

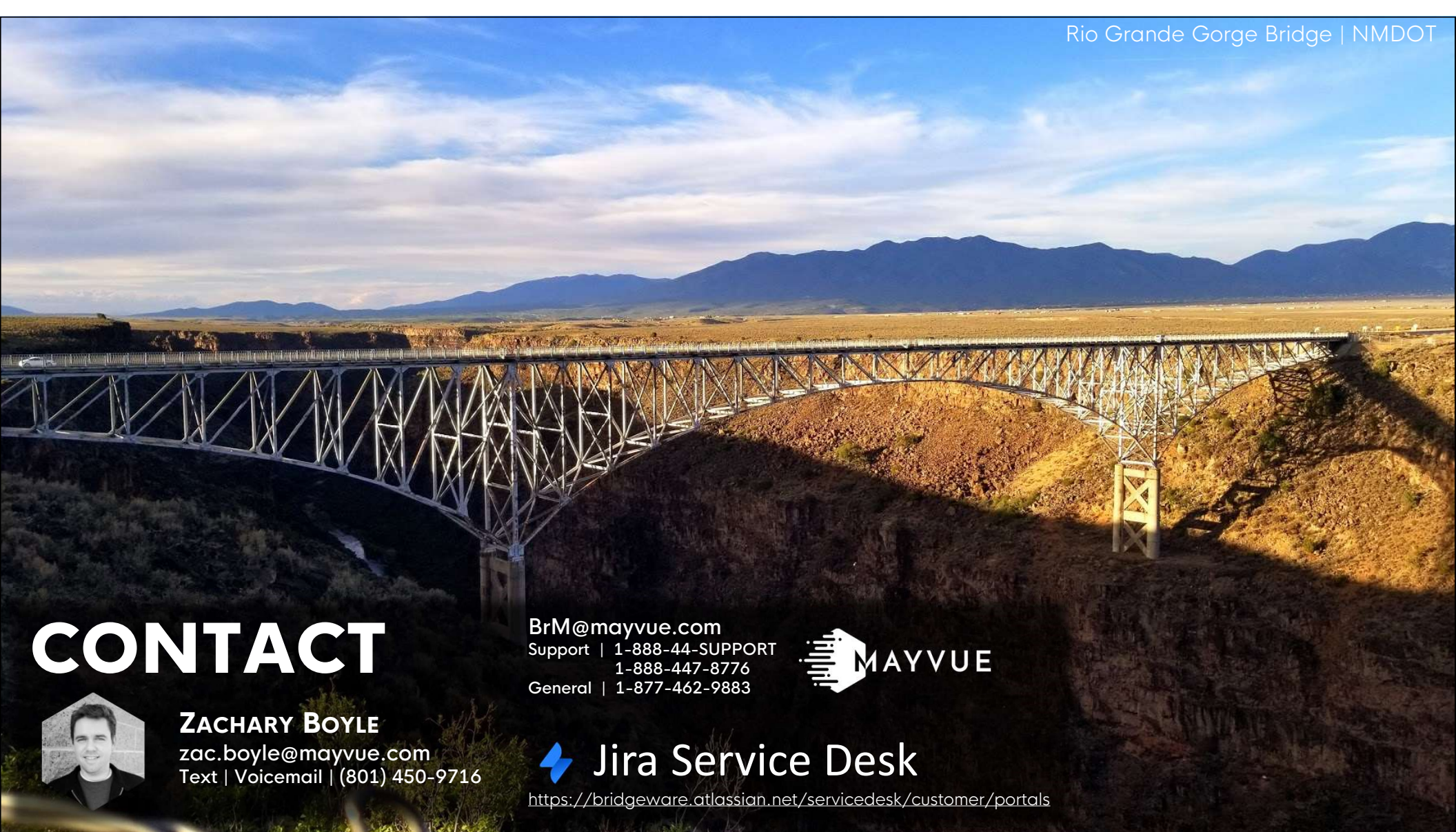


# 0 to 60 on Optimization

User Group Meeting September 17, 2019 | Louisville, Kentucky



Getting up to running the first optimization is not the end of a long process, it's really the first step. We'll demonstrate that here.



# CONTACT



**ZACHARY BOYLE**

zac.boyle@mayvue.com

Text | Voicemail | (801) 450-9716

BrM@mayvue.com  
Support | 1-888-44-SUPPORT  
1-888-447-8776  
General | 1-877-462-9883



 **Jira Service Desk**

<https://bridgeware.atlassian.net/servicedesk/customer/portals>

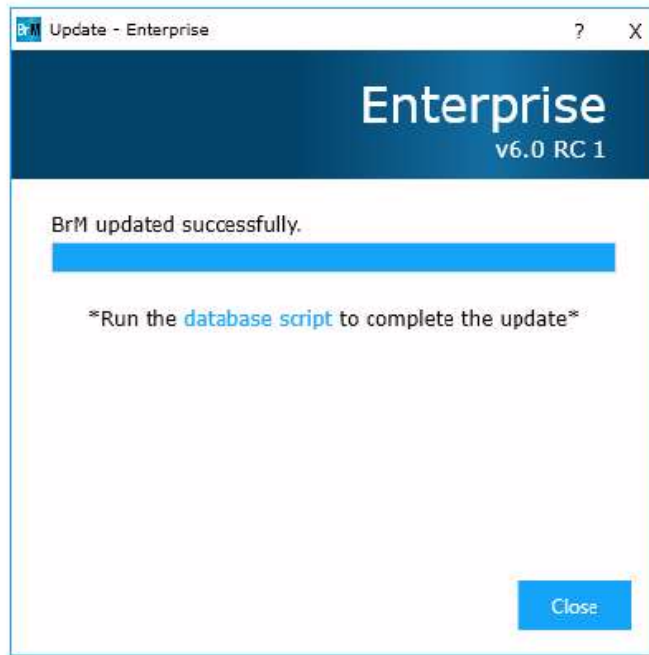


# INSTALL BrM



# INSTALL BrM

0. Install BrM, or get it hosted



Step 0: Get BrM up. Whether you install it, or have us host a site for you. Get BrM.



# GET BRIDGE DATA

# GET BRIDGE DATA

1. Download your data from FHWA if you don't already have it
  1. Empty db

The screenshot shows the BrM Bridge Management software interface. The top header displays the user 'USER, PONTIS' and the page title 'Bridges > View List'. Below the header, there are two dropdown menus: 'Filter: BrM - None' and 'Layout: Default'. The main content area shows 'No records to display' and 'Total Bridges: 0'. The left sidebar contains a navigation menu with the following items: BRIDGES, TUNNELS, REPORTS, ADMIN, INSPECTION, GATEWAY, ANALYSIS, and PROJECTS. The BrM logo is visible in the top left corner of the interface.

Step 1: if you do not collect data in BrM, then you need to get your data. Here I will show you how you can get it from the Fed file. But if you use InspectTech, InspectX, or a custom collector, get your data in. See Paul's presentation on webservice if needed.



# GET BRIDGE DATA

## 2. Download NBI & NBE

The screenshot shows the FHWA Bridges & Structures website. The URL is <https://www.fhwa.dot.gov/bridge/nbi.cfm>. The navigation menu includes Structures, Geotech, Hydraulics, and Safety and Management. Under Safety and Management, there are links for Bridge Inspection, Tunnel Inspection, Bridge Preservation, Bridge Management, and Bridge Programs. The Bridge Inspection section is expanded to show Load Rating, NBIS, and NBI. The NBI link is highlighted. The main content area is titled "National Bridge Inventory (NBI)" and contains a list of links:

- [NBI Regulations, Memos, and Documents](#)
- [LTBP InfoBridge Web Portal](#) (NBI data querying, analysis, and visualization tool. Google Chrome recommended.)
- [Download NBI Data](#)
- [Tables of Frequently Requested NBI Information](#)
- [Recording and Coding Guide for the Structure Inventory and Appraisal of the Nations Bridges](#)
  - [Errata Sheets for Coding Guide](#)
  - [Record Format](#)
- [NBI Submittal File Check](#)
  - [NBI Data Checks](#)
- [FIPS/ANSI Codes](#)
- [Download NBI Element Data](#)
- [Specification for the National Bridge Inventory Bridge Elements](#)
- [NBI Element File Check](#)
  - [NBI Element Checks](#) (.pdf, 0.1 mb)
  - [XML Schema](#)
  - [Example XML](#) (4 mb)

Updated: 05/13/2019

INSTALL BrM

GET BRIDGE DATA

MODIFY DEFAULT SETTINGS

CREATE FIRST PROGRAM

REFINE

In this case I'm going to go get the FHWA file for a state. This won't have custom elements, and I won't be able to use NBI deterioration (because I won't have the NBI history), but this will run it the first time.

# GET BRIDGE DATA

## 3. Import NBI & NBE

The screenshot displays the BrM Gateway > Import interface. The user is identified as 'USER, PONTIS'. The 'Import what?' dropdown is set to 'NBI File'. The 'Input File' field shows '2018 Louisiana NBI Data File.txt' with a 'Remove' button. The 'Options' section includes checkboxes for 'Update Only' and 'Create New Inspections', and radio buttons for 'Metric' (selected) and 'English'. A blue arrow points to the 'Remove' button next to the file name. A second screenshot below shows the same interface but with the file name changed to '2018 Louisiana NBI Data File.nbi', indicating the file extension change.



INSTALL BrM

GET BRIDGE DATA

MODIFY DEFAULT SETTINGS

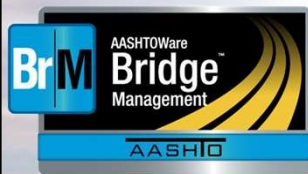
CREATE FIRST PROGRAM

REFINE

- BRIDGES
- TUNNELS
- REPORTS
- ADMIN
- INSPECTION
- GATEWAY
- EXPORT
- IMPORT
- CHECK OUT
- CHECK IN
- OVERRIDE
- TUNNELS

The file you download is a .txt file but BrM expects it as .nbi. So change the file extension.





# GET BRIDGE DATA

## 3. Import NBI & NBE

The screenshot shows the 'Gateway > Import' page in the BrM application. The left sidebar contains a navigation menu with items: BRIDGES, TUNNELS, REPORTS, ADMIN, INSPECTION, GATEWAY, EXPORT, IMPORT, CHECK OUT, CHECK IN, OVERRIDE, TUNNELS, and ANALYSIS. The main content area shows the 'Import what?' dropdown set to 'NBI File' and the 'Input File' field containing '2018 Louisiana NBI Data File.nb'. Below this, there are 'Options' for 'Update Only' and 'Create New Inspections', both checked. There is also an 'Import UOM' section with radio buttons for 'Metric' and 'English'. At the bottom of the main area, a loading spinner is present with the text 'Import request being processed. Please wait.....'.

- On Mayvue demo servers (not the fast production ones):
- Louisiana's 12,900 bridges took 51 minutes
  - The import will continue even if the page times out.
  - You can run this script periodically to see when the count stops climbing.

```
SELECT count(*) FROM bridge
```

INSTALL BrM  
GET BRIDGE DATA  
MODIFY DEFAULT SETTINGS  
CREATE FIRST PROGRAM  
REFINE

This will take a while, as you can see.

# GET BRIDGE DATA

## 3. Import NBI & NBE

1	<code>&lt;?xml version="1.0"</code>	1	<code>&lt;?xml version="1.0" standalone="yes" ?&gt;</code>
2	<code>&lt;FHWAELEMENT&gt;</code>	2	<code>&lt;FHWAElement&gt;</code>
3	<code>&lt;FHWAED&gt;</code>	3	<code>&lt;FHWAED&gt;</code>
4	<code>&lt;STATE&gt;22&lt;/STATE&gt;</code>	4	<code>&lt;STATE&gt;22&lt;/STATE&gt;</code>
5	<code>&lt;STRUCNUM&gt;02260</code>	5	<code>&lt;STRUCNUM&gt;022600000020029&lt;/STRUCNUM&gt;</code>
6	<code>&lt;EN&gt;38&lt;/EN&gt;</code>	6	<code>&lt;EN&gt;38&lt;/EN&gt;</code>
7	<code>&lt;TOTALQTY&gt;12250</code>	7	<code>&lt;TOTALQTY&gt;12250&lt;/TOTALQTY&gt;</code>
8	<code>&lt;CS1&gt;12250&lt;/CS1&gt;</code>	8	<code>&lt;CS1&gt;12250&lt;/CS1&gt;</code>
9	<code>&lt;CS2&gt;0&lt;/CS2&gt;</code>	9	<code>&lt;CS2&gt;0&lt;/CS2&gt;</code>
10	<code>&lt;CS3&gt;0&lt;/CS3&gt;</code>	10	<code>&lt;CS3&gt;0&lt;/CS3&gt;</code>
11	<code>&lt;CS4&gt;0&lt;/CS4&gt;</code>	11	<code>&lt;CS4&gt;0&lt;/CS4&gt;</code>

FHWA NBE files don't follow the FHWA NBE standard, remember to change the first and last line to have element in lower case.

INSTALL BrM

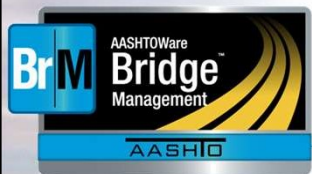
GET BRIDGE DATA

MODIFY DEFAULT SETTINGS

CREATE FIRST PROGRAM

REFINE

The NBE file needs the capitals changed to lower case.




# GET BRIDGE DATA

## 3. Import NBI & NBE

Gateway > Import

Import what?

Input File:  2018LA\_ElementData.xml [Remove](#)

**Options**

- Update Only
- Create New Inspections

**Import UOM**

Metric  English

INSTALL BrM

GET BRIDGE DATA

MODIFY DEFAULT SETTINGS

CREATE FIRST PROGRAM

REFINE

Then import it too. Because the NBE file doesn't have a date – the results will attach to or overwrite the latest inspection in BrM (and in our case, those will have been made by the NBI file import).



# GET BRIDGE DATA

## 3. Import NBI & NBE

Gateway > Import

Import what? NBE File

Input File: 2018LA\_ElementData.xml Remove


**Options**

- Update Only
- Create New Inspections

**Import UOM**

Metric  English

On Mayvue demo servers (not the fast production ones):  
Louisiana's 12,900 bridges took 2 hours 11 minutes



**Import request being processed. Please wait.....**

INSTALL BrM

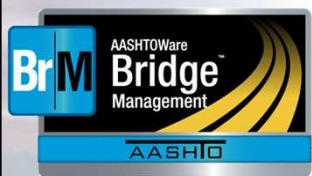
GET BRIDGE DATA

MODIFY DEFAULT SETTINGS

CREATE FIRST PROGRAM

REFINE

Give it some time.



# GET BRIDGE DATA

## 4. Populate Deck Area, Check NBI and Elem Insp

```
UPDATE bridge
SET deck_area= CASE WHEN length <=0 THEN NULL
                 WHEN deckwidth > 0 THEN length * deckwidth
                 WHEN (SELECT x.roadway_gd FROM roadway x WHERE
                       x.bridge_gd= bridge.bridge_gd and x.on_under='1') IS NULL THEN NULL
                 WHEN (SELECT x.roadwidth FROM roadway x WHERE
                       x.bridge_gd= bridge.bridge_gd and x.on_under='1') <= 0 THEN NULL
                 ELSE (length * (SELECT x.roadwidth FROM roadway x WHERE
                       x.bridge_gd = bridge.bridge_gd and x.on_under='1'))
                 END
UPDATE bridge SET deck_area = (ROUND(deck_area, 1));
```

```
UPDATE inspevnt SET nbiinspdone = 1;
```

```
UPDATE inspevnt SET elinspdone = 1;
```

INSTALL BrM

GET BRIDGE DATA

MODIFY DEFAULT SETTINGS

CREATE FIRST PROGRAM

REFINE

Populate the deck area and check some boxes.



# GET BRIDGE DATA

## 5. Create Filter for state maintained bridges

INSTALL BrM

GET BRIDGE DATA

MODIFY DEFAULT SETTINGS

CREATE FIRST PROGRAM

REFINE

USER, PONTIS

Bridges > Manage Filters > Edit Filter

**Edit Filters**

Context: Bridge List Filter: New filter New  Metric  English

**Filter Info**

Description:

Shared  Active  Access Filter  Shared with Group

**Criteria**

Tables

- bridge
- inspevnt
- roadway
- structure\_unit
- userbrdg
- userinsp

Fields

- createdatetime
- createuserkey
- crewhrs
- custodian
- deck\_area
- deckwidth

bridge.custodian

- Not Applicable (P)
- State Highway Agency
- Town/Township Hwy Agency
- Unknown (P)

Delete

Add Criteria Clear Delete Selected

Now I'm making a filter for bridges which are state owned (exclude forest, military and Indian affairs bridges). You could filter to NHS bridges too if you'd like.



**INSTALL BrM**

**GET BRIDGE  
DATA**

**MODIFY  
DEFAULT  
SETTINGS**

**CREATE FIRST  
PROGRAM**

**REFINE**

# **MODIFY DEFAULT SETTINGS**

# MODIFY DEFAULT SETTINGS

1. Give mobility and risk 0 weight

USER, PONTIS

Admin > Modeling Config > Utility

**Components**

```
graph TD
    TotalUtility[Total Utility] --- Condition[Condition Weight: 40]
    TotalUtility --- LifeCycle[LifeCycle Weight: 30]
    TotalUtility --- Mobility[Mobility Weight: 0]
    TotalUtility --- Risk[Risk Weight: 0]
    Condition --- ElementRatings[Element ratings Weight: 90]
    Condition --- NBIRatings[NBI ratings Weight: 10]
```

**Criterion Properties**

Name: Risk Weight: 0

Type: Field

Table: Column:

Save

These tweaks are not necessary, I just want to show that you can do it if you'd like. A lot of states like to work with condition first and come back to mobility and risk later when they're ready to set it up.



# MODIFY DEFAULT SETTINGS

2. Increase Replacement Cost from \$400/sqft to \$450/sqft

INSTALL BrM  
GET BRIDGE DATA  
MODIFY DEFAULT SETTINGS  
CREATE FIRST PROGRAM  
REFINE

USER, PONTIS Admin > Modeling Config > Action Defs

Action Name	Description	Example	Code	Enabled	Visible	Cost	Unit	Check	Check
Rehab Deck - Network	Repair deck, joints and parapets	Example	999	<input checked="" type="checkbox"/>	<input type="checkbox"/>		Network	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Rehab Sub - Network	Repair Columns, Piers, Abutments, Piles, Walls	Example	999	<input checked="" type="checkbox"/>	<input type="checkbox"/>		Network	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Rehab Super - Network	Repair beams, paint and bearings	Example	999	<input checked="" type="checkbox"/>	<input type="checkbox"/>		Network	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Repaint Super/Sub - Network	Repair Paint	Example	999	<input checked="" type="checkbox"/>	<input type="checkbox"/>		Network	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Replace Deck - Network	Replace Deck	Example	999	<input checked="" type="checkbox"/>	<input type="checkbox"/>		Network	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Replace Structure - Network	Replace Structure	Example	999	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	\$	Network	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Replace Super - Network	Replace Super Elements	Example	999	<input checked="" type="checkbox"/>	<input type="checkbox"/>		Network	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**Associated Benefit Groups for Action Replace Structure - Network**

Metric  English

Benefit Groups		Cost	Unit
Please Select	Add		
Replace Approach Slabs	<input type="checkbox"/>		
Replace Culvert	<input type="checkbox"/>		
Replace Deck	<input type="checkbox"/>		
Replace Railings	<input type="checkbox"/>		
Replace Sub	<input type="checkbox"/>		
Replace Super	<input type="checkbox"/>		
Replace Wearing Surface	<input type="checkbox"/>		

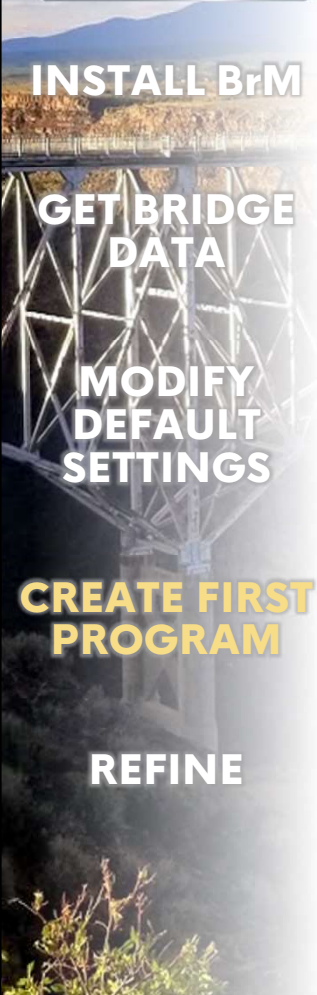
Overriding Direct Cost (overrides unit-costs) =

Enabled	Field Name	Cost Per Unit	Unit
<input checked="" type="checkbox"/>	Deck Area	\$ 450	sq.ft

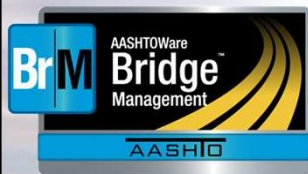
Unit Costs =

ID	Element Name	Separated	Cost Per Unit	Unit	?	
12	Re Concrete Deck (Replace)		\$	sq.ft	<input checked="" type="checkbox"/>	<input type="checkbox"/>
13	Pre Concrete Deck (Replace)		\$	sq.ft	<input checked="" type="checkbox"/>	<input type="checkbox"/>
15	Pre Concrete Top Flange (Replace)		\$	sq.ft	<input checked="" type="checkbox"/>	<input type="checkbox"/>
16	Re Conc Top Flange (Replace)		\$	sq.ft	<input checked="" type="checkbox"/>	<input type="checkbox"/>
28	Steel Deck - Open Grid (Replace)		\$	sq.ft	<input checked="" type="checkbox"/>	<input type="checkbox"/>
29	Steel Deck - Conc Fill Grid (Replace)		\$	sq.ft	<input checked="" type="checkbox"/>	<input type="checkbox"/>
30	Steel Deck - Orthotropic (Replace)		\$	sq.ft	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The most sensitive cost is the cost of bridge replacement. \$200/sqft in Kanas to \$600/sqft in Alaska, set this value before your first run to just get a little bit closer.



# CREATE FIRST PROGRAM



# CREATE FIRST PROGRAM

3. Create and Run a Program
  1. Create a program
  2. 3 or 4 year optimization

INSTALL BrM

GET BRIDGE DATA

MODIFY DEFAULT SETTINGS

CREATE FIRST PROGRAM

REFINE

## Programs > Create/Edit Programs

### Program Editor

#### Program Details

Program Alternate ID:	<input type="text"/>	Program Status:	<input type="text" value="Planned"/>	Program Start Year:	<input type="text" value="2019"/>
Program Name:	<input type="text" value="First Test Run"/>	Program URL:	<input type="text"/>	Program End Year:	<input type="text" value="2023"/>
Program Objectives:	<input type="text" value="Undefined"/>	Structure Weights Formula:	<input type="text" value="BrM Criticality Example"/>	Required Minimum Cost:	<input type="text" value="50000"/>
Bridge Filter:	<input type="text" value="State Maintained"/>	$\{\text{bridge.deck\_area}\} * (2 - (300000 - \{\text{roadway.ADTTOTAL}\}) / 300000)$			

Program Description:

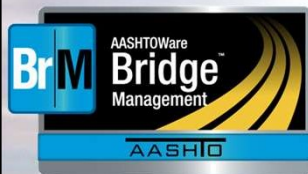
Program Notes:

#### Configuration Data

NBI Deterioration Method:	<input type="text" value="NbiConverter"/>	NBI Converter Profile:	<input type="text" value="BrM Default"/>	<input checked="" type="checkbox"/> Residual HiX Approximation	
Long-Term Analysis Period:	<input type="text" value="50"/>	Discount Rate:	<input type="text" value="4"/>	Indirect Cost Percentage:	<input type="text"/>
Inflation Estimation Method:	<input type="text" value="None"/>				

#### Network Policies

Make your first program. See the yellow-highlighted fields.



# Create First Program

Pick between Discount and Inflation  
Run with all default actions at first.

INSTALL BrM

GET BRIDGE DATA

MODIFY DEFAULT SETTINGS

CREATE FIRST PROGRAM

REFINE

Programs > Create/Edit Programs

### Configuration Data

NBI Deterioration Method:  NBI Converter Profile:   Residual HiX Approximation

Long-Term Analysis Period:  Discount Rate:  Indirect Cost Percentage:

Inflation Estimation Method:  Inflation Rate:

### Network Policies

Optimize Work-Candidates

Unassigned Network Policies:	Assigned Network Policies:
<input type="text"/>	Replace Deck Rehab Sub Rehab Deck First Protective System Rehab Culvert Replace Culvert Rehab Super Replace Bridge Preserve Deck Paint Super/Sub Preserve Super / Sub

These are the default settings, but a good thing to work with out of the box.

# Create First Program

Default Utility, all of the state maintained bridges in one subdivision.

INSTALL BrM

GET BRIDGE DATA

MODIFY DEFAULT SETTINGS

CREATE FIRST PROGRAM

REFINE

Programs > Create/Edit Programs

Assign All
Unassign All

**Utility Weights Profile**

Utility Profile: Sample Create/Edit Utility Profile

**Utility Profile's Weights**

- Total Utility
- Condition (40->40)
- LifeCycle (30->30)
- Mobility (0->0)
- Risk (0->0)

**Subdivision Profile**

Subdivision Profile: Network-Wide Create/Edit Subdivision Profile

**Filter Segments**

Add Filter Segments:

Index	Combinations	# of Bridges	
1	All Bridges	7812	✘
<b>Total:</b>		<b>7812</b>	

7800 bridges, it will take a little while to run.

# Create First Program

Add the typical performance measures of Pct Good and Pct Poor.

INSTALL BrM

GET BRIDGE DATA

MODIFY DEFAULT SETTINGS

CREATE FIRST PROGRAM

REFINE

Programs > Performance Measures

**Performance Measures**

Program:  Scenario:

**Select Performance Measures**

Performance Measures	Best Value	Worst Value		
Utility (Sample)	100.00	0.00		
Health Index	100.00	0.00		
Pct. Good (Surface-Based)	100.00	0.00		
Pct. Poor (Surface-Based)	0.00	100.00		

**Performance Constraints by Segment**

Segment	Utility (Sample)	Health Index	Pct. Good (Surface-Based)	Pct. Poor (Surface-Based)
ALL	Min: <input type="text"/> Target: <input type="text"/>	Min: <input type="text"/> Target: <input type="text"/>	Target: <input type="text"/>	Target: <input type="text"/>

Percent Good and Poor by surface area are the most common performance measures.



# Create First Program

Distribute a budget.

Programs > Funding Allocation

Program:  Scenario:

**Funding Allocation**

A new Funding Source Target in Projects > Funding Sources may be created for new Funding Allocations  
 No Funding Sources

**Budget Distribution**

**Quick Distribution**

Override budget

Total budget: \$160,000,000  
 Total allocated funds: \$0

	2019	2020	2021	2022	2023
Identified annual funds:	\$0	\$0	\$0	\$0	\$0
Additional funds:	<input type="text" value="\$32,000,000"/>	<input type="text" value="\$32,000,000"/>	<input type="text" value="\$32,000,000"/>	<input type="text" value="\$32,000,000"/>	<input type="text" value="\$32,000,000"/>
Total annual budget:	\$32,000,000	\$32,000,000	\$32,000,000	\$32,000,000	\$32,000,000
Allocated funds:	\$0	\$0	\$0	\$0	\$0
Available Funds:	\$32,000,000	\$32,000,000	\$32,000,000	\$32,000,000	\$32,000,000

Budget distribution by program's segments: Input method:  Actua

INSTALL BrM

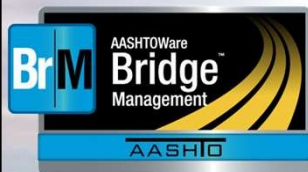
GET BRIDGE DATA

MODIFY DEFAULT SETTINGS

CREATE FIRST PROGRAM

REFINE

We give it a budget.



# Create First Program

Run your first optimization.

## Programs > Program Planning

### Optimize Program

Program:

Scenario:

Optimization Method:

Keep assigned projects:

Run on all scenarios:

Respect external frozen projects:

### Program Information

Start Year: 2019  
End Year: 2023  
Utility Weight Profile: Sample

Assigned Network Policies:

Subdivision Profile: Network-Wide  
NBI Deterioration Method: NbiConverter  
NBI Converter Profile: BrM Default

### Assigned Projects

Segment:  Year:

INSTALL BrM

GET BRIDGE DATA

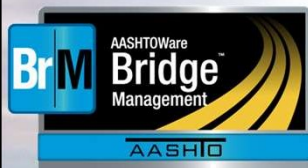
MODIFY DEFAULT SETTINGS

CREATE FIRST PROGRAM

REFINE

And then we click run.





# Create First Program

Run your first optimization.

Programs > Program Planning

**Optimize Program**

Program:    
 Scenario:    
 Optimization Method:    
 Keep assigned projects:    
 Run on all scenarios:    
 Respect external frozen projects:

**Program Information**

Start Year: 2019   
 End Year: 2023   
 Utility Weight Profile: Sample   
 Assigned Network Policies:    
 Subdivision Profile: Network-Wide   
 NBI Deterioration Method: NbiConverter   
 NBI Converter Profile: BrM Default

**Optimization Progress**

Optimizing Program...    
 3%   
 Progress Messages

On Mayvue demo servers (not the fast production ones):  
Louisiana's 12,900 bridges  
4 years  
Default Network Policies

took 1 hour 6 minutes

INSTALL BrM

GET BRIDGE DATA

MODIFY DEFAULT SETTINGS

CREATE FIRST PROGRAM

REFINE

If it doesn't move in the first 5 minutes, then the optimizer is likely listening to the wrong database. Let us know and we can get you on the right path quickly.

# Create First Program

Review.

Programs > Program Planning

**Optimization Progress**

Complete!

**Progress Messages**

- Initializing Program Optimization... 9/6/2019 10:22:24 AM
- Processing Scenario 'Default'. 9/6/2019 10:23:12 AM
- Getting Action Sequences 9/6/2019 10:23:12 AM
- Getting Utility Tree 9/6/2019 10:23:14 AM
- Processing Segments... 9/6/2019 10:23:14 AM
- Retrieving Budgets 9/6/2019 10:23:14 AM
- Estimating initial conditions of all segments 9/6/2019 10:23:14 AM
- Getting inspections for ALL 9/6/2019 10:23:14 AM
- Running deterioration modeling for ALL 9/6/2019 10:23:33 AM
- Running deterioration modeling for ALL - 12.8% 9/6/2019 10:23:38 AM
- Running deterioration modeling for ALL - 25.6% 9/6/2019 10:23:40 AM
- Running deterioration modeling for ALL - 38.4% 9/6/2019 10:23:41 AM

**Assigned Projects**

Segment:  Year:

Project Name	Category	Automatic	Cost	Utility	Utility Benefit	Benefit/Cost (\$k)	Cost (\$k) / Benefit	Year	Frozen	Status
611700000610323(Preserve Deck, Paint Super)	Preservation Work	Yes	\$71,264	96.18	6.23	0.0874	\$11.44	2019	No	Proposed
023604509012232(Preserve Deck)	No Category	Yes	\$71,500	93.87	11.59	0.1621	\$6.17	2019	No	Proposed
023600060600001(Preserve Deck)	No Category	Yes	\$65,280	90.42	2.41	0.0369	\$27.09	2019	No	Proposed
581500000580150(Preserve Deck)	No Category	Yes	\$69,040	98.76	6.79	0.0983	\$10.17	2019	No	Proposed
612402300309551(Rehab Deck)	No Category	Yes	\$159,196	64.78	14.85	0.0933	\$10.72	2019	No	Proposed
614700650700391(Rehab Deck)	No Category	Yes	\$213,707	80.65	20.85	0.0976	\$10.25	2019	No	Proposed
611702530201191(Preserve Deck)	No Category	Yes	\$98,600	95.96	14.99	0.152	\$6.58	2019	No	Proposed
624804501305152(Rehab Deck)	No Category	Yes	\$283,865	90.4	2.57	0.0097	\$102.67	2019	No	Proposed
071000310400701(Preserve Deck)	No Category	Yes	\$84,175	84.25	3.68	0.0437	\$22.87	2019	No	Proposed
035004500605851(Rehab Deck)	No Category	Yes	\$198,119	89.72	16.48	0.0832	\$12.02	2019	No	Proposed
613908390501891(Rehab Deck, Repaint Super/Sub)	No Category	Yes	\$68,068	69.17	16.93	0.2487	\$4.02	2019	No	Proposed
02360000020468(Preserve Deck)	No Category	Yes	\$56,030	81.37	0.26	0.0046	\$215.50	2019	No	Proposed
035100050105491(Replace Deck)	No Category	Yes	\$104,120	66.25	12.98	0.1247	\$8.02	2019	No	Proposed
035030037913641(Rehab Deck)	No Category	Yes	\$262,480	80.75	34.21	0.1303	\$7.67	2019	No	Proposed
611702530300731(Rehab Deck, Rehab Sub)	No Category	Yes	\$410,916	77.22	16.37	0.0398	\$25.10	2019	No	Proposed

Items per page: 15

INSTALL BrM

GET BRIDGE DATA

MODIFY DEFAULT SETTINGS

CREATE FIRST PROGRAM

REFINE

And then you have your first list of projects. It won't be customized, it won't be reflective of what you would do, but you will at least have had the model run once.

# Create First Program

Review.

Programs > Program Planning

**Optimization Progress**

Complete!

**Progress Messages**

Initializing Program Optimization...  
 Processing Scenario 'Default'.  
 Getting Action Sequences  
 Getting Utility Tree  
 Processing Segments...  
 Retrieving Budgets  
 Estimating initial conditions of all segments  
 Getting inspections for ALL  
 Running deterioration modeling for ALL  
 Running deterioration modeling for ALL - 12.8%  
 Running deterioration modeling for ALL - 25.6%  
 Running deterioration modeling for ALL - 38.4%

Are these actions we would do? Maybe we need to change the actions.

9/6/2019 10:22:24 AM  
 9/6/2019 10:23:12 AM  
 9/6/2019 10:23:12 AM  
 9/6/2019 10:23:14 AM  
 9/6/2019 10:23:14 AM  
 9/6/2019 10:23:14 AM  
 9/6/2019 10:23:14 AM  
 9/6/2019 10:23:14 AM  
 9/6/2019 10:23:33 AM  
 9/6/2019 10:23:38 AM  
 9/6/2019 10:23:40 AM  
 9/6/2019 10:23:41 AM

**Assigned Projects**

Segment: All Year: All

Project Name	Category	Automatic	Cost	Utility	Utility Benefit	Benefit/Cost (\$k)	Cost (\$k) / Benefit	Year	Frozen	Status
611700000610323(Preserve Deck, Paint Super)	Preservation Work	Yes	\$71,264	96.18	6.23	0.0874	\$11.44	2019	No	Proposed
023604509012232(Preserve Deck)	No Category	Yes	\$71,500	93.87	11.59	0.1621	\$6.17	2019	No	Proposed
023600060600001(Preserve Deck)	No Category	Yes	\$65,280	90.42	2.41	0.0369	\$27.09	2019	No	Proposed
581500000580150(Preserve Deck)	No Category	Yes	\$69,040	98.76	6.79	0.0983	\$10.17	2019	No	Proposed
612402300309551(Rehab Deck)	No Category	Yes	\$159,196	64.78	14.85	0.0933	\$10.72	2019	No	Proposed
614700650700391(Rehab Deck)	No Category	Yes	\$213,707	80.65	20.85	0.0976	\$10.25	2019	No	Proposed
611702530201191(Preserve Deck)	No Category	Yes	\$98,600	95.96	14.99	0.152	\$6.58	2019	No	Proposed
624804501305152(Rehab Deck)	No Category	Yes	\$283,865	90.4	2.57	0.0097	\$102.67	2019	No	Proposed
071000310400701(Preserve Deck)	No Category	Yes	\$84,175	84.25	3.68	0.0437	\$22.87	2019	No	Proposed
035004500605851(Rehab Deck)	No Category	Yes	\$198,119	89.72	16.48	0.0832	\$12.02	2019	No	Proposed
613908390501891(Rehab Deck, Repaint Super/Sub)	No Category	Yes	\$68,068	69.17	16.93	0.2487	\$4.02	2019	No	Proposed
02360000020468(Preserve Deck)	No Category	Yes	\$56,030	81.37	0.26	0.0046	\$215.50	2019	No	Proposed
035100050105491(Replace Deck)	No Category	Yes	\$104,120	66.25	12.98	0.1247	\$8.02	2019	No	Proposed
035030037913641(Rehab Deck)	No Category	Yes	\$262,480	80.75	34.21	0.1303	\$7.67	2019	No	Proposed
611702530300731(Rehab Deck, Rehab Sub)	No Category	Yes	\$410,916	77.22	16.37	0.0398	\$25.10	2019	No	Proposed

First Previous 1 2 3 Next Last

Items per page: 15

INSTALL BrM

GET BRIDGE DATA

MODIFY DEFAULT SETTINGS

CREATE FIRST PROGRAM

REFINE

# Create First Program

Review.

Programs > Program Planning

**Optimization Progress**

Complete!

**Progress Messages**

Initializing Program Optimization...  
 Processing Scenario 'Default'.  
 Getting Action Sequences  
 Getting Utility Tree  
 Processing Segments...  
 Retrieving Budgets  
 Estimating initial conditions of all segments  
 Getting inspections for ALL  
 Running deterioration modeling for ALL  
 Running deterioration modeling for ALL - 12.8%  
 Running deterioration modeling for ALL - 25.6%  
 Running deterioration modeling for ALL - 38.4%  
 Running deterioration modeling for ALL - 51.2%

9/6/2019 10:22:24 AM  
 9/6/2019 10:23:12 AM  
 9/6/2019 10:23:12 AM  
 9/6/2019 10:23:14 AM  
 9/6/2019 10:23:14 AM  
 9/6/2019 10:23:14 AM  
 9/6/2019 10:23:14 AM  
 9/6/2019 10:23:14 AM  
 9/6/2019 10:23:33 AM  
 9/6/2019 10:23:38 AM  
 9/6/2019 10:23:40 AM  
 9/6/2019 10:23:41 AM

Do any come up too often or not as often as we would expect? Maybe we tweak the benefits.

**Assigned Projects**

Segment: All Year: All

Project Name	Category	Automatic	Cost	Utility	Utility Benefit	Benefit/Cost (\$k)	Cost (\$k) / Benefit	Year	Frozen	Status
611700000610323(Preserve Deck, Paint Super)	Preservation Work	Yes	\$71,264	96.18	6.23	0.0874	\$11.44	2019	No	Proposed
023604509012232(Preserve Deck)	No Category	Yes	\$71,500	93.87	11.59	0.1621	\$6.17	2019	No	Proposed
023600060600001(Preserve Deck)	No Category	Yes	\$65,280	90.42	2.41	0.0369	\$27.09	2019	No	Proposed
581500000580150(Preserve Deck)	No Category	Yes	\$69,040	98.76	6.79	0.0983	\$10.17	2019	No	Proposed
612402300309551(Rehab Deck)	No Category	Yes	\$159,196	64.78	14.85	0.0933	\$10.72	2019	No	Proposed
614700650700391(Rehab Deck)	No Category	Yes	\$213,707	80.65	20.85	0.0976	\$10.25	2019	No	Proposed
611702530201191(Preserve Deck)	No Category	Yes	\$98,600	95.96	14.99	0.152	\$6.58	2019	No	Proposed
624804501305152(Rehab Deck)	No Category	Yes	\$283,865	90.4	2.57	0.0097	\$102.67	2019	No	Proposed
071000310400701(Preserve Deck)	No Category	Yes	\$84,175	84.25	3.68	0.0437	\$22.87	2019	No	Proposed
035004500605851(Rehab Deck)	No Category	Yes	\$198,119	89.72	16.48	0.0832	\$12.02	2019	No	Proposed
613908390501891(Rehab Deck, Repaint Super/Sub)	No Category	Yes	\$68,068	69.17	16.93	0.2487	\$4.02	2019	No	Proposed
02360000020468(Preserve Deck)	No Category	Yes	\$56,030	81.37	0.26	0.0046	\$215.50	2019	No	Proposed
035100050105491(Replace Deck)	No Category	Yes	\$104,120	66.25	12.98	0.1247	\$8.02	2019	No	Proposed
035030037913641(Rehab Deck)	No Category	Yes	\$262,480	80.75	34.21	0.1303	\$7.67	2019	No	Proposed
611702530300731(Rehab Deck, Rehab Sub)	No Category	Yes	\$410,916	77.22	16.37	0.0398	\$25.10	2019	No	Proposed

First Previous 1 2 3 Next Last

Items per page: 15

INSTALL BrM  
 GET BRIDGE DATA  
 MODIFY DEFAULT SETTINGS  
 CREATE FIRST PROGRAM  
 REFINE

# Create First Program

Review.

Programs > Program Planning

**Optimization Progress**

Complete!

**Progress Messages**

Initializing Program Optimization...  
 Processing Scenario 'Default'.  
 Getting Action Sequences  
 Getting Utility Tree  
 Processing Segments...  
 Retrieving Budgets  
 Estimating initial conditions of all segments  
 Getting inspections for ALL  
 Running deterioration modeling for ALL  
 Running deterioration modeling for ALL - 12.8%  
 Running deterioration modeling for ALL - 25.6%  
 Running deterioration modeling for ALL - 38.4%  
 Running deterioration modeling for ALL - 51.2%

9/6/2019 10:22:24 AM  
 9/6/2019 10:23:12 AM  
 9/6/2019 10:23:12 AM  
 9/6/2019 10:23:14 AM  
 9/6/2019 10:23:14 AM  
 9/6/2019 10:23:14 AM  
 9/6/2019 10:23:14 AM  
 9/6/2019 10:23:14 AM  
 9/6/2019 10:23:33 AM  
 9/6/2019 10:23:38 AM  
 9/6/2019 10:23:40 AM  
 9/6/2019 10:23:41 AM  
 9/6/2019 10:23:41 AM

Are the costs close to realistic?



**Assigned Projects**

Segment: All Year: All

Project Name	Category	Automatic	Cost	Utility	Utility Benefit	Benefit/Cost (\$k)	Cost (\$k) / Benefit	Year	Frozen	Status
611700000610323(Preserve Deck, Paint Super)	Preservation Work	Yes	\$71,264	96.18	6.23	0.0874	\$11.44	2019	No	Proposed
023604509012232(Preserve Deck)	No Category	Yes	\$71,500	93.87	11.59	0.1621	\$6.17	2019	No	Proposed
023600060600001(Preserve Deck)	No Category	Yes	\$65,280	90.42	2.41	0.0369	\$27.09	2019	No	Proposed
581500000580150(Preserve Deck)	No Category	Yes	\$69,040	98.76	6.79	0.0983	\$10.17	2019	No	Proposed
612402300309551(Rehab Deck)	No Category	Yes	\$159,196	64.78	14.85	0.0933	\$10.72	2019	No	Proposed
614700650700391(Rehab Deck)	No Category	Yes	\$213,707	80.65	20.85	0.0976	\$10.25	2019	No	Proposed
611702530201191(Preserve Deck)	No Category	Yes	\$98,600	95.96	14.99	0.152	\$6.58	2019	No	Proposed
624804501305152(Rehab Deck)	No Category	Yes	\$283,865	90.4	2.57	0.0097	\$102.67	2019	No	Proposed
071000310400701(Preserve Deck)	No Category	Yes	\$84,175	84.25	3.68	0.0437	\$22.87	2019	No	Proposed
035004500605851(Rehab Deck)	No Category	Yes	\$198,119	89.72	16.48	0.0832	\$12.02	2019	No	Proposed
613908390501891(Rehab Deck, Repaint Super/Sub)	No Category	Yes	\$68,068	69.17	16.93	0.2487	\$4.02	2019	No	Proposed
02360000020468(Preserve Deck)	No Category	Yes	\$56,030	81.37	0.26	0.0046	\$215.50	2019	No	Proposed
035100050105491(Replace Deck)	No Category	Yes	\$104,120	66.25	12.98	0.1247	\$8.02	2019	No	Proposed
035030037913641(Rehab Deck)	No Category	Yes	\$262,480	80.75	34.21	0.1303	\$7.67	2019	No	Proposed
611702530300731(Rehab Deck, Rehab Sub)	No Category	Yes	\$410,916	77.22	16.37	0.0398	\$25.10	2019	No	Proposed

First Previous 1 2 3 Next Last

Items per page: 15

INSTALL BrM

GET BRIDGE DATA

MODIFY DEFAULT SETTINGS

CREATE FIRST PROGRAM

REFINE



**INSTALL BrM**

**GET BRIDGE  
DATA**

**MODIFY  
DEFAULT  
SETTINGS**

**CREATE FIRST  
PROGRAM**

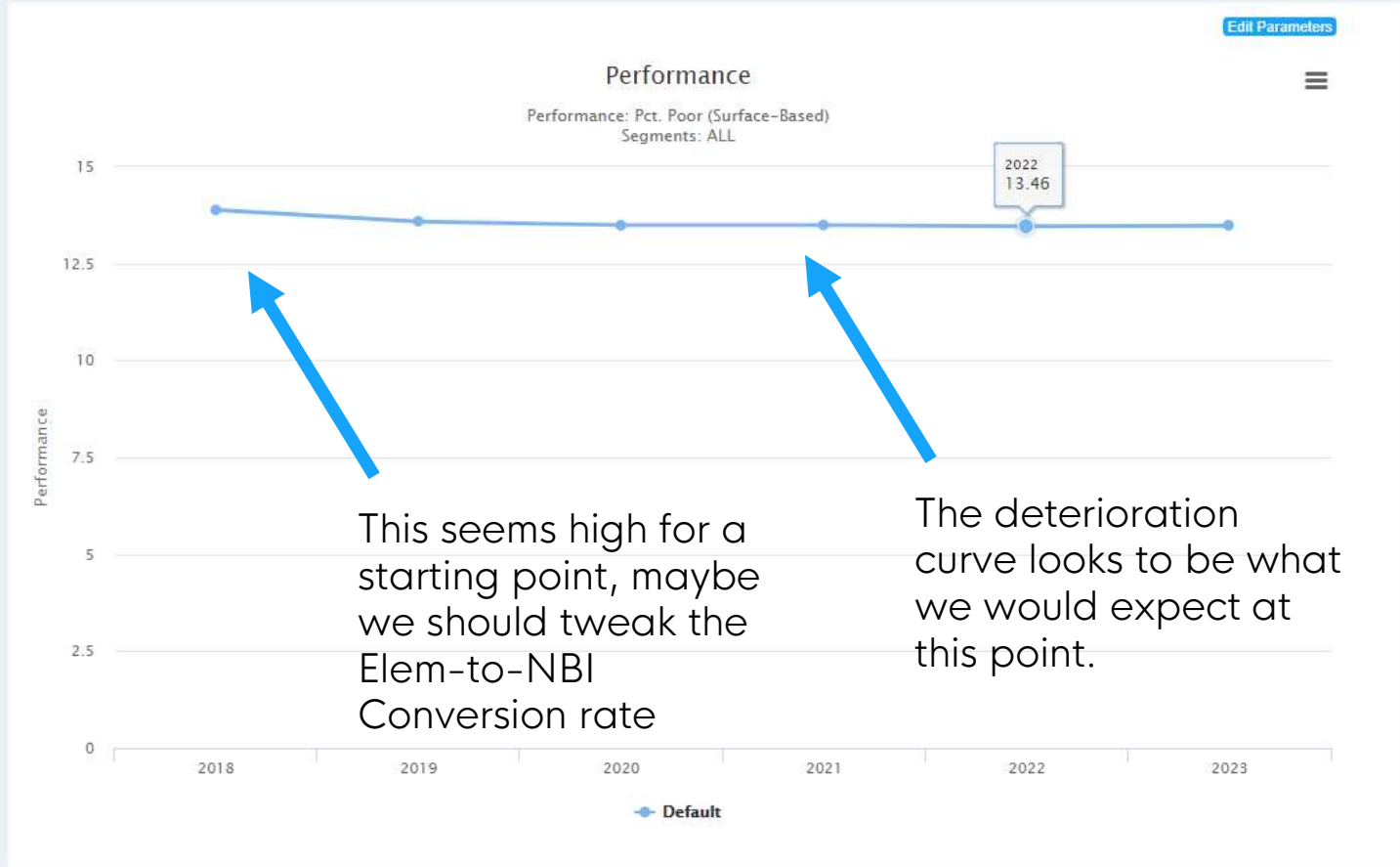
**REFINE**

**REFINE**

# Refine.

Review.

Programs > Scenario Explorer



INSTALL BrM

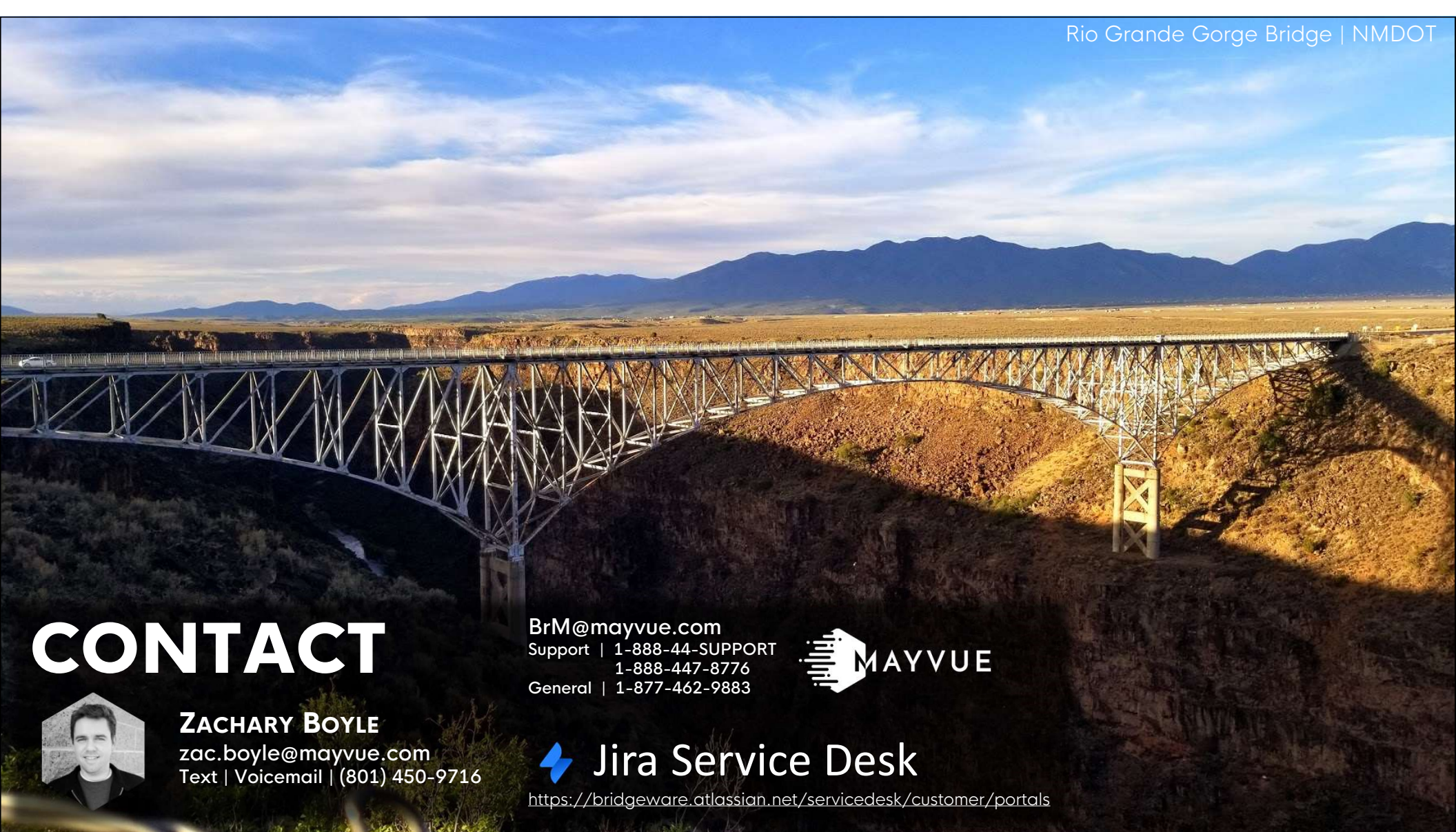
GET BRIDGE DATA

MODIFY DEFAULT SETTINGS

CREATE FIRST PROGRAM

REFINE

And from here, you are off to the races. Refine your setup, and run it again. Compare notes with other states. Ask Mayvue for suggestions.



# CONTACT



**ZACHARY BOYLE**

zac.boyle@mayvue.com

Text | Voicemail | (801) 450-9716

BrM@mayvue.com  
Support | 1-888-44-SUPPORT  
1-888-447-8776  
General | 1-877-462-9883



 **Jira Service Desk**

<https://bridgeware.atlassian.net/servicedesk/customer/portals>



