UJNR Panel on Wind and Seismic Effects

Panel Update

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DAMAGE TO TOKACHI-KAKO BRIDGE FROM THE TOKACHI-OKI EARTHQUAKE IN 2003 AND ITS SUBSEQUENT RESTORATION

On September 26, 2003, an earthquake with a magnitude (Japan) of 8.0 occurred off Tokachi (41.78 N., 144.08 E.), at a depth of 42 km. This earthquake caused serious damage, including the collapse of roads and destruction of bridges, on the east coast of Hokkaido. Large horizontal vibrations occurred on the Tokachi-kako Bridge (Fig. 1, PC box girder bridge) and its shoe was destroyed (Photo 1). The bridge suffered a maximum displacement of 67 cm perpendicular to the bridge axis. The shoe was replaced with a type having greater bearing capacity. The section near the top of the pier was reinforced with an aramid fiber sheet and a displacement-control structure perpendicular to the bridge axis was constructed. (Photo 2).

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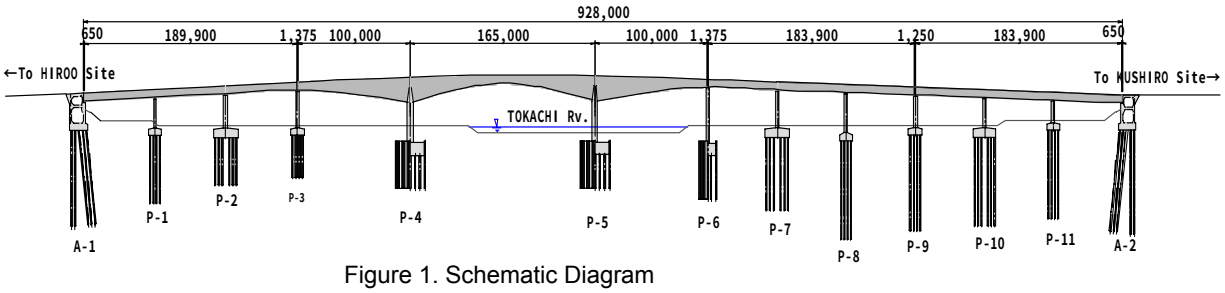

Figure 1. Schematic Diagram

Photo 1 Destroyed support

Photo 2 State of restoration

INNOVATIVE FHWA BRIDGE INFRASTRUCTURE R&D PROGRAM

FHWA is proposing a refocused and revitalized Infrastructure Research and Technology (R&T) program to set a strategic direction for developing and deploying breakthrough technologies for highway infrastructure. The program represents a new way of doing business for FHWA, with greater emphasis on stakeholder involvement and partnerships. The focus of the Bridge Infrastructure R&T program also marks a new way of doing business by emphasizing the elements needed for success. The goals of the program are to enhance mobility and productivity, extend the life of bridges and improve safety and performance. The path to achieving these goals requires four critical strategic elements: Information, People, Technology and Deployment. Seismic Research Program will be part of this new proposal but will require more interactions with other natural hazards program.

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