



0 to 60 on Optimization



User Group Meeting September 17, 2019 | Louisville, Kentucky



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 Jira Service Desk

<https://bridgeware.atlassian.net/service desk/customer/portals>



INSTALL BrM

GET BRIDGE
DATA

MODIFY
DEFAULT
SETTINGS

CREATE FIRST
PROGRAM

REFINE

INSTALL BrM



INSTALL BrM

0. Install BrM, or get it hosted

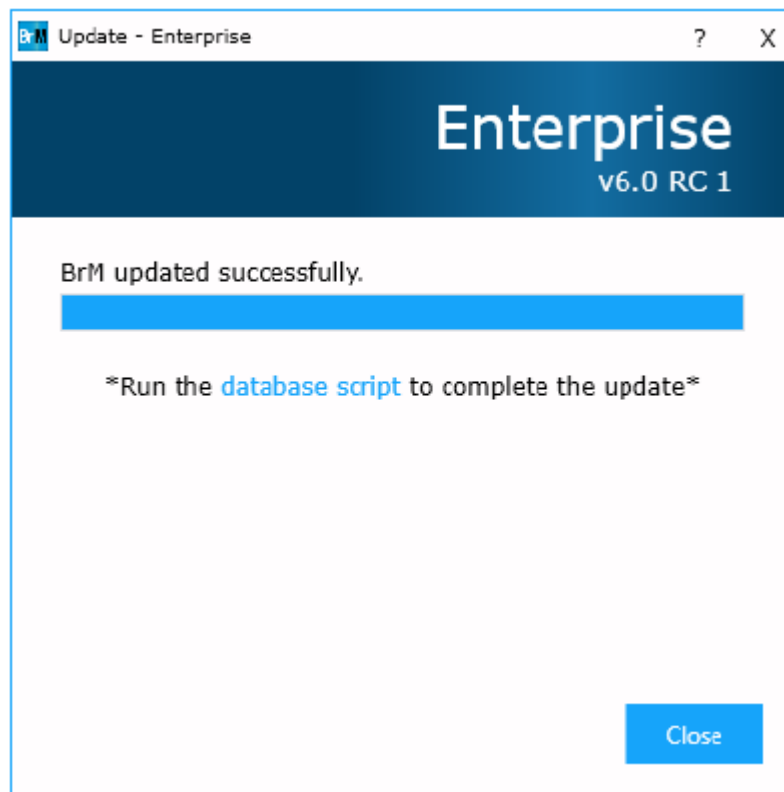
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GET BRIDGE DATA



GET BRIDGE DATA

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

INSTALL BrM

GET BRIDGE DATA

MODIFY DEFAULT SETTINGS

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USER, PONTIS

Bridges > View List

Filter: BrM - None Layout: Default

No records to display.
Total Bridges: 0

Matching

- BRIDGES
- TUNNELS
- REPORTS
- ADMIN
- INSPECTION
- GATEWAY
- ANALYSIS
- PROJECTS



GET BRIDGE DATA

2. Download NBI & NBE

U.S. Department of Transportation
Federal Highway Administration

Bridges & Structures

<https://www.fhwa.dot.gov/bridge/nbi.cfm>

Structures	Geotech	Hydraulics	Safety and Management		
	Bridge Inspection	Tunnel Inspection	Bridge Preservation	Bridge Management	Bridge Programs
	Load Rating	NBIS	NBI		

Home / Programs / Bridges & Structures / Safety / Bridge Inspection / National Bridge Inventory

National Bridge Inventory (NBI)

- [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

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GET BRIDGE DATA

3. Import NBI & NBE

INSTALL BrM

GET BRIDGE DATA

MODIFY DEFAULT SETTINGS

CREATE FIRST PROGRAM

REFINE

USER, PONTIS



BRIDGES

TUNNELS

REPORTS

ADMIN

INSPECTION

GATEWAY

EXPORT

IMPORT

CHECK OUT

CHECK IN

OVERRIDE

TUNNELS

Gateway > Import

Import what? NBI File

Input File: 2018 Louisiana NBI Data File.txt Remove

Options

Update Only

Create New Inspections

Import UOI

Metric English

Import what? NBI File

Input File: 2018 Louisiana NBI Data File.nbi Remove

Options

Update Only

Create New Inspections

Import UOI

Metric English



GET BRIDGE DATA

3. Import NBI & NBE

USER, PONTIS

Gateway > Import

Import what? NBI File

Input File: 2018 Louisiana NBI Data File.nbi

Options

- Update Only
- Create New Inspections

Import UOM

Metric

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
```

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GET BRIDGE DATA

MODIFY DEFAULT SETTINGS

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GET BRIDGE DATA

3. Import NBI & NBE

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

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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

INSTALL BrM

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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

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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_grade FROM roadway x WHERE
x.bridge_id = bridge.bridge_id AND x.on_under = '1') IS NULL THEN NULL
WHEN (SELECT x.roadwidth FROM roadway x WHERE
x.bridge_id = bridge.bridge_id AND x.on_under = '1') <= 0 THEN NULL
ELSE (length * (SELECT x.roadwidth FROM roadway x WHERE
x.bridge_id = bridge.bridge_id AND x.on_under = '1'))
END
UPDATE bridge SET deck_area = (ROUND(deck_area, 1));
UPDATE inspevn SET nbiinspdone = 1;
UPDATE inspevn SET telinspdone = 1;
```

<https://www.fhwa.dot.gov/bridge/nbi.cfm>

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GET BRIDGE DATA

5. Create Filter for state maintained bridges

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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

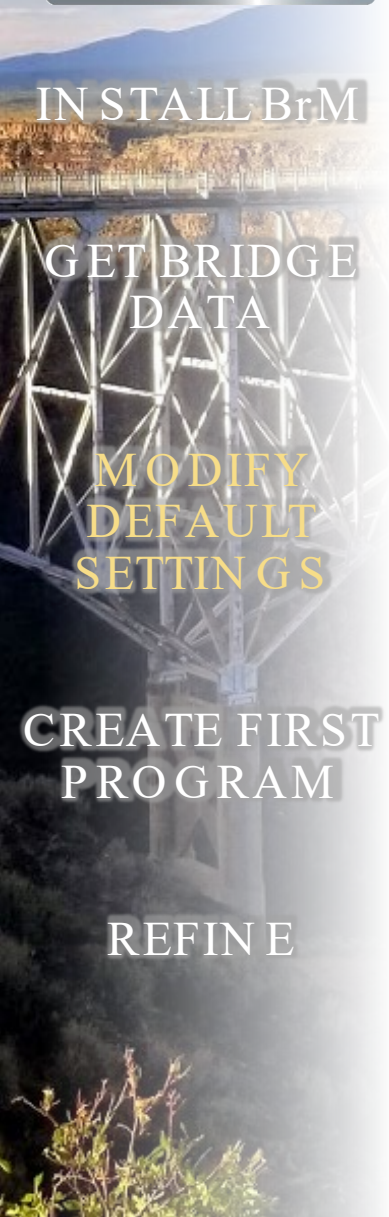
- createdatetime
- createuserkey
- crewhrs
- custodian**
- deck_area
- deckwidth

bridge.custodian

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

Delete

Add Criteria **Clear** **Delete Selected**



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MODIFY DEFAULT SETTINGS

1. Give mobility and risk 0 weight

INSTALL BrM

GET BRIDGE DATA


MODIFY DEFAULT SETTINGS

CREATE FIRST PROGRAM

REFINE

USER, PONTIS

Admin > Modeling Config > Utility



BRIDGES

TUNNELS

REPORTS

ADMIN

SECURITY

GENERAL CONFIG

MAPPING

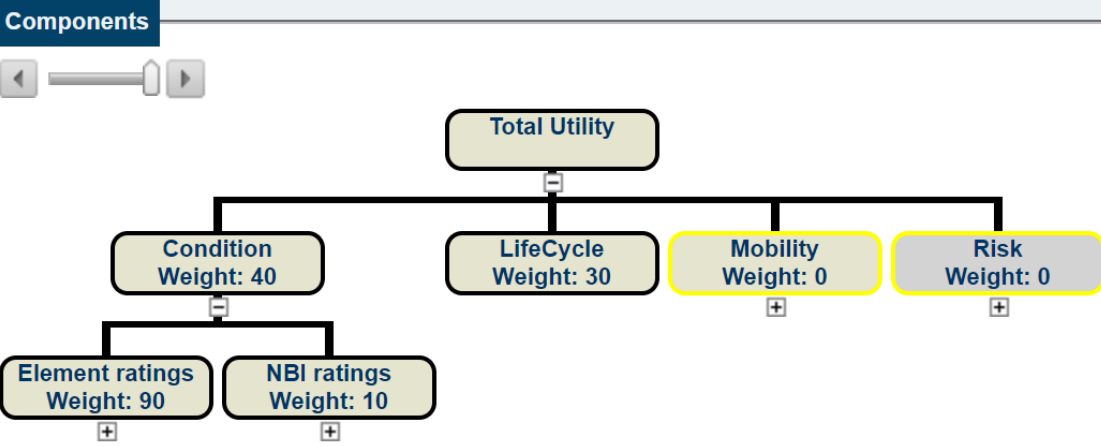
MODELING CONFIG

ELEMENT SPEC

ELEMENT-CHILD LINKING

PROJECT CATEGORIES

Components



```
graph TD; TU[Total Utility] --- C[Condition Weight: 40]; TU --- LC[LifeCycle Weight: 30]; TU --- M[Mobility Weight: 0]; TU --- R[Risk Weight: 0]; C --- ER[Element ratings Weight: 90]; C --- NBI[NBI ratings Weight: 10];
```

Risk

Criterion Properties

Name: Risk Weight: 0

Type: Field

Table: Column:

Save



MODIFY DEFAULT SETTINGS

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

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	Default	Visible	Default
Rehab Deck - Network	Repair deck, joints and parapets	Example	999	<input checked="" type="checkbox"/>	<input type="checkbox"/>		Network	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	X
Rehab Sub - Network	Repair Columns, Piers, Abutments, Piles, Walls	Example	999	<input checked="" type="checkbox"/>	<input type="checkbox"/>		Network	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	X
Rehab Super - Network	Repair beams, paint and bearings	Example	999	<input checked="" type="checkbox"/>	<input type="checkbox"/>		Network	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	X
Repaint Super/Sub - Network	Repair Paint	Example	999	<input checked="" type="checkbox"/>	<input type="checkbox"/>		Network	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	X
Replace Deck - Network	Replace Deck	Example	999	<input checked="" type="checkbox"/>	<input type="checkbox"/>		Network	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	X
Replace Structure - Network	Replace Structure	Example	999	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	\$	Network	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	X
Replace Super - Network	Replace Super Elements	Example	999	<input checked="" type="checkbox"/>	<input type="checkbox"/>		Network	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	X

Associated Benefit Groups for Action Replace Structure - Network

Metric English

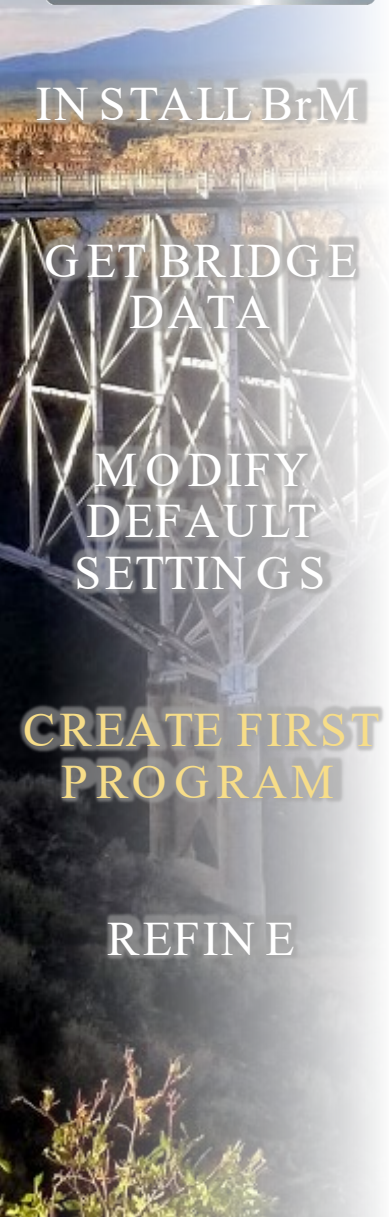
Benefit Groups		Add
Please Select		<input type="button" value="Add"/>
Replace Approach Slabs	<input checked="" type="checkbox"/>	X
Replace Culvert	<input checked="" type="checkbox"/>	X
Replace Deck	<input checked="" type="checkbox"/>	X
Replace Railings	<input checked="" type="checkbox"/>	X
Replace Sub	<input checked="" type="checkbox"/>	X
Replace Super	<input checked="" type="checkbox"/>	X
Replace Wearing Surface	<input checked="" type="checkbox"/>	X

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



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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"/>	<input type="text" value="{bridge.deck_area} * (2 - (300000-{roadway.ADTTOTAL}))/3000"/>			

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



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

Unassigned Network Policies:

Assigned Network Policies:

- 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

Optimize Work-Candidates

Assign All

Unassign All



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

Utility Profile's Weights

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

Subdivision Profile

Subdivision Profile: Network-Wide

Filter Segments

Add Filter Segments:

Filter Segments:

Index	Combinations	# of Bridges	
1	All Bridges	7812	X
Total:		7812	



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"/>



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



Create First Program

Run your first optimization.

Programs > Program Planning

Optimize Program

Program:

[Run Optimization](#)

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:

- Rehab Culvert
- Replace Bridge
- Preserve Super / Sub
- Replace Culvert
- Rehab Super
- First Protective System
- Rehab Sub
- Rehab Deck

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



Create First Program

Run your first optimization.

INSTALL BrM

GET BRIDGE DATA

MODIFY DEFAULT SETTINGS

CREATE FIRST PROGRAM

REFINE

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:
Replace Bridge
Preserve Super / Sub
Replace Culvert
Rehab Super
First Protective System
Rehab Sub
Rehab Deck

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



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
Running deterioration modeling for ALL - 54.2%	9/6/2019 10:23:42 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	\$263,865	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
023600000020468(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

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 - 54.2%

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

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
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613908390501891(Rehab Deck, Repaint Super/Sub)	No Category	Yes	\$68,068	69.17	16.93	0.2487	\$4.02	2019	No	Proposed
023600000020468(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

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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 - 54.2%

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
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 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

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	\$263,865	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
023600000020468(Preserve Deck)	No Category	Yes	\$56,030	81.37	0.26	0.0046	\$215.50	2019	No	Proposed
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Review.

Programs > Program Planning

Optimization Progress

Complete!

Progress Messages

Initializing Program Optimization...
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Are the costs close to realistic?



Assigned Projects

Segment: Year:

Project Name	Category	Automatic	Cost	Utility	Utility Benefit	Benefit/Cost (\$k)	Cost (\$k) / Benefit	Year	Frozen	Status
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INSTALL BrM

GET BRIDGE DATA

MODIFY DEFAULT SETTINGS

CREATE FIRST PROGRAM

REFINE



INSTALL BrM

GET BRIDGE
DATA

MODIFY
DEFAULT
SETTINGS

CREATE FIRST
PROGRAM

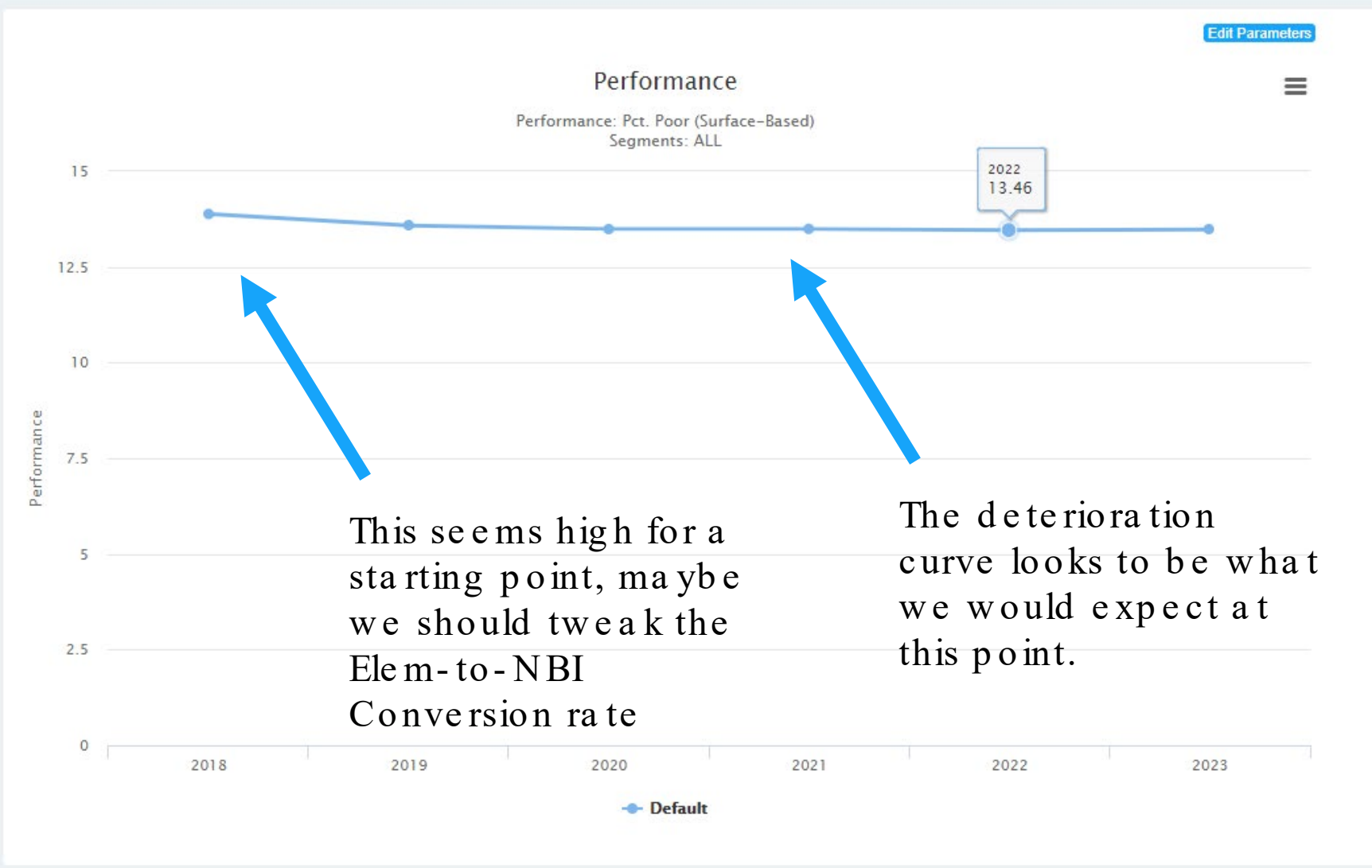
REFINE

REFINE

Refine.

Review.

Programs > Scenario Explorer



This seems high for a starting point, maybe we should tweak the Elem-to-NBI Conversion rate

The deterioration curve looks to be what we would expect at this point.

INSTALL BrM

GET BRIDGE DATA

MODIFY DEFAULT SETTINGS

CREATE FIRST PROGRAM

REFINE



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