

**MICHIGAN STRUCTURE INSPECTION MANUAL
BRIDGE INSPECTION**

**CHAPTER 10
CRITICAL FINDINGS AND THE REQUEST FOR ACTION (RFA) PROCESS**

10.01 Purpose

The National Bridge Inspection Standards (NBIS) mandate the establishment of a statewide procedure to confirm that critical findings are resolved immediately and that actions performed to mitigate the deficiencies are recorded. These findings must be reported by MDOT to the FHWA in a timely manner. A critical finding is a structural or safety related deficiency that requires immediate action to ensure public safety and includes:

- Full or partial closure of any bridge;
- A fracture critical member rated in serious or worse condition;
- A deck, superstructure, substructure, or culvert rated in critical or worse condition;
- A channel or scour condition rating of critical or worse;
- An immediate load restriction or posting, or immediate repair work to a bridge, including shoring, in order to remain open.

10.02 Documenting Critical Findings

Once a critical finding is observed it is vital to act in a prudent manner to protect public safety and infrastructure investments. The procedures herein set forth the minimum requirements expected by a team leader, load rating engineer, bridge owner, and bridge program manager during critical finding observations and follow-up activities. These requirements are intended to provide bridge staff assistance as a supplement to Section 4.8.1.4 of the AASHTO *Manual for Bridge Evaluation* (MBE) and the FHWA *Bridge Inspector's Reference Manual* (BIRM).

MDOT has developed the Request for Action (RFA) report to be used for addressing issues with structures which need to be scheduled for repair more urgently than the normal programming process. When these issues become a safety concern immediate action should be taken. When engineering judgment dictates that immediate action is necessary to mitigate a hazard it shall be undertaken and reported in the "Immediate Action" section on the RFA report. An immediate action typically requires closing the bridge, a lane or shoulder of a structure as a result of a critical finding.

Documentation of bridge, lane, or shoulder closures for MDOT, local agency, and privately owned bridges are required to be reported using the RFA report within MiBRIDGE. Failure to act and document follow up on critical findings may result in the agency being held in non-compliance and the withholding of federal transportation funding. The bridge owner or owner's representative must notify MDOT's bridge inspection program manager at MDOT-MiBridge-Admin@michigan.gov for all critical findings. MDOT Bureau of Bridges and Structures staff will be responsible for contacting FHWA within 24 hours for NHS structures requiring full or partial closures and fracture critical members rated in serious or worse condition. All other critical findings will be identified on a monthly report provided to FHWA.

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10.02.01 Entering the RFA in MiB^{RIDGE}

The RFA is used by multiple work areas and organizations to document critical findings and to resolve any action(s) that should be completed prior to the next scheduled routine inspection. The primary initiators of the RFA include bridge owners and team leaders that identify defects during the routine bridge safety inspection. However, other specialized groups occasionally create an RFA due to circumstances identified during an evaluation or detailed inspection. Examples of these users include load rating engineers, hydraulics engineers, design engineers, and bridge maintenance personnel. Local agency, private bridge owners, and consultants must also utilize the RFA to document any immediate actions taken and are recommended to use it for other matters that require prompt resolution.

After selecting a structure in MiBRIDGE, the RFA folder is located within the left Inspection Data navigation section. Bridge owners are able to add an RFA for any structure in their inventory. Team leaders must be assigned an inspection or have jurisdictional access to create an RFA.

Once Add New is selected the RFA author may enter the observed deficiency, location, and other helpful notes in the Problems/Comments field. Additional notes may also be added to this field while the RFA is open at any time. Each comment is saved along with the username of the author and the date (see Figure 10.02.01).

The screenshot displays the 'Request for Action' (RFA) form in the MiBRIDGE software. The form is titled 'REQUEST FOR ACTION' and is associated with structure 'STR 586'. The RFA # is 00586-10152014, and the inspection date is 10/15/2014. The inspector is Andrew Bouvy, and the agency is MDOT - Bridge Field Services. The 'Problems/Comments' field contains a red instruction: '(Identify the observed deficiency and location. Provide updated information as-needed)'. Below this are three action buttons: 'IMMEDIATE ACTION (Add)', 'INTERMEDIATE ACTION REQUESTED (Add)', and 'FINAL ACTION COMPLETED', each with a red circle around it. A 'SUPPORTING IMAGES' section is also visible at the bottom.

Figure 10.02.01 RFA Report in MiB^{RIDGE}

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The Immediate Action Section is used only for Critical Findings (see Figure 10.02.02). The person who recommended the immediate action shall be identified in the Requested By field. Generally, this individual is the bridge owner or team leader, but flexibility was provided so users may document the critical finding on behalf of someone else. The Completed By field is for documenting the responding individual or crew that performed the action. The Comment field allows the author to provide any additional information that clarifies the location or recommended action. For instances where a bridge, lane, or shoulder closure is necessary and the cause is eventually mitigated, the Date Traffic Restored/Signs Installed and Traffic Restoration/Sign Installation Comments field may be completed. All bridge owners are responsible for ensuring that critical findings are documented whenever a closure is necessary.

The screenshot displays the 'Information Summary and Current Status' for structure STR 586. The summary includes details such as Facility (M-13 & M-84), Location (IN BAY CITY (LAFAYETTE AV)), and Structure Condition (Poor Condition(4)). Below the summary, the 'Immediate Action' section is active, showing a 'REQUEST FOR ACTION' (RFA) for RFA # 00586-10152014, requested by Andrew Bouvy on 10/15/2014. The form includes fields for 'Recommended Action', 'Requested By', 'Completed By', 'Comments', 'Date Traffic Restored / Signs Installed', and 'Traffic Restoration / Sign Installation Comments'. A sidebar on the left lists various inspection categories like 'Fracture Critical', 'Fatigue Sensitive', and 'Underwater'.


Figure 10.02.02 Immediate Action Section Used for Documenting Critical Findings


The Intermediate Action Section is used for non-critical actions that should be resolved prior to the next scheduled routine inspection (see Figure 10.02.03). The RFA author can provide multiple types of recommended actions and assign them to specific MiB^{RIDGE} users. For example, if a damage inspection and load analysis are required as a result of a high load impact both intermediate actions may be assigned to individual users when the RFA is created. Additional actions may be added by the RFA author or assigned individuals at any time throughout the RFA process. The RFA form should continue to be used to record the intermediate and final actions undertaken once a critical finding is resolved.

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BRIDGE INSPECTION – CRITICAL FINDINGS

STR 586
Information Summary and Current Status
B01-09032



Facility M-13 & M-84	Latitude / Longitude 43.579867 / -83.900918	MDOT Structure ID 09109032000B010	Structure Condition Poor Condition(4)
Feature E CHANNEL SAGINAW RIVER	Length / Width 508 / 45.1	Owner MDOT Region - C and T	
Location IN BAY CITY (LAFAYETTE AV)	Built / Recon. / Paint / Ovly. 1938 / 2005 / 2005 / 2005	TSC Bay City(4B)	
Region / County Bay(4) / Bay(9)	Material / Design 3 Steel / 16 Movable-Bascule	Last NBI Inspection 04/17/2014 / LI7I	Scour Evaluation 3 SC - Unstable

Inventory & Appraisal
Inspections / Reports
Load Ratings
Work Recommendations
Work History
Documents

Special Inspections Required:
 Fracture Critical (92A)
 Underwater (92B)
 Other Special (92C)
 Fatigue Sensitive (92D)
 Scour Critical

Inspection Data: (select from folders below)
 Print Print All

- Routine - BSIR
- Element
- Request for Action
 - Add New
- Fracture Critical
- Fatigue Sensitive
- Underwater
- Other Special
- Damage
- Scour Action Plan

INTERMEDIATE ACTION REQUESTED [Add](#)

Request For	Contact/User	Reviewed	Review Date	Priority Level	Completed	Complete Date
Damage Inspection	Christopher Idusuyi	<input type="checkbox"/>			<input type="checkbox"/>	

remove

Request For	Contact/User	Reviewed	Review Date	Priority Level	Completed	Complete Date
Load Rating	MDOT Load Rating	<input type="checkbox"/>			<input type="checkbox"/>	

remove

FINAL ACTION COMPLETED

Comment

RFA Complete

Figure 10.02.03 Intermediate Action Section Used for Noncritical Issues

Each user then has the ability to review the RFA, provide the date that the review occurred, set a priority level, and add comments as-needed (see Figure 10.02.04). Automated monthly email notifications of the outstanding request will be sent until the requested intermediate action is marked complete by the user.


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Location IN BAY CITY (LAFAYETTE AV	Built / Recon. / Paint / Ovly. 1938 / 2005 / 2005 / 2005	TSC Bay City(4B)	Operational Status A Open, no restriction(A)	
Region / County Bay(4) / Bay(9)	Material / Design 3 Steel / 16 Movable-Bascule	Last NBI Inspection 04/17/2014 / L17I	Scour Evaluation 3 SC - Unstable	

Inventory & Appraisal
Inspections / Reports
Load Ratings
Work Recommendations
Work History
Documents

Special Inspections Required: Fracture Critical (92A) Underwater (92B) Other Special (92C) Fatigue Sensitive (92D) Scour Critical

Inspection Data: (select from folders below) Print Print All

- Routine - BSIR
- Element
- Request for Action
 - Add New
- Fracture Critical
- Fatigue Sensitive
- Underwater
- Other Special
- Damage
- Scour Action Plan

INTERMEDIATE ACTION REQUESTED Add

Request For	Contact/User	Reviewed	Review Date	Priority Level	Completed	Complete Date
Damage Inspection	Christopher Idusuyi	<input type="checkbox"/>			<input type="checkbox"/>	
Comments						
<small>remove</small>						
Load Rating	MDOT Load Rating	<input type="checkbox"/>			<input type="checkbox"/>	
Comments						
<small>remove</small>						

FINAL ACTION COMPLETED

Comment

RFA Complete

Figure 10.02.04 Intermediate Action Assignments Should be Completed by Each Assigned User

The Final Action Completed section allows the bridge owner to summarize resolution of the RFA and mark it complete (see Figure 10.02.05). For example, if increased monitoring will be performed the bridge owner should provide a comment that a special inspection has been scheduled. Only bridge owners and select users have access rights to mark the RFA complete.


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Region / County Bay(4) / Bay(9)	Material / Design 3 Steel / 16 Movable-Bascule	Last NBI Inspection 04/17/2014 / LI7I

Structure Condition
Poor Condition(4)
 

Inventory & Appraisal
Inspections / Reports
Load Ratings
Work Recommendations
Work History
Documents

Special Inspections Required: Fracture Critical (92A) Underwater (92B) Other Special (92C) Fatigue Sensitive (92D) Scour Critical

Inspection Data: (select from folders below) Print Print All

- Routine - BSIR
- Element
- Request for Action
 - [Add New](#)
- Fracture Critical
- Fatigue Sensitive
- Underwater
- Other Special
- Damage
- Scour Action Plan

remove

Request For	Contact/User	Reviewed	Review Date	Priority Level	Completed	Complete Date
Load Rating	MDOT Load Rating	<input type="checkbox"/>			<input type="checkbox"/>	

Comments
remove

FINAL ACTION COMPLETED

Comment

RFA Complete

SUPPORTING IMAGES

Upload images Choose Fi

Save


Figure 10.02.05 Final Actions Should be Completed by the Bridge Owner


At any time during the RFA process a user may upload images and provide a description of the photograph (see Figure 10.02.06). Photos of all bridge, lane, and shoulder closures should be added as part of the critical finding reporting process.

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STR 586
Information Summary and Current Status
B01-09032



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Region / County Bay(4) / Bay(9)	Material / Design 3 Steel / 16 Movable-Bascule	Last NBI Inspection 04/17/2014 / L171	Scour Evaluation 3 SC - Unstable	

Inventory & Appraisal
Inspections / Reports
Load Ratings
Work Recommendations
Work History
Documents


Special Inspections Required:
 Fracture Critical (92A)
 Underwater (92B)
 Other Special (92C)
 Fatigue Sensitive (92D)
 Scour Critical

Inspection Data: (select from folders below)
[Print](#)
[Print All](#)


- Routine - BSIR
- Element
- Request for Action
 - [Add New](#)
- Fracture Critical
- Fatigue Sensitive
- Underwater
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SUPPORTING IMAGES

Upload images [Choose File](#)



(Photo description)



(Photo description)

Figure 10.02.06 Photos May Be Added to the RFA for Documenting Findings

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Users who have been assigned an intermediate action can access them from the My Assignments tab. Upon clicking on the number of Requests for Action a list of the associated bridges is provided (see Figure 10.02.07)

The screenshot shows the MiBRIDGE Bridge Management and Inspection System interface. The user is logged in as Christopher Idusuy. The 'My Assignments' tab is selected in the left sidebar. The main content area displays a summary table with the following data:

Inspection Type	Total	Scour Actions	Total	Load Ratings	Total	Requests for Action	Total
All Inspections	0	Scour Action Plans	0	Load Ratings	0	Requests for Action	1
Routine	0						
Fracture Critical	0						
Fatigue Sensitive	0						
Underwater	0						
Other Special	0						

Below the summary table, the 'All Assigned Inspections' section is visible, showing a table with the following data:

Select	Struct. Nbr.	Bridge ID	Facility Carried	Features Intersected	Owner	Routine	Fracture Critical	Fatigue Sensitive	Underwater	Other Special	Earliest Assigned Insp. ▲
<input type="checkbox"/>	4723	H1141025000B013	I-96 EB	GRAND RIVER	Grand						

Figure 10.02.07 Users Assigned an Intermediate Action May Access the RFA through the My Assignments Tab

10.03 Critical Finding Procedures – Team Leader Responsibilities

The team leader is responsible for planning, preparing, and performing scheduled field inspections. In the event that a critical finding is observed by the inspection team it is the team leader’s responsibility for initiating the necessary procedures to protect the public (see Figure 10.03.01). The team leader shall immediately notify the bridge owner or acting responsible authority verbally of any critical finding that is discovered during an inspection. If the extent of the critical finding presents an immediate danger to public safety it is the responsibility of the team leader to notify law enforcement.

The critical finding shall be documented by entering all known information on the RFA report. At a minimum, the team leader shall enter data into the fields in the Problems/Comments Explanation and Immediate Action section. The team leader should email the form within 24 hours to the bridge owner. The team leader is also responsible for documenting the critical finding on the inspection report.

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Figure 10.03.01 Full depth hole observed during a routine inspection

10.04 Critical Finding Procedures – Load Rating Engineer Responsibilities

The load rating engineer is responsible for determining the safe load carrying capacity of a bridge using plans and supplemental information gathered from previous field inspections. The load rating engineer shall immediately notify the bridge owner when it is discovered that a bridge cannot carry all Michigan legal loads at the operating level (see Figure 10.04.01).

When the load rating is in response to an RFA, the load rating engineer may provide several recommendations for the bridge owner to consider. These options provided by the load rating engineer, along with other substantial actions taken to facilitate the load rating, must be documented in the Summary of Intermediate/Final Actions section of the form.

The Immediate Action section of the RFA report should be completed by the load rating engineer in instances where there is a recommendation for immediate work to prevent substantial reduction in safe load capacity, or when there is a substantial reduction in safe load capacity. A substantial reduction in safe load capacity is defined as a decrease of 20% or more of the previously calculated rating. When the recommended reduction is less than substantial an RFA may be submitted to the bridge owner but does not have to be reported to the Bureau of Bridges and Structures. For MDOT owned bridges, the recommended postings from Form 0231 shall be included or referenced on the RFA. The load rating engineer should email the form within 24 hours to the bridge owner.

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Figure 10.04.01 Severe loss of section resulting in a safe load capacity of 3 tons

10.05 Critical Finding Procedures – Bridge Owner Responsibilities

The bridge owner must ensure deficiencies are mitigated and public safety is protected. The bridge owner shall immediately respond to notification of a critical finding and review the information provided by the team leader, load rating engineer, or other concerned individual. The bridge owner is required to ultimately determine if a safety hazard exists and what immediate action should be completed. Actions to consider include load restriction, shoring, repair, shoulder closure, lane closure, and bridge closure. Once an action has been implemented the critical finding is considered resolved. It is expected that critical findings be resolved as soon as possible, typically in less than 30 days. Bridge owners must ensure critical findings are reported to the MDOT Bridge Inspection Program Manager.

All bridge, lane, and shoulder closures should conform to the Michigan Manual of Uniform Traffic Control Devices (MMUTCD). The bridge owner is responsible for consistent monitoring and verification to ensure that all traffic control devices remain in place.

10.05.01 Critical Finding Procedures – Bridge Owner Responsibilities (MDOT Owned Bridges)

The bridge owner for MDOT owned bridges is the Region Bridge Engineer or Central Office Bridge Engineer that has been delegated the inspection responsibilities outlined in NBIS. In the event of a critical finding the engineer tasked for ensuring NBIS compliance will contact the TSC manager or region operations engineer to request any necessary traffic control measures, updates to the Lane Closure and Reporting System (LCAR), and media releases.

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10.05.02 Critical Finding Procedures – Bridge Owner Responsibilities (Local Agency and Privately Owned Bridges)

The bridge owner for local agencies and other organizations is the local government unit or designated institution that has been delegated the inspection responsibilities outlined in NBIS. The bridge owner shall ensure that all of the processes to mitigate the deficiency are fulfilled and the critical finding is reported to MDOT.

10.05.03 Critical Finding Procedures – Bridge Owner Coding Responsibilities

It is the responsibility of each bridge owner to verify that the inventory data for each bridge is accurate after immediate and final actions have been completed to resolve a critical finding. Once an entire bridge, lane(s), or shoulder has been closed, or other actions have been taken to eliminate the hazard at least one of the following items must have coding adjusted:

- Load Posting Status
- Deck
- Superstructure
- Substructure
- Channel
- Scour
- Culverts
- Posting Value
- Inspection Interval



Figure 10.05.01 Load Posting Status should be updated due to temporary supports

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Deterioration that leads to a critical or worse condition rating for the Deck, Superstructure, Substructure, Channel, Culvert or Scour doesn't require an immediate action RFA to be submitted. Although the condition rating is a critical finding the data may be reported through a database query.

The inspection interval may also be reduced in the event of bridge posting, temporary support installation, scour observation, emergency repair activities, or any other critical finding. The maximum recommended intervals between inspections should be scheduled according to the MDOT *Guidelines for Bridge Inspection Frequencies*.

10.06 Bridge Program Manager Responsibilities

The bridge program manager is responsible for developing policies and procedures to ensure that critical findings are resolved. The bridge program manager shall assist the bridge owner as-needed throughout the entire RFA process. The bridge program manager may perform a quality assurance review and analyze the decisions and activities that were incorporated to resolve a critical finding to verify compliance with the NBIS.

10.07 FHWA Notification of Critical Findings

Directly after an immediate action is performed and public safety is no longer threatened, the bridge owner is responsible for notifying the Bureau of Bridges and Structures by phone or email regarding the event. Pertinent information for notification should include the structure number, location, explanation of the problem, and action(s) taken. The bridge owner should provide a supplemental update when action is taken to mitigate the damage or deterioration. Information pertaining to critical findings may be emailed to MDOT-MiBridge-Admin@michigan.gov or by calling:

Allie Nadjarian
Bridge Inspection Program Manager
Cell: (517) 331-6602

Bureau of Bridges and Structures staff are responsible for notifying FHWA within 24 hours of each critical finding for structures on the National Highway System (NHS). All other critical findings on non-NHS routes are reported monthly to FHWA.

10.08 Critical Finding Examples

Although the circumstances for each critical finding are often unique, the process for resolving each is similar. Examples that affect each bridge owner may include:

- Shoulder closure on bridge due to high load impact to fascia beam;
- Lane closure on redundant bridge due to deep spall under bearing;
- Bridge closure due to pressure flow or because of severe scour and undermining;

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The team leader’s actions are especially important during FCM inspections. FCM inspection is one of the most important processes to ensure a safe and functional transportation system in Michigan. Failure of a FCM may suddenly lead to the collapse of an entire span or bridge and result in loss of life. Any FCM with the following characteristics is a critical finding and may require closure of the bridge and repairs prior to reopening:

- Pack rust leading to substantial deformation of gusset plates or other built-up members
- Impact damage that has deformed the member
- Perpendicular or parallel stress cracking
- Severe section loss of primary members
- Distortion of elements due to fatigue

For additional information see Chapter 7 for fracture critical inspection procedures.

During a flood event the bridge owner or team leader must refer to the scour plan of action that has been developed for all scour critical bridges. The scour action plan provides personnel responding to a suspected scour event with a monitoring plan that includes a summary of scour calculations performed by the hydraulics engineer, information regarding the foundation and soil types, items to watch, conditions to evaluate bridge closure, and contacts to initiate the process. Items that may warrant bridge closure during a high flow or scour event include:

- Pressure flow
- Heavy build-up of debris along substructure
- Settlement or displacement of primary structural elements
- Localized or widespread undermining of footing/tremie

For additional information see Chapter 6 for scour inspection procedures.

Flammable materials stored underneath a bridge present a potential hazard that should be reviewed by the bridge owner. FHWA considers the plain language definition of flammable as “capable of being easily ignited and burning quickly.” Team leaders should be cognizant of identifying the storage of flammable materials during routine inspections and submit a critical finding if they exist. Bridge owners are responsible for taking action in accordance with the NBIS.

For additional information see FHWA Memorandum *Documentation and Treatment of Materials Stored Under a Highway Bridge*.

The examples below are provided to assist bridge staff with the procedures outlined. They may be modified according to each bridge owner’s policies and the specific circumstances involved with a critical finding.

10.08.01 Critical Finding Examples - Damage Inspection

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Damage inspections are not scheduled and typically initiated by a report from local law enforcement or a concerned citizen. The bridge owner is usually the first to be informed and often responds directly. However, the duty of responding to the incident may be delegated by the bridge owner to a team leader.

The most common damage inspections performed in Michigan are a result of a truck transporting cargo that exceeds the vertical clearance of a bridge, commonly referred to as a high load hit (HLH). Other examples include vehicle impacts, ship collisions, and fire damage. Although action is required by the bridge owner to verify the extent of damage, a critical finding may not exist if there are no safety concerns following the inspection. Once the bridge owner or team leader responds to the incident and determines that a safety concern exists a phone call is made to one or all of the following; law enforcement, the bridge owner if they are not on site, and/or maintenance staff to assist with closing the affected bridge, lanes, or shoulder.

Example #1 – MDOT Owned Bridge Damage Inspection



Figure 10.08.01 Crack in fascia beam as a result of a HLH impact

- 11:15 a.m. – The team leader arrives to the bridge of a reported HLH and immediately notices a crack and that the east portion of the fascia beam has dropped approximately 2 inches. In addition, the inspector observes that all but one of the stitch welds connecting the beam to the interior diaphragms appears to be cracked (see Figure 10.08.01).
- 11:17 a.m. – The team leader calls 911, identifies him or herself, and informs the operator that a truck has hit the Carpenter Road bridge over I-75 causing severe damage to a beam requiring the bridge and two northbound I-75 lanes to be closed.
- 11:19 a.m. – The team leader contacts the region bridge engineer and informs him that the fascia beam is unstable and 911 has been contacted.
- 11:22 a.m. – The region bridge engineer contacts the region maintenance crew supervisor and directs the maintenance crew to begin placing signs for double freeway lane closure and barricades to close the bridge.

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- 11:27 a.m. – Police arrive and close the lanes until the maintenance crew arrives.
- 11:43 a.m. – The region bridge engineer arrives and inspects the damage. The statewide emergency coordination engineer and Statewide Signs supervisor are notified.
- 1:05 p.m. – The Statewide Signs crew arrives and begins to remove the sign fastened to the fascia. The emergency coordination engineer inspects the damage and contacts the Statewide Bridge Crew for repair.
- 3:15 p.m. to 4:45 a.m. – The Statewide Bridge Crew temporarily supports the fascia beam, performs heat straightening, and installs a bolted repair. Northbound I-75 is reopened while the eastbound lane on the bridge remains closed.

Example #2 – Local Agency Owned Bridge Damage Inspection



Figure 10.08.02 Bridge posting sign is illegible.

- 1:35 p.m. – A farmer contacts the local county road commission office to inquire about the safe load carrying capacity of a bridge because the posting sign cannot be read.
- 2:17 p.m. – The county road commission engineer visits the bridge and inspects the damaged sign (see Figure 10.08.02). The engineer contacts the county maintenance facility for a replacement sign.
- 2:36 p.m. – No signs are available, and the engineer instructs the maintenance crew to close the bridge.
- 3:58 p.m. – The bridge is closed until the sign is replaced.

During the very next day the county road commission engineer submits an RFA to the bridge program manager. The engineer also contacts the bridge program manager for a sign because the vendor they often utilize states that it may take up to four weeks for a new sign. The bridge program manager requests a sign from the Statewide Signs unit and a new one is installed 3 days later allowing the bridge to be reopened. The bridge owner then updates the Summary of Intermediate/Final Actions field of the RFA to document the installation.

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10.08.02 Critical Finding Examples – Routine Bridge Safety Inspection

The team leader is responsible for initiating a response when a critical finding is identified during a routine bridge safety inspection. Often while inspecting a bridge that is load path redundant, a shoulder or lane closure may suffice to protect public safety.

Example #1 – MDOT Owned Bridge Routine Inspection

- 8:15 a.m. - The bridge inspection team is performing a routine inspection and they notice an abutment spall beneath the fascia beam on a redundant load path structure (see Figure 10.08.03).
- 8:25 a.m. - The team leader contacts the region bridge engineer and requests maintenance forces to close the shoulder of the bridge until repairs may be completed.
- 8:33 a.m. – The region bridge engineer contacts the maintenance supervisor and requests a shoulder closure.
- 10:17 a.m. - The shoulder closure is installed and the critical finding is considered complete.
- 3:30 p.m. - The inspector notes the deficiency under SI&A Item 60 on the bridge safety inspection report and submits an RFA to the region bridge owner.
- 4:25 p.m. – The RFA is submitted to the bridge program manager for FHWA reporting, the region maintenance crew requesting excavation in preparation of temporary supports, and the statewide emergency coordination engineer requesting temporary supports.



Figure 10.08.03 Abutment spall under fascia beam initiates shoulder closure

Example #2 – Local Agency Owned Bridge Routine Inspection

- 2:15 p.m. – A team leader notices that three adjacent rolled steel beams resting on top of a pier have severe loss of section and are buckling. The consultant contacts the City Manager’s office and recommends closing a lane above until further observations and repairs may be made.
- 2:37 p.m. – Two Department of Public Works employees respond and close the lane.
- 4:05 p.m. – The consultant team leader submits an RFA to the city manager regarding the critical finding and requests permission to perform a detailed inspection.

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- The Bridge Owner verifies that the lane has been closed and makes sure that the RFA documentation is complete.
- 5:58 p.m. – The City Manager submits the form to the bridge program manager and sends an email to the consultant requesting a cost estimate for an in-depth inspection.