

Chapter 5: Qualifications

The qualifications of Team Leaders, Program Managers, Load Rating Engineers and Underwater Dive Inspectors shall, at a minimum, meet the NBIS requirements. Each Control Authority shall maintain a file defining the staffing list and ensure that the inspection personnel on structures in their jurisdiction meet the minimum established qualifications. The staffing list shall include the required certification such as PE licensure, inspection certifications including training and experience, confined space, bridge climbing school, CDL, etc.).

ODOT maintains a list of inspection personnel who have attended in-house bridge inspection courses. The Department's State Bridge Engineer will make the final determination of an individual inspector's qualifications. **People, who sign inspection reports or forge SMS approvals without meeting the minimum NBIS qualifications or the minimum qualifications in this manual, may be subject to prosecution for forgery or fraud under section 2921.11 of the Ohio Revised Code or other applicable state or federal laws.**

ODOT Bridge Inspection Training

The Department has an in-house FHWA approved comprehensive training course meeting the requirements for the NBIS. Inspectors may choose instead to take the NHI courses at their own discretion. The ODOT comprehensive course consists of two separate 3-day sessions (Part I and Part II), and a host of one-day Refresher Training. The Department presents the course to all Department, local, and consultant Inspectors who work in Ohio. The purpose is to provide consistent and accessible training to communicate National and State issues as they relate to the bridge inspection profession in Ohio. All Program Managers and Team Leaders shall take periodic refresher training.

Each class, Part 1, Part 2 and refresher courses will be offered depending upon availability of instructors and demand around the state. For locations, dates and times refer to the Office of Structural Engineering Training Catalog online or the Local Technical Assistance Program (LTAP) course offerings. It is the responsibility of the attendee to keep and store the course certificates, which can be done in the SMS. Request for transcripts for LTAP courses can be sent to LTAP@dot.state.oh.us. Request for transcripts for NHI courses can be sent to NHIRegistrar@dot.gov.



Figure 46 - LTAP

Part 1 Bridge Inspection Training

This 3-day course provides new bridge inspectors in Ohio with the first half of training needed to satisfy NBIS bridge inspection comprehensive training requirements. Attendees must print and complete the most recent Primer Workbook available online before the first day of class. This course is intended for new bridge inspectors who represent public and private entities (County, City, Village, ODOT and Consultant Firms).

Part 2 Bridge Inspection Training

This 3-day course provides Ohio bridge inspectors with the second half of training needed to satisfy NBIS bridge inspection comprehensive training requirements. 100% attendance for both Bridge Inspection courses and a 70% or higher exam grade for both courses is required in order to pass the "Comprehensive Training Course" referenced in the National Bridge Inspection Standards and the BIRM.

Bridge Inspection Refresher Training

This course will refresh the skills of practicing bridge inspectors in fundamental inspection techniques; review National Bridge Inspection Standards (NBIS); communicate issues of national significance; re-establish proper condition and appraisal rating practices; and/or review the professional obligations of bridge inspectors. The course is based on portions of the latest revision of the ODOT Manual of Bridge Inspection. When the manual is revised the course materials will be updated to communicate the changes. Relevant topics may include administrative requirements or component ratings. *Prerequisite:* Active NBIS Program Managers or NBIS Team Leaders. Practicing bridge inspectors should attend. Program Managers and Team Leaders must take an Inspection Refresher Training at a minimum of once every 5 years. **Examples of classes that fulfill the requirement and intent of the Refresher Training include** (those not listed must receive written confirmation from OSE that they meet this requirement):

- ODOT Load Rating with Hand Calculations Course offered in most Districts in 2009
- ODOT Manual Update Course offered in each District in March 2011
- ODOT Refresher Training
- ODOT SMS Training (the SMS Open Labs are not considered Refresher Training)
- National Highway Institute Bridge Inspection Courses: Stream Stability and Scour and Highway Bridges for Bridge Inspectors (FHWA 135046 or 135047), Fracture Critical Inspection Techniques for Steel Bridges (FHWA 130078), Bridge Inspection Refresher

Training (FHWA 130053), Underwater Bridge Inspection Course (FHWA 130091),
 Bridge Inspection Non-Destructive Showcase (FHWA 130099)

It is desirable for inspectors performing FCM inspection to have successfully passed the 3-day NHI Fracture Critical Inspection Techniques for Steel Bridges (FHWA 130078).

Qualifications: NBIS Program Manager

Inspection Program Managers make important decisions ranging from suggestions regarding the allocation of scarce rehabilitation dollars to the decision to close a major structure. Therefore, it is important that Inspectors and Program Managers are highly trained and adept individuals who understand the mechanics, behavior trends, and economics of a wide variety of structure types.

The qualification of a Program Manager:

- Must have attended and passed a FHWA approved comprehensive

Bridge Inspection Training

course. Additional Bridge Inspection Refresher Training is required every 5-years.

AND

- Must be a registered professional engineer in the State of Ohio with appropriate training and experience **OR** ten years bridge inspection experience. Note: Because each inspection form needs to be reviewed (see “Reviewer” below) by a Professional Engineer most Program Managers tend to be PE’s. However, the PM role may be filled by two different people.

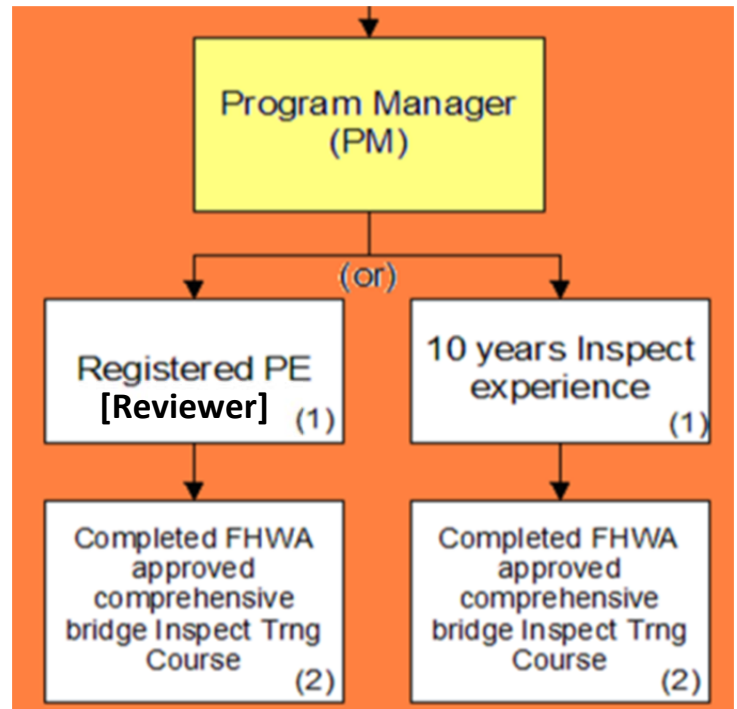


Figure 47 - Program Manager

Qualifications: Reviewer

A reviewer is a Program Manager with an Ohio Professional Engineering license. All inspections are to be reviewed by an Ohio Registered Professional Engineer.

Counties, municipal corporations, or other bridge owners may contract with Consulting Engineers for inspection services. If such Engineers are retained to make the inspection, the work need not be supervised by the governmental authority (Control Authority) providing the inspection is made in conformance with this document, the findings are recorded on approved forms, and the Bridge Inspection Report is submitted in accordance with the agreed-upon contract.

Qualifications: Team Leader

The Inspection Team Leader is responsible for leading the structure inspection team and planning, preparing, and performing structure inspections. This is the person who is in the field at all times for each initial, routine, in-depth, fracture critical member and underwater inspection and in charge of the field activities.

A Team Leader must be capable of climbing fences, accessing bridges in their jurisdiction, traversing slopes and crawling inside confined spaces as small as 48 inches without difficulty. They should have the ability to print legibly and to read plans, visualize details, draw technical sketches, and operate a camera. They should possess a mechanical aptitude and a working knowledge in the use of measuring devices such as rules, tapes, protractors, and calipers. The inspector should have an awareness of potential hazards and exhibit a serious attitude toward safety precautions to be taken while entering and inspecting. The inspector must approach each task sincerely and with the proper motivation since their judgment and thoroughness is relied upon to guarantee public safety and to protect public investment.

The Team Leader shall take the technical lead on the inspection and is responsible for the content of the written inspection report. The Team Leader shall be familiar with this Manual and background in such areas as structural engineering, structure behavior trends, bridge maintenance, and rehabilitation techniques. The Team Leader is also responsible for the general safety of the work site. Safety items can include obtaining and monitoring any required traffic control, ensuring each Team Member complies with safety procedures, proper use of access equipment, and more. There must be at least one Team Leader at the structure site at all times during each field inspection.

There are five ways to qualify as a Team Leader:

1. Program Manager Qualifications, **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:
 - a. 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;
 - b. Successfully passed the National Council of Examiners for Engineering and Surveying Fundamentals of Engineering examination (EIT);
 - c. Two years of bridge inspection experience; and
 - d. Successfully completed an FHWA approved comprehensive bridge inspection training course, **or**.

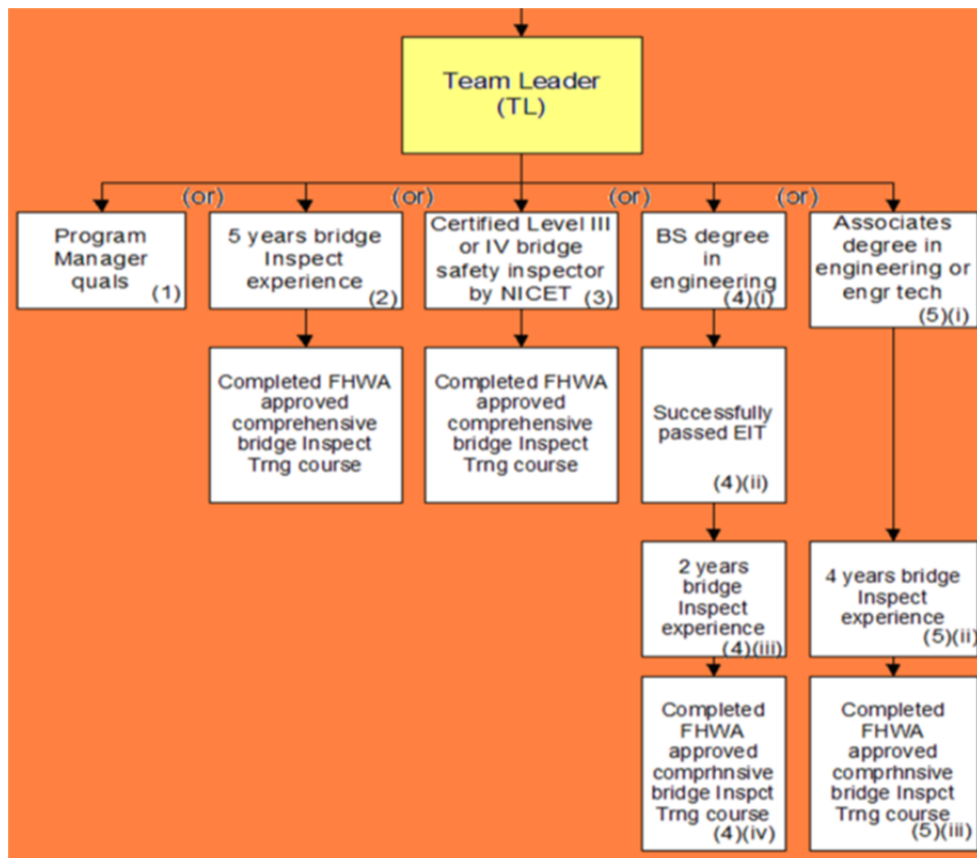


Figure 48 - Team Leader Qualifications

5. Have all of the following:
 - a. An associate's degree in engineering or engineering technology from a college or university accredited by or determined to be substantially equivalent by the Accreditation Board for Engineering and Technology;
 - b. Four years of bridge inspection experience; and
 - c. Successfully completed an FHWA approved comprehensive bridge inspection training course.

Ohio Department of Transportation Team leaders shall attend the Department's Bridge Climb Course and Confined Space training. All Team Leaders shall take periodic Bridge Inspection Refresher Training.

Qualifications: Team Member

The team member assists the Team Leader in the field. It is expected that this person, at a minimum, is familiar with appropriate parts of this Manual and has a competency level sufficient to follow the directives of the Team Leader. To ensure competency, all Team Members (TM) should be encouraged to take the ODOT Bridge Inspection Training courses. TM's are essentially apprentices and should have the goal of becoming a Team Leader. Team Leader and supervisors should provide appropriate training and guidance to assure the TM progress toward this goal. TM do not have the authority to sign inspection forms and should never do so. However, TM should place their name on the inspection form to document their participation and experience. They should also keep a log of their experience for future reference.

Qualifications: Underwater Diver

Underwater bridge inspection divers can take either the

1. FHWA approved Comprehensive Bridge Inspection course **or**
2. NHI course #130091, Underwater Bridge Inspection.

The comprehensive training is a longer course that meets the requirements of comprehensive training to become a Team Leader, but generally only has a few hours on underwater bridge inspection. Course #130091, although not meeting the comprehensive training requirements to become a Team Leader, is three days long devoted to only underwater bridge inspection. Keep in mind that a Team Leader must be present at all times during the field inspection.

Qualifications: ODOT Consultant Prequalification

ODOT prequalifies engineering firms for three categories of inspection work:

- 1) Level 1 Bridge Inspection
- 2) Level 2 Bridge Inspection
- 3) Underwater Bridge Inspection.

Resources regarding consultant prequalification with the Department are available online within the Office of Consultant Services website:

<http://www.dot.state.oh.us/Divisions/Engineering/Consultant/Pages/default.aspx>

Non-DOT agencies, at their discretion, may use the prequalification procedures at their discretion or even view the available list of prequalified consultants, for bridge inspection work within their jurisdiction.