



2013-2014 Biennial Report on

Bridge Inspection Quality Assurance

February 2015



Prepared by

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Contents

- Contents3
- Legislative Request.....4
- Summary.....5
- Bridge Inspection Quality Assurance and Quality Control Procedures8
 - Quality Control Responsibilities.....8
 - Inspection Program Qualifications8
 - Inspection Quality and Frequencies9
 - Training.....9
 - Compliance and Quality Reviews.....10
- Changes to Quality Assurance & Quality Control Procedures11
 - Bridge Inspection Element Definition Change.....11
 - Added Equipment12
- Summary of Findings from Bridge Inspection Quality Reviews13
- Actions Taken in Response to Findings from Bridge Inspection Quality Reviews.....15
 - Quality Assurance Review Findings and Follow-up15
 - Findings Discussed at Bridge Inspection Seminars.....15
 - Reports Available Electronically to All Agencies15
 - Summary of Findings from FHWA Bridge Inspection Compliance Reviews16
 - National Bridge Inspection Program Review.....16
- Response to FHWA Compliance Review Findings.....18
 - Annual National Bridge Inspection Standards Compliance Review.....18
- Appendix A: List of Acronyms.....20

Legislative Request

This report is issued to comply with [Minnesota Statutes, section 165.03, subdivision 8](#).

Subd. 8. **Biennial report on bridge inspection quality assurance.**

By February 1 of each odd-numbered year, the commissioner shall submit a report electronically to the members of the senate and house of representatives committees with jurisdiction over transportation policy and finance concerning quality assurance for bridge inspections. At a minimum, the report must:

- (1) summarize the bridge inspection quality assurance and quality control procedures used in Minnesota;
- (2) identify any substantive changes to quality assurance and quality control procedures made in the previous two years;
- (3) summarize and provide a briefing on findings from bridge inspection quality reviews performed in the previous two years;
- (4) identify actions taken and planned in response to findings from bridge inspection quality reviews performed in the previous two years;
- (5) summarize the results of any bridge inspection compliance review by the Federal Highway Administration; and
- (6) identify actions in response to the Federal Highway Administration compliance review taken by the department in order to reach full compliance.

The cost of preparing this report is under \$5,000.

Summary

MnDOT's Bridge Inspection Program continuously strives to conform to all state and federal laws and regulations. The National Bridge Inspection Standards are issued by the Federal Highway Administration, and were last revised in December 2009. The NBIS is the most comprehensive bridge inspection document available and is the basis for the FHWA's annual evaluation of MnDOT's Bridge Inspection Program.

MnDOT wrote an extensive Quality Control/Quality Assurance plan for its bridge inspection program in 2008. The plan is primarily a compilation of current practice assembled into a formal document, with new processes added to comply with changes to the NBIS and more directly address quality assurance. The plan defines and delegates responsibilities for the statewide inspection programs to 205 districts, counties, municipalities, and other agencies throughout the state. It also describes the certification and training program for qualified bridge inspectors and sets up a process for quality assurance reviews of state and local agency inspection programs.

One significant change within the plan is the addition of a process for the review of fracture critical bridge inspection reports by a structural engineer from MnDOT's Bridge Office prior to sending the report to the MnDOT district or local agency program administrator. The review includes a written assessment that states whether the bridge is functioning as designed, a new load rating is warranted, or any important structural repairs should be made.

MnDOT went through a major effort in 2014 to combine all bridge inspection documents, policies, manuals, and tech memos into one reference, the Bridge and Structure Inspection Program Manual. The [BSIPM](#), posted on the MnDOT website, is the comprehensive reference to promote consistent and uniform methods of inspection and documentation of bridge conditions throughout the state.

At the time of this report, MnDOT owns 4,777 bridges. "Bridge" is defined as a structure, including supports erected over a depression or an obstruction, such as water, a highway, or a railway, having a track or passageway for carrying traffic or other moving loads. Bridge is also defined as having an opening measured horizontally along the center of the roadway of 10 feet or more between undercopings of abutments, between the spring line of arches, or between the extreme ends of openings for multiple boxes. Bridge also includes multiple pipes where the clear distance between openings is less than one-half of the smaller contiguous opening. This definition includes only those railroad and pedestrian bridges over a public highway or street.

The table below summarizes the required frequency of inspection for MnDOT owned bridges:

Required Inspection Frequency [Months]	Count of MnDOT Owned Bridges to be Inspected Within Required Frequency
12	375
24	3,993
48	409

The state of Minnesota currently has 112 fracture critical bridges. The term fracture critical bridge is defined by the FHWA as having at least one primary load carrying steel member in tension, or with a tension element, whose failure would probably cause a portion of or the entire bridge to collapse. MnDOT inspects the majority of fracture critical bridges for the different owners in the state.

Fracture Critical Bridge Inspections	Count	Percentage
MnDOT Inspected and Owned	55	49%
MnDOT Inspected – County Owned	24	21%
MnDOT Inspected – City Owned	12	11%
MnDOT Inspected – Township Owned	12	11%
MnDOT Inspected – Department of Natural Resources Owned	5	4%
MnDOT Inspected – Railroad Owned	1	1%
Consultant Inspected – Railroad Owned	2	2%
Consultant Inspected – Department of Administration Owned	1	1%

MnDOT also administers contracts to perform underwater inspections for 189 MnDOT and 276 locally-owned bridges. Underwater inspections involve an in-depth look at bridge components that normally reside under water and have to be accessed with specialized scuba diving equipment. The State of Minnesota inspects these structures on a four-year cycle.

In 2013, one critical deficiency was reported on a MnDOT-owned structure. In 2014, there were none. Critical deficiencies are conditions that threaten public safety and, if not promptly corrected, could result in the collapse or partial collapse of a bridge. All critical deficiencies have been resolved.

There are currently 88 MnDOT employees and 261 local agency employees and consultants certified to perform bridge inspections. Certification requires either an engineering degree or five years of experience performing bridge inspections, along with two weeks of training in an FHWA-approved course and a field proficiency exam. Certified inspectors are also required to attend a one-day bridge inspection refresher seminar twice in a four-year period. MnDOT's Bridge Office presented inspection seminars at seven locations statewide in 2013 and again at seven locations in 2014. In addition to these seminars, the Bridge Office coordinated the delivery of comprehensive inspection classes in 2013 and 2014. These classes are one to two weeks in length and are required for certification as inspection team leader or to perform fracture-critical inspections.

In response to findings by the Legislative Auditor in 2008, MnDOT created new performance measures to document the timeliness of bridge inspections and follow-up maintenance actions. In both 2012 and 2013, 99 percent of all routine bridge inspections were completed on time.

High-priority reactive bridge maintenance items are a best-practice scheduled event to be completed within one year of being identified and include any deficiency that could affect the safe functioning of a bridge or cause it to deteriorate to a critical condition. In both 2011 and 2012, 99 percent of high-priority reactive maintenance items were completed on time. This represents a significant improvement over the 66 percent completed on time in 2009 and 89 percent in 2010.

MnDOT's Bridge Office evaluated the bridge inspection programs of all Minnesota's local agencies in 2013 and 2014. Thirty two percent of agencies received an in-depth review. In 2013, three agencies were determined to be out of compliance with the NBIS. In 2014, four agencies were determined to be out of compliance. MnDOT worked with each agency to bring them back into NBIS compliance and followed up with agencies that were late in submitting requested information.

During these in-depth examinations, important findings from the local agency are reviewed with state and local bridge inspection staff who attended the annual bridge inspections seminars. Additionally, each agency has electronic access to a MnDOT website listing custom reports the agency can use to review the current status of its bridges. Even the agencies that did not have a full, formal program evaluation are asked to provide additional information and documentation concerning out-of-date bridge ratings, plans to monitor scour, and late or incomplete inspections.

FHWA annually assesses the management of the statewide bridge inspection program through a set of 23 metrics. Minnesota was found in compliance for 19 metrics and in conditional compliance for four metrics. MnDOT addressed the four lacking metrics through training, consultant contracts, revising policies and additional auditing of local bridge inspection documents and practices. Additional information regarding these changes is detailed in the body of the report.

Bridge Inspection Quality Assurance and Quality Control Procedures

MnDOT's quality assurance and quality control procedures governing its statewide inspection program are described comprehensively in Chapter E of the [BSIPM](#).

Below is a summary of the major components of the program.

Quality Control Responsibilities

Within MnDOT, there is a bridge inspection program manager. The specific responsibilities of MnDOT's bridge inspection program manager are described along with those responsibilities delegated to district and local agency program administrators and inspection team leaders.

Inspection Program Qualifications

MnDOT maintains a program to certify bridge inspectors as team leaders and approves the appointment of program administrators who meet the NBIS minimum experience and training requirements. Program administrators are required to be registered Professional Engineers. Inspection team leaders are required to be engineers or have five years of bridge inspection experience and to have completed a FHWA approved two-week bridge inspector training course.

In addition, MnDOT certification requires inspection team leaders to pass a field proficiency test. All program administrators and team leaders are required to attend two days of refresher training every four years and must submit documentation that they have competently performed their duties and responsibilities. Failure to maintain qualifications can result in decertification or denial of appointment, making the person ineligible to perform bridge safety inspection or program administrative activities.

As of December 2014, Minnesota's state and local bridge inspections are conducted by 205 different entities (MnDOT districts, counties, cities and other agencies). Within these agencies, there are 150 appointed program administrators and 349 certified bridge inspection team leaders. Of the 349 inspection team leaders, 88 are MnDOT employees. Many program administrators serve dual roles for different agencies; it isn't uncommon for the county engineer to also represent a city or for one consultant to serve as a program administrator for many cities.

Inspection Quality and Frequencies

MnDOT sets minimum requirements on the frequency of bridge inspections based on criteria established by the MnDOT Bridge Office. Generally, the higher risk structures are inspected on a 12-month cycle and the lower risk structures on a 24 or 48-month cycle. Higher risk structures are defined by having at least one component in ‘Poor’ condition, or containing a fracture critical element. Lower risk structures are bridges that have all components in ‘Fair’ or better condition. All new structures are originally set to a 12-month cycle. Once the bridge receives the initial inspection, owners can request to decrease the frequency. If the structure meets the defined criteria, the new frequency is granted until the structure no longer meets the criteria or the agency requests it to be changed.

Following the 2013 FHWA compliance review, two additional sections were added to the BSIPM as part of Metric 12 – Inspection Quality. These sections address the need for comprehensive note taking during inspections and discouraging the practice of inspecting during the winter months, when portions of the bridge maybe covered by snow or ice. If an inspector has no choice but to inspect during the winter months, and some elements are covered by snow or ice, they must return during a non-winter month to complete the inspection.

Training

MnDOT offers several inspector training classes and seminars each year. An introductory, one-week class called, “Engineering Concepts for Bridge Inspectors” is required for new inspectors who do not meet the experience or education requirements for team leader. Prior to certification as a team leader, inspectors must take the two-week course entitled, “Safety Inspections of In-Service Bridges.” The course is taught by instructors from the National Highway Institute and is an FHWA-approved comprehensive bridge inspection training course. Other National Highway Institute courses on advanced topics are scheduled periodically.

Attendance for classes taught in 2013 and 2014 is shown below:

Course	2013 Attendees	2014 Attendees
Engineering Concepts for Bridge Inspectors	26 MnDOT 4 Local	12 MnDOT 18 Local
Safety Inspections of In-Service Bridges	10 MnDOT 20 Local	14 MnDOT 16 Local

In addition to these courses, MnDOT staff annually conducts refresher training seminars for program administrators and inspection team leaders. The seminars are held at various locations throughout the state to facilitate attendance. Topics typically include sharing best practices, a review of deficiencies found during inspection program quality reviews, FHWA compliance review findings, load rating issues, and inspection manual updates. MnDOT conducted 14 training seminars around the state in 2013 and 2014. There were 394 attendees in 2013 and 383 attendees in 2014.

Compliance and Quality Reviews

FHWA performs an annual review of MnDOT's Bridge Inspection Program. The purpose of the review is to evaluate whether the policies, procedures and operating practices meet requirements of the NBIS. It typically consists of a review of functions performed by MnDOT's Bridge Office and one or more district offices. The focus of the review varies from year to year, but typically will include a review of inspector qualifications, timeliness of bridge inspections and load ratings, and fracture critical and bridge scour documents. Formal findings from the review are reported in the form of recommendations summarized in a letter from FHWA to the Commissioner of Transportation.

Similarly, MnDOT reviews the bridge inspection programs of all 205 Minnesota agencies each year. A series of database queries is used to estimate the level of compliance with the NBIS for each of the agencies. A combination of poor performing agencies and agencies that haven't been visited in five years are then selected for an in-depth review. The in-depth review involves a meeting with the bridge inspection program administrator and a field review with the bridge inspection team leader(s). Agencies selected for the in-depth review and the agencies reviewed solely by database queries are sent a report of their compliance for the year. MnDOT then annually follows up with each agency to ensure action. Additional information regarding this practice is detailed in section 3 of this document.

Changes to Quality Assurance & Quality Control Procedures

Most of the quality control and quality assurance processes used by MnDOT were not modified in the past two years. Substantive changes are described in this section.

Bridge Inspection Element Definition Change

The Moving Ahead for Progress in the 21st Century Act, or MAP-21, was signed into law by President Obama on July 6, 2012. Section 1111 of MAP-21 modified 23 U.S.C. 144, which requires each state and appropriate federal agency to report bridge element level data to the U.S. Secretary of Transportation. Element level inspections are a more detailed look at bridge features as opposed to providing a broad summary called component inspection. The State of Minnesota has operated under element level inspections since the early 90s, but in December 2013 the American Association of State Highway and Transportation Officials released the 2013 Manual for Bridge Element Inspection. The manual replaced the existing 1994 Commonly Recognized Elements that MnDOT was operating under.

The 2013 AASHTO manual creates major changes to the existing inspection methodology. MnDOT is working on adopting these requirements by undergoing a complete revision to the MnDOT Bridge Inspection Field Manual, including:

- an upgrade of the Structure Information Management System, SIMS
- retooling the software used to input data for bridges and bridge inspections,
- migrating the existing data to the new format
- and a reformulation of the data dependencies housed within MnDOT

Once these systems are in place, MnDOT will have to retrain more than 349 bridge inspection team leaders and 150 bridge inspection program administrators on the revised bridge inspection procedures and reporting requirements.

While these changes have yet to hit mainstream practice, MnDOT is diligently working towards getting all the systems in place to begin statewide operation in 2016. This includes pilot work of inspecting a set of test bridges using the new MnDOT Bridge Inspection Manual and evaluating the quality of migrated data.

Added Equipment

Recent modifications to NBIS changes have increased the frequency of Fracture Critical Bridge Inspections. The increased frequency and number of inspections required the purchase of additional inspection equipment. Prior to 2007, MnDOT operated four under-bridge inspection vehicles. Since then, five new UBIVs were purchased to accommodate the more frequent inspection mandate. The fracture critical bridge inspection fleet currently consists of the equipment listed in the following graph:

Current Bridge Inspection Assets and Status

Vehicle	Reach	Purchased	Comments	Location
UB50	50 feet	1988	Waiting to be sold.	Shakopee
UB50	50 feet	1991	Waiting to be sold.	Shakopee
UB75	75 feet	2000	Complete Factory Rebuild in 2012	Oakdale
UB30	30 feet	2000	Complete Factory Rebuild in 2014	Oakdale
UB62	62 feet	2007		Rochester
UB62	62 feet	2008		Carlton
UB62	62 feet	2011		St. Cloud
UB62	62 feet	2012		Bemidji
Moog	15 feet	2009	Lighter Weight Platform for Posted Bridges	Oakdale

Summary of Findings from Bridge Inspection Quality Reviews

MnDOT's Bridge Office Data Management Unit each year conducts National Bridge Inspection Standards Compliance Reviews of local agency inspection programs. A new process for evaluating agencies began in 2012. The review now aims to mirror the FHWA metric evaluation of Minnesota and apply the same appraisal to local agencies using the FHWA [Metrics for the Oversight of the National Bridge Inspection Program](#) manual. The review annually assesses a compliance level for all agencies statewide based on eight of the 23 metrics using a series of database queries. Listed below are the eight metrics assessed with this method.

- #2: Qualifications of personnel – Program Administrator
- #3: Qualifications of personnel – Team Leader(s)
- #6: Routine inspection frequency – Lower risk bridges
- #7: Routine inspection frequency – Higher risk bridges
- #12: Inspection procedures – Quality Inspections
- #13: Inspection procedures – Load Rating
- #14: Inspection procedures – Post or Restrict
- #23: Inventory – Timely Updating of Data

In-depth reviews are scheduled with agencies every year. Agencies are selected for an in-depth review based on poor performance with the eight metrics or because the agency has not had an in-depth review in the past five years. In-depth reviews incorporate the assessment of five additional metrics. These reviews require a field review and an office meeting with agency personnel. Listed below are the five additional metrics assessed during an in-depth review.

- #15: Inspection procedures – Bridge Files
- #17: Inspection procedures – Underwater
- #18: Inspection procedures – Scour Critical Bridges
- #21: Inspection procedures – Critical Findings
- #22: Inventory – Prepare and Maintain

In 2013 and 2014, in-depth reviews were performed for the following agencies:

MnDOT District 1	City of Burnsville	City of Northfield	Isanti County	Pine County
MnDOT District 2	City of Coon Rapids	City of Orono	Itasca County	Polk County
MnDOT District 3	City of Corcoran	City of Paynesville	Jackson County	Pope County
MnDOT District 4	City of Crookston	City of Plymouth	Kanabec County	Rice County
Anoka County	City of Detroit Lakes	City of Red Wing	Kittson County	Rock County
Becker County	City of Duluth	City of South St. Paul	Koochiching County	Roseau County
Beltrami County	City of East Bethel	City of Thief River Falls	Lake County	St Louis County
Benton County	City of Faribault	City of Virginia	Mahnomen County	Stevens County
Canadian National Rail	City of Ham Lake	Cook County	Martin County	Swift County
Chippewa County	City of Marshall	Crow Wing County	Metro Transit (LRT)	Wadena County
Chisago County	City of Minneapolis	Dakota County	Mille Lacs County	Waseca County
City of Alexandria	City of Minnetonka	DNR	MN Dakota and Western RR	Wilkin County
City of Bloomington	City of Moorhead	Douglas County	Pennington County	Wright County

In 2013, three agencies were out of compliance with the NBIS, and in 2014 four agencies were out of compliance. These agencies were required to create a Plan of Corrective Action to direct themselves back into compliance with the NBIS. Once this PCA is submitted, reviewed and accepted, MnDOT schedules a follow-up review to ensure the agency is working toward compliance.

Actions Taken in Response to Findings from Bridge Inspection Quality Reviews

Quality Assurance Review Findings and Follow-up

MnDOT's Bridge Data Management Unit follows up on quality review findings by sending a letter to each agency to notify it of areas where improvement is needed. Agencies falling grossly out of compliance are subject to additional review and may need to provide a Plan of Corrective Action. MnDOT's State Aid Division may withhold funding from agencies that are repeatedly out of compliance with NBIS rules or with the AASHTO Manual for Bridge Evaluation. In addition to notifying agencies about their specific levels of compliance with the NBIS, the letters list the individual performance for each metric and the data that was used to compute compliance level. This allows the agency to see which areas need improvement and offers an opportunity to check the data for accuracy. Agencies selected for the in-depth review were generally receptive to the findings about areas needing improvement and indicated they will take steps to do so. Agencies that do not improve enough by the next cycle may be selected again for another in-depth review, and then may be required to provide a PCA to ensure improvement of the program.

Findings Discussed at Bridge Inspection Seminars

Since each agency receives an in-depth review only once every five years, it is important MnDOT develop other methods to more frequently communicate some of the more common problems found during agency reviews. MnDOT uses the annual bridge inspection seminars for that purpose. Agendas for the seminars are designed to address the common deficiencies found during agency reviews.

Reports Available Electronically to All Agencies

In 2011, MnDOT implemented a new interface (called the Structure Information Management System, SIMS) to input inspection data. SIMS offers substantial improvements in comparison to the previous interface. Inspectors can now upload photos, bridge documents and inspection data to a web-based program that can be accessed anywhere with an Internet connection. SIMS then feeds this data into an AASHTO-developed bridge management system called PONTIS. Data from PONTIS is used to generate the compliance scores and identify deficiencies in an agency's inspection program or data. PONTIS also allows MnDOT to offer several standard reports that access recent data to help agencies better understand the overall condition of their bridge inventory and identify bridges needing inspection, missing data, or that may need new load ratings. These and other reports are continuously available to agencies that log on to the PONTIS Reports tab located on MnDOT's Bridges and Structures website. A few of the reports used during local reviews include:

- Bridge Inspections Due – Lists inspections that are due and overdue.
- Bridge Inspection Frequency – Lists the bridges on a 12-month, 24-month, or 48-month inspection frequency and those eligible to be changed.
- Bridge Scour F, G, J – Lists bridges that have not been evaluated for scour, have unknown foundations or require further evaluation.
- Bridge Scour Plan of Action – Lists whether bridges that are susceptible to scour have written plans of action guiding agency response during flood events.
- Bridge Rating and Posting – Lists bridges with capacity ratings, posting signs and those that are missing rating sheets or are in poor or serious conditions, which may require a new rating.
- FC, UW, PA – Lists bridges that are coded to require fracture critical, underwater or special pinned assembly type inspections.

Summary of Findings from FHWA Bridge Inspection Compliance Reviews

The FHWA is responsible for evaluating the overall quality and conformance to the NBIS of each state's bridge inspection program. MnDOT is evaluated on the management and inspection of its trunk highway bridges as well as its management and oversight of local agency bridge owners. Typically, the FHWA meets with the Minnesota State Bridge Engineer and staff to discuss findings, provide additional information, and access inspection files as requested. Following the review, the FHWA Division Bridge Engineer submits a letter to the commissioner of transportation stating whether MnDOT was found in compliance with the NBIS and lists findings in the form of recommendations to improve the program based on its review. In 2011, the review process changed significantly. In the past, a state's program was given one overall determination of compliance. The new program is a data-driven and risk-based system which establishes 23 metrics for review and evaluation. The program strives to clearly define terms and processes and to better establish national consistency in program reviews between states.

National Bridge Inspection Program Review

The 2013-2014 program reviews assessed 23 metrics, or focus areas, derived from the NBIS. Each of the metrics is cyclically reviewed by the FHWA on an intermediate or in-depth level, and if the state is not operating to a defined level of expected performance, an agreement (either called an Improvement Plan or Plan of Corrective Action) between FHWA and MnDOT is put into place.

As long as the state then operates under the agreement, the state will be considered in conditional compliance until the terms of the agreement expire. MnDOT is currently in full compliance with 19 of the 23 metrics, but is currently in conditional compliance for four metrics.

- **Metric 12** – Inspection Quality. Three out of 20 randomly sampled locally-owned inspection reports were found lacking in appropriate narratives to support condition state assessments for bridge elements.
- **Metric 13** – Load Ratings. FHWA determined that many of the load rating calculations on the locally-owned Minnesota inventory needed updating.
- **Metric 14** – Post or Restrict. MnDOT has not received positive confirmation the status of load posting for a subset of locally-owned bridges.
- **Metric 18** – Scour Critical Bridges. In a random sample, FHWA found that five of 18 locally-owned Scour Plan of Actions did not have a critical scour elevation recorded.

Response to FHWA Compliance Review Findings

The following is a summary of MnDOT responses corresponding to each of the compliance reviews listed in Section 5 which were created after the 2013 or 2014 FHWA reviews:

Annual National Bridge Inspection Standards Compliance Review

No follow-up action was needed by MnDOT for any of the 19 metrics that are currently in full compliance. MnDOT developed agreements with the FHWA to address the issues with the four conditionally compliant metrics. These agreements and actions that are actively being pursued are:

Metric 12 – Inspection Quality

- **Action Item 1:** The MnDOT Bridge Office will incorporate an Inspection Quality topic in the 2013 and 2014 bridge inspection refresher training seminars.
- **Action Item 2:** The MnDOT Bridge Office will incorporate a section on quality inspections into the MnDOT Bridge Inspection Best Practice Document.
- **Action Item 3:** The MnDOT Bridge office will review all electronically submitted routine inspection reports annually via database query. Any inspection reports that have an element condition state greater than one with a null comment field will be marked noncompliant. Agencies will be notified of noncompliant bridges annually. The MnDOT Bridge Office will also perform a minimum of 120 in-depth QA reviews on inspection reports; previously the minimum was 30 per year
- **Action Item 4:** The MnDOT Bridge office will educate program administrators about the need for quality inspection reports. The method of delivery will be during the bridge committee meeting for county engineers.

Metric 13 – Load Rating

- **Action Item 1:** Develop an email alert system within SIMS that notifies program administrators of bridges that meet certain criteria which may indicate a new load rating is needed.
- **Action Item 2:** Develop a biannual e-mail summary report of Action Item 1 notifications for the FHWA Division Bridge Engineer and MnDOT Bridge Asset Management Unit.
- **Action Item 3:** Follow up with agencies biannually as necessary based on summary e-mail alerts.
- **Action Item 4:** Continue to implement the action item from the 2009 Load Rating and Posting Focus Review (Specialized Hauling Vehicle rating contracts).

- **Action Item 5:** Revise Form RC-CL and RC-TH (load posting reports) to add an Assigned Rating Option to the Method of Rating box, consistent with the Sept. 29, 2011 FHWA Memorandum.
- **Action Item 6:** Revise Form 90 for assigning load ratings to culverts, consistent with the Sept. 29, 2011 FHWA Memorandum.

Metric 14 – Post or Restrict

- **Action Item 1:** MnDOT will develop and implement a process to confirm all bridges in the MnDOT bridge inventory currently requiring load posting or closure are properly posted or closed. The process will include surveying all bridge owners for the current bridge open/posted/closed status of their bridges requiring load posting or closure.
- **Action Item 2:** MnDOT will confirm the 71 remaining bridges from the Special Hauling Vehicle Contracts 1-3 local agency survey data requiring posting/closure are properly posted or closed. As of Dec. 18, 2014, 928 out of 2,077 local bridges required load posting from the contracts; of the 928 bridges, 764 were posted and 93 were closed.
- **Action Item 3:** MnDOT will load post or close, or cause to be load posted or closed, any bridges found to be improperly load posted or open within 30 days, as provided by MnDOT's posting policy, starting at the point in time when MnDOT is aware of the posting/closure deficiency.

Metric 18 – Scour Critical Bridges

- **Action Item 1:** MnDOT's Bridge Office will educate program administrators and team leaders at inspection refresher seminars and through the Bridge Office State Aid Newsletter, as well as at the county engineers meeting, held in January of each year, about the importance of complete information for compliance and documentation requirements. Inspection refresher seminars are scheduled throughout the state during the months of February and March (two year cycle). The [Bridge Office State Aid Newsletter](#) is distributed statewide in January.
- **Action Item 2:** MnDOT's Bridge Office Waterway Unit will perform a random audit at the end of January 2015 to review the completeness of the Scour Critical Bridge Plans of Action, and as necessary, contact the appropriate program administrators regarding the structures' missing data.

Appendix A: List of Acronyms

AASHTO: American Association of State Highway and Transportation Officials

BSIPM: Bridge and Structure Inspection Program Manual

CoRe: Commonly Recognized Elements

FC: Fracture Critical-type of special bridge inspection

FHWA: Federal Highway Administration

MnDOT: Minnesota Department of Transportation

NBIS: National Bridge Inspection Standards

PA: Pinned Assembly-type of special bridge inspection

PCA: Plan of Corrective Action

PONTIS: AASHTO-developed bridge management system; SIMS feeds data to PONTIS

SHV: Special Hauling Vehicle

SIMS: Structure Information Management System

UBIV: Under Bridge Inspection Vehicle

UW: Underwater-type of special bridge inspection