

BUILDING THE NEXT GENERATION

AASHTOWare

BRIDGE®

PRODUCT NEWSLETTER

BrDR

Modernization
Release Roadmap
Regression Test Utility

BrM

Version 6.0
Data-Driven Decision Making
Web Services

2018 • JUNE



Letter from the Chair



Greetings from the AASHTOWare Bridge Task Force. It's been another busy year for both products. We really could not accomplish what we have without the support of the agencies and the individual supervisors of the task force members.

Bridge Management 5.3 was released in September 2017. This version includes the new Load Rating Module, the Cross Sections Module (funded by Alabama), and an overhaul of the Inspection Condition Grid, making it much faster to enter inspection data. This release also includes updates to make upgrading easier, scripts to check your database for the most common errors, and report tools to check for valid or invalid parent-child element relationships.

If you were planning to upgrade to Bridge Management 5.2.3 and haven't done so yet, consider going directly to version 5.3—the upgrade effort is about the same but the benefits are even greater than 5.2.3.

Bridge Design and Rating 6.8.2 was released in June 2017. This version contained the AASHTO LRFD Specification updates (8th Edition) and AASHTO's Manual for Bridge Evaluation updates (3rd Edition). In addition, a few minor enhancements and bug fixes were also included. During this same period, the second year of the Design and Rating Modernization project has been underway along with the modernized user interface development. The first release of the modernized product, 6.8.3, includes the modernized engine and is on track to be released in late June 2018. Since this release also includes the legacy engine, it is easy to run both engines and compare results with the Regression Testing Tool. The Beta testing TAG has been testing Bridge Design and Rating 6.8.3 and comparing legacy engine results with results from the modernized engine. The second release of the modernized product, Bridge Design and Rating 7.0, is on schedule for release in June 2019.

We want to welcome Murugesu (Vinacs) Vinayagamoorthy from CALTRANS to the AASHTOWare Bridge Task Force. He is replacing Dean Teal's position on the Bridge Design and Rating side and will officially start his new term on July 1. With the Modernization project moving forward, Dean Teal has taken a special two-year term on the Task Force to continue leading the Beta Testing of the Bridge Design and Rating software.

We want to thank Kansas DOT and Jeff Ruby for hosting the 2017 RADBUG meeting that was held in Kansas City, KS last August. This year's user group meeting will be in Boise, ID. Details on the 2018 RADBUG can be found in the newsletter and at the RADBUG website, <http://aashtobr.org/>.

If you are looking for information related to AASHTOWare, check out the newly redesigned website, <https://www.aashtoware.org/>. You should find that it is much easier to navigate to the information you might be looking for.

I again want to thank everyone that volunteers in any way to promote and advance the AASHTOWare products. Your help is greatly appreciated. We hope you find this newsletter to be informative. If you have any ideas, please let any of us know for future newsletters.

—Todd Thompson, PE • AASHTOWare Bridge Task Force Chair

AASHTO Bridge Specification Updates: Going Forward

During the 2016 meeting of the AASHTO Committee on Bridges and Structures, the committee decided to no longer publish interim changes to the LRFD Bridge Design Specifications. Several factors were considered when making this decision, including:

(continued on page 3)

BrDR Release Roadmap: FY2018–2020

Bridge Design/Rating 3-Year Release Roadmap			
	Legacy System	Modernized System	Notes
2018	  Legacy User Interface  Legacy & Modernized AASHTO Engine	<ul style="list-style-type: none"> Modernization Phase 1 Release: ✓ Modernized AASHTO Engine Modernization Phase 2 Release: ✓ Modernized User Interface and AASHTO Engine 	Software Requirements: ✓ Windows 7, 8, and 10 ✓ SQL Server 2014 ✓ Oracle 10.2, 11.2, and 12.1 Upgrade Path: ✓ 6.8.3 → 6.8.4 ✓ 6.8.3 → 7.0
2019	  Legacy User Interface  Legacy & Modernized AASHTO Engine	  Modernized User Interface  Modernized AASHTO Engine	Software Requirements: ✓ Windows 7, 8, and 10 ✓ SQL Server 2017 ✓ Oracle 11.2 and 12.2 Upgrade Path: ✓ 6.8.4 → 7.0 ✓ 6.8.4 → 7.1 ✓ 7.0 → 7.1
2020	 Support for 6.8.4 and all earlier versions will cease effective June 30, 2021	  Modernized User Interface  Modernized AASHTO Engine	Software Requirements: ✓ Windows 8 and 10 ✓ SQL Server 2017 ✓ Oracle 11.2 and 12.2 Upgrade Path: ✓ 7.1 → 7.2

(AASHTO Bridge Specification Updates, continued from page 2)

1. The bridge specifications are now very mature and there isn't a need for a large amount of change on a yearly basis, and
2. State DOTs are not in a position to make changes to their bridge operations on a yearly basis and are unable to take advantage of yearly updates.

To support the direction given by the AASHTO bridge community, the decision was made to move to a three-year publication cycle for updates to be published in the AASHTO bridge specifications. For example, the items balloted in 2017, 2018, and 2019 are scheduled to be published in the LRFD 9th Edition, which will probably not be published until early calendar year 2020.

COBS will continue to provide AASHTOWare with the details associated with the approved balloted items to allow the Bridge Task Force to direct the development of the code required to support the unpublished updates as the items are approved each year; however, the specification updates added to the AASHTOWare Bridge Design-Rating product will not be included in a product release until after the specification updates are published by AASHTO.

BrDR Regression Test Utility

The Regression Test Utility software tool was first released with AASHTOWare Bridge Design and rating 6.8.2. According to Wikipedia, the purpose of regression testing in general is to ensure that previously tested versions of software will perform the same way after being modified.

For BrDR, the changes can include enhancements, patches, database changes, maintenance release issues, etc. While the development team has used this form of testing in the past to numerically compare the newest release of the BrDR software with the subsequent release (ratings, specification article values, etc.), with version 6.8.3 users will be able to use the regression test software for comparing the results of the legacy analysis engines with those of the newly added modernized analysis engine.

This method of comparison has been used by the contractor during Alpha testing of version 6.8.3 to ensure that the results produced by the modernized analysis engine match those of the legacy engines. The software has also been delivered to the beta testers for use during beta testing as well.

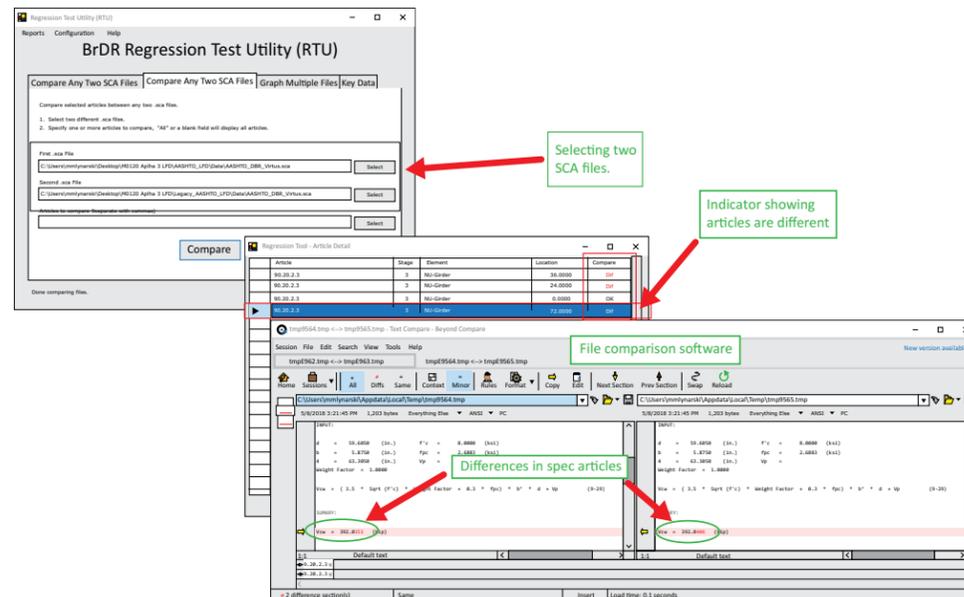
The software uses the regression data output files produced by the BrDR software (generated by selecting the Regression Data output option). The two types of files, Regression Test Utility (RTU) and Specification Check Article (SCA) files, are produced for both the modernized and legacy engines and can be compared/reviewed using the Regression Test Utility software.

The tool is comprised of two separate software applications:

- **Regression Test Utility User**—Allows the comparison of the data (Actions, Spec Article calculations) for two separate processes.
- **Regression Test Utility**—A more robust tool for comparing large numbers of bridges at once.

For the latest round of testing of version 6.8.3, the beta testers were provided instruction (tutorial and webinar) for using the tool to compare the numerical results differences between the legacy analysis engine and the newly coded modernized engine. In theory, the legacy and modernized engine results should be nearly identical, making a regression review of the data an ideal comparison method. Samples of the regression tool that use commercially available file comparison software are shown below.

The software and detailed user manuals are provided with the BrDR installation.

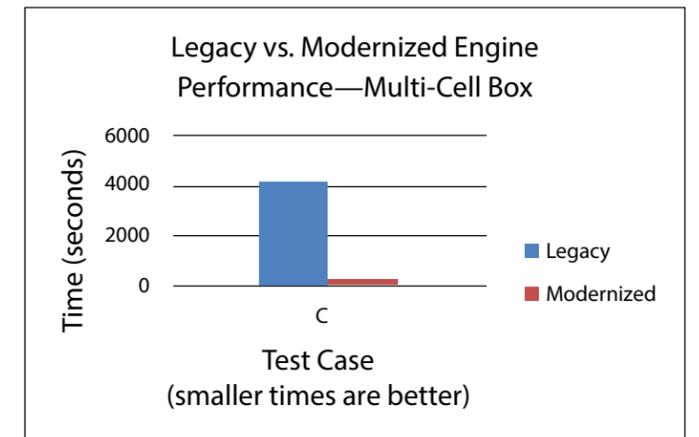
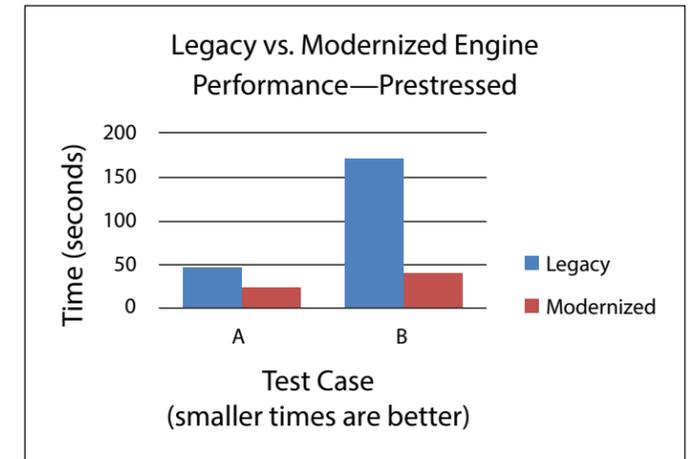


BrDR Modernization

In 2013, BrDR stakeholders met for two days to discuss and identify the quality attributes for the modernized BrDR product. The highest priority quality attribute identified was “performance,” which identified everything from obtaining high quality results in a reasonable time to having a responsive user interface. When users think of performance, they mostly identify with the speed of the analysis. As such, it was important in the design and development of the modernized engine that the analysis speed be improved over the legacy system.

The analytical performance improvements were made from a variety of changes to the system. First, with the modernized design, a point was made to eliminate numerical identifiers wherever possible. It was common with systems from the 1990s to have numerical identifiers, mapped to identifiers in the database. By eliminating numerical identifiers and replacing them with direct references, a look-up or “search” was eliminated. Next, reliance on the old OLE database access technology was eliminated. This technology was slower and no longer necessary. Following these improvements, a modern, object-oriented design was implemented, thereby permitting simplified algorithms and a reduction in the number of lines of source code. Finally, building from the success of the modernized analytical engine developed for the Prestressed Design Tool, components of the engine were decoupled (modules that are more easily interchanged). This made them simpler, faster, and more reusable between BrDR and external tools. These changes resulted in improved performance. Note that during the development process, a few additional areas for improvement were identified. These have been cataloged for potential future enhancement.

Quality Attribute: Performance



Test Case A: PCITrainingBridge6
 Test Case B: Modified Example7—10 spans
 Test Case C: Multi-Cell Box—4 span—6 cells

BrDR 7.0—Load Rating Tool Enhancements

Description	Funding Source
Addition of LFR of Culverts	Idaho TD
Addition of LFR of Floor Systems	Illinois DOT
Addition of LFR of Multi-Cell Concrete Boxes	Mississippi DOT

BrDR Modernization

BrDR 7.1: Tentative Enhancements

Description	Product
Task Force Enhancement List	
PS Design Tool Phase 2	BrD
Steel Design Tool	BrD
AASHTO Timber Engine	BrR
Report TAG enhancement list	Both
Modernization Tier 1 List (based on voting results)	
BRDRSUP-695 Analyze local web yielding and web crippling for steel beam ends	Both
BRDRSUP-1029 LLDF for steel beam-timber deck	Both
VI 9313 Steel channel for exterior girders	Both
BRDRSUP-581 Hinges in girder floor systems	BrR
BRDRSUP-641 Model section loss in PS girders	BrR
BRDRSUP-728 Girder profile schematic for steel built-up members	Both
VI 11366 Cover plates on both surfaces of flange	Both
BRDRSUP-1444 Slab section schematic including reinforcing steel	Both
BRDRSUP-1431 Show PS strands on girder profile schematic	Both
BRDRSUP-1436 Option to account for 100% section loss	BrR
BRDRSUP-97 Allow MPF reduction due to low ADTT	Both
BRDRSUP-732 Culverts with variable thickness slabs and walls	Both
BRDRSUP-1435 Schematic for cross-section based members	Both
Caltrans enhancement list (Funded by Caltrans)	
BRDRSUP-936, 938, 1619, 1620, 1621, 1622, 1623, 1624, 1627, and 1628	Both

Did you know?

If additional states participate and contribute funding, many more of the numerous enhancements requested by the user community can be included!

Letter from the Vice Chair



The AASHTOWare Bridge Management software continues to deliver new content and improved functionality as we move past our very successful, multi-year Pontis/BrM 5.2 project. The release of Bridge Management 5.3 included many new features and functional improvements to enhance the usability of the software. The Task Force also plans to release a new Technical Manual in the summer of 2018 to describe the logic behind the modeling and analysis functionality in the software. This manual should assist the users in building better models and verifying their results.

In response to user requests, the next version of AASHTOWare Bridge Management will be a “patchable” version. The version will be Bridge Management 6.0, but don’t be alarmed. This

is the same planned release that was previously referred to as Bridge Management 5.3.01, but the version number was changed to 6.0 to be in alignment with the AASHTOWare naming convention. The version 6.0 will allow the software to be patched rather than requiring a complete reinstall for many software changes, including bug fixes. You can find out more about this patchable version in a featured article in this newsletter on AASHTOWare Bridge Management 6.0.

In September 2017, the 5.3 version was released with the following key features:

- Load Rating Module to give the ability to record custom vehicle ratings and to track load rating history
- Cassini Rewrite/Update to improve the workstation version of BrM
- Condition Grid Rewrite/Update to improve workflow and performance of the Condition Grid
- Enhanced Network Policy Rule Builder
- Cross Section Module to plot and review streambed cross sections
- Error Check Pre-Script and Default Data Script to improve installation process

Version 6.0 is currently in development with a planned release in the summer of 2018 with the following key features:

- “Patchable” version
- Mapping Feature Enhancements to reference the more precise latitude and longitude values
- NBE Import for the National Bridge Elements from the NBE file submitted to the FHWA
- Improved export for all screen lists and graphs
- Improved reports
- All bugs reported in JIRA as of April 11, 2018 fixed

We want to thank the Virginia DOT for hosting last year’s Bridge Management User Group (BrMUG) meeting in Alexandria, VA. Thanks to Todd Springer, Richard Thompson, and the rest of the Virginia DOT bridge folks for being such great hosts. The 2018 BrMUG meeting will be hosted by the New Mexico DOT, led by Jeff Vigil. The meeting will be held at the Drury Plaza Hotel Santa Fe on September 18–19, 2018. We encourage agencies to participate in the user group meeting to help shape the future of the product and to learn what is new with the product since the last year’s meeting. Details on the 2018 BrMUG can be found at: <http://www.cvent.com/events/2018-brmug-meeting/event-summary-4e39fb9e7e0f448c99c50bb8dab8999c.aspx?i=78f25b58-dda2-4aae-9b7c-1a8b711bc69b>.

—Eric Christie, PE • AASHTOWare Bridge Task Force Vice Chair

AASHTOWare Bridge Management (BrM) 6.0

BrM 6.0, a “patchable” version of AASHTOWare Bridge Management will be released in the summer of 2018. In response to user requests for a patchable version of BrM, the Task Force is focusing on developing a patchable version of BrM (BrM 6.0) that will allow the software to be patched rather than requiring a complete reinstall for many of the software changes, including bug fixes. Future software releases that introduce significant changes to BrM’s functionality may require a complete software reinstall.

What does “patchable” mean?

The patchable version is designed to provide BrM users with the ability to update only the needed fixes to their system when subsequent releases are delivered. The current design of BrM compiles all the delivered updates into a software package that must be installed completely to acquire any or all the fixes delivered. Therefore, an update would include the specific fix the user was looking for in addition to other fixes that the user may or may not be interested in installing. This fixed price task will change the deliverable compilation process to allow the contractor to provide the end user with the specific files necessary (.cs, .aspx, etc.) to apply the needed fixes. The ability to install updates without requiring a complete software install will reduce the time and cost associated with an update as users will no longer need to test all aspects of the application given the fact that the patch will be narrowly defined by the small subset of files included in the patch. As BrM is a database driven application, the need to run a script will be on a case-by-case basis. Some updates will still require a database script be run while others will not. It will be difficult to predict in advance if any given patch will require a database script until the fix is finalized and tested.

BrM 6.0 will be Baseline Version

BrM 6 will also serve as the initial baseline release for determination of backward compatibility for future bug fixes. That is, in the event patchable software bugs are discovered or minor Federal/AASHTO updates are required in future releases of BrM, the fixes will be applied to the baseline release (BrM 6), or the most current version, but will not be applied to prior versions of the software. The Task Force’s goal is to keep the baseline release updated for two years, based on user priorities and needs. To attain new functionality, users may need to update to the new versions of BrM.

Other reasons you want BrM 6.0

In addition to being a patchable version, BrM 6.0 will include the following items:

- **Bug Fixes**—All bugs reported in JIRA as of 04/11/18 will be fixed. All bugs reported in JIRA after 04/11/18 will be fixed in subsequent releases.
- **Improved Reports**—In response to feedback from users to update and improve the reports delivered with BrM, the Reports TAG identified 17 reports to be improved, updated, modified, and/or deleted. These report improvements are expected to positively enhance the BrM user experience.
- **Mapping Feature Enhancements**—The current mapping functionality in BrM uses the values for the latitude and longitude that are submitted to FHWA as part of the NBI submittal. Since these values are not as precise as the actual latitude and longitude input by inspectors, BrM 6.0 will be updated so the mapping features reference the more precise latitude and longitude values.
- **NBE Import**—There have been several requests from State DOTs to create an import for the National Bridge Elements (NBEs) from the file submitted to the FHWA as part of the NBI submittal. Agencies are requesting this functionality to support their use of the BrM modeling and management functions even if they don’t use the inspection module. This capability will be incorporated into BrM 6.0.
- **Functionality Improvements:**
 - Screen Needs List Export—Export all lists, e.g. needs list and graphs
 - Reports—Can hide the “run for all bridges” option

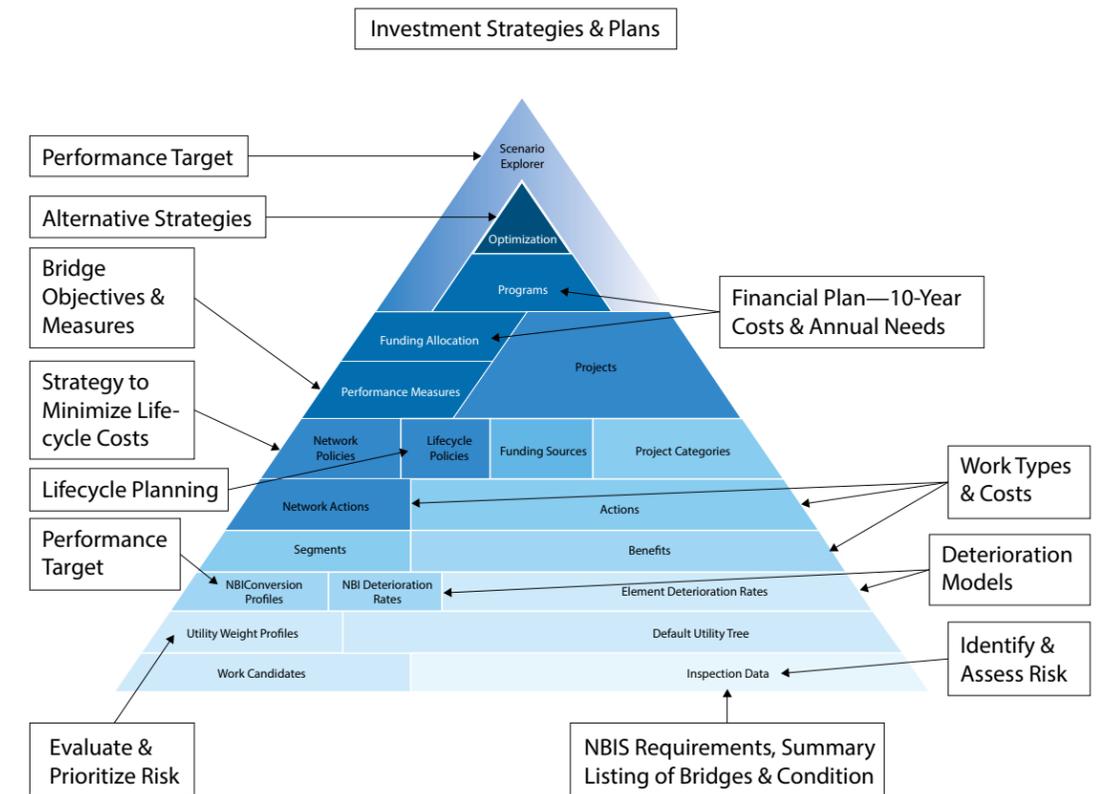


BrM Support for Data-Driven Decision Making

How AASHTOWare Bridge Management Supports Your TAMP

Faced with the need for data-driven decision making, transportation agencies have a crucial need for effective decision-making processes, procedures, and tools, such as bridge management systems, to manage their network of bridges as defined in their Transportation Asset Management Plan (TAMP).

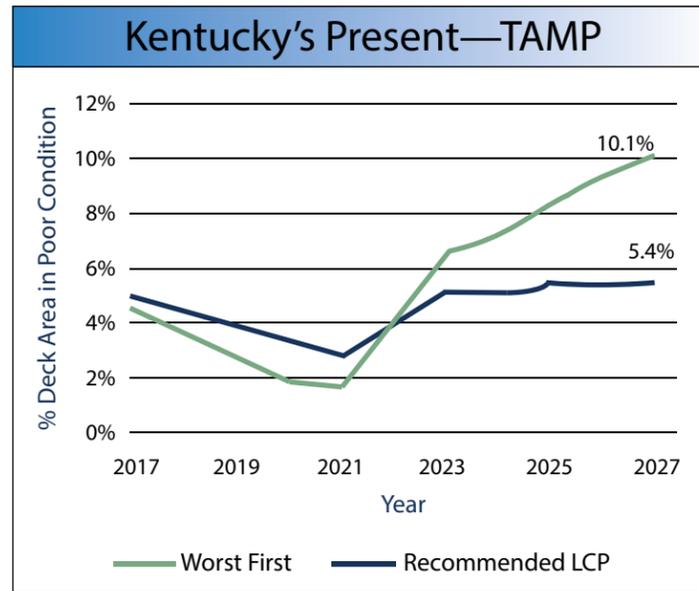
AASHTOWare Bridge Management (BrM) is an excellent bridge management software solution that assists engineers, managers, and decision makers in the selection and timing of preservation, rehabilitation, and replacement projects for their structures. BrM provides a robust, data-driven approach to project selection and can be configured to meet the specific needs, policies, and practices of the agency as they relate to their TAMP. These configurations include, but are not limited to, the utility tree, deterioration rates, benefits, and actions performed, funding, and performance measures. The following image maps the FHWA requirements to specific aspects of BrM.



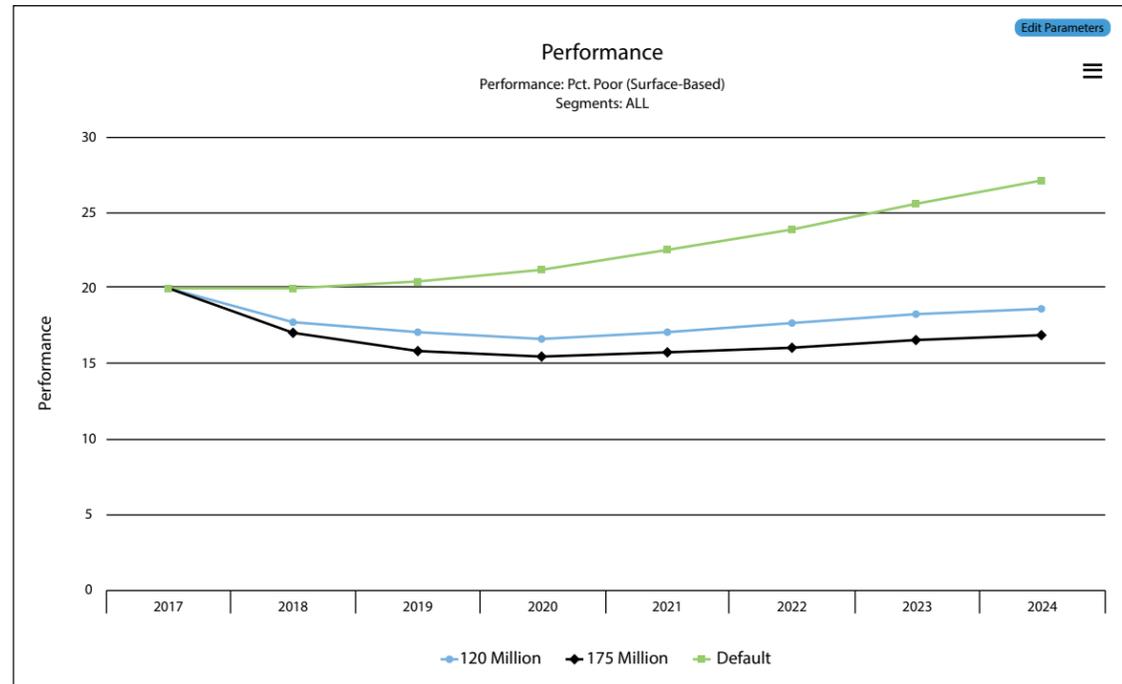
In conformance with FHWA requirements, states have recently created their initial TAMPs to relate their agency rules and policies to their bridge management practices and investment strategies. It is essential for states to tie these practices to their Bridge Management Software. BrM has robust bridge management capabilities that are highly configurable, and it has enabled states to link their TAMP performance measures and constraints to the software. Furthermore, BrM can assess the benefits and cost-effectiveness of preservation programs on a network level over the short and long term. The Kentucky Transportation Cabinet (KYTC) and the Michigan Department of Transportation (MDOT) have both used BrM as part of their TAMP or TPM implementation.

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This image illustrates that using a data-driven approach improves the percentage of bridges in Kentucky that are poor by approximately 5% versus a traditional worst-first approach.



KYTC used BrM to run multiple scenarios to determine how different amounts of funding impact their performance measures as shown in the following image.



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Michigan DOT (MDOT) used BrM to enhance their Transportation Performance Management (TPM) Target setting process. By tracking the rate at which bridge NBI component ratings have declined in the past, MDOT is able to predict the rate at which a bridge will decline in the future. MDOT has an established process through which trends in bridge deterioration rates can be evaluated at regular intervals. These periodic reviews will show whether preventive maintenance and other small actions taken on bridges are effective over time. The deterioration rates from that review were entered into the Component Deterioration Modeling module within BrM to support the TPM Target setting process.

Next, MDOT created Benefit Groups and Actions that reflect the component improvements that would occur through a project. Projects were entered to reflect the actual five-year plan, showing the improvements anticipated for each project. A program was created and analyzed with the actual projects and the NHS bridge network was deteriorated by the software. The projected two-year and four-year targets for NHS deck area in Good and Poor condition were calculated.

As this was the initial implementation of the TPM target settings, MDOT also performed the same analysis by hand and with spreadsheets. The results between the hand analysis and the BrM analysis were comparable, with the BrM analysis requiring less time and offering advantages such as repeatability and the promise for automating customized reports for the Metropolitan Planning Organizations that MDOT is coordinating with as part of the TPM requirements.

Name	Description	Action	Count
Superstructure Replace	Superstructure Replace	Replace Super Network, Superstructure Replace	Yes
TPM - Culvert - Fair	Make NBI Culvert Fair	TPM - Culvert - 5	Yes 1
TPM - Culvert - Good	Make NBI Culvert Good	TPM - Culvert - 7	Yes 1
TMP - Deck - Fair	Make NBI Deck Fair	TMP - Deck - 5	Yes 1
TPM - Deck - Good	Make NBI Deck Good	TPM - Deck - 7	Yes 1
TMP - Sub - Fair	Make NBI Sub Fair	TMP - Sub - 5	Yes 1
TPM - Sub - Good	Make NBI Sub Good	TPM - Sub - 7	Yes 1
TPM - Super - Fair	Make NBI Super Fair	TPM - Super - 5	Yes 1
TPM - Super - Good	Make NBI Super Good	TPM - Super - 7	Yes 1

Table Name	Column Name	New Value	Increment
inspevnt	suprating	8	

Web Services between BrM & BrR

AASHTOWare Bridge Management (BrM) contains a significant amount of structure information including location, condition, and current load ratings, and is considered the authoritative data on these subjects for reporting to FHWA. AASHTOWare Bridge Rating (BrR) is the national leading software for analyzing structures to determine load capacity.

Currently a majority of the agencies using BrM and BrR manually copy the structure location data, name, structure number, route data, and traffic information from BrM into BrR. This process is laborious, prone to human error, and requires rigorous QC/QA processes to verify the data transferred is correct. Furthermore, this process must be repeated every time traffic conditions or other data change. In most cases the changes are not reflected in BrR, resulting in decreasing accuracy of load ratings.

Likewise, results from BrR need to be manually entered into BrM for reporting to FHWA. This can at times be further complicated by the fact that a load rating may be performed as part of the design process; however, the new rating is not made current until it is constructed in the field. BrM can handle historical and future load rating events, but the manual process can often get lost along the way, leading to inaccurate load ratings and inaccurate reporting to FHWA.

The AASHTOWare Bridge Task Force proposes the creation of a method for structure data to be synced from BrM to BrR and the results passed back to BrM. To pursue the most current technological best practices, it is proposed that this linkage be made by web services. The objective of this project is to link two AASHTOWare products, BrM and BrR, through a web service to support users in accessing the structure data in BrM to perform a rating analysis of the structure in BrR and return completed rating results to the BrM for reporting to FHWA.

The first phase of the project has begun and consists of creating a BrM web service. It is anticipated that there will be future phases needed to create the BrR pieces of the web service and the necessary data-push and data-pull pieces will be created to complete the transfer.

For the BrM component of the web service, three functionalities will be developed and added to the BrM web service API:

- The ability to draw structure information including route, traffic, and location information from BrM to the web service.
- The ability to receive load rating results for the agency's spectrum of vehicles and all load rating types from a web service.
- The ability to draw current load rating information from BrM by web service to be made available for other permitting software.
- Phase two of the project will support the data exchange from the Bridge Rating (BrR) perspective and will be pursued following the delivery of BrDR release 7.0, scheduled for June 2019. The current AASHTOWare Bridge Design-Rating (BrDR) contractor, Michael Baker International, Inc., will perform the associated BrR development tasks.

It is anticipated that the beta testing tasks for the BrM web services development will occur in the same timeframe that BrDR is moving into the BrDR 7.0 development phase, providing an opportunity for cross-product preliminary testing opportunities. Throughout the project, both contractors will keep an open dialogue on use cases to ensure coordinated decisions are made on what data will be exchanged and in what manner (data push/pull).

Following the completion of Phases 1 and 2, and the ability to exchange data via web services linkages, the Task Force will re-evaluate the need to continue to support the integrated bridge database.



Coming Soon... Results Comparison Tool

The setup and configuration of the analysis portions of BrM is extensive and time consuming. Furthermore, given the large number of parameters and constraints, it is difficult for users to perform a sensitivity analysis to determine the relative impact of each variable. Therefore, there is a need for a tool that will allow users to compare the recommended projects by changing one of the input variables at a time. This tool will also be useful in testing the results between versions of BrM.

The Task Force has initiated a project to develop a results comparison tool which will be specifically customized for BrM and will be used by the contractor and the Beta testing TAG, as well as the end users. The tool will enable the users to:

- Test results from version A to version B prior to going into production
- Evaluate results of changing some variable (performance measure, cost, etc.)
- Calibrate and configure input parameters and validate results

The proposed tool will allow members of the Beta TAG to focus a higher percentage of their time on the testing of new features. The end users not involved in beta testing will then perform similar testing prior to implementing the product into production. Furthermore, the tool will help assure the end-user that the optimization procedure will produce consistent results.

Product Websites

Want additional information about AASHTOWare bridge products including general information, helpful links including the customer support centers, training tutorials, and technical support? Visit the product websites!

AASHTOWare® Bridge Management:

<http://aashtowarebridge.com>

AASHTOWare® Bridge Rating and Design:

<https://aashto.mbakercorp.com>

2018 AASHTOWare Bridge User Group Meetings

Rating and Design Bridge User Group (RADBUG)

August 7–8, 2018
The Grove Hotel
245 S. Capitol Blvd
Boise, ID 83702

RADBUG website: www.aashtobr.org

Bridge Management User Group (BrMUG)

September 18–19, 2018
Drury Plaza Hotel Santa Fe
828 Paseo de Peralta
Santa Fe, NM 87501

BrMUG website: www.brmug.com

For additional information on the bridge
product user group meetings, please email
jtarwater@ashto.org.

AASHTOWare Bridge Task Force

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Chair, Bridge Products Task Force

Eric Christie—Alabama DOT
Vice Chair/Task Force member, BrM

Mark Faulhaber—Kentucky Transportation
Cabinet
Task Force member, BrM

Bruce Novakovich—Oregon DOT
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Task Force member, BrM

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Task Force member, BrM

Derek Constable—FHWA
Task Force FHWA Liaison, BrM

Dean Teal—Kansas DOT
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Ping Lu—Iowa DOT
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AASHTOWare Bridge Management

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Email: BrM@bentley.com

AASHTOWare Bridge Design and Rating

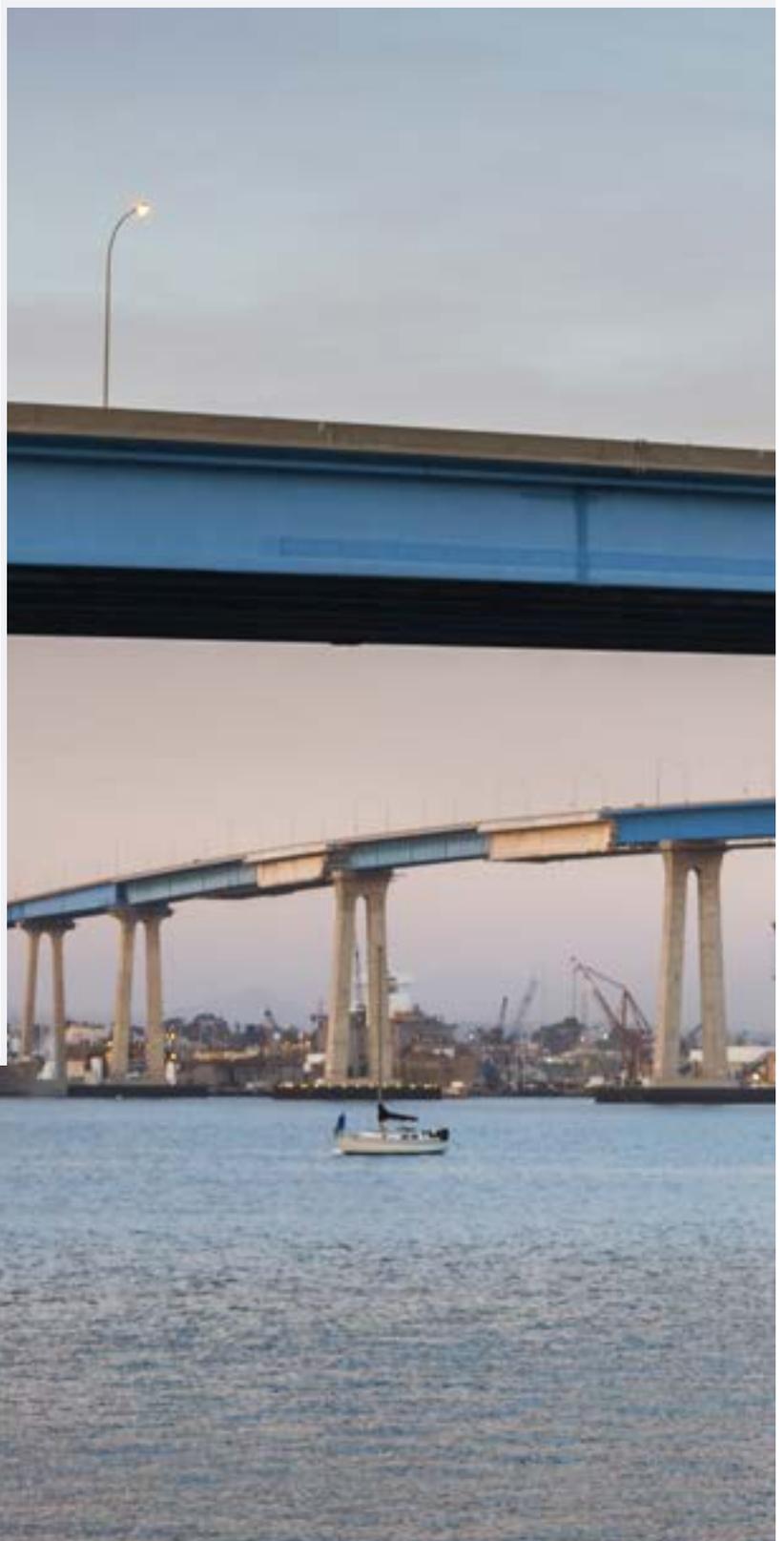
Michael Baker International
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Phone: 412-269-7920
Email: BrDR@mbakerintl.com



About AASHTOWare®

The AASHTOWare technical service program has a rich history of serving its customers and being a leader in bringing the power of technology through automation to the public sector transportation industry.

As we look to the future, it is important that we build on this rich and robust tradition to create the next generation of technology solutions and continuously improve service to our customers. Our success is based on the commitment of hundreds of volunteers, in partnership with the private community, to produce quality products that meet the common needs of our customers. The challenges we face now and into the future are increasingly more complex than in the past. To ensure continued success as we establish our next generation of products and services, we will clearly focus on a mutually agreed upon set of principles and values to drive our strategic plan, vision, mission, goals and objectives.



American Association of State Highway and Transportation Officials
444 North Capitol St. NW, Suite 249, Washington DC 20001

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AMERICAN ASSOCIATION
OF STATE HIGHWAY AND
TRANSPORTATION OFFICIALS

AASHTO