

# Bridge Design Updates To the IDM

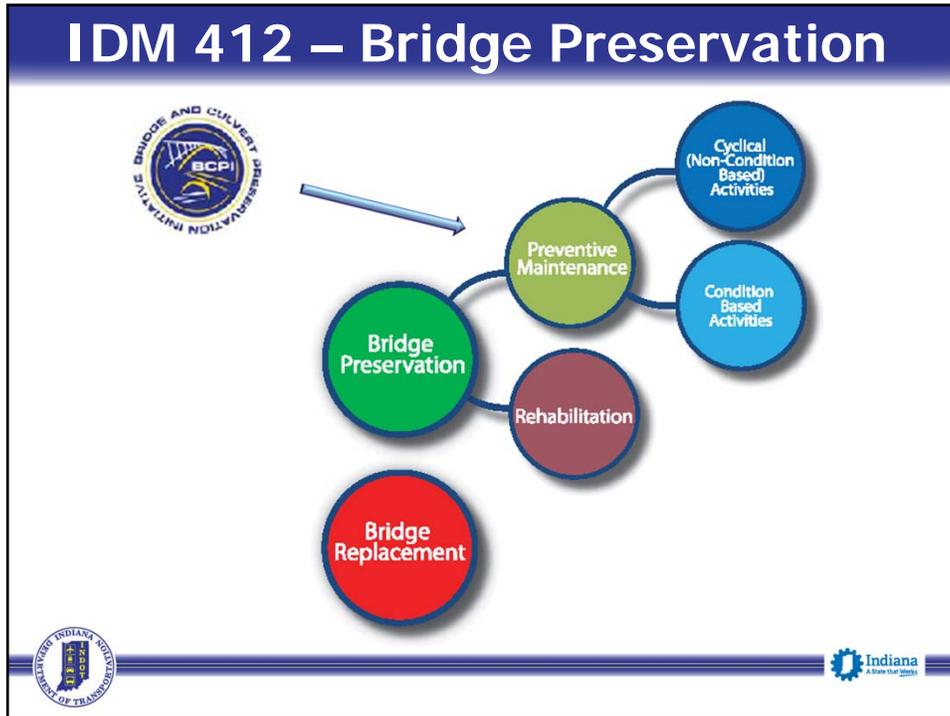
Ed Spahr  
Bridge Design, INDOT

February 16, 2016



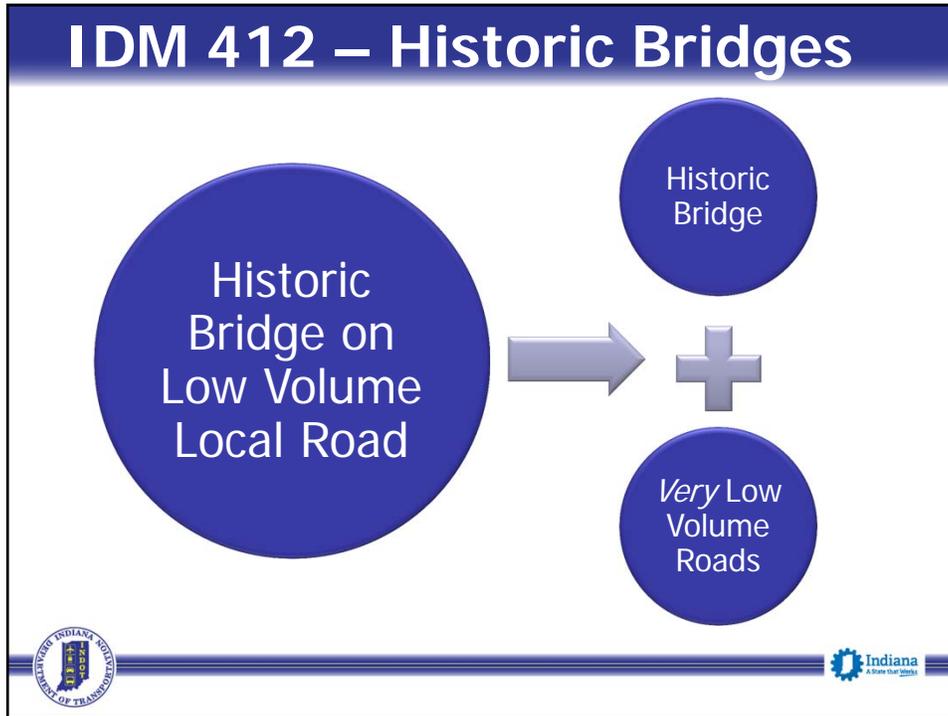
## IDM 412 – Bridge Preservation





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## Design Methodology

Original Design Methodology	Work Type and Design Methodology				
	Deck Replacement	Bridge Widening, Reusing Existing Beams	Bridge Widening, Full Superstructure Replacement	Superstructure Replacement	Bridge Replacement
ASD or LFD	All Elements: LFD <sup>1, 2</sup>	All Elements: LFD <sup>1</sup>	Superstructure: LRFD Substructure: LFD <sup>1</sup>	Superstructure: LRFD Substructure: LFD <sup>1</sup>	Superstructure: LRFD Substructure: LRFD
LRFD	All Elements: LRFD	All Elements: LRFD	All Elements: LRFD	All Elements: LRFD	All Elements: LRFD

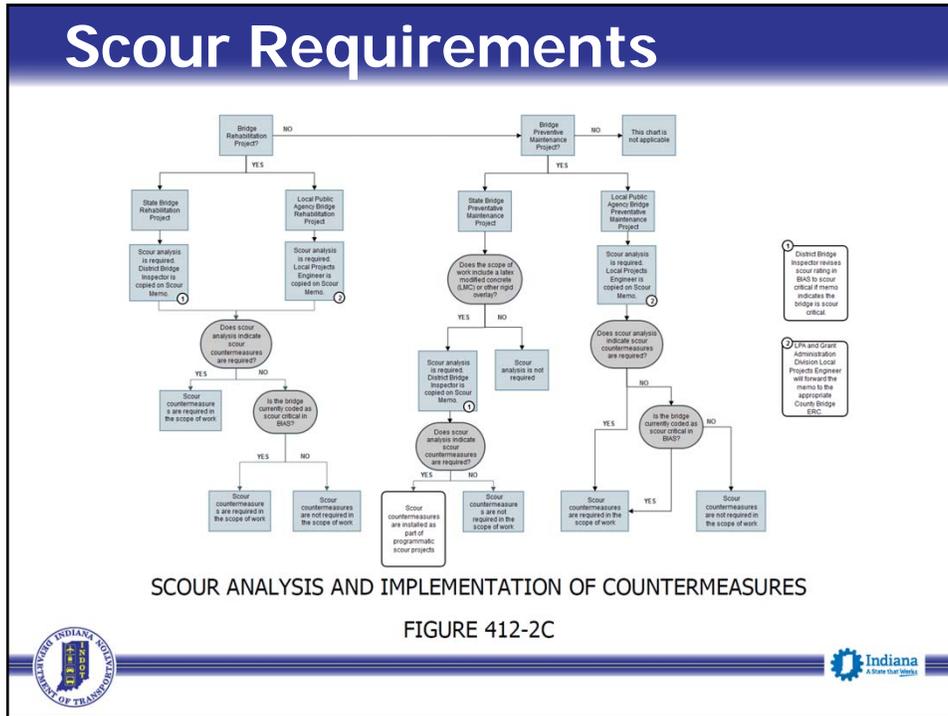
Notes:

<sup>1</sup> LFD in accordance with the AASHTO *Bridge Specifications for Highway Bridges, 17<sup>th</sup> Edition*.

<sup>2</sup> LRFD design methodology is acceptable.

**BRIDGE DESIGN METHODOLOGY BY WORK TYPE**

Figure 412-3A



## Are you Smarter than a 5<sup>th</sup> Grader?

Where can you keep an Aluminum Rail?

A

- It can stay on a PM project as long as it is in good condition

B

- It is not allowed on NHS routes regardless of condition

C

- A & B

## Are you Smarter than a 5<sup>th</sup> Grader?

### Define Existing Bridge to Remain in Place

<b>A</b>	<ul style="list-style-type: none"><li>• A bridge as part of a preservation project with the substructure work only</li></ul>
<b>B</b>	<ul style="list-style-type: none"><li>• Any project that leaves a substantial portion of the existing deck</li></ul>
<b>C</b>	<ul style="list-style-type: none"><li>• A project involving an Historic Bridge</li></ul>



## Are you Smarter than a 5<sup>th</sup> Grader?

### Define Full Paved Approach Width

<b>A</b>	<ul style="list-style-type: none"><li>• Paved Portion of Existing Approach Roadway</li></ul>
<b>B</b>	<ul style="list-style-type: none"><li>• Required Travel Lane Width + Minimum Shoulder Width</li></ul>
<b>C</b>	<ul style="list-style-type: none"><li>• Proposed Lane + Shoulder Width including necessary design exceptions</li></ul>



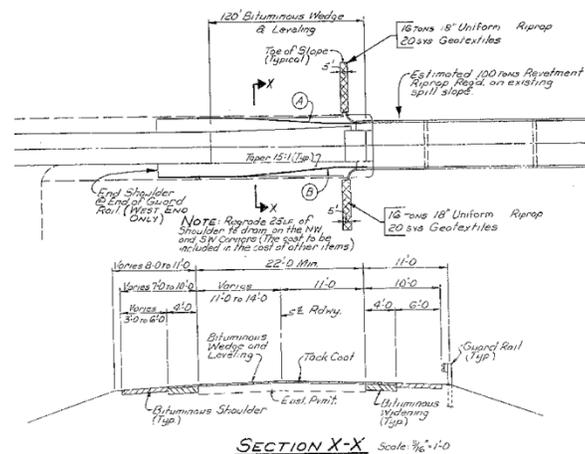
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## Define Full Paved Approach Width



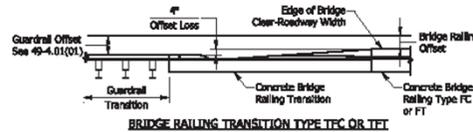
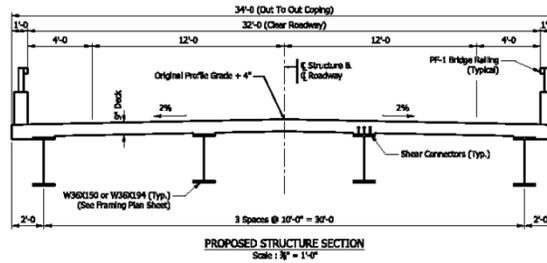
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## Are you Smarter than a 5<sup>th</sup> Grader?

### Define Full Paved Approach Width



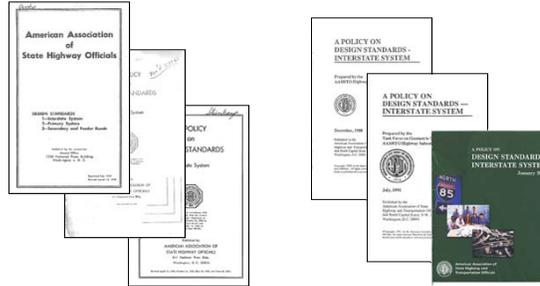
## Rehab Tips

- Greenbook – replace as appropriate
  - Must have 12' lanes for National Truck Network
  - Must meet PROWAG
  - Need additional 6" for Vertical Clearance
  - Ramps should be designed to IDM 48
  - $e_{\max} = 8\%$



## Rehab Tips

- Interstate Standards for Rehab are the standards to which the structure was built.



- Document Level 2's to file: Shy Line Offset.



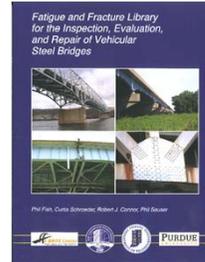
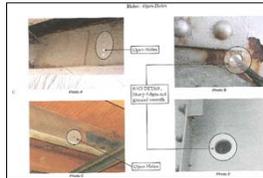
## LPA Preservation Projects

- IDM 412 now allows Preventative Maintenance work for LPA's
- Some Limitations
  - The LPA needs an INDOT approved Asset Management Plan
  - Scour Countermeasures
- New Treatment - 6" reinforced concrete overlay (Only on Adjacent Box Beams with no deck)



## Watch List

- FHWA requesting additional guidance in IDM on Seismic Retrofit decision making and details
- More emphasis on proper steel retrofits
  - Triaxial Stress, Fracture Critical, Fatigue Prone Details
  - USP similar to Heat Straightening USP
- Patching Specs



## Questions?

