Transportation Asset Management Council
Update and Bridge Asset Management Guide

Steve Warren, Kent County Road Commission
Roger Safford, Michigan Department of Transportation

Michigan Bridge Conference
Howell, Michigan
March 21, 2012
I. Background
   • Jurisdiction & Funding
   • Legislative Foundation

II. Best Practice
   • Road Condition Rating
   • Capital Preventive Maintenance

III. Performance Reporting
   • Annual Report
   • 2011 Education & Training
   • TAMC Dashboard

IV. Bridge Committee
Jurisdiction and Funding

- 617 road agencies – 120k mi.
- 80k paved / 40k federal-aid eligible
- 123 (20%) manage 92% of the roads

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Miles</th>
<th>Traffic</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDOT</td>
<td>9,700</td>
<td>49.8M</td>
<td>8/51</td>
</tr>
<tr>
<td>83 County Road Agencies</td>
<td>91,000</td>
<td>31.0M</td>
<td>75/32</td>
</tr>
<tr>
<td>533 Cities &amp; Villages</td>
<td>21,000</td>
<td>16.8M</td>
<td>17/17</td>
</tr>
</tbody>
</table>

- Gas tax (1997) … $.19/g. gas & $.15/g. diesel
- Act 51 Study Committee of 1998 … consider alterations to Act 51 distribution formula
Legislative Foundation

Act 51 Study Committee of 1998
- …a long-term planned asset management process for statewide use
- consistent approach needed… based on how roads function rather than jurisdiction

Act 499 of 2002
- Transportation Asset Management Council established
- Advise STC and Legislature – statewide asset management strategy

Primary functions
- Best Practice – Tools, Training, and Education
- Performance Reporting – Annual Report to the STC and Legislature
- Dashboard Support
Best Practice

A. M. Process

Monitoring & Reporting
(Road Condition Rating)

Goals & Objectives
(Long-Range Vision)

Plans & Programs
(Multi-Year Program)

Program Delivery
(Implementation)

TAMC Support

PASER: common road rating method – all agencies
• state, county, city/village
• Federal and non-federal aid roads

Training & Education
• staff and local officials
• involve stakeholders

Capital Preventive Maintenance (CPM)
• “right fix at the right time”

Agencies report - ADARS
(Act 51 Dist. & Rep. System)
• completed improvements
• planned projects
Road Conditions 2004-2011

<table>
<thead>
<tr>
<th>Year</th>
<th>Condition</th>
<th>2004 %</th>
<th>2010 %</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>Good</td>
<td>26.2%</td>
<td>19.5%</td>
<td>5.0% unchanged</td>
</tr>
<tr>
<td>2004</td>
<td>Fair</td>
<td>62.5%</td>
<td>45.6%</td>
<td>26.6% unchanged</td>
</tr>
<tr>
<td>2004</td>
<td>Poor</td>
<td>11.3%</td>
<td>34.9%</td>
<td>4.4% unchanged</td>
</tr>
</tbody>
</table>

Percent of Total Lane Miles

Source: Transportation Asset Management Council
DRAFT: 2011 Annual Report
Bridge Conditions 2004-2011

Percent of All Bridges

Source: Transportation Asset Management Council
DRAFT: 2010 Annual Report
2011 Road Conditions

Source: Transportation Asset Management Council
DRAFT: 2011 Annual Report

Non Fed-Aid  Fed-Aid
Percent Lane Miles

GOOD
10.0% 19.5%

FAIR
45.8% 45.6%

POOR
44.3% 34.9%
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>4:00 – 6:00 p.m.</td>
<td>Transportation Asset Management Council Meeting/Public Invited – VisTaTech Center</td>
</tr>
<tr>
<td>7:30 – 8:00 a.m.</td>
<td>Registration and Breakfast</td>
</tr>
<tr>
<td>8:00 – 8:10 a.m.</td>
<td>Welcome/Opening Comments&lt;br&gt;Carmine Palombo, SEMCOG/TAMC Chair</td>
</tr>
<tr>
<td>8:10 – 9:00 a.m.</td>
<td>Legislative Update&lt;br&gt;Rep. Rick Olson</td>
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<tr>
<td>9:00 – 9:45 a.m.</td>
<td>The Governor’s Infrastructure Message&lt;br&gt;Bill Rustem, Director of Strategy Office of the Governor</td>
</tr>
<tr>
<td>9:45 – 10:15 a.m.</td>
<td>Asset Management Guide for Bridges&lt;br&gt;Roger Safford, MDOT&lt;br&gt;Keith Cooper, MDOT</td>
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<tr>
<td>10:15 – 10:30 a.m.</td>
<td>BREAK</td>
</tr>
<tr>
<td>10:30 – 11:00 a.m.</td>
<td>Bridge Preservation/Best Practices&lt;br&gt;Dave Juntunen, MDOT&lt;br&gt;Rebecca Curtis, MDOT</td>
</tr>
<tr>
<td>11:00 – 12:00 p.m.</td>
<td>Gravel Roads/Best Practices&lt;br&gt;Richard Reid, Associate Dean of Engineering and Director South Dakota State University LTAP</td>
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<tr>
<td>12:00 – 12:45 p.m.</td>
<td>2012 TAMC Awards Presentation</td>
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**Afternoon Session**

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<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>1:00 – 1:45 p.m.</td>
<td>Keynote Speaker&lt;br&gt;Kirk Studele, Director, MDOT</td>
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<tr>
<td>1:45 – 2:45 p.m.</td>
<td>Our Roads, Our Legacy&lt;br&gt;Andrew Lemer, National Academy of Sciences/The Matrix Group, LLC</td>
</tr>
<tr>
<td>2:45 – 3:15 p.m.</td>
<td>International Study&lt;br&gt;Tim Colting, MTU&lt;br&gt;Roger Safford, MDOT</td>
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<tr>
<td>3:15 – 3:45 p.m.</td>
<td>2011 Annual Report/Current and Future TAMC Efforts&lt;br&gt;Closing Comments&lt;br&gt;Carmine Palombo, SEMCOG/TAMC Chair</td>
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**Evening Reception**

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<tr>
<td>5:00 – 7:00 p.m.</td>
<td>Michigan Municipal League Reception – VisTaTech Center</td>
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Please join the Michigan Municipal League (MML) for a casual evening of networking and refreshments at this League Meet Up. This is a FREE event open to all! Visit MML on the Web at: www.mml.org.

**Thursday, April 26, 2012**

<table>
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<th>Time</th>
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<tr>
<td>9:00 – 12:00 p.m.</td>
<td>Workshop: “Introduction to Transportation Asset Management for Elected and Appointed Officials” – VisTaTech Center</td>
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This workshop is designed specifically with city, county, and township elected and appointed officials in mind. All local elected and appointed officials who have an interest in transportation projects or facilities should attend. No engineering background is required.
1. **Paved Road Conditions (PASER)**
   - Condition of federal-aid network
   - Trend analysis (2004 – 2011)
   - Non federal-aid network (statewide)
     - Agency Comparison Chart

2. **Bridge Conditions (NBI)**
   - Percent structurally deficient
   - Bridge deck ratings
   - Link to MBIRS and MBIS

3. **Traffic & Safety**
   - Traffic Volumes
   - Total Crashes
   - Total Personal Injury
   - Total Fatal Crashes
     - Rate/100m VMT
     - 3 yr. rolling average

4. **Road Maintenance**
   - Total cost per lane mile
   - Winter maintenance cost per lane mile
   - Salt usage – tons per lane mile

5. **Finance**
   - MTF revenue trend
   - Total revenue trend
   - Employee cost (wages and benefits)
   - Work performed by CRC vs contractor
   - Other post employment benefits *
   - Unfunded pension liability *
   - Fringe factor
   - Total Administrative cost vs total revenue

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**TAMC Dashboard**

http://mcgiwebuat.mcgi.state.mi.us/MI TRP/Data/PaserDashboard.aspx
Bridges Are A Strategic Asset in Michigan
TAMC Strategic Initiative on Bridges:

“Develop and implement a plan to promote and support bridge asset management practices on Michigan bridges, and integrate this plan with pavement asset management approaches.”

To that end, TAMC:

• Established a Bridge Asset Management Committee – June 2009

• Approved a Work Plan for Bridge Asset Management

• Aim is to promote and support Bridge Asset Management Practices in Michigan
Local Bridge Asset Management

- Review of current practices in Michigan
- Input from Federal Highway Administration
- Survey done with local agencies in January of 2010 –results are incorporated into Guide
MDOT Local Agency Bridge Program:

Determines the 3-year bridge program that replaces, rehabilitates (including preventive maintenance), that maintains the local bridge inventory.

Working Groups:

Local Bridge Advisory Board, LBAB
Region Bridge Councils, RBC’s
MDOT’s Local Bridge Unit
Funding of Local Bridge Preventive Maintenance

• Local Bridge Advisory Board has allowed Preventive Maintenance for five years. Previously, the program could only use state funds for PM
• FHWA now allows Federal Bridge funds for PM projects on local bridges
• Measures to be developed to assess program effectiveness
Managing Local Agency Bridges

Local Agency Bridge Condition Ratings

- Serious, Critical and Closed
- Poor
- Fair
- Good

Number of Bridges

NBI Condition Ratings

0 1 2 3 4 5 6 7 8 9
Asset Management Guide for Local Agency Bridges in Michigan

sponsored by Michigan Transportation Asset Management Council

prepared by TranSystems Corporation

May, 2011
Local Bridge Asset Management Guide

Purpose

• Provide assistance in understanding bridge condition, maintenance, repair strategies, and costs

• Provide guidance to decision makers in planning, developing, programming and implementation of effective capital programs and maintenance actions
Local Bridge Asset Management Guide

1.0 Introduction

2.0 Bridge Asset Management in Michigan

3.0 MDOT Local Agency Programs

4.0 Bridge Condition Assessment

5.0 Developing an Optimum Bridge Preservation Strategy

Appendices - including Sample Plan
Local Bridge Asset Management Guide

2.0 Bridge Asset Management in Michigan

Elements of a Systematic Plan

• Identify system needs
• Prioritize needs
• Define the goal(s)
• Demonstrate cost effectiveness
• Identify and dedicate resources
• Annual reporting of actions
Local Bridge Asset Management Guide

2.0 Bridge Asset Management in Michigan

Benefits of developing and implementing a systematic plan

• Increases knowledge and understanding of bridge network
• Assists owners in planning for maintenance actions for the entire system
• Setting goals will help develop optimal strategies
• Tracking progress will help to ensure that goals and strategies are being met
Local Bridge Asset Management Guide

4.0 Bridge Condition Assessment

• Bridge Safety Inspections – biennial
  – Inspector Recommendations for repairs / work items
  – Structure Evaluation / Load Rating
  – Detailed inspections – extent of repair

• Bridge Condition and Appraisal
  – Condition Ratings
Local Bridge Asset Management Guide

5.0 Developing an Optimum Bridge Preservation Strategy

• ‘Mix of Fixes” utilizing replacement, rehabilitation, preventive maintenance and scheduled maintenance to maintain/improve the overall bridge condition

• Consult the MDOT bridge scoping cost estimating worksheet
5.0 Developing an Optimum Bridge Preservation Strategy (cont.)

- Prioritize repairs once types of repairs are determined and cost estimates are completed
- Coming Soon---MBRS and MBIS tools for agencies on TAMC Dashboard
Preservation Plan for Genesee County Local Bridges

May, 2011

MICHIGAN TRANSPORTATION ASSET MANAGEMENT COUNCIL

Genesee County Road Commission

TranSystems
Sample Local Bridge Preservation Plan

Purpose

• Provide sample document for local agencies that are interested in developing their own bridge preservation plan

• Sample Preservation Plan was developed for Genesee County Road Commission based on their priorities and funding
Sample Local Bridge Preservation Plan

Benefits

• Identification and understanding of bridge condition in the network

• Develop a defined program of rehabilitation, replacement, and preventive maintenance to restore functionally or degraded bridge elements

• Dedicate local resources and increased opportunity to obtain additional funding
Sample Local Bridge Preservation Plan

Goal Preservation of the County’s bridge network

Objectives

• Establish the current condition of the bridges
• Develop “Mix of Fixes”
• Prioritize programmed actions within available funding
• Have 80% of bridges rated fair /good in 10 years
Asset Management Guide for Local Agency Bridges in Michigan

sponsored by Michigan Transportation Asset Management Council
prepared by TranSystems Corporation

May, 2011
TAMC Bridge Committee Update

• Committee meets monthly – see TAMC Website for more information

• Supporting TAMC Dashboard Initiative

• Planned TAMC Pilot Training - 2013
Pilot Training Template

- 1-day session
- Introduction and Overview – Systematic Approach
- Bridge Condition – Evaluating and Assessing Needs
- Available Maintenance Options
- Working Lunch – Case Studies
- Cost Estimating
- Optimizing Bridge Preservation Actions
- Developing a Local Bridge Preservation Plan
Key Messages

• Use the tools and take necessary steps to adopt a systematic approach to bridge preservation
• Share your successes and challenges with the TAMC and each other
• Become a champion of bridge asset management in your area of influence
Next Steps
• Continued education and training to promote use of these tools
• Continued monitoring of statewide bridge conditions
• Bridge dashboard elements with links to MBRS and MBIS planned
Transportation Asset Management Council
Update and Bridge Asset Management Guide

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Questions?