

Improvement of Bridge Weigh-In-Motion Technique Considering the Driving Conditions of Vehicles

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Abstract : In this study, bridge weigh-in-motion (BWIM) system was simulated under various driving conditions of vehicles to improve the performance of the BWIM system. Two driving conditions were considered. One was the number of the axle of the vehicles. Since the vehicles have different number of axle according to the types of the vehicle, the vehicles were modeled considering the number of the axle. The other was the speed of the vehicles because the speed of the vehicles is not consistent on the bridge. To achieve the goal, the dynamic characteristics of a bridge such as modal parameters were considered in numerical simulation by analyzing precision models. Also, the driving vehicles were modeled as mass-spring-damping systems reflecting the axle information.

Keywords : bridge weigh-in-motion (BWIM) system, driving conditions, precision analysis model, the number of axle, the speed of vehicle

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