

address damage, in-depth, and special inspections. The FHWA also proposes to define "damage," "in-depth," and "special" inspections in § 650.305.

Proposed Section 650.313 Inspection Procedures

The Oklahoma DOT, and Collins Engineers, Inc., noted that the level to which individual bridges should be inspected needed clarification. They suggested the type/depth of the inspection be determined by the individual in charge of the inspection program based on factors unique to the bridge.

The FHWA proposes to replace section "Inspection Procedures" with a revised section also entitled "Inspection Procedures." The FHWA agrees that the depth to which individual bridges should be inspected depends on such factors as age of the bridge, traffic characteristics, state of maintenance, and known deficiencies. The FHWA proposes in paragraph (a) of this section, that each bridge shall be inspected in accordance with the procedures in the AASHTO Manual. The FHWA determined that there is sufficient guidance in this manual to allow the program manager to establish the depth and type of inspections appropriate for each bridge without further direction in the NBIS.

The FHWA proposes in paragraph (b) of this section, that at least one Team Leader be present at the bridge during inspections. The Team Leader being present is an existing requirement that is being emphasized. The FHWA also proposes to include a definition for "initial inspection" in § 650.305.

The FHWA proposes to replace the current § 650.303(c) with a new paragraph (c) and discuss the requirements for load rating and bridge posting. The FHWA also proposes to include a definition for "legal load," "routine permit load," and "operating rating" at § 650.305.

The FHWA proposes to replace the current § 650.303(d) with a new paragraph (d) that would place greater emphasis on actions taken pursuant to findings during the inspection as well as requiring the State or Federal agency to maintain reports on the results of all highway bridge inspections. We are proposing at § 650.313(d) that records be maintained in the bridge file for the life of the bridge.

The Pennsylvania, Oregon and Kansas DOT's, suggested the NBIS should require element level inspections to be performed and reported. The NBI ratings are thought by some to be too general. Those State transportation department's thought the element level

data would be more meaningful to bridge owners for programming work. Those State transportation departments requested the annual submittal of NBI data should be made using element level bridge inspection data.

The FHWA recognizes that element level data is more meaningful to bridge owners for programming work, and that the element level data can be converted for Federal use. The FHWA agrees it would be desirable to work toward that goal for the future. However, a significant amount of additional testing of the conversion program and development of apportionment calculations is needed.

The Virginia DOT suggested the NBIS be expanded to promote both safety and maintenance evaluations. It felt States were already doing this as part of the inspection process, and that it should be a regulatory requirement.

The FHWA agrees that safety and maintenance evaluations should be conducted along with the NBIS inspections. The need for safety and maintenance inspections is already emphasized sufficiently in the AASHTO and the Bridge Inspector's Reference Manuals, and need not be mandated in the NBIS.

The Massachusetts DOT requested the NBIS contain a better definition of what is meant by "unique or special feature." The NBIS requires that master lists of such structures be kept; however, this is difficult to do if it is not clear what falls under this definition. It was also suggested that procedures and manuals be developed for the inspection of segmental, cable-stayed and suspension bridges as well as procedures for underwater inspection of bridges and the creation of a diver's manual, similar to the "Bridge Inspector's Training Manual (BITM)."⁶ The Advocates believe the requirements for listing of fracture critical and unique bridge features are appropriate. However, the Advocates believe underwater elements should be considered part of the bridge and also receive similar inspection priority.

The FHWA agrees that the NBIS should define what is required in these master lists. Accordingly, the FHWA proposes at § 650.313(e): to require the program manager to maintain only specific lists of fracture critical bridges, bridges requiring underwater inspection, scour critical bridges, and bridges subject to seismic damage.

In paragraph (f), the FHWA proposes to replace § 650.303(l). This proposed

section would require the State or Federal agency to prepare an inspection plan for inspecting the fracture critical bridges.

In paragraph (g), the FHWA proposes to replace § 650.303(l)(2). This proposed section would require the State or Federal agency to prepare an inspection plan for inspecting bridges requiring underwater inspections. The plan would take into account the importance of underwater elements and contain procedures based on the risk of failure, as evaluated in the scour analysis required in paragraph (h).

In paragraph (h), the FHWA proposes to include requirements for action plans and inspection of scour critical bridges. There are roughly 20,600 bridges or 3.5 percent of the NBI that are identified as being scour critical in virtually all States and Puerto Rico. This proposed section would require the State or Federal agency to prepare a plan to monitor and/or correct deficiencies for scour critical bridges. The FHWA also proposes to include a definition for "scour" and "scour critical" at § 650.305.

In paragraph (i), the FHWA proposes to discuss inspection of bridges vulnerable to seismic damage and would require the State or Federal agency to establish a seismic damage vulnerability program as well as a plan to correct deficiencies in the bridge.

The FHWA agrees that the NBIS should contain a better definition of what is meant by "unique or special feature." Accordingly, the following changes are proposed at § 650.313(j):

1. A new category of "complex" bridges would be established with a more specific definition of applicable bridge types.

2. An inspection plan would be required for each of the bridges falling in the "complex" category. Complex bridges would then be inspected in accordance with the plan.

3. The FHWA also proposes to include a definition for "complex bridge" at § 650.305.

The Pennsylvania and Connecticut DOT's suggested a formal quality assurance (QA) program be required to verify inspection findings. The Oregon and South Dakota DOT's suggested that the QA provisions were enforced differently in each State and asked that the QA requirements be clarified. The specific reference to the Federal code requiring performance of the quality assurance/quality control (QA/QC) of the bridge inspection program should be clarified.

The FHWA agrees that the regulation should specifically require QA/QC of the bridge inspection program.

⁶ The BITM/90 has been replaced with the Bridge Inspector's Reference Manual (BIRM), 2003, FHWA-NHI-03-001.