Design and Construction Guidelines for Long-Span Decked Precast Concrete Girder Bridges, NCHRP 12-69, web report

Description

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Abstract :

This report documents results of a study of decked, precast, prestressed, concrete bridge girders. This type of bridge provides benefits of rapid construction, and improved structural performance. The research was performed to develop guidelines for design and construction and to address issues that significantly influence performance. The first goal was accomplished by development of guidelines for design, construction, and geometry control based on successful methodology currently being used. The second goal of the project was to develop an improved longitudinal joint system. The performance of longitudinal joints between the flanges of adjacent decked girders was defined as a major issue inhibiting the general use of decked girders. An analytical study was performed to develop an optimized family of girder section with consideration for future re-decking. Analytical studies were carried out using the optimized section to define live load and camber leveling load demand on the flange-to-flange joint. A study of potential joint systems was used to define trial alternate joints, Laboratory testing of trial joints was used to identify an improved alternate joint, and full-scale panel tests of the selected alternate joint were conducted to investigate the performance under static and fatigue flexural and flexure-shear loading. The improved joint includes headed reinforcing bars lapped spliced to develop moment and shear continuity in narrow grouted joints. The findings of the longitudinal joint study indicate that the improved joint detail is a viable connection system to transfer the force between adjacent decked bulb tee girders

Subject : Deck Bulb Ts
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