

**COURSE NUMBER**

FHWA-NHI-130099A

**COURSE TITLE****Bridge Inspection Nondestructive Evaluation Seminar (BINS)**

The FHWA Office of Infrastructure R&D, in cooperation with the FHWA Office of Bridge Technology and the FHWA Resource Center, has identified a need for training in select nondestructive evaluation (NDE) methods that can be used to assess existing conditions on highway bridge structures during routine inspections. These NDE methods can also be used to supplement visual inspections of highway bridge structures.

The Bridge Inspector Nondestructive Evaluation Seminar (BINS) is a two-day course which provides bridge inspectors and managers the ability to learn about the latest in commercially available nondestructive tools and systems for use on bridges. The seminar is presented through a series of slides, instructional videos, and video demonstrations showing basic operation of the equipment. The training has been fully developed in conjunction with the FHWA's NDE Validation Center and is delivered by qualified instructors experienced in using NDE equipment on bridges.

This seminar is designed to provide bridge inspection staff the opportunity to view efficient and effective inspection tools and techniques with the ultimate goal of achieving safer bridges through more reliable bridge inspections. The following NDE methods are discussed: Eddy Current, Ultrasonic Testing, Infrared Thermography, Impact Echo, Ultrasonic Surface Waves, Ground Penetrating Radar, Acoustic Emission, Magnetic Particle, Radiographic, Pulse Velocity, Pulse Echo, Pachometers, Physical Sounding Methods, and Electrical Methods. Additionally, other commonly used equipment will be briefly introduced with basic information provided about attributes in an easy to use reference table and select extra information in the appendix.

**OUTCOMES**

Upon completion of the course, participants will be able to:

- Summarize the National Bridge Inspection Program (NBIP) expectations as they relate to NDE
- Compare the various stress wave NDE methods as used in steel bridge inspection
- Demonstrate understanding of stress wave and electromagnetic methods by choosing applicable NDE methods for specific defects
- Summarize how NDE was used to assist decision makers in the repair of the Sherman Minton Bridge
- Restate the theories, applications, advantages and limitations of various NDE testing methods
- Compare the theories and applications of various acoustic stress wave testing methods for concrete and timber inspections
- Demonstrate an understanding of electromagnetic and electric NDE methods in bridge inspection programs
- Summarize feasible methods used to evaluate the deck on the Arlington Memorial Bridge (AMB)

**TARGET AUDIENCE**

The primary target audience for the Bridge Inspection Non-Destructive Evaluation Seminar (BINS) course is federal, state, and local highway bridge inspectors, bridge management staff, and consultants. Individuals involved in material testing, as well as transportation structure design and construction, will find the information useful to ensure quality. Prior to taking this course, participants should have a broad basic knowledge of physics and engineering principles, a knowledge of the basic bridge inspection fundamentals, a background in bridge engineering or completion of NHI course FHWA-NHI-130054 Engineering Concepts for Bridge Inspectors (strongly recommended), and experience with bridge inspection.

**TRAINING LEVEL:** Basic

**FEE:** 2017: \$750 Per Person; 2018: N/A

**LENGTH:** 2 DAYS (CEU: 1.3 UNITS)

**CLASS SIZE:** MINIMUM: 20; MAXIMUM: 30

**NHI Customer Service:** (877) 558-6873 • [nhicustomerservice@dot.gov](mailto:nhicustomerservice@dot.gov)