# BrM 5.2.1 Overview / Preview


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*Formerly*

# AASHTOWare Bridge Management

- Pontis 5.2 is funded by a voluntary participation from more than 20 state DOTs, under DOT guidance and expertise
- Tools that are easier to use and understand:
  - Planning
  - Deterioration
  - Risk
  - Multi-objective analysis
  - Lifecycle costs
  - Project models
  - Dashboards
  - Corridor planning

# Basic Approach of 5.2

- Utilize extensive research and lessons learned over past 20 years
  - Continue to evaluate best approach and layout
  - Give Task Force recommendations
  - TRT Expert Panel of State Representatives
- Develop the trunk of 5.2 and outward functionality at each level
- Multiple Phased implementation

# 5.2 Development Phases

- Phased releases
  - Version 5.2.1 - In Final Stages
    - Utility Functions, Multi-Objective Analysis Engine, New Filters/Layouts, Mapping, Bridge Analysis Groups, New AASHTO Elements.
  - Version 5.2.2
    - Implementation of new deterioration models, preservation actions, and project analysis
  - Version 5.2.3
    - Integrated project and program planning
    - Advanced administrative features

# What's in a Number and a Name?

Pontis 4.5

Pontis 5.1.0.3

Pontis 5.1.2

Pontis 5.1.3

BrM 5.2.1

BrM 5.2.2

BrM 5.2.3

# What's in a Number/Name?

- Pontis Version 4.5
  - C++ based
  - Standalone or Client/Server Windows Application
  - CoRe Elements
  - Management and Inspection software

- Pontis Version 5.1.03
  - Microsoft .NET
  - Standalone (.NET) or Enterprise Web Based Application
  - CoRe Elements
  - Only Inspection software
  - Can share common database with 4.5 for management

# What's in a Number?

- Pontis Version 5.1.2 / 5.1.3
  - Microsoft .NET
  - Standalone (.NET) or Enterprise Web Based Application
  - NBEs/BMEs
  - Only Inspection software
  - Management depends on 5.2
- BrM Version 5.2
  - Microsoft .NET
  - Standalone (.NET) or Enterprise Web Based Application
  - NBEs/BMEs
  - Advanced Bridge Management Software

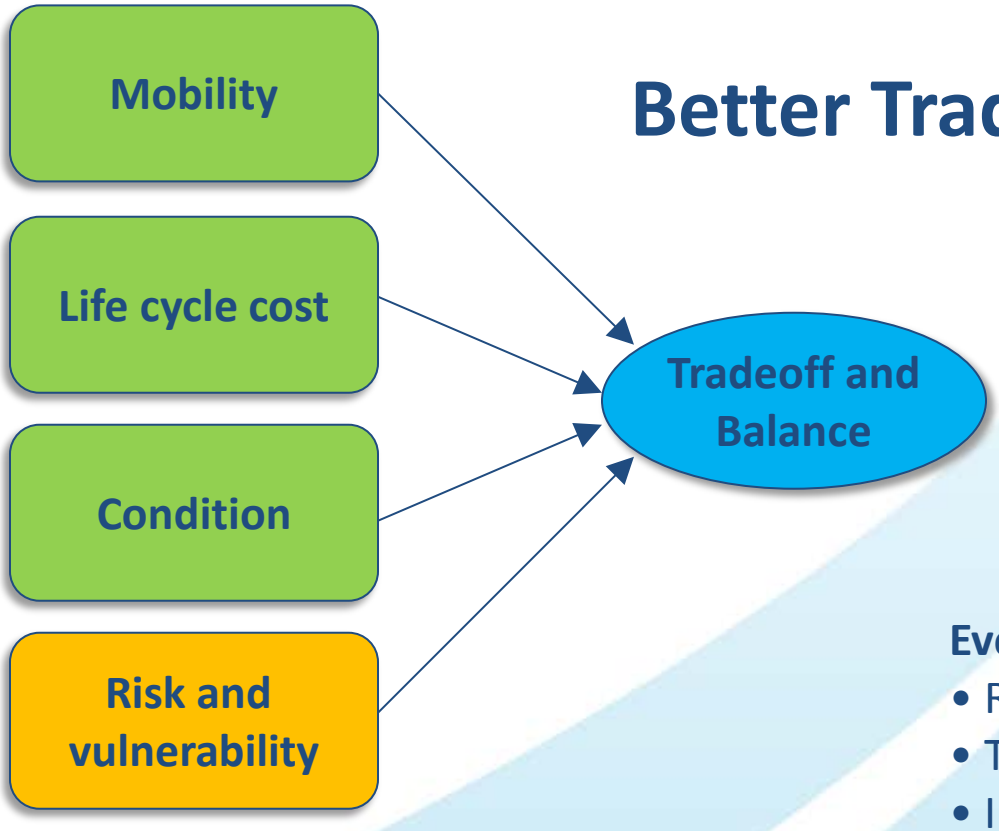
# 5.2 Architecture

- 5.2 utilizes a flexible web-based architecture
  - Microsoft .NET application
  - Microsoft SQL or Oracle database support
  - Accessible anywhere/anytime via web-browser
- New technology/capabilities:
  - XML for transferring bridge data
  - Google Maps for GIS/Mapping

# Why are we doing 5.2?

- Many lessons learned from 4.X and previous versions
- New technology allows flexible web-based approach for better features, access, and support
- Inclusion of new AASHTO Elements including protective systems, defects
- Opening up the black box providing full transparency of why values are obtained

# Improved Decision Making Tools




## Better Tradeoff Analysis

**New functionality:**
- Balance multiple objectives
- More control of results
- More transparency

**Eventual added consideration:**
- Risk
- Time-sensitive deterioration
- Indirect cost

**Better fit for agency workflow and business processes**

# Key Parts of Pontis/BrM 5.2

- What do I have?
- What Condition is it in?

**Bridge Inventory**

**Bridge Conditions**

# Key Parts of Pontis/BrM 5.2

- What Risks Do I have?

**Bridge Inventory**

**Bridge Conditions**

**Risk**

# Key Parts of Pontis/BrM 5.2

- What are my identified needs?

**Bridge Inventory**

**Bridge Conditions**

**Risk**

**Identified Work Candidates**

# Key Parts of Pontis/BrM 5.2

- What are the benefits of the work candidates?

**Bridge Inventory**

**Bridge Conditions**

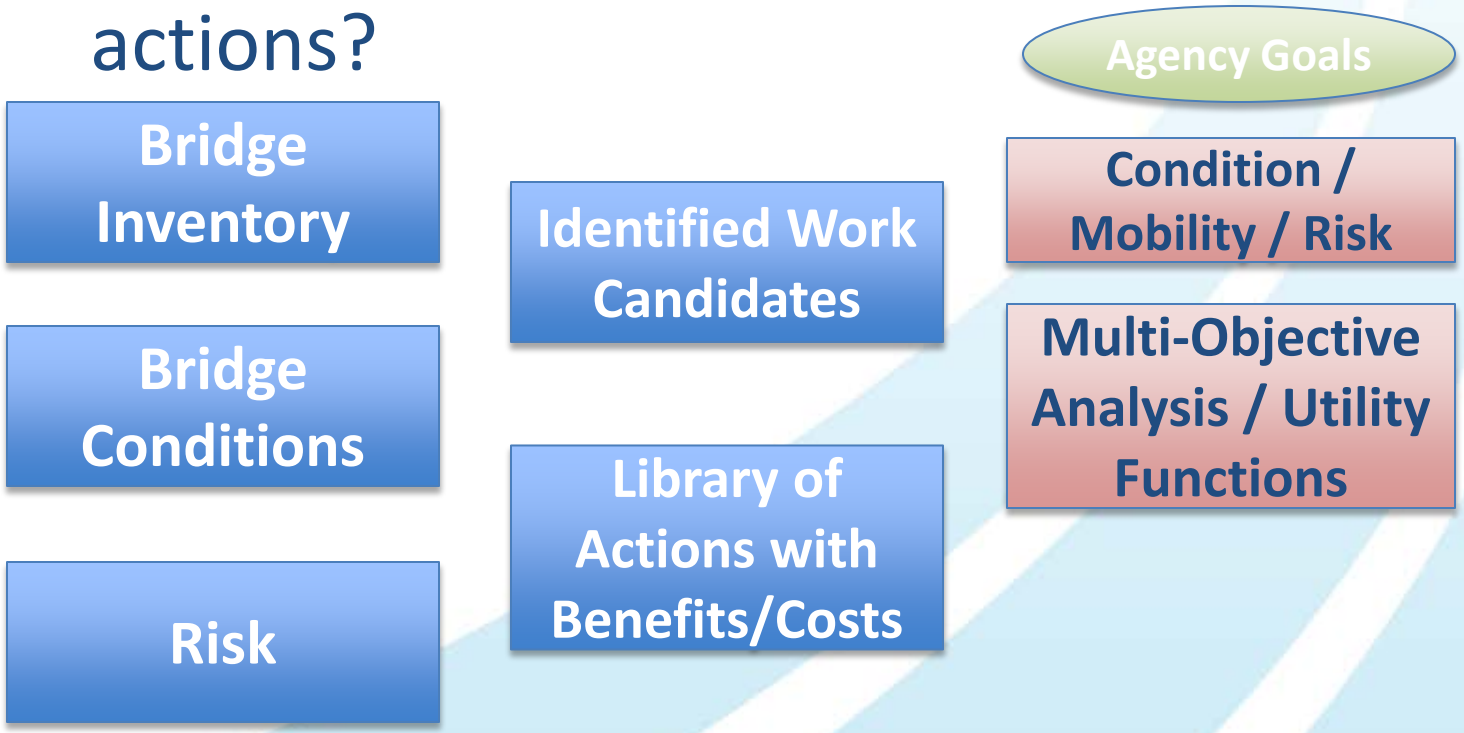
**Risk**

**Identified Work Candidates**

**Library of Actions with Benefits/Costs**

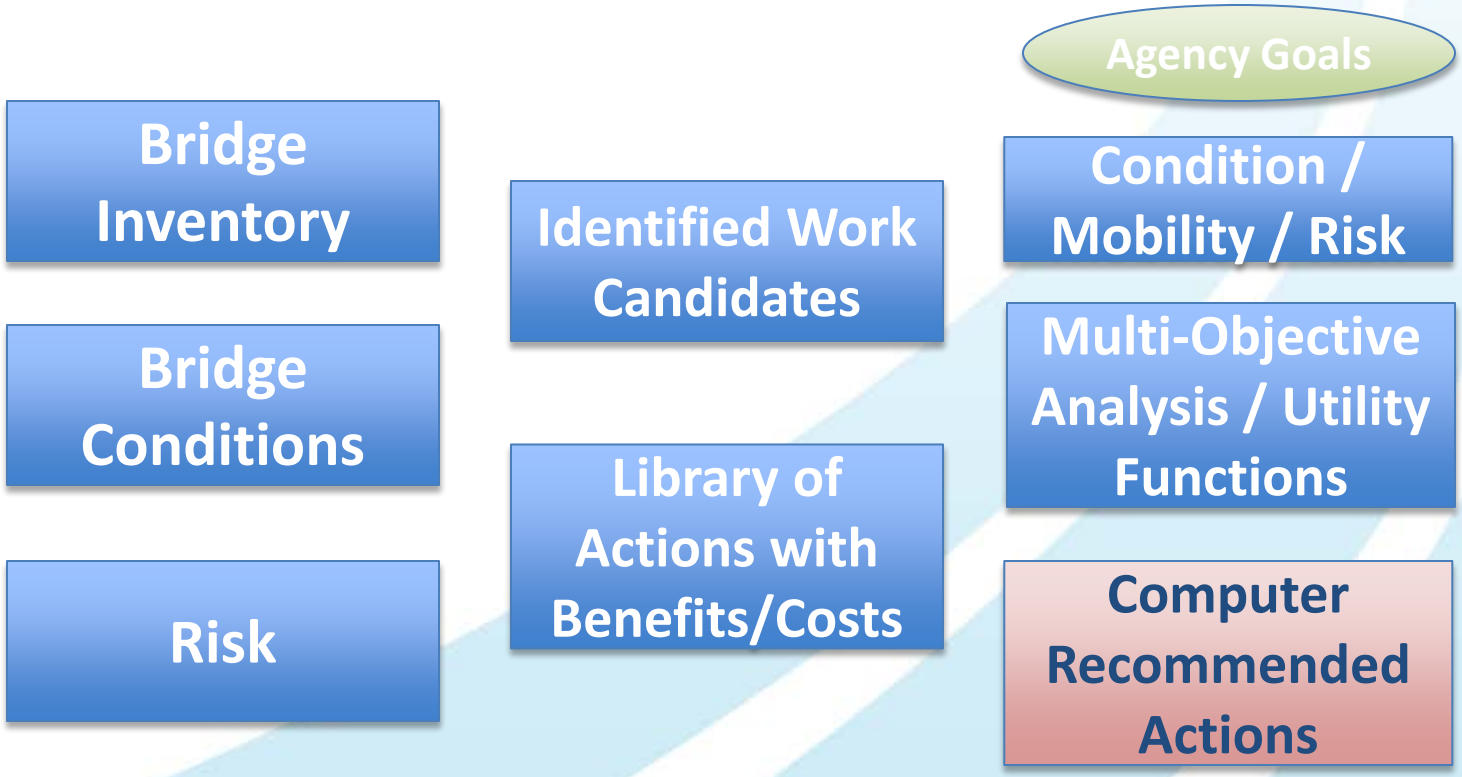
# Key Parts of Pontis/BrM 5.2

- How do I compare benefits of very different actions?



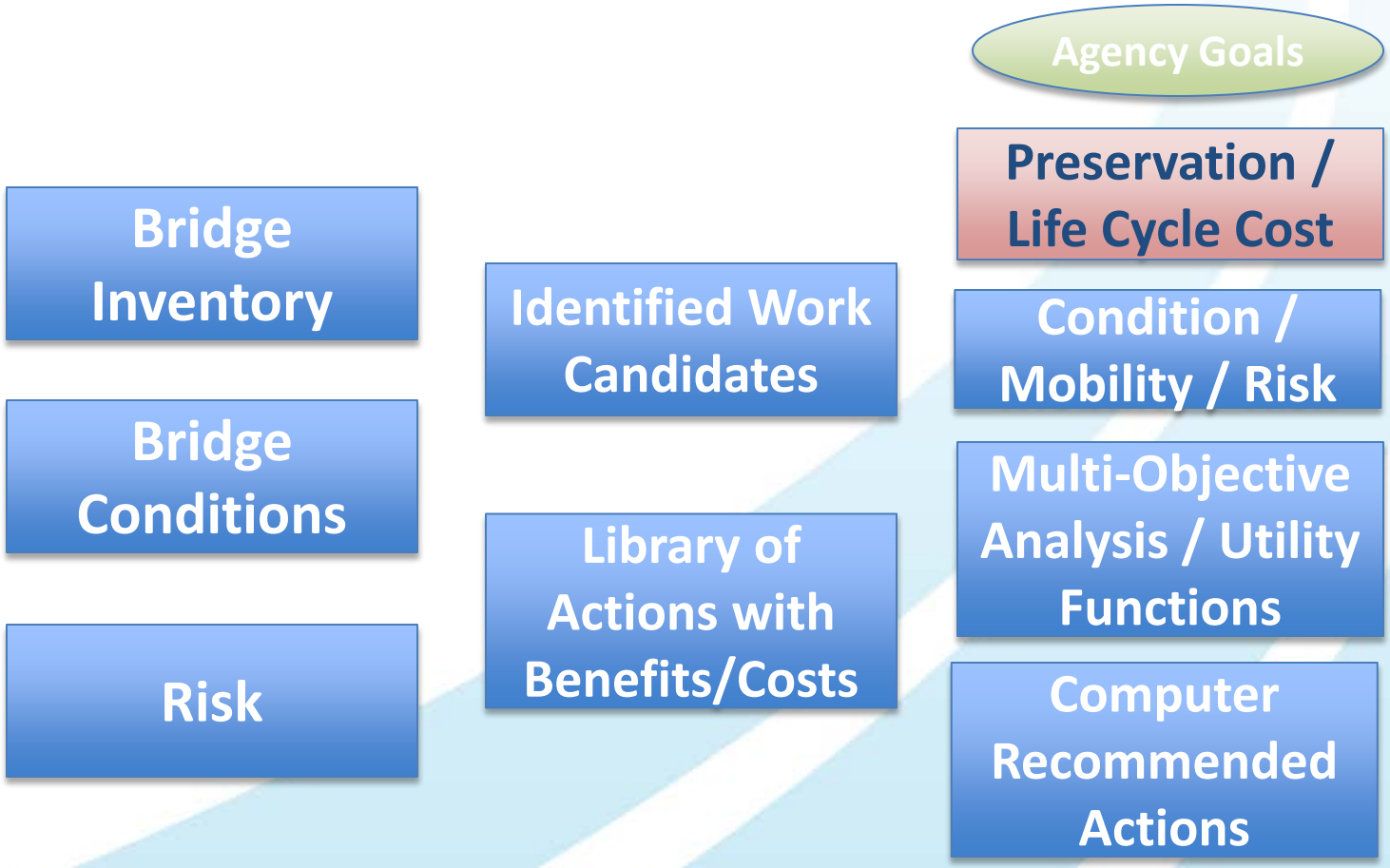
# Key Parts of Pontis/BrM 5.2

- What actions should I possibly take?



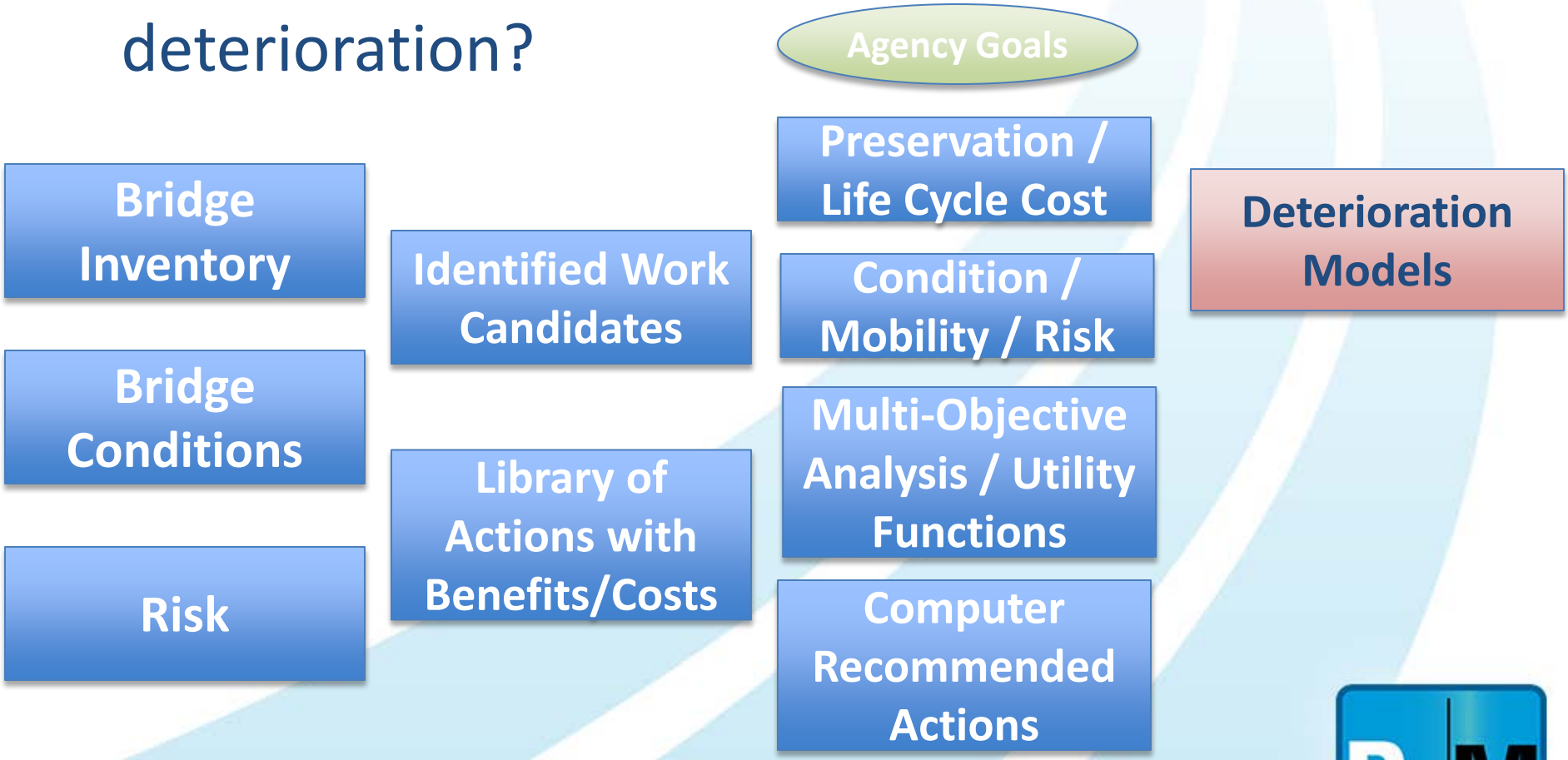
# Key Parts of Pontis/BrM 5.2

- What are the benefits of preservation actions?



# Key Parts of Pontis/BrM 5.2

- What is the effect of future time and deterioration?



# Key Parts of Pontis/BrM 5.2

- Grouping/comparing needs across bridges into projects and programs

# Release Version 5.2.1

- Role up Sub-Phases
  - I-A (Bridge Analysis Groups)
  - I-B (Risk Assessments – added to 5.1.3)
  - I-C (Multi-Objective Analysis)
- Select Additions:
  - Google Maps, New AASHTO Elements, Performance Enhancements
- New documentation
- Alpha/Beta Testing
- Installation Package

# BrM 5.2.1

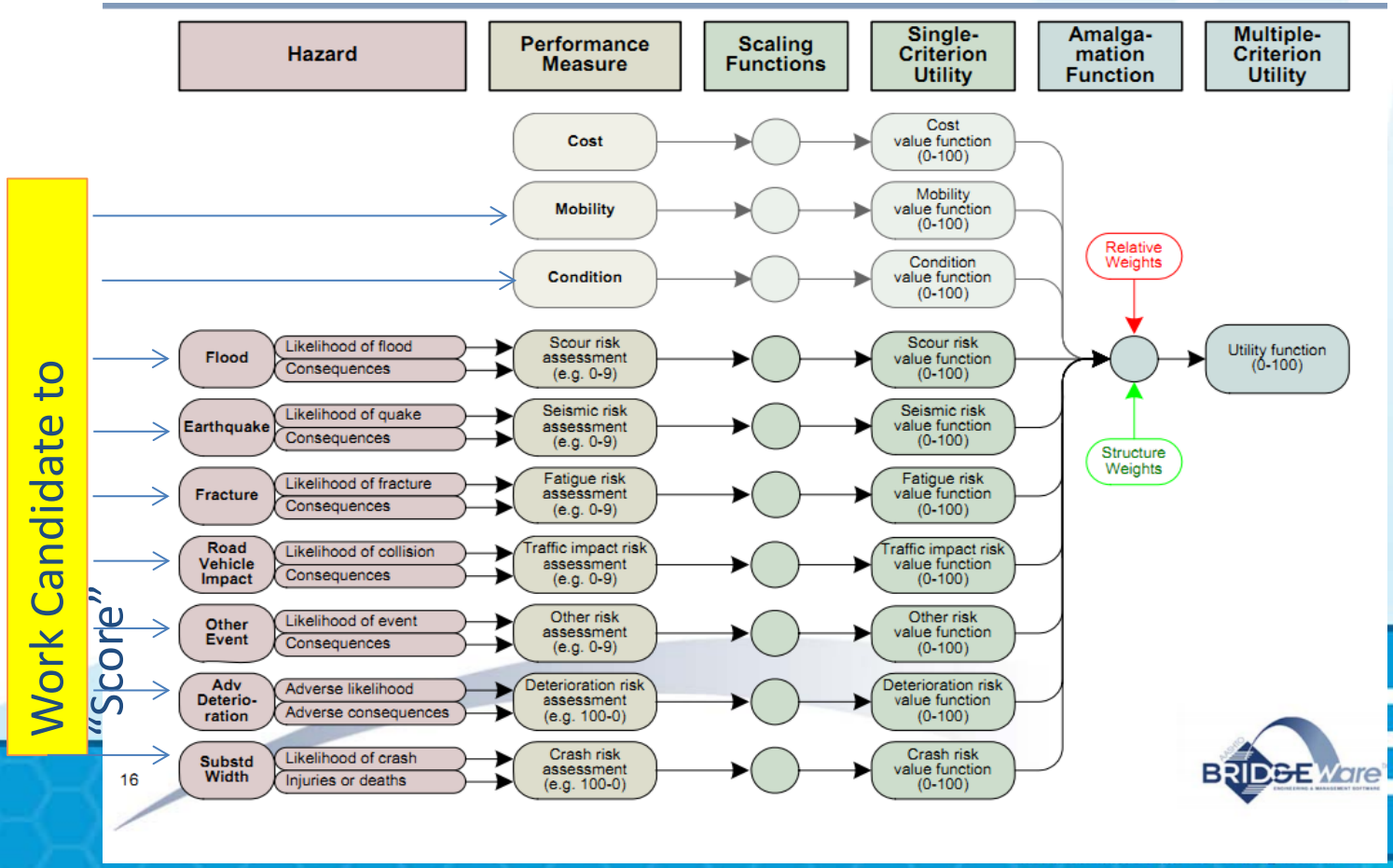
- Main Questions Answered:
  - What is the utility value of an action being proposed on the bridge?
    - Evaluates user identified actions against library of benefits
    - Utilizes multi-objective analysis framework to define value
  - What actions might be taken to achieve the greatest value?
    - Utilizes library of all possible actions and default costs to determine potential benefits of each

# Implementing Utility Functions

- Create a multi-objective framework that can be used to show the value (utility) of an action for a bridge
- Utility will also be shown for each sub-area
  - Mobility
  - Condition
  - Risk
  - Life Cycle Cost (5.2.2 / deterioration models needed)
- Work candidates are evaluated for how they contribute to mobility, lifecycle cost, condition and risk weightings

# Multi-Objective Analysis Framework

- The model will score each work candidate identified.



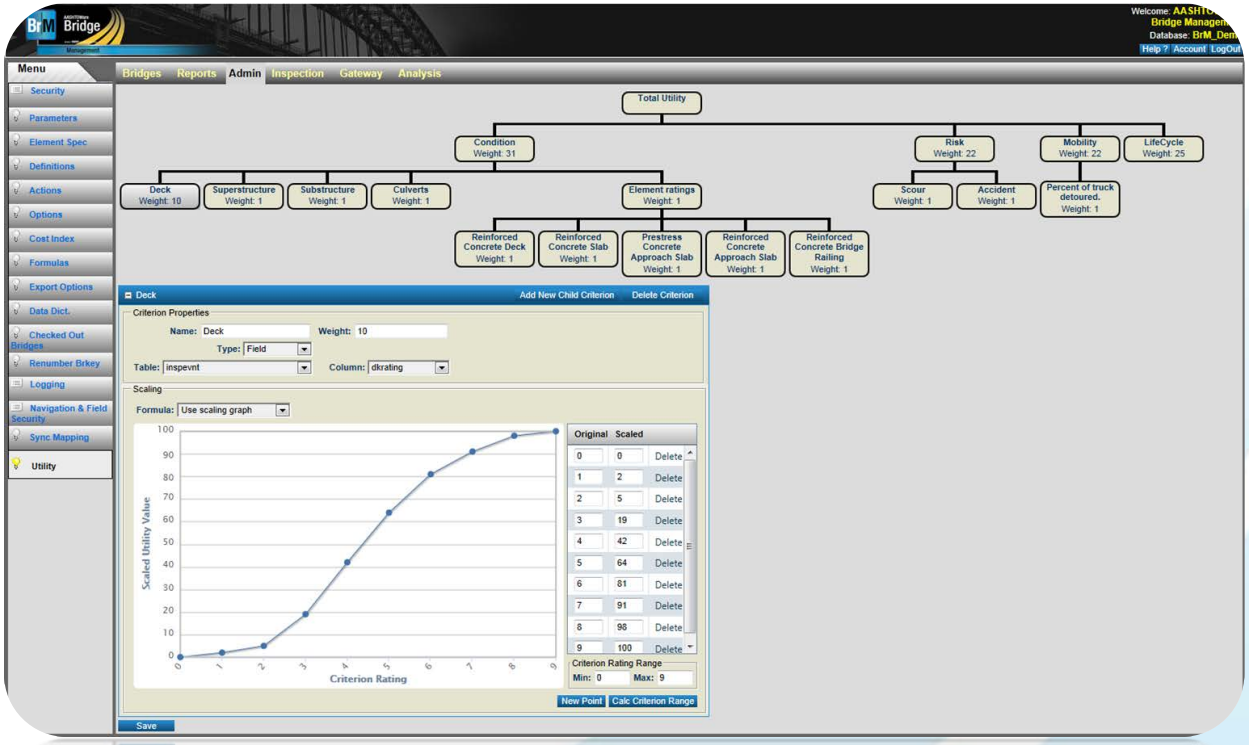
# Full Transparency for Utility Values

# Utility Functions

**Functionality:**


- Add/Define new criterion
- Set weight & define scale
- Click and plot points on the graph to adjust
- Edit/Add values to the table

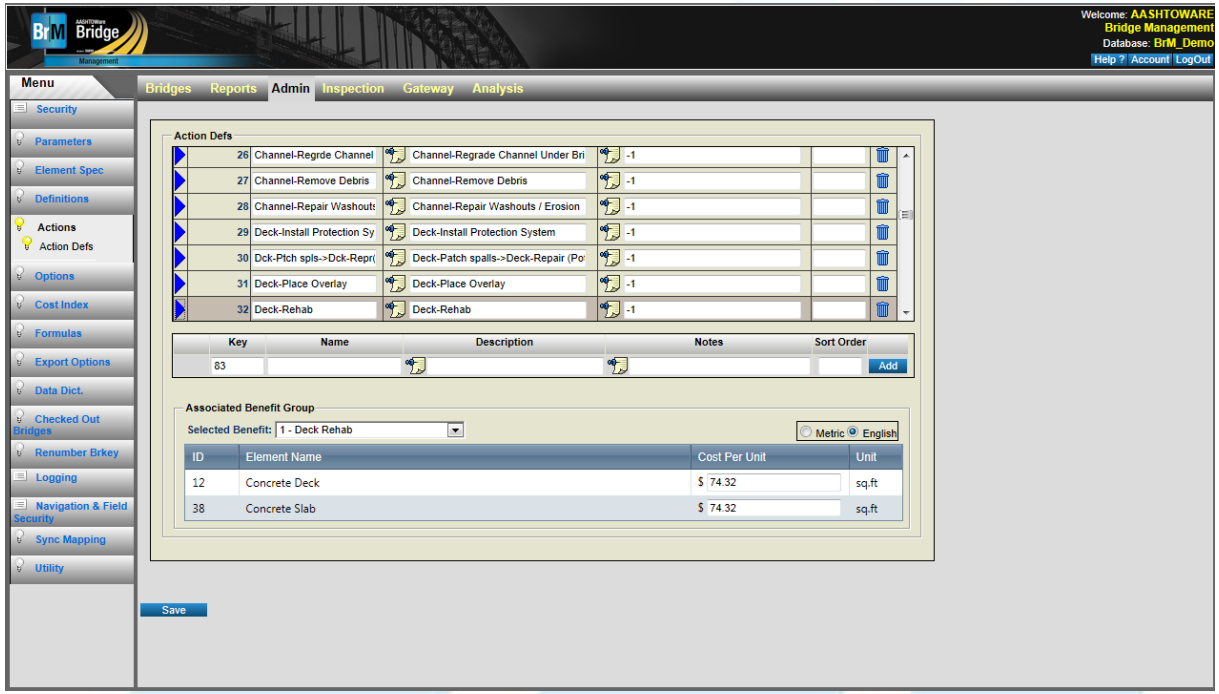
# Utility Function



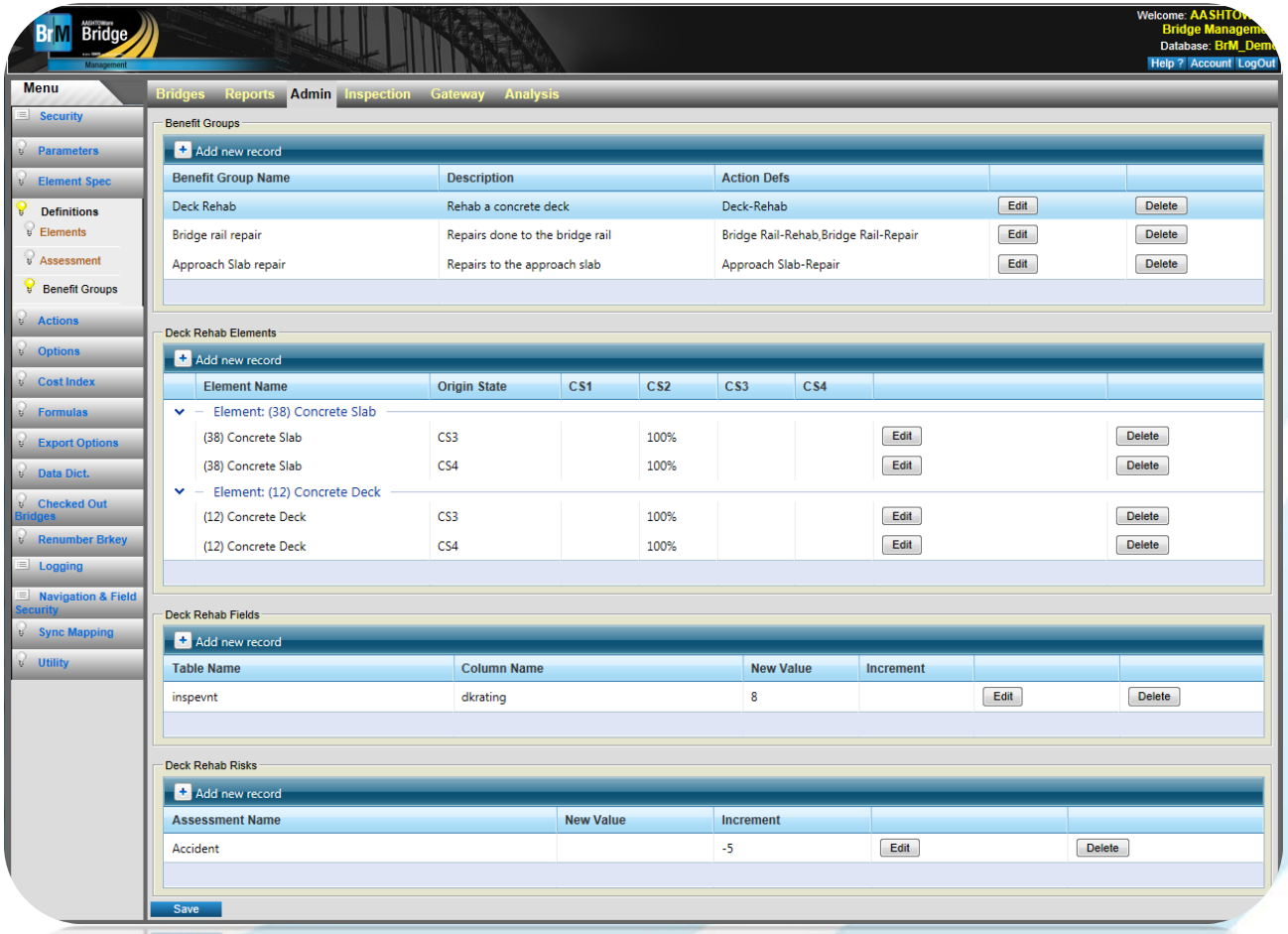

By incorporating utility functions, BrM is able to combine elements of Risk, Lifecycle Cost, Condition, Mobility, and other agency defined criteria to calculate the utility or value of a particular bridge.

# Actions

- Default Actions supplied by TRT
- Apply element costs to actions
- Attach actions to benefit groups

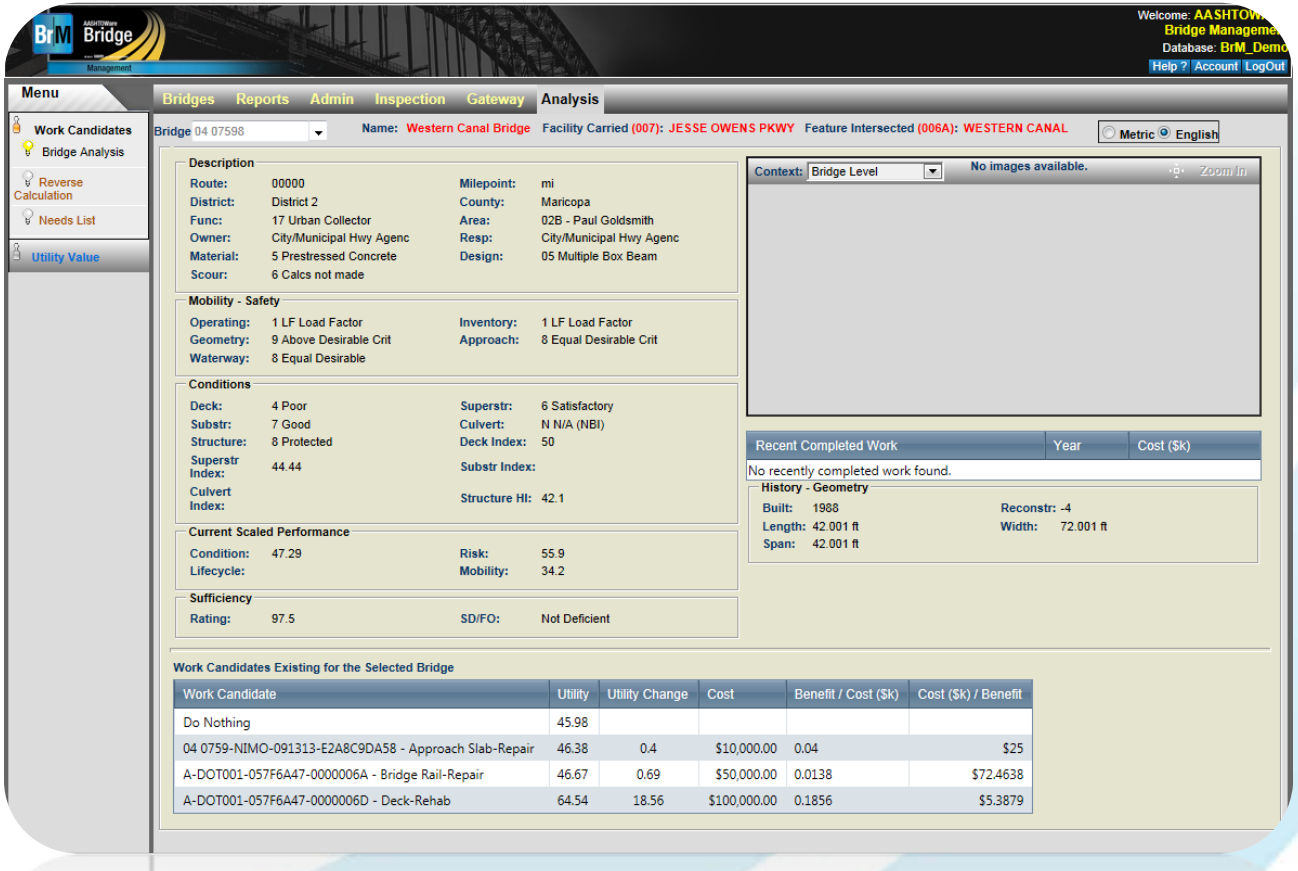


# Benefit Groups



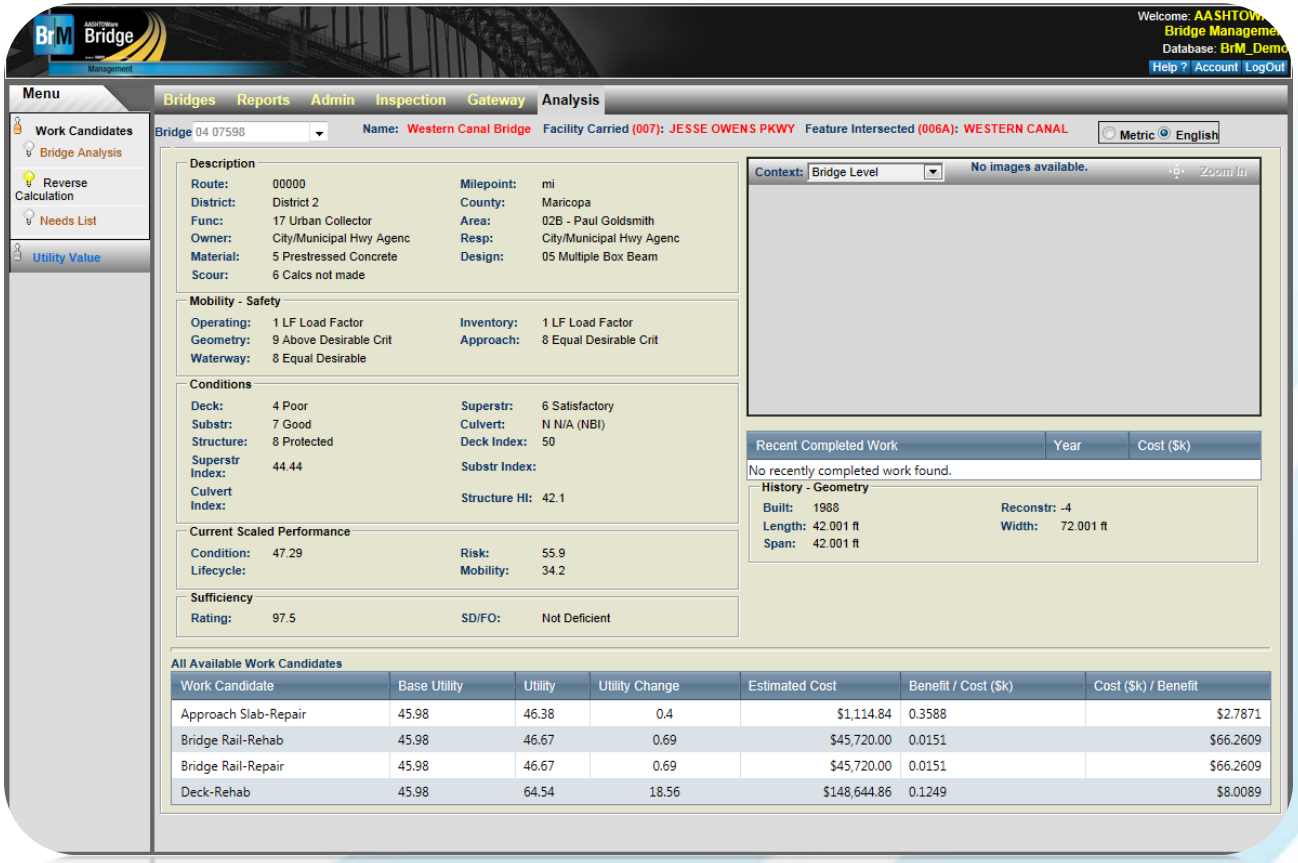

- Create Benefit Groups which define what effects an action has on a given bridge
- Benefit Groups can be comprised of fields, elements, or risks.

# Individual Bridge Analysis




- Provides a snapshot of all work candidates and an detailed view of how each work candidate affects a selected bridge
- Detailed view includes all related utility value Information and criterion

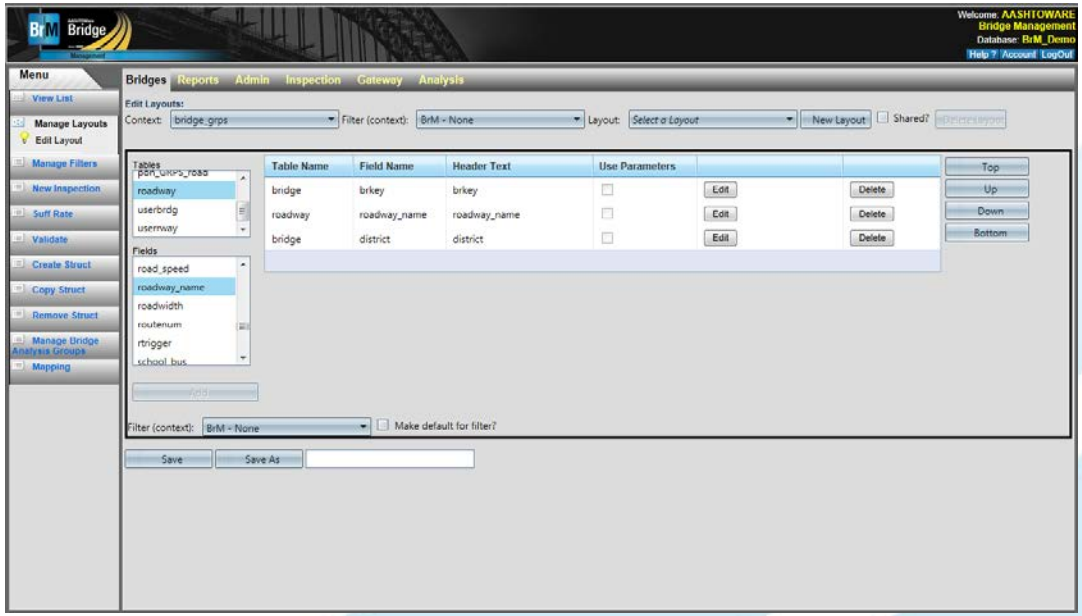
# Reverse Calculations




- Provides a benefit/cost and cost/benefit ratio for all agency defined actions as if they were applied to a bridge
- Ranks all available actions by a decreasing benefit/cost ratio, providing recommendations on what action should be applied to a bridge

# Updated Manage Layouts

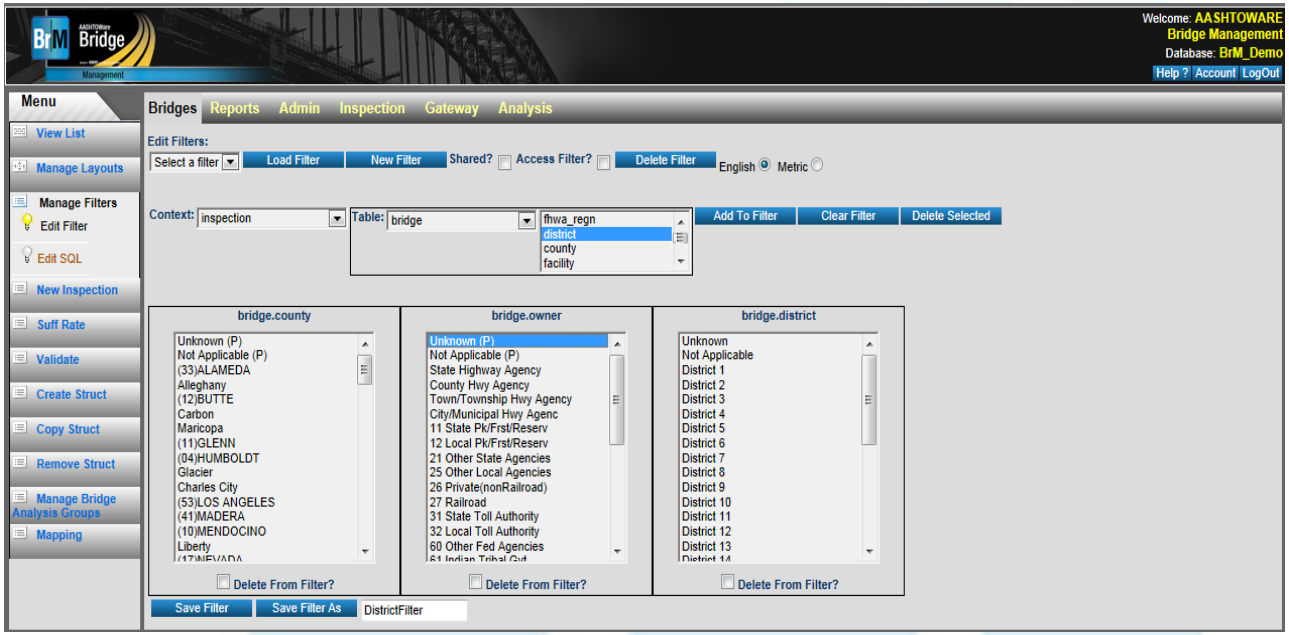
- Controls the look of the grid(i.e. columns displayed)
  - Ability to apply a layout to a filter



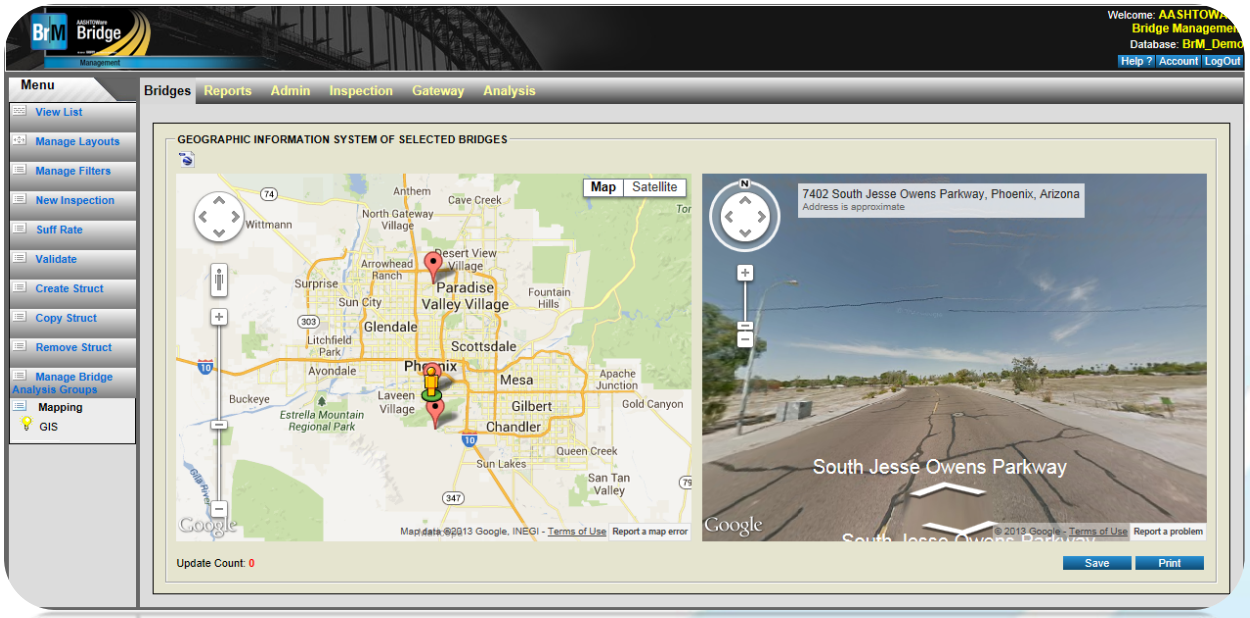

- Dynamic tables and columns
- Easy to use UI

# Updated Filters

The filtering capabilities have been completely redesigned with ease of use in mind. Users can now define filters through a simple point and click process.



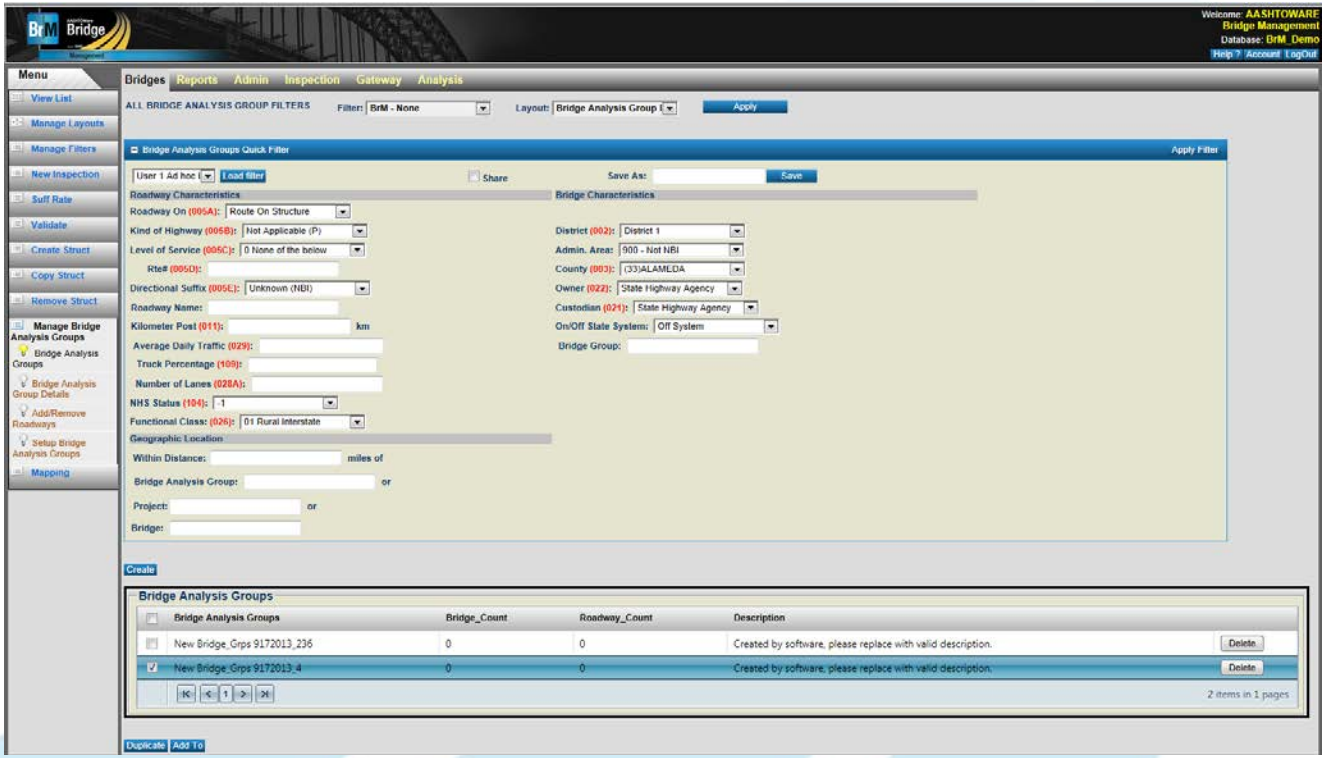
# Mapping




BrM now has the ability to view bridge locations based on their longitude and latitude settings. Locations can be changed through a drag and drop interface.

# Bridge Analysis Groups

- Create agency defined, custom grouping of ‘like’ bridges (e.g. district, region, county, material, etc.)
- Automatically create bridge analysis groups using a ‘wizard’ that uses pre-defined criteria.



# Bridge Management Contact Info:

**Feel free to contact us or visit our website for more information:**

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# Demo