

**THE NATIONAL HIGHWAY SYSTEM BRIDGE RECONSTRUCTION INITIATIVE
OF THE HONORABLE JAMES L. OBERSTAR
CHAIRMAN, COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
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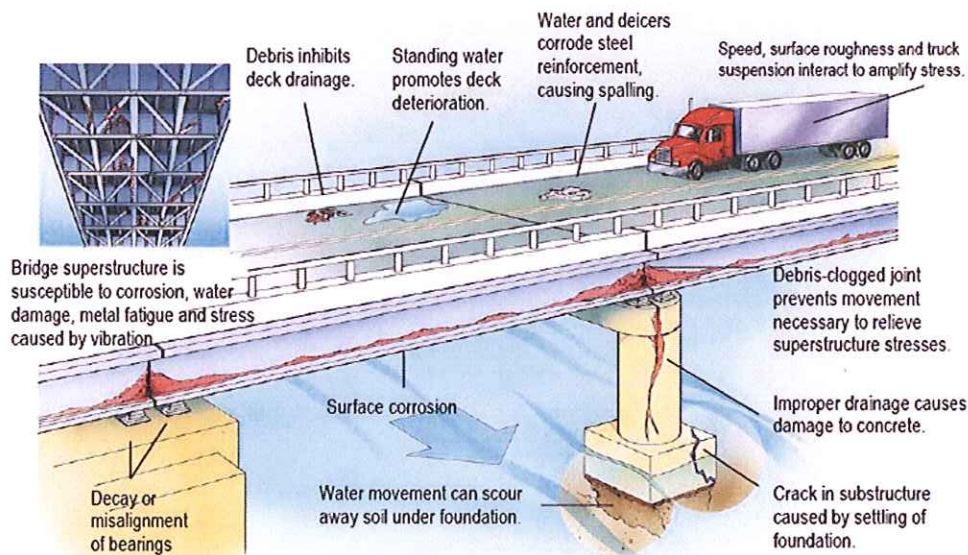
BRIDGE INSPECTION STANDARDS

Most bridges are inspected every two years.¹ Information is collected documenting the conditions and composition of the structures. The periodic inspections determine the adequacy of the structure to service the current demands for structural and functional purposes. Each State's Department of Transportation performs bridge inspections. This information is maintained in the National Bridge Inventory maintained by the Federal Highway Administration ("FHWA").

Structurally Deficient Bridges

A structurally deficient bridge is a bridge that has major deterioration, cracks, or other flaws that reduce its ability to support vehicles. The load-carrying elements of the bridge are found in poor or worse condition due to deterioration and/or damage. When left open to traffic, a structurally deficient bridge typically requires significant maintenance and repair to remain in service and eventual rehabilitation or replacement to address deficiencies. In a 2006 audit of structurally deficient bridges on the National Highway System, the DOT Inspector General ("IG") illustrated common causes of structural deficiency.²

HOW BRIDGES BECOME STRUCTURALLY DEFICIENT



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¹ The National Bridge Inspection Standards ("NBIS") requires biannual safety inspections for bridges on public roads that are in excess of 6.1 meters (approximately 20 feet) in total length.

² U.S. Department of Transportation Inspector General, *Audit of Oversight of Load Ratings and Postings on Structurally Deficient Bridges on the National Highway System*, MH-2006-043, March 21, 2006, p. 2.

The primary considerations in classifying structural deficiencies are the bridge component conditional ratings. The National Bridge Inventory contains ratings on the three primary components of a bridge: the deck, superstructure, and substructure. Bridge inspectors assign condition ratings by evaluating the severity of the deterioration or disrepair and the extent that it has spread through the component being rated.³ Condition ratings of 4 and below indicate poor or worse conditions and result in structural deficiencies.

Rating	Condition Category	Description
9	Excellent	
8	Very Good	
7	Good	No problems noted.
6	Satisfactory	Some minor problems.
5	Fair	All primary structural elements are sound but may have minor section loss, cracking, spalling, or scour.
4	Poor	Advanced section loss, deterioration, spalling, or scour.
3	Serious	Loss of section, deterioration, spalling, or scour have seriously affected the primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.
2	Critical	Advanced deterioration of primary structural elements. Fatigue cracks in steel or shear cracks in concrete may be present or scour may be removed substructure support. Unless closely monitored, it may be necessary to close the bridge until corrective action is taken.
1	Imminent Failure	Major deterioration or section loss present in critical structural components, or obvious loss present in critical structural components, or obvious vertical or horizontal movement affecting structural stability. Bridge is closed to traffic, but corrective action may put back in light service.
0	Failed	Out of service; beyond corrective action.

³ The condition ratings provide an overall characterization of the general condition of the entire component being rated and an indication of localized conditions.

⁴ U.S. Department of Transportation, *2006 Status of the Nation's Highways, Bridges, and Transit: Conditions & Performance*, January 22, 2007, Exhibit 3-9.

Load Ratings and Postings on Structurally Deficient Bridges

In the 2006 audit, the DOT IG found that States erred in calculating the load rating for structurally deficient bridges on the NHS. Properly calculating the load rating of structurally deficient bridges and, if necessary, posting signs to keep heavier vehicles from crossing them, serves to protect structurally deficient bridges from powerful stresses caused by loads that exceed a bridge's capacity. The load rating is an estimate of the weight-carrying capacity of a bridge and is performed separately from the bridge inspection.⁵

According to the DOT IG, inaccurate or outdated maximum weight limit calculations and posting entries were recorded in bridge databases of the state departments of transportation and the National Bridge Inventory. The DOT IG projects that among structurally deficient bridges on the NHS:

- one of 10 structurally deficient NHS bridges had load rating calculations that did not accurately reflect the condition of the structure;
- signs were not posted on 7.8 percent of bridges that were required to have maximum safe weight signs posted; and
- procedures were not properly followed in the calculation of load ratings for 10 percent of the bridges.⁶

FHWA Division Offices did not ensure that states' bridge load ratings were properly calculated and corresponding postings were performed. In addition, FHWA does not require its Division Offices to analyze bridge inspection data to better identify and target specific structurally deficient bridges most in need of load limit recalculation and posting.⁷

⁵ U.S. Department of Transportation Inspector General, *Audit of Oversight of Load Ratings and Postings on Structurally Deficient Bridges on the National Highway System*, MH-2006-043, March 21, 2006, p. 3.

⁶ *Id.*, p. 6.

⁷ *Id.*, p. 13.