Guidelines for PBES Tolerances and Dynamic effects for Bridge Moves; NCHRP 12-98

Description

Meta Fields
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Abstract :

Many state DOTs and the Federal Highway Administration (FHWA) are actively promoting accelerated bridge construction (ABC) to reduce traffic impacts, onsite construction time, environmental impacts, and life-cycle costs and to improve work-zone safety, site constructability, material quality, and product durability while replacing the nation's transportation infrastructure. The use of prefabricated bridge elements and systems (PBES) for ABC is growing fast. However, different challenges have been encountered during bridge construction related to proper fit-up of adjacent PBES and construction erection tolerances. Also, moving an entire superstructure or a bridge using slide-in operations or self-propelled modular transporters (SPMTs) for ABC imposes other challenges that depend on a bridge location and staging area for offsite construction of the bridge. Bridge moves impose dynamic forces on the bridge and supporting framing. These dynamic forces and their effects on bridge systems are not addressed in current design and construction guides. To help bridge owners, fabricators, and contractors to successfully use PBES and bridge moves for ABC, these challenges need to be addressed immediately.

The objectives of this research are to develop (1) AASHTO bridge guidelines for (a) fabrication and erection tolerances for PBES and (b) tolerance acceptance criteria during bridge design, fabrication, and erection; and (2) AASHTO bridge guidelines to identify the dynamic forces resulting from bridge moves using slide-in operations and SPMTs and assess the effects of these forces on bridge systems.

Subject : Elements & Systems
Group : Design Specifications
Category : Ongoing Projects