

# How to File a Critical Finding





# You discover a Critical Finding...Now what?

## Standard Operating Procedure to Address Critical Findings

- Identify the Critical Finding Category
- Inform the State Program Manager and Bridge Owner
- Report Inspection Findings in BIAS
- Follow up on Actions Taken
- Close out of Critical Finding Report by SPM



# You discover a Critical Finding...Now what?

## Standard Operating Procedure to Address Critical Findings

- **Identify the Critical Finding Category**
  - “Urgent” Critical Finding
    - requires bridges be partially or fully closed within 24 hrs
    - requires short-term action(s) be taken within 24 hrs
    - requires sufficient action be taken to close out the CFR within 3 days
  - “Severe” Critical Finding
    - requires short-term action(s) be taken within 72 hrs
    - requires sufficient action be taken to close out the CFR within 30 days
    - If required, the SPM can approve a time extension past 30 days

# You discover a Critical Finding...Now what?

## Standard Operating Procedure to Address Critical Findings

- Identify the Critical Finding Category
- **Inform the State Program Manager and Bridge Owner**
  - State owned bridges - Report findings to SPM and Owner
  - Non-state owned bridges - Report findings to ERC, Owner, and SPM

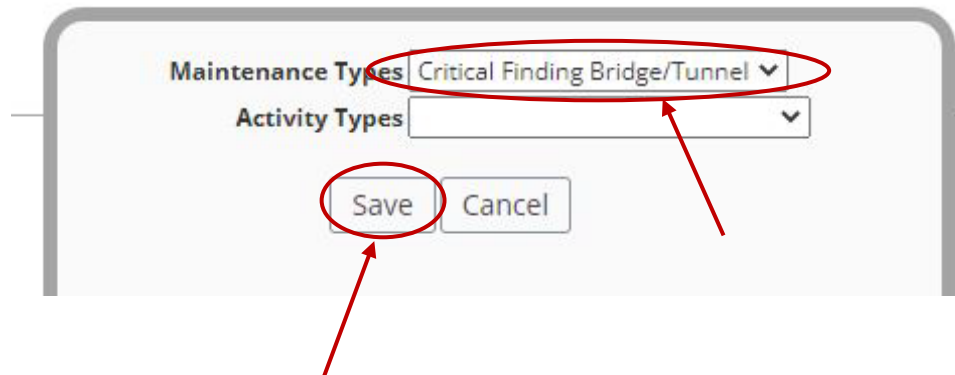


Call and/or email the SPM as soon as it is safe to do so.

# You discover a Critical Finding...Now what?

## Standard Operating Procedure to Address Critical Findings

- Identify the Critical Finding Category
- Inform the State Program Manager and Bridge Owner
- **Report Inspection Findings in BIAS**

A screenshot of a software interface. It features two dropdown menus: "Maintenance Types" and "Activity Types". The "Maintenance Types" dropdown is set to "Critical Finding Bridge/Tunnel" and is circled in red. A red arrow points from this dropdown to the "Save" button, which is also circled in red. The "Activity Types" dropdown is empty. Below the dropdowns are "Save" and "Cancel" buttons.



# Critical Finding Report in BIAS

- Data Entry By
- Entry Date
- Team Leader Reporting
- Team Leader Number
- Structure No. and NBI
- Facility Carried and Feature Intersected
- Location and County
- Critical Finding Type
- Date of Finding
- SPM Notification
- Owner Notification
- Description of Issue
- Team Leader Recommendation
- Recommended Date of Action
- Photos

Open | None Assigned

Must submit to State Program Manager through Workflow and an Email will automatically be sent out

**CRITICAL FINDING**

*WARNING: Once the highlighted areas have been filled in you must submit to the State Program Manager through Workflow. This will automatically send an email alert to the designated individuals. Also ensure that your pictures are attached. In addition, still send an email to the Bridge Inspection Program Manager (amarino@indot.in.gov) with the following: pictures, stated problem, determination of severe or urgent, possible solution to close the critical finding, and attached critical finding report.*

0300019

Date Entry By: [text] Team Leader Reporting: [text]

Priority Selected: [text] Feature Intersected: [BRANCH OF BIG SLOUGH]

Structure Number: [text] Date of Finding: [text]

Notification of SPM Date: [text] Notification of Owner Date: [text]

Description of Issue: [text]

Team Leader Recommended Action: [text]

Recommended Date of Action: [text]

I have attached ( ) photos to this document. [text]

Safety Action Taken (By Who/When): [text]

Critical Finding Addressed: [text]

Safety Action Closeout: [text]

Must submit to State Program Manager through Workflow.

Date Closed by State Program Manager in BIAS: [text] Estimated Final Resolution Date: [text]

Final Resolution Taken: [text]

Final Resolution Date: [text]

# Critical Finding Report in BIAS

- Attach Photos

Click to Select the photos you want to attach

Must submit to State Program Manager through Workflow.

Date Closed by State Program Manager in BIAS:  Estimated Final Resolution Date

Final Resolution Taken

Final Resolution Date

Files attached during current workflow stage:

There are no files attached

Attach Picture/File Attach Existing File From Report

Select

File Type: Photo

- Bats
- Birds
- Bridge Critical Finding
- CE/Cleanout

File Date (i.e. Date Picture Taken):

Set description to file name on Attach

No files to upload

Attach

Check "Bridge Critical Finding" box, add date, and description.

Click attach to add photo to Critical Finding Report.

# Critical Finding Report in BIAS

- Submit to SPM via Workflow

Assign to SPM

None Assigned

Must submit to State Program Manager through WorkFlow and an Email will au

**CRITICAL FINDING**

*WARNING: Once the highlighted areas have been filled in you must Program Manager through Workflow. This will automatically send an designated individuals. Also ensure that your pictures are attached. send an email to the Bridge Inspection Program Manager (amarino@ the following: pictures, stated problem, determination of severe or u solution to close the critical finding, and attached critical finding rep*

By: [ ] Entry Date: [ ] Team Leader Reporting

Order Number: [ ] Structure #: 03-00142

Carried: CR 800N Feature Intersected: [ ]

Workflow Stage Status: Pass

Workflow Stage: Initial Notification

Assign To: Marino,Anthony P.

Comments: 5/18/22: Submitted to SPM by CJD. Urgent Critical Finding Report, County closed road with barricades on 5/18/22. Repairs underway.

Submit Close

Add any general comments along with the date

Click submit to send the completed Critical Finding Report to SPM for review.





# You discover a Critical Finding...Now what?

## Standard Operating Procedure to Address Critical Findings

- Identify the Critical Finding Category
- Inform the State Program Manager and Bridge Owner
- Report Inspection Findings in BIAS
- **Follow up on Actions Taken**



# Follow up on Actions Taken

- Actions Taken**

Describe any and all corrective actions taken to remedy the Critical Finding, as well as the dates when those corrective actions were completed. Inspectors should add comments with status changes as the corrective actions progress.

- Photos**

Attach additional photos showing how the critical finding was addressed based on the recommended actions. Include as many photos as possible with different angles and descriptions.

- Notify SPM of Update**

Send email to notify the SPM that the follow up action has been documented in the Critical Finding Report.

Open | None Assigned

Must submit to State Program Manager through WorkFlow and an Email will automatically be sent out

**CRITICAL FINDING**

*WARNING: Once the highlighted areas have been filled in you must submit to the State Program Manager through Workflow. This will automatically send an email alert to the designated individuals. Also ensure that your pictures are attached. In addition, still send an email to the Bridge Inspection Program Manager (amarino@indot.in.gov) with the following: pictures, stated problem, determination of severe or urgent, possible solution to close the critical finding, and attached critical finding report.*

Data Entry By: [ ] Entry Date: [ ] Team Leader Reporting: [ ]

Team Leader Number: [ ] Structure #: 03-00142 NBI: 0300219

Facility Carried: CR 800N Feature Intersected: BRANCH OF BIG SLOUGH

Location: 00.36 E OF CR 50 W County: 003

Critical Finding Type: [ ] Date of Finding: [ ]

Notification of SPM Date: [ ] Notification of Owner Date: [ ]

Description of Issue: [ ]

Team Leader Recommended Actions: [ ]

Recommended Date of Action: [ ]

I have attached ( ) photos to this document. [ ]

Safety Action Taken (By Whom/When) [ ]

Critical Finding Addressed [ ]

Safety Action Closeout [ ]

Must submit to State Program Manager through WorkFlow.

Date Closed by State Program Manager in BIAS: [ ] Estimated Final Resolution Date: [ ]

Final Resolution Taken [ ]

Final Resolution Date: [ ]



# You found a Critical Finding...Now what?

## Standard Operating Procedure to Address Critical Findings

- Identify the Critical Finding Category
- Inform the State Program Manager and Bridge Owner
- Report Inspection Findings in BIAS
- Follow up on Actions Taken
- **Close out of Critical Finding Report by SPM**



# Close out of Critical Finding Report by SPM

- **Close Out**

Once the report has been workflowed to the SPM and all corrective actions have been executed, the report can be closed out.

This box shall be left blank by the inspector. The SPM is responsible for closing out the Critical finding and will complete it.

Open | None Assigned

Must submit to State Program Manager through WorkFlow and an Email will automatically be sent out

**CRITICAL FINDING**

*WARNING: Once the highlighted areas have been filled in you must submit to the State Program Manager through Workflow. This will automatically send an email alert to the designated individuals. Also ensure that your pictures are attached. In addition, still send an email to the Bridge Inspection Program Manager (amarino@indot.in.gov) with the following: pictures, stated problem, determination of severe or urgent, possible solution to close the critical finding, and attached critical finding report.*

0300219

Data Entry By: [ ] Entry Date: [ ] Team Leader Reporting: [ ]

Team Leader Number: [ ] Structure #: 03-00142 NBI 0300219

Facility Carried: CR 800N Feature Intersected: BRANCH OF BIG SLOUGH

Location: 00.36 E OF CR 50 W County: 003

Critical Finding Type: [ ] Date of Finding: [ ]

Notification of SPM Date: [ ] Notification of Owner Date: [ ]

Description of Issue: [ ]

Team Leader Recommended Actions: [ ]

Recommended Date of Action: [ ]

I have attached ( ) photos to this document. [ ]

Safety Action Taken (By Whom/When) [ ]

Critical Finding Addressed [ ]

**Safety Action Closeout** [ ]

Must submit to State Program Manager through WorkFlow.

Date Closed by State Program Manager in BIAS: [ ] Estimated Final Resolution Date [ ]

Final Resolution Taken [ ]

Final Resolution Date [ ]

# What is a Critical Finding?





# What is a Critical Finding?

## 23 CFR 650 Subpart C

- A structural or safety related deficiency that requires immediate action to ensure public safety.
- So, what does that mean?



# What is a Critical Finding?

## 23 CFR 650 Subpart C

- A **structural or safety related deficiency** that requires immediate action to ensure public safety.
- Deficiencies included, but are not limited to scour, damage, corrosion, section loss, settlement, cracking, deflection, distortion, delamination, loss of bearing, and any condition posing an imminent threat to public safety



# What is a Critical Finding?

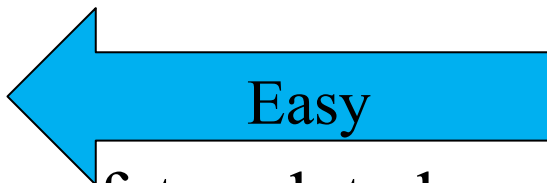
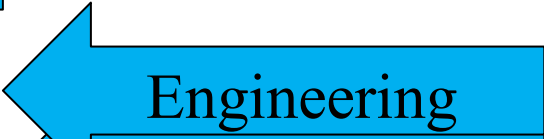

## 23 CFR 650 Subpart C

- A structural or safety related deficiency that **requires immediate action to ensure public safety.**
  - Full or partial closure of any bridge
  - A nonredundant steel tension member (NSTM) rated  $\leq 3$
  - A deck, superstructure, substructure, or culvert component rated  $\leq 2$
  - The channel condition or scour condition rated  $\leq 2$
  - Immediate load restriction or posting
  - Immediate repair work to a bridge, including shoring, in order to remain open.



# Summary

A Critical Finding must have these three items.

- Deficiency  Easy
- Structural or safety related  Engineering
- Requires immediate action for public safety  Judgement

# What is a Critical Finding?

Clear as Mud?





# POP QUIZ



# It's Pop Quiz Time

Close your books!

Spread out!

But....Open your phone to Slido.



## Is this a Critical Finding?



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PCIB bridge hit by truck, all bottom flange strands broken in the 1<sup>st</sup> beam. 2<sup>nd</sup>, 3<sup>rd</sup>, and 4<sup>th</sup> beam also hit with broken strands.



Is this a Critical Finding?

Yes



63

No

0

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## Is this a Critical Finding?



Bridge railing is damaged by impact with a large loose piece of concrete for over  $\frac{1}{2}$  of the height and approximately 4' long with another 7' of damage to the top of the rail beyond that area.

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Is this a Critical Finding?

Yes ✓



54

No



11

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## Is this a Critical Finding?



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Timber deck with two broken timbers. Deck boards are 2" x 6" on stringers on 2' spacing. Adjacent boards are in satisfactory condition.



Is this a Critical Finding?

Yes



No ✓



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## Is this a Critical Finding?



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Hole in concrete deck measuring 24" across with exposed top and bottom mats of steel and located near the yellow centerline.



Is this a Critical Finding?

Yes ✓



65

No



1

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**Is this a Critical Finding?**

Failed deck joint with many asphalt patches.



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Is this a Critical Finding?

Yes

0

No



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## Is this a Critical Finding?



Reinforced concrete channel beam bridge with long length of exposed reinforcing steel near midspan with up to 1/16" of section loss on the exposed rebar.

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Is this a Critical Finding?

Yes



No



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## Is this a Critical Finding?



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Loose tie rod on a prestressed concrete adjacent box beam bridge on a 35 degree skew. The bridge has a concrete deck with transverse hairline cracking present.



Is this a Critical Finding?

Yes



No



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## Is this a Critical Finding?



Steel beam bridge with rust visible at a deck drain. Inspector noted there was section loss but could not reach it to investigate further without coming back with a ladder the following week. The previous inspection noted only surface rust on the steel beams. The bridge is currently posted for 16 tons plus EV.

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Is this a Critical Finding?

Yes ✓



No ✓



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## Is this a Critical Finding?



Steel beam bridge with thru flange section loss. Section loss was only for 3' at the abutment and only on the exterior face of the exterior beam. The web had less than 5% section loss.

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### Is this a Critical Finding?

Yes



No



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## Is this a Critical Finding?



PCBB bridge with 4 exposed strands and numerous cracks at midspan, both longitudinal and transverse. Inspector found 75% of the width of the beam to be delaminated at midspan by sounding and noted that this beam deflected noticeably more under vehicular traffic than the adjacent beams.

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Is this a Critical Finding?

Yes ✓



56

No



8

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## Is this a Critical Finding?



Steel beam at abutment with thru hole in the web. Flange and bearing have less than 5% section loss. Large diaphragms and concrete deck connect the beams to the adjacent beams. The beam shows no signs of vertical deflection at the bearing.

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### Is this a Critical Finding?

Yes ✓



No



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**Is this a Critical Finding?**

Poor weld quality on steel truss repair.

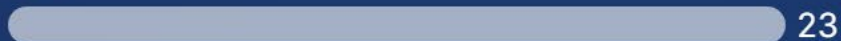


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Is this a Critical Finding?

Yes



No ✓



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**Is this a Critical Finding?** Steel rocker bearing on a cold February day.



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Is this a Critical Finding?

Yes ✓



No



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## Is this a Critical Finding?



Concrete spalled from around and partially under bearing. Approximately 20% of the bearing plate has no concrete directly under it.

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Is this a Critical Finding?

Yes ✓



No



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## Is this a Critical Finding?



Concrete end bent with bottom of footing exposed and undermined. The abutment is 3' wide with piles exposed under the bent. The void extends 2' back under the abutment and is 3" deep. So, there is soil under the back 1' of the end bent. Settlement appears to be from spill slope being poorly compacted during construction and not washed out by stream flow. The approach road shows no signs of distress.

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Is this a Critical Finding?

Yes



No ✓



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**Is this a Critical Finding?**

1” crack in concrete abutment. The footing is not exposed.  
The abutment is plumb.



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### Is this a Critical Finding?

Yes



No



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## Is this a Critical Finding?



Timber pile with large bulge in the middle and many vertical cracks. Timber cap shows no signs of deterioration or overstress.

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### Is this a Critical Finding?

Yes



No



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**Is this a Critical Finding?** Steel shell piles at pier with a large hole in the steel exposing the concrete. The hole measures 15" vertical by 10" horizontal.



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### Is this a Critical Finding?

Yes ✓



No



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## Is this a Critical Finding?



Concrete pier cap has a large spalled area with exposed reinforcing steel and heavy efflorescence. Section loss on the rebar is noted to be less than 5%. No rebar splices are present. No structural cracks were noted.

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Is this a Critical Finding?

Yes



No



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## Is this a Critical Finding?



Corrugated metal pipe with thru holes for 6' of pipe length under the road and the bottom of the pipe offset inward 1/2" from the top.

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Is this a Critical Finding?

Yes ✓



44

No



17

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## Is this a Critical Finding?



Concrete abutment with channel flowing against the abutment. The entire vertical face of the wingwall footing and 5' of the abutment footing is exposed. The bottom of the footing is at the channel bottom elevation, but not undermined. The inspector noted the abutment leaning in 1" in 4' when measured with a level.

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### Is this a Critical Finding?

Yes ✓



No



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## Is this a Critical Finding?



The channel flows into the concrete sloped structure with 4' of scour present, undermining of the sloped structure, and large cracks with deflection present in the sloped structure.

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Is this a Critical Finding?

Yes



No ✓



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## Is this a Critical Finding?



Twin corrugated metal pipes with debris blocking the entire opening of the pipes. Low flow is not backing up but finding a way through the debris. No scour is present.

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Is this a Critical Finding?

Yes



No ✓



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## Is this a Critical Finding?



The county engineer asked the inspector to look at a bridge on a road that the county had closed due to a flood event before they reopened the road. The inspector found debris on the bridge blocking the travel lane. The road is currently closed due to the flood.

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Is this a Critical Finding?

Yes



No



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## Is this a Critical Finding?



The bridge is located  $\frac{1}{2}$  mile down this road. This bridge has a missing 15 ton and EV advanced load posting signs. The load posting signs at the bridge and the other advanced location are in place.

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Is this a Critical Finding?

Yes ✓



No



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# Final Thoughts

- We recognize that we didn't give much time or information to fully grasp the situations presented
- We purposely covered the muddy areas
  - Learn to make good engineering judgements
- Just because it looks bad or the bridge needs some maintenance, does not mean it is a critical finding.
  - Must be a structural or safety concern and need immediate action.



# Final Thoughts

- If you are unsure, talk to someone above you.
  - Text a photo and call from the bridge.
  - FaceTime
- If still unsure... file the critical finding.