

Introduction to Bridge Management



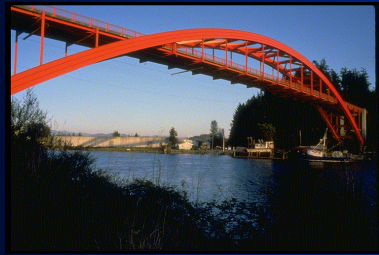
29 Feb- 2 Mar, 2000



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Thank You For Coming!



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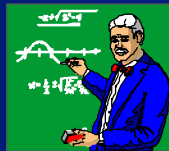
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Introductions

Host Agency: Michigan DOT

Your Instructors:

- Ray Hartle
Michael Baker Jr., Inc.
- Paul D. Thompson
Consultant



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Sponsorship

- Michigan Department of Transportation
- FHWA
- National Highway Institute



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Logistics

- Course Times:
8am - 5pm
Tues-Thurs
- Incidentals



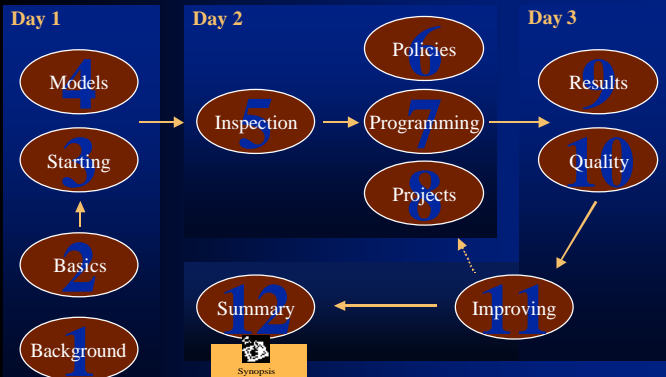
Incidentals

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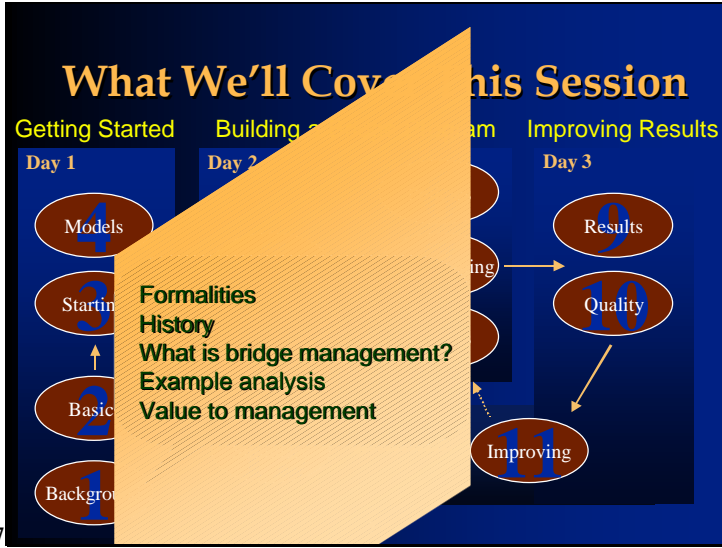
Course Structure and Workflow

Getting Started Building a Bridge Program Improving Results





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History

How Bridge Management Came To Be What It Is

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National Bridge Inventory

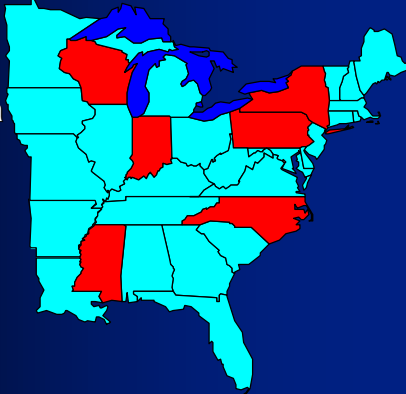
- Inventory
- Defense
- Dimensions
- Design
- Structural appraisal
- Functional appraisal
- Traffic



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Major State Projects

- Wisconsin
- North Carolina
- Pennsylvania
- New York
- Alabama
- Indiana



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Major National Projects

- FHWA Demonstration Project 71
 - Report DP-71
 - Pontis
- NCHRP Project 12-28(2)
 - Report 300
 - Bridgit



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International Contributions

- Denmark (DanBro)
- Finland (SIHA)
- Ontario
- Switzerland (KUBA)
- Sweden (SAFE)



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AASHTO BMS Guidelines

- Required Ingredients
- Alternative Approaches
- Implementation Steps
- Database Management
- Potential Enhancements
- Glossary



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CoRe Elements

- Commonly-Recognized Elements
- Standardized Definitions
 - Elements (Components) of Bridges
 - Visual Condition States
 - Feasible Actions



Examples

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ISTEA and Management System Regulations

- Intermodal Surface Transportation Efficiency Act of 1991
- Seven Systems Required
- Must Inform Statewide Planning
- Must Include Locals



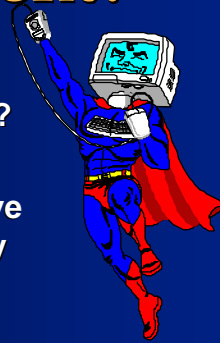
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What Is Bridge Management?

What Is a Bridge Management System?

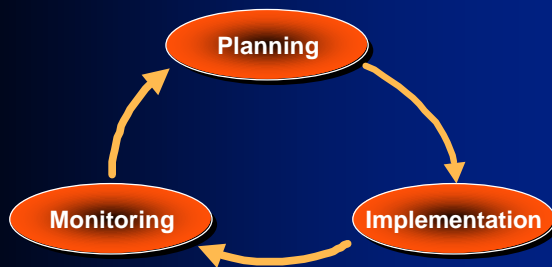
And how can we improve what we have already been doing?



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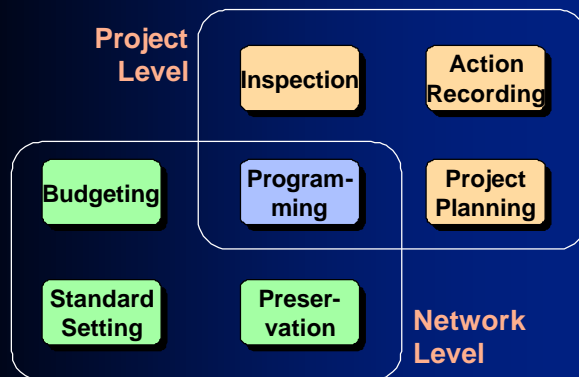
The Bridge Management Cycle



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Procedures



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Objective Analysis

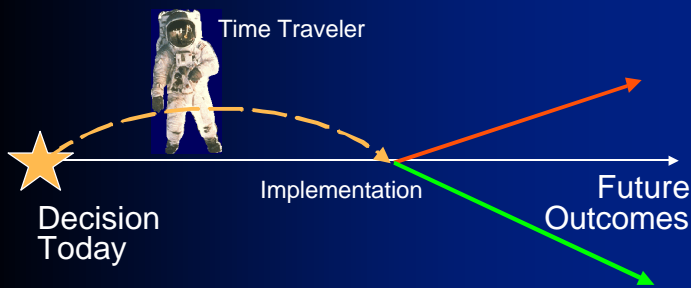
- Measurable
- Repeatable
- Consistent
- Testable
- Defensible



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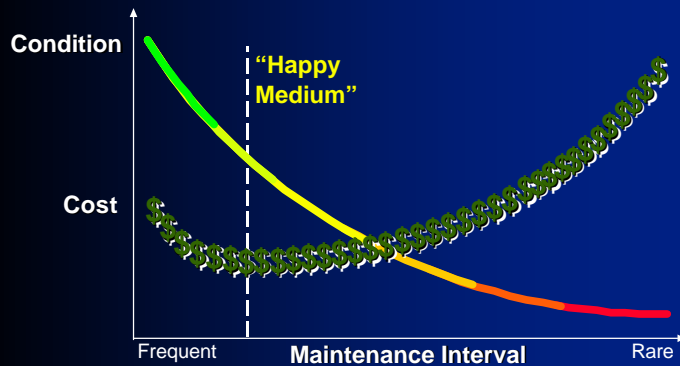
Predict Outcome of Decisions



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Optimal Preservation



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Data Collection and Processing

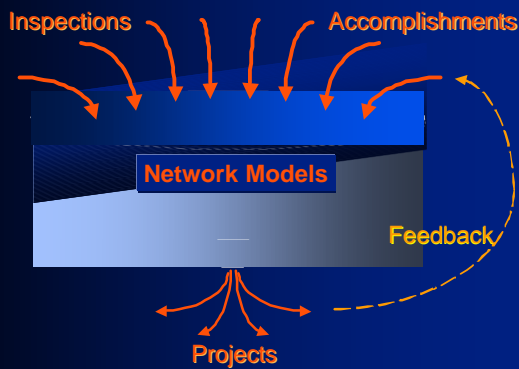


- Inventory
- Inspection
- Traffic
- Safety
- Past Actions

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Analysis Workflow



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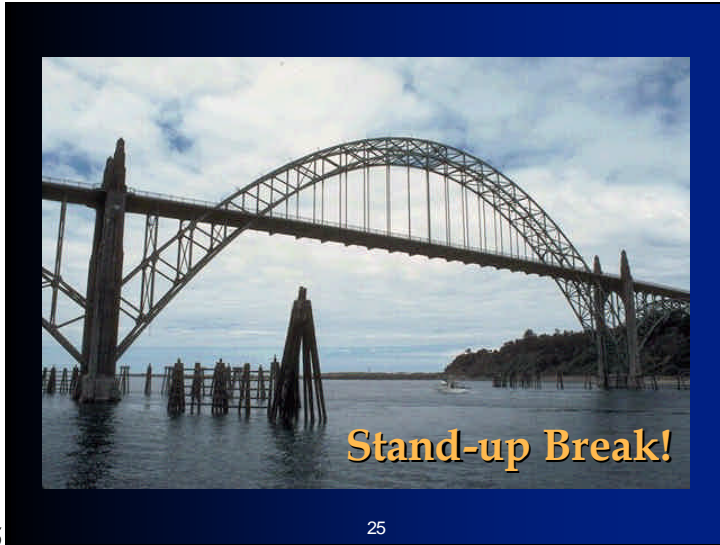
Continuous Improvement of Decision-Making

- Learn About Your Inventory
- Update Predictive Models Based On Experience
- Research Current Problems
- Keep Pushing the State-of-the-Art



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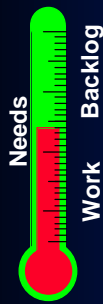
Example Analysis

Example Analysis				
Concrete girders, Severe environment (150,000 meters)				
Year: 0				
Condition State	Percent	Action	Unit Cost	Total Cost
1 No deterioration	80.9%	0 Do nothing	0	0
2 Spalls/Cracks	17.2%	1 Seal,patch	2	51583
3 Exposed Rebar	1.8%	1 Clean,patch	6	16116
4 Section Loss	0.1%	1 Rehab	50	7868
			Cost 6	75567
			Next Year	

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Summary: Management Value



What BMS must support:

- Strategic uses of limited funding
- Resource allocation
- Justify funding requests

How BMS must do it:

- Screen many alternatives quickly
- Predict outcome of decisions
- Focused views of bridge program
- Support quality improvement

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Example BMS Questions

- Bridge Condition and History
- Implications of Project Decisions
- Priorities and Schedules
- Budget Size and Tradeoffs
- Cost of Alternative Standards
- Value of Preventive Maintenance

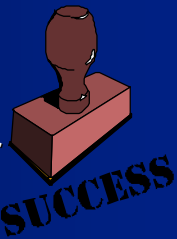


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Critical Success Factors

- Top Management Support
- Adequacy of Inspection Program
- Maintenance and Contract Management Feedback
- Data Sharing
- Quality Control
- Bridge Management Leader



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...Next: Bridge Management Systems



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