

INSPECTION ACCESS

The AASHTO Manual for Bridge Evaluation states that “Special Equipment, such as under-bridge inspection equipment...is necessary for inspection in circumstances where its use provides for the only practical means of access to areas of the bridge...”

Under-bridge access vehicle use is available for local agency bridge inspections. Access is a critical component to properly inspect a bridge. Bridge inspection quality is enhanced when adequate access is provided to the inspection team.

To schedule a snoopers for your bridge inspection, contact your Regional Bridge Inspection Program Manager.

Traffic control must be provided by the local agency. The Department will provide the snoopers driver and operator.

There is no rental charge for 2018.



WISCONSIN DOT STRUCTURES INSPECTION PROGRAM

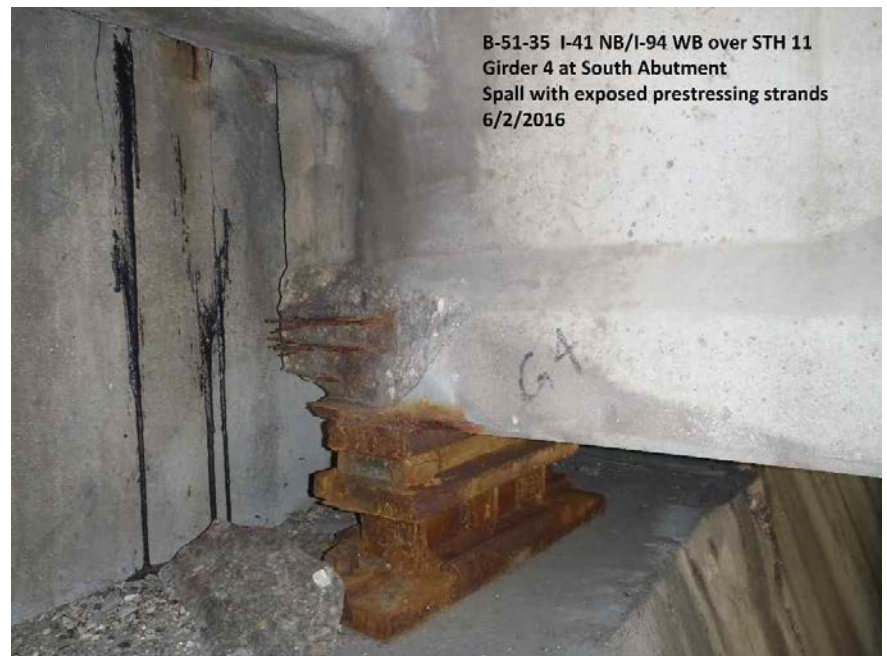
TECHNICAL BULLETIN

Issue 1 – April 2018

QUALITY INSPECTIONS

An important aspect of a quality inspection is proper documentation of defects and how those defects have changed over time. Descriptions of element conditions shall be recorded in the defect comments for all inspection elements that have quantities in Fair, Poor, or Severe condition (CS2, CS3, CS4), including the date of the finding. Inspectors shall also document that the defect was monitored during subsequent inspections, and note any changes from the initial state.

In addition, a representative photo or sketch shall be uploaded into the inspection report for defects in Poor or Severe condition. A good practice is to note the defect, the location, and the quantity in the notes and if possible, on the photograph. See the sample photograph below as an example.





Did you know:

In 2017, inspectors in Wisconsin performed 8598 inspections on bridges and ancillary structures.

INSPECTOR TRAINING DATES

For training news as well as other pertinent inspection information, we encourage you to visit the [WisDOT Bridge Inspection Website](#). The site contains the upcoming training schedule, previous training videos, HSIS training items, policy memos, inspection manuals, and other useful information.

Upcoming Training Schedule

- Snooper Operator Self-Rescue Training (DOT Staff only)
 - La Crosse April 23rd – 25th
- NHI Safety Inspection of In-Service Bridges (\$2055 per participant)
 - Eau Claire July 16th – 27th
 - Eau Claire December 3rd – 14th
- NHI Fracture Critical Inspection Techniques (\$925 per participant)
 - Madison August 20th – 23rd
- WisDOT Bridge Inspection Refresher Training (No Cost - **Mandatory**)
 - Online Spring 2019

INSPECTION REMINDERS

2018 Field Manuals

New field manuals are available for active inspectors in Wisconsin. If you are an active inspection and have not received a new manual, please contact your nearest WisDOT inspection PM (See contacts on last page of this newsletter) to schedule a time to stop by and pick up your manual(s).

Critical Findings

Critical Findings are discoveries on a bridge which “critically threatens the structural stability of the bridge...or threatens public safety, and is of such severity that immediate partial or full closure of the structure may be warranted.”

If the inspector discovers a critical finding that could compromise public safety, he or she shall notify the Program Manager immediately and take all necessary actions to ensure public safety on the site. In many cases, this may include temporary closure of the structure. The inspector has full authority to temporarily close the structure and shall do so if public safety is at risk.

After the PM takes over the incident response, the inspector shall fill out the critical findings report (DT-2026) and upload this report with the inspection he/she files in HSI. The critical finding checkbox shall be checked in HSI to record the incident. For more information, we encourage you to read the [policy memo](#) located on the WisDOT Bridge Inspection Website.

Streambed Profiles

A streambed profile is required for every bridge over water (excluding four-sided structures such as box culverts and round/elliptical pipes). At a minimum, profiles shall be taken at both the upstream and downstream fascia per requirements in the Structures Inspection Manual. Follow-up profiles (24-month frequency) are required for structures that meet the following criteria:

- Bridges that are scour critical, having a code of 3 or less for NBI Item 113 or

- Bridges that have NBI Channel (Item 61) coded at 5 or below or
- Bridges that have a Scour Defect (6000) in Condition State 3 or 4

In addition, it's good practice to take profile readings for all bridges over water that have been subjected to a significant flood event to ensure the channel hasn't shifted significantly to affect the structural integrity of the bridge.

It is important that the profile be graphed on the same plots as historical data so the inspector and program manager can ascertain the potential movement of the channel and determine the risk of substructures being undermined. The readings and plots of the channel profile shall be uploaded into HSI, and the UW-Profile Activity will need to have the checkbox filled in to assure compliance.

Closed Bridges

All highway structures closed to traffic shall continue to receive yearly routine inspections to ascertain condition and safety. The routine inspection shall include Assessment 9036 – Bridge Closure System. This defines the barricades, signs, and warning lights used to close the bridge structure from vehicular and/or pedestrian traffic.

Special inspection types such as underwater dive inspections, are not required for closed structures unless scour, substructure undermining, or deterioration of structural elements below the water line are the cause of the closure or are discovered following the structures closure and jeopardize the



stability of the structure. In these cases, the proper underwater inspections (Profile, Probe, and/or Underwater-Dive) are required with a frequency meeting current inspection policy. Contact your Regional Inspection Program Manager or the Statewide Inspection Program Managers if you have questions on what is required for your closed bridge.

Initial Inspections

When a bridge is built an initial inspection is required and should be completed prior to opening the bridge to traffic. If this is not feasible, then it should be completed within 30 days of opening at the latest. The initial inspection shall include:

- Routine Inspection (Element and NBI Level)
- SI&A Review
- Vertical Clearance Measurements (if applicable)
- UW-Profile (if applicable)

In addition, if the structure requires an underwater dive inspection, it shall be completed as soon as practical after underwater construction has been completed, and if practical, should be included in the contract documents as a requirement during construction. Similar, if a fracture critical structure is built, the initial inspection should also include this inspection. If this is not feasible, please contact the Statewide Inspection Program Manager to request a time extension.

Inspector Qualifications

Please remember that inspectors must be qualified to perform inspections per the Structures Inspection Manual. Special requirements for fracture critical and underwater dive inspections are required, so make sure your inspection team has the qualifications before scheduling the inspection. Inspections completed by a non-qualified inspector will be considered null and void, and will require that a new inspection take place.

In-Depth Inspection Policy

An In-Depth Inspection is a visual, hands-on inspection of one or more structure elements above or below water level that may be supplemented by non-destructive evaluation. This higher-level inspection can be performed on any structure type, though it is commonly performed on steel superstructure bridges with problematic details that need close-up evaluation.

WisDOT requires In-Depth inspections for the following structural types:

- Bridges with pin & hanger assemblies (excluding Fracture Critical Structures)
- Steel Bridges with floor systems (excluding Fracture Critical Structures)
- 3 or 4 Chord Deck Trusses

Bridge Type (non-FC Bridges)	Requirement	Maximum Frequency
Pin & Hanger Assemblies	Visual, Hands-on	72 Months
Steel Floor Systems (Floorbeam/Stringer)	Visual, Hands-on	96 Months
3 or 4 Chord Deck Trusses	Visual, Hands-on	48 Months

For In-Depth inspections on structures with pins, a minimum of 20% of the pins shall be evaluated with NDE methods, including all components that have indications of cracking, distress, fretting rust, or seizing. The locations that have been evaluated shall be thoroughly documented, and efforts shall be made in subsequent in-depth inspections to vary the components being tested.

However, there are other conditions and/or structural details that may prompt an unscheduled In-Depth Inspection.

Several common conditions or structural details that could prompt an In-Depth Inspection (and possibly NDE) include:

- Apparent cracks in steel members
- Apparent cracks, de-bonding or loss of tendon section in a Prestressed or post-tensioned member
- Heavily corroded or failed hold down devices.
- Severe section loss in a steel member or primary gusset plate
- Buckled or bent steel girders or beams.
- Welded cover plate end terminations
- Live load bearing anchor pins, and link-bars
- Field welds on tension members
- Intersecting welds, or category D, E, or E' details

The decision to conduct an unscheduled, In-Depth Inspection, with or without the use of NDE, is the responsibility of the owner agency. For help in determining if your structure needs an in-depth inspection, please contact your Regional Program Manager.

Scour POA Updates

Bridges that are scour critical require that the HSIS bridge file have a plan of action (POA) document on file. At a minimum, every four years these documents shall be reviewed and updated, as needed. Wisconsin currently has 896 structures with a POA on-file, of which, 31 are due for updates during the 2018 season. Revised POA's shall be uploaded into HSIS by clicking on the Scour Plan of Action activity (the same screen as you enter inspections), entering the date of the update, clicking the create button, then uploading the file under the Scour POA document folder. Make sure to sign/complete the upload when you are finished. Please use the scheduling report in HSIS (see below screenshot), or contact your Regional Program Manager, for more information.

Region	County	Owner	Municipality	Structure type	Inspection type
NC	ADAMS(01)	BIA(52)	C-ABBOTSFORD(10201)	BRIDGE(B)	ROUTINE - RETAINING WALL INSPECTION
NE	ASHLAND(02)	CITY(41)	C-ABBOTSFORD(37201)	CULVERT(C)	ROUTINE - SIGN/SIGNAL INSPECTION
NW	BARRON(03)	CITY-CONNECTING ST(45)	C-ADAMS(01201)	HIGH MAST LIGHTING STRUCTURE(L)	ROUTINE INSPECTION
SE	BAYFELD(04)	CITY-SWING/LIFT(47)	C-ALGOMA(31201)	MISCELLANEOUS STRUCTURE(M)	SCOUR PLAN OF ACTION
SW	BROWN(05)	COMBINATION(80)	C-ALMA(06201)	NO PLAN BRIDGE(P)	SIA REVIEW
	BUFFALO(06)	COUNTY(30)	C-ALTOONA(18201)	RETAINING WALL(R)	UNDERWATER V PROBE INSPECTION
	BURNETT(07)	COUNTY-FOREST RD(31)	C-AMERY(48201)	SIGN BRIDGE(S)	UW-DIVE INSPECTION
					UW-PROFILE INSPECTION

HSIS Quick Update

For the 2018 inspection season, two new activities have been added in HSIS: Non-Destructive Evaluation and Reach-All (see below screenshot).

Inspection Type

- Routine (due Apr 2018)
- Damage
- Fracture critical (due Apr 2018)
- In-depth
- Interim
- UW-dive

Activity Type

- Critical finding
- Deck evaluation
- Load posted verification (dt2122)
- Non-destructive evaluation (due now)
- Reach all (due Apr 2018)
- Scour plan of action
- SIA review
- UW-profile
- Vertical clearance measured

Total Time

Hours: Minutes:

Team personnel

Agency: STATE HIGHWAY DEPARTMENT(1)

Inspector: McDaniel, Travis (9006)

Date: 2018-03-29 Submittal/ added: 2018-03-29

View delete sign/complete Auto-open PDF after complete

Complete disabled reason(s)

Missing required total time hours/minutes

Testing InspectionSpecialRequirement required when NDE activity checked

Non-Destructive Evaluation: This activity shall be checked if the inspector uses NDE during the inspection. NDE methods shall include (but are not limited to) the following:

- Ultrasonic Testing (including Phased Array)
- Magnetic Particle
- Infrared Thermography
- Dye Penetrant
- Resistance micro drilling
- Hydrographic Surveys and Side Scan Sonar

Reach All: This activity allows tracking of the units used by WisDOT for inspection access. Currently there are three trucks that can be used for inspections in the inventory (A62, UB60, and A52). This activity shall be checked on any inspection involving one of these units.

Also note that the HSIS training videos will be updated in 2018.

For more information on these additions, please check the [WisDOT Bridge Inspection Website](#), or contact Ryan Bowers or Travis McDaniel.

2017 INSPECTION PERFORMANCE

Per FHWA requirements, inspections are required to be completed in the month they are due. Inspections completed after the month in which they are due are considered late. WisDOT and local agencies have been working diligently to improve inspection timeliness, and have seen significant improvement over the years.

The goal is 100% compliance. In calendar year 2017, the statewide inspection performance was as follows:

Agency	Inspection Type	On-Time
Local	Routine	96%
State	Routine	99%
Local	Fracture Critical	92%
State	Fracture Critical	98%
Local	Underwater Dive	88%
State	Underwater Dive	100%

Congratulations are due to all who've worked hard to improve our performance. WisDOT looks forward to working with our local partners to improve our inspection performance in 2018.

ABOUT THE BULLETIN

The Bureau of Structures at WisDOT will publish 1~2 newsletters a year to discuss topics involving inspection, maintenance, repair, or improvement information and initiatives. If you have ideas for future topics, please submit to Rick Marz, Travis McDaniel, Matt Coupar or Steve Doocy.

INSPECTION PROGRAM CONTACTS

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Bureau of Structures	Matt Coupar	608-266-5083		Matthew.Coupar@dot.wi.gov	Structures Inspection Engineer – State Program
Bureau of Structures	Travis McDaniel	608-266-5097		travis.mcdaniel@dot.wi.gov	Structures Inspection Engineer – Local Program
Bureau of Structures	James Kast		608-516-6370	james.kast@dot.wi.gov	Reach-All Operator & Inspection
Bureau of Structures	Mark Dent		608-516-6374	mark.dent@dot.wi.gov	Reach-All Operator & Inspection
Bureau of Structures	Craig Hampton		608-516-6373	craig.hampton@dot.wi.gov	Reach-All Operator & Inspection (Scheduling)
Bureau of Structures	Todd Harrison		608-516-6372	todd.harrison@dot.wi.gov	Reach-All Operator & Inspection
Bureau of Structures	Ryan Bowers	608-267-3577		Ryan.bowers@dot.wi.gov	Bridge Management Engineer / HSI Contact
Bureau of Structures	Steve Doocy	608-261-6063		Steve.doocy@dot.wi.gov	Statewide Ancillary Inspection Program Manager
Waukesha (SE)	John Bolka	262-548-6711	414-750-1516	john.bolka@dot.wi.gov	SE Region Bridge Inspection Program Manager
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