

Introduction

As a result of a catastrophic bridge collapse in December 1967, which took the lives of 46 people, the Congress of the United States enacted legislation requiring that the Federal Highway Administration (FHWA) establish National Bridge Inspection Standards (NBIS) and a National Bridge Inventory (NBI). A copy of the current NBIS is shown in Appendix A.

Initially, inspections were to be performed only on state and federally owned bridges. The Surface Transportation Assistance Act of 1978, expanded this requirement to include all bridge length structures on the public highway systems. (Appendix B defines a Bridge Length Structure and provides sketches of typical bridge length structures.) This includes all bridges under the jurisdiction of federal, state, and local (city/county) governments.

The principal objective of the NBIS program is to ensure public safety. Not only are structural deficiencies to be identified during the course of the inspection process, but if the bridge is not capable of safely supporting legal load vehicles, the owner is responsible for advising the traveling public of any weight restrictions within two days of notification. If the bridge is determined to not be capable of safely supporting a minimum of a 3-ton vehicle, it is the owner's responsibility to close the bridge until it is adequately strengthened or replaced.

ARDOT makes recommendations regarding bridge maintenance needs, load postings and closings, but each local government with bridge length structures is ultimately responsible for the safety of bridges in their jurisdiction.

It is vital that weight restriction signs be properly maintained and promptly replaced if damaged or removed. Failure to post load limits on bridges that a public agency has knowledge to be structurally inadequate of carrying legal loads constitutes negligence. The same is true for failure to close a structure incapable of supporting at least a 3-ton vehicle.

The 2010 Arkansas, Code § 27-85-101; Conservation of bridges. It is directed that the administrators of the various public highway, road, and street systems shall make every effort to conserve the safe function of the bridges under their jurisdiction pursuant to the findings and recommendations of the bridge safety inspections by the bridge inspection teams of the Arkansas Department of Transportation in accord with the national bridge inspection standards published in the Federal Register.

The NBIS also requires each state to prepare and maintain an inventory of all bridges subject to these standards. In order to keep the inventory current and accurate, newly completed structures or any modification of existing structures that would alter previous recorded data in the inventory system must be entered in the state's records within 90 days for state owned bridges or 180 days for all other bridges on public roads within the state.

Background/Overview

As a result of the Surface Transportation Assistance Act of 1978, the Arkansas Department of Transportation (ARDOT) became the coordinating agency between the Federal Highway Administration (FHWA) and the local governments for the NBIS program. Since 1979 ARDOT has been responsible for the inventory, inspection, and load rating of bridge length structures on state, city, and county public highway systems in order to be in compliance with the NBIS.

The ARDOT has made notification of weight posting requirements to owners of bridges under their jurisdiction using letters, forms, and an annual posting certification program. Local governments were made aware that failure to comply with their posting responsibilities could result in loss of Federal-aid Highway funding.

To assist the owners in their signing of weight restricted bridges, a voluntary program was developed to secure load posting materials from ARDOT stock piles at a reduced cost. Initially, this assistance was for the first posting of the bridges, but it was expanded to enable the material requisition to be made, as needed for updated posting levels or vandalism of the signs.

Some of the basic highlights of the program, administered by ARDOT, are as follows:

1. ARDOT purchases and stockpiles bridge weight limit posting materials (posts, signs, and decals) for use by owners. Mounting hardware (nuts, bolts, etc.) will be the responsibility of the owners. Appendix E illustrates the standard weight limit signs and posts.
2. Owners are notified of bridge posting needs.
3. Owners review the needs at the bridge locations and, if needed, can requisition the materials from ARDOT. See the procedures on the Flow Chart I in Appendix C.
4. If the owner installs and certifies the material installation within one month of the requisition date, they will be billed for 20% of the material costs. The FHWA has agreed to reimburse ARDOT for the remaining 80% of the cost of materials. If this certification condition is not met, the owner will be billed for 100% of the cost of materials. State highway funds cannot be expended off of the State Highway System.
5. New signing as well as replacement signing for situations such as sign vandalism or theft is eligible under this program.

As shown in Appendix F, Arkansas is divided into ten highway districts. Communication between ARDOT and the owners will be through the District Construction Engineer designated in Appendix G and the owner's administrator or the contact person designated by owner on NBIS Form VII as shown in Appendix H.

The information in the following sections explains the responsibilities and procedures for NBIS compliance.

Notification of Bridge Information

ARDOT will notify the owners regarding maintenance needs, load posting, and closures using correspondence such as a Maintenance Needs report, the annual Bridge Inventory/Posting Certification report, or other communication. It is the owner's responsibility to promptly address any noted deficiency or need.

Each month, a reminder will be sent from ARDOT to the email address on file for any bridge with a Maintenance Need that has not been shown as completed for any issue with a "critical finding" (CF) priority, or a load posting deficiency with an "A" priority (A).

Owners with bridge length structures must participate in the annual certification project, and will receive a "Bridge Inventory/Posting Certification" report from ARDOT by October 1 of each year. This report will indicate the current status of the complete active bridge inventory under the owner's jurisdiction. Unless noted otherwise, it is required that *each sheet* of this report be reviewed and initialed, the last sheet dated and signed by the owner's official and the report returned by December 31 of each year to the ARDOT District Construction Engineer (DCE) for transmittal to the ARDOT Bridge Division. *This signed report will serve as certification that all bridges have been posted or closed as required.* A copy of this report should be retained by the owner for their records.

FAILURE TO SUBMIT A PROPERLY ENDORSED CERTIFICATION BY DECEMBER 31 OF EACH YEAR WILL RESULT IN FEDERAL AID HIGHWAY FUNDS FOR FUTURE CONSTRUCTION PROJECTS UNDER THE OWNER'S JURISDICTION BEING WITHHELD, UNLESS NOTED OTHERWISE.

Bridge Closure for Non-State Owned Bridges

If an inspection by ARDOT personnel reveals a dangerous situation that requires immediate closing, they should:

1. As able, restrict access to the bridge and inform the traveling public of the danger.
2. Notify the owner that the bridge should be closed and notify the District Construction Engineer (DCE).

The DCE will:

1. Investigate the need to close the bridge.
2. Notify the owner of findings and whether the bridge should remain closed.
3. Provide the inspection report and other appropriate information to the Bridge Division.

If Bridge Division concurs with the closing, an official notification letter to the owner will be sent.

If an inspection by ARDOT personnel reveals a dangerous situation, they should notify the District Construction Engineer (DCE).

The DCE will:

1. Investigate the need to close the bridge.
2. If bridge closing is required, restrict access to bridge and notify the owner of the need to close the bridge.
3. Provide the inspection report and other appropriate information to the ARDOT Bridge Division.

If Bridge Division determines the bridge should be closed, an official notification letter to the owner will be sent.

Federal regulations state that a bridge incapable of supporting a 3-ton load limit requires closure. If Bridge Division determines that a bridge should be closed, the following steps should be taken:

Bridge Division will:

1. Send an official notification letter to the owner.
2. Inform the DCE by telephone.

The DCE will make verbal notification to the owner.

Upon notification by ARDOT, the owner should take immediate action to physically close the structure with acceptable barriers until it has been rehabilitated or replaced. The owner shall notify school districts in their jurisdiction regarding the location of bridges with load postings less than 15 tons for planning safe travel of school buses. If the bridge has not been satisfactorily closed or rehabilitated within two business days of being notified of the need for closure, an ARDOT Administrative Official will contact the owner regarding compliance with the bridge closure.

Using the standard NBIS Form VII shown in Appendix H, the owner is responsible for designating, in writing, a contact person for bridge inspection related matters.

A responsible representative for the owner will make notification to the ARDOT DCE of any changes in bridge status affecting the NBIS data by utilizing the Standard NBIS Form VIII shown in Appendix K, or other correspondence. Complete and submit NBIS Form VIII when:

1. Bridge physically closed to traffic.
2. Bridge removed and not replaced (eliminated).
3. Bridge removed and replaced at the existing location.
4. Existing bridge widened and/or length changed.

5. Bridge Constructed at new location.
6. Existing deck and/or stringer(s) replaced or strengthened.
7. Existing pier(s)/bent(s)/abutment(s) replaced or strengthened.
8. Existing pile(s)/column(s) replaced or strengthened.
9. Additional pier(s)/bent(s) added to existing structure.
10. Additional surfacing (asphalt, gravel, concrete, timber) added over existing deck.
11. Existing bridge damaged by manmade or natural causes.
12. Accumulated debris/drift removed from the bridge channel.

Note: This list is not intended to be exhaustive – other events may require notification. Updates to bridge information can be made by email, fax, or letter to the DCE.

In the event of an ownership change, such as annexation, the current owner should note the limits of change on a map. This map will be dated, signed by both the current and former owners, and forwarded to the DCE.

The term public road means any road or street under the jurisdiction of and maintained by a public authority and open to public travel. The owner has a responsibility to the public to maintain any bridge that can be traversed by the public. To remove a bridge from the local inventory the owner must provide certification to the DCE of one of the following:

1. The ownership and responsibility has been transferred to another public authority.
2. The owner has restricted access to the structure so that the public may not traverse the structure.

Load Posting Materials Assistance

Participation in the cost sharing program for posting materials is voluntary, but to be eligible, the Resolution (City) or Court Order (County) must be completed and returned to the ARDOT DCE shown in Appendix G.

See http://www.ardot.gov/bridge_division/bridge_rating_inventory.aspx to download a copy of the Resolution or the Court Order.

The owner is responsible for providing the proper information when requesting posting materials (see NBIS Form IX, Appendix L) and for also certifying that the installation has been completed. Identification and current load posting information for completing NBIS Form IX may be obtained from the most current "Bridge Inventory/Posting Certification" report or other supplemental ARDOT notification. See "Instructions for Completing" at the bottom of NBIS Form IX and Flow Chart I in Appendix C.

The decals to correct posting values can be sent by mail from the DCE for a bridge that has signs and posts in place at both bridge ends. A NBIS Form IX with the requisition data entered will be sent with the decals. After the decals are placed on the signs, the installation date should be added and the signed form sent to the DCE to receive the reduced material cost.

Procedures for Scour Critical/Susceptible Bridges

An ARDOT representative has previously met with the administrator of each owner having scour critical/susceptible bridges, to explain the responsibility of assessing a bridge for a high water event that could affect the stability of the bridge. A copy of the Scour Plan of Action (SPOA) which details the procedures to follow for the affected bridge was provided.

The following steps summarize the general procedures to follow, as defined in a SPOA:

1. The owner should be aware of weather conditions that could potentially create water flow under the bridge that could reach the triggering event stage.
2. If the triggering event stage is reached, the recommended action steps in the SPOA will be taken by the owner. If hazardous conditions are found, access to the bridge is blocked and ARDOT notified.
3. The owner records the actions taken at the bridge using a copy of the SPOA Event Report, available at http://www.ardot.gov/bridge_division/bridge_rating_inventory.aspx, and submits it to the District Construction Engineer for processing and archiving in the inspection record.

Billing

Billing statements will be sent by ARDOT Fiscal Services Division to owners with bridge length structures for two separate situations:

1. Annually, an invoice will be sent for the cost of the owner's portion of bridge inspections performed during the year. The amount depends on the number of inspections made and the type of bridges inspected.
2. An invoice will be sent for the cost of the owner's portion of any bridge posting materials requisitioned from ARDOT.

The owner is responsible for sending a reimbursement check made payable to the Arkansas Department of Transportation, Fiscal Services Division, P.O. Box 2261, Little Rock, AR 72203. Please note on the check, for Bridge Inspections or Bridge Posting Materials, as applicable.

Providing Details for Bridges Constructed by the Local Government

For bridges constructed by the local government staff or on a project contracted solely by the local government, bridge structure details are very beneficial in determining a bridge's safe load capacity or scour susceptibility. Thus, when these details are available, they should be provided to the ARDOT DCE to use in the bridge evaluation. These details should include:

1. Contract drawings for bridge members used in bridge construction.
2. Final length of piling driven in a bridge pier/bent (scour assessment).
3. Depth or elevation of the bottom of a pier/bent footing (scour assessment).
4. Details of a steel girder/beam that is new or salvaged from another bridge. This could include the girder size, steel type and grade, or if shear studs are used to make the concrete deck composite with the girder.
5. Concrete compressive strength and reinforcing steel size, strength, and spacing used in a girder, footing, column, or slab.

Evidence of Posting Deficiency Correction

When a bridge posting deficiency (signing not in place; incorrect posting tonnages) is corrected, a dated photo of the posting sign on each end should be included with the posting correction notification sent to ARDOT DCE to show that the correction has been completed. It is preferred that the photos be transmitted via email to the ARDOT DCE.

ARDOT Responsibilities

The DCE is the designated contact person for the ARDOT Bridge Inspection (see Appendix G or http://www.ardot.gov/bridge_division/bridge_rating_inventory.aspx).

ARDOT is responsible for the inspection and load rating of bridge length structures on the county/city public road systems in compliance with NBIS. ARDOT will bill the owner 20% of the associated administration costs for the bridges under their jurisdiction annually.

ARDOT will inspect each bridge at regular intervals not to exceed two years. A bridge requiring weight limit posting or having low element conditions will be inspected at least every twelve months. ARDOT will notify the bridge owner if it is found that a problem with regard to safety or structural integrity is discovered during an inspection or analysis of any bridges.

Updated inspection data is reviewed by ARDOT and load rating data is revised as necessary.

ARDOT will notify the owner if an analysis or review indicates a change in posting requirements or bridge closure is warranted.

Federal regulations require that a bridge incapable of supporting a 3-ton load limit be closed to all traffic. If conditions warrant bridge closure, the owner will be contacted by the ARDOT DCE and by the Bridge Engineer. Upon notification, the owner should take immediate action to physically close the structure with acceptable barriers until it has been rehabilitated or replaced.

Note: If the bridge has not been satisfactorily closed or rehabilitated within two business days of being notified of the need for closure, an ARDOT Administrative Official will contact the owner regarding immediate compliance with the bridge closure.

ARDOT will distribute a "Bridge Inventory/Posting Certification" report to each owner by October 1 of each year. This report will list the owner's complete active bridge inventory and indicate bridges requiring posting or closing. Unless otherwise noted, the report is to be initialed on each sheet, signed and dated on the last sheet by the owner's administrator and returned to the ARDOT District Headquarters by December 31 of each year for transmittal to the ARDOT Bridge Division. ***This signed report will serve as certification that all bridges have been posted or closed as required.***

Upon written notification by the owner of a structural change, the addition, or the removal of a bridge from their inventory, ARDOT will inspect the bridge for an inventory update if deemed necessary.

ARDOT will include on IDriveArkansas.com, links to maps showing data regarding bridges with load posting recommendations on the state and local highway systems including the bridge location and posting values. This will allow the data to be viewed by the general public for use in safe travel on public roads.

Explanation and use of the Bridge Inventory/Posting Certification Report

As part of the federally mandated NBIS, the ARDOT intends to furnish the subject report annually to each owner entity responsible for bridge length structures on the public highway system(s).

This annual report will advise the owner of current status of the bridge inventory and weight limit requirements for bridges under their jurisdiction. Each standardized report will provide the complete inventory of all bridge length structures that are on the owner's public road system (i.e., city, county). Since each updated listing will provide the owner with complete inventory and weight limit information, the owner need only retain the most current report. See Flow Chart II in Appendix D.

Bridge Inventory/Posting Certification Guide to Information and Notations

Route Columns

County reports

Route - ARDOT inventory route number on which the bridge is located.

Other Route Designation - Other known designation for the route, such as emergency/911 numbers or names.

City reports

Route Name - the city street name on which the bridge is located.

Feature Under Bridge

The obstacle that the bridge spans.

Location

A brief description of the location of the bridge.

Main Span Information Columns

The material composition and type of the bridge main span(s) is listed for identifying purposes. There may be approach spans of differing composition and type than the listed main span.

Bridge Dimensions (feet) Columns (Length and Width)

Length - Total bridge length.

Width – Deck width, measured from out to out. Most bridge length culverts with fill material will have the width listed as 0.0 if no lateral restrictions are present, such as guard railing or other obstruction.

Req'd Posting (Tons) Columns

Vehicle Maximum Legal Limits (Tons):

Code 4 = 22 T

Code 9 = 31 T

Code 5 = 40 T

If “Legal” is listed in a column, no posting is recommended for that vehicle.

A number listed under a column indicates the recommended posting tonnage for that vehicle.

If the recommended posting is “0” tons, the bridge must be closed to all vehicular traffic.

Bridge Number

The ARDOT numerical identifier for the bridge.

Remarks Column

Use for any notations or comments, as desired. If there is a valid reason for not posting or closing a bridge as indicated, explanation in this column or attach a supplemental document of explanation.

Initials at Bottom of Page

After reviewing each page for posting or closure recommendations, the owner’s administrator must enter their initials indicating all bridges on the page have been reviewed, unless noted otherwise.

Signature and Date

In order for the certification to be valid, the signature of the owner’s official and date of signing must appear on the last sheet of the certification.

Appendices

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CODE OF FEDERAL REGULATIONS, 23

HIGHWAYS – Part 650

Subpart C—National Bridge Inspection Standards
SOURCE: 69 FR 74436, April 1, 2011, unless otherwise noted.

§ 650.301 Purpose.

This subpart sets the national standards for the proper safety inspection and evaluation of all highway bridges in accordance with 23 U.S.C. 151.

§ 650.303 Applicability. The National Bridge Inspection Standards (NBIS) in this subpart apply to all structures defined as highway bridges located on all public roads.

§ 650.305 Definitions.

Terms used in this subpart are defined as follows:

American Association of State Highway and Transportation Officials (AASHTO) Manual. “The Manual for Bridge Evaluation,” First Edition, 2008, published by the American Association of State Highway and Transportation Officials (incorporated by reference, see §650.317).

Bridge. A structure including supports erected over a depression or an obstruction, such as water, highway, or railway, and having a track or passageway for carrying traffic or other moving loads, and having an opening measured along the center of the roadway of more than 20 feet between undercopings of abutments or spring lines of arches, or extreme ends of openings for multiple boxes; it may also include multiple pipes, where the clear distance between openings is less than half of the smaller contiguous opening.

Bridge inspection experience. Active participation in bridge inspections in accordance with the NBIS, in either a field inspection, supervisory, or management role. A combination of bridge design, bridge maintenance, bridge construction and bridge inspection experience, with the predominant amount in bridge inspection, is acceptable. Bridge inspection refresher training. The National Highway Institute “Bridge Inspection Refresher Training Course” 1 or other State, local, or federally developed instruction aimed to improve quality of inspections, introduce new techniques, and maintain the consistency of the inspection program. Bridge Inspector’s Reference Manual (BIRM). A comprehensive FHWA manual on programs, procedures and techniques for inspecting and evaluating a variety of in-service highway bridges. This manual may be purchased from the U.S. Government Printing Office, Washington, DC 20402 and from National Technical Information Service, Springfield, Virginia 22161, and is available at the following URL: <http://www.fhwa.dot.gov/bridge/bripub.htm>.

Complex bridge. Movable, suspension, cable stayed, and other bridges with unusual characteristics.

Comprehensive bridge inspection training. Training that covers all aspects of bridge inspection and enables inspectors to relate conditions observed on a bridge to established criteria (see the Bridge Inspector’s Reference Manual for the recommended material to be covered in a comprehensive training course).

Critical finding. A structural or safety related deficiency that requires immediate follow-up inspection or action.

Damage inspection. This is an unscheduled inspection to assess structural damage resulting from environmental factors or human actions.

Fracture critical member (FCM). A steel member in tension, or with a tension element, whose failure would probably cause a portion of or the entire bridge to collapse.

Fracture critical member inspection. A hands-on inspection of a fracture critical member or member components that may include visual and other nondestructive evaluation.

Hands-on. Inspection within arms length of the component. Inspection uses visual techniques that may be supplemented by nondestructive testing.

Highway. The term “highway” is defined in 23 U.S.C. 101(a)(11).

In-depth inspection. A close-up, inspection of one or more members above or below the water level to identify any deficiencies not readily detectable using routine inspection procedures; hands-on inspection may be necessary at some locations.

Initial inspection. The first inspection of a bridge as it becomes a part of the bridge file to provide all Structure Inventory and Appraisal (SI&A) data and other relevant data and to determine baseline structural conditions.

Legal load. The maximum legal load for each vehicle configuration permitted by law for the State in which the bridge is located.

Load rating. The determination of the live load carrying capacity of a bridge using bridge plans and supplemented by information gathered from a field inspection.

National Institute for Certification in Engineering Technologies (NICET). The NICET provides nationally applicable voluntary certification programs covering several broad engineering technology fields and a number of specialized subfields. For information on the NICET program certification contact: National Institute for Certification in Engineering Technologies, 1420 King Street, Alexandria, VA 22314–2794.

Operating rating. The maximum permissible live load to which the structure may be subjected for the load configuration used in the rating.

Professional engineer (PE). An individual, who has fulfilled education and experience requirements and passed rigorous exams that, under State licensure laws, permits them to offer engineering services directly to the public. Engineering licensure laws vary from State to State, but, in general, to become a PE an individual must be a graduate of an engineering program accredited by the Accreditation Board for Engineering and Technology, pass the Fundamentals of Engineering exam, gain four years of experience working under a PE, and pass the Principles of Practice of Engineering exam.

Program manager. The individual in charge of the program, that has been assigned or delegated the duties and responsibilities for bridge inspection, reporting, and inventory. The program manager provides overall leadership and is available to inspection team leaders to provide guidance.

Public road. The term “public road” is defined in 23 U.S.C. 101(a)(27).

Quality assurance (QA). The use of sampling and other measures to assure the adequacy of quality control procedures in order to verify or measure the quality level of the entire bridge inspection and load rating program.

Quality control (QC). Procedures that are intended to maintain the quality of a bridge inspection and load rating at or above a specified level.

Routine inspection. Regularly scheduled inspection consisting of observations and/or measurements needed to determine the physical and functional condition of the bridge, to identify any changes from initial or previously recorded conditions, and to ensure that the structure continues to satisfy present service requirements.

Routine permit load. A live load, which has a gross weight, axle weight or distance between axles not conforming with State statutes for legally configured vehicles, authorized for unlimited trips over an extended period of time to move alongside other heavy vehicles on a regular basis.

Scour. Erosion of streambed or bank material due to flowing water; often considered as being localized around piers and abutments of bridges.

Scour critical bridge. A bridge with a foundation element that has been determined to be unstable for the observed or evaluated scour condition.

Special inspection. An inspection scheduled at the discretion of the bridge owner, used to monitor a particular known or suspected deficiency.

State transportation department. The term “State transportation department” is defined in 23 U.S.C. 101(a)(34).

Team leader. Individual in charge of an inspection team responsible for planning, preparing, and performing field inspection of the bridge.

Underwater diver bridge inspection training. Training that covers all aspects of underwater bridge inspection and enables inspectors to relate the conditions of underwater bridge elements to established criteria (see the Bridge Inspector’s Reference Manual section on underwater inspection for the recommended material to be covered in an underwater diver bridge inspection training course).

Underwater inspection. Inspection of the underwater portion of a bridge substructure and the surrounding channel, which cannot be inspected visually at low water by wading or probing, generally requiring diving or other appropriate techniques.

[69 FR 74436, Dec. 14, 2004, as amended at 74 FR 68379, Dec. 24, 2009]

§ 650.307 Bridge inspection organization.

(a) Each State transportation department must inspect, or cause to be inspected, all highway bridges located on public roads that are fully or partially located within the State’s boundaries, except for bridges that are owned by Federal agencies.

(b) Federal agencies must inspect, or cause to be inspected, all highway bridges located on public roads that are fully or partially located within the respective agency responsibility or jurisdiction.

(c) Each State transportation department or Federal agency must include a bridge inspection organization that is responsible for the following:

(1) Statewide or Federal agency wide bridge inspection policies and procedures, quality assurance and quality control, and preparation and maintenance of a bridge inventory.

(2) Bridge inspections, reports, load ratings and other requirements of these standards.

(d) Functions identified in paragraphs (c)(1) and (2) of this section may be delegated, but such delegation does not relieve the State transportation department or Federal agency of any of its responsibilities under this subpart.

(e) The State transportation department or Federal agency bridge inspection organization must have a program manager with the qualifications defined in §650.309(a), who has been delegated responsibility for paragraphs (c)(1) and (2) of this section.

§ 650.309 Qualifications of personnel.

(a) A program manager must, at a minimum:

(1) Be a registered professional engineer, or have ten years bridge inspection experience; and

(2) Successfully complete a Federal Highway Administration (FHWA) approved comprehensive bridge inspection training course.

- (b) There are five ways to qualify as a team leader. A team leader must, at a minimum:
- (1) Have the qualifications specified in paragraph (a) of this section; or
 - (2) Have five years bridge inspection experience and have successfully completed an FHWA approved comprehensive bridge inspection training course; or
 - (3) Be certified as a Level III or IV Bridge Safety Inspector under the National Society of Professional Engineer's program for National Certification in Engineering Technologies (NICET) and have successfully completed an FHWA approved comprehensive bridge inspection training course, or
 - (4) Have all of the following:
 - (i) A bachelor's degree in engineering from a college or university accredited by or determined as substantially equivalent by the Accreditation Board for Engineering and Technology;
 - (ii) Successfully passed the National Council of Examiners for Engineering and Surveying Fundamentals of Engineering examination;
 - (iii) Two years of bridge inspection experience; and
 - (iv) Successfully completed an FHWA approved comprehensive bridge inspection training course, or
 - (5) Have all of the following:
 - (i) An associate's degree in engineering or engineering technology from a college or university accredited by or determined as substantially equivalent by the Accreditation Board for Engineering and Technology;
 - (ii) Four years of bridge inspection experience; and
 - (iii) Successfully completed an FHWA approved comprehensive bridge inspection training course.
- (c) The individual charged with the overall responsibility for load rating bridges must be a registered professional engineer.
- (d) An underwater bridge inspection diver must complete an FHWA approved comprehensive bridge inspection training course or other FHWA approved underwater diver bridge inspection training course.

§ 650.311 Inspection frequency.

- (a) Routine inspections.
- (1) Inspect each bridge at regular intervals not to exceed twenty-four months.
 - (2) Certain bridges require inspection at less than twenty-four-month intervals. Establish criteria to determine the level and frequency to which these bridges are inspected considering such factors as age, traffic characteristics, and known deficiencies.
 - (3) Certain bridges may be inspected at greater than twenty-four month intervals, not to exceed forty-eight months, with written FHWA approval. This may be appropriate when past inspection findings and analysis justifies the increased inspection interval.
- (b) Underwater inspections.
- (1) Inspect underwater structural elements at regular intervals not to exceed sixty months.
 - (2) Certain underwater structural elements require inspection at less than sixty-month intervals. Establish criteria to determine the level and frequency to which these members are inspected considering such factors as construction material, environment, age, scour characteristics, condition rating from past inspections and known deficiencies.

(3) Certain underwater structural elements may be inspected at greater than sixty-month intervals, not to exceed seventy-two months, with written FHWA approval. This may be appropriate when past inspection findings and analysis justifies the increased inspection interval.

(c) Fracture critical member (FCM) inspections.

(1) Inspect FCMs at intervals not to exceed twenty-four months.

(2) Certain FCMs require inspection at less than twenty-four-month intervals. Establish criteria to determine the level and frequency to which these members are inspected considering such factors as age, traffic characteristics, and known deficiencies.

(d) Damage, in-depth, and special inspections. Establish criteria to determine the level and frequency of these inspections.

§ 650.313 Inspection procedures.

(a) Inspect each bridge in accordance with the inspection procedures in the AASHTO Manual (incorporated by reference, see §650.317).

(b) Provide at least one team leader, who meets the minimum qualifications stated in §650.309, at the bridge at all times during each initial, routine, in-depth, fracture critical member and underwater inspection.

(c) Rate each bridge as to its safe load-carrying capacity in accordance with the AASHTO Manual (incorporated by reference, see §650.317). Post or restrict the bridge in accordance with the AASHTO Manual or in accordance with State law, when the maximum unrestricted legal loads or State routine permit loads exceed that allowed under the operating rating or equivalent rating factor.

(d) Prepare bridge files as described in the AASHTO Manual (incorporated by reference, see §650.317). Maintain reports on the results of bridge inspections together with notations of any action taken to address the findings of such inspections. Maintain relevant maintenance and inspection data to allow assessment of current bridge condition. Record the findings and results of bridge inspections on standard State or Federal agency forms.

(e) Identify bridges with FCMs, bridges requiring underwater inspection, and bridges that are scour critical.

(1) Bridges with fracture critical members. In the inspection records, identify the location of FCMs and describe the FCM inspection frequency and procedures. Inspect FCMs according to these procedures.

(2) Bridges requiring underwater inspections. Identify the location of underwater elements and include a description of the underwater elements, the inspection frequency and the procedures in the inspection records for each bridge requiring underwater inspection. Inspect those elements requiring underwater inspections according to these procedures.

(3) Bridges that are scour critical. Prepare a plan of action to monitor known and potential deficiencies and to address critical findings. Monitor bridges that are scour critical in accordance with the plan.

(f) Complex bridges. Identify specialized inspection procedures, and additional inspector training and experience required to inspect complex bridges. Inspect complex bridges according to those procedures.

(g) Quality control and quality assurance. Assure systematic quality control (QC) and quality assurance (QA) procedures are used to maintain a high degree of accuracy and consistency in the inspection program. Include periodic field review of inspection teams, periodic bridge inspection refresher training for program managers and team leaders, and independent review of inspection reports and computations.

(h) Follow-up on critical findings. Establish a statewide or Federal agency wide procedure to assure that critical findings are addressed in a timely manner. Periodically notify the FHWA of the actions taken to resolve or monitor critical findings.

§ 650.315 Inventory.

(a) Each State or Federal agency must prepare and maintain an inventory of all bridges subject to the NBIS. Certain Structure Inventory and Appraisal (SI&A) data must be collected and retained by the State or Federal agency for collection by the FHWA as requested. A tabulation of this data is contained in the SI&A sheet distributed by the FHWA as part of the “Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation’s Bridges,” (December 1995) together with subsequent interim changes or the most recent version. Report the data using FHWA established procedures as outlined in the “Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation’s Bridges.”

(b) For routine, in-depth, fracture critical member, underwater, damage and special inspections enter the SI&A data into the State or Federal agency inventory within 90 days of the date of inspection for State or Federal agency bridges and within 180 days of the date of inspection for all other bridges.

(c) For existing bridge modifications that alter previously recorded data and for new bridges, enter the SI&A data into the State or Federal agency inventory within 90 days after the completion of the work for State or Federal agency bridges and within 180 days after the completion of the work for all other bridges.

(d) For changes in load restriction or closure status, enter the SI&A data into the State or Federal agency inventory within 90 days after the change in status of the structure for State or Federal agency bridges and within 180 days after the change in status of the structure for all other bridges.

§ 650.317 Reference manuals.

(a) The materials listed in this subpart are incorporated by reference in the corresponding sections noted. These incorporations by reference were approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. These materials are incorporated as they exist on the date of the approval, and notice of any change in these documents will be published in the FEDERAL REGISTER. The materials are available for purchase at the address listed below, and are available for inspection at the National Archives and Records Administration (NARA). These materials may also be reviewed at the Department of Transportation Library, 1200 New Jersey Avenue, SE., Washington, DC 20590, (202) 366-0761.

For information on the availability of these materials at NARA call (202) 741-6030, or go to the following URL:

<http://www.archives.gov/federalregister/codofllofederalregulations/ibrllocations.htm>. In the event there is a conflict between the standards in this subpart and any of these materials, the standards in this subpart will apply.

(b) The following materials are available for purchase from the American Association of State Highway and Transportation Officials, Suite 249, 444 N. Capitol Street, NW., Washington, DC 20001, (202) 624-5800. The materials may also be ordered via the AASHTO bookstore located at the following URL: <http://www.transportation.org>.

(1) The Manual for Bridge Evaluation, First Edition, 2008, AASHTO, incorporation by reference approved for §§650.305 and 650.313.

(2) [Reserved]

[74 FR 68379, Dec. 24, 2009]

Definition and Examples of Bridge Length Structures

The National Bridge Inspection Standards (NBIS) require that all structures defined as bridges located on all public roads be inventoried, inspected and load rated.

A bridge shall be defined as a structure that carries traffic over an obstruction, and whose gross length from inside face of abutment to inside face of abutment is more than 20 feet, measured along the center of the roadway.

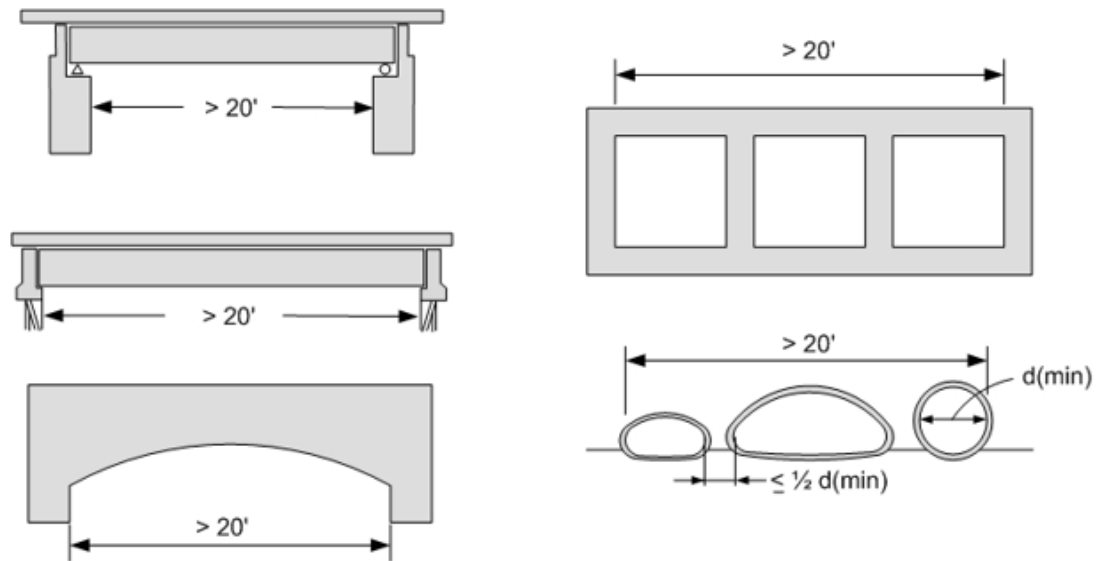
A multiple pipe culvert shall be classified as a bridge length structure if the clear distance between openings is less than half of the smaller adjacent opening, and the overall length of structure (out to out of pipe openings) is more than 20 feet, measured along the center of the roadway.



3.1.3

NBIS Bridge Length

The *FHWA Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges* also states, in accordance with Item 112 – NBIS Bridge Length, that the minimum length for a structure to be considered a bridge for National Bridge Inspection Standards purposes, is to be 20 feet (see Figure 3.1.2).



23 CFR Part 650.305 Definitions. Bridge. A structure including supports erected over a depression or an obstruction, such as water, highway, or railway, and having a track or passageway for carrying traffic or other moving loads, and having an opening measured along the center of the roadway of more than 20 feet between undercopings of abutments or spring lines of arches, or extreme ends of openings for multiple boxes; it may also include multiple pipes, where the clear distance between openings is less than half of the smaller contiguous opening.



Location of ARDOT District Headquarters

District One	Wynne – 2701 US Hwy. 64 west of Jct. SH 1 North P.O. Box 278 Wynne, AR 72396-0278
District Two	Pine Bluff – 4900 US 65 South; east of Jct. US 425 and 65 P.O. Box 6836 Pine Bluff, AR 71611-6836
District Three	Hope – 2911 SH 29 North; I-30, Exit No. 31 P.O. Box 490 Hope, AR 71802-0490
District Four	Fort Smith/Barling – 808 Frontier Rd., Barling, AR 72923 P.O. Box 11170 Fort Smith, AR 72917-1170
District Five	Batesville – 1673 Batesville Blvd. (US 167); 3 miles south of Batesville P.O. Box 2376 Batesville, AR 72503-2376
District Six	Little Rock – 8900 Mabelvale Pike, Southwest Little Rock, I-30 Exit No. 130 (Baseline Rd./SH 338) P.O. Box 190296 Little Rock, AR 72219-0296
District Seven	Camden – 2245 California Ave. (US 79) P.O. Box 897 Camden, AR 71711-0897
District Eight	Russellville – 372 Aspen Ln., I-40 Exit No. 81, N of I-40 & east of SH 7 P.O. Box 70 Russellville, AR 72811-0070
District Nine	Harrison – 4590 US 65; 0.5 miles south of Jct. US 65 & 62 P.O. Box 610 Harrison, AR 72602-0610
District Ten	Paragould – 2510 US 412 West; 1 mile west of Jct.49 & 412 P.O. Box 98 Paragould, AR 72451-0098

RESOLUTION NO. _____

A RESOLUTION EXPRESSING THE WILLINGNESS

OF THE CITY OF _____
TO COOPERATE IN A PROGRAM REGARDING
WARNING SIGNS AT BRIDGES

WHEREAS, the 1978 Surface Transportation Assistance Act allows participating Federal-Aid funds for the erection of warning signs at public highway bridges that are limited by weight, and

WHEREAS, there may be bridges under the City's jurisdiction that should have warning signs placed regarding weight limit restrictions, and

WHEREAS, it is the intent of the City to comply with the National Bridge Inspection Standards as administered by the Arkansas Department of Transportation (ARDOT) and described in the manual entitled "Local Government Procedures for Compliance With The National Bridge Inspection Standards", hereafter referred to as the "Local Government Compliance Manual", and

WHEREAS, this program has been approved by the ARDOT and the Federal Highway Administration (FHWA) for the installation of the necessary load limit signs, funded in part with City funds and part with Federal funds, and

WHEREAS, this Resolution supersedes all previous agreements regarding reimbursement for the installation of warning signs at bridges with restrictive weightlimits,

NOW THEREFORE BE IT RESOLVED THAT:

1. The City intends to participate in this program as explained in the "Local Government Compliance Manual".
2. As the City installs the load limit sign(s) at the bridge locations designated by the ARDOT and in accordance with the specifications stated in the "Manual On Uniform Traffic Control Devices", the ARDOT will bill the City for twenty percent (20%) of the material costs. The City agrees to pay one hundred percent (100%) of the material costs if the installation and written notification is not made within one month from the date of material requisition.
3. The City may obtain bridge weight limit signing materials from the ARDOT not only for initial posting, but also for replacement signing or altered load limit signing.
4. Upon completion of the sign installation, the City will maintain the sign(s).
5. The City agrees to return to the ARDOT an annual certification agreement regarding bridge posting and closing status. As a supplement to this certification agreement, the ARDOT will provide to the City a current list of bridges requiring posting or closing for verification and return to the ARDOT.

THIS RESOLUTION adopted this day of _____.

MAYOR

ATTEST: _____

(SEAL)

Appendix I

IN THE _____ COUNTY COURT

COURT ORDER

Now on this day comes for consideration the matter of load posting deficient county bridges as required by the National Bridge Inspection Standards (NBIS) in order to prevent the loss of Federal Aid Highway funds to the County government.

And it appears to the Court that this project has been approved by the Arkansas Department of Transportation (ARDOT) and the Federal Highway Administration (FHWA) for the installation of the necessary load limit signs as required by the NBIS funded in part with County funds and part with Federal funds.

It is therefore considered, ordered and adjudged by the Court that this County will agree to install the load limit signs at the required locations designated by the ARDOT and to the specifications stated in the "Manual On Uniform Traffic Control Devices" for the agreed price of 20% of the materials cost. The FHWA will provide 80% of the materials cost. Should the County fail to reimburse the ARDOT for their 20% share when billed, the ARDOT may cause this deficiency to be withheld from the allotment of gasoline tax returnable to the County Turnback Fund. The County agrees to pay 100% of material costs if installation and notification is not made within one month from the date of material requisition.

Upon completion of the sign material installations, the County agrees to maintain the signs in accordance with the NBIS regulations. The County agrees to return to the ARDOT an annual certification agreement regarding bridge posting and closing status. It is further agreed; this Court Order supersedes all previous agreements regarding reimbursement for the installation of warning signs at bridges with restrictive weight limits.

County Judge

Date

I _____ County Clerk, do hereby certify that the foregoing order was duly signed on the ____ day of _____, _____, and the same is recorded in Record Book _____ on page _____ of the records of _____ County.

County Clerk

**ARKANSAS' BRIDGE INSPECTION PROGRAM
FOR LOCAL GOVERNMENTS**

Bridge Revisions Affecting Inventory Data

*** NOT FOR USE IN BRIDGE WEIGHT LIMIT SIGN REQUISITION OR CERTIFICATION ***

County or City Name: _____ Official's Signature: _____

* Bridge Number	* Route Number or Name and Feature Under Bridge	Description of Work Performed	Date Work Performed	** Recommended Action (ARDOT Use Only)

* Refer to current "Bridge Inventory/Posting Certification" Report or other ARDOT notification (Maintenance Needs report, letter, etc...)

** Recommended Actions by ARDOT District Office:

1 = Schedule Bridge Inspection and update database with revised inspection data

2 = Work performed does not necessitate reinspection (No Further Action Taken)

PLEASE SUBMIT THE COMPLETED FORM PROMPTLY TO YOUR ARDOT DISTRICT CONSTRUCTION ENGINEER

