INDOT’s Overhead Sign Structure Inspection Program

Presented for:
Purdue Road School

Presented by:
Collins Engineers
Presentation Topics

• Nationwide trends in ancillary structure inspection
• INDOT’s high mast tower inspection program
• INDOT’s overhead sign structure inspection program
Nationwide Trends in Ancillary Structure Inspection

• What typically constitutes an ancillary structure?
• What structural related information is available regarding ancillary structures?
• What are other agencies doing?
• Within an agency, where is an ancillary structure program typically managed?
What typically constitutes an ancillary structure?

- Overhead Sign
- High Mast Light Tower
- Luminaire / Mast Arm Signal
- Sound Walls
- Retaining walls
What structural related information is available regarding ancillary structures?

- FHWA Guidelines on inspection, maintenance, and repair; 2005
- Some states have developed state specific manuals for inspection and design
- NCHRP reports / University Research
What are other agencies doing?

- States, cities, counties, airports, private, etc.
- Some agencies have very robust programs
  - Detailed reports with figures, load analysis, work orders, database of inventory and inspection data
- A lot of agencies fall in the middle somewhere
- Some agencies have a more basic approach
  - Enter data into spreadsheet, no recommendations, no photos, minimal inventory and inspection data
- A few agencies have a minimal/reactive approach
Within an agency, where is an ancillary structure program typically managed?

- Bridge Division
- Traffic Division
- Maintenance Division
- Asset Management Division
INDOT’s
High Mast Tower Inspection Program
INDOT’s High Mast Tower Inspection Program

- Inspected 729 High Mast Towers
  - From 2008 to 2011

<table>
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<th>District</th>
<th>Good/Fair</th>
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<th>Critical</th>
<th># of HMT</th>
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Totals: 448 | 240 | 41 | 729

Typically due to loose anchor rods and other non-immediate maintenance have all been addressed.
INDOT’s High Mast Tower Inspection Program
Inspection Process

- Traffic control
- Gather inventory data
- Visual and tactile inspection of base of structure
- Visual inspection of pole and light ring using a scope or binoculars
- Thickness measurements at base of pole
- Ultrasonic testing (UT) of anchor rods
- Inspection findings and inventory data recorded and reports created
Inspection Findings – Drainage Issues
Inspection Findings – Erosion
Inspection Findings

Internal Corrosion
Inspection Findings

– Loose Anchor Rod Nuts
Inspection Findings

Debris Impaction
Inspection Findings – Cracks at Slip Joints
INDOT’s Overhead Sign Inspection Program
INDOT’s Overhead Sign Inspection Program

- Inspected Approx. 590 Overhead Signs
  - From 2009 to 2015...and counting...

<table>
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<td>448</td>
<td>240</td>
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INDOT’s
Overhead Sign Inspection Program
Inspection Process for Existing Contract

• Traffic control
• Obtain and record inventory data
• Visual and tactile inspection of entire structure using a bucket truck and structure climbing
• Thickness measurements at base of supports
• Ultrasonic testing (UT) of anchor rods
• Inspection findings and inventory data recorded and reports created
Inspection Process for New Contract

• Same process as existing contract with the addition of...
• Climbing over live traffic will be allowed
• Minor maintenance will be included
Traffic Control Coordination

INDIANA
DEPARTMENT
OF
TRANSPORTATION
INTERSTATE
HIGHWAYS
CONGESTION
POLICY
2014
Site Conditions

Overhead Wires
Inspection Findings

- Installation Defects
Inspection Findings – Installation Defects
Inspect under engaged nuts.
Inspection Findings – Installation Defects
Inspection Findings – Buried Foundation
Inspection Findings – Foundations
Inspection Findings – Foundations
Inspection Findings – Foundations
Inspection Findings

Grout Pads
Inspection Findings

Weld Cracks

Truss to Supp. Lower bolt N.F. 6/22/10
Inspection Findings

Weld Cracks

4/16/12 LBD
Inspection Findings

- Corrosion/Weld Crack
Inspection Findings

Fractured Anchor Rod
Inspection Findings

Fractured Anchor Rod
Inspection Findings – Sign Failure
THANK YOU!

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