Research Needs for Bridges and Foundations
Technical Advisory Group

Effective / Updated: 9/1/2023

1. Issue Identified:

   Estimation of the strength capacity of existing highway bridges based on bridge weigh-in-motion data.

2. Summary of Problem:

   Bridge weigh-in-motion systems are not as accurate as the conventional static weigh scales, but they provide vital information about truck traffic and axle weights within 10% of actual weights. Using real-time data collection by installing a BWIM system on a typical bridge will provide sufficient data to determine the in-place capacity of the bridge based on load and resistance factor design, which may be useful for structures where a load rating with unknown or unquantifiable field conditions is necessary. This project will involve installation, monitoring, data collection, and analysis of data based on LRFD, which is used to provide information about the true capacity of the bridge in terms of LRFD equations.

3. Desired Results / Outcome:

   The desired outcome from this project will be a procedure to instrument a bridge using a BWIM system, and a procedure for determining a load rating by analyzing and interpreting the resulting data. This will then allow the Illinois Department of Transportation to have procedures in place for when a bridge is required to be field instrumented and a load rating extracted from field data.