ABSTRACT

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THE ANALYSIS OF BRIDGE'S IMPACT FACTOR DUE TO VARIOUS SURFACE TYPE AND LOAD TYPE
(xiv + 38 pages)

In bridge design, there are codes to be followed to assure the safety of the bridge. Bridge is subject to dynamic loading. To calculate the bridge's impact factor is a complex task in bridge design. Many designers rely only on the regulation in the bridge design codes which only depend on bridge's span. A more rational value of impact factor is desirable in bridge design.

Visual Basic 6.0 is a programming tool that can be utilized to compute the complex task in calculating bridge impact factor. Bridge's interaction with moving load is formulated in frequency domain, using Inverse Fourier Transform to transform the dynamic displacement response to time domain. Bridge's impact factor is obtained by comparing the dynamic to static deflection.

The developed formula can be used to calculate the displacement response due to interaction of moving load with bridge with smooth surface as well as rough surface. Parametric study with variation in vehicle speed is carried out to obtain more rational values of impact factor. The calculation may give more rational value in mathematical analysis of bridge's impact factor. Bridge designers could get great advantage in designing efficient, yet safe bridge.

Reference: 9 (1964 – 1989)