Western States & Oregon Preventive Maintenance Experience

Bert Hartman, Oregon DOT
May, 2012
Western States Summary

- Does your state have approval to use HBP funds for preventive maintenance?

- If not, has the state applied to use HBP funds for preventive maintenance

(9 of 13 states responded)
No Approval, No Application

- Arizona
- Utah
- Wyoming
- Washington (Prior Approval, 2001)
  - Rehab/repair/overlay concrete decks
  - Paint steel bridges
  - Scour repairs
No Approval, Did Application

- Alaska
- Oregon
Approved Preventive Maintenance

• New Mexico
  – Approval in 2005, 2010 update
  – Everything from Major Rehabs-Minor Rehabs
  – Preventive Maintenance
    • Crack Sealing, Low Viscosity Sealers
    • Polymer Concrete Deck Overlays
    • Deck Joints
Approved Preventive Maintenance

• Hawaii (January 2005)
  – Decks (sealing, overlays, cathodic protection)
  – Joints (eliminate, repair existing, new)
  – Bearings, approach slabs, beam ends
  – Scour, seismic, substructure repairs
  – Painting

• California (2009)
Program Review

Oregon DOT Systematic Bridge Preventive Maintenance Program

October 2010
Bridge Preventive Maintenance (PM) Program

• Extend the life of the deck and other structural components
• Deck overlays provide a protective coating for the deck prolonging service life
• Keeps water from leaking onto structural elements below the deck and causing deterioration
• Repairing bridges before they become structurally deficient is cost effective
• Provide drivers with a smoother ride

Alternative is:
• Significant costs to both the agency and stakeholders, including detour bridges and traffic control for deck replacement
Systematic Process

1. Define How the Needs are ID? NO
   YES

2. Prioritize the Need? NO
   YES

3. Program Remedy to address the Need? NO
   YES

Application does not meet the systematic process criteria
Systematic Process

8. Demonstrate extension of life?
   - NO
   - YES

9. Dedicate adequate resources?
   - NO
   - YES

Implement Systematic Process for Preventive Maintenance (PM)

Track the Progress

Adjust as necessary to reach goal
Recommendations

• Recommendations given in all areas
• Oregon modified element definitions
• Current assessment to provide a baseline
• Establish a process for collecting and analyzing data to demonstrate extension of useful life
Recent Positive Things

- Bridge Preservation Handbook
- St Louis, November 2011
- Partnership Meetings
- Webinar’s
Program Review

Oregon DOT
Systematic Bridge Preventive Maintenance Program

October 2010
Bridge Preventive Maintenance (PM) Program
Cyclical Preventive Maintenance

Cyclical Preventive Maintenance Activities – Definition

Activities performed on a pre-determined interval and aimed to preserve existing bridge element or component conditions. Bridge element or component conditions are not always directly improved as a result of these activities, but deterioration is expected to be delayed.
## Bridge Preservation Guide

<table>
<thead>
<tr>
<th>Cyclical PM Activity Examples</th>
<th>Commonly Used Frequencies (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wash/clean bridge decks or entire bridge</td>
<td>1 to 2</td>
</tr>
<tr>
<td>Install deck overlay on concrete decks such as:</td>
<td></td>
</tr>
<tr>
<td>- Thin bonded polymer system overlays</td>
<td>10 to 15</td>
</tr>
<tr>
<td>- Asphalt overlays with waterproof membrane</td>
<td>10 to 15</td>
</tr>
<tr>
<td>- Rigid overlays such as silica fume and latex modified</td>
<td>20 to 25</td>
</tr>
<tr>
<td>Seal concrete decks with waterproofing penetrating sealant</td>
<td>3 to 5</td>
</tr>
<tr>
<td>Zone coat steel beam/girder ends</td>
<td>10 to 15</td>
</tr>
<tr>
<td>Lubricate bearing devices</td>
<td>2 to 4</td>
</tr>
</tbody>
</table>

Table 1: Examples of Cyclical PM Activities
The Path Forward for Oregon (1)

- Transition to new elements (NBE, BME)
- Focus on Non-Condition based activities
- Begin with Deck Sealing
  - New and Current Elements
  - Use Bridge Preservation Guide
  - Use information from other states
- If Deck Sealing is approved, focus on another activity or several activities
The Path Forward for Oregon (2)

• Revisit October 2010 Results
• Perhaps 0 for 9 was misperception
• Determine if there is a showstopper
  – Baseline For NBE and BME?
  – Demonstrate extension of useful life

• Choose Path (1) or Path (2)
Distressed Bridge Criteria

• Structurally Deficient
  – Poor condition of a primary component

• Ten other criteria
  – Paint - Cathodic Protection
  – Rail - Load Capacity
  – Scour - Moveable
  – Geometry - Sufficiency Rating
  – Timber - Vertical Clearance
Non-Deficient Bridge Forecast
Questions?