

Additional responses included 13 commenters who stated that the FHWA approval process should be revisited to include additional structure types, and/or be made simpler or automatic for certain groups of low-risk structures. Several commenters stated that the 2 year frequency should be clarified. The ARTBA, Florida DOT, National Association of County Engineers (NACE), and Alcona County (Michigan), stated that there should be a grace period (30 to 90 days) for each cycle to account for such things as staffing and weather problems. The Wisconsin DOT suggested a calendar year approach so that inspections may be moved to any time of a calendar year to monitor structures during various weather conditions.

The FHWA proposes to replace the section "Inventory" with "Inspection Frequency." Based on the NBI, there are approximately 561,000 bridges that are inspected on a 2-year cycle (*i.e.*, biennial routine inspections). The FHWA concurs with the majority of commenters, and proposes in paragraph (a) of this section, that the maximum inspection cycle should remain at 4 years (48 months) for certain structures, and that the maximum inspection cycle for most structures should remain at 2 years (24 months). The FHWA also proposes to include a definition for "routine inspection" at § 650.305.

There are roughly 27,000 bridges or 4.7 percent of the NBI that are inspected on a 4-year inspection cycle. According to the NBI, there are 32 States using the 4-year inspection cycle. The FHWA recognizes the concerns of those commenters that suggest there should be a modified approval process and/or automatic approval of some low risk structures for the 4-year inspection cycle. However, the FHWA thinks it remains necessary at this time to retain a central approval process for the 4-year cycle to minimize risk to the traveling public. Subject to bridge safety, approvals will continue to be made on a case-by-case basis, and consideration will be given to unique and specific conditions identified in order to provide maximum flexibility to each requestor.

Regarding the commenters who suggested there should be an inspection "grace period," the FHWA proposes to retain and more clearly define the current 30-day grace period. It is thought that if a longer period were granted, it could be applied for several subsequent cycles, which could have an adverse impact on safety.

The majority of commenters stated that it would be reasonable to increase the underwater inspection interval beyond 4 years for certain structures

based on factors such as foundation type and materials, water quality and velocity, substructure material and condition. The majority of commenters also thought the current 5-year interval was appropriate for most structures. The New Jersey DOT, Department of the U.S. Navy and William Hovell, a private citizen, stated that the maximum interval for most structures should be reduced to 4 years to increase safety and to gain efficiency by conducting these inspections on a multiple of the "routine inspection" cycle. Several other commenters suggested that any increase in maximum frequency proposed by the FHWA should be an even-year cycle to coincide with routine inspection cycles.

With the April 1987 collapse of New York's Schoharie Creek bridge, national attention turned to underwater inspection. According to the NBI, there are roughly 47,000 bridges or 8 percent of the inventory that require underwater inspection in some 49 States, the District of Columbia and Puerto Rico. The FHWA concurs with the majority of commenters, and proposes at § 650.311(b), that the current 5-year (60 month) underwater inspection interval be maintained. Some commenters wanted a separate interval for underwater inspections from above water inspections that are conducted biennially. The FHWA continues to believe that the 5-year underwater inspection interval is a valid interval for the underwater inspection of a bridge pier and abutment substructures based on engineering judgment and review of NBI data.

The FHWA proposes to add the option for States to apply for a 72 month underwater inspection interval for certain bridges. In proposing the 72 month interval, the FHWA believes that applying engineering judgment and approval on a case-by-case basis to bridges with little or no change from inspection cycle to cycle in benign environments provides an adequate margin of safety to the motoring public. Industry standards, such as those provided by the American Society of Civil Engineers (ASCE) in their "Underwater Investigations Standard Practice Manual, 2001,"⁵ promote a degree of latitude in the maximum interval between routine underwater inspections up to 6 years. The guidance they provide is tied to material, environment, scour and condition rating from previous inspections. While we are proposing an additional year beyond the

current 60 month underwater inspection interval, we are taking into consideration these same factors of material composition (timber, steel, concrete, protected or unprotected steel or timber, composite), environment (benign or aggressive), scour (susceptibility to scour) and previous condition rating (excellent to failed). Based on our assessment, again on a case-by-case basis, the FHWA may approve requests not to exceed 72 months. This authorization can be rescinded at any time owing to structural degradation, adverse change in environment and presence of localized bridge scour. An example of a situation that may warrant an extended interval may include a highway bridge with concrete piles with no degradation over a lined irrigation canal carrying fresh water. An example of a situation that would not warrant approval would be a highway bridge over a high flow saltwater or brackish water environment, with structural piles showing degradation and subject to localized scour.

Four-year frequencies may be used, if desired, but retention of the 60 month frequencies allows more flexibility to program managers. The FHWA also proposes to include a definition for "underwater inspection" at § 650.305.

Omaha Greene, a private citizen, and the Colorado and Oregon DOTs, stated that a firm inspection interval should be established for fracture critical member (FCM) inspections, and the first two of these three commenters thought the maximum interval should be 2 years.

Based on the NBI, there are approximately 14,000 bridges or 2.4 percent of the bridge inventory that require fracture critical member inspections in some 49 States, the District of Columbia and Puerto Rico. The FHWA agrees with these commenters, and proposes at § 650.311(c) that FCM inspections be conducted at intervals not to exceed 24 months, but that utilization of in-depth inspection and testing methods may exceed 24 months as outlined in an FCM Plan developed by the program manager. The FHWA also proposes to include a definition for "fracture critical inspection" and "fracture critical member" at § 650.305.

Many commenters indicated that the level to which individual bridges should be inspected depends on a variety of factors that should be evaluated by the individual in charge of the inspection program.

The FHWA proposes at § 650.311(d) to provide the program manager with the discretion to determine the level and frequency of these inspections to

⁵ This document may be obtained from ASCE, 1801 Alexander Bell Drive, Reston, Virginia 20191-4400.