2016 Bridge Inspection ERC Training

Merril Dougherty, P.E.
Bridge Inspection Manager, INDOT

March 9, 2016
Bridge Inspection Email Address

- INDOT IN Bridges Help
  - inbridgeshelp@indot.in.gov
- Use this email for bridge inspection communication
  - Issues with BIAS database
  - Team Leader/Member applications
BIAS

- Apps for iPad and Android tablets
- Consultant administrator responsibility
  - Provide access for users in their counties
  - Provide training for users in their counties
- Culverts added as an asset type
Quarterly Compliance Reports

- Communication with ERCs
- Notice of late inspections
- Notice until resolved
- Response required
FHWA 23 Metrics

- Bridge inspection memos
  - Team Leader email list
    - Recommended ERCs join to keep current
    - Sign up at bridge inspection web site
  - Design consultants email list
FHWA 23 Metrics

- Inspection Frequency
  - Start the contracting process early (1 Year)
  - Work with INDOT’s Local Public Agency (LPA) Division
Critical findings

- Report to program manager ASAP
- Required documentation (inspector)
- Remember to close out critical findings
- Plan to move to BIAS in 2016
FHWA 23 Metrics

- Load rating policy
  - Updated to encompass legal loads
  - AASHTO BrR (Formerly VIRTIS)
  - Start updating next year
FHWA 23 Metrics

- Scour determined to need improvement
- Coding issues
- Update scour evaluation starting next year
- Scour critical bridges
  - Plan of action (POA) required or
  - Properly designed countermeasures
Scour Damage
Scour Damage

31-03-06062A
5.34
Little Sand Creek
07/21/98
Scour at a Pier
Scour In the Overbank
Scour Damage
Item 113 Coding

- N - Bridge not over waterway.
- U - Bridge with "unknown" foundation that has not been evaluated for scour. Since risk cannot be determined, flag for monitoring during flood events and, if appropriate, closure.
- T - Bridge over "tidal" waters that has not been evaluated for scour, but considered low risk. Bridge will be monitored with regular inspection cycle and with appropriate underwater inspections. ("Unknown" foundations in "tidal" waters should be coded U.)
9 - Bridge foundations (including piles) on dry land well above flood water elevations.

8 - Bridge foundations determined to be stable for assessed or calculated scour conditions; calculated scour is above top of footing. (Example A)

7 - Countermeasures have been installed to correct a previously existing problem with scour. Bridge is no longer scour critical.

6 - Scour calculation/evaluation has not been made. (Use only to describe case where bridge has not yet been evaluated for scour potential.)

5 - Bridge foundations determined to be stable for calculated scour conditions; scour within limits of footing or piles. (Example B)
Item 113 Coding Continued

- **4** - Bridge foundations determined to be stable for calculated scour conditions; field review indicates action is required to protect exposed foundations from effects of additional erosion and corrosion.

- **3** - Bridge is scour critical; bridge foundations determined to be unstable for calculated scour conditions: - Scour within limits of footing or piles. (Example B) - Scour below spread-footing base or pile tips. (Example C)

- **2** - Bridge is scour critical; field review indicates that extensive scour has occurred at bridge foundations. Immediate action is required to provide scour countermeasures.

- **1** - Bridge is scour critical; field review indicates that failure of piers/abutments is imminent. Bridge is closed to traffic.

- **0** - Bridge is scour critical. Bridge has failed and is closed to traffic.
Item 113 Coding Continued

A. Above top of footing

None - indicate rating of 8 for this item

B. Within limits of footing or piles

Conduct foundation structural analysis

C. Below pile tips or spread-footing base

Provide for monitoring and scour countermeasures as necessary

Spread Footing (Not Founded in Rock)  Pile Footing

------------------- = Calculated scour depth
POA Required

- Bridge determined to be scour critical
- Item 113 code
  - U, 3, or 2 POA required
  - 1 or 0 bridge closed POA not required unless repaired at a rating of U, 3, or 2
  - Bridges with countermeasures for repair need to be properly coded
Parts of a Scour POA

- Triggering event
- Monitoring frequency
- Monitoring plan
- Closure plan
- Closure notification
- Reopening inspection requirements
Triggering Event

- National Weather Service Flood Warning
  - http://www.weather.gov/subscribe
- USGS stream gages in the county
  - http://water.usgs.gov/wateralert/
- Other triggers
  - Rain gage at a facility
  - Mark on the bridge
Monitoring Frequency

- Set a frequency based on the stream
  - Every 12 hours
  - Every 8 hours
  - Other
Monitoring Plan

- What needs to be monitored
  - Piers
  - Abutments
  - Stream meanders
  - Other
Closure Plan

- Trigger for closure
  - Mark on bridge
  - Water reaches low structure
  - Water ready to overtop road
  - Flow moves to wingwall
Closure Notification

- Emergency Management Director
- Highway Engineer/Supervisor
- Secondary Highway Contact
Reopening Insp. Requirements

- May require flood to recede
- What components require inspection
  - Piers
  - Abutments
  - Wingwalls
  - Road approach
Monitoring Log

- County Highway Engineer/Supervisor
- Completed during each event
POA Updates

- Every contract cycle
- When key personnel change
For More Information

- HEC-18 Evaluating Scour at Bridges
- HEC-20 Stream Stability at Highway Structures
- HEC-23 Bridge Scour and Stream Instability Countermeasures
Questions?

Merril Dougherty
mdougherty@indot.in.gov
317-232-6776 Office
317-439-8970 Cell

INDOT IN Bridges Help Email address:
inbridgetshelp@indot.in.gov