

Proposal for BDDM – Repair & Strengthening

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Add the following new section:

1.1.7.7 Repair and Strengthening of Bridges

The terms “Strengthening” and “Repair” are sometimes used interchangeably to describe an action, but they are not the same. Strengthening is the addition of load capacity beyond the level provided for in the original design. Repair is the restoration of the load capacity to the level of the original design.

Bridge strengthening is required when the critical load rating factor for a bridge falls below 1.0. Design bridge strengthening to resist the live load given in 1.1.7.2(4). Note that the required live load for strengthening will typically result in final load rating factors much greater than 1.0.

Bridge repair projects are typically limited to isolated portions of the bridge and address specific needs such as substructure issues and collision damage. Examples of such cases are:

- Footings and/or columns
- Piling
- Girder damage from over height collision
- Bridge rail collision damage

Most bridge projects that require engineering to address needs on existing structures will be considered to be strengthening and will be designed to the criteria mentioned above.

In rare cases there may be extenuating circumstances to support a “do nothing” or reduced design criteria. For such cases, approval of a design deviation is required. FHWA review will also be required if a bridge is to remain in service with a critical rating factor less than 1.0. Factors to be considered in the design deviation approval process may include:

- Estimated cost of repair or strengthening
- Existing permit truck volume and potential for future increases
- Existing girder cracking
- Number of lanes and shoulder widths
- Alternate routes available
- Existing bridge detailing

Background

This is a new BDDM section that clarifies ODOT repair & strengthening policies.