

**3.1 What is the purpose of this chapter?** This chapter provides guidelines and procedures for implementing the Service's bridge inspection program.

**3.2 What is the authority for the bridge inspection program?** The Federal Highway Administration, under authority and regulation of 23 U.S.C. 144 and 151, has implemented a national bridge inspection program and established a National Bridge Inventory covering bridges 20 feet or longer that are open to the public. This program establishes inspection and reporting criteria and requires accurate load ratings. Federal agencies that have bridges 20 feet or longer that are open to the public must have a bridge inspection program for those bridges.

**3.3 What does the Service bridge inspection program include?** We have many bridges less than 20 feet long or not used by the public, but which are important administrative bridges used by Service employees and other nongeneral public users. Our bridge inspection program includes Service owned, vehicular use bridges that are 10 feet or longer, with public or nonpublic use.

**3.4 Why does the Service have a bridge inspection program?** To ensure the safety and integrity of Service bridges through an inspection and inventory program. We identify safety deficiencies, maintenance, repair and replacement needs and estimated costs, and safe load limits. Condition ratings indicating the relative severity of deficiencies are developed for use by Regional managers in setting priorities and preparing budget proposals. We maintain a bridge inventory that can be used to evaluate bridge repair or replacement needs and support budget planning efforts. Data required for submission to the National Bridge Inventory is produced.

**3.5 Who is responsible for the bridge inspection program?**

**A. The Chief, Division of Engineering (DEN)** will appoint a Service Bridge Inspection Program Manager.

**B. The Service Bridge Inspection Program Manager** will:

(1) Administer the inspection program and develop guidelines, standards, and procedures for execution of the program.

(2) Develop formats for initial data input, inspection data, and inspection reports.

(3) Prepare or oversee the preparation of bridge inspection reports.

(4) Maintain inspection records and the Service bridge inventory.

(5) Submit data to the Federal Highway Administration for inclusion in the National Bridge Inventory.

**C. Regional Engineers** will appoint a Regional Bridge Coordinator in each Region.

**D. Regional Bridge Coordinators** will:

(1) Provide initial data to the Service Bridge Inspection Program Manager for bridges to be added to the bridge inventory.

(2) Assist the Service Bridge Inspection Program Manager with coordination of inspections within the Region.

(3) Review and provide comments and recommendations within the Region regarding findings and recommendations in Bridge Inspection Reports.

(4) Distribute Bridge Inspection Reports to field stations and others within the Region as appropriate.

**E. Project Leaders** will:

(1) Determine public use status of bridges (see 362 FW 2 for definition).

(2) Determine functional level of bridges (paragraph 3.11 for definitions).

(3) Provide operational information as needed such as traffic volumes, speed limits, and types of vehicles using the bridge.

(4) Review Bridge Inspection Reports for findings and recommended work.

(5) Accomplish station level maintenance and repair work, or initiate projects as appropriate for higher level maintenance, repair, or replacement needs.

**3.6 What is the definition of a bridge?** The following definition, taken from the National Bridge Inspection Standards, modifies the minimum opening from 20 feet to 10 feet (except for pipe culverts) for the Service's bridge inspection program. A bridge is a structure including supports erected over a depression or an obstruction, such as water, highway, or railway, having a track or passageway for carrying traffic or other moving loads, and having a minimum opening of 10 feet or more measured along the center (centerline) of the roadway between undercopings of abutments or spring lines of arches, or extreme ends of openings for multiple boxes. It also

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includes multiple pipes where the distance between extreme ends as measured along the center of the roadway is 20 feet or more and the clear distance between openings is less than half of the smaller contiguous opening. See Exhibit 1 for examples of structures included in this definition.

**3.7 What reports are produced from the bridge inspections?** Bridge Inspection and Appraisal Reports contain bridge identification information, bridge condition summaries, load ratings, maintenance/repair/replacement recommendations, and cost estimates. Bridge Inventory and Appraisal data sheets, which include information required by the National Bridge Inventory, are also produced as needed. The Division of Engineering prepares inspection reports, maintains a copy, and provides a copy to the Region. The Division of Engineering, in conjunction with the Regions, develops the format for inspection reports.

**3.8 What kind of bridge inventory is maintained?** The Division of Engineering maintains a bridge inventory database that includes bridge identification information, inspection data and summaries, work recommendations and cost estimates, and bridge inventory and appraisal data required by the National Bridge Inventory.

**3.9 What guidelines apply to the bridge inspection program?** We will conduct the Service bridge inspection program in accordance with the National Bridge Inspection Standards and Service guidelines, utilizing the following references as appropriate:

- A. 23 CFR 650, National Bridge Inspection Standards.
- B. AASHTO *Manual for Condition Evaluation of Bridges*.
- C. FHWA *Bridge Inspector's Training Manual/90*.
- D. FHWA *Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges*.
- E. 362 FW 1-3.

**3.10 How are the bridges inspected?** We will inspect bridges considering the above guidelines and consistent with the level of use of the bridge. The bridges are evaluated against the design guidelines in 362 FW 2, but upgrade recommendations consider the adequacy of the structure for the level of use the bridge receives. Level of use considers such factors as speed of traffic, amount of traffic, type vehicles using the bridge, and familiarity of users with the bridge as well as other factors listed in Exhibit 1, 362 FW 2.

**3.11 How are bridges classified?** We classify bridges based on their size, type of use, and/or condition, as follows:

**A. Class A.** Bridges that have minimum openings of 20 feet or more and are open to public use. These bridges are reportable to the National Bridge Inventory.

**B. Class B.**

(1) Bridges that have minimum openings of 20 feet or more and are not open to public use.

(2) Bridges with openings between 10 feet and 20 feet (with or without public use) require the same inspection frequency as bridges 20 feet or more because of condition or hazard (not meeting the requirements for Class C bridges).

**C. Class C.** Bridges with openings between 10 feet and 20 feet wide where a decrease in the frequency of inspection is justified on the basis of the following criteria:

(1) Structural condition ratings are seven or higher (good condition with only minor problems).

(2) Scour condition ratings are seven or higher (any previous scour problems have been corrected. Bridge is no longer scour critical).

(3) The bridge does not have fracture critical members requiring special attention.

(4) The estimated remaining life is more than 10 years; that is, the structure shows no appreciable signs of deterioration.

**D. Class D.** Bridges out of service because of condition, road closure, etc.

**E. Class E.** Bridges maintained and inspected under another jurisdiction; i.e., State, county, or other agency.

**3.12 What are functional levels?** The Region will determine the functional level based on use and importance of the bridge. Functional levels are:

**A. Level 1.** Serves the main circulatory tour or thoroughfare for visitors or critical administrative/management functions.

**B. Level 2.** Provides optional side trips to areas of scenic beauty, picnic areas, etc., for visitors or serves secondary administrative/management functions.

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**C. Level 3.** Provides convenience for visitors or Service personnel, but is not critical to the function of the Service. Reasonable alternate access exists.

**D. Level 4.** Provides only truck or four wheel drive access and no public use. Serves lower priority administrative/management functions.

**3.13 Are there different types of inspections?**

**A. Inventory Inspection.** First inspection of a bridge after it is added to the Service bridge inventory. This inspection includes gathering all initial data on the bridge as well as a condition evaluation of the bridge.

**B. Routine Inspection.** Regularly scheduled inspection to determine any changes in the condition or use of the bridge.

**C. Special Inspection.** An out of cycle inspection to assess damage from environmental or man-inflicted causes, or to detect deficiencies not visible during the routine inspection. This may also be a planned, increased frequency inspection due to a condition concern, but where only a special, summary report is done.

**3.14 Are there different types of inspection reports?**

**A. Full Report.** A full, narrative report describing all features of the bridge, and including load ratings, work recommendations, and cost estimates. It also contains a map showing the bridge location, a sketch of the bridge, photographs, and any other desired or helpful items.

**B. Check Report.** A short, summary report that summarizes the condition of the bridge as compared to the previous inspection. Check reports are usually done if the bridge was in satisfactory or better condition than the previous inspection and no significant adverse changes in the condition of the bridge are noted. However, the decision to do a check or a full report is at the discretion of the inspection program manager, in coordination with the Regional bridge coordinator. The check report does not contain maps, sketches, or photographs. Although there may be exceptions, a check report will usually not be done for two consecutive inspections.

**C. Special Report.** A short, narrative report done when a special inspection is performed. This is usually for an out of cycle inspection due to a special condition concern, to return to a bridge as a follow-up to the regular inspection, or for other special reasons. The format for a special report is discretionary to fit the need.

**3.15 Which bridges are inspected?** We will inspect Class A, B, and C bridges. We will not inspect Class D and E bridges, except for special reasons. Special reasons could be to identify repairs required to open a closed bridge, or to determine the feasibility of repairing a closed bridge in lieu of replacement.

**3.16 How often are the bridges inspected?** The frequency of inspection for a bridge is determined by the type structure, type use, and/or condition. The usual frequency of inspection is listed below; however, the inspection program manager, in coordination with the Regional bridge coordinator, has the discretion to modify the frequency for specific bridges.

**A. Class A and B Bridges.** Class A and B bridges are inspected at regular intervals not to exceed 2 years. For these bridges, a full or a check report may be done based on the guidelines for the inspection reports.

**B. Class C Bridges.** Class C bridges are inspected at regular intervals not to exceed 4 years. However, generally, these bridges are "checked" at the 2-year interval if the inspection team is at the station for inspection of other bridges, and a check report is done.

**3.17 Do inspection personnel need special qualifications?**

**A.** The individual in charge of a bridge inspection team will possess the following minimum qualifications:

(1) Be a registered professional engineer and have field bridge inspection experience using the methods of the National Bridge Inspection Standards.

(2) Have a minimum of 5 years experience in bridge inspection assignments in a responsible capacity and have completed a comprehensive training course based on the *Bridge Inspector's Training Manual*.

(3) Have current certification as a Level III or IV Bridge Safety Inspector under the National Society of Professional Engineer's program for National Certification in Engineering Technologies.

**B.** The load rating and structural analysis of a bridge must be performed under the direction of a registered professional engineer familiar with the AASHTO *Manual for Condition Evaluation of Bridges*.