

REPAIR SUGGESTION and CRITICAL FINDING GUIDANCE

Guidance for Adding Repair Suggestions

Intent

Repair Suggestions placed in SMS should be limited to maintenance level type activities. They are intended to be used by MDT Maintenance and County maintenance forces, so they can quickly and easily, find and prioritize necessary maintenance level repairs. The Repair Suggestions included should be able to be completed by Maintenance personnel, with or without the assistance of the Bridge Maintenance Engineer or County Engineers. They should also be actions that can be completed and closed out, i.e. – “Monitor element for...” is *not* an appropriate Repair Suggestion.

Repair Suggestions in SMS are *NOT* intended to be used by designers and engineers for querying Federal Aid project level repair and rehab activities. Rather, Federal Aid project developers (engineers, designers, and consultants) determine the scope of bridge rehabilitation and replacement activities by querying general bridge and element level conditions. Although engineers and developers will include Repair Suggestions that have been input into SMS in Federal Aid rehab projects, they are not used in initial project development.

Examples of Repair Suggestions to include in SMS:

- Object marker repair/replace
- Approach Guardrail repairs
- Potholes/ deck spalls
- Missing bolts
- Loose nuts
- Clean debris out of deck drains

- Reset Elastomeric bearings
- Repairs to rotten, deteriorated, or shifted Timber elements (cap, piles, decks, girders, rails, etc.)
- Loose steel joints or guard angles (sliding plates and other embedded type joints and headers that pose a safety hazard when they come out)
- Repair impact damage (rails, posts, prestress or steel beams, etc.)
- Remove channel debris on piers/abutments
- Cracks in Steel members (these may or may not be critical; may require an immediate call to Helena)
- Clean debris out of joints
- Clean debris off caps/bearings
- Remove vegetation or clear trees that prevent inspection of bridge elements, grow within the shadow of the bridge, restrict traveler's visibility, or could fall and damage the bridge
- Wingwall/backwall issues (including erosion under or around the wingwall)
- Approach roadway settlement or side slope erosion near the bridge
- Scour or erosion issues that can be mitigated with small scale operation to place rip-rap. These would typically be small, county owned structures (but possibly State owned) on small streams or washes.

Examples of Repair Suggestions NOT to include in SMS:

- Scour Issues that are on large bridges over large waterways that require hydraulic engineering and a major project to mitigate.
- Deck seal or deck overlay
- Monitor...
- Larger repair items that Maintenance does not have the resources to complete

There are many gray areas, so please don't be afraid to call Helena and ask if something specific is appropriate to be included as a Repair Suggestion in SMS.

Procedures for inputting Repair Suggestions:

Here are some basic guidelines to follow when inputting Repair Suggestions:

- TYPE:
 - Designate the repair suggestion Type as "Repair Suggestion" for normal items that are of Low or High priority. This should be the vast majority of the items you input into SMS.

- Designate the repair suggestion Type as “IMMEDIATE REVIEW ITEM” when you feel the issue needs an urgent review from someone in Helena or the item may be Critical (See Critical Findings Chapter).
- REPAIR STATUS:
 - All new Repair Suggestions input into SMS should be designated as “Open”.
 - If you notice during an inspection or are notified by the County or MDT Maintenance that an item has been completed, change the Repair Status to “Work Complete”. This also triggers/requires the following:
 - In the Comments section, add a quick description of the work done, who did the work (or who notified you), and when it was done (or when you noticed it was complete).
 - Include photos of completed work in the inspection report if completed work was noticed during an inspection. If photos are sent you from MDT Maintenance or County, upload them to the repair item.
 - Any documents, repair details, or correspondence that you feel is relevant should be put in the documents tab of the repair.
 - Make sure to check the box “Exclude from reports” in the Properties tab of the Repair. This prevents completed repair items from showing up on final reports.
- PRIORITY:
 - Use judgement to prioritize repair items in either Low or High.
 - Low Priority examples: Clean joints, repair curb, repair cap spall, etc...
 - High Priority examples: Repair rotten timber cap, Repair loose sliding plate joint, remove debris on pier, etc...
 - If you feel something is more urgent than a High priority, call someone in the Bridge Management Section to discuss (See Critical Findings Chapter).
 - Only Bridge Management Section personnel can officially designate something as a Critical Finding in SMS.
- COMPONENT:
 - Attach all Repair Suggestions to a bridge element, unless it is a “bridge level” type repair activity. Some example of bridge level activity would be: replace hazard markers, repair void in roadway approach, cut brush/vegetation, etc...
- COMMENTS:
 - Include a one or two sentence description of the repair issue. Include a description of the location (specific span, bent, pile, joint, etc...)

CRITICAL FINDING GUIDANCE

Definitions:

Official Code of Federal Regulations Definition:

Title 23, Subpart C, 650.305 – A Critical Finding is a structural or safety related deficiency that requires immediate follow-up inspection or action. This can be further defined to note that immediate attention or follow-up is needed because the condition of the structure is a current or imminent danger or safety hazard to the traveling public.

To Simplify:

A Critical Finding is declared when a defect on or related to a bridge is causing a current or imminent danger or safety hazard to the traveling public.

Overview:

Critical Findings are documented in the Repairs tab in SMS. Only Bridge Management Personnel in Helena can *officially* designate an issue as a Critical Finding in SMS.

Critical Findings are to be documented on State and non-State-owned structures.

Procedure:

The following procedures should be followed when a suspected Critical Finding is discovered:

1. Immediately contact Bridge Management personnel in Helena to make a verbally notification and discuss. If you are unsure if something is a Critical Finding, we can help make that determination when you call the Bridge Bureau. If you feel the bridge needs to be closed immediately because of imminent danger to the public, contact the Montana Highway Patrol or Sheriff's office for assistance.

Helena MDT call down list:

- Bridge Maintenance Engineers:
 - 444-6320 (Dave)
 - 444-3535 (Jarrod)

- 439-1472 (Dave - cell)
- 461-2118 (Jarrod - cell)
- Bridge Management Engineer
 - 444-9219 (Amanda)
 - 475-4580 (Amanda – cell)
- Other Bridge Management Section Engineers
 - 444-7641 (Mary)
 - 444-6470 (Chaz)
- Other
 - _____
 - _____
 - _____
 - _____

2. If an immediate closure is being implemented, contact the local MDT Maintenance Chief and/or MDT Maintenance Superintendent, or the appropriate County or City personnel for non-State owned structures, so appropriate traffic control can be installed. Inform them of the urgency of the situation and whether the situation is urgent enough to require the immediate assistance of the MHP or Sheriff.

Local Contact Numbers:

- MDT Maintenance/District Personnel
 - _____
 - _____
 - _____
 - _____
 - _____
 - _____
 - _____
 - _____
 - _____
 - _____
 - _____

3. Document the finding:

- You can send photos by text to our cell phones or work e-mail for discussion.

- When documenting a new issue that is suspected to be a Critical Finding, create a new Repair and designate the “Type” of repair as an “IMMEDIATE REVIEW ITEM”. Upload this information to the SMS as soon as possible.
 - Take plenty of photos of the issue
 - Document the location of the issue
 - Take measurements of the element or defect

Examples of Critical Findings:

- Large cracks in steel girders
- Cracks in any Fracture Critical steel member
- Buckling or major out of plane distortion of truss compression members
- Major impacts to steel or prestress girders
- Missing, severely damaged, or failed timber piles
- Failed timber caps
- Holes in timber or concrete decks
- Settlement of a bridge pier or abutment
- Approach roadway voids in the travel way (this is not really a bridge issue, but we treat it the same as a Critical Finding)
- Scour on a “poke and wade” inspection that indicates loss of bearing under a large portion of the footing
- Any other damage or deterioration to an element that severely impacts the capacity or stability of a structure or culvert or endangers the traveling public