

2015 NBIS QA REVIEW

SUMMARY REPORT

Final Report
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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, IDOT conducts process audits of selected Districts and local agencies to document compliance with NBIS requirements.

For 2015, there was 1 IDOT District and 17 counties selected for review. Interviews of staff and field reviews at bridge sites were conducted from April 28, 2015 through October 29, 2015.

The interviews and site visits were conducted by representatives from Oates Associates, Inc. and the IDOT Bureau of Bridges & Structures (BBS). The reviews were typically attended by the agencies' Program Manager and Team Leaders. Representatives from the local IDOT districts also attended several reviews. A report was prepared for each agency that 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. This report is intended as a summary of the State of Illinois' NBIS program. However, the information and findings are based only on the district and agencies reviewed and may not be representative of the State's entire NBIS program.

1. PROGRAM MANAGEMENT

1.1 Personnel

All of the agencies had Program Managers assigned who were approved by IDOT and were current on their required refresher training. All of the agencies had Team Leaders assigned who were approved by IDOT and were current on their required refresher training.

1.2 Inventory & Scheduling

The total number of NBIS structures for which the agencies had inspection responsibilities is shown in the following table:

Jurisdiction	Number of Structures
State	990
County	593
Township	1,681
Total	3,264

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 District tracked inspection schedules in-house using IDOT's Bridge Inspection System (BIS). There were 12 counties that had developed in-house systems to track inspection schedules. There were five counties that relied on reports from IDOT to track inspection schedules.

1.4 Quality Control

IDOT Structural Services Manual Section 3.9.3.2 requires that at least once every 24 months, a Program Manager accompany each Team Leader functioning within their area of responsibility to observe their performance of NBIS inspection of at least three structures over the course of a 30 day period. This requirement is only for state agencies. The District was not currently completing and documenting these reviews.

All of the agencies had Program Managers that reviewed every inspection report.

If an inspection had a critical finding, all of the agencies contacted the BBS for guidance.

The District and 14 of 17 counties were 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 total number of NBIS structures requiring routine NBIS inspections for all of the agencies is shown in the following table:

Inspection Interval (Months)	Number of Structures
48	1,248
24	1,956
12	58
<12	2
Total	3,264

There were 14 of 17 counties that had routine NBIS inspection delinquencies. The delinquencies are summarized in the following table:

Delinquent for Next Inspection	Number of Structures
Total	30

Delinquent for Last Inspection	Number of Structures
Low Risk – Less than 4 months delinquent	370
Low Risk – More than 4 months delinquent	53
High Risk – Less than 4 months delinquent	92
High Risk – More than 4 months delinquent	6
Total	521

The delinquencies were typically due to inclement weather, high water and flooding, scheduling issues, personnel issues, the agency trying to move the annual inspection date, or a change in the inspection interval.

The District inspection teams inspected an average of five structures in a typical day. The county inspection teams inspected an average of 3 to 15 structures in a typical day.

All of the agencies had a Team Leader on site during all routine NBIS inspections. Inventory data was reviewed during routine NBIS inspections to varying degrees by the District and 9 of 17 counties.

Routine NBIS inspection documentation was reviewed. The District and 16 of 17 counties used current IDOT inspection forms to document the inspection findings. The District and 16 of 17 counties consistently recorded new condition ratings on the inspection forms. The District and 6 of 17 counties consistently justified assigning condition ratings of '5' or less. The Program Manager signed-off on all of the routine NBIS inspection reports for the District and 16 of 17 counties. The Team Leader

signed-off on all of the routine NBIS inspection reports for the District and 16 of 17 counties. The District and 15 of 17 counties kept the original routine NBIS inspection reports with “wet” signatures in the bridge file.

3. UNDERWATER INSPECTIONS

The District and 2 of 17 counties had NBIS structures that required underwater inspections. The total number of NBIS structures requiring underwater inspections for all of the agencies is shown in the following table:

Inspection Interval (Months)	Number of Structures
60	8
48	0
36	0
24	23
12	2
Total	33

The District and one of two counties had underwater inspection delinquencies. The delinquencies are summarized in the following tables:

Delinquent for Next Inspection	Number of Structures
Total	0

Delinquent for Last Inspection	Number of Structures
Low Risk – Less than 4 months delinquent	5
Low Risk – More than 4 months delinquent	0
High Risk – Less than 4 months delinquent	0
High Risk – More than 4 months delinquent	0
Total	5

The delinquencies were typically due to high water.

All of the agencies had a Team Leader on site during all underwater inspections. All of the agencies used a boat to complete underwater inspections. The District and one of two counties typically checked the condition of submerged structural elements. All of the agencies typically checked for the presence of scour.

Underwater inspection documentation was reviewed. All of the agencies used current IDOT inspection forms to document the inspection findings. All of the agencies consistently recorded new condition ratings on the inspection forms. All of the agencies included quantitative data in the inspection reports to document the inspection findings. The Program Manager signed-off on all of the underwater inspection reports for all of the agencies. The Team Leader signed-off on all of the underwater inspection reports for all of the agencies. All of the agencies kept the original underwater inspection reports with “wet” signatures in the bridge file. One of two counties had a written Underwater Inspection Plan completed and included in the bridge file for each structure requiring underwater inspections.

4. FRACTURE CRITICAL MEMBER INSPECTIONS

The District and 8 of 17 counties had NBIS structures that required fracture critical member (FCM) inspections. The total number of NBIS structures requiring FCM inspections for all of the agencies is shown in the following table:

Inspection Interval (Months)	Number of Structures
24	26
12	9
<12	0
Total	35

There were four of eight counties that had FCM inspection delinquencies. The delinquencies are summarized in the following table:

Delinquent for Next Inspection	Number of Structures
Total	0

Delinquent for Last Inspection	Number of Structures
Less than 4 months delinquent	3
More than 4 months delinquent	1
Total	4

The delinquencies were typically due to personnel issues, difficulty accessing the FCM's, and inspections being overlooked.

All of the agencies had a Team Leader on site during all FCM inspections. The District and two of eight counties had access to non-destructive evaluation (NDE) equipment.

The District and four of eight counties used proper access equipment to thoroughly inspect all FCMs at arm’s length.

FCM inspection documentation was reviewed. All of the agencies used current IDOT inspection forms to document the inspection findings. All of the agencies consistently recorded new condition ratings on the inspection forms. Three of eight counties included quantitative data in the inspection reports to document the inspection findings. The Program Manager signed-off on all of the FCM inspection reports for all of the agencies. The Team Leader signed-off on all of the FCM inspection reports for all of the agencies. The District and six of eight counties kept the original FCM inspection reports with “wet” signatures in the bridge file. One of eight counties had a written Fracture Critical Member Inspection Plan completed and included in the bridge file for each structure requiring FCM inspections. All of the agencies had sketches in the bridge files that clearly identified all of the FCM’s.

5. SPECIAL INSPECTIONS

The District and 15 of 17 counties had NBIS structures that required special inspections. The total number of NBIS structures requiring special inspections for all of the agencies is shown in the following table:

Inspection Interval (Months)	Number of Structures
48	15
24	44
12	50
<12	34
Total	143

The District and 10 of 15 counties had special inspection delinquencies. The delinquencies are summarized in the following table:

	Number of Structures
Delinquent for Next Inspection	4
Delinquent for Last Inspection	63
Total	67

The delinquencies were typically due to high water, personnel issues, scheduling issues, inspections being overlooked, and reports not being submitted to IDOT.

The special inspection structures 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)
- E (Structural Damage/Deterioration – Concrete Substructure Elements)
- F (Structural Damage/Deterioration – Timber Substructure Elements)
- G (Underwater Condition Inspection – Debris and/or Erodible Soils)
- I (Underwater Condition Inspection – Spread Footings not adequately keyed into rock or protected from the effects of streambed scour)
- K (Underwater Condition Inspection – Scour Critical Evaluation Monitoring)
- N (Existing Streambed Scour Adjacent to Pile Bent Substructure Unit)
- Q (Substructure Movement or Settlement)
- R (Pin & Link in Multi-Girder (Redundant) Bridge)
- Z (Other).

Special inspection documentation was reviewed. The District and 14 of 15 counties used current IDOT inspection forms to document the inspection findings. One county did not formally document special inspections. The District and 14 of 14 counties consistently recorded new condition ratings on the inspection forms. When “no change” was noted in the inspection report, there were 2 of 14 counties that typically included a reference to the date of the last observed change in condition. The Program Manager signed-off on all of the special inspection reports for the District and 13 of 14 counties. The District and 12 of 14 counties kept the original special inspection reports with “wet” signatures in the bridge file. All of the agencies clearly identified the inspection procedures in the bridge file. All 15 counties clearly identified the features requiring special inspections in the bridge file.

6. SCOUR EVALUATIONS

The District and 16 of 17 counties had completed scour critical evaluations for all structures over waterways. The District and 4 of 17 counties had a total of 31 NBIS structures that were scour critical. The District and three of four counties had a scour plan of action (POA) complete for each scour critical structure.

Scour POA documentation was reviewed. The District and two of three counties appeared to regularly review and update the POA's. The District and two of three counties appeared to document field visits in accordance with the POA's. One of three counties had not experienced a flood event requiring a field visit in accordance with the POA.

The District and 9 of 17 counties had documentation justifying the coding of ISIS Item 113. The District and 6 of 17 counties included the justification of ISIS Item 113 in the bridge file.

7. LOAD RATING

The District and 15 of 17 counties had a total of 97 NBIS structures that were load posted. There was one county that had one NBIS structure that was improperly posted according to information in ISIS. The District and 11 of 17 counties had a total of 19 NBIS structures that were closed.

The BBS completed the load ratings for all of the agencies. The District and 16 of 17 counties notified IDOT of work that would affect the load rating of a structure.

All of the agencies regularly reviewed posting and closing signage.

IDOT's load rating program was reviewed. In general, bridge load ratings appeared to be completed in accordance with the AASHTO Manual for Bridge Evaluations and current IDOT policy. The bridge load ratings were all certified by an Illinois Licensed Structural Engineer and documented following IDOT policy.

8. BRIDGE FILE

All of the agencies had a bridge file system that was well organized and accessible to the inspection team. All of the agencies had all of the significant components present in the bridge file. All of the agencies were familiar with the Bridge File Checklists (IDOT form BBS BFC). The District and 11 of 17 counties were completing the Bridge File Checklists.

9. STRUCTURE MAINTENANCE

All of the agencies had in-house maintenance crews that were able to perform various bridge repair and preventative maintenance tasks. All of the agencies used routine NBIS inspections as their primary source for determining maintenance needs. The District and 16 of 17 counties ensured that recommended repairs were completed in a timely manner.

10. STRUCTURE SITE VISITS

Site visits were made to 117 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 map cracking.
 - 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 be rated less than '9' after the initial inspection.
 - Should account for leaking keyway joints.
 - Should account for spalling in concrete beams.
 - Should account for delamination in concrete beams.
 - Should account for longitudinal cracks in concrete 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 section loss in piles at ground line.
4. Item Number 61 (Channel & Channel Protection Condition):
 - Should account for stream degradation.
 - Should account for scour.
 - Should account for misalignment of channel.
5. Item Number 113 (Scour Critical Evaluation)
 - Should account for observed scour at the substructure units and exposed footings.
 - Should be re-evaluated when the Substructure Condition (Item 60) rating is '4' or less due to scour.

10.2 Inventory Data

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

1. Item Number 6 (Feature Crossed):
 - Should be verified for accuracy.

2. Item Number 8A1 (Bridge Remarks (General)):
 - Should include remarks as necessary.
3. Item Number 21 (Maintenance Responsibility):
 - Should be verified for accuracy.
4. Item Number 27D (Construction Station Number):
 - Should be verified for accuracy.
5. Item Number 28 (Number of Lanes):
 - Should be verified for accuracy.
6. Item Number 31 (Design Load):
 - 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 34 (Skew Direction):
 - Should be verified for accuracy.
9. Item Number 34A (Skew Angle):
 - Should be verified for accuracy.
10. Item Number 36A (Railing Appraisal (Bridge Railings)):
 - Should be verified that railings meet current standards.
11. Item Number 36B (Railing Appraisal (Approach Guardrail Transition)):
 - Should be verified that transitions meet current standards.
12. Item Number 36C (Railing Appraisal (Approach Guardrail)):
 - Should be verified that guardrails meet current standards.
13. Item Number 36D (Railing Appraisal (Approach Guardrail Ends)):
 - Should be verified that ends meet current standards.
14. Item Number 36E/F (Guardrails on Structure Type (Right/Left)):
 - Should be verified for accuracy.
15. Item Number 41 (Bridge Status):
 - 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.
19. Item Number 44AN/AF (Near/Far Approach Span Material):
 - Should be verified for accuracy.
20. Item Number 44BN/BF (Near/Far Approach Span Type):
 - Should be verified for accuracy.
21. Item Number 45 (Total Number of Main Spans):
 - Should be verified for accuracy.
22. Item Number 46 (Total Number of Approach Spans):
 - Should be verified for accuracy.
 - Should be completed for all structures with a different approach span leading up to the main structure span.
23. Item Number 48 (Length of Longest Span):
 - Should be verified for accuracy.
 - Should be measured along centerline of roadway.
24. Item Number 49 (Structure Length):
 - Should be verified for accuracy.
 - Should be measured along centerline of roadway.
25. Item Number 50A/B (Sidewalk Width On (Right/Left)):
 - Should be verified for accuracy.
 - Should be left blank for brush or safety curbs less than 18 inches wide from the face of bridge railing.
26. Item Number 51 (Total Bridge Roadway Width On):
 - Should be verified for accuracy.
27. 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.
28. Item Number 59C (Utilities Attached to Structure):
 - Should be verified for accuracy.
 - Should be verified to ensure all utilities attached to the structure are included.

29. Item Number 60A/B (Substructure Material (Abuts./Piers)):
 - Should be verified for accuracy.
 - Should be completed for all applicable structures.
30. Item Number 70A1 (Allowable Single Unit Weight Limit (Tons)):
 - Should be verified for accuracy.
31. Item Number 70B2 (Posted Combination Vehicle Type 3S-1 Weight Limit):
 - Should be verified for accuracy.
32. Item Number 70C2 (Posted Combination Vehicle Type 3S-2 Weight Limit):
 - Should be verified for accuracy.
33. Item Number 92C (Fracture Critical Inspection Interval):
 - Should be verified for accuracy.
34. Item Number 102 (One or Two Way Traffic):
 - Should be verified for accuracy.
35. Item Number 106 (Reconstruction Year):
 - Should be verified for accuracy.
36. Item Number 107 (Deck Structure Type):
 - Should be verified for accuracy.
 - For prestressed concrete box beam bridges without a 4" or thicker reinforced concrete overlay, should be coded 'E' (Precast Prestressed Concrete Deck Beams).
37. Item Number 107A (Deck Structure Thickness):
 - Should be verified for accuracy.
 - For prestressed concrete box beam bridges without a 4" or thicker reinforced concrete overlay, should be the total depth of the PPC box beam.
 - For tee beam bridges, should be the thickness of the beam flange.
 - For channel beam bridges, should be the thickness of the beam flange, which is typically 5".
38. Item Number 108A (Type of Wearing Surface):
 - Should be verified for accuracy.
39. 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.
- Should be measured at the same location as Item Number 107A (Deck Structure Thickness).

40. Item Number 112 (AASHTO Bridge Length):

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

11. CONCLUSIONS

11.1 Summary of Deficiencies

The following is a summary of deficiencies that were identified during this review:

Personnel:

- There were three counties with Team Leaders completing FCM inspections who had not taken the FCM training course.

Inventory & Scheduling:

- There were five counties that relied solely on reports from IDOT to track inspection schedules.

Quality Control:

- The District did not complete and document regular quality control field reviews of its Team Leaders.
- There were three counties that were not familiar with Section 3 of the IDOT Structural Services Manual.

Routine NBIS Safety Inspections:

- There were 14 counties that had routine NBIS inspection delinquencies.
- There were eight counties that did not review inventory data during routine NBIS inspections.
- There was one county that did not use current IDOT inspection forms to document inspection findings.
- There was one county that did not record new condition ratings on the inspection forms.
- There were 11 counties that did not consistently justify assigned condition ratings of '5' or less.
- There was one county that did not have the Team Leader sign-off on all routine NBIS inspection reports.
- There was one county that did not have the Program Manager sign-off on all routine NBIS inspection reports.
- There were two counties that did not have the original routine NBIS inspection reports with "wet" signatures in the bridge file.
- There were several common routine NBIS inspection condition rating and inventory data discrepancies noted for all agencies.

Underwater Inspections:

- The District and one county had underwater inspection delinquencies.
- There was one county that did not typically check the condition of structural elements.
- The District and one county did not have a written Underwater Inspection Plan for each structure.

Fracture Critical Member Inspections:

- There were four counties that had FCM inspection delinquencies.
- There were four counties that did not use proper access equipment to thoroughly inspect all FCMs at arm's length.
- The District and five counties did not include quantitative data in the FCM inspection reports.
- There were two counties that did not keep the original FCM inspection reports with "wet" signatures in the bridge file.
- The District and seven counties did not have a written Fracture Critical Member Inspection Plan completed.

Special Inspections:

- The District and 10 counties had special inspection delinquencies.
- There was one county that was not formally documenting special inspections.
- When "no change" was noted in the inspection report, the District and 12 counties did not typically include a reference to the date of the last observed change in condition.
- There was one county that did not have the Program Manager sign-off on all of the special inspection reports.
- There were two counties that did not keep the original special inspection reports with "wet" signatures in the bridge file.
- The District did not clearly identify the features requiring special inspections in the bridge file.

Scour Evaluations:

- There was one county that had not completed scour critical evaluations for all structures over waterways.
- There was one county that did not have a scour POA for each scour critical structure.
- There was one county that did not regularly review and update the POA's.
- There were eight counties that did not have documentation justifying ISIS Item 113.
- There were 11 counties that did not include justification of ISIS Item 113 in the bridge file.

Load Ratings:

- There was one county that had an improperly posted structure according to ISIS.
- There was one county that did not notify IDOT of work that had been completed that would affect the load rating of a structure.
- IDOT did not always use a consistent load rating methodology for all structural members above the foundation throughout a given structure.
- IDOT did not always use the section properties of the actual bridge members when completing load ratings.

- IDOT did not always complete load rating inspections before each load rating.
- IDOT sometimes used questionable methodologies for determining the load carrying capacity of a structure.
- IDOT's bridge load ratings followed several "unwritten rules" that were not documented in Section 4 of the IDOT Structural Services Manual.

Bridge File:

- There were six counties that were not completing the Bridge File Checklists.

Structure Maintenance:

- There was one county that did not ensure that recommended repairs were completed in a timely manner.

11.2 Recommendations

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

1. Emphasize the importance of the previously noted deficiencies to all agencies throughout the state. In addition to current efforts by the BBS, this could be done by emailing the 2015 NBIS QA Review findings to the BBS NBI subscription service.
2. Provide more training for personnel at IDOT Districts who act as liaisons to the local agency NBIS programs.
3. Encourage all NBIS program personnel to become familiar with Section 3 of the Structural Services Manual.
4. Encourage local agencies to pool their resources so that a smaller number of inspection teams are completing a larger number of inspections each year.
5. Provide inspectors with clarification on the different ISIS Item 113 (Scour Critical Evaluation) ratings and appropriate course of action for common scenarios.
6. Revise Section 4 of the Structural Services Manual to include all of the current policies and procedures governing Illinois load ratings.
7. Reorganize the BBS so that both state and local agency load ratings are completed by the same group. Besides for being a more efficient use of resources, this may also help to establish more consistent load rating procedures with better quality control.
8. Dedicate more resources to completing load rating inspections.

12. 23 NBIS METRICS

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

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 370 lower risk structures that were delinquent for their previous routine NBIS inspection by less than four months (less than or equal to 121 days delinquent). There were 53 lower risk structures that were delinquent for their previous routine NBIS inspection by four months or more (greater than or equal to 122 days delinquent).

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 92 higher risk structures that were delinquent for their previous routine NBIS inspection by less than four months (less than or equal to 121 days delinquent). There were six higher risk structures that were delinquent for their previous routine NBIS inspection by four months or more (greater than or equal to 122 days delinquent).

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 were five lower risk structures that were delinquent for their previous underwater inspection by less than four months (less than or equal to 121 days delinquent).

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 three structures that were delinquent for their previous fracture critical member inspection by less than four months (less than or equal to 121 days delinquent). There was one structure that was delinquent for its previous fracture critical member inspection by four months or more (greater than or equal to 122 days delinquent).

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 was 1 agency with routine NBIS inspection procedures, 4 agencies with FCM inspection procedures, and 10 agencies with special inspection procedures that did not appear to provide quality assessments of the structures. There were 11 agencies with routine NBIS inspections, 5 agencies with FCM inspections, and 10 agencies with special inspections that did not appear to have quality documentation of inspection findings.

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 had insufficiently posted structures.

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 eight agencies that did not have documentation of a formal FCM inspection plan. There were four agencies that did not always complete FCM inspections at arm's length from the component.

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 two agencies that did not include documentation of a formal underwater inspection plan in the bridge file.

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 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.

Inspection Procedures – QC/QA (NBIS Metric 20)

The NBIS requires that agencies assure systematic quality control (QC) and quality assurance (QA) procedures are used to maintain a high degree of accuracy and consistency in the inspection program. This includes periodic field reviews of inspection teams and independent reviews of inspection reports.

The District had not implemented and documented a formal independent field review program similar to that prescribed in IDOT Structural Services Manual Section 3.9.3.2.