



# Minnesota Department of Transportation

## Bridge Inspection Quality Control and Quality Assurance Plan



December 2011

*Your Destination... Our Priority*



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# Section 1: Purpose and Policy Documents

## 1.1 Purpose and Benefits

- **Purpose** – In order to maintain accuracy and consistency of bridge inspections and bridge inspection reporting and evaluate program effectiveness, uniformity, and compliance with federal and state rules relating to bridge inspections, it is necessary to implement appropriate quality control and quality assurance measures.
- **Benefits** – Accuracy and consistency of data is critical to public safety and information obtained during inspections determines maintenance needs and the allocation of resources.

## 1.2 Definitions

- **Quality Control (QC)** – Operational procedures that are necessary to properly conduct and maintain the bridge inspection program.
- **Quality Assurance (QA)** – Development, documentation, and implementation of policies and procedures to ensure that the bridge inspection program is meeting or exceeding Federal, State, and Department standards.
- **Program Manager (PM)** - At the highest level, the individual appointed by the Department with statewide responsibility for bridge inspection, reporting, and inventory. Currently this title is held by the Bridge Construction and Maintenance Engineer, MnDOT Office of Bridge.
- **Program Administrator (PA)** – A certified Professional Engineer appointed by an agency or jurisdiction to oversee the bridge inspection program and have QC responsibilities as delegated by the PM. Typically, the Program Administrator is the City or County Engineer, a consultant, or the District Bridge Engineer. In accordance with [Minnesota Statute 165.03 Subd. 2](#), the County Highway Engineer is designated as Program Administrator for all bridges located wholly or partially within or over the right-of-way of any county or town road, or any street within a municipality that does not have a city engineer regularly employed.
- **Bridge Inspection Team Leader (TL)** – Personnel certified by MnDOT to conduct inspections of in-service bridges and culverts on the state, county and local highway system throughout the state of Minnesota. A MnDOT certified Bridge Inspection Team Leader must be present at the bridge site at all times during a bridge inspection.
- **Structure Information Management System (SIMS)** – MnDOT's bridge management system where inspectors enter inspection data and bridge owners can review data. SIMS contains all bridge data including inventory, inspection findings, reports, pictures, sketches, and more.

- **Structural Evaluation Unit** – A certified Professional Engineer, or others under supervision of, that conducts a structural assessment of a bridge based on inspection findings of fracture critical inspections and other inspection types as requested. A standard template of the Structural Assessment Report is provided in SIMS and is located in Appendix A of this document.

### 1.3 *Bridge Inspection Manuals/Technical Memorandums/Federal & State Laws*

#### **Manuals**

- Minnesota Department of Transportation (MnDOT) Bridge Inspection Manual Version 1.8 – October 2009:  
[http://www.dot.state.mn.us/bridge/manuals/inspection/BridgeInspectionManual\\_Version1.8.pdf](http://www.dot.state.mn.us/bridge/manuals/inspection/BridgeInspectionManual_Version1.8.pdf)
- FHWA Bridge Inspector’s Reference Manual (BIRM):  
<http://www.dot.state.mn.us/bridge/docsdown.html#insp>
- AASHTO Manual for Bridge Evaluation: <https://bookstore.transportation.org/>
- FHWA Recording and Coding Guide for the Structure Inventory and Appraisal of the Nations Bridges:  
[http://www.dot.state.mn.us/bridge/documentsformslinks/inspection/FHWARecording.codingguide\(1995\).pdf](http://www.dot.state.mn.us/bridge/documentsformslinks/inspection/FHWARecording.codingguide(1995).pdf)
- LRFD Bridge Design Manual:  
<http://www.dot.state.mn.us/bridge/manuals/LRFD/index.html>

#### **Technical Memorandums**

- MnDOT Technical Memorandum No. 11-06-B-03: Guidelines for Bridge Inspection Frequency: <http://techmemos.dot.state.mn.us/>
- MnDOT Technical Memorandum No. 08-01-B-01: Guidelines for In-Depth Inspection of Fracture Critical Bridges, Special Inspections for Other Bridges, and for Underwater Inspections: <http://techmemos.dot.state.mn.us/>
- MnDOT Technical Memorandum No. 11-12-B-04: “Critical Deficiencies” Found During Bridge Inspections: <http://techmemos.dot.state.mn.us/>

#### **Federal & State Laws**

- National Bridge Inspection Standards:  
<http://www.fhwa.dot.gov/bridge/nbis.htm>
- National Bridge Inspection Standards (NBIS) Metrics:  
<http://www.ceao.org/Bridge%20QAR/23%20metrics.pdf>
- Minnesota Rules [8810.9000](#), [8810.9500](#), [8810.9600](#)
- Minnesota Statutes [Chapter 165.BRIDGES](#)

## Section 2: Quality Control (QC)

### 2.1 QC Roles and Responsibilities

The National Bridge Inspection Standards (NBIS) requires all states to collect inspection data and maintain an inventory of all public bridges. MnDOT typically inspects all state owned bridges. Non-State owned bridges are inspected by the bridge owner, hired consultants, or other agency jurisdictions with inspection programs. In the state of Minnesota, inspection authority is delegated by the Program Manager to local agencies under the title of Program Administrator. Responsibilities identified are defined in more detail in the following MnDOT Technical Memorandums: No. [08-01-B-01](#): Guidelines for In-Depth Inspection of Fracture Critical Bridges, Special Inspections for Other Bridges, and Underwater Inspections (including attachment – Quality Assurance Plan- MnDOT Fracture Critical and Special Inspection Program) and No. [11-12-B-04](#): “Critical Deficiencies” Found During Bridge Inspections.

#### 2.1.1 Program Manager Responsibilities

- Review Inspection Plans\*
- Equipment
  - Condition
  - Calibration and certification requirements
- Inspection Access
- Review Inspection Reports
- Review of follow-up items to inspection findings\*
- Determine Program Administrator/Inspector Qualification Requirements
  - Enforce De-certification and Denials if Requirements not met
- Program Administrator/Inspector Training and Certification
  - Annual refresher training seminars
- Critical Findings review and follow-up
- Statewide Inventory Data Reviews
  - Accuracy of inspection reports
  - Late inspections
  - Critical Findings smart flag
  - New ratings or postings requirements
  - NBI Condition State 2 review

\*Items that may be delegated to a Program Administrator

### 2.1.2 Program Administrator Responsibilities

The Program Administrator should be familiar with the MnDOT Bridge Inspection Report format and the NBI and structural element condition ratings (as outlined in the MnDOT Bridge Inspection Manual) and of the resources available on the Bridge Office website, <http://www.dot.state.mn.us/bridge/index.html>, including bridge inspection and inventory reports, inspections due and inspection frequency reports, bridge scour reports, bridge load posting and rating reports and bridge roster reports.

- Review and sign all routine bridge inspection reports.
- Review in-depth inspection reports (fracture critical or underwater reports), sign and return Acknowledgement Form provided with report to MnDOT.
- Respond to recommendations made in reports.
- Identify and follow up on repair or rehabilitation identified from the inspection.
- Report Critical Findings to the MnDOT Bridge Inspection Engineer and follow-up to resolution.
- Review Condition Ratings for accuracy and changes from previous year.
- Report changes in load ratings and inventory data to the MnDOT Bridge Office.
- Maintain Inspector Qualifications.
- Submit annual certification of inspector qualifications to the MnDOT Bridge Office Data Management Unit (Local Agencies Only).
- Report and/or schedule necessary maintenance.
- Maintain bridge files.
- Report Bridge inspection date to MnDOT Bridge Office within 90 days for TH bridges and within 180 days for non-TH bridges.
- Act through the State Commissioner of Transportation in regards to bridges owned by cities or towns/townships to enforce bridge safety and maintenance.

### 2.1.3 Team Leader Responsibilities

A MnDOT certified Bridge Inspection Team Leader must be present at the bridge site at all times during a bridge inspection.

- Assure that inspection equipment and required inspection tools are available during inspections.
- Observe proper safety and traffic control procedures.
- Accurately record and report field conditions in accordance with the MnDOT Inspection Manual.
- Use photos and sketches to document and quantify element conditions and deficiencies.
- Properly report Smart Flag conditions.
- Update plans and inventory data based on observations during inspections.
- Document deterioration of concrete, timber or steel elements for load rating updates.
- Document and report Critical Deficiencies as defined in Technical Memorandum No. [11-12-B-04](#), "Critical Deficiencies" found during bridge inspection.

### *2.1.4 Structural Evaluation Unit Responsibilities*

- Verify critical deficiencies have been addressed.
- Determine if repair or rehabilitation is recommended or needed.
- Determine if the structure is functioning as designed.
- Determine if load rating should be re-evaluated.
- Identify items to schedule for repair.

## **2.2 Inspection Program Qualifications**

Agencies, such as MnDOT Districts, Counties, Cities or other public or private entities designated with inspection jurisdiction for one of more bridges must designate a “Program Administrator” to oversee the inspection and inventory program.

### *2.2.1 Program Administrator Qualifications*

- Be registered as a professional engineer (PE) in the state of Minnesota **and**
- Attend 2 one-day Bridge Inspection refresher seminars every 4 years (conducted by the MnDOT Bridge Office)

### *2.2.2 Team Leader Qualifications*

- Be a registered professional engineer in the state of Minnesota, successfully complete a FHWA approved comprehensive bridge inspection training course, and pass a filed proficiency test administered by the MnDOT Bridge Office **or**
- Have five years of bridge inspection experience, complete a FHWA approved comprehensive bridge inspection training course, and pass a field proficiency test administered by the MnDOT Bridge Office **and**
- Attend 2 one-day Bridge Inspection refresher seminars every 4 years (conducted by the MnDOT Bridge Office.
- Note: Any NHI training course can be taken in conjunction with gaining bridge inspection experience. Training courses do not have to be taken prior to starting the 5 year experience stipulation.

### *2.2.3 Assistant Bridge Inspector Qualifications*

- While the FHWA and MnDOT have no minimum requirements for who can assist in bridge inspections, MnDOT does encourage assistant bridge inspectors to attend a 1-week NHI training course: Engineering Concepts for Bridge Inspectors. Any NHI training course can be taken in conjunction with gaining

bridge inspection experience. Training courses do not have to be taken prior to starting the 5 year experience stipulation stated in Section [2.2.2](#).

#### 2.2.4 *Qualifications of Bridge Inspectors conducting Fracture Critical Inspections*

- Bridge Inspectors who conduct Fracture Critical Inspections must meet the requirements listed above for Team Leader, or be under the direct supervision of a Team Leader, **and**
- Have taken or will take the NHI Course: Fracture Critical Inspection Techniques for Steel Bridges **or**
- Have or obtain experience and/or classes related to fracture critical inspections that may be substituted in lieu of the NHI Course, but at the discretion of the Program Manager.

### 2.3 **Certification and Appointment Processes**

#### 2.3.1 *Certification Policy*

- MnDOT's Bridge Inspection Team Leader Certification Policy (2011) can be found at:  
[http://www.dot.state.mn.us/bridge/documentsformslinks/inspection/bridgeinspcertinfo\(2011\).pdf](http://www.dot.state.mn.us/bridge/documentsformslinks/inspection/bridgeinspcertinfo(2011).pdf)
- The requirements listed below have been developed by the MnDOT Bridge Office to comply with the National Bridge Inspection Standards ([NBIS](#)), as outlined in the Federal Code of Regulations Part 650.309, Minnesota Statute [165](#), and State of Minnesota Rule [8810.9300](#). *Note: the certification levels defined below refer to the inspection of in-service bridges and culverts - this should not be confused with bridge construction inspection certification.*

#### 2.3.2 *Program Administrator*

*Note: Designation as a Bridge Inspection Program Administrator does not also qualify that individual as a Bridge Safety Inspection Team Leader. If a Program Administrator also wants to perform bridge inspections, they must be certified by MnDOT as a Team Leader. A MnDOT-certified Team Leader must be present at the bridge site at all times during a bridge inspection.*

- **Appointment** – Any agency with inspection jurisdiction for one or more bridges on the MnDOT structure inventory must designate a Program Administrator to oversee the bridge inspection and inventory program. To designate a Program Administrator, an [appointment form](#) must be signed by an appropriate supervising individual employed by the agency (in many cases this will be the same individual designated as the Program Administrator) and submitted to the

Bridge Office:

[http://www.dot.state.mn.us/bridge/documentsformslinks/inspection/bpat/ProgAdminApptForm\\_3-2009.doc](http://www.dot.state.mn.us/bridge/documentsformslinks/inspection/bpat/ProgAdminApptForm_3-2009.doc)

- The District Bridge Engineer will typically be designated as the Program Administrator for MnDOT districts; the County Engineer will typically be designated as the Program Administrator for counties; the City Engineer will typically be designated as the Program Administrator for municipalities. Smaller cities which employ a consultant to perform bridge inspections may choose to designate a consulting engineer as the Program Administrator.
- **Renewal of Appointment** – Program Administrators are automatically renewed every four years unless the Program Administrator does not meet the required training, the Program Administrator is replaced, or the Program Administrator is denied reappointment by the Program Manager. To maintain appointment the following two minimum requirements must be met:
  - Be registered as a professional engineer (PE) in the state of Minnesota.
  - Attend a minimum of two MnDOT refresher seminars or other bridge inspection related training during the four year appointment period.

### 2.3.3 Team Leader

- **Certification** – In addition to the training and experience requirements outlined in the NBIS, MnDOT requires a separate field proficiency test to become certified as a Bridge Inspection Team Leader. To schedule a field proficiency test, an application form must be submitted to the Bridge Office:  
[http://www.dot.state.mn.us/bridge/documentsformslinks/inspection/fieldtest/applicationform\(2011\).pdf](http://www.dot.state.mn.us/bridge/documentsformslinks/inspection/fieldtest/applicationform(2011).pdf). The test ensures compliance with NBIS standards, improves the quality of bridge inspections, and increases the statewide consistency of bridge ratings.
  - The test consists of a routine inspection of an in-service bridge (based upon the MnDOT Bridge Inspection Manual and Inspection Report Format). The inspector is given 2 hours to examine a bridge, take notes and determine the NBI and element condition ratings. Grading is determined by comparing the candidate’s inspection report to a reference inspection report. Emphasis is placed on the overall completeness and accuracy of the report, and on the proper documentation of any critical structural or safety conditions. Scoring is based on a scale of 0-100, with a passing score being 75% or higher. Applicants who fail the field proficiency test may apply again after 6 months. The score is weighted using the following criteria:

▪ NBI condition ratings	30%
▪ Structural element condition ratings	30%
▪ Structural “smart flags” and other items	10%
▪ Inspection notes	30%
  - A certification card will be sent to MnDOT certified Team Leaders with a four year expiration date.

- **Renewal of Certification** – Certification must be renewed every four years (renewal forms mailed out prior to expiration date). To maintain certification, a Team Leader must meet the following requirements:
  - Attend a minimum of two MnDOT refresher seminars or other bridge inspection related training during the four year certification period.
  - Actively engage in bridge inspections during at least two of the four year certification period (must be verified by supervising engineer).

## **2.4 De-certification and Denial Process**

### *2.4.1 Program Administrator*

The Program Manger has the authority to deny or withdraw appointment of the Program Administrator.

### *2.4.2 Team Leader*

The Program Manger has the authority to deny or withdraw certification of the Team Leader.

### *2.4.3 Reasoning for De-certification and Denial of Appointment*

The Program Manager can decertify a Team Leader or deny/revoke appointment to a Program Administrator for a variety of reasons, not limited to the following:

- Failure to attend refresher seminars or bridge inspection related training at required intervals.
- Failure to maintain registration as a Professional Engineer as applicable.
- Continued lack of proper follow-up for critical findings, critical scour, or other items that could adversely affect the performance of the bridge or the safety of the public.
- Failure to correct findings from NBIS Quality Assurance Agency Compliance. Reviews, including failure to respond to repeated compliance review inquiries.
- Recurring miscoded critical items, such as structural elements and smart flags.
- Lack of follow-up for correcting load posting deficiencies.
- Failure to submit inspection data into inventory in a timely manner.
- Failure to follow or comply with any [MnDOT, State, or Federal policy, rules or law](#).
- Failure to inspect bridges within the required frequency.
- Dishonest or unethical behavior that adversely affects the inspection program.

## **2.5 Re-certification & Re-appointment Process**

### *2.5.1 Program Administrator*

A Program Administrator denied appointment may re-qualify, if they indicate in a written report, or plan of action, how they will correct their deficiencies. Upon approval by the MnDOT Program Manager, the Program Administrator agency shall be re-appointed but monitored for 1 year under the NBIS compliance review process.

### *2.5.2 Team Leader*

A de-certified Team Leader may re-certify by completing the 2 week NHI training course “Safety Inspection of In-Service Bridges” and achieving a score of 70% or better on the examination at the end of the course. Attendance in the entire course is mandatory for re-qualification. In addition, the disqualified Team Leader must complete the MnDOT Field Proficiency test and achieve a score of 75% or better.

If a Team Leader is de-certified only due to failure to fulfill training requirements within the four year certification period, he/she may be re-certified by passing the MnDOT Field Proficiency test. If the de-certified Team Leader does not pass the MnDOT Field Proficiency test, he/she must complete and pass the 2 week NHI training course “Safety Inspection of In-Service Bridges”.

## **2.6 Tracking Process of Qualifications**

### *2.6.1 MnDOT Database*

MnDOT maintains a database identifying Team Leaders, Program Administrators, and anyone having taken NHI bridge safety courses and/or a MnDOT bridge inspection seminar. Certification information tracked by the MnDOT Bridge Office is as follows:

- Name
- Address
- Certification Number (if applicable)
- Agency Information
- Certification Expiration Date
- Test scores
- NHI Bridge Safety Inspection Training Class Attendance and Scores
- MnDOT Field Proficiency Test Date and Scores
- Inspection Refresher Seminar Attendance

## 2.6.2 Training and Refresher Seminars

MnDOT offers NHI Bridge Safety Inspection training courses each year. These courses are developed by the National Highway Institute (NHI) and are based upon the Bridge Inspectors Reference Manual (BIRM). The “Safety Inspections of In-Service Bridges” course meets the definition of a “comprehensive training program in bridge inspection” as defined in the National Bridge Inspection Standards (NBIS).

- **Annual NHI Classes**
  - Engineering Concepts of Bridge Inspectors (1 week class)
  - Safety Inspections of In-Service Bridges (2 week class)
- **Other NHI Classes** – *offered periodically by MnDOT*
  - Fracture Critical Inspection Class – Fracture Critical Inspection Techniques for Steel Bridges (3.5 day class)
  - Scour and Stream Stability (1 day class)
- **Refresher Training**
  - Both Team Leaders and Program Administrators must attend Refresher Training two times within a four-year period to maintain certification. The one-day seminar conducted annually by the MnDOT Bridge Office and offered at several locations throughout the state is valid for this requirement. Topics covered in the seminar vary according to the needs identified during the annual agency NBIS compliance review, additions or changes to structural elements, and new areas of emphasis. Other training with topics associated with bridge inspection and bridge maintenance may be submitted to the Bridge Office and considered to also meet this requirement.

## 2.7 Inspection Frequency

MnDOT has documented the procedure for determining required inspection frequency for individual bridges and culverts. These procedures are detailed in Technical Memorandum [11-06-B-03](#). Specific frequencies by inspection type are detailed below in section [2.8](#).

Severe weather, concern for bridge inspector safety, concern for inspection quality, the need to optimize scheduling with other bridges, or other unique situations may be cause to adjust the scheduled inspection date. The adjusted date should not extend more than 30 days beyond the inspection frequency noted in this memorandum and subsequent inspections should adhere to the previously established interval.

In addition to the above criteria, bridge owners should consider any other factors which would have a bearing on the appropriate inspection frequency, such as age of structure, rate of critical element deterioration, traffic characteristics, scour susceptibility, experience with similar structure types, or in-place warranties.

In order to request a change in an established inspection frequency, a request form must be filled out and submitted to the MnDOT Bridge Office:  
<http://www.dot.state.mn.us/bridge/documentsformslinks/inspection/inspectionfrequencychangerequestform.pdf>

## 2.8 *Inspection Types*

MnDOT has documented guidelines and procedures intended to maintain the accuracy and consistency of bridge inspections. These procedures, in conjunction with Technical Memorandum [08-01-B-01](#) and the [MnDOT Bridge Inspection Manual Appendix A](#), are detailed below.

### 2.8.1 *Initial Inspections*

- **Description** –An initial inspection is the first inspection of a bridge as it becomes a part of the bridge file, newly constructed. This may also apply when there has been a change in the configuration of the structure or change in ownership.
- **Inspection Frequency**  
The initial inspection shall occur within 90 days of the date that the bridge is opened to traffic for trunk highway. The initial inspection for local bridges shall occur within 180 days of the date that the bridge is opened to traffic. All newly-constructed bridges and culverts are assigned a routine safety inspection frequency of 12 months. Bridge owners can then request a longer interval for routine inspections in accordance with 2.8.2.
- **MnDOT Responsibilities**  
Provide all Structure Inventory and Appraisal (SI&A) data required by federal and state regulations in SIMS, and all other relevant information collected by the Bridge Owner.
- **Inspection Procedures and Reporting Guidelines**  
Standard condition state reports provided in SIMS, that may include sketches and photographs, must be entered upon completion of the inspection and then reviewed by the appropriate Program Administrator within 90 days of the inspection for trunk highway and within 180 days of the inspection for local agency bridges.

### 2.8.2 *Routine Inspections*

- **Description** –Routine inspections are regularly scheduled inspections consisting of observations, measurements, or both, needed to determine the physical and functional condition of the bridge, to identify any changes from previously recorded conditions, and to ensure that the structure continues to satisfy present service requirements.

- **Inspection Frequency**  
Bridge owners with bridges or culverts meeting the requirements for 24 or 48 month inspection frequency may submit a request to change of inspection frequency using the form attached to this Memorandum. If a bridge or culvert no longer meets the condition criteria for 24 or 48 month inspections, it will be assigned the appropriate frequency based on the criteria stated in the Technical Memorandum referred to in Section [2.7](#). District and local agency bridge owners will be notified of these changes to the inspection frequency.
- **MnDOT Responsibilities**  
Ensure that the routine inspection fully satisfies the requirements of the NBIS with respect to maximum inspection frequency, the updating of SI&A data, and the qualifications of the inspection personnel.
- **Inspection Procedures and Reporting**  
Standard condition state reports provided in SIMS, that may include sketches and photographs, must be entered upon completion of the inspection and then reviewed by the appropriate Program Administrator within 90 days of the inspection for trunk highway and within 180 days of the inspection for local agency bridges.

### 2.8.3 Damage Inspections

- **Description** – A damage inspection is an unscheduled inspection to assess structural damage resulting from environmental factors or human actions.
- **Inspection Scope**  
The Bridge Owner’s scope of inspection should be sufficient to determine the need for emergency load restrictions or closure of the bridge to traffic, and to assess the level of effort necessary to repair.
- **MnDOT Responsibilities**  
The MnDOT Bridge Office can assist the Bridge Owner in inspecting and evaluation if requested.
- **Inspection procedures and reporting**  
Inspectors must evaluate any fractured members, determine extent of section loss, make measurements for misalignment of members, and check for any loss of foundation support. Standard narrative reports provided in SIMS that includes condition assessments, sketches, and photographs must be entered upon completion of the inspection and then reviewed by the appropriate Program Administrator within 90 days of the inspection for trunk highway and within 180 days of the inspection for local agency bridges.

### 2.8.4 Fracture Critical (FC) Inspections

- **Description** – A bridge that is not load path redundant and has at least one fracture critical member (FCM) or member component. FCMs or member

components are steel tension members or steel tension components of members whose failure would be expected to result in collapse of the bridge.

- **Inspection Frequency**

Fracture critical members of non-load path redundant bridges shall receive a hands-on fracture critical inspection at an interval not to exceed 24 months. Fracture critical bridges that carry public roadways must receive a routine inspection every 12 months, but not to exceed 15 months.

- **MnDOT Responsibilities**

Fracture critical inspections, on both the Trunk Highway and local system, are the responsibility of the MnDOT Bridge Office. The Bridge Office evaluates all bridges that are not load path redundant to determine if and where FCMs are present.

- **Inspection Procedures and Reporting**

Inspections will be conducted following appropriate MnDOT safety guidelines for both the employee and the general public. Fracture critical inspections are hands-on (within 2 feet) inspections of FCMs conducted using under-bridge inspection units (snoopers), man-lifts, boats, ladders or other means necessary to inspect all FCM. Refer to Section [2.2.4](#) for specific FC Inspector Qualifications. Standard narrative reports provided in SIMS that includes condition assessment, sketches, and photographs must be entered upon completion of the inspection and then reviewed by the appropriate Program Administrator within 90 days of the inspection for trunk highway and within 180 days of the inspection for local agency bridges.

### 2.8.5 Underwater Inspections

- **Description** – Bridges requiring Underwater Inspections have members that cannot be visibly evaluated during periods of low flow or examined by feel for condition, integrity and, load capacity due to excessive water depth or turbidity.

- **Inspection Frequency**

Underwater bridge inspections are not to exceed 60 months in frequency.

- **MnDOT Responsibility –Contract Administration**

Underwater inspection contracts are administered by the MnDOT Bridge Office on the Trunk Highway system and by the State Aid Office on the local system.

- **Inspection Procedures and Reporting**

Underwater inspections must be conducted under the direct supervision of either a MnDOT certified Team Leader or someone with NBIS Team Leader qualifications. The underwater inspector must be an experienced and accomplished diver. Detailed narrative reports including condition assessment, sketches, and photographs must be entered into SIMS upon completion of the inspection and then reviewed by the appropriate Program Administrator within 90 days of the inspection for trunk highway and within 180 days of the inspection for local agency bridges.

### 2.8.6 Special Inspections

- **Description** – A special inspection is intended to monitor a unique bridge component, such as a pinned assembly, or a particular known or suspected deficiency.
- **Inspection Frequency**  
Pin and hanger details and pinned assemblies shall receive a special inspection at an interval not to exceed 60 months. Other special inspection may be established at the discretion of the State Bridge Inspection Program Manager.
- **MnDOT Responsibilities**  
Special inspections, on both the Trunk Highway and local system that include ultrasonic testing of pins, are the responsibility of the MnDOT Bridge Office. The Bridge Office will delegate these inspections if requested by the Districts.
- **Inspection Procedures and Reporting**  
Inspections will be conducted following appropriate MnDOT safety guidelines for both the employee and the general public. Special inspections will be conducted using the same guidelines as FC inspections. Standard narrative reports including condition assessment, sketches, and photographs must be entered into SIMS upon completion of the inspection and then reviewed by the appropriate Program Administrator within 90 days of the inspection for trunk highway and within 180 days of the inspection for local agency bridges.

### 2.8.7 Procedures for Review of Inspection Reports

- **State Owned Bridges**
  - MnDOT Team Leaders review Structure Inventory Report for accuracy during inspections.
  - The Team Leader and/or Program Administrator utilize the Bridge Maintenance Module in SIMS (when available) or a document of similar fashion to track maintenance tasks and schedule any necessary repairs.
  - The Program Administrator will discuss with the Team Leader any items recommended in the inspection report for investigation /repair that were deemed not to require immediate action or future monitoring by the Program Administrator.  
*Note: In some Districts, the Program Administrator may delegate authority to the Bridge Maintenance Supervisor to approve maintenance tasks separately from the inspection report.*
  - Each inspection report along with the associated maintenance tasks are reviewed and approved by the Program Administrator in SIMS.
- **Non-State Owned Bridges**
  - Agency Team Leader or Program Administrator reviews the Structure Inventory Reports for accuracy.
  - The Team Leader and/or Program Administrator utilize the Bridge Maintenance Module in SIMS (when available) or a document of similar fashion to track maintenance tasks and schedule any necessary repairs.

- The Program Administrator will discuss with the Team Leader any items recommended in the inspection report for investigation /repair that were deemed not to require immediate action or future monitoring by the Program Administrator.
- Each inspection report along with the associated maintenance tasks are reviewed and approved by the Program Administrator in SIMS.
- **Fracture Critical Bridges** – *Fracture Critical inspections on both the TH and Local System are the responsibility of the MnDOT Bridge Office. The reports specific to fracture critical bridge inspections listed below involve an extensive review process which procedures are explicitly outlined in an internal MnDOT Bridge Office document. The basic report and review procedures outlined in said internal document are abbreviated below for the purposes of statewide awareness.*
  - **7 Day Fracture Critical Report** – submitted by the Inspection Team Leader to the bridge owner within 7 days of the inspection date. The purpose of the report is to identify deficiencies that may require immediate action before the Final Fracture Critical Report is written and reviewed, and to provide NBI and Element coding for input of routine inspection data within required data entry time limits. Standard 7 Day Fracture Critical (FC) Report templates are in SIMS. The 7 Day FC Report undergoes a review process as follows:
    - Critical Deficiencies, New Load Rating Recommendation, Safety Hazards, and/or Structural Analysis Recommendation – if any of these items are determined during a fracture critical inspection, the lead inspector must notify the Bridge Inspection Engineer and the Bridge Evaluation Unit immediately. The Bridge Evaluation Unit will call an assessment meeting to develop a plan of action. Once a plan of action is determined, the Bridge Evaluation Engineer will submit a response via e-mail to the Bridge Inspection Engineer and CC the assessment meeting participants. The Bridge Inspection Engineer will then submit to the inspection team, who will then in turn document the plan of action in the bridge file, notify the Program Administrator as applicable, and/or create a Critical Deficiency Report in SIMS if necessary. **\*Any critical findings should be reported as discussed in the “Critical Findings” Technical Memorandum 11-12-B-04.**
    - If no critical deficiency is determined during a fracture critical inspection, the designated inspection report writer will first create the 7 Day Fracture Critical Report in SIMS in conjunction with the inspection team members for review.
    - Once reviewed by the inspection team members and revised, the inspector will submit the 7 Day Fracture Critical Report to the Bridge Inspection Engineer for review via SIMS. The Bridge Inspection Engineer will review the report for inspection-related items, grammar, format, and completeness. The review will be promptly returned to the report writer for revision through the SIMS application by way of personal edits within the application or in the comments section upon submittal.

- Once revisions are made, the inspector will submit the 7 Day Fracture Critical Report to the Bridge Evaluation Unit via SIMS. The Bridge Evaluation Unit will review the report for any items that may need attention prior to distribution of the Fracture Critical Report. The Bridge Evaluation Unit shall complete the Structural Assessment Report form tab in SIMS and promptly submit back to the report writer. \*Critical Deficiencies, New Load Rating Recommendation, Safety Hazards, and/or Structural Analysis Recommendation – if the Bridge Evaluation Unit identifies any of these items, not previously initiated by the lead inspector, the Evaluation Unit will follow the process outlined on the previous page. The inspection report writer will revise and redistribute the 7 Day Fracture Critical Report as necessary.
- The report writer will make any changes requested from review.
- The report writer will then submit the 7 Day Fracture Critical Report to the applicable Program Administrator via SIMS within 7 days of the inspection completion. The report writer will also send an e-mail to the Bridge Inspection Engineer, Bridge Evaluation Unit, Bridge Management Unit, and EDMS Document Specialist (to update FC inspection date in the inventory and import into EDMS) with the 7 Day Fracture Critical Report attached as a PDF. In the case of a border bridge, the 7 Day Fracture Critical Report must also be sent to the respective agency contact via e-mail.
- The report writer will record that day as the 7-Day Report Sent date in the Bridge Office Inspection Tracking spreadsheet for that year.
- **Fracture Critical Report** – is a standard narrative report that identifies the fracture critical members, fatigue prone details, and detailed inspection findings of the bridge. It is the detailed supplementary report to the initial 7 Day FC Report. The standard Fracture Critical Report template is in SIMS. This report also undergoes a similar review process as the 7 Day FC Report:
  - Within 5 months of the fracture critical inspection date, the report writer will create a Fracture Critical report in SIMS. Once complete, the report writer will submit the report for review via SIMS to the Bridge Inspection Engineer who may distribute to others in the Inspection Unit for review as needed.
  - Reviewed reports will be submitted back to the report writer through SIMS within 14 days of receipt by the Bridge Inspection Engineer. Format and inspection adequacy review is completed by the Bridge Inspection Engineer, or others in the Inspection Unit as delegated, through the SIMS application by way of personal edits within the application or in the comments section upon submittal.
  - The report writer must complete revisions within 14 days of receipt.
  - The report writer will then submit this final report for review to the State Bridge Construction and Maintenance Engineer via SIMS.
  - If no changes are requested, the report may be approved at that time by the State Bridge Construction and Maintenance Engineer in SIMS.

- Once the report is approved, an e-mail will automatically be sent by SIMS to the Bridge Inspection Engineer.
  - The Bridge Inspection Engineer will send a PDF of the report via e-mail to the applicable Minnesota Program Administrator and CC the report writer, Bridge Evaluation Unit, and EDMS Document Specialist (to import into EDMS). In the case of a border bridge, the Fracture Critical Report must also be sent to the respective agency contact.
  - The report writer will then record that day as the Date Sent to Owner in the Bridge Office Inspection Tracking spreadsheet for that year.
- **Structural Assessment Report** – The Bridge Evaluation Unit conducts a structural assessment of the bridge based on the 7 Day Fracture Critical Report. Purposes of the report include:
  - Verify critical deficiencies have been addressed.
  - Determine if repair or rehabilitation is recommended or needed.
  - Determine if the structure is functioning as designed.
  - Determine if load rating should be re-evaluated.
  - Identify items to schedule for repair.

A standard template of the Structural Assessment Report is provided as an optional tab in SIMS for every report type and is located in Appendix A of this document. The Structural Assessment Report is submitted with the 7 Day Fracture Critical Report to the Bridge Owner. Structural Assessment by the Bridge Evaluation Unit may be utilized for other Inspections Types (i.e. Initial, Routine, Damage, Special, etc.) at the discretion of the Bridge Owner.

- **Inspection Update Reports** – *Update reports may be completed in SIMS for a bridge when there is a change to any core NBI/element inspection data or maintenance task outside of a regular inspection frequency interval. The Update Report will apply changes only to those items without affecting the established routine, fracture critical, special, etc. inspection date.*

## 2.9 Inspection of Critical Deficiencies

MnDOT has documented guidelines to fulfill FHWA requirements that all states develop a process to monitor critical deficiencies found during bridge inspections. These procedures are detailed in Technical Memorandum [11-12-B-04](#).

### 2.9.1 Guidelines for “Critical Deficiencies” found during Bridge Inspections

- **Definition** – Critical Deficiency is any condition discovered during a scheduled bridge inspection that threatens public safety and, if not promptly corrected, could result in collapse or partial collapse of a bridge.
- **Process** – MnDOT Technical Memorandum No. 11-12-B-04 “Critical Deficiencies found during bridge inspections” describes the procedures and steps to take if a critical deficiency is found during a bridge inspection. These guidelines include the following:

- Responsibility of the Bridge Inspector
- Responsibility of the Engineer with Reporting Jurisdiction
- Responsibility of the MnDOT Bridge Inspection Engineer
- **Reporting** – A standard template to report and review Critical Deficiencies is provided in SIMS and is located in Appendix B of this document. A Critical Deficiency report should be completed and submitted in SIMS within 7 days of the finding as noted in the technical memorandum.

## **2.10 Load Ratings and Postings**

Information regarding quality control of load ratings is located in the MnDOT Bridge Inspection Manual Appendix B: [Bridge Load Capacity Ratings](#).

## **2.11 Scour Evaluation and Channel Cross-Sections**

Information regarding quality control of scour evaluation and channel cross-sections is located in the MnDOT Bridge Inspection Manual Section [2.2.5](#).

## **2.12 Bridge Files**

### *2.11.1 Accurate Records*

The [AASHTO Manual for Bridge Evaluation](#) Section 2.2 recommends that bridge owners should maintain a complete, accurate, and current record of each bridge under their jurisdiction. At a minimum, a bridge file should include a chronological record of Inventory and Appraisal sheets, inspections performed, including Special, Underwater, and Fracture Critical Reports, bridge load rating and posting records, photographs, and bridge related correspondence. A bridge file can either be electronic, hard-copy, or a combination of both.

### *2.11.2 File Review*

As part of agency compliance reviews, MnDOT reviews bridge files for the following:

- Copy of AASHTO Manual for Condition Evaluation of Bridges
- Signed inspections
- Inspection Reports from past years
- Structure Inventory Reports
- Bridge related correspondence
- Bridge maintenance and repair records
- Bridge load rating summary
- Recent photographs (roadway and elevation views)

## Section 3: Quality Assurance (QA)

### 3.1 Purpose

The purpose is to evaluate the policies, procedures, and operating practices to verify compliance with the National Bridge Inspection Standards ([NBIS](#)) and Minnesota State Laws. The compliance reviews evaluate inspection procedures, inspector qualifications, inspection frequency, inspection files, and quality of reports and inventory.

### 3.2 QA Roles and Responsibilities

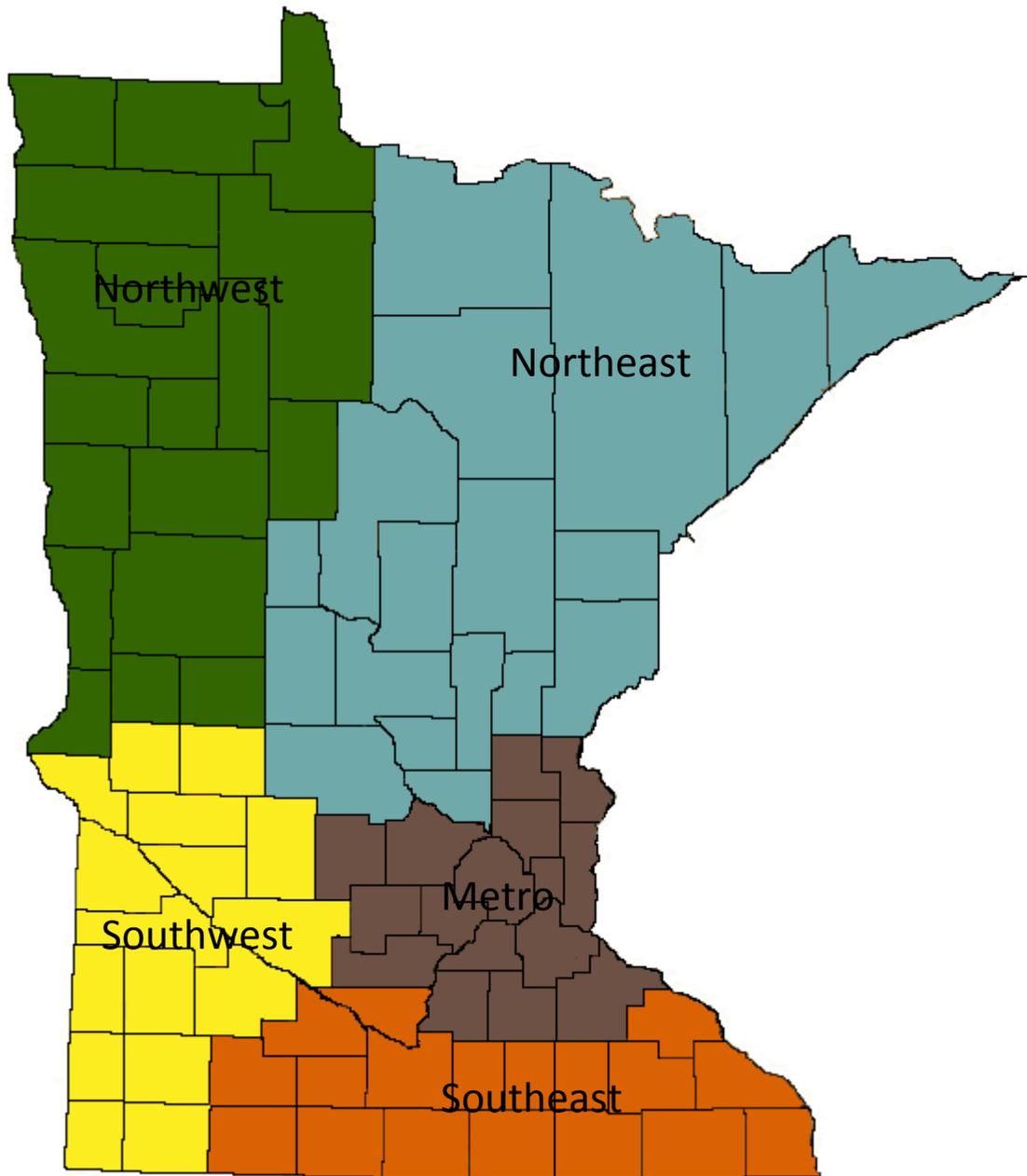
- **FHWA** – The FHWA participates in an annual review of at least one MnDOT District and a statewide annual review of the state bridge inspection program. The statewide annual review determines statewide compliance with the NBIS and includes recommendations for improvements to the program as outlined in the National Bridge Inspection Program (NBIP) 23 Individual Metrics implemented in 2011 – see Section [1.3](#).
- **MnDOT Bridge Office** – The Bridge Office conducts annual compliance reviews of Districts and local agencies to evaluate their inspection program in areas of inspection procedures, inspector qualifications, inspection files, field inspections, and other relevant information.
- **MnDOT State Aid** – All Bridge Office compliance review correspondence is copied to the appropriate District State Aid representative. State Aid participates with the Bridge Office in local agency field & visit reviews when available. State Aid also assists the Bridge Office in implementing non-compliance procedures as described in section 5) a. below.

### 3.3 Agency Compliance Review

All MnDOT Districts and local agency bridge owners are evaluated at least once every five years. The goal is to complete 20 percent of all agencies each year as directed in the October 1, 2002 Letter of Agreement and Stewardship Plan between the MnDOT Bridge Office and the FHWA Division Bridge Engineer pages 39-41 – see Appendix C.

#### 3.3.1 Review Preparation

- The MnDOT Bridge Office selects 20-25 local agencies and one to two Districts based on five predetermined geographic locations:



- Reports are collected from the MnDOT Bridge Management Unit for each agency:
  - Bridge Rosters & Bridge List with Sufficiency Ratings close to 50
  - Winter Inspections (December, January, and February)
  - Maximum Inspections per Day
  - Critical Items
  - Fracture Critical – Underwater – Pinned Assembly Inspections
  - Inspection Frequency
  - Inspections Due
  - Safety Features
  - Load Rating and Posting
  - Scour

- Questionnaires and reports are sent to the agencies with a deadline of two weeks to complete. Questionnaires are a quality assurance review of bridge owner inspection programs. Follow-up is completed by phone and e-mail with those who miss the deadline.
- Inspection inventory and reports for 3-4 bridges with Sufficiency Ratings close to 50 are examined along with the last compliance review data if available.

### 3.3.2 Office Review

Returned questionnaires are reviewed and rated by level of compliance based on the following items:

- Inspector and Program Administrator Qualifications – LMS database and previous annual certification of inspections.
- Inspections Overdue – verification that all inspections were performed at the designated inspection frequency interval.
- Inspection Report Quality – noted deficiencies have been documented properly and compare to recommended maintenance and repair items.
- Critical Findings – findings were properly handled in accordance with MnDOT Technical Memorandum [08-01-B-01](#).
- Load Ratings – bridges have been properly load rated and comply with posting policies.
- Scour Plans of Action (POA) – POAs are developed if required in accordance with MnDOT Bridge Office Hydraulic templates and are on file.
- Other items as outlined in the NBIP Metrics.

### 3.3.3 Field Review & Agency Visit

- 8-12 agencies, along with the chosen 1-2 Districts, are selected and scheduled for field reviews based on the following criteria:
  - Agencies that fail to return questionnaires.
  - Agencies that utilize unqualified inspectors and/or Program Administrators.
  - Agencies that have overdue inspections.
  - Agencies that have a high winter inspection or daily inspection rate.
  - Agencies that have minimal/poor inspection notes.
  - Agencies that are missing structural elements in their inspection reports.
  - Agencies that do not correlate the NBI ratings to the element ratings.
  - Agencies that require multiple scour plans of action or scour code re-screening.
  - Agencies that have many old load rating dates, no load rating dates at all, and/or a number of deficient structures still open to traffic.
  - Agencies that did not follow up on the recommendations from the last compliance review.

- Field review teams may consist of 1-2 MnDOT Bridge Office personnel, a District State Aid representative, and the FHWA.
- Three to four bridges per agency are selected for field review prior to meeting with the agency. The following items are taken into consideration when selecting these bridges:
  - Whether bridge is or is not posted
  - Bridge condition status
  - Bridge type (e.g. Steel girder, timber slab, precast channel girder)
  - Whether the bridge has critical findings and the status of any follow-up action
  - Bridges with unusual changes in condition ratings (e.g. more than 1 appraisal rating change from previous inspection)
  - Bridge that requires special inspections (underwater, FC, other, special)
  - Bridge location
- The agency visit consists of a 2-3 hour meeting with the Program Administrator and inspectors to discuss and emphasize:
  - Quality inspections – field verification of condition ratings
  - Adequacy of photographs, notes, and other bridge file contents.
  - Identification of critical findings.
  - Maintenance and repair recommendation procedures.
  - Load ratings for bridges that have had condition changes.
  - Scour documentation and Plans of Action.

### ***3.4 Agency Compliance Review Comments and Corrective Actions***

After the office or field review has concluded, the MnDOT Bridge Office generates a letter that summarizes the review findings. Letters and applicable inspection-related reports are sent to the agencies, State Aid, and the FHWA within 60 days of the compliance review. The letters consist of inspection program deficiencies found during the review, suggestions for improvement, and NBIS compliance status of the agency. Specific dates are set to correct any inspection program deficiencies both for NBIS compliance and state laws, policies, and procedures outline in Section [1.3](#). The MnDOT Bridge Office conducts follow-up with agencies that have corrective action items during this time period.

#### ***3.4.1 Agency Compliance Status***

Inspection program deficiencies specifically examined for compliance are qualifications of personnel, inspection frequency, inspection procedures, and bridge inventory. There are four levels of compliance:

- Compliance – the act of adhering to NBIS regulation.
- Substantial Compliance – The act of adhering to the NBIS regulation with minor deficiencies. Deficiencies are expected to be corrected within 12 months or less,

unless the deficiencies are related to issues that would most efficiently be corrected during the next inspection.

- Non-Compliance – The act of not adhering to the NBIS regulation. Identified deficiencies may adversely affect the overall effectiveness of the program. Failure to adhere to an approved plan of corrective action is also considered non-compliance.
- Conditional Compliance – The act of taking corrective action in conformance with an FHWA approved plan of corrective action (PCA) to achieve compliance with NBIS. Deficiencies, if not corrected, may adversely affect the overall effectiveness of the program.

### **3.5 Agency Compliance Enforcement**

When the compliance reviews indicate that an Inspection Team Leader, Program Administrator, and/or an agency are not compliant and continually do not respond to corrective action requirements, the following procedures shall be implemented:

- In the case of a local agency, the District State Aid Engineer shall first contact the agency informally to request compliance in collaboration with the MnDOT Bridge Office.
- If the local agency continues to fail requests for compliance, the State Aid Office will notify the agency by letter. The letter will state that the agency is out of compliance with NBIS regulations and may be ineligible for:
  - State Aid Fund payments for maintenance
  - State Bridge Bond Funds
  - Federal Bridge Funds
- The MnDOT Bridge Office shall deny appointment of the Program Administrator and/or decertify Team Leader(s) at any time in accordance with the De-Certification and Denial Process in Section [2.4](#) of this document as applicable for both local agencies and MnDOT Districts.

### **3.6 Reasons for Agency Compliance Enforcement**

Typical reasons for compliance enforcement can be, but are not limited to:

- Continued lack of proper follow-up for critical findings, critical scour, or other items that could adversely affect the performance of the bridge or the safety of the public.
- Failure to correct findings from NBIS Quality Assurance Agency Compliance Reviews, including the failure to respond to compliance review inquiries.
- Recurring miscoded critical items, such as structural elements and smart flags.
- Lack of follow-up for correcting load posting deficiencies.
- Failure to attend refresher seminars or bridge inspection related training at required intervals (Section [2.4](#)).

- Failure to maintain registration as a Professional Engineer as applicable (Section [2.4](#)).
- Failure to submit inspection data into inventory in a timely manner.
- Failure to follow or comply with any MnDOT, State, or Federal policy, rules or law.
- Failure to inspect bridges within the required frequency.
- Dishonest or unethical behavior that adversely affects the inspection program.

### **3.7 *Re-Establishing Agency Compliance***

An Inspection Program Administrator and/or agency found out of compliance may re-establish compliance after a one-year period, if they indicate in a written report or plan of action, how they will correct their deficiencies. Upon approval by the MnDOT Program Manager and after a one year follow-up compliance review conducted by the Bridge Office, the Program Administrator and/or agency shall be placed back in compliance.

# Appendix A: Structural Assessment Report



# BRIDGE STRUCTURAL ASSESSMENT REPORT

## PURPOSE:

This report is a structural assessment of the structure and its ability to carry loads based on conditions identified in the attached bridge inspection report. The assessment is only a cursory review intended to provide guidance as to the relative hazards for structural conditions and deficiencies identified.

BRIDGE NO.: _____	BRIDGE OWNER: _____
DATE INSPECTED: _____	STRUCTURE TYPE: _____
FACILITY CARRIED: _____	FEATURES INTERSECTED: _____
INSPECTION TYPE:	<input type="checkbox"/> ROUTINE <input type="checkbox"/> FC <input type="checkbox"/> PINNED ASSEMBLY <input type="checkbox"/> SPECIAL : _____ <input type="checkbox"/> DAMAGE : _____ <input type="checkbox"/> OTHER: _____
<u>Check all that apply:</u>	
Redundancy:	<input type="checkbox"/> Load Path <input type="checkbox"/> Structural <input type="checkbox"/> Internal
Connection Type:	<input type="checkbox"/> Riveted <input type="checkbox"/> Bolted <input type="checkbox"/> Welded <input type="checkbox"/> Other: _____

1. Was a critical finding identified during this inspection or upon structural review?  Yes  No

a) If selected "Yes" above, state briefly the finding(s):

- \_\_\_\_\_

2. If a critical finding was identified, what is the current status?  Pending

a) Briefly state actions taken:

- \_\_\_\_\_



3. Does the condition of any bridge component indicate impaired function?  Yes  No  
Examples of bridge components with impaired function include elements that are: frozen or immovable, out-of-plumb or misaligned, distorted or structurally deformed, excessively deteriorated, cracked, broken, eroded or scoured.

a) If selected “Yes” above, state briefly the component(s) and condition(s):

- \_\_\_\_\_

4. Does the overall condition of the bridge, or any of its components mentioned in Question 3, suggest the need for detailed structural analysis and/or a revised load rating?  Yes  No

a) If selected “Yes”, state the reason for this recommendation and indicate a proposed timeframe in accordance with State of Minnesota Rule 8810.9500 (Subpart 2):

- \_\_\_\_\_

5. Based on the structural assessment of these findings, recommendations include:

- Repair/Maintenance
- Other

- Monitoring Plan
- Increased Inspection Frequency

Explain recommended actions:

- \_\_\_\_\_

6. Other comments:

- \_\_\_\_\_

**Bridge Office Reviewer** \_\_\_\_\_

# Appendix B: Critical Deficiency Report



## Critical Deficiency Inspection Report

Bridge No.:	Inspection Dates:
Bridge Owner:	Inspection Type:
Facility Carried:	Inspected By:
Feature Intersected:	Report Date:
Equipment Used:	

Part I (To be completed by Inspector):

Reason for Report:
Location of Deficiency:
Action:
Description of Critical Deficiency:

NBI and Element Data			
Item	Suggested	Current	Comments
Deck NBI			
Superstructure NBI			
Substructure NBI			
Channel NBI			
Smart Flag #964			



AFTER COMPLETION OF PART I, INSPECTOR MUST SUBMIT REPORT FOR REVIEW TO THE PROGRAM ADMINISTRATOR.

Part II (To be completed by Program Administrator):

Reviewed By:	Date Part II Completed:
Title:	Immediate Action Taken:
Program Administrator's Anticipated Plan for the Bridge:	

AFTER COMPLETION OF PART II, THE PROGRAM ADMINISTRATOR MUST SUBMIT REPORT FOR REVIEW TO THE MNDOT BRIDGE OFFICE - JENNIFER ZINK. REPORT APPROVAL OCCURS UPON COMPLETION OF PARTS III AND IV BY THE BRIDGE OFFICE.

Part III (To be completed by MnDOT Bridge Office):

Reviewed By:	Date Part III Completed:
Title:	Copy Sent To:
Description of Final Action Taken:	

Part IV (To be completed by MnDOT Bridge Office if applicable):

Repair Plans Approved By:		Load Rated By:	
Date Repairs Completed:	Follow-Up Inspection Date:	Follow-up Inspection By:	Inspector's Employer:

Part V - Photos: (Attach)

# Appendix C: FHWA Letter of Agreement and Stewardship Plan

# BRIDGE PROGRAM

## BACKGROUND

Part 650, Subpart C of 23 CFR established the National Bridge Inspection Standards (NBIS) that apply to all bridges carrying vehicular traffic that are greater than 20 feet in length and are located on a public road.

Subpart D establishes the procedures for administering the Highway Bridge Replacement and Rehabilitation Program (HBRRP). The program was established to replace and rehabilitate deficient bridges.

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## OPERATING PROCEDURES

The bridge program is operated as a partnership between Mn/DOT's Office of Bridges and Structures (OBS) and FHWA's Division Bridge Engineer.

## OVERSIGHT ACTIVITIES

A NBIS compliance review will be conducted with at least one Mn/DOT District each year. The reviews include the following major NBIS elements: inspection procedures, frequency of inspection, qualifications of personnel, quality of the reports and the inventory. The Division Bridge Engineer will also review the District's underwater inspections, their program to deal with scour, quality assurance and procedures established to review, prioritize and track recommendations for repairs. The review includes a random sampling of bridge inspection reports and records and field reviews of selected bridges.

Mn/DOT Office of Bridges and Structures (OBS) is responsible to manage its bridge inspector certification program and to monitor Local Agency compliance with NBIS requirements. The OBS also maintains a statewide bridge management system, and the statewide bridge inventory. The Division Bridge Engineer will annually review OBS quality assurance processes and will participate with the OBS in at least two NBIS compliance review of selected Counties, Cities or other Local Agencies each year.

A report is prepared annually of the NBIS review by the Division Bridge Engineer. A report is prepared by the OBS of the NBIS review for each County or bridge owner for the non-Mn/DOT bridges. FHWA will furnish comments to be included in the OBS report.

### Oversight Activities for the HBRRP

Eligibility for this program is based on bridge inspection and inventory data submitted annually to FHWA Office of Bridge Technology by Mn/DOT OBS. A selection list of eligible structures is furnished by FHWA to Mn/DOT. The distribution of HBRRP funds to each State is based on unit cost data for bridges, which is prepared annually by OBS and reviewed by FHWA and the area of deficient bridges contained in the bridge inventory. Not less than 15 percent or more than 35 percent of the apportioned funds shall be expended for projects located off the Federal-aid system. Mn/DOT and the local governments may select any bridge on the selection list for replacement or rehabilitation under this program. Additionally, Mn/DOT may also use these apportioned funds for bridge preservation type projects, which are consistent with the policy set forth in Mn/DOT's Bridge Preservation, Improvement, and Replacement Guidelines. Lead for FHWA is the Division Bridge Engineer; for Mn/DOT, Office of Bridges and Structures.

## REFERENCES

- 23 CFR 650
-

**BRIDGE PROGRAM  
Summary Table**

<b>WORK ACTIVITY</b>	<b>Mn/DOT ACTION</b>	<b>FHWA ACTION</b>	<b>OUTCOME</b>
Bridge Inspection Program (State)	Conduct inspections. Update inventory and send data to FHWA annually by April 1. Prioritize and make repairs.	Process data and furnish error listing. Review error listing and resolve differences. Conduct one central office and one district review annually.	Annual report prepared.
Bridge Inspection Program (Counties & Cities)	Monitor NBIS compliance of Local Bridge Inspection Program and maintain inventory. Conduct review of at least eight to ten jurisdictions annually and prepare report.	Participate in at least two reviews and furnish comments to Mn/DOT within 14 days.	Report prepared for each jurisdiction.
Bridge Replacement & Rehabilitation Program (HBRRP)	Select, design and construct projects. <sup>1</sup> Furnish unit cost data annually to FHWA by April 1.	Provide list of eligible projects, review full federal oversight projects, and resolve questions concerning eligibility. Review unit cost data.	Mn/DOT receives their share of HBRRP funds based on cost and area of deficient bridges. Bridges are replaced or rehabilitated.

<sup>1</sup>May be delegated to local governments