DEPARTMENT OF TRANSPORTATION
OFFICE OF THE DIRECTOR
1120 N STREET
P. O. BOX 942873
SACRAMENTO, CA 94273-0001
PHONE (916) 654-5266
FAX (916) 654-6608
TTY (916) 653-4086

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March 25, 2005

Gene K. Fong
Division Administrator
Federal Highway Administration
California Bridge Division
650 Capitol Mall, Suite 4-100
Sacramento, CA 95814-4708

Dear Mr. Fong:

The California Department of Transportation (Department), in an effort to provide a more efficient and effective bridge inspection program, formally requests a change in the frequency of routine inspections for 8,164 public highway bridges in California from two to four years.

This change is being sought in accordance with Federal Bridge Inspection Regulations, 23CFR Highways Part 650 and the Federal Highway Administration's (FHWA) *TECHNICAL ADVISORY T 5140.21,* dated September 16, 1988.

By enacting this change, California will be better able to protect public safety while providing a reliable transportation system for the movement of people and commerce.

California's bridge inspection program was created in the 1930's. The cornerstone of that program has been the requirement that inspections be done by licensed engineers with an expertise in structures at least every two years. The program, which has worked well in terms of guaranteeing the safety and reliability of California's public highway bridges, does not, however, take into account advances in technology and the Department's long and detailed historical bridge records.

Our request to modify the two year inspection requirement is based on a detailed analysis of inspection records of the approximately 24,000 state highway and local agency bridges; some dating back more than 90 years. As a result of that analysis, we determined that 8,164 bridges met the federal criteria for an inspection frequency level of up to four years.

Therefore, based on solid methodology and sound engineering, we believe a four-year requirement for these facilities would provide the flexibility to efficiently utilize existing resources to maintain our public bridges without sacrificing safety. Inspections would continue to be done by licensed engineers with an expertise in structures.

ATTACHMENT A:

CRITERIA FOR A TWO-YEAR INSPECTION FREQUENCY

This criteria was based on both general guidelines contained in paragraph 5 of *Federal Highway Administration (FHWA) TA T 5140.21* and criteria developed by the California Department of Transportation (Department), Division of Maintenance/Structure Maintenance and Investigations. All structures that meet one or more of the following joint criteria will continue to be inspected on a two year frequency. Those structures that do not meet the following joint criteria are eligible for inspection frequencies of up to four years.

NOTE: All references to National Bridge Inventory Standards (NBIS), items are those defined by FHWA *"Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges"* dated December 1995. All references to "elements" and "condition states" are those defined by the Department's *"Element Level Inspection Manual."*

FHWA T 5140.21 Criteria: The Department's interpretations and/or data extracts in italics:

- **Bridges with any condition rating of 5 or less.**
  NBIS 58, 59, 60, 61, and 62 ≤ 5.

- **Bridges that have inventory ratings less than the State's legal load.**
  NBIS 66 ≤ HS20 (32 metric tons)

- **Structures with spans greater than 100 feet.**
  NBIS 48 ≥ 100 feet (30.5 m).

- **Structures without load path redundancy.**
  NBIS 43B = 9, 10, 13, 14, 15, 16, 17. This rule applies to structures of all material types, i.e. two-girder concrete bridge. In addition, any steel structures must have no fatigue prone details.

- **Structures that are very susceptible to vehicular damage, e.g. structures with vertical over- or under clearances less than 14'-0", narrow thru or pony trusses.**
  NBIS 53 and 54 ≤ 14'-0" (4.27 m). In addition, the Department will exclude all trusses of all material types.

- **Uncommon or unusual designs or designs where there is little performance history, such as segmental, cable stayed, etc**.
  NBIS 43B = 14 & 21.

- **New or newly rehabilitated bridges should not be considered until they have received an inventory inspection and another routine inspection revealing no major deficiencies.** *NBIS 27 and 106: The Department will not consider any bridge constructed after 1998 until its next scheduled biennial inspection is completed and it can be determined that it has no major defects and meets all conditions outlined in these guidelines.*

The Department, Division of Maintenance/ Structure Maintenance and Investigations Criteria:

- **Open Spandrel Arch Structures**

- **Structures with fracture critical elements (NBIS 92A = Y).**

- **Multiplate structures.**

- **Structures with timber elements; includes all superstructure and substructure elements, with the exception of bridges with only submerged timber pile elements**.

- **Structures with Element Level Inspection (ELI) codes 300, 303, 341, 342, 343, 344, 345, 346, and 347 (joint seal assemblies).**

- **Structures that are posted for restricted loads and/or speeds.**
  NBIS 70 < 5.

- **Structures with high ADT or ADTT.**
  NBIS 29 > 20,000 per lane; NBIS 109 > 12%. Bridges on route segments where 45% or more of the total trucks are 5-axle or larger and bridges on "high volume" permit truck routes.

- **Structures that are classified as scour critical.**
  Any structure with NBIS 113 ≤ 3 shall not be considered for increased inspection frequency.

  In addition, structures that have not been evaluated for scour, NBIS 113 = 6, and structures that are not scour critical but have had any countermeasures installed for scour related problems, NBIS 113 = 7, shall also be excluded from consideration.

- **Structures with unknown foundations.**
  NBIS 113 = U.

- **Structures with Alkalai Silica Reactivity (ASR) suspected or identified.**

Structures with the following Structures Maintenance Automated Report Transmittal (SMART) flags and corresponding condition states.

ELI Code 356 (Steel Fatigue Smart Flag) – Condition State ≥ 2;
ELI Code 357 (Pack Rust Smart Flag) – Condition State ≥ 2;
ELI Code 358 (Deck Cracking Smart Flag) – Condition State ≥ 3;
ELI Code 359 (Soffit of Concrete Decks and Slabs Smart Flag) Condition State ≥ 3;
ELI Code 360 (Settlement Smart Flag) – Condition State ≥ 2;
ELI Code 361 (Scour Smart Flag) – Condition State ≥ 2;
ELI Code 363 (Steel Section Loss Smart Flag) – Condition State ≥ 3.