

Framework for Prefabricated Bridge Elements and Systems (PBES) Decision Making

Description

Meta Fields

Project Completion Year : 2006

Project Starting Year : 2004

Other Documents 0 Other Documents File : 2347

Budget : 0.00

Abstract :

Prefabricated bridges offer significant advantages over onsite cast-in-place construction. Among these advantages are a substantial reduction in onsite time required to construct or rehabilitate a bridge, lowest costs resulting from offsite manufacturing and standardized components, and improved safety due to reduced exposure time in the work zone. The controlled environment of offsite fabrication also ensures quality components for good long-term performance.

Careful planning, design, and implementation are required to realize the significant advantages of prefabricated bridge construction. Decision makers must consider if the job should be fast tracked, the applicability of the design, the abilities of contractors and suppliers in the target market, access to the project site, and how the construction requirements affect cost and schedule. Other important factors for success of an accelerated bridge project include the owner's and contractor's commitment to see the job through; willingness to share responsibility, control, and risk; and understanding that time is money for all players. Owners should be able to expect inexpensive, durable, and fast construction, allowing them to get more projects within available budgets, whereas contractors should be able to make a reasonable profit and have more bidding opportunities.

This report presents a framework for the objective consideration of the above-mentioned issues. As such, the framework is a decision-making tool to help answer the ultimate question of whether a prefabricated bridge is achievable and effective for a specific bridge location. The anticipated users of this framework are the representatives of the owner agency and the contractor: the decision makers for the bridge type and the implementers, including designers and project managers.

The framework can be used at various levels of detail to assist decisions. The second section of this report is a flowchart to guide a high-level assessment of whether a prefabricated bridge is an economical and effective choice for the specific bridge under consideration. The matrix in the third section provides the users with a different format and more detail than the flowchart. The fourth section consists of considerations in various categories corresponding to those in the flowchart and matrix, with discussion and references for use in making a more in-depth evaluation on the use of prefabrication. The flowchart, matrix, and considerations section may be used independently or in combination, depending on the user's desired depth of evaluation.

Subject : FHWA

Group : Design-Making Tools

Category : Completed Projects