

**ATTACHMENT 62 – ANSWERS TO STANDARD SET OF QUESTIONS BY THE
WASHINGTON STATE DOT**

(3 pages)

Washington State DOT

April 30, 2008

Italics represent the responses by the Washington State DOT.

1. What was your procedure in reviewing consultant engineering bridge plans in the early 1960's? What is your procedure in reviewing consultant engineering bridge plans today?

- *Early 1960's based on interviews with retired bridge engineers. Bridge Design Manual primarily Working Stress Criteria variations from AASHTO and office practice documentation.*
- *1980 Manual – Reviewing Engineer shall be licensed and have experience in the design of structures similar to the one reviewed.*
- *Major stress check, foundations, general review of details and design calculations.*
- *Today, WSDOT Engineering review includes design criteria, Consultant's QC/QA Plan, design plan and calculation review.*

2. How do you ensure the QA/QC process of a consultant engineering firm is adequate? In the early 1960's and today? What procedures are in-place to ensure that the consultant does not submit an inadequate design?

- *In both cases, WSDOT review of plans and calculations. In some instances, an independent check of major stresses by WSDOT may be required.*
- *Each bridge is checked by either a review of the design calculations or independent calculations.*
- *Complete geometry check.*
- *Independent quantities and barlist check.*

3. What does the Washington State DOT consider a red-flag item when reviewing consultant engineering bridge plans? What follow-up action is taken to address the red-flag item? Describe the level of detail the Washington State DOT uses in reviewing consultant engineering bridge plans?

- *Red-Flag items – unique or non-standard bridges or details i.e., pre-cast girder shapes not in WSDOT's current inventory of sections.*
- *Level of detail of WSDOT Check will be to review plans and calculations. Some instances will require independent analysis and design check.*
- *Written comments requiring responses, over-the-shoulder reviews and face-to-face meetings are needed to resolve red-flag items.*

4. Does the Washington State DOT review consultant engineering bridge plans concurrently with the FHWA Division Office? Does the Washington State DOT review the consultant plans with the expectation that FHWA will be performing a similar type of review?

- *Yes, WSDOT reviews concurrently with FHWA.*
- *WSDOT does not expect a similar type of review by FHWA.*

5. What are the qualifications of the Washington State DOT personnel who conduct the review of consultant engineering bridge plans?

- *As a minimum, structural engineers have a bachelor's degree in structural engineering (most have Master's degrees).*
- *The complexity of the bridge type determines the reviewing Bridge Engineer Classification (1, 2, 3, 4, 5 or 6).*
- *For example, BE6 is required to be Washington State licensed Civil and Structural and would review complex bridge types like segmental, cable-stayed, floating, movables or suspension.*

6. What is the percentage of bridge design work that is done in-house versus the percentage that is done by consultant engineering firms?

- *90% of the bridges designed for WSDOT Projects are done in-house.*
- *WSDOT has a number of Mega Projects (SR520, Alaskan Way Viaduct, Tacoma HOV, SR405, Snoqualmie Pass & Columbia River Crossing) that are supported by GEC to get through the environmental process. WSDOT Bridge Office is preparing PS&E level bridge plans on many of these projects.*

7. Describe the structure of the Washington State DOT? Is the bridge office centrally organized? How many district bridge offices are located in the state? Are consultant engineering bridge plans reviewed at the central office or district bridge office?

- *The WSDOT Bridge & Structures Office is a function of the Headquarters Environmental & Engineering Programs and work as an agent to the Regions of the State.*
- *The Bridge Office is centrally located and therefore all bridge designs are reviewed in a central location.*
- *The state is divided into 7 region offices.*