

# AASHTOWare Bridge Management Update

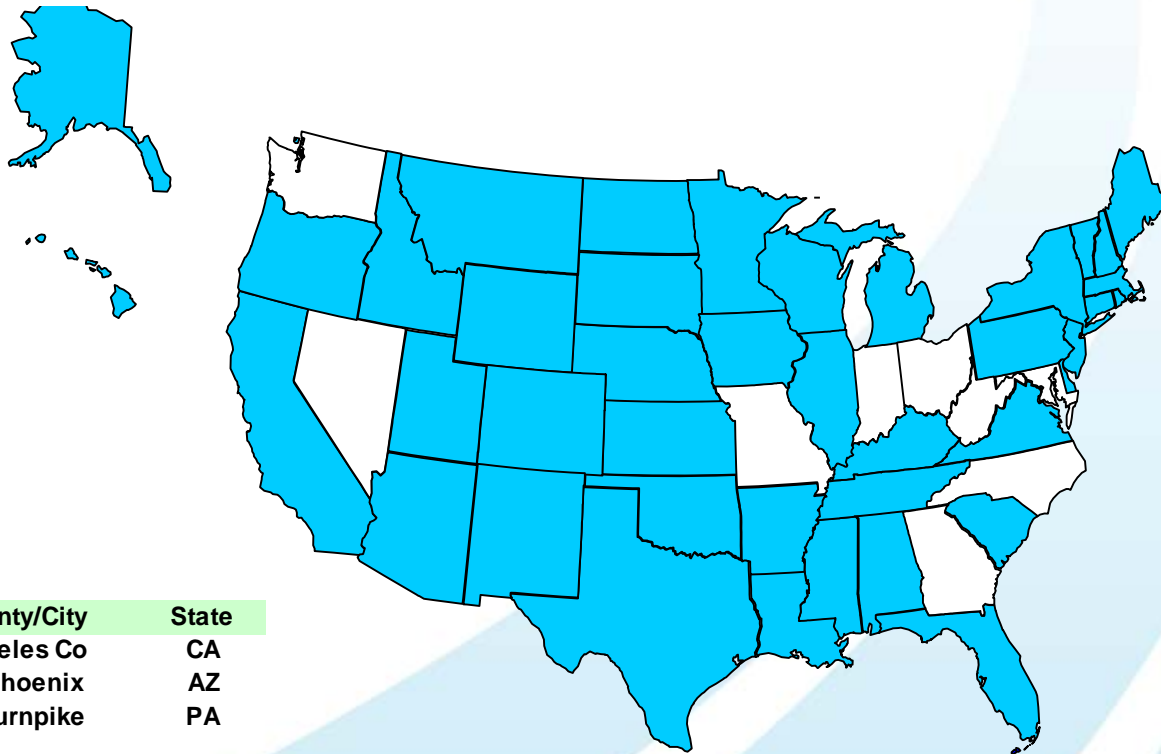
*Formerly*



**AASHTOWare Bridge Management**

[www.AASHTOWareBridge.com](http://www.AASHTOWareBridge.com)

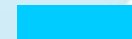
# FY2014 Licensees



County/City	State
Los Angeles Co	CA
City of Phoenix	AZ
Penn. Turnpike	PA

41 State Departments of Transportation +  
Manitoba, FHWA, District of Columbia  
& Puerto Rico

Map Key  
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Licensee



AASHTOWare Bridge Management

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# Bridge Management 5.2 Stages

- Development on 5.2 is rapidly moving forward with coordinated efforts between the Task Force, TRT, and Contractor
- Phased releases
  - Version 5.1.2/5.1.3 (Mar 2012 / May 2013)
    - New inspection and inventory functionality, integration with mapping
  - Version 5.2.1 (Feb 2014)
    - Core program framework, risk assessments, integrated utility functions, network corridors
  - Version 5.2.2 (Mid-2015)
    - Implementation of new deterioration models and multi-objective analysis
  - Version 5.2.3 (Planned 2016)
    - Integrated project and program planning
    - All administrative features



# Bridge Management 5.2 Stages



# Bridge Management 5.2.1

- Released in Spring 2014
- Key Features
- Google Mapping Functions
- Utility Functions
- Needs Prioritization
- Support For 2013 Element Inspection Manual
- Cross-Browser Support
- Key User Requests



# Improved Decision Making Tools



Better fit for agency workflow and business processes

AASHTOWare Bridge Management

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# Multi-Objective/Utility Function

By incorporating utility functions, BrM is able to combine elements of Risk, Lifecycle Cost, Condition, Mobility, and other agency defined criteria to calculate the utility or value of a particular bridge.



# Full Transparency for Utility Values


Welcome: AASHTOWARE  
Bridge Management  
Database: BrM\_Demo  
[Help ?](#) [Account](#) [LogOut](#)

**Menu** | Bridges | Reports | Admin | Inspection | Gateway | Analysis

[Work Candidates](#) | **Utility Value**

## Utility Value: 45.98

**Condition Value** Base Condition Value: 47.29 Scaled Value: 47.29 x Weight: 31.00 = Adjusted Condition Value: 1465.99

Condition Item	Base Value	Scaled Value	Weight	Adjusted Value
Deck	4	42	10.00	420.00
Superstructure	6	81	1.00	81.00
Substructure	7	91	1.00	91.00
Culverts			1.00	
Element ratings	22.74	22.74	1.00	22.74

**Risk Value** Base Risk Value: 55.90 Scaled Value: 55.90 x Weight: 22.00 = Adjusted Risk Value: 1229.80

Risk Item	Base Value	Scaled Value	Weight	Adjusted Value
Scour	6	58	1.00	58.00
Accident	20.00	53.81	1.00	53.81

**Mobility Value** Base Mobility Value: 34.2 Scaled Value: 34.2 x Weight: 22.00 = Adjusted Mobility Value: 752.40

Mobility Item	Base Value	Scaled Value	Weight	Adjusted Value
Percent of truck detoured.	10	34.20	1.00	34.20

**LifeCycle Value** Base LifeCycle Value: N/A Scaled Value: N/A x Weight: 25.00 = Adjusted LifeCycle Value: N/A

LifeCycle Item	Base Value	Scaled Value	Weight	Adjusted Value
No records to display.				





# Preservation (and other) Actions

- Default Actions supplied by State TRT members
- Actions have a default cost
- Attach actions to benefit groups

The screenshot displays the 'Action Defs' configuration screen in the AASHTOWare Bridge Management software. The interface includes a navigation menu on the left with options like Security, Parameters, Element Spec, Definitions, Actions, Options, Cost Index, Formulas, Export Options, Data Dict., Checked Out Bridges, Renumbr Brkey, Logging, Navigation & Field Security, Sync Mapping, and Utility. The main content area shows a table of action definitions with columns for ID, Name, Description, Notes, and Sort Order. Below this table is a section for 'Associated Benefit Group' with a dropdown menu set to '1 - Deck Rehab' and a table listing associated elements with their IDs, names, and costs per unit.

ID	Name	Description	Notes	Sort Order
26	Channel-Regrde Channel	Channel-Regrade Channel Under Bri	-1	
27	Channel-Remove Debris	Channel-Remove Debris	-1	
28	Channel-Repair Washout:	Channel-Repair Washouts / Erosion	-1	
29	Deck-Install Protection Sy	Deck-Install Protection System	-1	
30	Dck-Ptch spls->Dck-Repr	Deck-Patch spalls->Deck-Repair (Po	-1	
31	Deck-Place Overlay	Deck-Place Overlay	-1	
32	Deck-Rehab	Deck-Rehab	-1	

Key	Name	Description	Notes	Sort Order
83				

Associated Benefit Group

Selected Benefit: 1 - Deck Rehab

ID	Element Name	Cost Per Unit	Unit
12	Concrete Deck	\$ 74.32	sq.ft
38	Concrete Slab	\$ 74.32	sq.ft

Save

# Benefit Groups

The screenshot displays the 'Benefit Groups' configuration page in the AASHTOWare Bridge Management software. The interface includes a navigation menu on the left, a top header with user information, and several data tables for configuring benefit groups, deck rehab elements, fields, and risks.

**Benefit Groups Table:**

Benefit Group Name	Description	Action Defs	Edit	Delete
Deck Rehab	Rehab a concrete deck	Deck-Rehab	[Edit]	[Delete]
Bridge rail repair	Repairs done to the bridge rail	Bridge Rail-Rehab Bridge Rail-Repair	[Edit]	[Delete]
Approach Slab repair	Repairs to the approach slab	Approach Slab-Repair	[Edit]	[Delete]

**Deck Rehab Elements Table:**

Element Name	Origin State	CS1	CS2	CS3	CS4	Edit	Delete
Element: (38) Concrete Slab							
(38) Concrete Slab	CS3		100%			[Edit]	[Delete]
(38) Concrete Slab	CS4		100%			[Edit]	[Delete]
Element: (12) Concrete Deck							
(12) Concrete Deck	CS3		100%			[Edit]	[Delete]
(12) Concrete Deck	CS4		100%			[Edit]	[Delete]

**Deck Rehab Fields Table:**

Table Name	Column Name	New Value	Increment	Edit	Delete
inspevnt	dkrating	8		[Edit]	[Delete]

**Deck Rehab Risks Table:**

Assessment Name	New Value	Increment	Edit	Delete
Accident		-5	[Edit]	[Delete]

- Benefit Groups which define what effects an action has
- Benefit Groups can apply to any elements, fields, and/or risks.



# Individual Bridge Analysis Pages show benefits of actions

Bridge 04 07598 Name: Western Canal Bridge Facility Carried (007): JESSE OWENS PKWY Feature Intersected (006A): WESTERN CANAL

**Description**  
 Route: 00000 Milepoint: mi  
 District: District 2 County: Maricopa  
 Func: 17 Urban Collector Area: 02B - Paul Goldsmith  
 Owner: City/Municipal Hwy Agenc Resp: City/Municipal Hwy Agenc  
 Material: 5 Prestressed Concrete Design: 05 Multiple Box Beam  
 Scour: 6 Calcs not made

**Mobility - Safety**  
 Operating: 1 LF Load Factor Inventory: 1 LF Load Factor  
 Geometry: 9 Above Desirable Crit Approach: 8 Equal Desirable Crit  
 Waterway: 8 Equal Desirable

**Conditions**  
 Deck: 4 Poor Superstr: 6 Satisfactory  
 Substr: 7 Good Culvert: N N/A (NBI)  
 Structure: 8 Protected Deck Index: 50  
 Superstr Index: 44.44 Substr Index:  
 Culvert Index: Structure HI: 42.1

**Current Scaled Performance**  
 Condition: 47.29 Risk: 55.9  
 Lifecycle: Mobility: 34.2

**Sufficiency**  
 Rating: 97.5 SD/FO: Not Deficient

**Recent Completed Work**

Year	Cost (\$k)
No recently completed work found.	

**History - Geometry**  
 Built: 1988 Reconst: -4  
 Length: 42.001 ft Width: 72.001 ft  
 Span: 42.001 ft

**Work Candidates Existing for the Selected Bridge**

Work Candidate	Utility	Utility Change	Cost	Benefit / Cost (\$k)	Cost (\$k) / Benefit
Do Nothing	45.98				
04 0759-NIMO-091313-E2A8C9DA58 - Approach Slab-Repair	46.38	0.4	\$10,000.00	0.04	\$25
A-DOT001-057F6A47-0000006A - Bridge Rail-Repair	46.67	0.69	\$50,000.00	0.0138	\$72.4638
A-DOT001-057F6A47-0000006D - Deck-Rehab	64.54	18.56	\$100,000.00	0.1856	\$5.3879

- Provides snapshot of work candidates and a detailed view of effect of each
- View includes all related utility value information and criterion



# Recommended Actions

- Calculates the cost/benefit ratio for all possible actions
- Ranks all available actions providing recommendations on what should be applied to a bridge

The screenshot displays the AASHTOWare Bridge Management software interface. The main window shows the analysis results for Bridge 04 07598, named Western Canal Bridge. The interface includes a menu on the left with options like Work Candidates, Bridge Analysis, Reverse Calculation, Needs List, and Utility Value. The main content area is divided into several sections: Description, Mobility - Safety, Conditions, Current Scaled Performance, and Sufficiency. A table at the bottom lists all available work candidates with their respective utility, cost, and benefit ratios.

Work Candidate	Base Utility	Utility	Utility Change	Estimated Cost	Benefit / Cost (\$k)
Approach Slab-Repair	45.98	46.38	0.4	\$1,114.84	0.3588
Bridge Rail-Rehab	45.98	46.67	0.69	\$45,720.00	0.0151
Bridge Rail-Repair	45.98	46.67	0.69	\$45,720.00	0.0151
Deck-Rehab	45.98	64.54	18.56	\$148,644.86	0.1249

# Visualize Needs with Maps

The screenshot displays the AASHTOWare Bridge Management software interface. At the top, the logo for BrM AASHTOWare Bridge Management is visible on the left, and the user is logged in as 'Welcome: AASHTOWare Bridge Management Database: BrM\_Demo' on the right. Below the logo is a 'Menu' sidebar with options like 'View List', 'Manage Layouts', 'Manage Filters', 'New Inspection', 'Suff Rate', 'Validate', 'Create Struct', 'Copy Struct', 'Remove Struct', 'Manage Bridge Analysis Groups', and 'Mapping'. The main navigation bar includes 'Bridges', 'Reports', 'Admin', 'Inspection', 'Gateway', and 'Analysis'. The central area is titled 'GEOGRAPHIC INFORMATION SYSTEM OF SELECTED BRIDGES' and features a Google Maps interface. The map shows the Phoenix, Arizona area with several colored pins (red, yellow, green) indicating bridge locations. A street view window on the right shows a perspective view of South Jesse Owens Parkway, with the address '7402 South Jesse Owens Parkway, Phoenix, Arizona' and the note 'Address is approximate'. The interface includes standard map controls like zoom in/out, pan, and a compass. At the bottom of the map area, there is an 'Update Count: 0' indicator and 'Save' and 'Print' buttons.



# Bridge Analysis Groups to Assist with Preservation

- Ability to create groups based on any inventory criteria combination
- i.e. Steel bridges with ADT over 30,000.
- Apply analysis to groups.

The screenshot displays the 'Bridge Analysis Groups Quick Filter' form in the AASHTOWare Bridge Management software. The form is divided into two main sections: 'Roadway Characteristics' and 'Bridge Characteristics'. The 'Roadway Characteristics' section includes fields for Roadway On (005A), Kind of Highway (005B), Level of Service (006C), Rtes (006D), Directional Suffix (006E), Roadway Name, Kilometer Post (011), Average Daily Traffic (029), Truck Percentage (109), Number of Lanes (026A), NHS Status (104), and Functional Class (026). The 'Bridge Characteristics' section includes fields for District (002), Admin. Area (900), County (003), Owner (022), Custodian (021), On/Off State System, and Bridge Group. Below the form is a table titled 'Bridge Analysis Groups' with columns for Bridge\_Count, Roadway\_Count, and Description. The table contains two rows of data, both with a count of 0 and a description that reads 'Created by software, please replace with valid description.'

Bridge Analysis Groups	Bridge_Count	Roadway_Count	Description
<input type="checkbox"/> New Bridge_Grps 9172013_236	0	0	Created by software, please replace with valid description.
<input checked="" type="checkbox"/> New Bridge_Grps 9172013_4	0	0	Created by software, please replace with valid description.



# Bridge Management 5.2.1 SP2

- Currently in Beta testing
- Key Features
  - Support Element Submission to FHWA
  - Crystal Reports 2013
  - High Usage Optimization
  - High Priority Requests



# Stabilization & Performance Enhancements

- Usability Improvements
- Issue Resolution  
Addressed a number of key use requests and issues from previous versions
- Software Optimization  
Improved stability experienced by agencies with many users using the software concurrently

- DONE** New Export Option - NBE XML
- DONE** Create utility roll-up for Structure Health Index
- DONE** Add the same protective systems multiple times onto 1 element
- DONE** Quick Filter on Bridges > View List
- DONE** Add user controlled option to de-activate Parameters
- DONE** Hiding sub-tasks in Navigation & Field security  
Access Filter results
- DONE** Roadway (005a field) on Agency Roadway Form - Part 2
- DONE** Read-only selection in Navigation & Field Security  
Validate Bridge
- DONE** Filter selection lock out issues
- DONE** Remove 'key' from actions in drop down and grid for Work Candidates
- DONE** Element notes duplicated when element exist in multiple environments
- DONE** Roadway (005a field) on Agency Roadway Form - Part 1  
Rating Factor validation
- DONE** Database position conflicts in datadict (bridge, impact, bridge.orfactor, bridge.irfactor)
- DONE** Create Structure and Copy Structure behavior
- DONE** New Inspection created from a copy of an existing inspection should NOT copy previous user
- DONE** Element Notes display for Read-Only Roles
- DONE** Inspection status parameters need updated to include 'Archived' status





# Bridge Management 5.2.2 Highlights

- Spring 2015
- Deterioration Modeling
- New Inspection Screen
- Project Planning/Analysis
- Program Stubs
- GUID Implementation
- API integration
- Metric/English Conversion



# Deterioration Modeling

- Implement new deterioration model logic
  - Weibull approach to include time factor
- Easy to construct/new elicitation process
- Utilize AASHTO Elements
  - Protective Systems



# Deterioration Modelling

- An agency is able to see the direct impact of performing work on an asset, and how it will impact the bridge currently, as well as years into the future
- Also able to see the *direct impact of performing work at a later point in time*. This aids an agency in the decision to determine when the optimized time would be to perform the selected work.



# Deterioration Modeling and Multi Objective Analysis (example)

Work Candidates Existing for the Selected Bridge

Work Candidate	Utility	Utility Change	Cost	Benefit / Cost (\$)	Cost (\$) / Benefit	Action Year
Do Nothing	49.92					0
04 0759-NIMO-041614-27F109E126 - Approach Railing-Repair	50.5	0.58	\$2,000.00	.29	\$3	0

Page size: 10      2 items in 1 pages

Effects on Each Utility Criterion

Category name	Before WC	After WC
<b>Total Utility</b>	<b>49.92</b>	<b>50.5</b>
Condition	58.32	59.73
Deck	5	5
Superstructure	81	81
Substructure	91	91
Scour	58	58
Element ratings	63.35	100
(12) Reinforced Concrete Deck	70.95	100
(331) Reinforced Concrete Bridge Railing	63.85	100
(510) Wearing Surfaces	55.26	100
Risk	53.81	53.81
Accident	53.81	53.81
Mobility	34.2	34.2
Percent of truck detoured.	34.2	34.2

Effects on Each Element

Element	Str. Unit	Env.	Condition	Effect
(12) Re Concrete Deck	0	Low (2)	<div style="width: 100%; height: 10px; background-color: green;"></div>	<div style="width: 100%; height: 10px; background-color: green;"></div>
(331) Re Conc Bridge Railing	0	Low (2)	<div style="width: 100%; height: 10px; background-color: green;"></div>	<div style="width: 100%; height: 10px; background-color: green;"></div>
(510) Wearing Surfaces	0		<div style="width: 100%; height: 10px; background-color: green;"></div>	<div style="width: 100%; height: 10px; background-color: green;"></div>

Deterioration

★ Bridge

★ Element: 331

**Slide 20**

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T5

These are good. May want to show the Excel demo of the deterioration model interactively.

Toshiba, 06/19/2014

# Deterioration Modeling and Multi Objective Analysis (example)

## Work Candidates Existing for the Selected Bridge

Work Candidate	Utility	Utility Change	Cost	Benefit / Cost (\$k)	Cost (\$k) / Benefit	Action Year
Do Nothing	49.44					0
04 0759-NIMO-041614-27F109E126 - Approach Railing-Repair	50.5	1.06	\$2,000.00	.53	\$2	20

Page size: 10      2 items in 1 pages

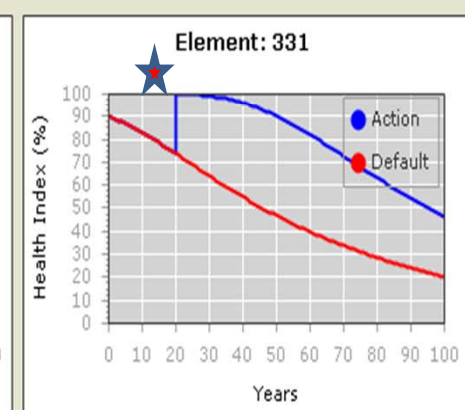
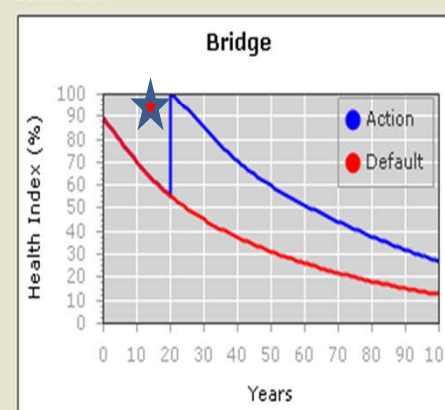
### Effects on Each Utility Criterion

Category name	Before WC	After WC
<b>Total Utility</b>	<b>49.44</b>	<b>50.5</b>
Condition	57.16	59.73
Deck	5	5
Superstructure	81	81
Substructure	91	91
Scour	58	58
Element ratings	33.13	99.91
(12) Reinforced Concrete Deck	41.39	99.72
(331) Reinforced Concrete Bridge Railing	47.56	100
(510) Wearing Surfaces	10.44	100
Risk	53.81	53.81
Accident	53.81	53.81
Mobility	34.2	34.2
Percent of truck detoured.	34.2	34.2

### Effects on Each Element

Element	Str. Unit	Env.	Condition	Effect
> (12) Re Concrete Deck	0	Low (2)		
> (331) Re Conc Bridge Railing	0	Low (2)		
> (510) Wearing Surfaces	0			

### Deterioration



# Project Planning Preservation Actions

- Project Planning
  - Ability to create and view projects .
  - Define projects by grouping together work items and bridges
  - Determine cost and effectiveness of projects and the end result of performing the selected work on the selected bridges.
  - Dashboards to view higher level numbers and effects, while also being able to drill down to specific results and details



**Slide 22**

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**T6**

Insert some screen shots from this area of development. Bentley to provide.

Toshiba, 06/19/2014

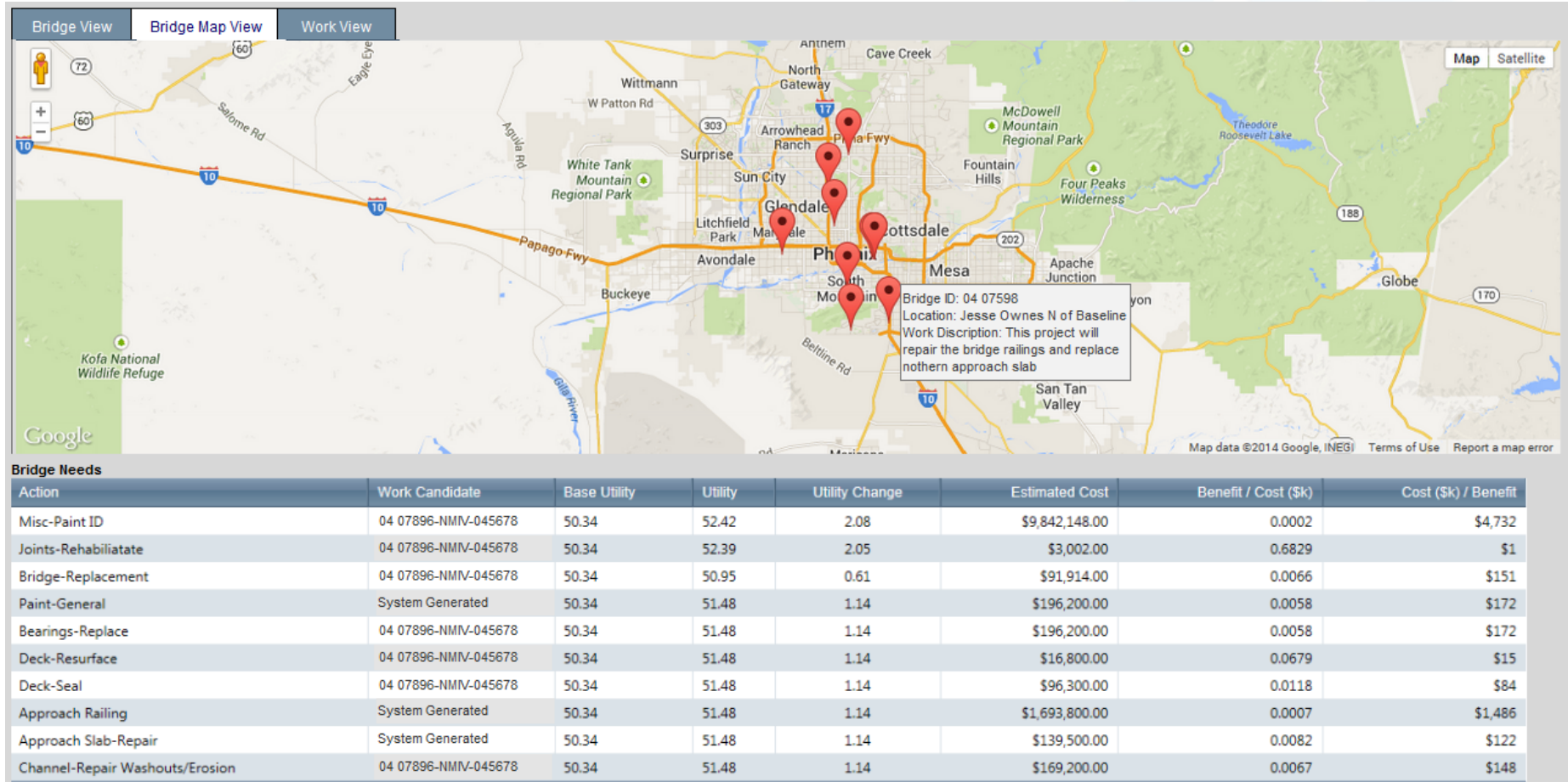


# Project Details – Bridge View

Bridge View		Bridge Map View	Work View						
Bridge ID	Location	District	County	Facility	Precise Lon	Precise Lat			
04 07598	Jesse Owens N Of Baseline	02	013	JESSE OWENS PKWY	-112.0689604	33.3797993			
Action	Work Candidate	Base Utility	Utility	Utility Change	Estimated Cost	Benefit / Cost (\$k)	Cost (\$k) / Benefit		
Misc-Paint ID	04 07896-NMIV-045678	50.34	52.42	2.08	\$9,842,148.00	0.0002	\$4,732		
Joints-Rehabilitate	04 07896-NMIV-045678	50.34	52.39	2.05	\$3,002.00	0.6829	\$1		
Bridge-Replacement	04 07896-NMIV-045678	50.34	50.95	0.61	\$91,914.00	0.0066	\$151		
Paint-General	System Generated	50.34	51.48	1.14	\$196,200.00	0.0058	\$172		
Bearings-Replace	04 07896-NMIV-045678	50.34	51.48	1.14	\$196,200.00	0.0058	\$172		
Deck-Resurface	04 07896-NMIV-045678	50.34	51.48	1.14	\$16,800.00	0.0679	\$15		
Deck-Seal	04 07896-NMIV-045678	50.34	51.48	1.14	\$96,300.00	0.0118	\$84		
Approach Railing	System Generated	50.34	51.48	1.14	\$1,693,800.00	0.0007	\$1,486		
Approach Slab-Repair	System Generated	50.34	51.48	1.14	\$139,500.00	0.0082	\$122		
Channel-Repair Washouts/Erosion	04 07896-NMIV-045678	50.34	51.48	1.14	\$169,200.00	0.0067	\$148		
> 04 07603	7TH ST S OF GREENWAY PKWY	02	013	7TH STREET	-112.0654944	33.637033			
> 04 07878	DESERT FOOT AT FRYE RD	02	013	DESERT FOOTHILLS	-112.0608444	33.2981246			
> 04 07935	INT ELLIOT RD & 48TH ST	02	013	ELLIOT ROAD & 48TH	-111.973357844922	33.3123077041172			
> 04 08003	0.5 mi N of Buckeye Rd	02	013	75th Ave	-112.2210993	33.4456691			
> 04 08508	.4 MI N OF DUNLAP RD	02	013	25TH AVENUE	-112.1122222	33.5711104			
> 04 08511	1.5 MILE EAST OF 24TH ST	02	013	CENTER FLYOVER	-112.0108333	33.4366663			
> 04 08529	SKY HARBOR AIRPORT TERM 3	02	013	PARKING ENT&EXITS	-112.0069444	33.4361107			
> 04 08530	SKY HARBOR AIRPORT TERM 3	02	013	PARKING ENT&EXIT	-112.0069444	33.4349996			
> 04 09175	19th Av N Of Indian Sch	02	013	19TH AVE	-112.0999107	33.4995774			



# Project Details – Map View



# Main Project Screen

ASHTOWare Bridge Management 5 Cassini Browser

File Sites Help

BrM Bridge Management

Welcome: Pontis User  
Database: BrM521 SQL Server Sample DB  
Help ? Account LogOut

Menu: Bridges Reports Admin Inspection Gateway Analysis Projects

Filter: BrM - None Layout: Default Jump to Project:

Project Name	Project ID	Category	Cost (\$k)	Utility Change	Benefit / Cost (\$k)	Cost (\$k) /Benefit Funding	Year	Status	Description	
<input type="checkbox"/> Rehab 1-25 Bridges	1234-2234 -21	Rehabilitation	150.5	60	.025	4.23	Federal	2014	Approved	Project Description
<input type="checkbox"/> County Bridge Painting	2235-5234 -19	Paint	15.0	55	.08	2.65		2016	Under Review	Project Description
<input type="checkbox"/> Clark St. Bridge Replace	3234-2234 -55	Replacement	200.3	100	.10	5.22	State	2015	Proposed	Project Description
<input type="checkbox"/> District 12 Joints	7344-7234 -08	Joint Seals	20.2	48	.10	2.51		2018	Proposed	Project Description
<input checked="" type="checkbox"/> US 79 Deck Paving	5234-5234 -51	Deck Work	55.6	57	.10	3.22	Program X	2017	Approved	Project Description
<input type="checkbox"/> Cobb County Vegetation	3452-2234 -21	Crew Work	13.2	56	.08	2.64		2015	Under Review	Project Description
<input type="checkbox"/> Replace 12345	3234-3345 -55	Replacement	160.7	100	.025	3.56	Maintenance	2014	Proposed	Project Description
<input type="checkbox"/> Replace 12345	7344-7234 -08	Replacement	160.7	100	.025	3.56		2014	Proposed	Project Description
<input type="checkbox"/> Replace 12345	3234-2234 -55	Replacement	160.7	100	.025	3.56	State Budget	2014	Proposed	Project Description
<input type="checkbox"/> Replace 12345	7344-7234 -08	Replacement	160.7	100	.025	3.56		2014	Proposed	Project Description

11 Projects, 1 selected

Bridge View Bridge Map View Work View

Bridge ID	Location	District	County	Facility	Precise Lon	Precise Lat																																																																																								
04 07598	Jesse Owens N Of Baseline	02	013	JESSE OWENS PKWY	-112.0689604	33.3797993																																																																																								
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> 04 07878	DESERT FOOT AT FRYE RD	02	013	DESERT FOOTHILLS	-112.0608444	33.2981246																																																																																								
> 04 07935	INT ELIOT RD & 48TH ST	02	013	ELLIOT ROAD & 48TH	-111.973357844922	33.3123077041172																																																																																								
> 04 08003	0.5 mi N of Buckeye Rd	02	013	75th Ave	-112.2210993	33.4456691																																																																																								
> 04 08508	.4 MI N OF DUNLAP RD	02	013	25TH AVENUE	-112.1122222	33.5711104																																																																																								
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> 04 09175	19th Av N Of Indian Sch	02	013	19TH AVE	-112.0999107	33.4995774																																																																																								

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# Project Details – Summary

Menu
Bridges Reports Admin Inspection Gateway Analysis Projects

Save Save & Close Split Cancel

Selected Project: New Project

Summary
Analysis
Management

**Project Details**

Project ID: 
 Alternate ID: 
 Project Status: Planning
 Project URL:

Project Name: 
 Project Type: Paint
 Year Start: 
 Year End: 
 Created by: John Smith
 Date: 5/31/2014

Project Description:

**Project Notes**

**Project Cost and Benefits**

**Indirect Cost**  
 Calculated: 20.0%  
 Entered:  %

**Project Cost**  
 Direct Cost: \$5,000,000
   
 Other Costs: 
  
 Indirect Cost: \$1,000,000
   
 Total Cost: **\$6,000,000**

Performance Measure	Average Benefit	Median Benefit	Total Benefit
Health Index	20.31	21.71	321.32
Condition	15.21	16.02	214.64
Risk	4.56	4.5	40.42
Mobility	14.84	15.00	63.24
Life cycle Cost	23.54	23.50	267.43
<b>TOTAL BENEFIT</b>			<b>1,483.43</b>

**Bridge and Work Summary**

Bridge View Map View

Bridge ID	Location	Base Utility	Utility	Utility Change	Estimated Cost	Benefit / Cost (\$K)	Cost (\$K) / Benefit
04 07598	Jesse Owens N Of Baseline	50.34	60.44	10.04	\$12,345,000	.1245	\$2,136
<b>Action</b>							
Misc-Paint ID	04 07896-NMIV-045678	50.34	52.42	2.08	\$9,842,148.00	0.0002	\$4,732
Joints-Rehabilitate	04 07896-NMIV-045678	50.34	52.39	2.05	\$3,002.00	0.6829	\$1
Bridge-Replacement	System Generated	50.34	50.95	0.61	\$91,914.00	0.0066	\$151
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Bearings-Replace	04 07896-NMIV-045678	50.34	51.48	1.14	\$196,200.00	0.0058	\$172
Deck-Resurface	System Generated	50.34	51.48	1.14	\$16,800.00	0.0679	\$15
Deck-Seal	04 07896-NMIV-045678	50.34	51.48	1.14	\$96,300.00	0.0118	\$84
Approach Railing	System Generated	50.34	51.48	1.14	\$1,693,800.00	0.0007	\$1,486
Approach Slab-Repair	04 07896-NMIV-045678	50.34	51.48	1.14	\$139,500.00	0.0082	\$122
Channel-Repair Washouts/Erosion	04 07896-NMIV-045678	50.34	51.48	1.14	\$169,200.00	0.0067	\$148
04 07603	7TH ST S OF GREENWAY PKWY						
04 07878	DESERT FOOT AT FRYE RD	50.34	60.44	10.04	\$12,345,000	.1245	\$2,136
04 07935	INT ELIOT RD & 48TH ST	62.34	75.44	13.04	\$3,874,000	.2134	\$1,428
04 08003	0.5 mi N of Buckeye Rd	50.34	60.44	10.04	\$12,345,000	.1245	\$2,136
04 08508	.4 MI N OF DUNLAP RD	62.34	75.44	13.04	\$3,874,000	.2134	\$1,428
04 08511	1.5 MILE EAST OF 24TH ST	50.34	60.44	10.04	\$12,345,000	.1245	\$2,136
04 08529	SKY HARBOR AIRPORT TERM 3	62.34	75.44	13.04	\$3,874,000	.2134	\$1,428
04 08530	SKY HARBOR AIRPORT TERM 3	50.34	60.44	10.04	\$12,345,000	.1245	\$2,136
04 09175	19th Av N Of Indian Sch	62.34	75.44	13.04	\$3,874,000	.2134	\$1,428

Page size: 10
56 items in 6 pages



# Project Details – Analysis

**Menu**

- View List
- Manage Layouts
- Manage Filters
- Edit Project
- Create Project
  - Bridge Query
  - Project Details
- Upload Project
- Combine Projects
- Delete Project
- Manage Programs
- Manage Funding

Bridges Reports Admin Inspection Gateway Analysis Projects
Save Save & Close Split Cancel

Selected Project: New Project

Summary
Analysis
Management

Selected Bridge: 04 07603

Bridge Work Description:

**Description**

Route:	00000	Milepoint:	mi
District:	District 2	County:	Maricopa
Owner:	City/Municipal Hwy Agenc	Area:	02B - Paul Goldsmith
Material:	5 Prestressed Concrete	Resp:	City/Municipal Hwy Agenc
Scour:	6 Calcs not made	Design:	05 Multiple Box Beam

**Conditions**

Deck:	4 Poor	Superstr:	6 Satisfactory
Substr:	7 Good	Culvert:	N N/A (NBI)
Structure:	8 Protected	Deck Index:	50.07
Superstr Index:	45.89	Substr Index:	
Culvert Index:		Structure Ht:	42.16

**Current Scaled Performance**

Condition:	59.32	Risk:	53.81
Lifecycle:		Mobility:	34.2

**Recent Completed Work**

Year	Cost (\$k)
No recently completed work found.	

**Sufficiency**

Rating:	97.5	SD/FO:	Not Deficient
---------	------	--------	---------------

**Work Candidates Existing for the Selected Bridge**  Selected Work  All Work

Work Candidate	Utility	Utility Change	Cost	Benefit / Cost (\$k)	Cost (\$k) / Benefit	Action Year
Do Nothing	50.34		\$45,000	.156	\$12	0
04 0759-JQX-031914-6ABA193714 - Approach Railing-Repair	52.5	2.16	\$125,000	.032	\$0	0
04 0759-NIMO-042114-E90D693A52 - Approach Railing-Repair	52.5	2.16	\$25,000	.141	\$0	0
04 0759-NIMO-091313-E2A8C9DA58 - Approach Slab-Repair	51.48	1.14	\$150,000	.114	\$9	0
A-DOT001-057F6A47-0000006A - Bridge Rail-Repair	50.34	0	\$75,000	.176	\$7	0
A-DOT001-057F6A47-0000006D - Deck-Rehab	50.34	0	\$100,000	.198	\$10	0

6 items in 1 pages

**Effects on Each Utility Criterion**

Category name	Before WC	After WC
<b>Total Utility</b>	<b>50.34</b>	<b>52.5</b>
Condition	59.32	61.88
Deck	42	98
Superstructure	81	81
Substructure	91	91
Scour	58	58
Element ratings	52.44	62.89
(12) Reinforced Concrete Deck	32.04	48.46
(38) Reinforced Concrete Deck	31.98	48.42
(65) Other Slab	100	100
(116) Reinforced Concrete Closed Web/Box Girder	100	100
(320) Prestress Concrete Approach Slab	10.66	10.66
(321) Reinforced Concrete Approach Slab	10.66	10.66
(331) Reinforced Concrete Bridge Railing	28.42	100
(520) Deck/Slab Protection Systems	100	100
(521) Concrete Protective Coating	10.66	10.66
(144) Reinforced Concrete Arch	100	100
Risk	53.81	57.58
Accident	53.81	57.58
Mobility	34.2	34.2
Percent of truck detoured.	34.2	34.2

**Effects on Each Element**

Element	Str. Unit	Env.	Condition	Effect
(12) Re Concrete Deck	0	Low (2)	<div style="width: 100%; height: 10px; background: linear-gradient(to right, green, yellow, red);"></div>	<div style="width: 100%; height: 10px; background: linear-gradient(to right, green, yellow, red);"></div>
(12) Re Concrete Deck	0	Mod. (3)	<div style="width: 100%; height: 10px; background: linear-gradient(to right, green, yellow, red);"></div>	<div style="width: 100%; height: 10px; background: linear-gradient(to right, green, yellow, red);"></div>
(38) Re Concrete Slab	0	Low (2)	<div style="width: 100%; height: 10px; background: linear-gradient(to right, green, yellow, red);"></div>	<div style="width: 100%; height: 10px; background: linear-gradient(to right, green, yellow, red);"></div>
(65) Other Slab	0	Ben. (1)	<div style="width: 100%; height: 10px; background: linear-gradient(to right, green, yellow, red);"></div>	<div style="width: 100%; height: 10px; background: linear-gradient(to right, green, yellow, red);"></div>
(116) Re Conc Stringer	0	Ben. (1)	<div style="width: 100%; height: 10px; background: linear-gradient(to right, green, yellow, red);"></div>	<div style="width: 100%; height: 10px; background: linear-gradient(to right, green, yellow, red);"></div>
(144) Re Conc Arch	0	Ben. (1)	<div style="width: 100%; height: 10px; background: linear-gradient(to right, green, yellow, red);"></div>	<div style="width: 100%; height: 10px; background: linear-gradient(to right, green, yellow, red);"></div>
(320) Pre Conc Appr Slab	0	Low (2)	<div style="width: 100%; height: 10px; background: linear-gradient(to right, green, yellow, red);"></div>	<div style="width: 100%; height: 10px; background: linear-gradient(to right, green, yellow, red);"></div>
(321) Re Conc Approach Slab	0	Low (2)	<div style="width: 100%; height: 10px; background: linear-gradient(to right, green, yellow, red);"></div>	<div style="width: 100%; height: 10px; background: linear-gradient(to right, green, yellow, red);"></div>
(331) Re Conc Bridge Railing	0	Low (2)	<div style="width: 100%; height: 10px; background: linear-gradient(to right, green, yellow, red);"></div>	<div style="width: 100%; height: 10px; background: linear-gradient(to right, green, yellow, red);"></div>
(12) Re Concrete Deck	1	Mod. (3)	<div style="width: 100%; height: 10px; background: linear-gradient(to right, green, yellow, red);"></div>	<div style="width: 100%; height: 10px; background: linear-gradient(to right, green, yellow, red);"></div>

**Deterioration**

**Bridge**

**Element**

# Cross browser compatibility

- Continuing to update BrM with latest support for all major browsers
  - IE 8,9,10+
  - Chrome
  - Firefox
  - Safari
- Allow for <sup>T8</sup> newer technologies to be integrated in the future (e.g. HTML5)



## Slide 28

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- T7      Need to mention move to English units  
Need to show support for element XML  
Discuss our plans to incorporate MAR reports  
Toshiba, 06/19/2014
  
- T8      Suggest deleting this bullet. Are we not stabile?  
Toshiba, 06/19/2014

# Metric Assessment Reports

- Working with FHWA to include logic used for NBIS Metric Assessment Reports
- Ability to use current data to check NBIS Metric compliance





# User Group Priorities

User Group Concern/Priority Description	Alert Status	Priority Level	Response
FHWA Metrics report	FHWA		Requested 23 metric logic from FHWA
FHWA translator	FHWA		Requested 23 metric logic from FHWA
#1 priority - 2013 Elements	High	1	Complete in 5.2.1
Inspections TAG requested to look at layout and rules	High	2	Underway new Inspection Screens in 5.2.2
Software issues resolution tracking	High	3	Complete
Resurrect Database TAG (Todd Thompson lead)	High	4	Complete
Concerns about possible conflict of interest within contractor in terms of competing/complementary products, etc.	High	5	Complete. The contract executed between AASHTO and Bentley Systems, Inc. addresses the issue of intellectual property and conflict of interest.
New coding guide verification	High	6	Underway to be included in 5.2.1 SP2
Database in English units ONLY	High	7	Underway to be included in 5.2.2
Clarification of developer's priority :release schedule vs. fitting in all items			Ongoing. Content versus delivery is regularly prioritized by the Task Force. Users are updated quarterly.
Crystal Reports version is fully functional with BrM/Pontis	Med		Underway to be included in 5.2.1 SP2
Help file refers back to old version (help file should pertain exclusively to current version)	Med		In Progress. Working to consolidate and improve the help file and manuals into a more useful configuration. Focus on the development of the 5.2.X user manual is a top priority. Documentation for 5.2.1 will be a living document (both online and printable). 5.2.X documentation will not include references to older versions of the software. The documentation will be delivered after the 5.2.1. release.
Update the FHWA edit checks to include the most recent changes.	Med		Complete. Updated in 5.2.1.



Questions?

**AASHTOWare Bridge Management**

[www.AASHTOWareBridge.com](http://www.AASHTOWareBridge.com)

