U.S. Department of Transportation
Federal Highway Administration

Federal Highway Administration
RESOURCE CENTER

Plans of Action for Scour Critical Bridges

Problem:
Scour or stream instability causes more than half of the bridge failures in the United States annually. Hence, the Federal Highway Administration (FHWA) issued Technical Advisory T5140.23, which required all State Departments of Transportation (DOTs) to evaluate existing bridges for potential failure due to scour or stream instability. To reduce the risk of failure or to make safe those bridges which are vulnerable to scour or stream instability (i.e. scour critical), FHWA required via T5140.23 that all DOTs develop Plans of Action for implementing countermeasures and for inspecting the bridges frequently until such countermeasures were implemented. Unfortunately, most DOTs only evaluated their bridges and have not developed and implemented Plans of Action. Because countermeasures have not been installed and inspection requirements have not been defined, the safety of these scour critical bridges remains of great concern.

Putting it in Perspective:

To prevent catastrophic failures of the scour critical bridges and potential loss of life, King Gee, FHWA Assistant Administrator for Infrastructure, issued a memorandum on July 24, 2003, directing FHWA Division Offices to work with the state DOTs to complete the Plans of Action.

Solution:
FHWA has expanded on the directive of T5140.23 with more explanation and direction on Plans of Action in Hydraulic Engineering Circular 18 (HEC18) – Evaluating Sour at Bridges and Hydraulic Engineering Circular 23 (HEC23) – Bridge Scour and Stream Instability Countermeasures. FHWA also is developing a guidebook, which will detail the development and implementation of Plans of Action.

To help interpret and give better understanding to the guidance in HEC18 and HEC23, Headquarters and Resource Center Hydraulic Engineers have facilitated meetings with Divisions and DOTs. In these face-to-face meetings, the status of the state's Plans of Action are discussed, along with options to be considered to complete the Plans of Action, including the correction of coding errors, and methods used by other states to develop and implement their Plans of Action.

In addition, the experiences of other state DOTs in the development and implementation of the Plans of action have been highlighted in our Hydraulic Engineering Conferences. Proceedings from these conferences are available.

Benefits:
HEC 18 and HEC 23 explain the necessary components of a Plan of Action, including information on designing countermeasures and ways of inspecting for scour. The face-to-face meetings give opportunity for the exchange of ideas between the different people responsible for developing and implementing Plans of Action. Often in the meetings, simple improvements are found that the state could make to complete the development of quality Plans of Action. The meetings also shed light on good practices the state is already implementing and can be shared with other states. Experiences shared at the Hydraulic Conferences assist states around pitfalls and instruct on how to develop quality, implementable Plans of Action.

Implementation:
HEC 18 and HEC 23 have been distributed to the DOTs and are available online. Face-to-face meetings have been held with over 10 FHWA Division Offices and state DOTs. In the last 3 years, there have been several presentations of Plans of Action at our Hydraulic Engineering Conferences. In the 2004 FHWA Hydraulic Engineering Conference there will be 4 presentations on Plans of Action. The goal is to have all state DOTs develop and implement the Plans of Action. Results should be seen in a reduction of the number of bridges coded as scour critical.

Additional Resources:
http:/www.fhwa.dot.gov/bridge/hyd.htm

For More Information, contact:

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