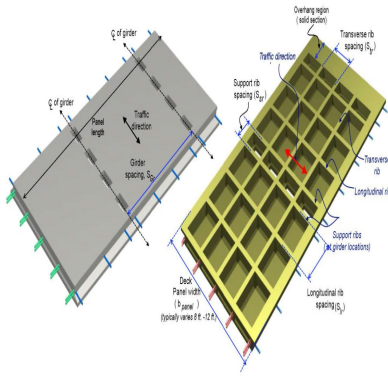




Design Guide for Precast UHPC Waffle Deck Panel Systems

Description

Meta Fields

Category : Completed Projects

Group : Ultra-High Performance Concrete (UHPC)

Subject : Waffle Slabs, Connections

Abstract :

As a part of an innovation project funded by the Federal Highway Administration (FHWA) Highways for LIFE program, a full-depth precast, ultra-high-performance concrete (UHPC) waffle deck panel and appropriate connections suitable for field implementation of waffle decks were developed.

Following a successful full-scale validation test on a unit consisting of two panels with various types of connections under laboratory conditions, the waffle deck was installed successfully on a replacement bridge in Wapello County, Iowa. The subsequent load testing confirmed the desirable performance of the UHPC waffle deck bridge.

Using the lessons from the completed project and outcomes from a series of simple and detailed finite element analyses of waffle decks, this report was developed to serve as a guide for broadening the design and installation of the UHPC waffle deck panel in new and existing bridges.

Following an introduction to UHPC and waffle deck panels and a summary of completed work, this document presents information on waffle deck design, design of connections, redecking using waffle deck panels, and guidance on precast fabrication, construction, and installation of UHPC waffle deck panels.

Key Words : accelerated bridge construction, bridge deck connections, bridge design, bridge panel systems, bridge redecking, Highways for LIFE, load testing, precast bridge sections, replacement bridges, ultra-high-performance concrete, waffle decks, Wapello County Iowa

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