



Illinois Department of Transportation

2300 South Dirksen Parkway / Springfield, Illinois / 62764

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CIRCULAR LETTER 2012-08

23 NBIS METRICS

COUNTY ENGINEERS/SUPERINTENDENTS OF HIGHWAYS
MUNICIPAL ENGINEERS/DIRECTORS OF PUBLIC WORKS
CONSULTING ENGINEERS

The purpose of this Circular Letter is to provide an update on the findings of the Federal Highway Administration's (FHWA) review of the newly established *23 NBIS Metric* and to share some of the department's plans of action to address the findings.

As has been discussed in several different forums since late 2010, including e-mails, committee meetings, county engineer meetings, and Illinois Municipal League Public Works Committee meetings, the FHWA has developed a new oversight process in which they are using 23 individual metrics to measure the compliance of departments of transportation across the nation with the National Bridge Inspection Standards (NBIS). The *23 NBIS Metrics* may be found at <http://www.dot.il.gov/bridges/20101216-23NBISMetrics.pdf>. The purpose of these metrics is to provide a more consistent level of oversight throughout the nation and to ensure our nation's bridges are safe for the traveling public.

The 2011 review has been completed and the department has developed action items with specific dates to address the findings from the review and to satisfy the FHWA requirements. Many of these action items involve local agencies and will require the support of agencies, as owners, and the consultants contracted to perform NBIS-related tasks.

Following is a list of areas of the NBIS requiring additional attention to address the findings of the FHWA's review and/or the department's internal quality assurance reviews.

Inspection Frequency

The current criteria for remaining in compliance with the metrics for the NBIS inspection frequency requires all NBIS inspections be performed within the specified inspection interval – essentially with no grace period. This includes routine NBIS inspections, fracture critical, underwater and special feature inspections. Throughout the state, many local agencies are noncompliant with the inspection frequency metrics. Local agencies are encouraged to put greater emphasis on ensuring their NBIS inspections do not become delinquent.

One common cause for inspections becoming delinquent is the amount of time associated with getting consultant contracts in place. Local agencies employing consultants should be proactive and have contracts approved early enough to allow sufficient time to plan and perform the necessary inspections before they become delinquent.

On very rare occasions, some structures cannot be inspected within the specified interval due to site conditions beyond the Program Manager's control, such as high water. When site conditions prohibit proper NBIS inspections, a memorandum must be placed in the bridge file documenting the date and the reason why performing the inspection was not possible. The inspection must then be performed as soon as site conditions permit.

Bridge Posting and Closure

A review of structures on the local system requiring a load posting or closure found, in general, the structures had signage in place. However, several of the signs did not meet the requirements of the Manual of Uniform Traffic Control Devices (MUTCD) or the Illinois Supplement to the MUTCD, which can be found at <http://www.dot.il.gov/mutcd/2009%20ILMUTCDOnline.pdf>. The Illinois Supplement takes precedence over the MUTCD for all load posting requirements, except those structures that require a single posting. Single posting requirements are governed by the national MUTCD. The department has formed a committee to develop policy and to clarify and refine procedures for the proper posting and closure of structures. New policy and procedures will be disseminated when they are finalized.

Bridge Files

The FHWA review found several bridge files not meeting the requirements of the NBIS. The NBIS requires each bridge in the National Bridge Inventory (NBI) to have its own bridge file. While the contents of the bridge file will vary depending on the specifics of the structure and its location, there are several items that must be kept in every bridge file, including: existing plans, construction/reconstruction history, structure correspondence, original signed inspection records and current photographs; as well as scour analysis, scour Plans of Action (POA), and load rating correspondence when applicable.

This list is not intended to be all-inclusive, as additional items, such as bridge and channel cross sections, are often beneficial to keep in the bridge file. The department is developing a checklist to be placed in each bridge file to indicate which items should be kept in the file and will incorporate the list in the Structure Services Manual for use by local agencies.

Items that cannot be easily kept in the bridge file or are maintained electronically, such as existing plans, photographs or load rating calculations maintained by the department, should have their location referenced in the bridge file.

Bridge Inspection Forms

An audit of bridge inspections found several local agencies were not using the latest bridge inspection forms for their various NBIS inspections. Program Managers and Team Leaders should verify they are using the latest approved inspection forms. The department has revised several of the NBIS bridge inspections forms, which will be published soon. Copies of the latest bridge inspection forms may be found at <http://www.dot.il.gov/bridges/bridgforms.html>.

All bridge inspection forms should be reviewed and signed by the Program Manager. While an electronic copy of bridge inspections forms is encouraged for backup purposes, the original signed copy must be maintained in the bridge file.

Fracture Critical Inspection Procedures

Many fracture critical structures do not have documented inspection procedures in the bridge file as required by the NBIS. In addition, every fracture critical structure should have a sketch identifying the fracture critical members in the bridge file. The department is revising the Structural Services Manual to include greater detail regarding fracture critical inspections and providing additional guidance on the recommended procedures for various fracture critical member types. The department also plans to provide local agencies with sketches of fracture critical structures, highlighting the fracture critical members, to place in the bridge file.

Scour

All structures in the NBI with an Illinois Structure Information System (ISIS) Item 113 Scour Critical Rating of "3" or less and those with a rating of "7" require a scour Plan of Action, which should be included in the bridge file. While the vast majority of the required POAs are complete, the FHWA review questioned whether the POAs are being properly implemented. The scour POAs are not simply a report for documentation. They must contain specific, implementable actions to be taken when a flood event of the intensity specified within the POA occurs. They should be reviewed and updated any time the hydraulic conditions, bridge characteristics or contact information for the points of contact change.

The department is establishing a contract with a company to monitor waterway conditions at scour critical structures and any other structures of particular concern on the state system. The system will automatically alert designated individuals any time the drainage area receives a rainfall event of a predetermined intensity or when a nearby gauging station reaches a predetermined elevation. It is the department's intent to provide local agencies with access to this system at no charge to the agency. More information will be provided when the system is ready for local agency access.

Quality Control/Quality Assurance (QC/QA)

Section 3.6 of the Structural Services Manual provides the criteria for QC/QA. The FHWA review and independent reviews by the department of local agency NBIS programs find very few local agencies have a documented QC program as required by the NBIS. Program Managers are required to review a sample of Team Leader inspections every two years and document their findings. Program Managers who are performing inspections are subject to the same QC requirements and should ensure their inspections receive a QC review by an approved NBIS PM.

A file should be maintained for each PM and TL containing copies of their PM/TL certification letter from the Bureau of Bridges and Structures; certificates from any bridge inspection training course; and a QC documentation form, such as BBS Form 2790 - Bridge Inspection Procedures Review.

Inspection Training

As stated in Section 3.6.3.1 of the Structural Services Manual, all NBIS Program Managers and Team Leaders must receive periodic bridge inspection refresher training at intervals not to exceed 60 months. Currently, the approved methods to fulfilling this training requirement are to complete either the two-day Bridge Inspection Calibration Class, offered by the department; or the three-day Bridge Inspection Refresher Training course (FHWA-NHI-130053), available through the National Highway Institute.

To receive updates on availability of the Calibration Class, individuals should sign up for the Bureau of Bridges and Structures Subscription Service (see Manual Updates). Program Managers or Team Leaders who fail to meet the refresher training requirement will have their approval status rescinded.

Inventory Data

A review of the data maintained in the ISIS on structures in the NBI found many errors. Given the number of structures in the Illinois inventory and the amount of information maintained on each structure, it is understandable there will be some errors in the data. However, the department is committed to ensuring the information maintained in the ISIS is accurate and reliable. This requires improving the existing data and ensuring data entered on a daily basis is correct.

Inventory data should be spot-checked and verified during routine NBIS inspections. While it is not necessary to verify every measurement and data item, the Master Report should be reviewed at the time of inspection to check for obvious errors, such as structure material and type, skew angle, number of spans, etc. Any errors found should be noted and submitted to the district for correction in the ISIS. Likewise, inventory forms should be completed with care and in accordance with the Structure Information and Procedure Manual to ensure the initial inventory data is correct.

Manual Updates

The department will be making several updates and revisions to the Structural Services Manual. Bridge owners, Program Managers, and Team Leaders should review the manual and changes to ensure they are current with the latest department policies and guidelines. The manual may be found at <http://www.dot.il.gov/bridges/brmanuals.html>.

As mentioned earlier, these revisions will include policy on information required to be maintained in bridge files and additional guidance for fracture critical bridge inspections. Additional updates/revisions will include, at a minimum, clarification on in-depth inspection requirements; instructions for updating scour Plans of Action; an updated definition of complex bridges; and any special inspection documentation required for complex bridges. Some of these policy updates may be issued before the revised Structural Services Manual is published.

Bridge owners, Program Managers and Team Leaders that have not already done so are strongly encouraged to sign up for the Bureau of Bridges and Structures Subscription Service at <http://www.dot.il.gov/bridges/subscription.html>.

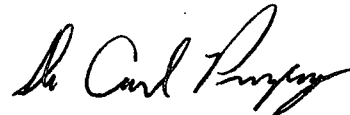
The department is committed to improving the NBIS program and providing local agencies with the necessary tools to remain in compliance with the NBIS requirements. The department is dedicating additional resources to improve their NBIS program and to monitor local agencies to ensure they remain in compliance. Local agencies not in compliance with the requirements of the NBIS risk losing funding for federally funded projects in their jurisdiction.

If you have any questions, please contact Jack Elston at (217) 785-8748.

Sincerely,



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