

2016 NBIS QA REVIEW

SUMMARY REPORT

Final Report
February 17, 2017

Prepared for:

Illinois Department of Transportation
Bureau of Bridges & Structures

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INTRODUCTION

The Illinois Department of Transportation (IDOT) is required to perform Quality Assurance (QA) reviews of its bridge inspection practices in order to comply with the National Bridge Inspection Standard (NBIS). As part of the QA review, the IDOT Bureau of Bridges & Structures (BBS) conducts process audits of selected agencies to document compliance with NBIS requirements.

For 2016, 18 agencies were selected for review. Interviews of staff and field reviews at bridge sites were conducted from March 14, 2016 through September 21, 2016.

The interviews and site visits were conducted by representatives from Oates Associates, Inc. and the BBS. The reviews were typically attended by the agency Program Manager, Team Leaders, and the local IDOT District Bridge Liaison. Representatives from the Federal Highway Administration (FHWA) also attended select reviews. A report was prepared for each agency which documented the review and noted program deficiencies.

This document summarizes the information gathered during the interviews and the observations made during the subsequent site visits.

1. PROGRAM MANAGEMENT

1.1 Personnel

The following summarizes the review findings regarding personnel:

- All of the agencies had Program Managers that were approved by IDOT.
- All of the agencies had Program Managers that were current on refresher training.
- There was one agency with a Team Leader that was not approved by IDOT.
- All of the agencies had Team Leaders that were current on refresher training.

1.2 Inventory & Scheduling

The reviewed agencies' inventory of NBIS structures were under the jurisdictions shown in the following table:

| Jurisdiction | Number of Structures |
|--------------|----------------------|
| County | 1,427 |
| Township | 2,355 |
| Total | 3,782 |

For purposes of this report, an NBIS structure is defined as a structure carrying a public roadway and greater than 20.0 feet in length. The inventory numbers presented in this report do not include non-NBIS structures and are based on data downloaded from the Illinois Structure Information System (ISIS) prior to each agency's interview.

The following summarizes the review findings regarding scheduling:

- There were 16 agencies that had an in-house system for tracking inspection schedules.
- There were two agencies that relied entirely on reports from IDOT to track inspection schedules.
- All of the agencies used the IDOT Inspection Date Notification web portal.

1.3 Quality Control

The following summarizes the review findings regarding quality control:

- All of the agencies had some level of quality control in place to ensure that quality bridge inspections were being performed.
- All of the agencies had Program Managers that reviewed inspection reports.
- There were six agencies that did not complete regular field reviews of Team Leaders.
- There was one agency that did not contact IDOT when they had critical findings.
- There was one agency that was not familiar with Section 3 of the IDOT Structural Services Manual.
- All of the agencies were familiar with the 23 NBIS Metrics.

2. ROUTINE NBIS INSPECTIONS

The agencies reviewed completed routine NBIS inspections at the intervals shown in the following table:

| Inspection Interval (Months) | Number of Structures |
|------------------------------|----------------------|
| 48 | 1,721 |
| 24 | 2,032 |
| 12 | 0 |
| <12 | 29 |
| Total | 3,782 |

There were 11 agencies that had routine NBIS inspection delinquencies. The delinquencies are summarized in the following tables:

| Currently Delinquent for Next Inspection | Number of Structures |
|---|----------------------|
| Low Risk – Less than 4 months delinquent | 4 |
| High Risk – Less than 4 months delinquent | 0 |
| Low Risk – More than 4 months delinquent | 0 |
| High Risk – More than 4 months delinquent | 0 |
| Total | 4 |

| Previously Delinquent for Last Inspection | Number of Structures |
|---|----------------------|
| Low Risk – Less than 4 months delinquent | 361 |
| High Risk – Less than 4 months delinquent | 20 |
| Low Risk – More than 4 months delinquent | 8 |
| High Risk – More than 4 months delinquent | 0 |
| Total | 389 |

The following summarizes the review findings regarding routine NBIS inspections:

- Delinquencies were typically due to weather, scheduling issues, high water, inspection interval changes, issues with contract authorization, equipment availability, manpower issues, and agencies not realizing the importance of inspecting structures on time.
- There was one agency that did not have IDOT certified Team Leaders present during all routine NBIS inspections.
- There were 11 agencies that did not thoroughly checked inventory data during routine inspections.
- All of the agencies used current IDOT inspection forms to document routine inspection findings.
- All of the agencies assigned new condition ratings at the bridge during routine inspections.
- There was one agency that did not record new condition ratings on routine inspection forms when they were the same as previous condition ratings.
- There were three agencies that did not record new codings in the Additional Inspection data section when they were the same as previous codings.

- There were three agencies that did not justify condition ratings of "5" or less on the routine inspection forms.
- All of the agencies had the Program Manager's signature on routine inspection reports.
- There were three agencies that did not have the Team Leader's signature on all routine inspection reports.
- There were two agencies that did not keep the original routine inspection reports with "wet" signatures in the bridge file.
- There were three agencies that did not have routine inspection procedures that provided quality assessments of the structures.
- There were two agencies that did not have quality documentation of the routine inspection findings.

3. UNDERWATER INSPECTIONS

There were seven agencies reviewed that had structures requiring underwater inspections. These agencies completed underwater inspections at the intervals shown in the following table:

| Inspection Interval (Months) | Number of Structures |
|------------------------------|----------------------|
| 60 | 22 |
| 48 | 0 |
| 36 | 0 |
| 24 | 0 |
| 12 | 0 |
| Total | 22 |

There were two agencies that had underwater inspection delinquencies. The delinquencies are summarized in the following tables:

| Currently Delinquent for Next Inspection | Number of Structures |
|---|----------------------|
| Low Risk – Less than 4 months delinquent | 0 |
| High Risk – Less than 4 months delinquent | 0 |
| Low Risk – More than 4 months delinquent | 0 |
| High Risk – More than 4 months delinquent | 0 |
| Total | 0 |

| Previously Delinquent for Last Inspection | Number of Structures |
|---|----------------------|
| Low Risk – Less than 4 months delinquent | 0 |
| High Risk – Less than 4 months delinquent | 1 |
| Low Risk – More than 4 months delinquent | 3 |
| High Risk – More than 4 months delinquent | 0 |
| Total | 4 |

The following summarizes the review findings regarding underwater inspections:

- Delinquencies were typically due to inspections being overlooked and coordination issues with subconsultants.
- All of the applicable agencies had IDOT certified Team Leaders present during all underwater inspections.
- There was one agency that did not check the condition of submerged structural elements during underwater inspections.
- All of the applicable agencies checked the streambeds for scour during underwater inspections.
- All of the applicable agencies used current IDOT inspection forms to document underwater inspection findings.
- All of the applicable agencies recorded new condition ratings on underwater inspection forms even when they were the same as previous condition ratings.
- All of the applicable agencies included data in the underwater inspection reports documenting streambed elevations.
- There were three agencies that did not have a written underwater inspection plan incorporated into the bridge file.
- There was one agency that did not have the Program Manager's signature on all underwater inspection reports.
- All of the applicable agencies had the Team Leader's signature on underwater inspection reports.
- There were two agencies that did not keep the original underwater inspection reports with "wet" signatures in the bridge file.
- There was one agency that did not have underwater inspection procedures that provided quality assessments of the structures.
- All of the applicable agencies had quality documentation of the underwater inspection findings.

4. FRACTURE CRITICAL MEMBER INSPECTIONS

There were six agencies reviewed that had structures requiring fracture critical member (FCM) inspections. These agencies completed FCM inspections at the intervals shown in the following table:

| Inspection Interval (Months) | Number of Structures |
|------------------------------|----------------------|
| 24 | 11 |
| 12 | 10 |
| <12 | 0 |
| Total | 21 |

There were two agencies that had FCM inspection delinquencies. The delinquencies are summarized in the following tables:

| Currently Delinquent for Next Inspection | Number of Structures |
|--|----------------------|
| Less than 4 months delinquent | 0 |
| More than 4 months delinquent | 0 |
| Total | 0 |

| Previously Delinquent for Last Inspection | Number of Structures |
|---|----------------------|
| Less than 4 months delinquent | 3 |
| More than 4 months delinquent | 0 |
| Total | 3 |

The following summarizes the review findings regarding FCM inspections:

- Delinquencies were typically due to scheduling issues.
- All of the applicable agencies had IDOT certified Team Leaders present during all FCM inspections.
- There was one agency that did not inspect FCM's at arm's length.
- All of the applicable agencies used current IDOT inspection forms to document FCM inspection findings.
- All of the applicable agencies recorded new condition ratings on FCM inspection forms even when they were the same as previous condition ratings.
- There were two agencies that did not include quantitative data in the FCM inspection reports documenting the inspection findings.
- There were five agencies that did not have a written FCM inspection plan incorporated into the bridge file.
- There were two agencies that did not have a sketch that clearly identified all of the structures FCM's incorporated into the bridge file.
- All of the applicable agencies had the Program Manager's signature on FCM inspection reports.
- There were two agencies that did not have the Team Leader's signature on all FCM inspection reports.
- There was one agency that did not keep the original FCM inspection reports with "wet" signatures in the bridge file.

- There was one agency that did not have FCM inspection procedures that provided quality assessments of the structures.
- There were two agency that did not have quality documentation of the FCM inspection findings.

5. SPECIAL INSPECTIONS

There were ten agencies reviewed that had structures requiring special inspections. These agencies completed special inspections at the intervals shown in the following table:

| Inspection Interval (Months) | Number of Inspections |
|------------------------------|-----------------------|
| 48 | 0 |
| 24 | 0 |
| 12 | 27 |
| <12 | 17 |
| Total | 44 |

There were three agencies that had special inspection delinquencies. The delinquencies are summarized in the following tables:

| Currently Delinquent for Next Inspection | Number of Inspections |
|--|-----------------------|
| Less than 4 months delinquent | 1 |
| More than 4 months delinquent | 0 |
| Total | 1 |

| Previously Delinquent for Last Inspection | Number of Inspections |
|---|-----------------------|
| Less than 4 months delinquent | 9 |
| More than 4 months delinquent | 0 |
| Total | 9 |

The special inspections had ISIS Item Number 92C1 (Special Feature Type) coded:

- A - Structural Damage/Deterioration - Steel Superstructure Elements
- B - Structural Damage/Deterioration - Concrete Superstructure Elements
- D - Structural Damage/Deterioration - Steel Substructure Elements
- F - Structural Damage/Deterioration - Timber Substructure Elements
- L - Existing Streambed Scour Adjacent to Spread Footing
- N - Existing Streambed Scour Adjacent to Pile Bent Substructure Unit
- Q - Substructure Movement or Settlement
- S - Specifically Identified Problematic Structural Details

The following summarizes the review findings regarding special inspections:

- Delinquencies were typically due to scheduling issues, inspections being overlooked, and misunderstanding the inspection due date.
- All of the applicable agencies used current IDOT inspection forms to document special inspection findings.
- All of the applicable agencies recorded new condition ratings on special inspection forms even when they were the same as previous condition ratings.
- There were four agencies that did not include photos or quantitative data in the special inspection reports documenting the inspection findings.
- There were nine agencies that did not reference the date of the last observed changes if "no change" was noted in the special inspection report.
- All of the applicable agencies included documentation of the special inspection procedures in the bridge file.
- All of the applicable agencies clearly identified the features requiring special inspection in the bridge file.
- All of the applicable agencies had the Program Manager's signature on special inspection reports.
- All of the applicable agencies kept the original special inspection reports with "wet" signatures in the bridge file.
- There were three agencies that did not have special inspection procedures that provided quality assessments of the structures.
- There were four agency that did not have quality documentation of the special inspection findings.

6. SCOUR EVALUATIONS

There were eight agencies with a combined total of 20 scour critical structures.

The following summarizes the review findings regarding scour evaluations:

- There was one agency that had not completed scour critical evaluations for all structures over waterways.
- There was one agency that did not have a scour POA for each scour critical structure.
- There was one agency that did not have scour POA's incorporated into the bridge file.
- There was one agency that did not regularly review and update the scour POA's as needed.
- There were two agencies that did not document field visits that were part of an implemented scour POA.
- There were four agencies that did not incorporate justification for the coding of ISIS Item 113 into the bridge file whenever possible.

7. **LOAD RATING**

There were ten agencies with a combined total of 84 load posted structures. There were ten agencies with a combined total of 23 closed structures.

The following summarizes the review findings regarding load ratings:

- The BBS completed all of the load ratings for the local agencies.
- One agency had consultants complete their load ratings.
- One agency's load ratings were sealed by a licensed Illinois Structural Engineer, they were not submitting Structure Load Rating Summary forms to IDOT.
- There were 17 agencies that did not have properly posted structures.
- All of the local agencies notified IDOT whenever work affecting the load rating had been completed.
- All of the applicable agencies regularly reviewed posting and closing signs.
- All of the local agencies had their posting and closing signs annually reviewed by IDOT.

IDOT's load rating program was also reviewed and the findings are summarized as follows:

- Load rating inspections were not completed for every bridge load rating.
- Bridge load ratings for both local agency and state structures appeared to follow several "unwritten rules".
- Some dead load distribution assumptions appeared to be unconservative.
- Several errors were noted in both the bridge load rating calculations and documentation.
- Some of the noted deficiencies appeared to be caused by IDOT use of default software program settings.

8. **BRIDGE FILE**

The following summarizes the review findings regarding bridge files:

- All of the local agencies had well organized bridge file systems.
- Information in one agency's bridge file was stored in several different locations.
- All of the agencies had all of the significant bridge file components.
- All of the local agencies made their bridge files accessible to the inspection team.
- Part of one agency's bridge file was only accessible to a portion of the NBIS personnel.

- There were two agencies that did not have plans for completing the Bridge File Checklist (IDOT form BBS BFC).
- One agency's bridge file system was almost entirely paperless.

9. **STRUCTURE MAINTENANCE**

The following summarizes the review findings regarding structure maintenance:

- All of the agencies used routine NBIS inspections to help identify structure maintenance needs.
- There were four agencies that did not ensure that maintenance needs were addressed in a timely manner.

10. **STRUCTURE SITE VISITS**

Site visits were made to 110 structures. Condition ratings and inventory data items on the respective Master Structure Reports were compared with conditions observed in the field.

10.1 **Structural Condition Ratings**

There were several structures that had structural condition ratings which were not within the allowable tolerance of ± 1 . The following are common condition rating discrepancies noted during the site visits:

1. Item Number 58 (Deck Condition):
 - Should account for spalling, cracking, and delamination. Transverse crack width and spacing should be taken into consideration.
 - For concrete slab bridges, should be rated the same as the Superstructure Condition (Item 59) using the superstructure rating criteria.
 - For prestressed concrete box beam bridges without a 4" or thicker reinforced concrete overlay, should be rated the same as the Superstructure Condition (Item 59) using the superstructure rating criteria.
2. Item Number 59 (Superstructure Condition):
 - Should account for leaking keyway joints.
 - Should account for spalling in concrete beams.
 - Should account for longitudinal cracks and their location in concrete beams.
 - Should account for independent movement of concrete box beams and concrete channel beams.
 - Should account for section loss of steel members.

3. Item Number 60 (Substructure Condition):
 - Should account for piles and footings that are exposed due to scour.
 - Should account for corrosion and section loss of steel members
 - Should account for cracking and spalling in the abutments and piers.
4. Item Number 61 (Channel & Channel Protection Condition):
 - Should account for misalignment of channel.
 - Should account for condition of slopewalls.
5. Item Number 113 (Scour Critical Evaluation)
 - For footings founded on rock, the bridge foundation should be considered stable for current scour conditions.

10.2 Inventory Data

The following are common inventory data discrepancies noted during the site visits:

1. Item Number 7 (Facility Carried):
 - Should be verified for accuracy.
2. Item Number 8A1 (Bridge Remarks (General)):
 - Should include remarks as necessary.
3. Item Number 27A (Construction Year):
 - Should be verified for accuracy.
 - Should match construction year shown on nameplate.
4. Item Number 27C (Construction Section Number):
 - Should be verified for accuracy.
 - Should be included for all structures.
 - Should match section number shown on nameplate.
5. Item Number 27D (Construction Station Number):
 - Should be verified for accuracy.
 - Should be included for all structures.
 - Should match stationing shown on the nameplate.
6. Item Number 28 (Number of Lanes Under):
 - Should be verified for accuracy.
7. Item Number 32 (Approach Roadway Width):
 - Should be verified for accuracy.
 - Should be width of pavement and all weather shoulders.

8. Item Number 33 (Bridge Median Type):
 - Should be verified for accuracy.
9. Item Number 33A (Bridge Median Width):
 - Should be verified for accuracy.
10. Item Number 34 (Skew Direction):
 - Should be verified for accuracy.
11. Item Number 36A (Railing Appraisal (Bridge Railings)):
 - Should be verified that bridge railings exist and meet current standards.
12. Item Number 36B (Railing Appraisal (Approach Guardrail Transition)):
 - Should be verified that transitions exist and meet current standards.
13. Item Number 36C (Railing Appraisal (Approach Guardrail)):
 - Should be verified that guardrails exist and meet current standards.
14. Item Number 36D (Railing Appraisal (Approach Guardrail Ends)):
 - Should be verified that guardrail ends exist and meet current standards.
15. Item Number 36E/F (Guardrails on Structure Type (Right/Left)):
 - Should be verified for accuracy.
16. Item Number 42A (Type of Service On):
 - Should be verified for accuracy.
17. Item Number 43A (Main Structure Material):
 - Should be verified for accuracy.
18. Item Number 43B (Main Structure Type):
 - Should be verified for accuracy.
 - Description on form S-107 should be consistent with the Structure Information and Procedures Manual.
19. Item Number 48 (Length of Longest Span):
 - Should be verified for accuracy.
 - Should be measured along centerline of roadway.
20. Item Number 49 (Structure Length):
 - Should be verified for accuracy.
 - Should be measured along centerline of roadway.
21. Item Number 50A (Sidewalk Width On (Right)):
 - Should be verified for accuracy.

22. Item Number 51 (Total Bridge Roadway Width On):
- Should be verified for accuracy.
23. Item Number 52 (Total Deck Width):
- Should be verified for accuracy.
 - Should be the out-to-out width measured at right angles to the centerline of the structure.
24. Item Number 59C (Utilities Attached to Structure):
- Should be verified for accuracy.
 - Should be verified that existing utilities attached to the structure are still attached to the structure.
 - Should be verified to ensure all utilities attached to the structure are included.
25. Item Number 60A (Substructure Material (Abuts.)):
- Should be verified for accuracy.
 - Should be completed for all applicable structures.
26. Item Number 60B (Substructure Material (Piers)):
- Should be verified for accuracy.
 - Should be completed for all applicable structures.
27. Item Number 71 (Waterway Adequacy Appraisal):
- Should be verified for accuracy.
28. Item Number 72 (Approach Roadway Alignment):
- Should be verified for accuracy.
29. Item Number 90B (Routine Inspection Remarks):
- Should include remarks as necessary.
30. Item Number 106 (Reconstruction Year):
- Should be verified for accuracy.
31. Item Number 107 (Deck Structure Type):
- Should be verified for accuracy.
 - Should be completed for all applicable structures.
 - For structures that consist of multiple deck types, should be coded for the deck type that exists on the majority of the structure.
 - For concrete arch – filled spandrel structures, should be coded 'N' (Not Applicable).
 - For channel beam bridges without a 4" or thicker reinforced concrete overlay, should be coded 'D' (Precast Reinforced Concrete Deck Beams).

32. Item Number 107A (Deck Structure Thickness):

- Should be verified for accuracy.
- Should be completed for all applicable structures.
- For channel beam bridges, should be the thickness of the beam flange, which is typically 5”.
- For concrete arch – filled spandrel bridges, should be coded ‘0.0’ based on deck structure type coding of ‘N’ (Not Applicable).

33. Item Number 108A (Type of Wearing Surface):

- Should be verified for accuracy.

34. Item Number 108B (Type of Membrane):

- Should be verified for accuracy.

35. Item Number 108D (Total Deck Thickness):

- Should be verified for accuracy.
- Should include the Deck Structure Thickness (Item 107A) plus overlay thickness when applicable.
- Should be equal to the Deck Structure Thickness (Item 107A) when there is no overlay.

36. Item Number 112 (AASHTO Bridge Length):

- Should be verified for accuracy.
- Should be measured along centerline of roadway.

11. 23 NBIS METRICS

Compliance with the 23 NBIS Metrics was not explicitly part of this review. However, several of the agencies reviewed had deficiencies that should be addressed in order for the State to achieve a higher level of compliance during future FHWA reviews:

Qualifications of Personnel – Team Leaders (NBIS Metric 3)

The NBIS requires that each Team Leader meet the requirements of the Code of Federal Regulations paragraph 650.309 (b) and 650.313 (g).

There was one agency that did not appear to be compliant with this metric.

Routine Inspection Frequency – Lower Risk Bridges (NBIS Metric 6)

The NBIS requires that each lower risk structure is inspected at regular intervals not to exceed its defined inspection frequencies. Lower risk structures are defined as those with superstructure and substructure, or culvert condition ratings of fair or better, and not requiring state legal load restriction.

There were nine agencies that did not appear to be compliant with this metric.

Routine Inspection Frequency – Higher Risk Bridges (NBIS Metric 7)

The NBIS requires that each higher risk structure is inspected at regular intervals not to exceed its defined inspection frequencies. Higher risk structures are defined as those with superstructure and substructure, or culvert condition ratings of poor or worse, or are state legal load restricted.

There were four agencies that did not appear to be compliant with this metric.

Underwater Inspection Frequency – Lower Risk Bridges (NBIS Metric 8)

The NBIS requires that each lower risk structure that cannot be inspected visually at low water by wading or probing is inspected at regular intervals not to exceed their defined inspection frequencies. Lower risk structures are defined as those with substructure or culvert condition ratings of fair or better, and evaluated as not being scour critical.

There was one agency that did not appear to be compliant with this metric.

Underwater Inspection Frequency – Higher Risk Bridges (NBIS Metric 9)

The NBIS requires that each higher risk structure that cannot be inspected visually at low water by wading or probing is inspected at regular intervals not to exceed their defined inspection frequencies. Higher risk structures are defined as those with substructure or culvert condition ratings of poor or worse, or are evaluated as being scour critical.

There was one agency that did not appear to be compliant with this metric.

Inspection Frequency – Fracture Critical Member (NBIS Metric 10)

The NBIS requires that all fracture critical members are inspected at regular intervals not to exceed their defined inspection frequencies.

There were two agencies that did not appear to be compliant with this metric.

Inspection Procedures – Quality Inspections (NBIS Metric 12)

The NBIS requires that each bridge is inspected with a nationally recognized acceptable inspection procedure, with the necessary quality of assessment, rating, and documentation.

There were seven agencies that did not appear to be compliant with this metric.

Inspection Procedures – Post or Restrict (NBIS Metric 14)

The NBIS requires that structures be posted or restricted when the maximum unrestricted legal loads or State routine permit loads exceed that allowed under the operating rating or equivalent rating factor.

There was one agency that did not appear to be compliant with this metric.

Inspection Procedures – Bridge Files (NBIS Metric 15)

The NBIS requires that bridge files be prepared in order to maintain reports on the results of bridge inspections together with notations of any action taken to address the findings of such inspections, maintain relevant maintenance and inspection data to allow assessment of current bridge condition, and record the findings and results of bridge inspections on standard forms.

There was one agency that did not appear to be compliant with this metric.

Inspection Procedures – Fracture Critical Members (NBIS Metric 16)

The NBIS defines a fracture critical member (FCM) inspection as a hands-on inspection of a FCM or member component that may include visual and other non-destructive evaluation. A hands-on inspection is an inspection within arm's length of the component. The locations of the FCM's must be identified and the FCM inspection frequency and inspection procedures described in the inspection records for each bridge requiring FCM inspections.

There were four agencies that did not appear to be compliant with this metric.

Inspection Procedures – Underwater (NBIS Metric 17)

The NBIS requires that the locations of the underwater elements are identified and the underwater inspection frequency and inspection procedures are described in the inspection records for each bridge requiring underwater inspections.

There were three agencies that did not appear to be compliant with this metric.

Inspection Procedures – Scour Critical Bridges (NBIS Metric 18)

The NBIS requires that all bridges that are scour critical have a plan of action (POA) prepared to monitor known and potential deficiencies and to address critical findings. The bridges must also be monitored in accordance with the POA.

There was one agency that did not appear to be compliant with this metric.

12. **CONCLUSIONS**

Below are suggestions that IDOT could consider to help improve the quality of the State's NBIS programs including:

1. Continue to emphasize the importance of the deficiencies noted in this report to all agencies throughout the state.
2. In addition to posting the NBIS QA Review Summary Reports to the BBS website, the BBS should consider emailing the document to the BBS NBI subscription service.
3. Continue to provide training for the IDOT District Bridge Liaisons.
4. Encourage the IDOT District Bridge Liaisons to communicate with each other and share information and best practices.
5. Continue to encourage all NBIS program personnel to become familiar with Section 3 of the Structural Services Manual.
6. Encourage local agencies to pool their resources so that a smaller number of inspection teams are completing a larger number of inspections each year.
7. Continue to work with agencies to improve the process of entering inventory and appraisal data into ISIS.
8. Consider working with FHWA to establish formal IDOT policies for paperless bridge file systems.
9. Dedicate more resources to load rating inspections and have these inspections completed for every bridge load rating.
10. Revise Section 4 of the Structural Services Manual to include all of the current policies and procedures governing Illinois load ratings.
11. Review all bridge load rating software settings to ensure compliance with IDOT bridge load rating policy.
12. Review bridge load rating quality control procedures and modify as needed to ensure that errors are minimized in both the bridge load rating calculations and documentation.