WisDOT Structure Inspection Refresher

Tom Hardinger, Travis McDaniel Julie Brooks Anthony Stakston
WisDOT – BOS Maintenance and Inspection

Welcome

- Recommended Refresher Training 2022 – Virtual Option
  - Each region hosting this training this spring
  - Approx 4 hrs
- Follow-up to 2019 mandatory Refresher Training
- Part of our Quality Assurance Initiative to provide continued training for inspectors
- Informal setting. This is to be interactive
  - Formal Questions will be asked throughout presentation
    - Need to answer for PDH's
  - What if Scenarios ….for discussion
- Attendance record will be via the Learn Center sign up
- Recording presentation for future use

Virtual Class Reminders

- Please mute yourself
- You received several handouts we will be referencing during the presentation. Please have them available.
- Raise your hand if you have question (under reactions) or ask in chat box. We will monitor.
- We will take several breaks during presentation. Please be timely on your return.
- There will be questions. Please provide your answer in the chat box.

Inspection Question # 1

- You and your trusted team member Bobofat are tasked to inspect a single span pony truss bridge which has been closed for 2 years. What do you need to do?
    A. Nothing, bridge is closed, no inspection is necessary
    B. A Fracture Critical inspection and routine inspection
    C. A routine inspection documenting the closure
    D. An In-depth inspection with gusset plate measurements

What If Scenario #1

- What if you can't inspect all the components of a bridge during an inspection. For Example, high water precludes you from inspecting the pier.
  - Perform what you can, document what was complete and plan to follow up
  - Come back at a reasonable later date
  - Document in notes the date you finished

Why are we here?
Pittsburgh (Fern Hollow) – Jan 2022

447’ long, 3 span K-Frame (weathering Steel)
NBI: Deck = 4, Super =4, Sub = 6; 14,000 ADT

Inspector missed this…Several times!
I 40 Bridge over Mississippi (May 2021)

Between Arkansas and Memphis

The picture can't be displayed.

Introductions – BOS Staff

- Tom Hardinger (BOS Supervisor-Unit A, Wis Rapids Office)
- Travis McDaniel (BOS Supervisor, Maint and Repair Unit)
- Julie Brooks (BOS Supervisor-Unit B, Waukesha Office)
- Anthony Stakston (BOS Statewide Maintenance Engineer)

Learning Objectives/Agenda

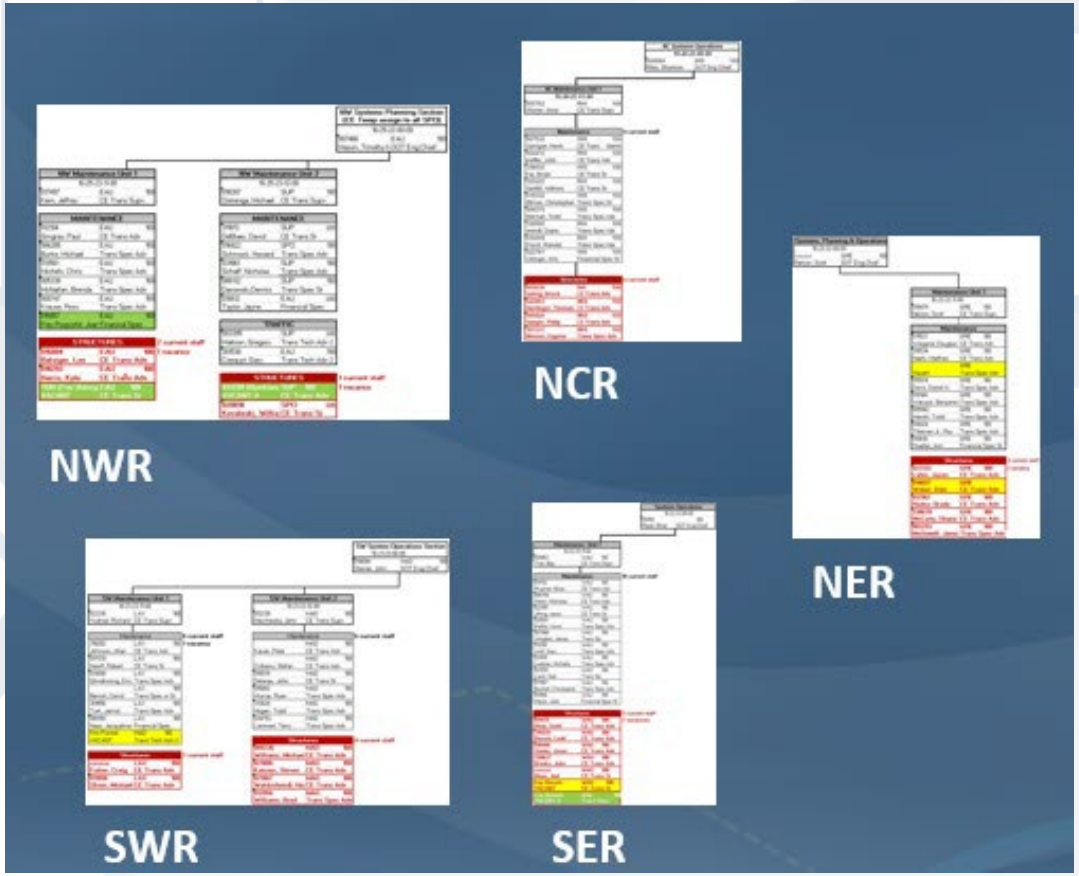
- BOS/Region Reorganization 2022
- Inspector Reminders
- WisDOT Duties:
  - PM's and TL's Duties
  - Qualifications Requirements
- New 2022 items
- Inspection Coding
- Maintenance Actions/Priorities
- Structure Review/Critical Findings
- Misc.: SIA's, 48 month frequency, upcoming training

BOS Reorganization? Why?

- Support Divisional approach to work
  - Build Team/Organization working collaboratively to achieve goals and mission for the Division
- Build Flexibility, Consistency and Efficiencies across the regions
- Provide direct technical Supervision and Leadership
- Improve Quality
- Maintain Experience and Knowledge in Program

BOS Reorganization

Old vs New Org Chart



Structures Maintenance Section		
10-14-01-00-00		
004588	SWB	100
Bohnsack, David	DOT Eng Chief	

Structures Inspection & Repair Unit		
10-14-01-01-00		
005438	SWB	100
McDaniel, Travis	SE Trans Sup	
022491	SWB	100
Coupar, Matthew	SE Trans Adv	
338436	SWB	100
Doocy, Steve	SE Trans Adv	
335835	SWB	100
Stakston, Anthony	SE Trans Adv	
008719	SWB	100
Strey, Dean	Trans Spec Adv	
011952	SWB	100
Kast, James	Trans Spec Adv	
012541	SWB	100
Hampton, Craig	Trans Spec Adv	
007598	SWB	100
Tourdot, Matthew	Trans Spec Adv	
017533	SWB	100
Sippel, Nathaniel	Trans Spec Adv	
010642	SWB	100
Dent, Mark	Trans Spec Adv	

Metals & Fabrication Insp Unit		
10-14-01-02-00		
001887	SWB	100
Revello, Kristin	SE Trans Supv	
TBD (Burger)	SWB	100
Vacant	SE Trans Sr/Adv	
338575	SWB	100
Principe, Carla	SE Trans Sr	
338565	SWB	100
Janssen, Ryan	Trans Spec Sr	

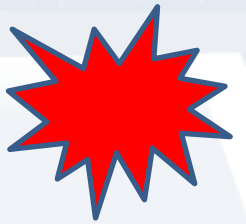
Structures Inspection & Maintenance Unit		
10-14-01-04-00		
xxxxxx	SWB	
Julie Brooks	CE Trans Sup	
LAX Office		
xxxxxx	LAX	100
Fisher, Craig	CE Trans ???	
011898	LAX	100
Olson, Michael	CE Trans Adv	
MAD Office		
009236	MAD	100
Williams, Michael	CE Trans Adv	
021806	MAD	100
Katzner, Steven	CE Trans Adv	
021067	MAD	100
Waldschmidt, Hunter	CE Trans Adv	
012056	MAD	100
Williams, Brad	Trans Spec Adv	
WAU Office		
011475	WAU	100
Reay, Scott	CE Trans Adv	
315529	WAU	100
Barsch, Leah	CE Trans Adv	
018448	WAU	100
Zemke, Jason	CE Trans Adv	
xxxxxx	WAU	100
Maas, Joel	CE Trans	
TBD (Brooks)	WAU	100
VACANT	CE Trans Adv	
TBD (Barsch)	WAU	100
VACANT	CE Trans Sr	

Structures Inspection & Maintenance Unit		
10-14-01-03-00		
xxxxxx	SWB	
Tom Hardinger	CE Trans Sup	
WIS/RHI Offices		
005639	RHI	100
Gehrig, Brock	CE Trans Adv	
TBD (Hardinger)	WIS	100
VACANT	CE Trans Adv	
009420	WIS	100
Saeger, Philip	CE Trans Adv	
301533	WIS	100
Werner, Eugene	Trans Spec Adv	
GRE Office		
022133	GRE	100
Lahm, Jason	CE Trans Adv	
012961	GRE	100
Rades, Brady	CE Trans Adv	
338678	GRE	100
McCarty, Shane	CE Trans Adv	
003293	GRE	100
McDowell, James	Trans Spec Adv	
EAU Office		
016884	EAU	100
Balsiger, Lee	CE Trans Adv	
010293	EAU	100
Harris, Kyle	CE Trans Adv	
311818	EAU	
Hageman, Emerson	CE Trans	
SUP Office		
TBD (Bjorkland)	SUP	100
VACANT-A	CE Trans Sr/Adv	
TBD (Kovaleski)	SUP	100
VACANT-A	CE Trans Sr/Adv	

Regional staff – Now part of BOS Units

How does this affect you?

- Really should not be a change
- May receive communications from new Supervisors
- Region PMs remain your primary point of contact
  - Existing Staff reside at the regional office (No physical moves)



Inspection Question #2

- An Inspection Procedure is required to be listed for which of these types of Inspections?
    A. All Types
    B. Routine
    C. In-depth
    D. Fracture Critical
    E. Only C and D
    F. None

Inspector Reminder Notes

- Resources (In HSIS GO--->HELP--->Inspection)
  - BOS Policy memos and Bi-annual Technical Bulletins
  - Structure Inspection Manual (SIM)
  - Field Guide
- Don’t assume the previous inspection was correct
- Attaching documents to inspection
  - Only pdf formats will print out
  - Other formats allowed and stored, but will not print with the inspection
- Very important your email in HSIS is correct
  - Inspection information pushed out thru

Inspector Reminders

BOS Policies

- Bureau of Structures
- Design & Construction
- Maintenance & Inspection
- Fabrication & Quality Assurance
- Manuals & HSI Quick Links
- Research & Outreach

Maintenance & Inspection

Policy Memos | Structures Inspection | Structures Preservation | Announcements | Inventory & Rating Forms | Structure Number Request Form | Highway Structures Information System (HSI) | Program Managers | Training & Tools | Additional Resources | Contacts

Description	Updated
Complex Bridge Memo	01/18
Team Leader Qualification Memo	12/17
Fracture Critical Members Memo	05/21
Critical Findings Memo	11/21
DT2026 Critical Findings Report	11/15
Small Bridge (C-Structure) Definition	01/16
Inspection & Documentation of Load-Posted Bridges	12/20
Load-Posting Field Verification	09/14
Underwater Inspections Probe & Dive	09/14
Underwater Profile Assessment Frequency	09/14
Local Program Bridge Owners Requirements & Procedures	12/13
Structural Review Memo	03/20
Structural Review Process Guide	08/20
Bridge Inspection Extended Frequency Guidelines	10/20
Local Bridge Posting and Closure	11/20

Return to top

Contact David Bohnsack for questions about this page.

Bi-Annual DOT Tech Bulletin

BUREAU OF STRUCTURES

WISCONSIN DOT
STRUCTURES INSPECTION PROGRAM TECHNICAL BULLETIN

Issue 7 – November 2021

INSPECTOR TRAINING DATES

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.

Currently, WisDOT has several classes available for the 2022 calendar year. To enroll in one of the below trainings, please contact Matt Coupar.

Upcoming Training Schedule

- Snooper Operator Self-Rescue Training (DOT Staff only)
  La Crosse Spring 2022
- NHI Safety Inspection of In-Service Bridges ($2100 per participant)
  Madison Spring 2022
- NHI Fracture Critical Inspection Techniques ($900 per participant)
  Madison Spring 2022

CRITICAL FINDINGS - DOCUMENTATION

WisDOT defines a Critical Finding as a defect on a bridge which threatens public safety and/or the structural stability of the bridge and is of such severity that immediate partial or full closure of the structure is required.

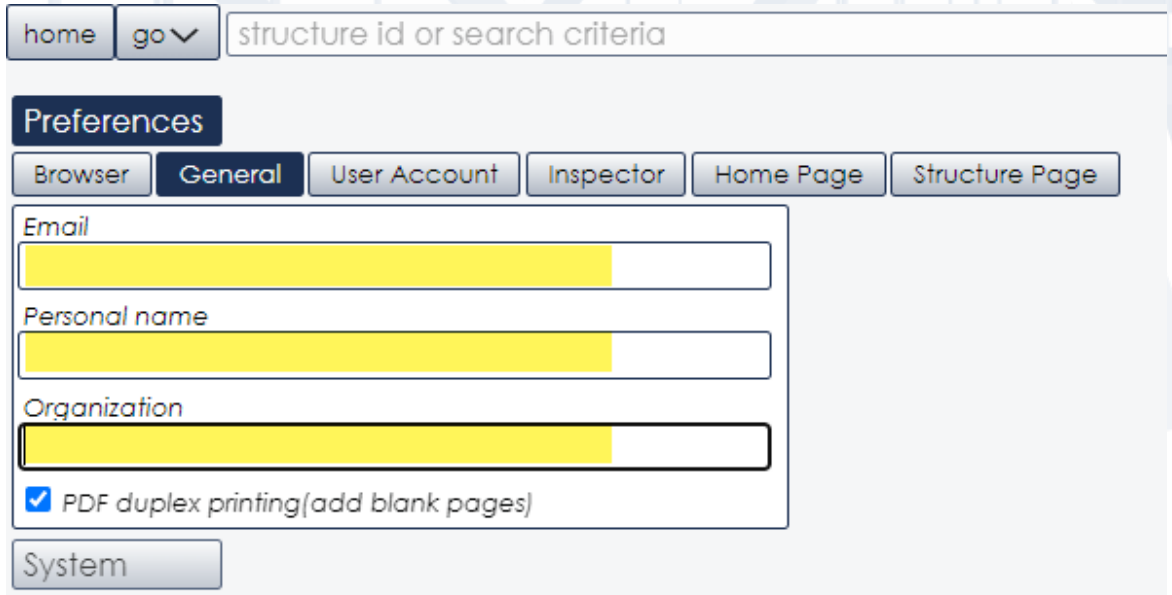
If the inspector discovers a critical finding, he or she shall notify the Program Manager immediately (24 hours) and take all necessary actions to ensure public safety on the site.

The Critical Finding must be documented in the Highway Structures Information (HSI) system using the Critical Finding activity under the Inspection Tab. The documentation should include:

- Date and time of incident (if known)

Sent via email Spring and Fall

****Need your current email



Bridge Inspection Program Responsibilities

- All State and Local Bridges are the Responsibility of WisDOT
- WisDOT Policy Delegates Responsibility
  - State Owned Bridges: Regional Bridge Inspection Program Managers
  - Locally Owned Bridges: Local Program Manager: County Commissioners, City Engineers or Delegates

Program Manager Responsibilities

- Program Manager Responsibilities
  - Local and regional PMs duties affect WisDOT compliancy with FHWA
  - Inspections completed on time
  - Inspections documented correctly, properly, and completely
- Review some of the PM duties/responsibilities
- Future New PM Training
  - Coming 2022?

FHWA Compliance

FHWA compliance issues require WisDOT to write improvement plans or plans of corrective action. These plans require extra work for all bridge inspection programs in Wisconsin (state, county, local). One such improvement plan involves additional program manager training/guidance.

Program Review - Scheduling

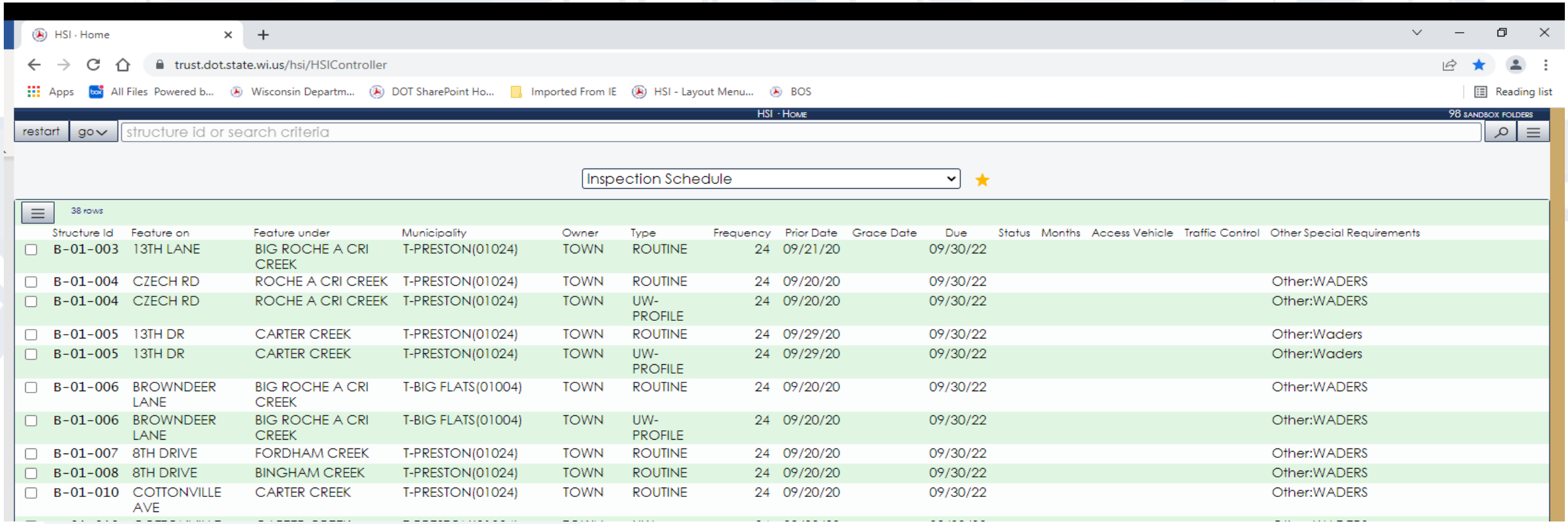
Review your inspection program early in the year before the inspection season begins.

- Schedule out the entire year (use spreadsheets, calendars, maps, etc.)
- Determine the number of bridge inspections and inspection activities due each month.
  - Routine (12, 24, 48-month)
  - FC
  - In-depth (NDT)
  - Dive
  - UW profiles
  - Scour Action Plan – monitoring and updating

Program Manager Guidance

HSIS Scheduling Reports

HSIS scheduling reports:

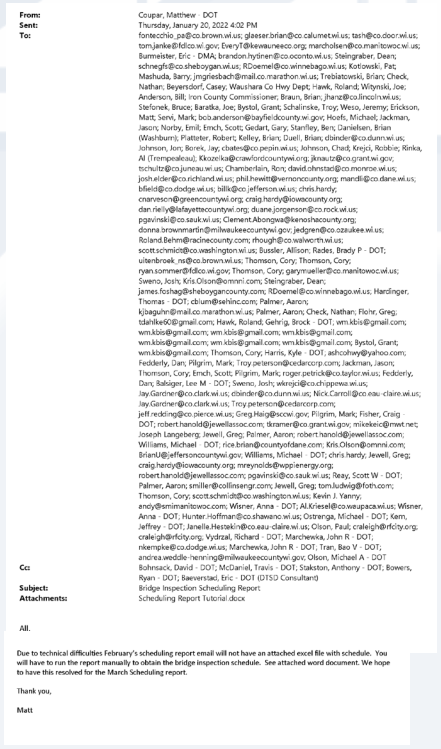


Structure Id	Feature on	Feature under	Municipality	Owner	Type	Frequency	Prior Date	Grace Date	Due	Status	Months	Access Vehicle	Traffic Control	Other Special Requirements
B-01-003	13TH LANE	BIG ROCHE A CRI CREEK	T-PRESTON(01024)	TOWN	ROUTINE	24	09/21/20		09/30/22					
B-01-004	CZECH RD	ROCHE A CRI CREEK	T-PRESTON(01024)	TOWN	ROUTINE	24	09/20/20		09/30/22					Other:WADERS
B-01-004	CZECH RD	ROCHE A CRI CREEK	T-PRESTON(01024)	TOWN	UW-PROFILE	24	09/20/20		09/30/22					Other:WADERS
B-01-005	13TH DR	CARTER CREEK	T-PRESTON(01024)	TOWN	ROUTINE	24	09/29/20		09/30/22					Other:Waders
B-01-005	13TH DR	CARTER CREEK	T-PRESTON(01024)	TOWN	UW-PROFILE	24	09/29/20		09/30/22					Other:Waders
B-01-006	BROWNDEER LANE	BIG ROCHE A CRI CREEK	T-BIG FLATS(01004)	TOWN	ROUTINE	24	09/20/20		09/30/22					Other:WADERS
B-01-006	BROWNDEER LANE	BIG ROCHE A CRI CREEK	T-BIG FLATS(01004)	TOWN	UW-PROFILE	24	09/20/20		09/30/22					Other:WADERS
B-01-007	8TH DRIVE	FORDHAM CREEK	T-PRESTON(01024)	TOWN	ROUTINE	24	09/20/20		09/30/22					Other:WADERS
B-01-008	8TH DRIVE	BINGHAM CREEK	T-PRESTON(01024)	TOWN	ROUTINE	24	09/20/20		09/30/22					Other:WADERS
B-01-010	COTTONVILLE AVE	CARTER CREEK	T-PRESTON(01024)	TOWN	ROUTINE	24	09/20/20		09/30/22					Other:WADERS

Program Manager Guidance

HSIS Scheduling Reports

Instructions for creating scheduling report:
See email from Matt Coupar sent on 1/20/2022 detailing how to create a scheduling report in HSIS.



From: Coupar, Matthew - DOT
Sent: Thursday, January 20, 2022 4:02 PM
To: fontecchio_pa@co.brown.wi.us; glaeser.brian@co.calumet.wi.us; tash@co.door.wi.us; tom.janke@frdlco.wi.gov; EveryT@kewaunee.org; marcholsen@co.manitowoc.wi.us; Burmeister, Eric - DMA; brandon.hyliner@co.oconto.wi.us; Steingraber, Dean; schnegfs@co.sheboygan.wi.us; RDoemel@co.winnebago.wi.us; Kotlowski, Pat; Mashuda, Barry; jmgriesbach@mail.co.marathon.wi.us; Trebiatowski, Brian; Check, Nathan; Beyersdorf, Casey; Waushara Co Hwy Dept; Hawk, Roland; Witynski, Joe; Anderson, Bill; Iron County Commissioner; Braun, Brian; jhanz@co.lincoln.wi.us; Stefonek, Bruce; Baratka, Joe; Bystol, Grant; Schalinske, Troy; Weso, Jeremy; Erickson, Matt; Servi, Mark; bcb.anderson@bayfieldcounty.wi.gov; Hoefs, Michael; Jackman, Jason; Norby, Emil; Emch, Scott; Gedart, Gary; Stanley, Ben; Danielsen, Brian (Washburn); Plattner, Robert; Kelley, Brian; Duell, Brian; dblinder@co.dunn.wi.us; Johnson, Jon; Borek, Jay; cbates@co.pepin.wi.us; Johnson, Chad; Krejci, Robbie; Rinka, Al (Trempealeau); Kkozelka@crawfordcountywi.org; jknautz@co.grant.wi.gov; tschultz@co.juneau.wi.us; Chamberlain, Rory; david.ohnstad@co.monroe.wi.us; josh.elder@co.richland.wi.us; phil.hewitt@vernoncounty.org; mandli@co.dane.wi.us; bfield@co.dodge.wi.us; billk@co.jefferson.wi.us; chris.hardy; cnarvesen@greencountywi.org; craig.hardy@iowacounty.org; dan.rielly@lafayettecountywi.org; duane.jorgenson@co.rock.wi.us; pgavinski@co.sauk.wi.us; Clement.Abongwa@kenoshacounty.org; donna.brownmartin@milwaukeecountywi.gov; jedgren@co.ozaukee.wi.us; Roland.Behm@racinecounty.com; rhough@co.walworth.wi.us; scott.schmidt@co.washington.wi.us; Bussler, Allison; Reder, Brady P - DOT; uitenbroek_ns@co.brown.wi.us; Thomson, Cory; Thomson, Cory; ryan.sommer@frdlco.wi.gov; Thomson, Cory; garymueller@co.manitowoc.wi.us; Sweno, Josh; Kris.Olson@omni.com; Steingraber, Dean; James.foshag@sheboygancounty.com; RDoemel@co.winnebago.wi.us; Hardinger, Thomas - DOT; cblum@sehinc.com; Palmer, Aaron; kjbaguhn@mail.co.marathon.wi.us; Palmer, Aaron; Check, Nathan; Flohr, Greg; tdahlke60@gmail.com; Hawk, Roland; Gehrig, Brock - DOT; wm.kbis@gmail.com; wm.kbis@gmail.com; wm.kbis@gmail.com; wm.kbis@gmail.com; wm.kbis@gmail.com; wm.kbis@gmail.com; Bystol, Grant; wm.kbis@gmail.com; Thomson, Cory; Harris, Kyle - DOT; ashcohwy@yahoo.com; Fedderly, Dan; Pilgrim, Mark; Troy.peterson@cedarcorp.com; Jackman, Jason; Thomson, Cory; Emch, Scott; Pilgrim, Mark; roger.petrick@co.taylor.wi.us; Fedderly, Dan; Babiger, Lee M - DOT; Sweno, Josh; wkrejci@co.chippewa.wi.us; Jay.Gardner@co.clark.wi.us; dblinder@co.dunn.wi.us; Nick.Carroll@co.eau-claire.wi.us; Jay.Gardner@co.clark.wi.us; Troy.peterson@cedarcorp.com; jeff.redding@co.pierce.wi.us; Greg.Haig@sscwi.gov; Pilgrim, Mark; Fisher, Craig - DOT; robert.harnold@jewellassoc.com; tkramer@co.grant.wi.gov; mikekeic@mwt.net; Joseph Langeberg; Jewell, Greg; Palmer, Aaron; robert.harnold@jewellassoc.com; Williams, Michael - DOT; rice.brian@countyofdane.com; Kris.Olson@omni.com; BrianU@jeffersoncountywi.gov; Williams, Michael - DOT; chris hardy; Jewell, Greg; craig.hardy@iowacounty.org; mreynolds@wppienergy.org; robert.harnold@jewellassoc.com; pgavinski@co.sauk.wi.us; Reay, Scott W - DOT; Palmer, Aaron; smiller@collinsengr.com; Jewell, Greg; tom.ludwig@foth.com; Thomson, Cory; scott.schmidt@co.washington.wi.us; Kevin J. Yanny; andy@smimanitowoc.com; Wisner, Anna - DOT; Al.Kriesel@co.waupaca.wi.us; Wisner, Anna - DOT; Hunter.Hoffman@co.shawano.wi.us; Ostrenga, Michael - DOT; Kern, Jeffrey - DOT; Janelle.Hesterkin@co.eau-claire.wi.us; Olson, Paul; craleigh@rfcity.org; craleigh@rfcity.org; Vydrzal, Richard - DOT; Marchewka, John R - DOT; nkempke@co.dodge.wi.us; Marchewka, John R - DOT; Tran, Bao V - DOT; andrea.weddle-henning@milwaukeecountywi.gov; Olson, Michael A - DOT
Cc: Bohnsack, David - DOT; McDaniel, Travis - DOT; Stakston, Anthony - DOT; Bowers, Ryan - DOT; Baeverstad, Eric - DOT (DTSD Consultant)
Subject: Bridge Inspection Scheduling Report
Attachments: Scheduling Report Tutorial.docx

All.

Due to technical difficulties February's scheduling report email will not have an attached excel file with schedule. You will have to run the report manually to obtain the bridge inspection schedule. See attached word document. We hope to have this resolved for the March Scheduling report.

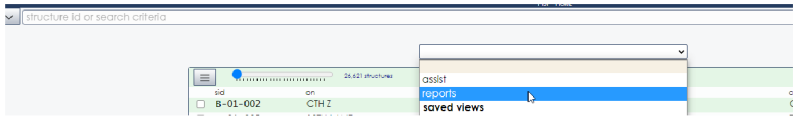
Thank you,

Matt

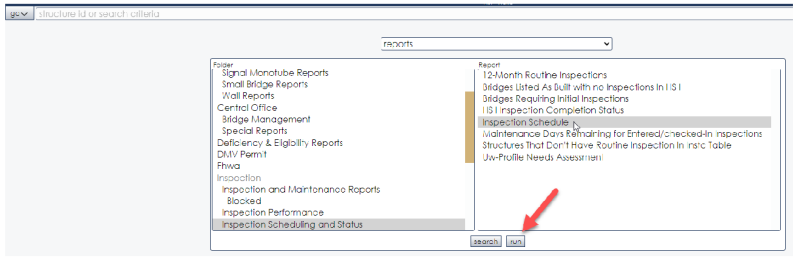
Running the Scheduling Report in HSI for your County or Region/Office

Objective: To see what structure inspections are due in the future

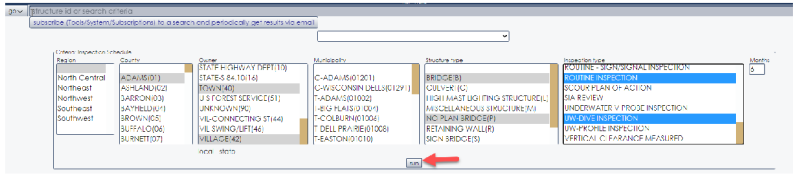
1. From the HSI home page select reports from the dropdown menu



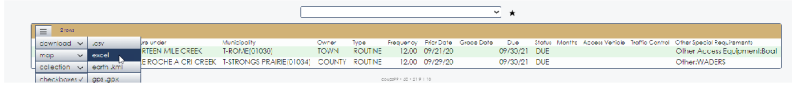
2. Select Inspection Scheduling and Status under Folder and then select Inspection Schedule under Report, then click run.



3. Select parameters you that you are responsible for, County, Owner typically (City, County, Town Village, etc), Structure type (Bridge(B)and No Plan Bridge(P)), Inspection type (Routine Inspection, Fracture Critical, UW-Dive Inspection, Movable Inspection, etc) and how many months in the future you would like to see, then select run.



4. Download the excel file from the left button with 3 horizontal lines (see below).



Inspection Staffing

Inspection Staffing - in-house, consultant, other

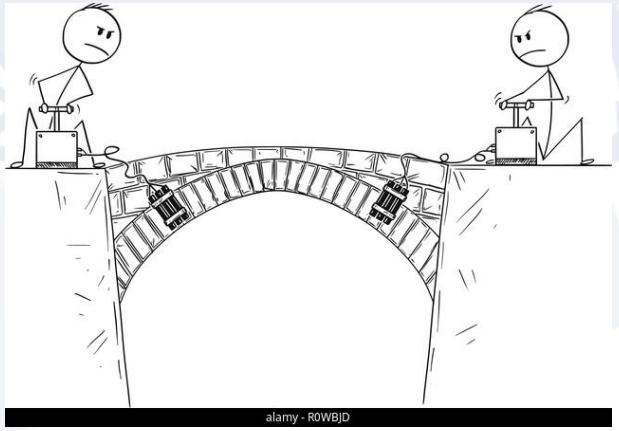
- Verify staff is certified and trained in the inspection/activity.
  - FC trained
  - Dive trained
  - NDT trained
- In-House Staff
  - Staff availability during the months the inspections are due
- Consultant Staff
  - **Begin contract negotiations early so work can be completed on time**.
- Other
  - Municipality
    - Are inspection duties delegated to the municipality in writing?
  - Other County Forces
    - Agreement in place

Program Manager Guidance

Identify Conflicts

Identify conflicts with inspection schedules early so mitigation efforts can be explored

- Construction or maintenance conflicts sometime interfere with the inspection being completed on time.
- Complete the inspection sooner so it is completed prior to the conflict.
- If an unavoidable conflict exists, request an inspection extension from FHWA through BOS – start with the region PM.
  - Provide the late reason
  - How late
  - Risk factors – how can they be mitigated the risks.
  - Recommend 2 months prior notice



Bridges open to vehicular traffic must be inspected on time regardless of any construction or maintenance schedule.

Program Manager Guidance

Access Needs

Determine special inspection needs and begin planning

Inspectors trained – FC trained?
Access – reach-all truck (“snooper”)
Traffic control needs
Special inspection tools – NDT

Scour Plan of Action (POA) - Scour Critical Bridges

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
- The inspection/visit must be recorded
  - Either in HSIS or
  - Supplemental record included with the hard copy of the POA
- The scour POA must be updated every 48 months.
  - Responsible individuals/contacts
  - Contact information
  - New thresholds requiring site visit based on past events
  - Date of Revisions/Updated
  - Upload into HSIS

FCM Inspection Procedures

Bridges with Fracture Critical Members (FCM) must have **bridge specific written inspection procedures**. Procedures must include the following:

- Clearly identify the location of all FCMs
  - `Including any floor beams spaced >14' and connections to primary members
- Specify the inspection frequency
- Describe any ***specific risk factors*** unique to the bridge
- Clearly detail inspection methods
- Clearly define equipment needed
- Identify other special needs
  - Staff – number and training
  - Access method
  - Traffic Control
  - Contacts
  - Forms
  - Inspector safety concerns (confined space, traffic, raptors, etc).
  - Scheduling issues
  - Other

Inspection procedures lay out what should be done and are used by the team leader to prepare for a thorough inspection.

FCM Inspection Procedures

Specific risk factors include, procedures must identify and discuss:

- Fatigue and fracture prone details
- Problematic materials
- Poor welding techniques
- Potential out-of-plane distortion details
- Previous cracking or repairs
- Areas of section loss in FCM
- Source of prior cracking
- Cold service temperatures
- Load posted
- Superstructure condition code of 4 or less
- Subject to overloads or impact damage
- Older service life
- High truck traffic (ADTT >5,000)
- Other

Floor Beam Inspection

WisDOT requires the following on floor beams spaced >14 feet apart:

- Arms-length inspection of floor beams spaced > 14 feet apart for the entire tension portion of the floor beam, including the floor beam connection(s) to the primary load carrying member.
- Inspect using the same techniques and at the same frequency as the FCM.
- **Note in the inspection procedures**.
- Clearly label on the FCM diagram
- Certified fracture critical inspector
- Where arms-length access cannot be accomplished by traditional methods, an alternative method detailed in the procedures approved by BOS prior to use

Facture Critical Procedures

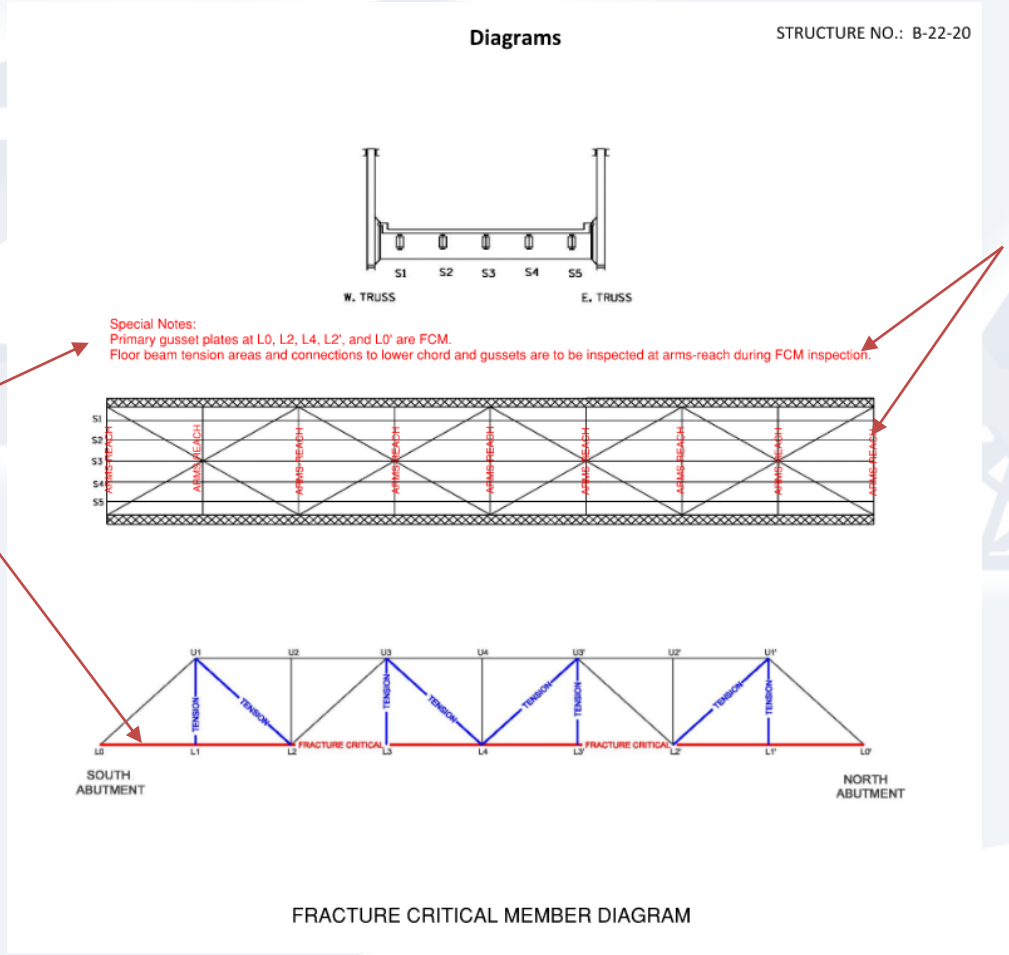
Insufficient Information

Fracture Critical (arm's Length) Specific Procedures
Inspect bascule girders 100% hands on.

EXAMPLE OF FCM DIAGRAM

FCM Identified

Floor Beams Labeled for Arms-Reach



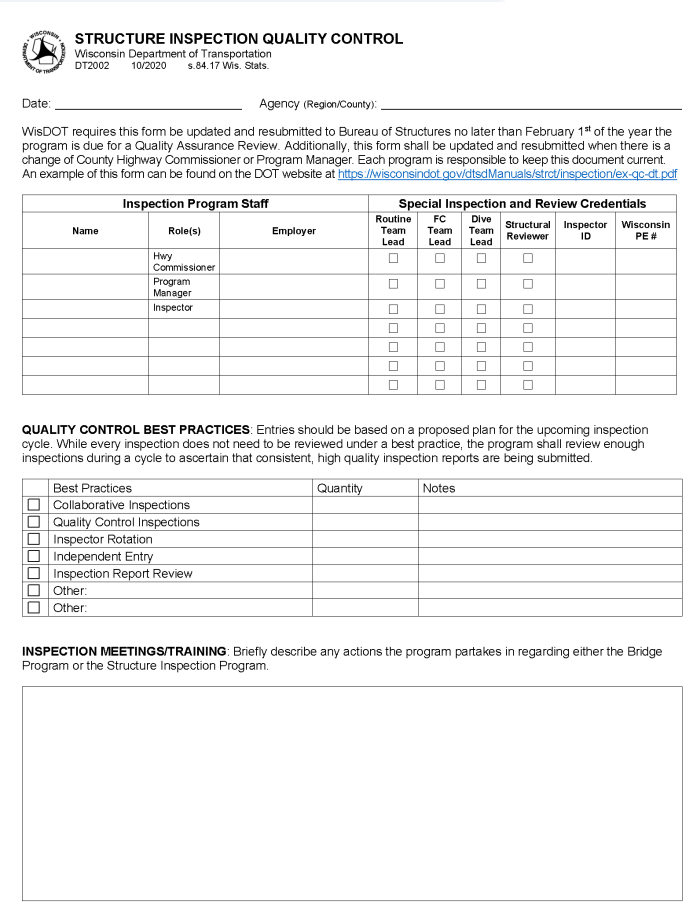
FRACTURE CRITICAL MEMBER DIAGRAM

Program Manager Guidance

Inspection QA/QC

Quality assurance/quality control of the program being managed

- Complete and update form DT2002 (Structure Inspection Quality Control). Update and send into Region PM when change in Commissioner, Program Manager or is due for a QA review that year.
- Follow QC best practices outlined on form DT2002
- Conduct quality assurance reviews on local agencies when required
- Review completed bridge inspections accuracy and compliance.



STRUCTURE INSPECTION QUALITY CONTROL
Wisconsin Department of Transportation
DT2002 10/2020 s.84.17 Wis. Stats.

Date: _____ Agency (Region/County): _____

WisDOT requires this form be updated and resubmitted to Bureau of Structures no later than February 1st of the year the program is due for a Quality Assurance Review. Additionally, this form shall be updated and resubmitted when there is a change of County Highway Commissioner or Program Manager. Each program is responsible to keep this document current. An example of this form can be found on the DOT website at https://wisconsindot.gov/dtsdManuals/strct/inspection/ex-qc-dt.pdf

Inspection Program Staff			Special Inspection and Review Credentials					
Name	Role(s)	Employer	Routine Team Lead	FC Team Lead	Dive Team Lead	Structural Reviewer	Inspector ID	Wisconsin PE #
	Hwy Commissioner		☐	☐	☐	☐		
	Program Manager		☐	☐	☐	☐		
	Inspector		☐	☐	☐	☐		
			☐	☐	☐	☐		
			☐	☐	☐	☐		
			☐	☐	☐	☐		
			☐	☐	☐	☐		

QUALITY CONTROL BEST PRACTICES: Entries should be based on a proposed plan for the upcoming inspection cycle. While every inspection does not need to be reviewed under a best practice, the program shall review enough inspections during a cycle to ascertain that consistent, high quality inspection reports are being submitted.

	Best Practices	Quantity	Notes
☐	Collaborative Inspections		
☐	Quality Control Inspections		
☐	Inspector Rotation		
☐	Independent Entry		
☐	Inspection Report Review		
☐	Other:		
☐	Other:		

INSPECTION MEETINGS/TRAINING: Briefly describe any actions the program partakes in regarding either the Bridge Program or the Structure Inspection Program.

Inspector Qualifications Review

- PM – Program Manager: 2-week course or 1 week PE course, and PE or 10 yrs experience
- TL – Team Leader: 2-week course or 1 week PE course, and PE or 5 yrs experience; EIT/FE and 2 years of experience.
- TM - Team Member (willing worker)

- Fill out DT2001 and submit to Regional Program Manager
  - Submit the following in a combined PDF DT2001, DT2085, inspection Certificates, PE Cert. if applicable and 2019 SIRT. Need 2019 SIRT to become TL/PM.

Inspection Question # 3

- You arrive on site and to begin a routine inspection of a county road bridge built 2 years ago. Is this bridge eligible for a 48-month inspection frequency and why?

A. No. All bridges need to be inspected on 24-month inspection frequency.

B. Yes. All new bridges are eligible for 48-month inspection frequency.

C. No. Bridge needs to have a minimum of 2 inspections on file and meet the other requirements in order to be eligible.

D. Yes. County has “opted-in” to inspect on 48-month frequencies.

What If

- What if a routine inspection is due in May 2022, but you would like to have the inspection due in August 2022? What can you do?
- Complete routine inspection in May 2022 and then reinspection in August 2022 (Full inspection required on dates).
- Could request inspection date extension from FHWA (unlikely to approve).

What's New for 2022

- All Initial Structure Inventory Inspections will be completed by the Department – BOS Regional staff
  - Consistent Reporting of all inspection data and information
  - Local Agency welcome to assist Regional Inspector
  - State LET structures (New bridges and major Rehabs). Does not include Local LETs or County Built. Does not include project work considered Secondary work items, ie, TPO's, wing and joint Replacements.
- New Picture Guidance and Best Practices

New 2022

Inspection Picture Guidance/Best Practices

- See Handout
- Scot Reay to Develop guidance.
- This document was provided with training invite. Open Document.

Inspection Documentation and Coding

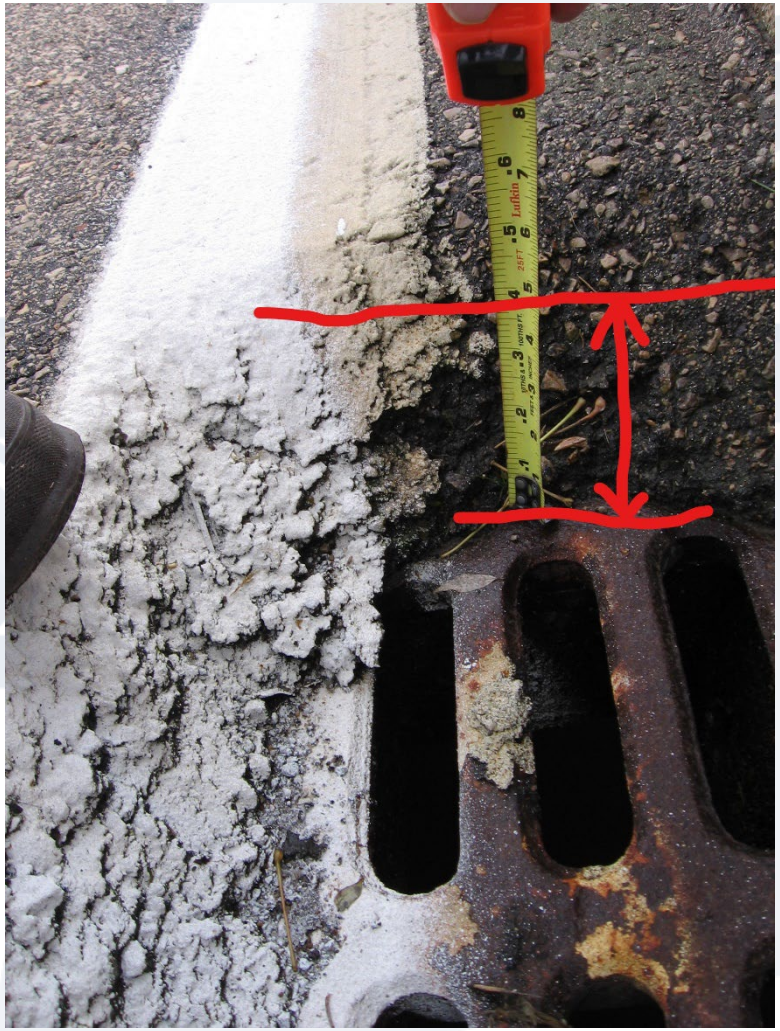
- Common Missed or Overlooked Items
- Commenting
- Deck Evaluations
- Discoloration Defect
- Exposed Piling/Settlement

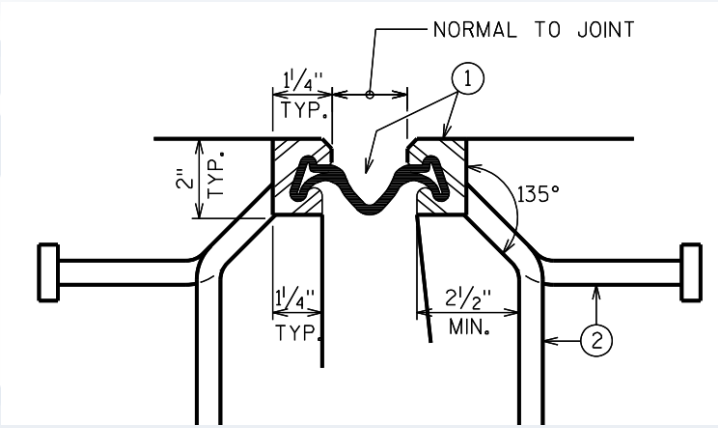
Common missed/overlooked items

- Overburden measurements
- Joint Measurements
- Drainage Assessment, 9001
- Deck vs Wearing Surface Quantities
- Pile vs Columns
- Elements no Longer used

Inspection Coding

Overburden and Joint Measurements

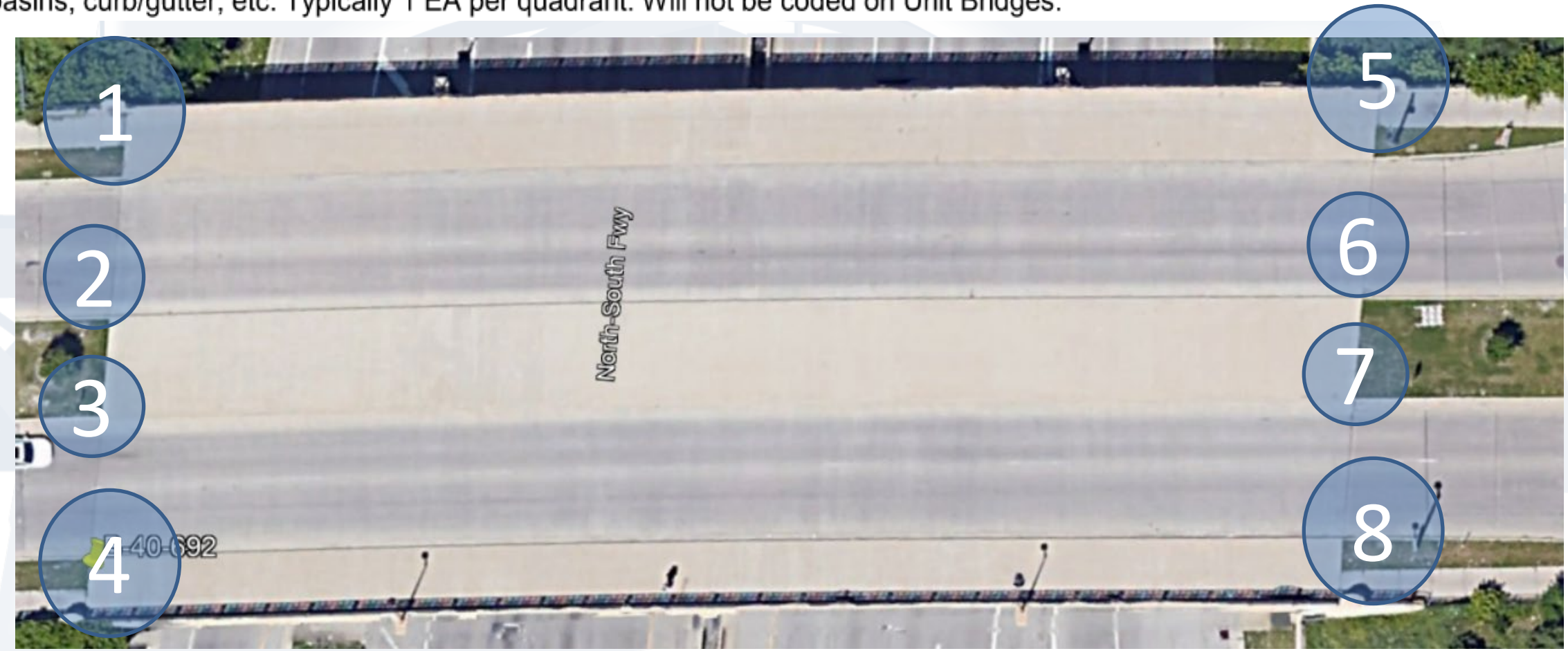




Both found under Structure Information tab in HSIS add text

Assessment: Drainage – Structure Approach, 9001

- **Drainage – Structure Approach (9001):** Record drainage issues at the approaches to the structure resulting from deck and roadway runoff - include slopes/drainage around the ends of the wings and all drainage features within 20 feet of wingtip - flumes, inlets, catch basins, curb/gutter, etc. Typically 1 EA per quadrant. Will not be coded on Unit Bridges.

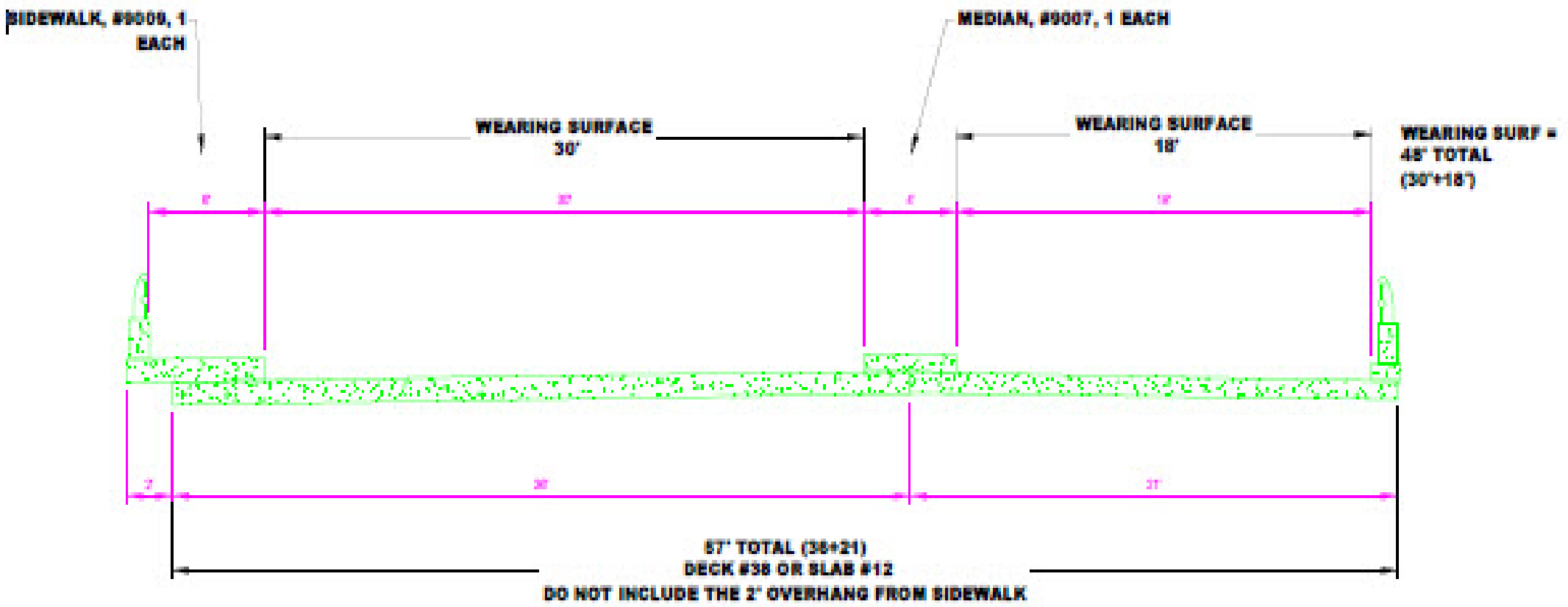


Inspection Coding

Proper Coding of Deck vs Wearing Surface Quantity

Inspection Coding

Deck vs Wearing Surface Example



Inspection Coding

Column or Pile?

Remember a Pile is Driven, a Column is Formed.

Inspection Coding

Elements no longer Used

Hidden elements – only rate & quantify what you can see

Notes and CS quantities from Conc. overlay here if desired, delete 8514

8513		Thin Polymer Overlay POLYMER OVERLAY INSTALLED 2014 BY LFA CONTRACT 6610-00-61.	SF	22,160	22,158	2	0	0
	3210	Debonding/Spall/Patched Area/Pothole SEVERAL SMALL SPALL/DELAMS @ SOUTH END(<6" EACH), 2 SF C2.	SF		0	2	0	0
8514		Concrete Overlay 2006. ***HISTORIC ONLY - COVERED WITH POLYMER OVERLAY. 2017 INFRA DECK SCAN INDICATES 14% TOTAL DETERIORATION	SF	22,158	18,226	596	3,336	
	3210	Debonding/Spall/Patched Area/Pothole INFRARED THERMOGRAPHY SU 6/2014 IND TES TOTAL 2.5% IR DETERIORATION (596 SF). SEE ATTACHED PDF MARY. NORTH END OF DECK - 6 SPALLS. SOUTH END OF DECK - 7 SMALL COVERED W/ POLYMER OVERLAY. INFRARED DECK SCAN INDICATES 3% IR DETERIORATION AND 11% GPR DE RATION: TOTAL 14% (3336 SQ FT IN CS3)	SF		0	596	3,336	0

Commenting – Examples

Chk	Element	Defect	Description	UOM	Total	1	2	3	4
X	**107**		**Steel Open Girder**	LF	206	0	206	0	0
		1000	Corrosion RUST	LF		0	206	0	0

Chk	Element	Defect	Description	UOM	Total	1	2	3	4
X	**12**		**Reinforced Concrete Deck-Coated Reinforcing**	SF	753	720	3	0	30
		1080	Delamination - Spall - Patched Area SOUTH OUTSIDE DECK SPALLED ENTIRE LENGTH - 24 CS3	SF		0	0	0	30
		1130	Cracking (RC) CRACKING SOUTH BAY BETWEEN GIRDER	SF		0	3	0	0
	8511		AC Overlay NEW BLACKTOP IN 2015, NO CRACKS	SF	753	753	0	0	0

Chk	Element	Defect	Description	UOM	Total	1	2	3	4
X	**15**		**Prestressed Concrete Top Flange**	SF	239	231	8	0	0
		1110	Cracking (PSC) Girder 5 3' Girder 6 1' Girder 7 4'	SF		0	8	0	0

Anatomy of an Inspection Note

- **D**escribe the condition
  - 5 medium vertical cracks
  - 5 sf spall
- **L**ocate the defect
  - North Abutment
  - South end of Deck
- **Q**uantify the Condition
  - 5’ in CS3
  - 5 SF in CS3

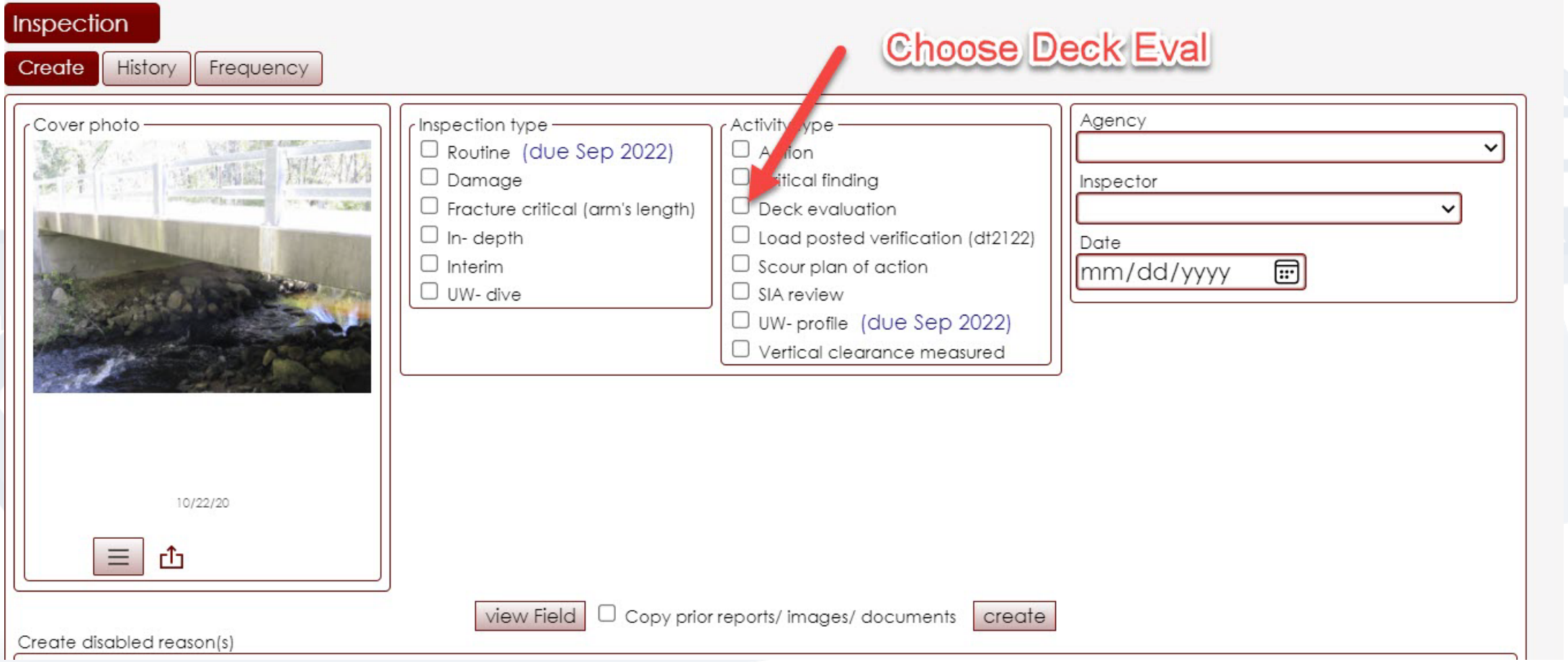
Deck Evaluations

- Deck Chaining
- Deck Sounding
- Infared Thermography (IR)
- GPR

- Code as a Deck Evaluation
  - Shown Next

How to Enter

Enter as Deck Evaluation Activity

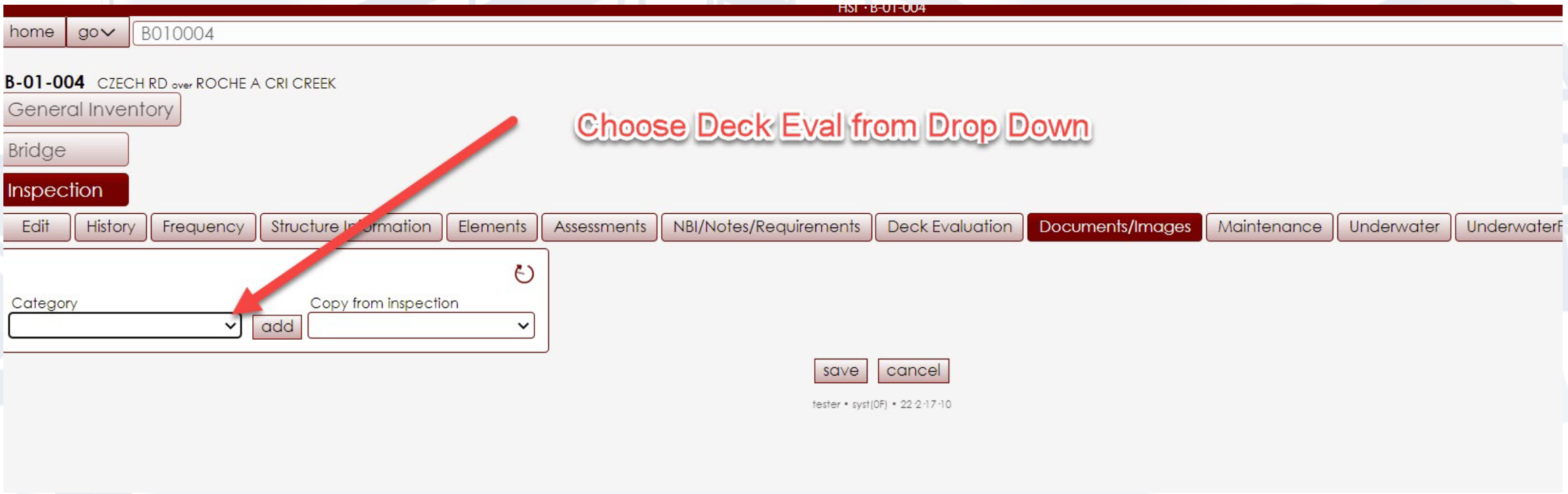


Entering Full Deck Evaluation

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


Inspection
Edit
History
Frequency
Structure Information
Elements
Assessments
NBI/Notes/Requirements
Deck Evaluation
Documents/Images
Maintenance
Underwater
UnderwaterProfile (demo)
Chaining
Measured by
Inspector
Notes
Chained entire deck, 2/17/22. Determined 140 sf, (15%) delaminated, mostly all near south end.
Delamination (%)
15.0
Validation Methods
Sounding
Available
add
delete
Method
add
Fill in Inspector
Fill in Notes
Fill in Delamination %
Choose Validation Method

How to Add sketch or drawing



Inspection Coding

Discoloration Defect (8904)

Discoloration Defect

Discoloration Defect Coding (Does not Roll Up)

Discoloration Defect

Elements

Chk	Element	Defect	Description	UOM	Total	Quantity in Condition State 1	2	3	4
X	**12**		**Reinforced Concrete Deck-Black Steel Reinforcing**	SF	18,754	**18,309**	**429**	**16**	0
			2 spans numbered W to E.						
		1080	Delamination - Spall - Patched Area	SF		0	**67**	**16**	0
			Span 1: delam btwn G1/G3 at **median. Spalls and delams G7-G8 over median**. Span 2: delam btwn G6/G7 at diaphragm near pier, **G1-G4** over **median; several** delams btwn G7/G8 pier **to shoulder and rt ditch.** CS3 spall btwn G6/G7 over NB lane 1 with exposed rebar, **delam at G5-G6. Full depth patch G1-G4 over NB lane 1. 8" spall** in S. overhang near pier. Typical scattered locations with delams and spalls at edge of girder flanges in both spans.						
		1130	Cracking (RC)	SF		**0**	**362**	0	0
			HL-narrow trans crks, most w/ effl, some areas with HL map cracking.						
		8904	Discoloration	SF		**0**	**300**	**20**	**0**
			Span 1 over SB rt shoulder G1-G3: 150SF, median G1-G2 20sf at CS3 spalls W/delam, Span 2: G1-G3 over median 100 sf, additional scattered areas 50 SF.						

362+67=429

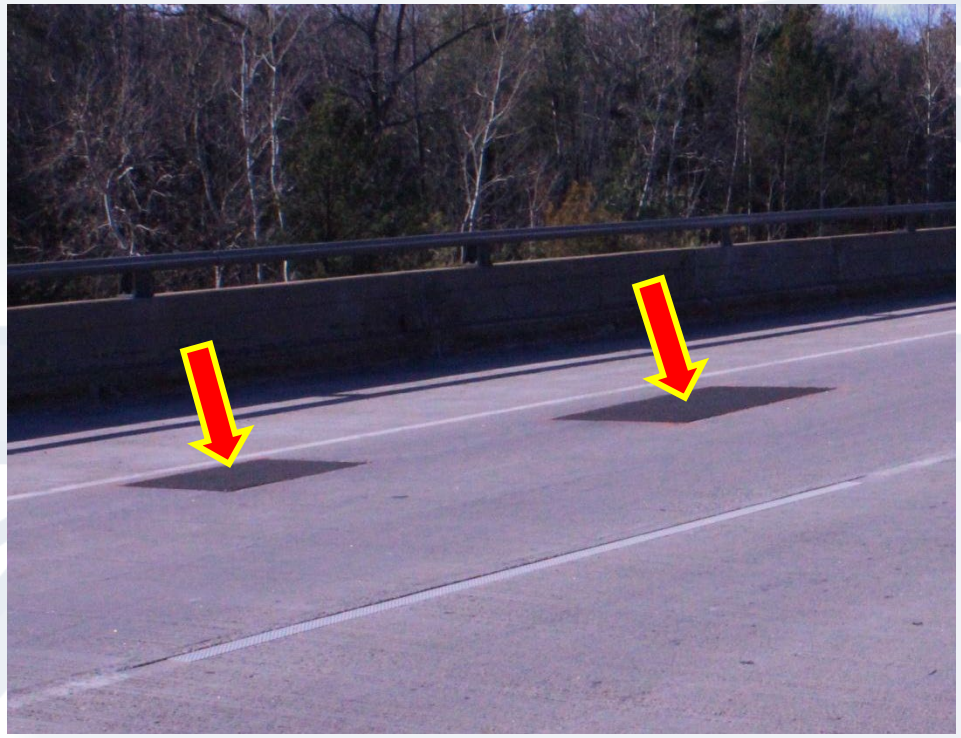
DOES NOT ROLL UP

Inspection Coding

Exposed Piling/Settlement

- Code void under abutment caused by settlement of material beneath under appropriate slope protection assessment.
- Code void under abutment caused by scour as a scour defect with abutment element.

Inspection Question #4



Sound asphalt patches on a concrete overlay should be coded in what Condition State?

1) CS1
2) CS2
3) CS3
4) CS4

Maintenance Items and Actions

- Priority Listing (High, Medium, Low)
- List DLQ (Description, Location, Quantity) & Add Pictures.
- Revisions/additions/removals to Maintenance Activities

Maintenance Action Items

- Action Priority
  - High – within 30 days
  - Medium – within 1 year
  - Low – before next inspection
- “Critical” priority was removed since confused with “Critical Finding”

Maintenance Action Items

- Description
  - E.g.
    - Deck Repair –2’ x 2’ Full Depth Spall w/ Exposed Rebar & Railing Anchorage
    - Abutment Repair – 3' x 2' x 10" deep spall w/ exposed rebar
    - Pier Repair – 1' x 2' x 6" deep spall w/ exposed rebar. (Access?)

Maintenance Action Items

- Location
  - E.g.
    - Railing Repair – SW Corner at Wingwall
    - Abutment Undermining - Southeast Corner at East Abutment under Girder 2.

Maintenance Action Items

- Location/Lane Information for Needed Closures/Access
  - E.g.
    - Shoulder Closure for NB CTH X.
    - Lane #2 Closure for SB STH 57
    - 12 Ft Ladder required for Bearing Repair.
    - Snooper / Reach-all required for Pier Repair.
    - Note Railroad Coordination needed?

Maintenance Action Items

- Quantity
  - E.g.
    - Superstructure – Steel Repair/Strengthen: Area with 3-1" holes (~16% section loss of channel) in interior channel web 69" from the bearing pin
    - Drainage – Repair Washout / Erosion: 5 ft wide x 30 ft long x 3 ft deep washout (~10 CY)

Maintenance Action Items

- Include Photo(s)
  - E.g.
    - Specific Picture(s) of Repair Location – prefer many pictures with different angles.
    - Including a wide-angle picture for location information and possible access issues.

Maintenance Action Items

- Include Photo(s)

Maintenance Action Items

- Revisions:

Approach – Wedge Shoulder	to	Approach – Wedge Shoulder/Sidewalk
Approach – Mill Approach/Shoulder	to	Approach – Mill Approach/Shoulder/Sidewalk
Approach – Mud Jacking	to	Approach – Mud or Foam Jacking
Bearings – Clean Assemblies / Paint	to	Paint – Bearings
Channel – Clean Box Culvert	to	Channel – Clean Box Culvert/Apron/Ditch
Drainage – Clean Downspouts	to	Drainage – Clean Flumes/Downspouts/Inlets
Drainage – Repair/Construct Drainage Flumes	to	Drainage – Repair/Construct Drainage Flumes/Curbs
Drainage – Repair/Replace Deck Drains	to	Drainage – Repair/Replace Deck Drains/Inlets
Misc – Remove/Monitor Loose Concrete	to	Deck – Remove/Monitor Loose Concrete
Misc – Spot paint / Complete	to	Paint – Spot Paint
Slope Protection - Install Heavy Riprap	to	Slope Protection – Install Riprap (add size, location, and dimensions in comments)
Channel – Install Scour Countermeasures	To	Channel – Install Riprap (add size, location, and dimensions in comments)
Substructure – Repair Abutment/Wings	to	Substructure – Repair Abutment/Wings/Culverts

See Handout for HSIS Maintenance Action Items – 2022 Update

Maintenance Action Items

- Additions:

Deck – Install Deck Edge Flashing
Deck – Recaulk Deck Edge Flashing
Deck – Repair Polymer Overlay
Misc – Repair Fencing
Paint – Railing
Paint - Other
Substructure – Strap Wingwall

See Handout for HSIS Maintenance Action Items – 2022 Update

Maintenance Action Items

- Removals:

Approach – Patch Bituminous
Approach – Patch Concrete
Deck – Mill top of Backwall / Edge of Deck
IMP – OTHER
IMP-Bituminous Overlay
IMP-Concrete Overlay
IMP-Deck Replacement
IMP-Paint Structure
IMP-Polymer Modified Overlay
IMP-Structure Replacement
IMP-Superstructure Replacement
IMP-Thin Epoxy Overlay
Superstructure – Replace Pin / Hangers
STRUCTURAL – GREASE PINS / ROLLER BEARINGS
STRUCTURAL – JOINT REPAIR OR REPLACEMENT

See Handout for HSIS Maintenance Action Items – 2022 Update

Maintenance Action Items

- Common Miscodings (2021):

1. Drainage – Repair Washouts / Erosions should be used for Slope Protection Erosion.
2. Misc – Remove Vegetation (Spray) should be used for Removing Vegetation on Slope Protections
3. Misc - Repair/Replace Utilities or Signs should be coded for all utility or sign repairs instead of Misc-Other Work.

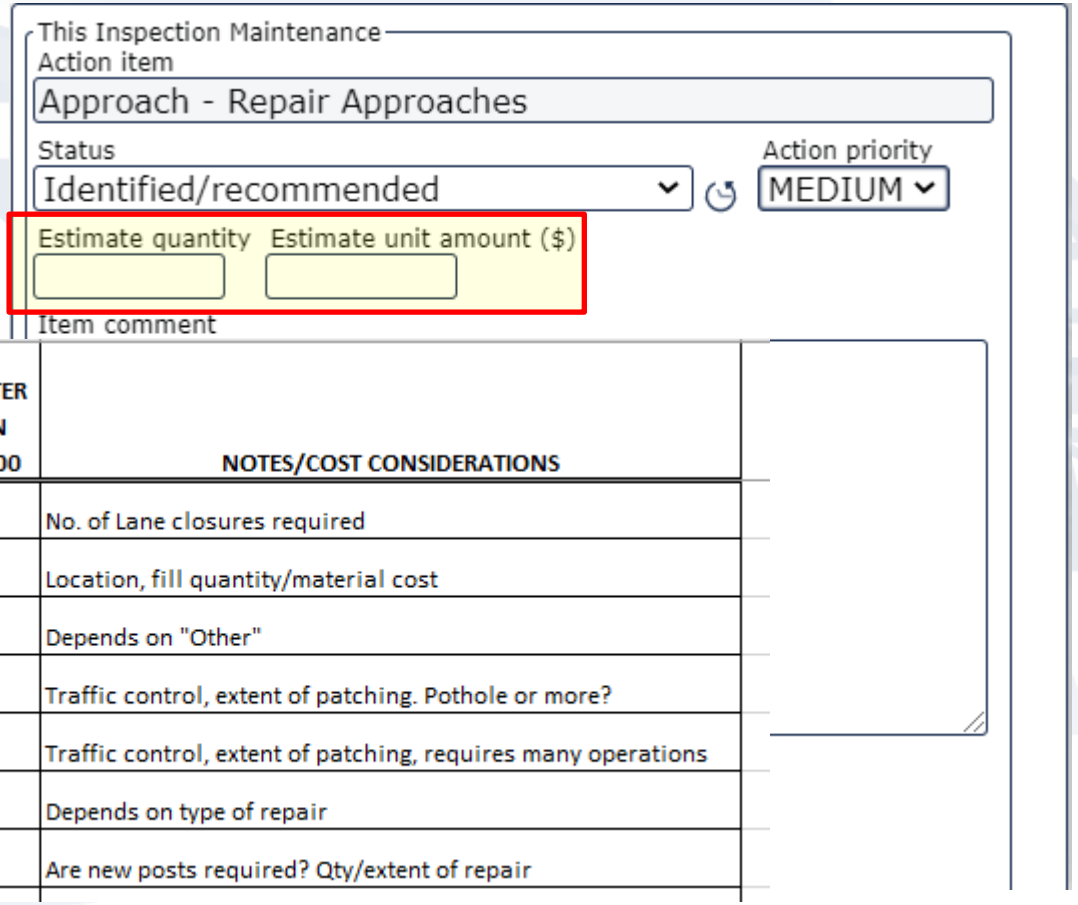
Maintenance Action Items

- Common Miscoding (2021):

1. Misc – Paint Spot/Complete (Paint – Spot Paint) should be used instead of Superstructure – Other Work for Spot Painting.
2. Misc-Wash Bridge should be used for Substructure – Wash/Clean & Superstructure – Wash/Clean and location noted in the comments.
3. Slope Protection – Repair Undermining of Sub – Notice a lot of people don't use instead include under substructure items

Maintenance Items – State Owned

- Cost Estimate
  - BOS tracking backlog of needed work
  - Order of magnitude



	LESS THAN $1,000	$1,000-$2,500	$2,500-$5,000	$5,000-$10,000	GREATER THAN $10,000	NOTES/COST CONSIDERATIONS
Approach - Mill Approach / Shoulder	x	x				No. of Lane closures required
Approach - Mud Jacking			x	x	x	Location, fill quantity/material cost
Approach - Other Work		x				Depends on "Other"
Approach - Patch Bituminous	x	x				Traffic control, extent of patching. Pothole or more?
Approach - Patch Concrete		x	x	x		Traffic control, extent of patching, requires many operations
Approach - Repair Approaches		x				Depends on type of repair
Approach- Repair Beam Guard		x	x			Are new posts required? Qty/extent of repair

See Handout for Cost Estimates – State Owned Only

What if Scenarios

- What if you are uncomfortable making a judgement on condition of an element or a bridge?

- Contact your PM.
- Contact additional resources (other inspectors, PMs, consultants, experts in the field…).
- Do not complete the inspection until you are comfortable with the condition.

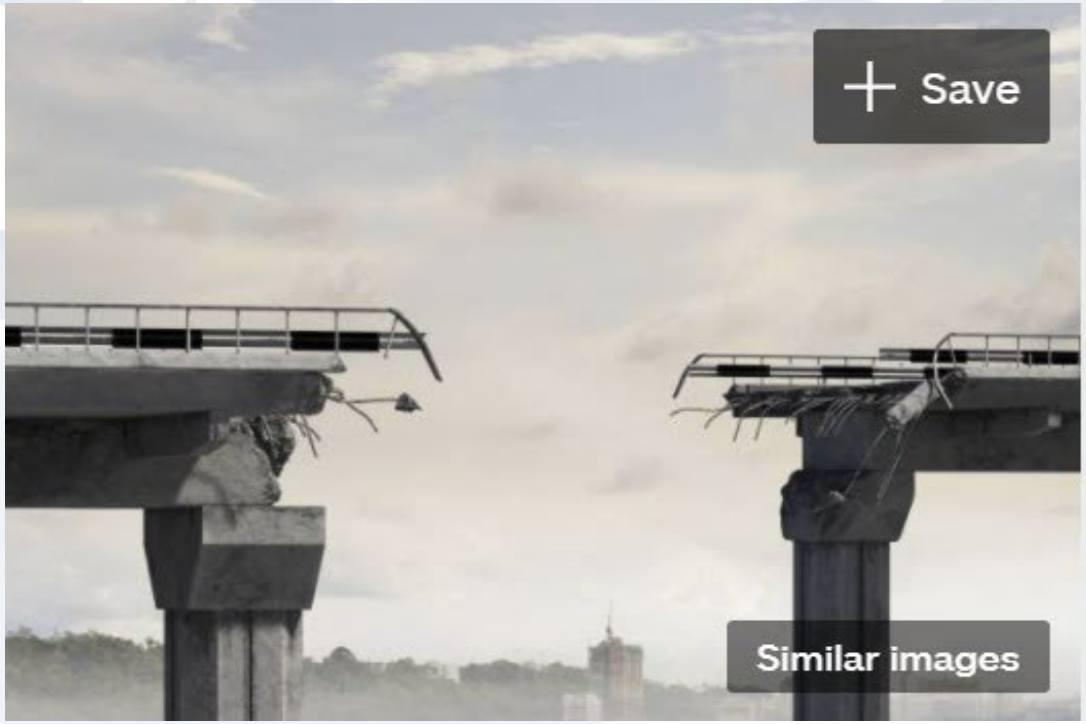
Inspection Question #5

This pile was discovered by an inspector with thru thickness holes in the flange. Does this require a structural review?

A. Yes

B. No

Critical Finding/Structure Reviews



Critical Finding and Structure Review Overview

Critical Finding	Structure Review
Trigger: Onset Inspection indicates conditions threatens structure stability or public safety	Trigger: Newly observed or Increase in CS4 quantities or severity increase in a primary members
Severity causes partial/full closure: Unsafe and Severe require action	Review must be completed and documented by a PE – Action tab in HSIS
Follow Notification process. In field guide.	60 days to complete/resolve
Critical Finding Report (DT 2026). Initial Assessment completed w/in 24 hrs and entered HSIS.	Keep in CS4 until repaired/replaced – note results of structural review
Includes short term and long term Follow up plans	Both owner and PM responsible for
PM's must review and sign off. Close out inspection required at completion of actions.	If results indicate closure/lane closure, Follow CF procedure
See Policy memo (Revised 9/2021)	See Policy memo (3/2020)

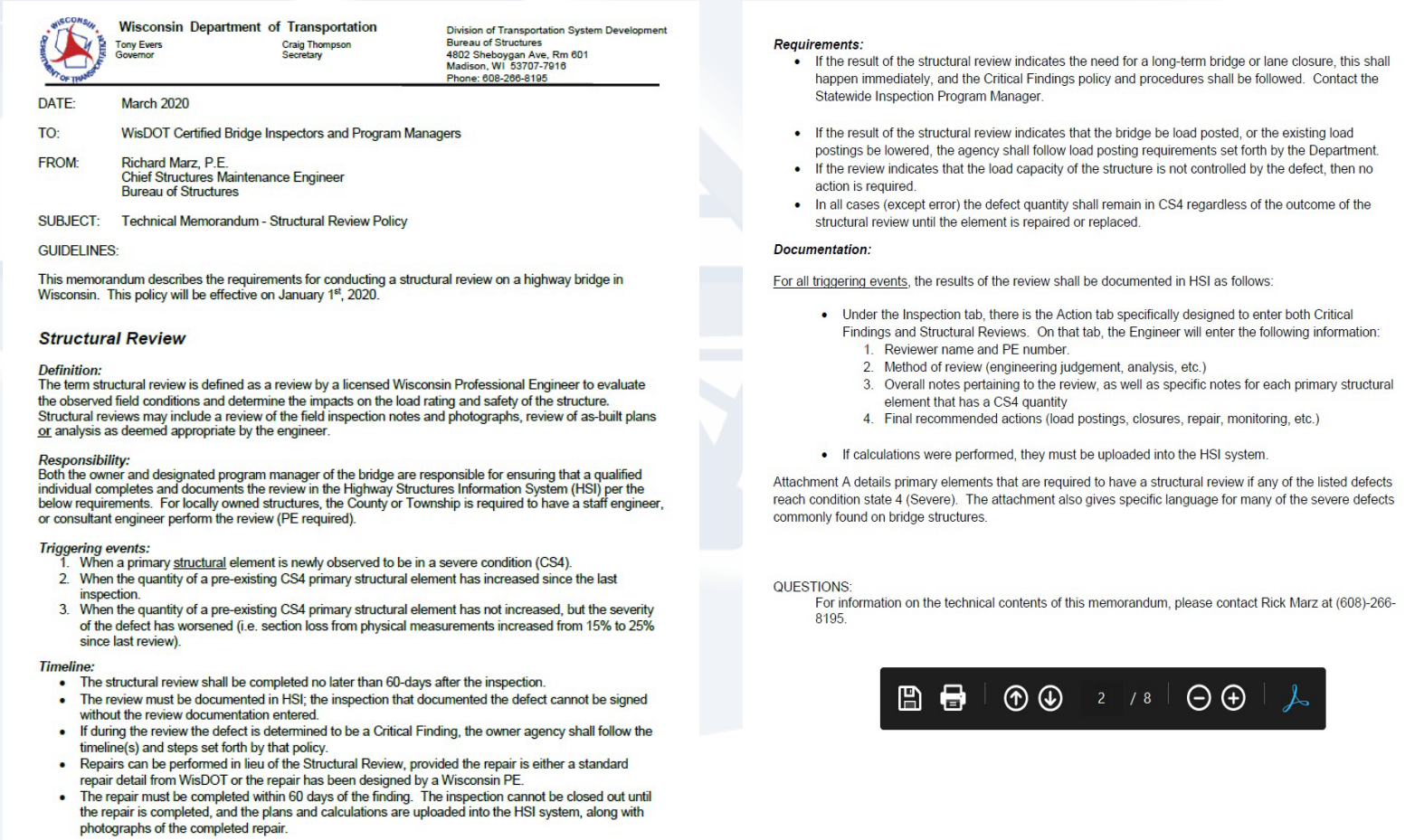
Structural Review

- Responsibility
  - The owner of the bridge (and delegated PM) is responsible for ensuring that a Wisconsin PE completes and documents the review.
- Reviewer
  - Must be a Wisconsin Professional Engineer with experience in bridge engineering

- Increase in CS4 quantities or severities of important members
- Must be done by PE – Action tab
  - Engineering Judgement
  - Calculations
  - Repair – standard detail or designed by PE, in lieu of SR.
- 60 days to resolve
  - If repair is final action, or if not possible, firm schedule and commitment
- Keep in CS4 until repaired/replaced – note results of structural review
- If Review indicates closure, need to follow CF process. If indicates posting, follow load posting requirements

Critical Finding/Structure Review

Structural Review



Wisconsin Department of Transportation

Tony Evers
Governor

Craig Thompson
Secretary

Division of Transportation System Development
Bureau of Structures
4802 Sheboygan Ave, Rm 601
Madison, WI 53707-7916
Phone: 608-266-8195

DATE: March 2020

TO: WisDOT Certified Bridge Inspectors and Program Managers

FROM: Richard Marz, P.E.
Chief Structures Maintenance Engineer
Bureau of Structures

SUBJECT: Technical Memorandum - Structural Review Policy

GUIDELINES:

This memorandum describes the requirements for conducting a structural review on a highway bridge in Wisconsin. This policy will be effective on January 1st, 2020.

Structural Review

Definition:
The term structural review is defined as a review by a licensed Wisconsin Professional Engineer to evaluate the observed field conditions and determine the impacts on the load rating and safety of the structure. Structural reviews may include a review of the field inspection notes and photographs, review of as-built plans or analysis as deemed appropriate by the engineer.

Responsibility:
Both the owner and designated program manager of the bridge are responsible for ensuring that a qualified individual completes and documents the review in the Highway Structures Information System (HSI) per the below requirements. For locally owned structures, the County or Township is required to have a staff engineer, or consultant engineer perform the review (PE required).

Triggering events:
1. When a primary structural element is newly observed to be in a severe condition (CS4).
2. When the quantity of a pre-existing CS4 primary structural element has increased since the last inspection.
3. When the quantity of a pre-existing CS4 primary structural element has not increased, but the severity of the defect has worsened (i.e. section loss from physical measurements increased from 15% to 25% since last review).

Timeline:
- The structural review shall be completed no later than 60-days after the inspection.
- The review must be documented in HSI; the inspection that documented the defect cannot be signed without the review documentation entered.
- If during the review the defect is determined to be a Critical Finding, the owner agency shall follow the timeline(s) and steps set forth by that policy.
- Repairs can be performed in lieu of the Structural Review, provided the repair is either a standard repair detail from WisDOT or the repair has been designed by a Wisconsin PE.
- The repair must be completed within 60 days of the finding. The inspection cannot be closed out until the repair is completed, and the plans and calculations are uploaded into the HSI system, along with photographs of the completed repair.

Requirements:
- If the result of the structural review indicates the need for a long-term bridge or lane closure, this shall happen immediately, and the Critical Findings policy and procedures shall be followed. Contact the Statewide Inspection Program Manager.
- If the result of the structural review indicates that the bridge be load posted, or the existing load postings be lowered, the agency shall follow load posting requirements set forth by the Department.
- If the review indicates that the load capacity of the structure is not controlled by the defect, then no action is required.
- In all cases (except error) the defect quantity shall remain in CS4 regardless of the outcome of the structural review until the element is repaired or replaced.

Documentation:

For all triggering events, the results of the review shall be documented in HSI as follows:

- Under the Inspection tab, there is the Action tab specifically designed to enter both Critical Findings and Structural Reviews. On that tab, the Engineer will enter the following information:
  1. Reviewer name and PE number.
  2. Method of review (engineering judgement, analysis, etc.)
  3. Overall notes pertaining to the review, as well as specific notes for each primary structural element that has a CS4 quantity
  4. Final recommended actions (load postings, closures, repair, monitoring, etc.)
- If calculations were performed, they must be uploaded into the HSI system.

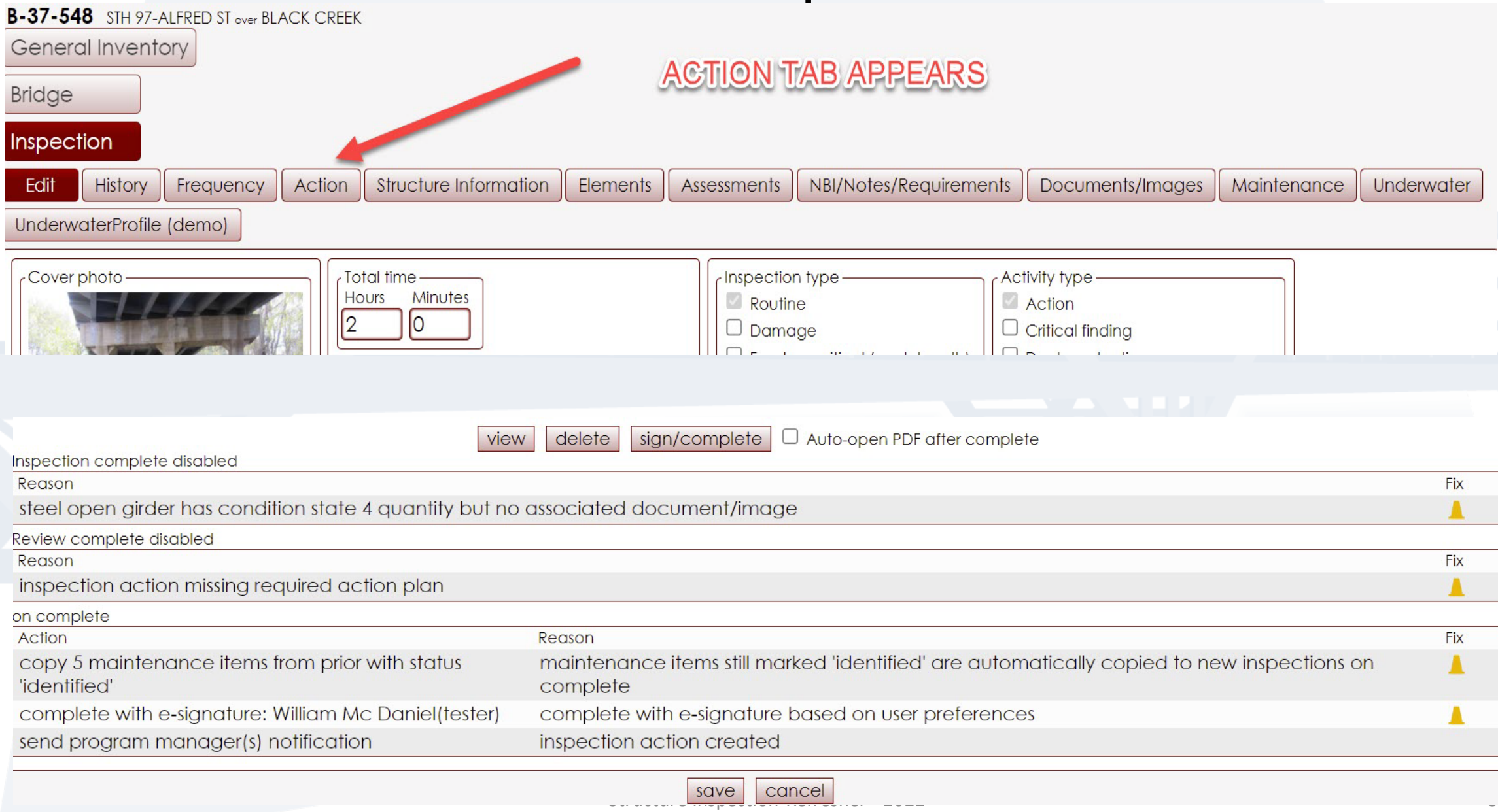
Attachment A details primary elements that are required to have a structural review if any of the listed defects reach condition state 4 (Severe). The attachment also gives specific language for many of the severe defects commonly found on bridge structures.

QUESTIONS:
For information on the technical contents of this memorandum, please contact Rick Marz at (608)-266-8195.

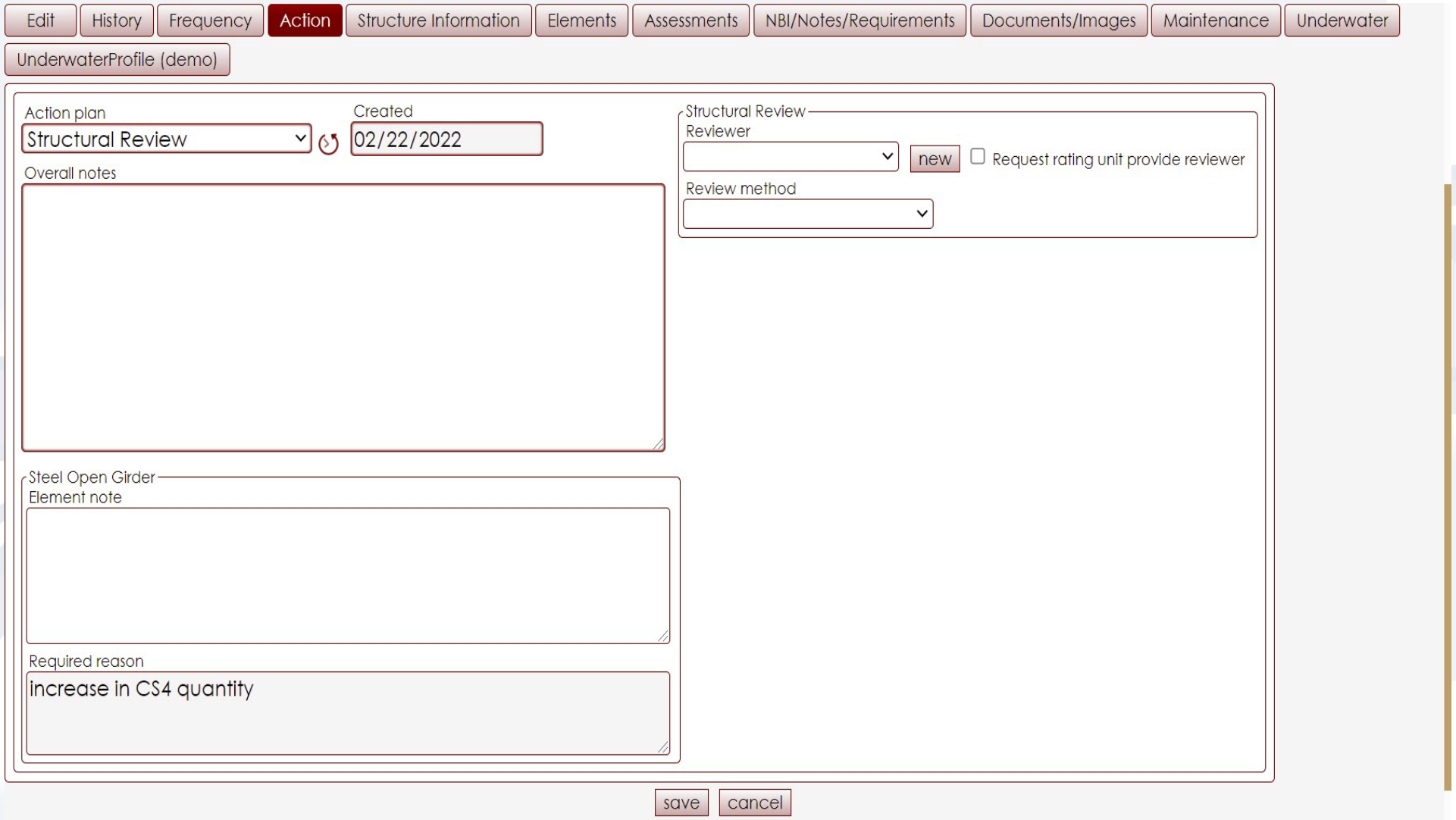
2 / 8

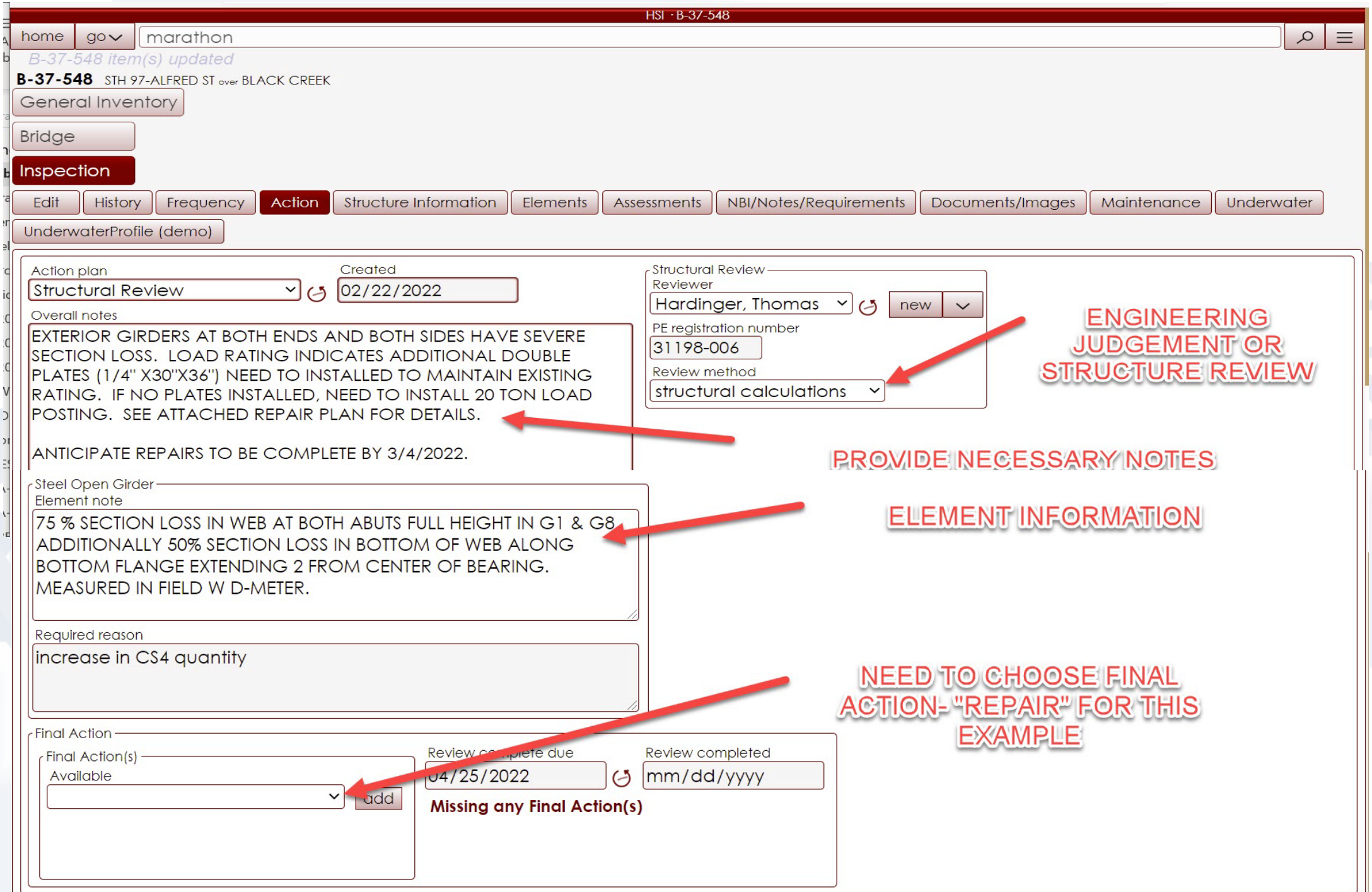
Structure Review Example

Example


B-37-548 STH 97-ALFRED ST over BLACK CREEK
General Inventory
Bridge
Inspection
ACTION TAB APPEARS
Edit
History
Frequency
Action
Structure Information
Elements
Assessments
NBI/Notes/Requirements
Documents/Images
Maintenance
Underwater
UnderwaterProfile (demo)
Cover photo
Total time
Hours
Minutes
2
0
Inspection type
Routine
Damage
Activity type
Action
Critical finding
view
delete
sign/complete
Auto-open PDF after complete
Inspection complete disabled
Reason
Fix
steel open girder has condition state 4 quantity but no associated document/image
Review complete disabled
Reason
Fix
inspection action missing required action plan
on complete
Action
Reason
Fix
copy 5 maintenance items from prior with status 'identified'
maintenance items still marked 'identified' are automatically copied to new inspections on complete
complete with e-signature: William Mc Daniel(tester)
complete with e-signature based on user preferences
send program manager(s) notification
inspection action created
save
cancel

Example


Edit
History
Frequency
Action
Structure Information
Elements
Assessments
NBI/Notes/Requirements
Documents/Images
Maintenance
Underwater
UnderwaterProfile (demo)
Action plan
Structural Review
Created
02/22/2022
Overall notes
Structural Review
Reviewer
new
Request rating unit provide reviewer
Review method
Steel Open Girder
Element note
Required reason
increase in CS4 quantity
save
cancel


HSI - B-37-548
home
go
marathon
B-37-548 item(s) updated
B-37-548 STH 97-ALFRED ST over BLACK CREEK
General Inventory
Bridge
Inspection
Edit
History
Frequency
Action
Structure Information
Elements
Assessments
NBI/Notes/Requirements
Documents/Images
Maintenance
Underwater
UnderwaterProfile (demo)
Action plan
Structural Review
Created
02/22/2022
Overall notes
EXTERIOR GIRDERS AT BOTH ENDS AND BOTH SIDES HAVE SEVERE SECTION LOSS. LOAD RATING INDICATES ADDITIONAL DOUBLE PLATES (1/4" X30"X36") NEED TO INSTALLED TO MAINTAIN EXISTING RATING. IF NO PLATES INSTALLED, NEED TO INSTALL 20 TON LOAD POSTING. SEE ATTACHED REPAIR PLAN FOR DETAILS.
ANTICIPATE REPAIRS TO BE COMPLETE BY 3/4/2022.
Structural Review
Reviewer
Hardinger, Thomas
new
PE registration number
31198-006
Review method
structural calculations
ENGINEERING JUDGEMENT OR STRUCTURE REVIEW
PROVIDE NECESSARY NOTES
Steel Open Girder
Element note
75 % SECTION LOSS IN WEB AT BOTH ABUTS FULL HEIGHT IN G1 & G8 ADDITIONALLY 50% SECTION LOSS IN BOTTOM OF WEB ALONG BOTTOM FLANGE EXTENDING 2 FROM CENTER OF BEARING. MEASURED IN FIELD W D-METER.
ELEMENT INFORMATION
Required reason
increase in CS4 quantity
NEED TO CHOOSE FINAL ACTION- "REPAIR" FOR THIS EXAMPLE
Final Action
Final Action(s)
Available
add
Review complete due
04/25/2022
Review completed
mm/dd/yyyy
Missing any Final Action(s)

Structure Review Final Actions

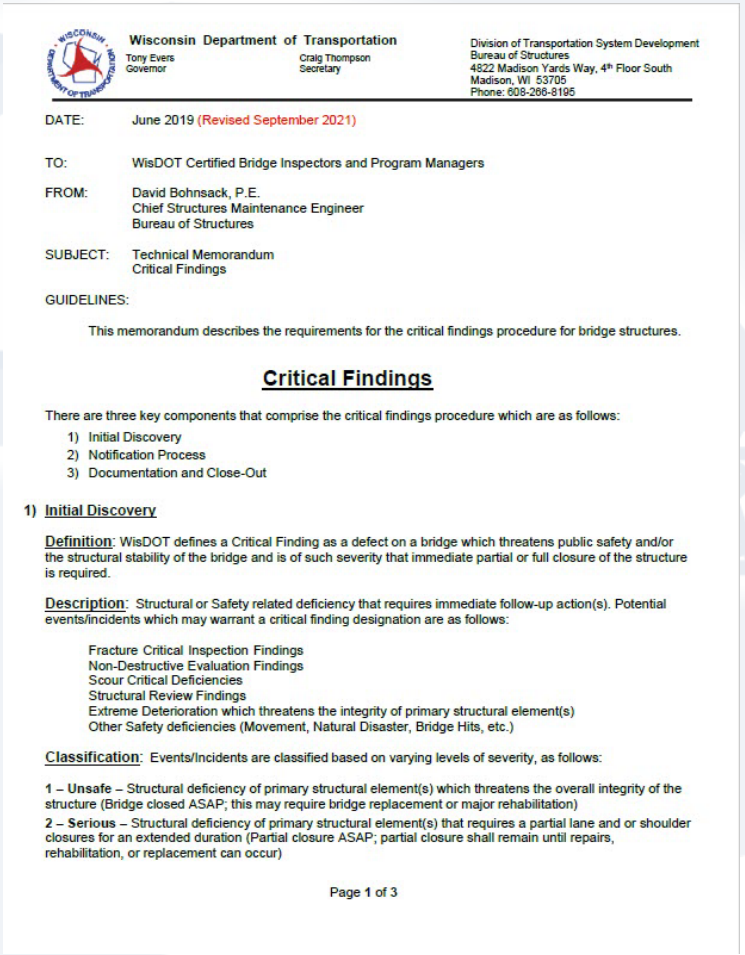
- Possible choices (can have multiple actions)
  - Change load posting or load rating
  - Full or partial closure
  - Increase inspection frequency
  - Repair
- All Final actions need documentation in HSIS
  - Add drawings, computations, plans, photos etc
  - May need interim inspection to add information

Inspection Question #6

- You finished a 24-month routine inspection on a bridge with a 30-ton load posting. You down rated the NBI Superstructure value to a 4 from a 5. What will happen?
  A. A new load rating will be required.
  B. Will need to perform interim inspections every 12 months.
  C. The bridge will be automatically be placed on a 12 month inspection frequency.
  D. You should fill out a new Load Posting Verification form, DT 2122
  E. Nothing. Just enter the inspection.

Critical Findings

- Threatens structure stability or public safety requiring partial or full closure
- Severity causes partial/full closure
- Urgent and Severe Critical findings require action (closure, postings, repairs replacement)
- Follow CF procedure (Field Guide and Policy memo)



Wisconsin Department of Transportation
Tony Evers, Governor
Craig Thompson, Secretary

Division of Transportation System Development
Bureau of Structures
4822 Madison Yards Way, 4th Floor South
Madison, WI 53705
Phone: 608-266-8195

DATE: June 2019 (Revised September 2021)

TO: WisDOT Certified Bridge Inspectors and Program Managers

FROM: David Bohnsack, P.E.
Chief Structures Maintenance Engineer
Bureau of Structures

SUBJECT: Technical Memorandum
Critical Findings

GUIDELINES:

This memorandum describes the requirements for the critical findings procedure for bridge structures.

Critical Findings

There are three key components that comprise the critical findings procedure which are as follows:

1) Initial Discovery
2) Notification Process
3) Documentation and Close-Out

1) Initial Discovery

Definition: WisDOT defines a Critical Finding as a defect on a bridge which threatens public safety and/or the structural stability of the bridge and is of such severity that immediate partial or full closure of the structure is required.

Description: Structural or Safety related deficiency that requires immediate follow-up action(s). Potential events/incidents which may warrant a critical finding designation are as follows:

Fracture Critical Inspection Findings
Non-Destructive Evaluation Findings
Scour Critical Deficiencies
Structural Review Findings
Extreme Deterioration which threatens the integrity of primary structural element(s)
Other Safety deficiencies (Movement, Natural Disaster, Bridge Hits, etc.)

Classification: Events/Incidents are classified based on varying levels of severity, as follows:

1 – Unsafe – Structural deficiency of primary structural element(s) which threatens the overall integrity of the structure (Bridge closed ASAP; this may require bridge replacement or major rehabilitation)

2 – Serious – Structural deficiency of primary structural element(s) that requires a partial lane and or shoulder closures for an extended duration (Partial closure ASAP; partial closure shall remain until repairs, rehabilitation, or replacement can occur)

Page 1 of 3

2) Notification Process

The inspector will immediately begin the notification process, upon determination of critical finding, by first contacting the Program Manager (PM) who has jurisdiction over the structure. From there, it is the PM's responsibility to contact the owner of the structure, the Regional Program Manager, and the WisDOT Statewide Program Manager (SPM). The SPM will assume the lead role in the notification process once he/she has been notified. The primary method of contact will be phone notification and a required, follow-up Email to properly document discussion.

The following table summarizes the notification process, emphasizing the notification responsibilities:

Involved Party	Contacted By
Program Manager	Inspector
Bridge Owner	Program Manager
Regional Program Manager	Program Manager
Statewide Program Manager **[Lead]**	Program Manager
Regional Operations Manager	Regional Program Manager
State Bridge Rating Engineer	Statewide Program Manager
FHWA Division Bridge Engineer	Statewide Program Manager

During the notification process, discussion shall include: description of incident, Plan of Action (regarding any immediate actions), and communication plan going forward.

Contact information for program managers can be found on the WisDOT inspection website located here: https://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/strct/inspection-pm.aspx

3) Documentation Required

The Critical Finding must be documented in the Highway Structures Information (HSI) system using the Critical Finding activity under the Inspection Tab within 24 hours of the determination of a Critical Finding. The documentation should include:

- Date and time of incident (if Known)
- Written and thorough narrative documentation
- Photographs and/or sketches
- Traffic restrictions and short-term plan of action
- Photographs of the traffic control/restrictions

The Critical Finding may require traffic on the bridge to be restricted. The traffic control and signage for full closures, partial lane closure, or shoulder closures shall be in compliance with the Manual on Uniform Traffic Control Devices (MUTCD) and the Wisconsin MUTCD. These manuals combine to provide guidance on the installation and proper use of traffic control devices. Local municipalities should contact the county highway department for assistance if acceptable barriers or signs are not immediately available. Photographs of the traffic control for the restriction/closure must be included in the Critical Findings documentation.

Properly installed traffic control improves the safety of the travelling public and reduces the liability of the bridge owner. Example traffic control layouts for different roadways and situations are shown in the Work Zone Field Manual. The layouts shown may need to be modified depending on field conditions and available traffic control devices. Traffic channelizing devices must be installed the length of the bridge. Traffic barriers and channelizing devices that may be easily moved or driven around, may result in a non-compliance determination by FHWA's National Bridge Inspection Program, as well as the risk to the traveling public.

Page 2 of 3

Critical Findings Procedure Overview

3 Key Components

- Initial Discovery
  - Definition
  - Description
  - Classification
- Notification Process
- Documentation and Close out
  - Form DT2026, Critical Finding Report, upload with inspection
  - Close out Inspection
    - After Short-term follow up actions are complete
  - PMs must review and sign off on long term plans

Initial Discovery

- Initial Discovery
  - Definition: Threatens structure stability or public safety
  - Description: Deficiency requiring immediate follow up
    - CF findings, scour deficiencies, structure reviews, extreme deterioration natural disasters, bridge hits
  - Classification: Unsafe (full closure) or Severe (partial closure)
- Onset Inspection

Critical Finding

Onset Inspection

- Could be any type of inspection
- Required to use Critical Finding Report (DT2026) with inspection
  - Document short-term and long-term actions
    - Traffic Control documented
  - Initially fill portions of
    - Initial Assessment
    - Structural Components Affected
    - Incident Situation Description
- Needs to be completed within 24 hrs

CRITICAL FINDINGS REPORT
Wisconsin Department of Transportation
DT2026 11/2015

INITIAL ASSESSMENT

BRIDGE LOCATION

County	Bridge Number
Wood	P-71-927
Feature On: Stadt Rd	Direction:
Feature Under: Squaw Creel	
Structural Components Affected: East Bridge railing, east exterior girder	

CRITICAL FINDING OVERVIEW

Incident Situation Description:
Tractor pulling gravity box travelling South lost control and drove off east side of structure. Tractor damaged as it hit ground off the SE quad of bridge. Crash resulted in totally severing east bridge rail off bridge. Exterior girder shows distortion to top flange and major section loss along both flanges in the web.

INCIDENT IMPACT (at time of event)

Impact on Traffic:
Traffic restricted to west side of structure after tractor removed. East side barreled off.

Incident Duration:
4 hrs

Classification:
☐ (1) URGENT ☒ (2) SEVERE

CONTACT INFORMATION

Inspector's Name	Date
Joel Ortman (Wood Co Hwy)/ Tom Hardinger (WDOt)	12/3/21

When Reported to BOS: Date 12/2/21 Time 4:00 pm

BOS Contact	Phone Number
Alex Pence, Matt Coupar, Travis McDaniel, David Bohnsack	
Caller Name Reporting Incident: Tom Hardinger (Via email)	
Caller Agency: WDOT	Phone Number: (715) 459-4269

CLOSE-OUT DOCUMENTATION *(required for critical findings)*

Description of Short-Term Follow-up Actions and/or Long-Term Plan of Action:
See attached email in interim inspection from tjh highlighting short term and long term plan.

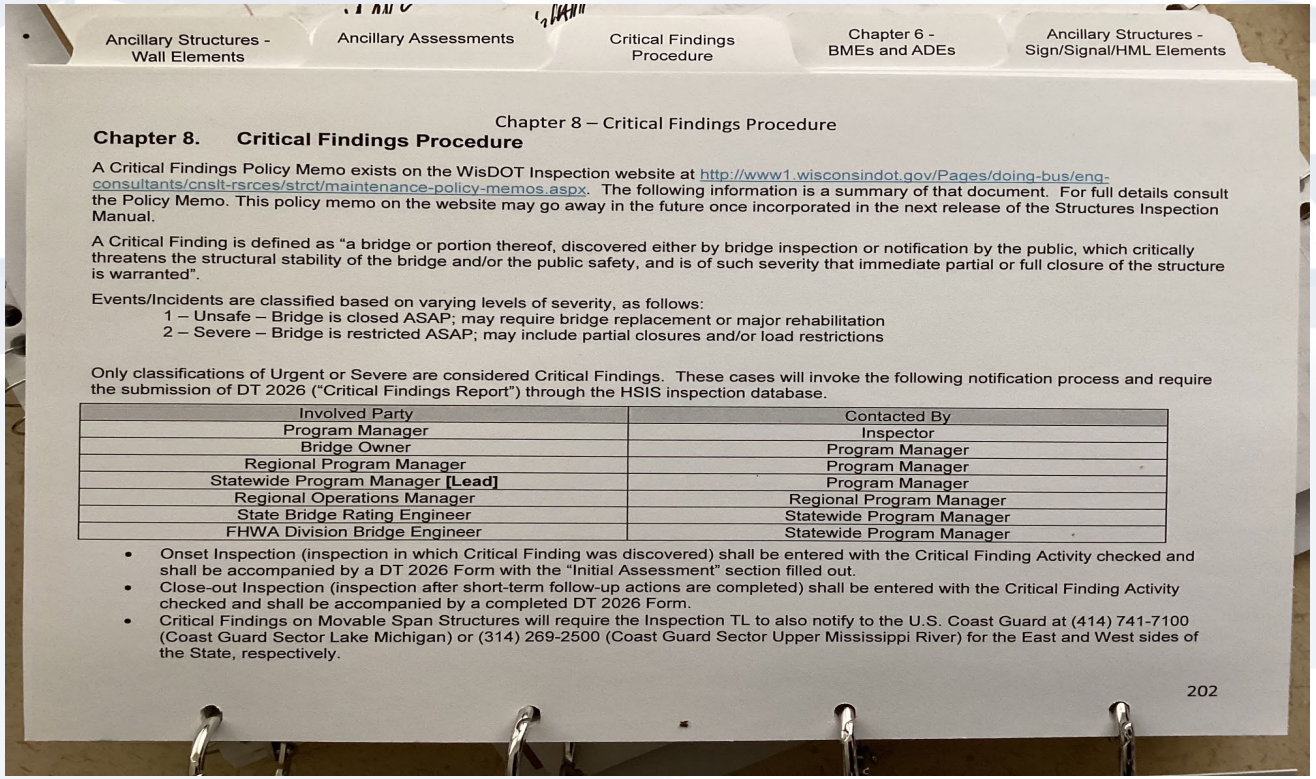
Follow-up Actions Complete: Date
Close-Out Inspection Complete: Date

Please provide photo documentation of completed follow-up actions.

Critical Finding

Notification Process

- Follow Notification in field guide, pg202.
- Inspector and PM involved.
- Regional and Statewide PMs
- FHWA



Ancillary Structures - Wall Elements | Ancillary Assessments | Critical Findings Procedure | Chapter 6 - BMEs and ADEs | Ancillary Structures - Sign/Signal/HML Elements

Chapter 8 – Critical Findings Procedure

Chapter 8. Critical Findings Procedure

A Critical Findings Policy Memo exists on the WisDOT Inspection website at http://www1.wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/strct/maintenance-policy-memos.aspx. The following information is a summary of that document. For full details consult the Policy Memo. This policy memo on the website may go away in the future once incorporated in the next release of the Structures Inspection Manual.

A Critical Finding is defined as "a bridge or portion thereof, discovered either by bridge inspection or notification by the public, which critically threatens the structural stability of the bridge and/or the public safety, and is of such severity that immediate partial or full closure of the structure is warranted".

Events/Incidents are classified based on varying levels of severity, as follows:
1 – Unsafe – Bridge is closed ASAP; may require bridge replacement or major rehabilitation
2 – Severe – Bridge is restricted ASAP; may include partial closures and/or load restrictions

Only classifications of Urgent or Severe are considered Critical Findings. These cases will invoke the following notification process and require the submission of DT 2026 ("Critical Findings Report") through the HSIS inspection database.

Involved Party	Contacted By
Program Manager	Inspector
Bridge Owner	Program Manager
Regional Program Manager	Program Manager
Statewide Program Manager **[Lead]**	Program Manager
Regional Operations Manager	Regional Program Manager
State Bridge Rating Engineer	Statewide Program Manager
FHWA Division Bridge Engineer	Statewide Program Manager

- Onset Inspection (inspection in which Critical Finding was discovered) shall be entered with the Critical Finding Activity checked and shall be accompanied by a DT 2026 Form with the "Initial Assessment" section filled out.
- Close-out Inspection (inspection after short-term follow-up actions are completed) shall be entered with the Critical Finding Activity checked and shall be accompanied by a completed DT 2026 Form.
- Critical Findings on Movable Span Structures will require the Inspection TL to also notify to the U.S. Coast Guard at (414) 741-7100 (Coast Guard Sector Lake Michigan) or (314) 269-2500 (Coast Guard Sector Upper Mississippi River) for the East and West sides of the State, respectively.

202

Documentation and Close Out

- Close-out Inspection
  - Completed after short-term follow-up actions are complete
    - Short-term means a plan in place, sufficient countermeasures in place
      - Need to document Traffic Control Mitigation efforts (pictures/drawings)
  - Documentation can be either
    - Included in the onset inspection
    - Separate interim/routine inspection (if onset inspection closed)
      - Need updated DT2026
  - PM's must review/sign off after long term resolution
    - Complete onset inspection, go to History tab, review and if acceptable, check "sign as reviewer"

Class Exercise – Critical Finding

- Need handouts, Pics and info
  - Participants will have copy of previous inspection, Blank DT2026 form, and blank HSIS CF action tab
  - Think best to do exercise all together
- Show pics of bridge, in slides
- Have participants fill out CF, DT 2026, Then show completed forms.

P-71-927
Stadt Road over Squaw Creek

- Town Road, Town of Marshfield, Wood County
- Bridge Width – 20’; Length – 32’
- Single Span - Steel Girder
- Built 1950
- ADT 47

Accident Incident

- Tractor vs Bridge, Dec 2021
- Tractor impacted East railing on Bridge

What to do?

- Initial Assessment
- Type of Inspection?
- Perform the inspection
- What Elements affected?

Initial Assessment

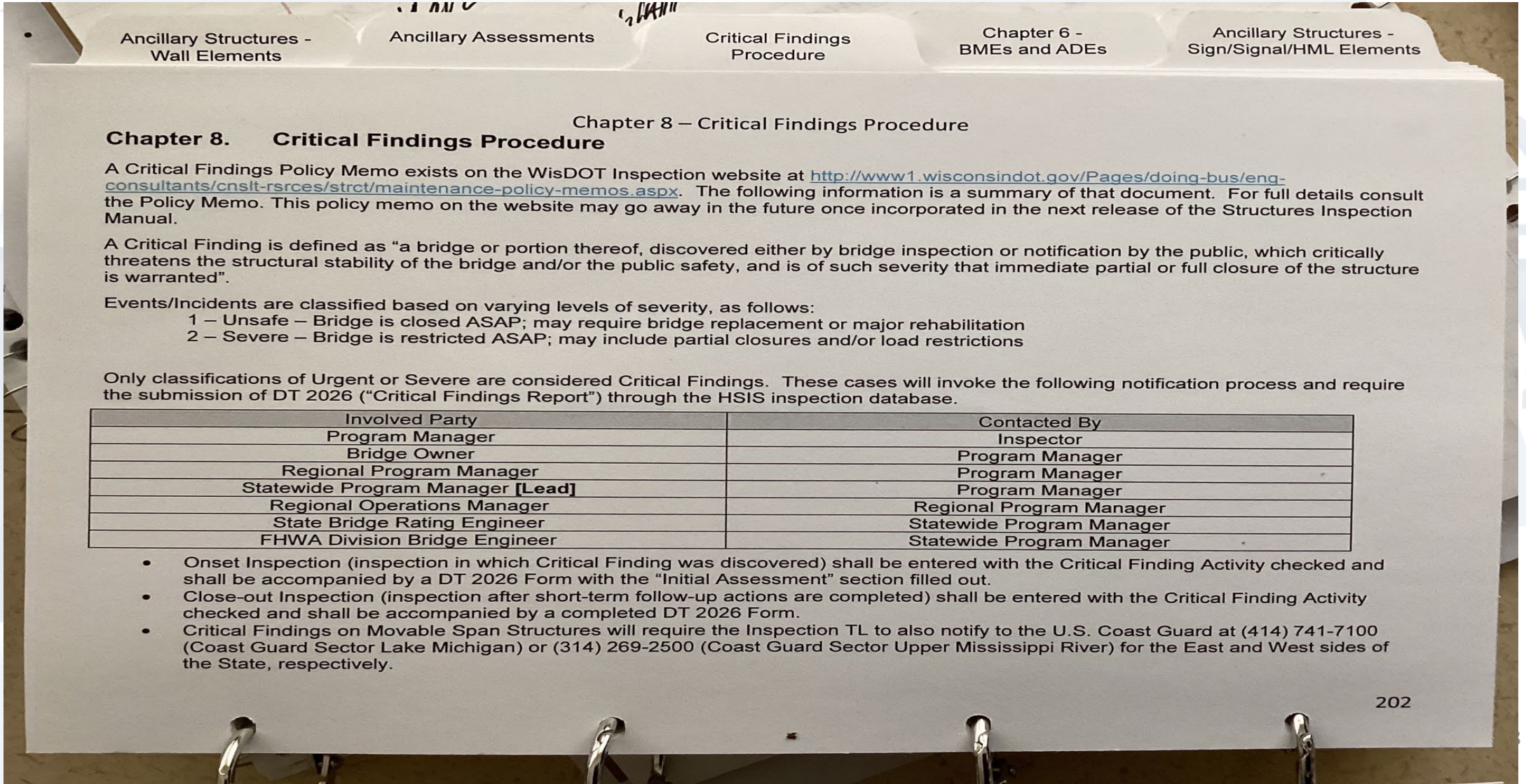
Next steps – Initial Discovery

- Does the condition threaten stability of bridge or safety of travelling public?
- Does this require full or partial closure of road?
- Is this a Critical Finding? What Triggers?
- Does this require a Structure Review? What Triggers?
- What should be done with traffic?

Inspector Priority Thought Process at this Point

1. Life/Safety
    1. Restrict/Close bridge, ASAP, if not done already
2. Need to Make Notifications
    1. Emergency Services/Law Enforcement
    2. Bridge Owner
    3. Notification Process in Field guide (PM, Regional PM)
3. Inspection Work
    1. Elements Inspection, CF, SR

Notification Process



Onset Inspection
Participants to do – See Handout

- Fill out Inspection Report
  - Elements 107 and 330
- Critical Finding Report DT 2026
  - Structure Review Needed, **But not part of this exercise**
- HSIS Critical Finding Action Tab
  - Defined in Policy Memo of 9/2021
  - Written narrative and photos
  - Short term plan and traffic restrictions

- How long to have documentation entered in HSIS?
  - Documentation needed, Doesn't mean inspection totally completed.

Participants:Fill out element condition for 107 and 330

Inspection Element Notes

X	**107**		**Steel Open Girder**	LF	255	0	175	**40**	**40**
		1000	Corrosion MOD-HEAVY PACK RUST ON EXTERIOR GIRDERS FULL LENGTH. EST 25% LOSS IN WEBS AND BOTTOM FLANGE. 2 HOLES IN BOTTOM OF WEB ON EAST GIRDER NEAR 1/3 POINT OF SPAN; ONE APPROX 1' LONG X 1" HIGH AND THE OTHER IS 6" LONG X 1", BOTH IN C3 - 64' C3. LITE PACK RUST AND CORROSION AT ALL INTERIOR GIRDER ENDS, 1' EACH END IN C3. 16' C3. REMAINING IN C2. **CRITICAL FINDING DUE TO ACCIDENT ON 11/24/21, EAST BEAM ALL CS4, 25% OF WEST BEAM CS4, 40 LF CS4**	LF		0	175	**40**	**40**
	8516		Painted Steel RUSTED, EXTERIOR GIRDERS HAVE ACTIVE CORROSION W PACK RUST FULL LENGTH.	SF	1,288	**0**	988	50	250

page 4 Structure No.:**P-71-927**

X	**330**		**Metal Bridge Rail** NEW 06 **ENTIRE EAST RAIL MISSING DUE TO ACCIDENT ON 11/24/21**	LF	65	**0**	**32**	0	**33**
		1000	Corrosion **MODERATE RUSTING THROUGHOUT**	LF		0	**32**	0	0
		1020	Connection **ENTIRE EAST RAIL MISSING DUE TO ACCIDENT ON 11/24/21 - 33LF CS4**	LF		**0**	**0**	**0**	**33**
		1900	Distortion **NW CORNER OF RAIL BENT SLIGHTLY OUTWARDS**	LF		0	**5**	0	0
X	**8400**		**Integral Wingwall** NORTHEAST WINGWALL NEEDS AT LEAST 2 YARDS OF RIPRAP	EA	4	0	0	4	0

CF – DT2026 form

CRITICAL FINDINGS REPORT
Wisconsin Department of Transportation
DT2026 11/2015

INITIAL ASSESSMENT

BRIDGE LOCATION

County	Bridge Number
Feature On	Direction
Feature Under	
Structural Components Affected	

CRITICAL FINDING OVERVIEW

Incident Situation Description

INCIDENT IMPACT (at time of event)

Impact on Traffic

Incident Duration

Classification
☐ (1) URGENT ☐ (2) SEVERE

CONTACT INFORMATION

Inspector's Name	Date
When Reported to BOS: Date	Time
BOS Contact	Phone Number
Caller Name Reporting Incident	
Caller Agency	Phone Number

CLOSE-OUT DOCUMENTATION *(required for critical findings)*

Description of Short-Term Follow-up Actions and/or Long-Term Plan of Action

Follow-up Actions Complete:	Date
Close-Out Inspection Complete:	Date

Please provide photo documentation of completed follow-up actions.

CF – DT2026

CRITICAL FINDINGS REPORT
Wisconsin Department of Transportation
DT2026 11/2015

INITIAL ASSESSMENT

BRIDGE LOCATION

County	Bridge Number
Wood	P-71-927
Feature On	**Direction**
Stadt Rd	

Feature Under: Squaw Creel

Structural Components Affected: East Bridge railing, east exterior girder

CRITICAL FINDING OVERVIEW

Incident Situation Description:
Tractor pulling gravity box travelling South lost control and drove off east side of structure. Tractor damaged as it hit ground off the SE quad of bridge. Crash resulted in totally severing east bridge rail off bridge. Exterior girder shows distortion to top flange and major section loss along both flanges in the web.

INCIDENT IMPACT *(at time of event)*

Impact on Traffic:
Traffic restricted to west side of structure after tractor removed. East side barreled off..

Incident Duration: 4 hrs

Classification: ☐ (1) URGENT ☒ (2) SEVERE

CONTACT INFORMATION

Inspector's Name	Date
Joel Ortman (Wood Co Hwy)/ Tom Hardinger (WDOt)	12/3/21

When Reported to BOS: Date 12/2/21 Time 4:00 pm

BOS Contact	Phone Number
Alex Pence, Matt Coupar, Travis McDaniel, David Bohnsack	

Caller Name Reporting Incident: Tom Hardinger (Via email)

Caller Agency	Phone Number
WDOT	(715) 459-4269

CLOSE-OUT DOCUMENTATION *(required for critical findings)*

Description of Short-Term Follow-up Actions and/or Long-Term Plan of Action:
See attached email in interim inspection from tjh highlighting short term and long term plan.

Follow-up Actions Complete: Date

Close-Out Inspection Complete: Date

Please provide photo documentation of completed follow-up actions.

From: Hardinger, Thomas - DOT
Sent: Friday, December 03, 2021 12:36 PM
To: Pence, Alex W - DOT; Tomjanovich, Kelly - DOT
Cc: jortman@co.wood.wi.us; McDaniel, Travis - DOT; Matthew - DOT Coupar (Matthew.Coupar@dot.wi.gov); Bohnsack, David - DOT; Wisner, Anna - DOT
Subject: RE: P-71-927

Alex/Kelly:
FYI: others cc'd

I met with Wood County Engineer/Inspector today along with Town Chairman, Allan Brey.

Condition of bridge is for most part as I described in my note and photos. Please provide a new load rating for us as soon as practical. I indicated the girder needs to be replaced to restore the bridge to full capacity.

Action Plan:
Short Term: Joel and I completed an interim inspection including Critical Finding and will be documented in an interim damage inspection in HSI. In addition, we will be improving the traffic control by installing a more permanent closure along the east side. We are proposing using Triton Barrier system (Marathon County owns) which is water filled plastic barrier system. This will be placed on top of the next interior girder (3' spacing of girders). This will provide approx. 16' of clear roadway width. This will be in place until next spring most likely. In addition we will install one Lane bridge signs in advance of the structure.

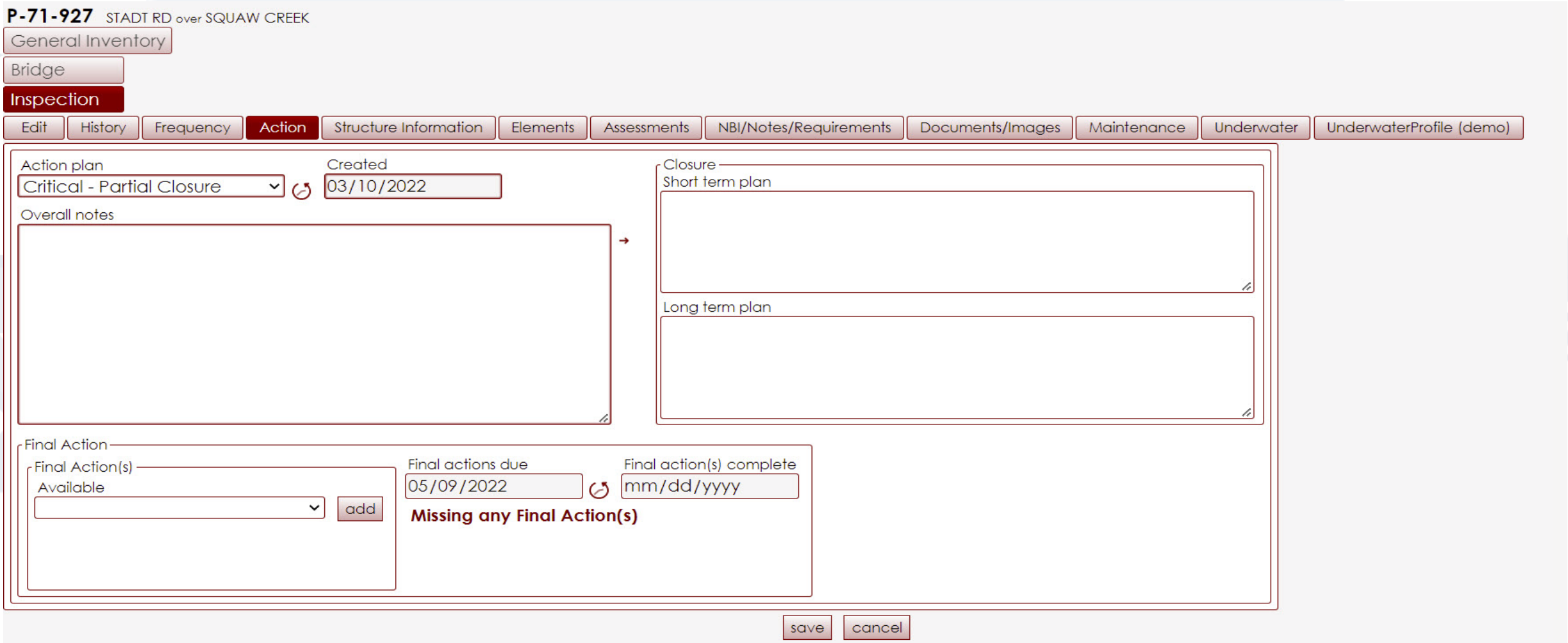
Long Term: Develop plans for girder and Rail replacement for early next summer construction. Wood county will lead on the development of plan set (anticipate hiring a consultant).

Other Action items:
Mr Brey will discuss damage with UW Ag farm personnel and have a discussion with adjacent pit ownership (Milestone). County and DOT will provide assistance if requested.
Joel and Tom: Complete damage inspection/Critical Finding
Wood County Hwy: Install traffic control and signage (next week). Begin discussions with consultant on repair plans.

If anyone has questions or comments, please don't hesitate to reach out to me.

tjh

HSIS CF Action Tab



HSIS CF Action Tab

Action

Action Plan:	Created:	Due:
Critical/Part Closure/Review	03-Dec-2021	01-Feb-2022

Overall Notes:
This bridge was struck and the east rail was destroyed and taken off the bridge as part of the accident. A UW Agricultural Research Station tractor lost control, and struck the east side of the bridge causing damage to the rail and the girder below.

Load ratings increase due to one lane loading condition and overburden reduction. However, damaged and deteriorated exterior girder is considered ineffective and concrete barrier shall remain in place until girder is replaced. No weight limit posting is required with the barrier in place. However, 30 ton posting installed as a safety measure.

Element	Required Reason	Note
Steel Open Girder	increase in CS4 quantity	Damaged and deteriorated exterior girder. Not considered effective for load rating.

Short Term Plan:
Additional barrels and lights were installed until permanent concrete barrier can be installed for the duration of the winter. Signs for load posting,30 ton, and one lane bridge ahead are installed.

Long Term Plan:
Engineering will be completed for a permanent repair through a consultant and a contract will be put together for summer of 2022 construction.

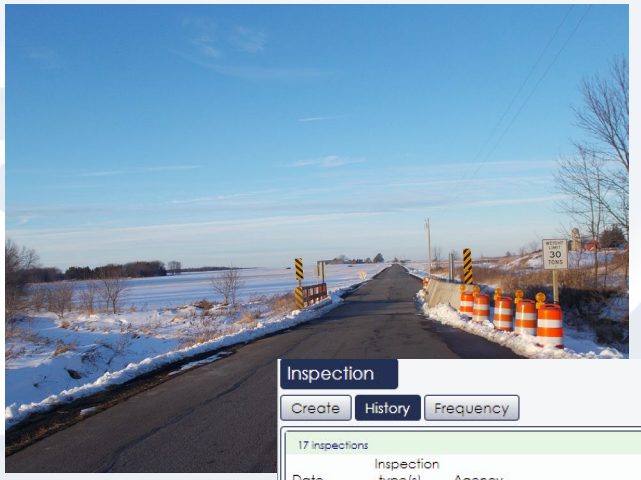
Final Action

Change Load Rating	
Repair	

Final Action(s) Complete:	Late Reason:	Late Reason Status Notes:
07-Dec-2021		

Short Term Actions Complete

- Add traffic control pictures and or documentation
- Add Structure Review notes
- Can complete CF at this point since long term repair is months from being complete
- PM Review's and Sign (Go to History tab, Review and Sign as Reviewer



Inspection

Create | History | Frequency

17 Inspections

Date	Inspection type(s)	Agency	Inspector	Activity type(s)	QA Reviewed	Action Reviewed
12/03/21	D	COUNTY	Ortman, Joel (4526)	CF,P,SR		
11/09/21	INT	STATE HIGHWAY DEPARTMENT	Hardinger, Tom J (4001)	QA		
04/28/20	R	COUNTY	Karaliunas, Bernie (4514)	POA,SIA,UWP		
08/23/18	R	COUNTY	Karaliunas, Bernie (4514)	UWP		
08/23/16	R	COUNTY	Karaliunas, Bernie (4514)	POA,SIA,UWP		
11/06/14	R	COUNTY	Karaliunas, Bernie (4514)	UWP,UWVP		
10/31/12		COUNTY	Karaliunas, Bernie (4514)	SIA,UWVP		
10/31/12		COUNTY	Karaliunas, Bernie (4514)	UWP		
10/31/12	R	COUNTY	Karaliunas, Bernie (4514)			
10/14/10	R	COUNTY	Karaliunas, Bernie (4514)			
02/05/09	R	COUNTY	Hardinger, Tom J (4001)			
10/16/06	R	COUNTY	Kobza, Stan (4505)			
10/21/04	R	COUNTY	Kobza, Stan (4505)			
11/19/02	R	TOWN	Pontis, Pontis P (0001)			
08/21/00	R	TOWN	Hardinger, Tom J (4001)			
10/09/98	R	TOWN	Pontis, Pontis P (0001)			
11/19/96	R	TOWN	Pontis, Pontis P (0001)			

Inspection type
- [x] Routine (due Nov 2016)
- [ ] Damage
- [ ] Fracture critical (arm's length)
- [ ] In- depth
- [ ] Interim
- [ ] UW- dive

Activity type
- [ ] Action
- [ ] Critical finding
- [ ] Deck evaluation
- [ ] Load posted verification (df2122)
- [ ] Non- destructive evaluation
- [ ] Reach all
- [x] Scour plan of action
- [x] SIA review (due Oct 2016)
- [x] UW- profile (due Nov 2016)
- [ ] Vertical clearance measured

Workflow
Added: 12/30/2016
Signed/ completed: 12/30/2016

view | sign as reviewer

How to Report when Repairs are Complete

- Upon Completion of Repairs, Complete interim or new routine inspection.
  - Include Photos
  - Update Element Condition States and Comments
  - Any other documentation

- This is the last step in “Closing the Loop” for the Critical Finding.

Questions

Inspection Question #7

- Your county just received 3 inches of rain and most creeks and streams are overflowing their banks. Another 1 inch of rain is forecasted overnight. There are 2 scour critical bridges in the county. As the bridge inspector, what should you be doing?

A. Find the POA's for the scour critical bridges and begin flood monitoring procedures as outlined in POA.
B. Start monitoring all bridge crossings in the county.
C. Notify the PM of conditions and order new UW profiles for all bridges because of the significant flood event.
D. All of the above.

Miscl Items

- 48-month Inspection Frequencies
  - Program Started 2021. Opt In or Out.
  - Subset of inventory meeting requirements
- SIA's
- UW Dive Inspections
- Upcoming Training

Misc Items

48 Month Inspection Frequency

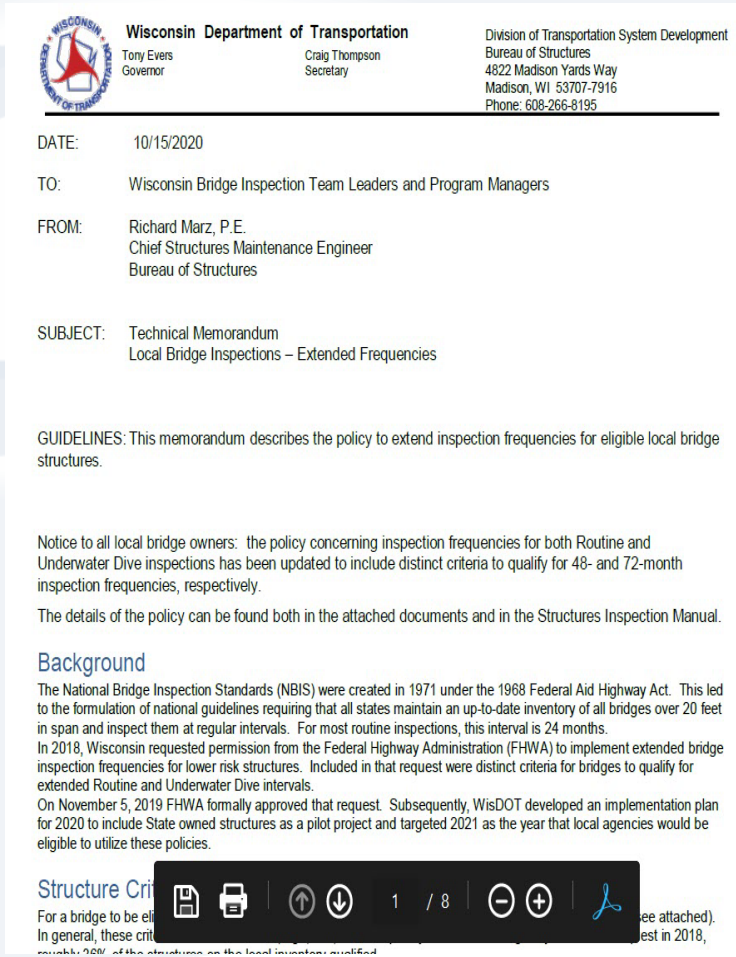
- 15 criteria – age, risk, complexity: Good condition low worry bridges
- <50 years old
- 2 inspections on file
- ADT <50,000
- 7 or better rating on Deck, Superstructure, Substructure or Culvert
- Not scour critical and Channel 7 or better (streambed profile req’d at 5)

How to Opt In or Add more bridges

Need to Apply using DT2002 form By Feb 1 of each year.

If already Opted-In, need to send in Revised DT2002 listing new bridges to add

See Policy Memo



Wisconsin Department of Transportation

Tony Evers, Governor
Craig Thompson, Secretary

Division of Transportation System Development
Bureau of Structures
4822 Madison Yards Way
Madison, WI 53707-7916
Phone: 608-266-8195

DATE: 10/15/2020

TO: Wisconsin Bridge Inspection Team Leaders and Program Managers

FROM: Richard Marz, P.E.
Chief Structures Maintenance Engineer
Bureau of Structures

SUBJECT: Technical Memorandum
Local Bridge Inspections – Extended Frequencies

GUIDELINES: This memorandum describes the policy to extend inspection frequencies for eligible local bridge structures.

Notice to all local bridge owners: the policy concerning inspection frequencies for both Routine and Underwater Dive inspections has been updated to include distinct criteria to qualify for 48- and 72-month inspection frequencies, respectively.

The details of the policy can be found both in the attached documents and in the Structures Inspection Manual.

Background

The National Bridge Inspection Standards (NBIS) were created in 1971 under the 1968 Federal Aid Highway Act. This led to the formulation of national guidelines requiring that all states maintain an up-to-date inventory of all bridges over 20 feet in span and inspect them at regular intervals. For most routine inspections, this interval is 24 months.
In 2018, Wisconsin requested permission from the Federal Highway Administration (FHWA) to implement extended bridge inspection frequencies for lower risk structures. Included in that request were distinct criteria for bridges to qualify for extended Routine and Underwater Dive intervals.
On November 5, 2019 FHWA formally approved that request. Subsequently, WisDOT developed an implementation plan for 2020 to include State owned structures as a pilot project and targeted 2021 as the year that local agencies would be eligible to utilize these policies.

Structure Cri

For a bridge to be eli ee attached).
In general, these crit est in 2018,

1 / 8

Application Process

To utilize these policies (it is not a requirement), a new version of the DT2002 Structure Inspection Quality Control Form will need to be submitted by the County PM or Commissioner. This form details specific information relevant to a successful inspection program and allows the local agency to 'Opt-in' to using extended frequencies.

THE DEADLINE FOR APPLYING FOR THE 2021 INSPECTION SEASON IS FEBRUARY 1ST, 2021

Implementation Plan and Schedule

1. Week of November 2nd, 2020:
   a. Regional PM's will be sent an Excel sheet listing eligible local structures to disseminate to local agencies.
   b. Regional PM's will contact local agencies with list and a link to the DT2002 form.
2. February 1st, 2021:
   a. Deadline for county to have a completed (and signed) DT2002 form submitted electronically to the Regional and Statewide PM's. **Forms not received by this date cannot be guaranteed approval for extended frequencies in the 2021 season.**
3. March 15th, 2021:
   a. This is the due date of the National Bridge Inventory File. After submittal of the file, this will be the first day the policy will be open to use in the Highway Structures Information System. Regional and BOS PM's will update frequencies accordingly to reflect DT2002 form requests.

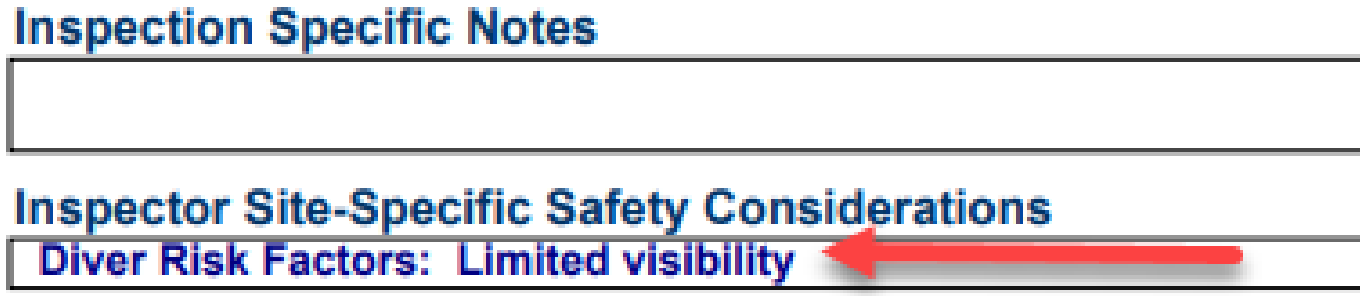
QUESTIONS:
For information on the technical contents of this memorandum, please contact Richard Marz at (608)-266-8195 or Travis McDaniel at (608)-266-5097.

UW Dives

- If performing dives or reviewing dive inspections
  - Make sure to identify location of all UW elements being dove on the inspection report and specify the frequency of inspection
  - Clearly detail inspection methods and equipment to be deployed
  - Include location specific scour risk factors under the UW-Dive Specific Procedures
  - Include diver safety factors under Inspector Site –Specific Safety Considerations

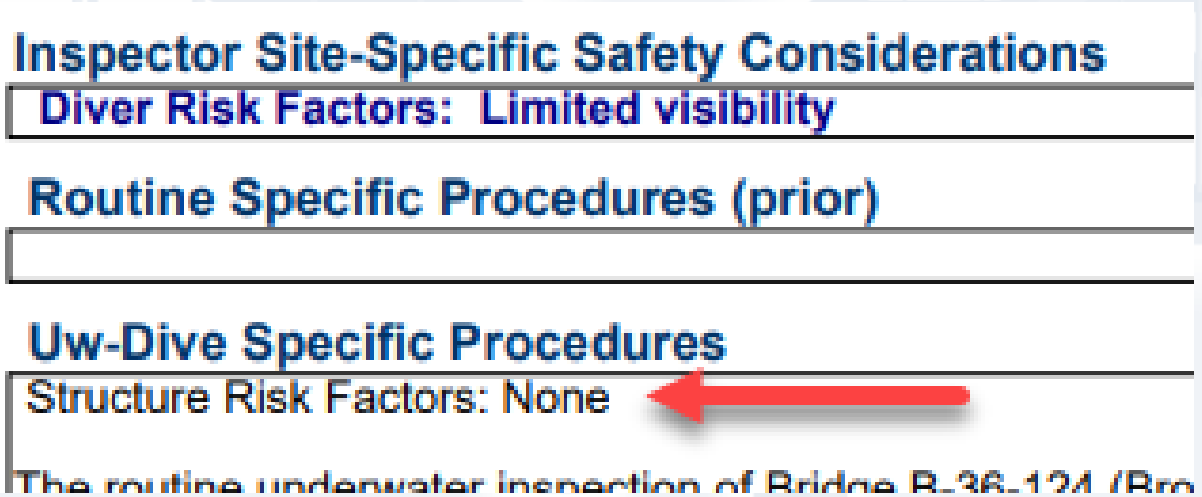
Diver Risk Factors

- Include diver risk factors (diver safety) in a separated paragraph under the Inspector Site-Specific Safety Considerations section of the report
- Some diver Risk Factors could be:
  - Debris accumulation
  - Limited visibility in the water
  - Rapid stream or current
  - Soft or unstable streambed or stream banks for walk in entry
  - Pollutants in water
  - **Note: This is not an exhaustive list**



Structure Risk Factors

- Include all structure risk factors (related to scour, environment, or structure) at a bridge in the specific procedures section of the dive inspection report. Provide a separated section of the procedure to address structure risk factors. This section should be started with “Structure risk factors:”. List or describe the structure risk factors. If there are no structure risk factors, please note “Structure risk factors: None”.
- Some Structure Risk Factors could be:
  - Debris accumulation
  - Rapid stream or current
  - Pollutants in water
  - Marine environment
  - Meandering channel
  - Unknown foundation
  - Scour critical bridge
  - Observed scour
  - Environmental conditions (i.e. MIC for steel, timber piling - limnoria) which may accelerate deterioration

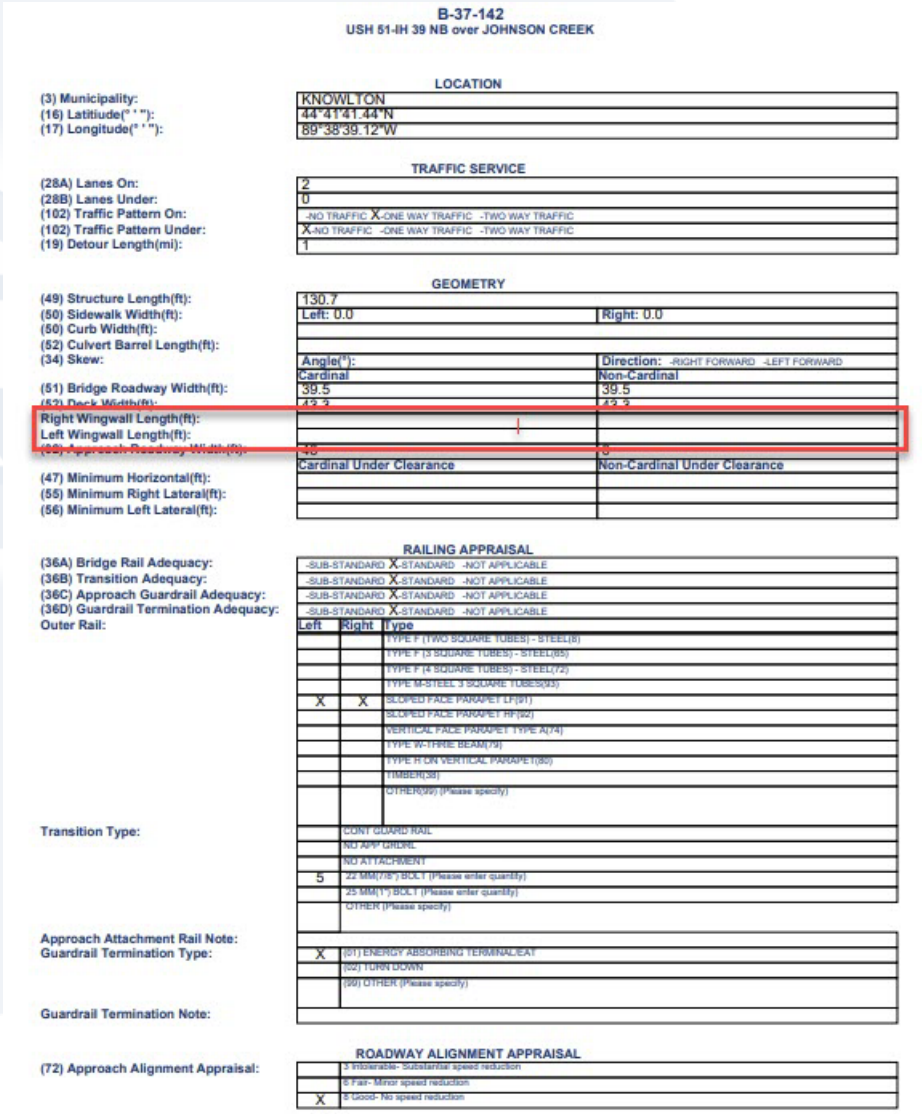


  - **Note: This is not an exhaustive list**

Misc Items

SIA Reviews

- Required every 48 months
- Need to measure wing lengths and enter
- Check railing appraisal



B-37-142
USH 51-IH 39 NB over JOHNSON CREEK

LOCATION

(3) Municipality:	KNOWLTON
(16) Latitiude(° ' "):	44°41'41.44"N
(17) Longitude(° ' "):	89°38'39.12"W

TRAFFIC SERVICE

(28A) Lanes On:	2
(28B) Lanes Under:	0
(102) Traffic Pattern On:	-NO TRAFFIC X-ONE WAY TRAFFIC -TWO WAY TRAFFIC
(102) Traffic Pattern Under:	X-NO TRAFFIC -ONE WAY TRAFFIC -TWO WAY TRAFFIC
(19) Detour Length(mi):	1

GEOMETRY

(49) Structure Length(ft):	130.7	
(50) Sidewalk Width(ft):	Left: 0.0	Right: 0.0
(50) Curb Width(ft):		
(52) Culvert Barrel Length(ft):		
(34) Skew:	Angle(°):	Direction: -RIGHT FORWARD -LEFT FORWARD
	Cardinal	Non-Cardinal
(51) Bridge Roadway Width(ft):	39.5	39.5
(52) Deck Width(ft):	42.3	42.3
Right Wingwall Length(ft):		
Left Wingwall Length(ft):		
(32) Approach Roadway Width(ft):	40	0
	Cardinal Under Clearance	Non-Cardinal Under Clearance
(47) Minimum Horizontal(ft):		
(55) Minimum Right Lateral(ft):		
(56) Minimum Left Lateral(ft):		

RAILING APPRAISAL

(36A) Bridge Rail Adequacy:	-SUB-STANDARD X-STANDARD -NOT APPLICABLE		
(36B) Transition Adequacy:	-SUB-STANDARD X-STANDARD -NOT APPLICABLE		
(36C) Approach Guardrail Adequacy:	-SUB-STANDARD X-STANDARD -NOT APPLICABLE		
(36D) Guardrail Termination Adequacy:	-SUB-STANDARD X-STANDARD -NOT APPLICABLE		
Outer Rail:	Left	Right	Type
			TYPE F (TWO SQUARE TUBES) - STEEL(8)
			TYPE F (3 SQUARE TUBES) - STEEL(65)
			TYPE F (4 SQUARE TUBES) - STEEL(72)
			TYPE M-STEEL 3 SQUARE TUBES(93)
	X	X	SLOPED FACE PARAPET LF(91)
			SLOPED FACE PARAPET RF(92)
			VERTICAL FACE PARAPET TYPE A(74)
			TYPE W-THRIE BEAM(76)
			TYPE H ON VERTICAL PARAPET(80)
			TIMBER(38)
			OTHER(99) [Please specify]
Transition Type:			CONT GUARD RAIL
			NO APP GRDRL
			NO ATTACHMENT
	5		22 MM(7/8") BOLT [Please enter quantity]
			25 MM(1") BOLT [Please enter quantity]
			OTHER [Please specify]
Approach Attachment Rail Note:			
Guardrail Termination Type:	X		(01) ENERGY ABSORBING TERMINAL/EAT
			(02) TURN DOWN
			(99) OTHER [Please specify]
Guardrail Termination Note:			

ROADWAY ALIGNMENT APPRAISAL

(72) Approach Alignment Appraisal:	3 Intolerable- Substantial speed reduction
	6 Fair- Minor speed reduction
	X 8 Good- No speed reduction

Upcoming WisDOT Training

- 2 Week Safety Inspection Training
  - Madison, May 2-13, 2022
- Fracture Critical Training
  - Madison, May 23-27
- Program Manager Training
  - TBD

Final Questions
Fill out Evaluation Form

2022 Refresher Take Aways

- Continue to monitor/manage your bridge inspection schedules
  - Goal: No Late inspections
- DLQ for Notes
- Follow new Picture Guidance
- Verify element data supports NBI values
- Review Policies and Tech Bulletin
- Make sure to have valid and current email in HSIS
- Call Region Bridge Engineers with questions

- Be Safe!

That’s all folks

- Enjoy the season
- Be safe

Inspection Photo Best Practice Guidelines

March 2022

The policy for photographs in inspections is listed in the 2018 Wisconsin Structures Inspection Manual section 1.4.5.1 and will not be repeated here. This document contains guidelines for how to take the photos as a supplement to section 1.4.5.1.

1.1.1.1 Labeling

Photos should be date-stamped. Most digital cameras have this function, apps are available for phones and tablets, or text can be added with computer software. PhotoDateMark is an iOS app pre-approved for WisDOT staff. Select a contrasting color for legibility. Additional information can also be placed on the photo, provided it does not obscure important details of the photo. Information should be placed in the HSIS comment box, including location of the photo, date of the photo (if not stamped), and the purpose of photo if not obvious. The phrase General or Typical can be used for pictures not of a specific defect or item.

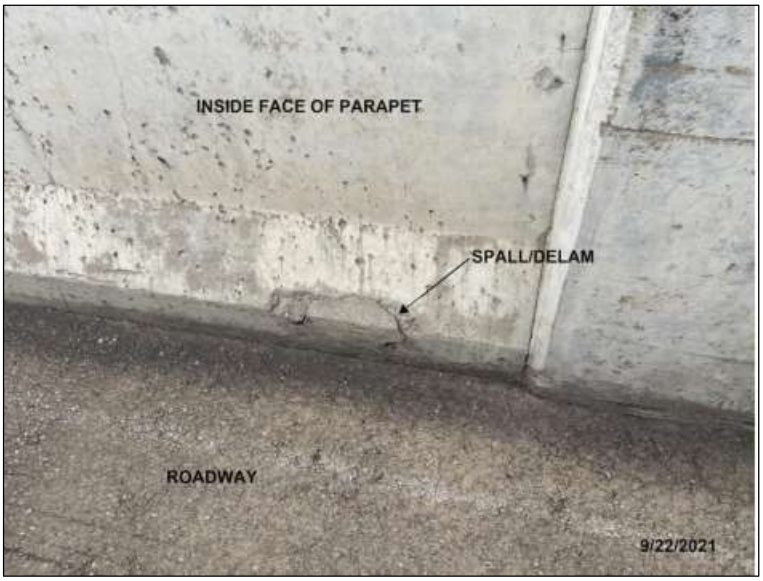


Figure 1.1.1.1-1: Example of dated and labeled photo.

1.1.1.2 Photo Updating

Copying photos from prior inspections is discouraged, but if photos are copied:

1. Note that photo is copied from a prior inspection and give year.
2. Note that condition is unchanged, or that photo is general. If condition is not identical, take a new photo.
3. No photos more than 4 years old.
4. CS3/CS4 required photos must be current. HSIS will enforce this.

Individual photos should be uploaded to HSIS, not combined into one document. HSIS checks the requirement for photos of CS3/CS4 elements, if a multi-photo document is uploaded and all boxes indicated as required are checked, this circumvents the specific identification of required photos.

1.1.1.3 Useful Photos

In addition to the required elevation, roadway and CS3/CS4 elements, photos that also are useful are:

1. Special features, unique elements
2. Special signage
3. Approaches
4. Joints
5. Items that would be repaired, either by maintenance or future project

1.1.1.4 Photography Technique

Proper exposure and capturing of details are essential for a useful photo that will accurately convey the condition of the bridge. Some tips:

1. Avoid taking a photo into the sun. If photo must be toward sun, shield the lens from the direct sun and do not have the sun in the photo. Best photos are with sun to the side to avoid shadows of the photographer.
2. When taking photos of the underside, avoid capturing bright sky at the edge in order to maintain proper exposure. Adjust exposure if possible.

Figure 1.1.1.4-1: Example of exposure adjustment to capture details under structure, resulting in overexposed area at bottom of photo. Better framing to avoid outside area or changing direction photo is taken would improve photo.

Figure 1.1.1.4-2: Improved framing and angle of photo of similar feature to avoid bright areas and provide uniform exposure and details.

Figure 1.1.1.4-3: Bright sky at upper left and bridge elevation has resulted in dark abutment. Photo editing software may be able to correct original photo.

1.1.1.5 Photo Composition

Photos should accurately convey the purpose of the photo. Location, feature of interest, and size and scale of objects should be readily discernable or labeled if necessary. Avoid excessive close up photos that lack context or scale. Provide a ruler or scale (preferred) in the photo, or if not available, include other objects of known size.

Figure 1.1.1.5-1: Improvised objects used as scale : Pen, notebook, roadway centerline. Not preferred method, though better than no scale

Figure 1.1.1.5-2: Ruler used for scale

Figure 1.1.1.5-3: Good scale on photo: Leaves, riprap, trash present for scale, taken at angle that shows size of spall and offset of joint

Figure 1.1.1.5-4: Same defect zoomed in too close – no sense of scale

HSIS Maintenance Action Items – 2022 Update

Revisions:

Approach – Wedge Shoulder	to	Approach – Wedge Shoulder/Sidewalk
Approach – Mill Approach/Shoulder	to	Approach – Mill Approach/Shoulder/Sidewalk
Approach – Mud Jacking	to	Approach – Mud or Foam Jacking
Bearings – Clean Assemblies / Paint	to	Paint – Bearings
Channel – Clean Box Culvert	to	Channel – Clean Box Culvert/Apron/Ditch
Drainage – Clean Downspouts	to	Drainage – Clean Flumes/Downspouts/Inlets
Drainage – Repair/Construct Drainage Flumes	to	Drainage – Repair/Construct Drainage Flumes/Curbs
Drainage – Repair/Replace Deck Drains	to	Drainage – Repair/Replace Deck Drains/Inlets
Misc – Remove/Monitor Loose Concrete	to	Deck – Remove/Monitor Loose Concrete
Misc – Spot paint / Complete	to	Paint – Spot Paint
Slope Protection - Install Heavy Riprap	to	Slope Protection – Install Riprap (add size, location, and dimensions in comments)
Channel – Install Scour Countermeasures	To	Channel – Install Riprap (add size, location, and dimensions in comments)
Substructure – Repair Abutment/Wings	to	Substructure – Repair Abutment/Wings/Culverts

Additions:

Deck – Install Deck Edge Flashing
Deck – Recaulk Deck Edge Flashing
Deck – Repair Polymer Overlay
Misc – Repair Fencing
Paint – Railing
Paint - Other
Substructure – Strap Wingwall

Removals:

Approach – Patch Bituminous
Approach – Patch Concrete
Deck – Mill top of Backwall / Edge of Deck
IMP – OTHER
IMP-Bituminous Overlay
IMP-Concrete Overlay
IMP-Deck Replacement
IMP-Paint Structure
IMP-Polymer Modified Overlay
IMP-Structure Replacement
IMP-Superstructure Replacement
IMP-Thin Epoxy Overlay
Superstructure – Replace Pin / Hangers
STRUCTURAL – GREASE PINS / ROLLER BEARINGS
STRUCTURAL – JOINT REPAIR OR REPLACEMENT

Figure 1.1.1.5-5: Extreme angle photo does not allow for viewing of detail, right quarter of photo is wasted on not the subject wall

Figure 1.1.1.5-6: Same wall from medium angle clearly shows extent of defect

Figure 1.1.1.5-7: Too close and angled doesn't show extent of defect. Useful if included and labeled with one of the above photos

1.1.1.6 Maintenance Actions

Photos can be included in maintenance actions. These photos should present the overall location and extent of the repair so they are useful in planning the repair. Necessary lane closures, work zone and approximate quantities can be obtained from good photos.

Figure 1.1.1.6-1: Good maintenance photo showing damage, location, and extent of header damage in shoulder. Provide notes to support photo. For repair of asphalt paving, additional photos of extents would be useful.

Figure 1.1.1.6-2: Photo showing location of damage in context of roadway. From this, right lane and shoulder closure would be required to repair the area with the arrow. Additional closer photos also would be required. Ideally this would be taken at an angle that clearly shows position relative to lane, but traffic did not allow.

1.1.1.7 Technical Details

To save space and speed uploading when importing photos, HSIS reduces resolution of photos to approximately 0.8 megapixel, or the resolution of an older screen. The resulting pdf of the inspection can be zoomed in on to see the full resolution of the photo contained in HSIS, but much detail can be lost by this process. If a photo may require detailed study in the future, the original full resolution file can be retained outside of the HSIS system.

HSIS Maintenance Action Items – 2022 Update

Revisions:

Approach – Wedge Shoulder	to	Approach – Wedge Shoulder/Sidewalk
Approach – Mill Approach/Shoulder	to	Approach – Mill Approach/Shoulder/Sidewalk
Approach – Mud Jacking	to	Approach – Mud or Foam Jacking
Bearings – Clean Assemblies / Paint	to	Paint – Bearings
Channel – Clean Box Culvert	to	Channel – Clean Box Culvert/Apron/Ditch
Drainage – Clean Downspouts	to	Drainage – Clean Flumes/Downspouts/Inlets
Drainage – Repair/Construct Drainage Flumes	to	Drainage – Repair/Construct Drainage Flumes/Curbs
Drainage – Repair/Replace Deck Drains	to	Drainage – Repair/Replace Deck Drains/Inlets
Misc – Remove/Monitor Loose Concrete	to	Deck – Remove/Monitor Loose Concrete
Misc – Spot paint / Complete	to	Paint – Spot Paint
Slope Protection - Install Heavy Riprap	to	Slope Protection – Install Riprap (add size, location, and dimensions in comments)
Channel – Install Scour Countermeasures	To	Channel – Install Riprap (add size, location, and dimensions in comments)
Substructure – Repair Abutment/Wings	to	Substructure – Repair Abutment/Wings/Culverts

Additions:

Deck – Install Deck Edge Flashing
Deck – Recaulk Deck Edge Flashing
Deck – Repair Polymer Overlay
Misc – Repair Fencing
Paint – Railing
Paint - Other
Substructure – Strap Wingwall

Removals:

Approach – Patch Bituminous
Approach – Patch Concrete
Deck – Mill top of Backwall / Edge of Deck
IMP – OTHER
IMP-Bituminous Overlay
IMP-Concrete Overlay
IMP-Deck Replacement
IMP-Paint Structure
IMP-Polymer Modified Overlay
IMP-Structure Replacement
IMP-Superstructure Replacement
IMP-Thin Epoxy Overlay
Superstructure – Replace Pin / Hangers
STRUCTURAL – GREASE PINS / ROLLER BEARINGS
STRUCTURAL – JOINT REPAIR OR REPLACEMENT

	LESS THAN $1,000	$1,000-$2,500	$2,500-$5,000	$5,000-$10,000	GREATER THAN $10,000	NOTES/COST CONSIDERATIONS
Approach - Mill Approach / Shoulder	x	x				No. of Lane closures required
Approach - Mud Jacking			x	x	x	Location, fill quantity/material cost
Approach - Other Work		x				Depends on "Other"
Approach - Patch Bituminous	x	x				Traffic control, extent of patching. Pothole or more?
Approach - Patch Concrete		x	x	x		Traffic control, extent of patching, requires many operations
Approach - Repair Approaches		x				Depends on type of repair
Approach- Repair Beam Guard		x	x			Are new posts required? Qty/extent of repair
Approach - Seal Approach to Paving Block	x	x				Typically done with moving closure while sealing adjacent roadway; if done as a separate operation will cost much more
Approach - Seal Cracks	x	x				Typically done with moving closure while sealing adjacent roadway; if done as a separate operation will cost much more
Approach - Seal Joint along Parapet/Wing	x					Work done in shoulders, lengthy lane closure not needed, can do this as fill-in work for a sealing crew
Approach - Wedge Approach		x	x			Often requires milling, traffic control/number of lanes
Approach- Wedge Shoulder		x	x			Often requires milling, traffic control/number of lanes
Bearings - Clean Assemblies / Paint		x	x			Usually LET work for repainting; Counties can clean; access/traffic control not an issue normally
Bearings- Install Auxiliary		x	x			New maintenance item; Typically will be LET or by BOS crew
Bearings - Repair / Replace		x	x	x	x	Typically will be LET work (replace) or by BOS crew (repair); quantity important (i.e. repair one hold down, or replace 16 bearings - cost varies widely)
Bearings - Reposition		x	x			Can often be done by BOS crew; quantity important
Channel - Clean Box Culvert		x	x			Extent of cleaning, heavy equipment?
Channel - Install Scour Countermeasures			x	x		Typically labor intensive and requires heavy equipment
Channel - Monitor Scour	x					"Monitor"
Channel - Other Work						Depends on "Other"
Channel - Remove Debris		x	x			Typically labor intensive and requires heavy or specialized equipment

Deck - Clean and Sweep Deck/Drains	x					Typicallly done with spring clean up with sweeper trucks;
Deck- Mill Top of Backwall/Edge of Deck		x				New item; lane closures/freeway
Deck - Other Work						Depends on "Other"
Deck - Patching			x	x		Quantity, lane closures/freeway
Deck - Repair Railing	x	x				Quantity, formwork
Deck - Repair Sidewalk	x	x	x			Quantity
Deck - Seal Surface Cracks		x	x			Labor intensive, extent of cracking to be sealed
Deck - Seal w/ Concrete Sealer			x	x		Item probably not needed - Done with PBM or LET work - prescheduled; Size of deck biggest cost factor
Deck - Surface Repair Curb / Sidewalk	x	x	x			Quantity
Deck - Surface Repair Spalls		x	x			Quantity, lane closures/freeway
Drainage - Clean Downspouts	x	x				Is drainage system open (typical) or closed (tapped into SS)
Drainage - Core Drain Holes	x	x				Seldom used item
Drainage - Repair Washouts / Erosion		x	x	x		Typically labor intensive and requires heavy equipment; very large washouts may require emergency LET
Drainage - Repair/Construct Drainage Flumes		x	x			Repair cost vs new flume construction (heavy equipment often required), length of new flume to bottom of slope?
Drainage - Repair/Replace Deck Drains		x	x			Typically LET work, unless work is minor or replacing a casting
Expansion Joints - Clean	x					Typically done in spring while sweeping the roadway
Expansion Joints - Repair		x	x			Labor intensive, type of repair
Expansion Joints - Replace					x	Typically LET work
Expansion Joints - Seal	x					Typically done with adjacent roadway segment
Expansion Joints - Seal Deflection Joints	x	x				Seldom used item, lane closures/freeway
~~IMP-OTHER~~						LET work
~~IMP-Bituminous Overlay~~						LET work
~~IMP-Concrete Overlay~~						LET work
~~IMP-Deck Replacement~~						LET work
~~IMP-Paint Structure~~						LET work
~~IMP-Polymer Modified Overlay~~						LET work
~~IMP-Structure Replacement~~						LET work

IMP-Superstructure Replacement						LET work
IMP-Thin Epoxy Overlay						LET work
Misc - Cut Brush	x					Typically minor work, small crew; note if clearing is extensive and requires hauling away brush
Misc - Follow Up	x					Typically minimal/no cost
Misc - Other Work	x	x	x			Depends on "Other"
Misc - Paint Spot / Complete		x	x	x		Quantity, location, access equipment
Misc - Remove Graffiti	x	x				Quantity, location, access equipment
Misc - Remove Vegetation (Spray)	x					Very small crew, typically no lane closure
Misc - Remove/Monitor Loose Concrete	x	x	x			Access equipment type, number of lane closures reqd
Misc - Repair / Replace Utilities or Signs	x					Note in inspection, but typically handled through traffic ops or utility, not maintenance budget
Misc - Tighten Bolts and Nuts	x					Small crew, typical item for tubular railing or fencing
Misc - Wash Bridge	x	x				Not typically done in SE at this time; size of bridge; possibly future LET or PBM work item
Slope Protection - Install Heavy Riprap			x	x		Heavy equipment usually required
Slope Protection - Other Work		x	x	x	x	Depends on "Other"; installation of grout bags an example of a more costly repair
SLOPE PROTECTION - REPAIR UNDERMINING OF SUB		x	x			Can be labor intensive and require formwork, slurry quantity
Slope Protection - Reseal Slope Paving		x	x			Reshaping would increase cost significantly
Structural - Grease Pins/Roller Bearings	x	x				New maintenance item; Typically will be done by BOS crew
Structural - Joint Repair or Replacement						New maintenance item, no cost data, unsure of intent
Substructure - Clean Abutment / Pier Seats	x	x				Access equipment
Substructure - Other Work		x	x			Depends on "Other"
Substructure - Pier Repair			x			Extent of repair, formwork, access equipment
Substructure - Repair Abutment / Wings			x			Extent of repair, formwork
Superstructure - Heat Straighten					x	Access equipment type, number of lane closures reqd, BOS Crew or LET work
Superstructure - Other Work		x	x			Depends on "Other"
Superstructure - Patch Girders / Super		x	x	x	x	Number of girders, ends or over traffic, crash damage, repair method-concrete patch, epoxy injection, FRP?

Superstruture - Replace Pin/Hangers				x	x	Typically LET work, quantity, access equpment
Superstructure - Retrofit Fatigue Cracks			x			Access equipment type, number of lane closures reqd, BOS Crew
Superstructure - Steel Repair/Strengthen				x	x	Access equipment type, number of lane closures reqd, BOS Crew

Notes: Estimate ranges include average traffic control costs for single lane closures.
Double lane closures should be noted and often require night work.

Other cost considerations:

- **Quantity/extent of repairs** (i.e. one deck patch or many?; one small tree to cut or a large overgrown area with many trees?)
- **Number of operations** required (i.e. Patching concrete barrier requires sawing, removal, material disposal and haulling, forming, placing new concrete, form stripping, curing; whereas cutting brush may only require 1 person with a chainsaw or pruning shears). More operations require additional labor.
- **Size of crew** required
- **Types of equipment** - consider what types of equiment are needed (heavy equipment like a Gradall?, Vacuum trucks? Only hand tools?, Lift equipment for access? Snooper? Lighting for night work?)
- **Traffic Restrictions** and location of repair (i.e. A repair on Hwy 89 in rural Walworth will have very little restriction, while a L2 repair on I-94 in Milwaukee will be restricted to 10pm-5am (7 hrs of work time), and a L1 or L3 closure will be restricted to 9am-2pm (5 hours of work). Will multiple days/nights be required?

-Assume average cost for 1 laborer including benefits approx. $75-100/hr. This does not include any equipment costs. A 4-person crew with hand tools, 2 pickup trucks, no equipment, will cost approx. $1600, not including materials costs, for a typical 5 hour repair window.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

Inspection Report for P-71-927 (STADT RD NARROW BRIDGE)

STADT RD over SQUAW CREEK

Apr 28,2020

Type	Prior	Team Leader	Frequency (mos)	Performed
Routine	08-23-18	Karaliunas, Bernie (4514)	24	X
Scour Plan of Action	08-23-16	Karaliunas, Bernie (4514)	48	X
SIA Review	08-23-16	Karaliunas, Bernie (4514)	48	X
Uw-Profile	08-23-18	Karaliunas, Bernie (4514)	24	X

Latitude	44°40'43.92"N	Owner	TOWN
Longitude	90°07'11.52"W	Maintainer	TOWN

Time Log

Hours	Minutes
1	0

Team members

	Name	Number	Signature	Signature Date
Inspector	Karaliunas, Bernie	4514	Bernie Karaliunas E-signed by Joel A Ortman(jaortman)	06-24-20

BRIDGE INSPECTION REPORT
Wisconsin Department of Transportation
DT2007 2003 s.84.17 Wis. Stats.

Identification & Location

Feature On:	Section Town Range:	Structure Number:
STADT RD	S02 T25N R03E	**P-71-927**
Feature Under:	County:	
SQUAW CREEK	WOOD	
Location	Municipality:	Structure Name:
0.6M N JCT CTH Y	MARSHFIELD	STADT RD NARROW BRIDGE

Geometry

measurements in feet, except where noted

Approach Roadway Width:	Bridge Roadway Width:	Total Length:
22	20.0	32.0
Approach Pavement Width:	Deck Width:	Deck Area (sq ft):
0	22.0	704

Traffic

	Lanes	ADT	ADT year	Traffic Pattern
On	2	47	2015	TWO WAY TRAFFIC

Capacity

Load Rating

Inventory rating:	Overburden depth (in):	Last rating date:	Controlling:
HS12	8.0	10-02-12	INTERIOR DECK GIRDER Moment
Operating rating:	Deck surface material:	Re-rate for capacity (Y/N):	Control location:
HS20	CONCRETE		4.3 SPAN 1, 13.0
Posting:	Re-rate notes:		
NARROW BRIDGE			

Hydraulic

Classification

Scour Critical Code(113):	Q100 (ft3/sec):	
(3) CRITICAL-UNSTABLE FOUNDATIONS	0	
High water elevation (ft):	Velocity (ft/sec):	Sufficiency #:
0.0	0.0	72.8

Span(s)

Span #	Material	Configuration	Depth (in)	Length (ft)	Main
1	STEEL	DECK GIRDER		30.5	Y

Expansion joint(s)

Temperature:

File:79 New:53

Clearance

Item	File Measurement (ft)	File Date	New Measurement (ft)
Highway Min Vertical On Cardinal			
Horizontal On Cardinal			

Construction History

Year	Work Performed	FOS id
1950	NEW STRUCTURE	

Maintenance Items

Item	Priority	Recommended by	Status	Status change
Misc - Cut Brush	HIGH	Karaliunas, Bernie (4514)	IDENTIFIED	06/04/20
REMOVE VINES SW WING WALL				
Slope Protection - Install Heavy Riprap	MEDIUM	Karaliunas, Bernie (4514)	IDENTIFIED	06/24/20
NORTHEAST WINGWALL NEEDS AT LEAST 3 YARDS OF RIPRAP				

Elements

Chk	Element	Defect	Description	UOM	Total	Quantity in Condition State 1	2	3	4
X	**38**		**Reinforced Concrete Slab**	SF	662	552	100	10	0
		1130	Cracking (RC) CRACKING ON EDGES AND UNDERNEATH **CURBS HAVE CRACKS THROUGHOUT**	SF		0	100	10	0
	8000		Wearing Surface (Bare)	SF	704	662	39	3	0
		3210	Debonding/Spall/Patched Area/Pothole SPALLS BY APPROACHES	SF		0	39	0	0
		3220	Crack (Wearing Surface) CRACKING AT BOTH APPROACHES **AND CENTER OF DECK** **MASTIC WOULD HELP BOLSTER DECK**	SF		0	0	3	0
X	**107**		**Steel Open Girder**	LF	255	0	195	60	0
		1000	Corrosion RUSTED, OUTSIDE GIRDERS HAVE ACTIVE CORROSION, PACK RUST BY DRAINS **AND OUTSIDE OF EAST BEAM**	LF		0	195	60	0
	8516		Painted Steel RUSTED, OUTSIDE GIRDERS HAVE ACTIVE CORROSION, PACK RUST BY DRAINS	SF	1,288	644	322	322	0
		3440	Effectiveness (Steel Protective Coatings) **PROB LESS THAN 50% EFFECTIVE - 644 CS2** **PROB 25% IN CS3 - 322**	SF		0	322	322	0
X	**215**		**Reinforced Concrete Abutment**	LF	49	0	0	49	0
		1080	Delamination - Spall - Patched Area	LF		0	0	0	0
		1130	Cracking (RC) BOTH ABUTMENTS COMING INWARD 1-3/4" TOTAL MOVEMENT	LF		0	0	49	0
X	**330**		**Metal Bridge Rail** NEW 06	LF	65	65	0	0	0
		1000	Corrosion	LF		0	0	0	0
		1900	Distortion	LF		0	0	0	0
X	**8400**		**Integral Wingwall** **NORTHEAST WINGWALL NEEDS AT LEAST 3 YARDS OF RIPRAP**	EA	4	0	0	4	0
		8902	Wall Movement	EA		0	0	0	0
		8903	Wall Deterioration SE WING HAS DIAGONAL CRACK, W/ CORNER SPALLED	EA		0	0	4	0

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Structure No.:**P-71-927**

Assessments

Chk	Element	Defect	Description	UOM	Total	Quantity in Condition State 1	2	3	4
X	**9004**		**Drainage** SILT IN NE CORNER	EA	4	0	4	0	0
X	**9030**		**Signs - Object Markers** TIGERBOARDS **CRACKED AND FADED**	EA	4	0	0	4	0
X	**9031**		**Signs - Narrow Bridge** S SIGN/POST MISSING	EA	2	1	0	0	1
X	**9167**		**Steel Diaphragm** RUSTED	EA	7	0	0	7	0
X	**9323**		**Approach Roadway - Asphalt** NEW O6, LOW ON SW SIDE AND NORTH SIDE ACROSS ROAD	EA	2	0	2	0	0

NBI Ratings

	File	New
Deck	6	6
Superstructure	5	5
Substructure	5	5
Culvert	N	N
Channel	7	7
Waterway	8	7

Structure Specific Notes

Inspection Specific Notes

TAR AND PAT**CH** APPROACHES

Inspector Site-Specific Safety Considerations

NARROW ROAD AND STEEP BANKS

Routine Specific Procedures

PARKED ONSITE AND INSPECT ON FOOT

Scour Plan of Action Specific Procedures

Uw-Profile Specific Procedures

SIA Review Specific Procedures

Special Requirements

Chk	Hours	Cost	Comments

Underwater Probe Form
P-71-927

General Site Conditions - Scour

General Site Conditions - Embankment Erosion/Conditions

NE WINGWALL NEEDS RIPRAP

Substructure Notes

Chk	Unit	Max Water Depth(ft)	Mode	Notes
X	Cardinal	1.0	Dry	SOUTH
X	Non Cardinal	1.0	Dry	NORTH

UW Profile Item 1

STREAM PROFILE	p71-927_20_xpd1.xls

Routine Item 1

BRIDGE DECK	 p71-927_20_Rd1.jpg

Linked Element(s):
Reinforced Concrete Slab -> Wearing Surface (Bare)
Signs - Object Markers

Routine Item 2

STEEL OPEN GIRDER RUST	 p71-927_20_Rd2.jpg

Linked Element(s):
Steel Open Girder
Steel Open Girder -> Painted Steel

Routine Item 3

DECK SPALLS AND CRACKING	 p71-927_20_Rd3.jpg

Linked Element(s):
Reinforced Concrete Slab -> Wearing Surface (Bare)

Routine Item 4

DECK CRACKING

p71-927_20_Rd4.jpg

Linked Element(s):
Reinforced Concrete Slab -> Wearing Surface (Bare)

Routine Item 5

p71-927_20_Rd5.jpg

Linked Element(s):
Reinforced Concrete Abutment

Routine Item 6

p71-927_20_Rd6.jpg

Linked Element(s):
Integral Wingwall

Scour POA Item 1

	p71-927_20_xud1.doc

STRUCTURE INVENTORY AND APPRAISAL FIELD REVIEW FORM

P-71-927
STADT RD over SQUAW CREEK

LOCATION

(3) Municipality:	MARSHFIELD
(16) Latitiude(° ' "):	44°40'43.92"N
(17) Longitude(° ' "):	90°07'11.52"W

TRAFFIC SERVICE

(28A) Lanes On:	2
(28B) Lanes Under:	0
(102) Traffic Pattern On:	-NO TRAFFIC -ONE WAY TRAFFIC X-TWO WAY TRAFFIC
(102) Traffic Pattern Under:	X-NO TRAFFIC -ONE WAY TRAFFIC -TWO WAY TRAFFIC
(19) Detour Length(mi):	3

GEOMETRY

(49) Structure Length(ft):	32.0	
(50) Sidewalk Width(ft):	**Left:** 0.0	**Right:** 0.0
(50) Curb Width(ft):	2.0	
(52) Culvert Barrel Length(ft):		
(34) Skew:	**Angle(°):** 0	**Direction:** -RIGHT FORWARD -LEFT FORWARD
	Cardinal	**Non-Cardinal**
(51) Bridge Roadway Width(ft):	20.0	20.0
(52) Deck Width(ft):	22.0	22.0
Right Wingwall Length(ft):		
Left Wingwall Length(ft):		
(32) Approach Roadway Width(ft):	22	0
	Cardinal Under Clearance	**Non-Cardinal Under Clearance**
(47) Minimum Horizontal(ft):		
(55) Minimum Right Lateral(ft):		
(56) Minimum Left Lateral(ft):		

RAILING APPRAISAL

(36A) Bridge Rail Adequacy:	X-SUB-STANDARD -STANDARD -NOT APPLICABLE
(36B) Transition Adequacy:	-SUB-STANDARD -STANDARD X-NOT APPLICABLE
(36C) Approach Guardrail Adequacy:	-SUB-STANDARD -STANDARD X-NOT APPLICABLE
(36D) Guardrail Termination Adequacy:	-SUB-STANDARD -STANDARD X-NOT APPLICABLE

Outer Rail:

Left	Right	Type
		TYPE F (TWO SQUARE TUBES) - STEEL(8)
		TYPE F (3 SQUARE TUBES) - STEEL(65)
		TYPE F (4 SQUARE TUBES) - STEEL(72)
		TYPE M-STEEL 3 SQUARE TUBES(93)
		SLOPED FACE PARAPET LF(91)
		SLOPED FACE PARAPET HF(92)
		VERTICAL FACE PARAPET TYPE A(74)
		TYPE W-THRIE BEAM(79)
		TYPE H ON VERTICAL PARAPET(80)
		TIMBER(38)
X	X	OTHER(99) (Please specify) **Left:** MISCELLANEOUS STEEL RAIL(25) **Right:** MISCELLANEOUS STEEL RAIL(25)

Transition Type:

	CONT GUARD RAIL
X	NO APP GRDRL
	NO ATTACHMENT
	22 MM(7/8") BOLT (Please enter quantity)
	25 MM(1") BOLT (Please enter quantity)
	OTHER (Please specify)

Approach Attachment Rail Note: NO GUARDRAIL TRANSITION. ADT 40. MISC STEEL RAIL FOR RAIL ON STRUCTURE.

Guardrail Termination Type:

	(01) ENERGY ABSORBING TERMINAL/EAT
	(02) TURN DOWN
X	(99) OTHER (Please specify)

Guardrail Termination Note: NO GUARDRAIL TERMINATION. NO APPROACH GUARDRAIL.

ROADWAY ALIGNMENT APPRAISAL

(72) Approach Alignment Appraisal:

	3 Intolerable- Substantial speed reduction
X	6 Fair- Minor speed reduction
	8 Good- No speed reduction

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