce Novakovich – Oregon DOT	Task Force member - BrM
Eric Christie – Alabama DOT	Task Force member - BrM
Derek Constable	Task Force FHWA liaison - BrM
Dean Teal – Kansas DOT	Task Force member - BrDR
Jeff Olsen - Montana DOT	Task Force member – BrDR
Todd Thompson – South Dakota DOT	Task Force member – BrDR
Amjad Waheed - Ohio DOT	Task Force member – BrDR
Tom Saad	Task Force FHWA liaison - BrDR
Judy Skeen	Project Manager, AASHTO

To subscribe to this newsletter, go to http://aashto.mbakercorp.com or http://aashtowarebridge.com/ and follow the instructions for End User Mailing List.

Product New Features

Exciting new features are now available with the recently released Bridge Management version 5.2.1 and will be available with the upcoming release of Bridge Design and Rating version 6.6. Some of the improvements to watch for:

AASHTOWare Bridge Management™

- Ability to create, edit, and manage network corridors;
- Ability to implement work accomplishments;
- Initial Bridge Analysis Dashboard creation (further functionality added in later phases of 5.2);
- Utility Function Admin page – allows users to control the inputs (criteria, scaling, and weight) for their network wide utility functions;
- Bridge Utility Detail Page which displays how the overall utility of a bridge was calculated;
- Ability to edit scaling function using an interactive graph, chart or equation line;
- Google Mapping application which allows users to export filter results into an interactive map, as well as click and drag coordinates of the bridge;
- Key updates to BrM security; and
- Enhanced Browser Compatibility (IE10, Chrome, Firefox).

AASHTOWare Bridge Rating™

- Rating for reinforced concrete multi-celled boxes;
- Rating for post-tensioned concrete multi-celled boxes;
- Specification updates in the AASHTO LRFR engine for the MBE 2nd Edition, 2014 Interim;
- Adjacent vehicle rating;
- Steel girder superstructure continuous for live load rating;
- Support for welded wire reinforcement for culverts;
- Improvements for 3D curved girder analysis; and
- Numerous Task Force and User Group requested enhancements.

AASHTOWare Bridge Design™

- Bridge Design Superstructure follows the same release schedule as Bridge Rating and shares much of the same functionality, though focused on Load and Resistance Factor Design (LRFD);
- Design/Review for reinforced concrete multi-celled boxes;
- Specification updates in the AASHTO LRFD engine for the LRFD 7th Edition (now includes the 4th Edition 2008 Interims through the 7th Edition); and
- Numerous Task Force and User Group requested enhancements.

See the following pages for more information and a 'sneak peak' at some of these features!

A Letter from the Chairman

Greetings from the AASHTOWare Bridge Task Force! It has been another eventful year for the Task Force, and we are excited by the continued progress of our products. The Task Force is very grateful for your continued support of the AASHTOWare Bridge products, as your support encourages us to continue to work hard to provide software to member agencies and their consultants, making their jobs easier, and ultimately benefitting the traveling public.

Bridge Management 5.2.1, released this spring, is the first phase deliverable of the Bridge Management 5.2 project. This release includes many great new features, perhaps most importantly, the new elements from the 2013 Manual for Bridge Element Inspection Manual, just in time for the upcoming element level requirements of MAP-21. Our Vice-Chair, Mike Johnson, will provide additional details on our 5.2 project progress elsewhere in this newsletter.

Bridge Design/Rating version 6.5 was successfully released in July of last year, and we look forward to the release of 6.6 this year. Version 6.6, scheduled for a July 2014 release, will include a number

of exciting new enhancements, including the ability to model and analyze reinforced concrete and post-tensioned box beam structures, refinements for our curved girder analysis, ratings that include adjacent vehicles and welded wire reinforcement in culverts, as well as all of the specification updates approved during the 2013 SCOBS annual meeting.

Bridge Design/Rating is also investigating the level of effort required to "modernize" the software. As you might imagine, much of the coding was developed 15 years ago and does not take advantage of the latest technology such as multi-core processing, asynchronous processing, and the latest development tools. The Task Force's goal is to update the software code to support improved performance, especially for larger structures and/ or 3D analysis that require an enormous amount of processing power, and enhanced maintainability and interfaces with third party software. Look for upcoming announcements later this year concerning our modernization effort.

It has been 6 1/2 years since I joined the Task Force, the last four years serving as the Chairman. On June 30th, Mike Johnson and I will rotate off the Task Force. I have been involved with AASHTOWare Bridge for 15 years, and I truly believe in its mission and potential. Participation at this level has presented me with new perspectives in the practice of bridge design, rating and management, and I have had the opportunity to work with the best and brightest from across the country. Most importantly, it has given me an opportunity to work with all the licensees of the AASHTOWare Bridge products. Thank you for sharing with me your bridge expertise and your experiences with the AASHTOWare Bridge products over the years, allowing me to effectively direct the products' development towards products that you can use in your everyday work. I will continue to use the AASHTOWare Bridge products in the Illinois DOT, and look forward to their evolution into even better products!

That being said, I'm excited to announce the new leadership of the AASHTOWare Bridge Task Force effective July 1, 2014. Current members Todd Thompson (South Dakota DOT) and Eric Christie (Alabama DOT) will serve as the new Chair and Vice-Chair, respectively. They bring a wealth of experience, both in AASHTOWare and in their "real jobs", as they relate to the products' functionality. I leave the Task Force confident that the AASHTOWare Bridge products are in good hands with these two individuals at the helm. The direction and guidance of these products is important to me since I will continue to use these products in my "real job"!

Also, I'm excited to announce the addition of three new Task Force members, also beginning July 1. Thomas Martin (Minnesota DOT) and Beckie Curtis (Michigan DOT) will join the Task Force as Bridge Management members, and Joshua Dietsche (Wisconsin DOT) will join the Task Force as a Bridge Design/Rating member. The Task Force looks forward to the expertise and experience that these three individuals bring to the table, complementing the skill sets of the existing members, to continue making your AASHTOWare Bridge products even better!

I continue to encourage AASHTOWare Bridge product users to take advantage of the many opportunities to be more involved in AASHTOWare Bridge community. As always, the most important involvement is attending the products' User Group Training meetings, which are announced elsewhere in this newsletter. These meetings are great opportunities to obtain training on the latest features, to offer input in the products' direction, and to interact with your counterparts in other state departments of transportation. Assistance is always needed on the products' Technical Advisory Groups (TAG), which allow users to test and offer input on the development of the products, as well as other technical issues that aid the Task Force in their decision-making. Please consider donating your time and expertise to support the Bridge products, and ultimately your agency's use of the products. Feel free to contact any member of the Task Force to see how you can participate!

Thanks again for all your help, discussion and feedback over the years. It has been an extraordinary privilege and honor serving on the Task Force and serving the AASHTOWare Bridge community.

Tim Armbrecht, P.E., S.E.

AASHTOWare Bridge Task Force Chair

Bridge Rating (BrR) Load and Resistance Factor (LRF) Rating of Trusses, Floor Systems and Gusset Plates

Work has started on adding LRF rating of longitudinal trusses, floor systems and truss gusset plates to Version 6.7.0 of BrR. Users are currently able to describe longitudinal trusses and floor systems (girders, stringers and floorbeams) in BrR and rate them in accordance with LFD rating and, for floor systems only, ASD rating. This enhancement will allow these structure types to be rated for LRF as well.

The truss gusset plate enhancement includes adding a user interface to describe the longitudinal truss gusset plates and rating them for LRF in accordance with the AASHTO Manual for Bridge Evaluation 2nd Edition, 2014 interims. The Oklahoma DOT is contributing service units to fund a significant portion of the gusset plate enhancement.
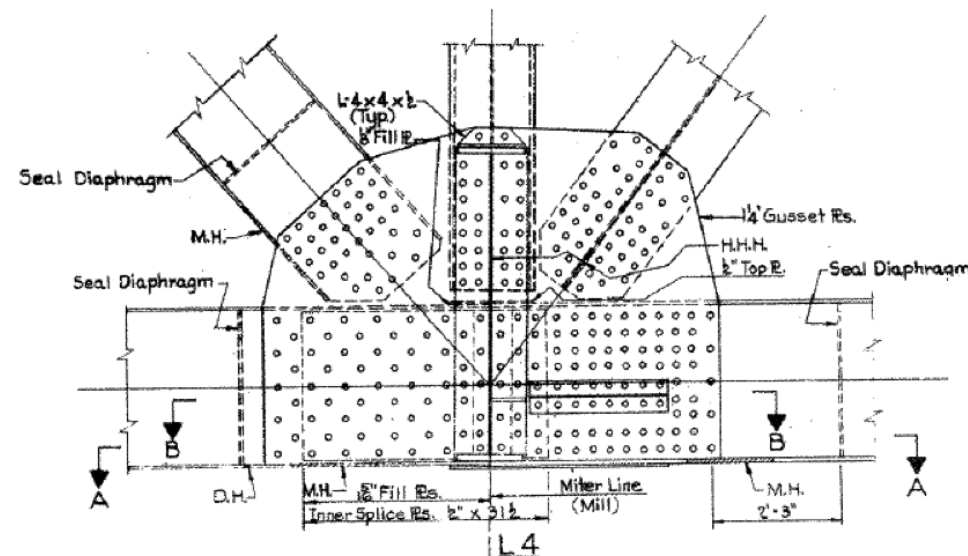
I would like to recognize Judy Skeen for the amount of work she does behind the scenes. She did an amazing amount of work when it came to organizing the meeting and she did an outstanding job. I want to express my gratitude to each of our speakers for providing interesting presentations and thanks to the Task Force for your guidance and a special Congratulations to Tim Armbrecht for his many years of service and leadership on the Task Force!

Chris Lowe, P.E.

RADBUG Past-President

Sunsetting Support for Microsoft Windows XP

Microsoft ended support for Windows XP on April 8, 2014 and will no longer provide technical assistance and automatic updates to ensure the security and integrity of Windows XP. With consideration of this end of support decision from Microsoft and to focus the AASHTOWare Bridge products' development efforts on the latest technologies and operating system, the AASHTOWare Bridge Task Force has decided to cease the support of Windows XP. The following is information pertaining to each AASHTOWare Bridge product.

For AASHTOWare Bridge Design and Rating (BrDR), AASHTOWare Bridge Design (BrD) and AASHTOWare Bridge Rating (BrR), the support of Windows XP will cease with the release of version 6.7. Versions of BrDR, BrD and BrR released prior to version 6.7 that support on Windows XP will continue to be supported. The versions of Windows supported by the current and the next three releases are listed below. Please contact BrDR@mbakerintl.com for more information.

BrDR, BrD and BrR Version	Tentative Release Schedule	Supported Windows Versions
6.5	Current	Windows XP and 7
6.6	June 2014	Windows XP and 7
6.7	June 2015	Windows 7 and 8
6.8	June 2016	Windows 7 and 8

For AASHTOWare Bridge Management (BrM), the support of Windows XP will cease with the release of version 5.2.2. Versions of BrM released prior to version 5.2.2, that currently support Windows XP, will no longer continue supporting Windows XP installations. The versions of Windows supported by the current and the next two releases are listed below. Please contact BrM@bentley.com for more information.

| BrM Version	Tentative Release Schedule	Supported Windows Desktop Versions
5.2.1	Current	Windows XP and 7
5.2.2	Fall 2014	Windows 7
5.2.3	Fall 2015	Windows 7 and 8

Strategic Direction Set

Each year, the Task Force reviews and defines strategic directions for the AASHTOWare Bridge Products suite. The long term plan for these products includes:

1. Supporting bridge and asset management

2. Enhancing decision support capabilities

3. Support agency business processes for design and preserving the bridge inventory

4. Preserving and expanding the license base

5. Enhancing usability

6. Supporting other related business processes

7. Strengthening product integration

8. Developing product technical architectures

9. Improving the software development process

10. Facilitating third-party development

Planning that is underway for both the near and long term strives to meet these goals.

Google Mapping in Bridge Management:

One aspect of responsible bridge management is knowing precisely the exact location of your bridges and being able to find them quickly. Some agencies struggle with maintaining accurate GPS coordinates or updating bridge coordinates in an easy or timely manner. At the direction of the Task Force, Bentley included a Google Mapping component into the BrM software, which became available in the release of 5.2.1 to help in this process. This has enhanced many of the capabilities of BrM 5.2, including the ability to export filter results into an interactive map. The new GIS page will plot selected bridges on a Google Map and automatically zoom in/out to fit all bridges. Users are then able to manipulate the map to show the results as they wish (e.g. satellite view, street view, etc.).
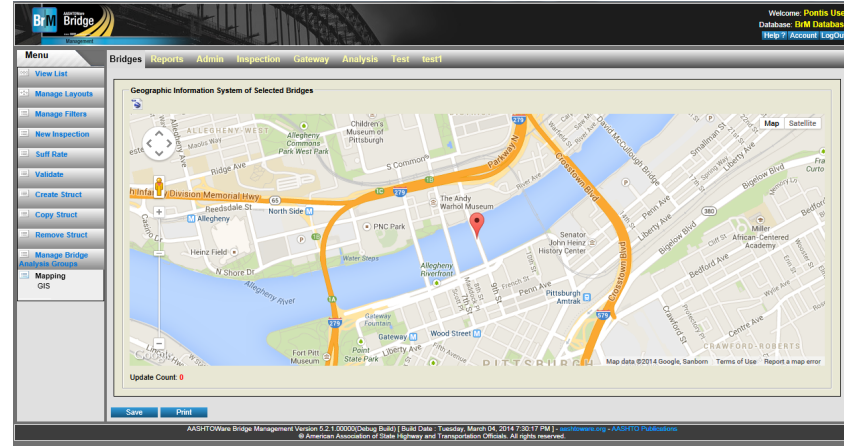
The Google Map component has brought a unique level of detail into the software. The mapping component contains the following functionality / additions:
- New grid export option for Keyhole Markup Language exporting to external GIS systems
- Task on the main bridge screen to open Google Maps GIS page using the selected bridges
- Fixed fields are displayed when a bridge is selected in the map
- New fields within BrM to store GPS coordinates as standard DD.DDDDD format (un-official), while retaining the existing DDMMSS.SS format
- Allowing users to drag plotted points and update the associated GPS coordinate for the bridge by clicking save. Users can then retain the option of allowing these updated coordinates to be reflected in the official FHWA GPS coordinate fields via a synchronizing process

Bridge Management (BrM) now supports IE8-10, Chrome and Firefox

With the release of 5.2.2 SP1, BrM now fully supports Internet Explorer versions 8-10, and the latest versions of Chrome and Firefox. Agencies that have upgraded their browsers to these browser versions can now take full advantage of all of the BrM features.

Specific browser compatibility updates in SP1 include:
- Cross-browser support for popup windows
- CSS updates related to controls and layouts
- Changes to various Javascript code to handle client side functionality
- Modifications to the file importer
- Cross-browser support of Progress images
- Ability to zoom chart on the Utility admin page
- Cross-browser support of Progress images

Cross-browser compatibility will continue to be a focus of future BrM releases. It is our goal that BrM be used by the largest possible audience with minimal variation in the user experience due to browser versions.

Bridge Design-Rating User Group - Rating and Design User Group (RADBUG) Update

August 2013 saw a very productive Users Group Meeting in Virginia Beach, Virginia. We had nearly 96 registered attendees at the meeting from at least 35 states and one province in Canada! What an accomplishment it was to get anything done with a sandy beach just outside, and who could hear anything with all the FA-18's landing on the roof of our conference room?

We accomplished many things in 2013 including an updated website, adoption of a new acronym for our user group (RADBUG) and a revised constitution. We saw many great accomplishments by the Task Force, Contractor, BrDR and Reports TAG, too. The 6.5 release was probably the most ambitious release in the products' history.

We heard from Mr. Malcolm Kerley, who stressed the importance for coordination between the AASHTOWare Group and the Highway Subcommittee on Bridges and Structures (SCOBS). He noted that of all the committees under AASHTO, the BR Task Force and User Groups interact well with SCOBS and encouraged us to stay connected with T-18 (Load Rating) and T-19 (Computers) and further encouraged the state users to get involved whether it be on a Task Advisory Group (TAG), beta tester, User Group Officer, Task Force Member, etc. Each state that puts a little time and resources into our software product benefits from it.

## Bridge Design-Rating (BrDR) Concrete Multi-Cell Boxes

Version 6.6.0 of BrDR provides the ability to describe and analyze post-tensioned and reinforced concrete multi-cell boxes. Highlights of this new feature include:

- LRFD design review and LRFR rating of reinforced concrete multi-cell boxes.
- LRFR rating of post-tensioned concrete multi-cell boxes.
- Robust user interface allows a wide variety of box cross sections to be entered.
- The superstructure can be modeled as integral with the substructure to accurately model the effects on the superstructure.
- Schedule based reinforcement with automatic development length calculations.
- Line girder analysis including analyzing and spec-checking individual weblines along with the full box width.
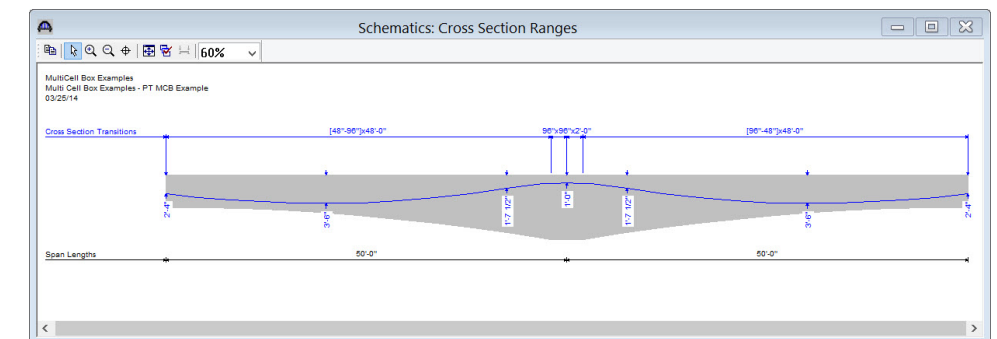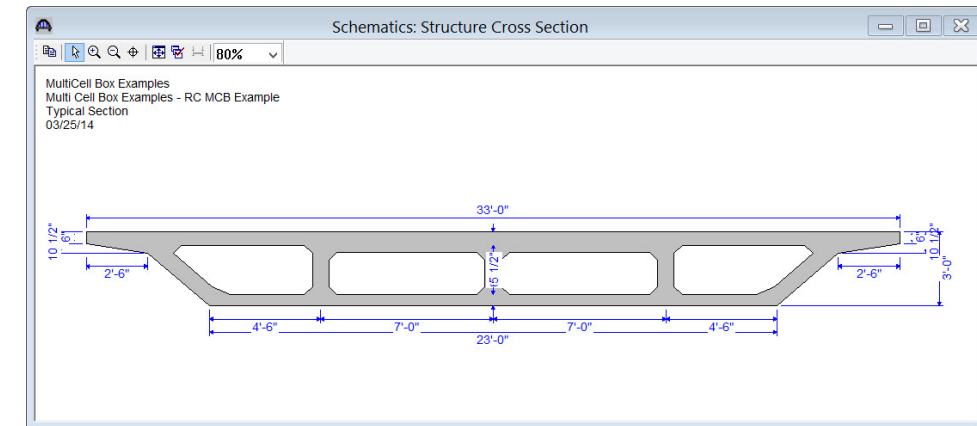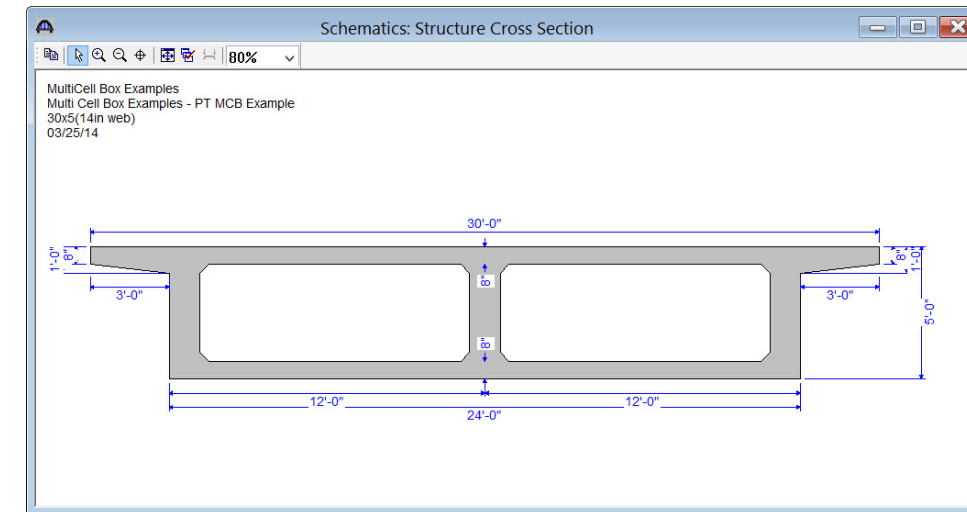
Permit Analysis with Routine Traffic in Adjacent Lane

The release of version 6.6.0 provides users the capability to perform design review and rating analyses for permit vehicles with routine traffic in adjacent lanes. This enhancement was ranked third in the balloting at the 2011 User Group meeting and has undergone extensive review and definition by the Technical Advisory Group (TAG). When an adjacent vehicle is included in the analysis, the live load distribution factor approach specified in LRFD Article 4.6.2.2.5 will be used to deduct the adjacent vehicle live load demand from the capacity. The live load factor to be applied to the adjacent vehicle is entered in the Advanced Vehicle Properties window.
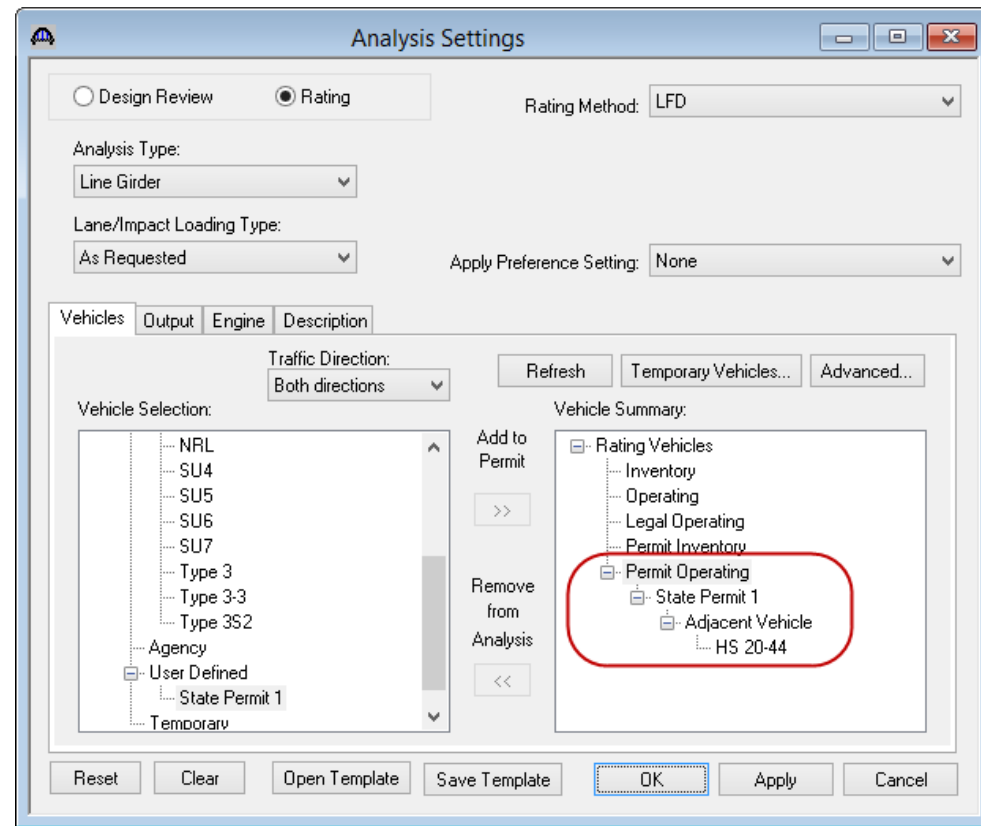
The single lane live load distribution factor will be applied to the permit vehicle. The multi-lane live load distribution factor minus the single lane live load distribution factor will be applied to the adjacent vehicle. The "Allow distribution factors to be used to compute effects of permit loads with routine traffic" checkbox in the Live Load Distribution window specifies whether the live load distribution factor approach in LRFD Article 4.6.2.2.5 is allowed. The "Compute from Typical Section" button will populate the checkbox by checking the two restrictions listed in LRFD Article 4.6.2.2.5. This checkbox is always enabled so the user can control whether the live load distribution factor approach for analyzing adjacent vehicle is allowed or not.

Prestressed Concrete Design Tool

A new tool for designing prestressed concrete beams is currently being developed for release next year. The beam design will be in accordance with the LRFD specification for the following configurations.

Configurations to be supported:
1. P/S I beams currently supported in BrD.
2. P/S box beams currently supported in BrD.
3. Debonded or harped strands
4. Simple span
5. Continuous spans

The tool will be a stand-alone utility capable of transferring the design results to BrDR. The software design is nearly complete and development will begin soon.

Bridge Design / Bridge Rating Top Rating and Design User Group (RADBUG) Balloted Enhancements

Ranking	Incident	Description	Product	Status
1	6586	Bridge Explorer customization	Both	Included in 6.6 release
2	11774	Option to specify composite self-load and concrete deck load	Both	Included in 6.6 release
3 / 7	12216 / 12140	User-entered PS shape section properties for finite element models and self-load computation	Both	Included in 6.6 release
4	12501	Option to specify sufficiently connected PS box beam for live load distribution factor calculations	Both	Included in 6.6 release
5	2569	Linking analysis error to user interface	Both	Deferred to modernization effort
6	9734	Feet-and-inches input for length and dimension	Both	Included in 6.6 release

Bridge Design-Rating - Report Technical Advisory Group (RTAG) Update

The AASHTOWare Bridge Report Technical Advisory Group (RTAG) had several discussions and subsequently met with the developers in Baker's Pittsburgh office during last spring. Review of the proposed report enhancements was completed and a report was presented to the AASHTOWare Bridge Task Force (TF) during their November 2013 meeting.

The TF accepted the initial report and advised the contractor to work with the RTAG to prepare estimates and implement the proposed recommendations. The contractor is reviewing the recommendations and preparing the estimates. The RTAG will continue receiving and discussing suggestions from the users to improve the reporting features in the BrDR. Please forward your suggestions to Amjad Waheed, PE via email to awaheed@dot.state.oh.us.

From the Vice-Chairman - AASHTOWare Bridge Management 5.2 Software Update:

The AASHTOWare Bridge Management (BrM) software continues to deliver new content as the Task Force, Technical Review Team, and Bentley Systems work together to build out the remainder of the 5.2 project. In February of this year the 5.2.1 version was delivered, making the following functions available to the user community:

- The capability to define a risk framework and to assess risks on a bridge and by bridge basis;
- The capability to define utility functions related to bridge condition, risk and other objectives;
- The ability to define "Bridge Analysis Groups" for corridor or spatially proximate type projects;
- The ability to define agency actions, associated costs and effectiveness of action;
- The ability to define benefit grouping for actions that impact multiple elements;
- Mapping capabilities; and
- Ad Hoc query builder and Export function to Excel, PDF, and Google mapping files.

Phase 2 of the project is currently in the planning and development process and includes many modeling features that build on the capabilities delivered in release 1. Phase 2 features include the following.

- Introduction of the updated deterioration model
- Weibull shaping parameters and protection factors for protective elements
- Bridge level benefit cost and life cycle cost analysis; and
- Project level planning functions and analysis

Release 2 will also include significant database changes as the product database is updated to better support the AASHTO 2013 element set and to support the move to U.S. Customary units for all data storage. BrM 5.2.2 is expected to be released near the end of this calendar year.

The Phase 3 release (5.2.3), scheduled for delivery in late 2015 will complete the 5.2 project. The phase 3 release will build-out the network level analysis capability and remaining project items.

The redevelopment of the legacy Pontis product into the AASHTOWare Bridge Management product is a significant undertaking that could not have been possible without the support of the licensed agencies who contributed funding and expertise to make BrM the leading bridge management software in the world.

Mike Johnson, P.E.
AASHTOWare Bridge Task Force Vice-Chair