

Structures Inspection Program Technical Bulletin

ISSUE 8 – MAY 2022



WISDOT STRUCTURE INSPECTION REFRESHER ONLINE TRAINING

This online course provides WisDOT specific refresher training for safety inspection of in-service highway structures. Participants will be instructed on new policies related to the inspection program, responsibilities, and duties of the inspector, and will be able to describe, identify, evaluate, and document the various components and deficiencies that often exist on bridge elements. All inspectors that were not able to attend the training in person at the regional offices in March/April are encouraged to attend.

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

SAVE THE DATE!

Wednesday, June 1, 2022

8 a.m. to Noon

Additional information will be emailed to all inspectors in the near future. Contact Tom Hardinger with questions at (715) 459-4269.

PROGRAM MANAGEMENT GUIDANCE & TRAINING

Program Manager (PM) responsibilities: FHWA and WisDOT have established criteria to determine the level of inspection and frequency for bridges based on inspection type and activity. It is the program managers responsibility to make sure the inspections are performed following the established criteria. Local and regional program manager responsibilities affect WisDOT's inspection program compliance. Occasionally, the PM responsibilities such as making sure bridge inspections are completed within the specified interval and inspections/reports being documented correctly, properly, and completely can cause program compliance issues.

Review of some PM duties/responsibilities:

- ✓ Review your inspection program early in the year before the inspection season begins.
 - Schedule out your entire year so you can see if there may be conflicts.
 - Determine the number of bridge inspections and inspection activities due each month. Include routine (12, 24, 48-month), fracture critical, in-depth (NDT=nondestructive testing), UW dive, UW profiles, scour plan of action (POA – monitoring and updating).
 - Use HSIS scheduling reports or develop your own tool – spreadsheets, calendars, and maps are helpful.



Note: Automatic scheduling reports from HSIS have been unreliable recently, you must review your schedule monthly. An email from Matt Coupar on January 20, 2022 contained instructions for creating scheduling reports in HSIS. The message was sent to all inspectors and PMs with current email addresses in HSIS. Make sure your email address is up to date in HSIS or you will not receive the notices.

- ✓ Review staffing needs for inspection staff. Verify staff is certified and trained in the inspection/activity they are to perform – examples are special inspection courses for fracture critical, dive inspection (diver with bridge inspection certification), and nondestructive

evaluation/testing. Verify adequate staff and equipment is available during the months inspections and activities are due.

- ✓ If in-house staff is used, are they available during the months the inspections are due, review other schedules to make sure staff availability.
- ✓ If consultant staff is contracted, begin contract negotiations early enough so inspections can be started and completed on schedule.

Identify conflicts with inspection schedules early so mitigation efforts can be explored - are there construction or maintenance conflicts that would interfere with the inspection being completed on time? Can the inspection be moved up? If an unavoidable conflict exists, request an inspection extension from FHWA through BOS – start with the region PM. **NOTE: An extension will not be approved for a fracture critical inspection.** Will need to provide the late reason, how late, and any risk factors – how can they be mitigated. Inspector access and safety are typically the only reason approved.

- ✓ Bridges open to vehicular traffic must be inspected on time regardless of any construction or maintenance schedule.
- ✓ Determine bridge access needs early in the year - schedule reach-all trucks through WisDOT-Bureau of Structures. Determine special inspection needs and begin planning; What inspectors are needed and are they properly trained – FC trained, NDT, other. Access – reach-all truck (“snooper”) or manlifts needed. What are traffic control needs? Are there any special inspection tools needed – mag particle, other NDT?
- ✓ Review and follow Scour Plan of Action/Scour Action Plan - most plans indicate an inspection or site visit will be conducted during and after flood events.
- ✓ **Critical Finding (CF) Close-out** – The Team Leader (TL) must enter the inspection with the CF activity into HSIS and complete the inspection. Upon completion, the TL must notify the PM to review the Short-Term Follow-up Action and the Long-Term Plan of Action. Once the PM reviews the Actions, if acceptable, on the **History** tab of HSIS, highlight the inspection and check “**sign as reviewer**” near the bottom of the tab.



Future New Project Manager Training: WisDOT will be developing PM training directed at new PMs (and refreshing existing PMs) that will go over all the duties and responsibilities. This training is tentatively scheduled for Winter 2022/2023.

CODING CLARIFICATIONS:

Element Data – Wearing Surface: Overlay Placed Between Open Rails

A bridge with open rail having a different wearing surface between the rails compared to the outside should be coded with care. For example, there is a bridge with a Thin Polymer Overlay (TPO) between the open rails and Wearing Surface Bare on the outside of the open rails. In this case code only the TPO element 8513 and not the wearing surface bare element. The total quantity is the actual quantity of the TPO not including the wearing surface bare area. The wearing surface bare is not coded as an element but any defects and quantities should be mentioned in the notes under the TPO wearing surface element.



Element Data – Wearing Surface: Thin Polymer Overlay

Another situation in the previous example where some of the TPO has been removed in spots the same holds true, only code the TPO wear surface and document what defects are observed of the wear surface underneath in the notes including quantity.



In situations where only the TPO is applied on a multiuse path separated by a barrier code both the wear surface of the traffic and one for the multiuse path separated by a barrier should be included in the inspection.

Element Data – Reinforced Concrete Deck & Slab – Discoloration (Defect 8904)

- **Defect 8904** - Discoloration defect is for use with deck and slab elements. The intent is to quantify areas of the deck or slab which show signs of higher permeability or water retention. Discoloration from construction materials or locomotive exhaust is not considered a defect. This defect does not require a structural review.

Discoloration (8904)	No discoloration of concrete is present.	Concrete is slightly darker than surrounding area; may contain scaling	Medium discoloration; may contain hairline map cracking.	Very dark discoloration. Structural Review not required
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Discoloration (8904)



- Discoloration is a newer defect and **is required** to be used when the defect exists on deck and slab elements.
- Please note the Discoloration defect condition state quantities do not role up into the element condition state quantities.
- Some discoloration guidance found in the Field manual is shown above.



Activity Type – Deck Evaluation

When chaining 100% of the deck to determine delamination in the wearing surface, select Deck Evaluation activity in HSI. Selecting the Deck Evaluation activity requires the input under the Deck Evaluation tab and the Documents/Images tab. Under the Deck Evaluation tab, type “Inspector” under measured by, add any notes, and input delamination quantity as a percentage of the total wearing surface. Under the Documents/Images tab, add a category of Deck Evaluation and upload a detailed sketch of the delaminated areas throughout the wearing surface.



The screenshot shows the HSI interface with three tabs: 'Create', 'History', and 'Frequency'. The 'Create' tab is active. On the left, there is a 'Cover photo' section with a photograph of a bridge over a river. On the right, there are two columns of checkboxes. The first column is labeled 'Inspection type' and includes: Routine, Damage, Fracture critical (arm's length), In-depth, Interim, and UW- dive. The second column is labeled 'Activity type' and includes: Action, Critical finding, Deck evaluation (which is checked), Load posted verification (dt2122), Scour plan of action, SIA review, UW- profile, and Vertical clearance measured.

When just a portion of the deck is chained, do **not** select the Deck Evaluation activity. Document the results under the wearing surface element delamination defect 3210. Please include the specific area chained, the findings and the date chained.

Element Data – Reinforced Concrete Deck, Top Flange & Slab

During the next inspection cycle, please verify that the reinforcement type is set on these elements. If it is not, check the plans for what type of reinforcement was used, and update the data in the HSI under the deck/top flange/slab element. Simply click on the element, then click ‘Set Rebar’ and then choose the most appropriate answer.

Photos for CS3/CS4 Defects

A quick reminder that **new photos and/or updated sketches** are **required** for defects in CS3 or CS4 condition states. Inspectors shall take sufficient photos during the inspection to accurately document the current condition of each of the defects.

- ✓ We encourage you to review and utilize the [WisDOT Inspection Photo Best Practice Guidelines](#) for all photos.
- ✓ In addition, inspectors are highly encouraged to add a date stamp to photographs.

LOCAL STRUCTURE INVENTORY INSPECTIONS FOR NEW BRIDGES & REHABILITATION BRIDGE PROJECTS

Effective for the 2022 inspection season, the structure inventory inspection for all state let structure projects including **local** structures will be completed by BOS regional staff. This will not include local lets or county-built structures. Any projects currently in construction it is recommended to begin the coordination process early and contact your regional program manager. Local agency officials are welcome to assist BOS Regional Inspector during the inspection. This will provide a consistent reporting of all inspection data and information into HSI for the initial inspection for new bridges and interim inspection for rehabilitation bridge projects

ABOUT THE BULLETIN

The Bureau of Structures at WisDOT will publish 1-2 bulletins per year to discuss topics involving inspection, maintenance, repair, or improvement information and initiatives. If you have ideas for future topics, please submit to David Bohnsack, Travis McDaniel, Matt Coupar, Anthony Stakston or Steve Doocy.

INSPECTION PROGRAM CONTACTS

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