



M.V. Gangone, M.J. Whelan, K.D. Janoyan

Diagnostic Performance Indication Through Field Testing of a Bridge Superstructure

Издательство DEStech Publications, Lancaster, 2011 год

9 стр; формат: 23,5 x 16 см; библиографический список: 15 единиц
ISBN: 978-1-60595-053-2

Presented in this paper is the use of existing bridge load testing parameters in a new quantitative diagnostic performance indication system that is based on measured response data. Two test cases of a densely instrumented reinforced concrete deck on steel girder bridge are used to demonstrate the applicability of the approach. Each bridge field test utilized a dense deployment of a wired and/or wireless sensor system that provided real-time strain readings from full-scale load tests. Strain gauges were placed at the mid-span of the steel girders to measure neutral axis locations, transverse distribution and impact factors. Highlighted will be the results from field testing of a superstructure at the end of its service life. Controlled progressive damage of an external bearing and multiple diaphragm-girder connections were implemented to monitor the change in behavioral response. The results from the multiple tests helped to provide an inventory rating factor of the steel girder. A Performance Index (PI) was established based solely on the measured response parameters and calibrated to load rating results. The neutral axis (NA) and distribution factor (DF) are two directly measured input parameters representing the capacity and demand of the girder similar to rating factor.

Ключевые слова:

Содержание.

Diagnostic Performance Indication Through Field Testing of a Bridge Superstructure