

Evans Crary Bridge Value Engineering Change Proposal

Introduction

The new Evans Crary Bridge will be a twin structure, 3,000 foot long, bridge replacement over the St. Lucie River, near Stuart, Florida. The project presented several challenges. The solution required the new bridges to be built and open the project to traffic as quickly as possible, without impacting a pristine environment and disrupting the primary transportation link between two communities. PCL Civil Constructors (Contractor) was awarded the project in 1999 at a bid price of \$30.7 Million. They immediately brought Finley McNary Engineers on board to develop a bridge alternative that could meet the project challenges with a “partnered” and “engineered construction” approach.

What is the innovation?

The value engineering change proposal (VECP) focused on the use of an alternative construction method and bridge details for the construction of the Evans Crary Bridge. The VECP resulted in the building of the longest span-by-span constructed bridge in the world. In addition, the savings on the VECP was guaranteed by PCL (Contractor) to the Florida Department of Transportation — District 4 (Owner) in supplemental agreement. The construction “means and methods” and the savings approach on this project are innovative.

Why is it innovative?

The use of the span-by-span construction method has never been tried with this large of spans. It provides for faster construction, reduced the amount of materials required, equipment and labor over the scheme proposed at the time of bid. By guaranteeing the Owner a cost and time savings, PCL took an innovative approach to achieve a “win e traditional approach is based on a “shared savings” concept, with no guarantee.)

What it changed or replaced?

The VECP scheme included the following changes:

- Span-by-Span construction method, utilizing an underslung erection truss.
- A combination of simple span external post-tensioning tendons and internal continuity post-tensioning tendons
- Staged construction of the substructure to allow one roadway to be built at a time.
- Use of precast decks and steel girders for the temporary widening and transition spans.
- Month deduction in overall construction time; six months early completion and opening of traffic for the first bridge and cost savings of \$ 300,000.

When and Where did it originate? What is the expected use in the future?

The innovations used on this project where a mutual collaboration between the Owner, Contractors, and Finley McNary Engineers, Inc. (Engineer of Record). The initial efforts began in August 5, 1998 and final details and agreement was reached in three months.

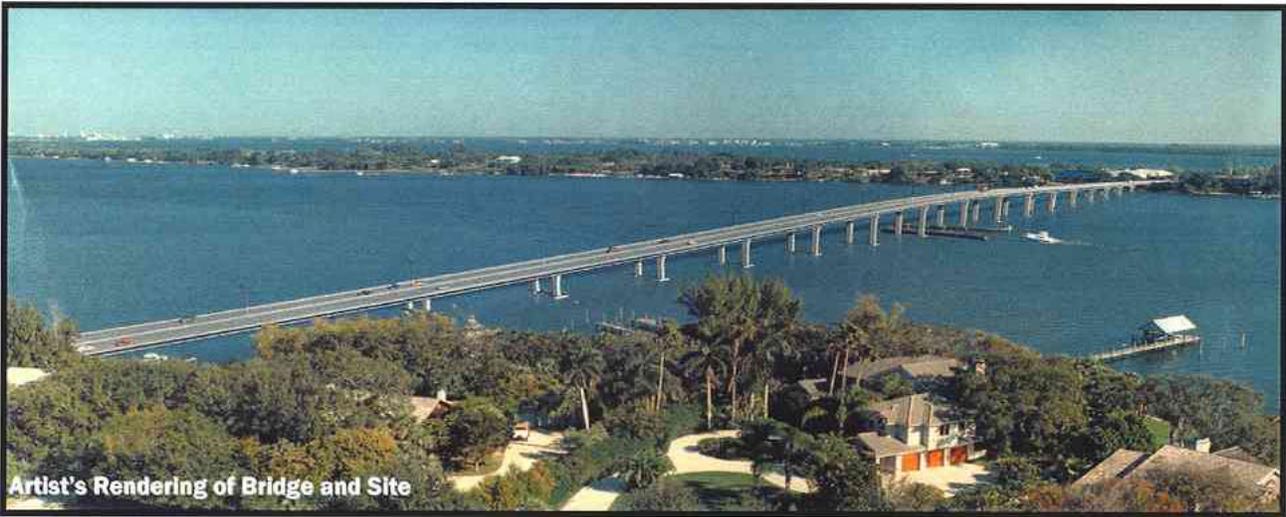
The project can be a great example for future projects. The use of innovative construction method and project savings are applicable to a wide range of bridge projects that would not have been considered feasible before. The real winner is the traveling public, who saved time and money by a “partnered”, “engineered construction” approach.

If the innovation is for an innovative project, specifically identify its innovation.

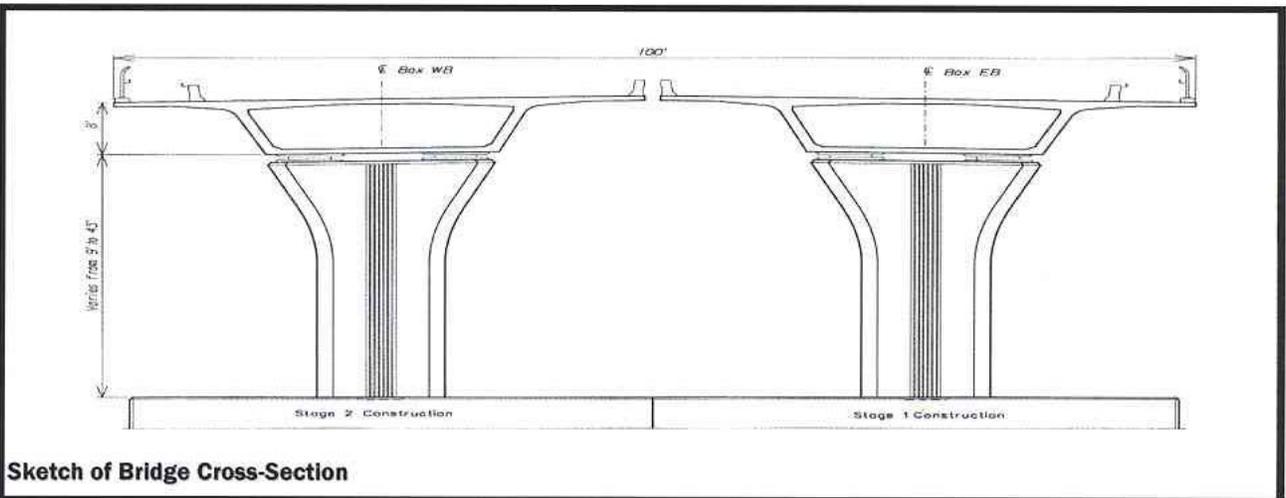
The construction methods and the savings on this project is the Innovation

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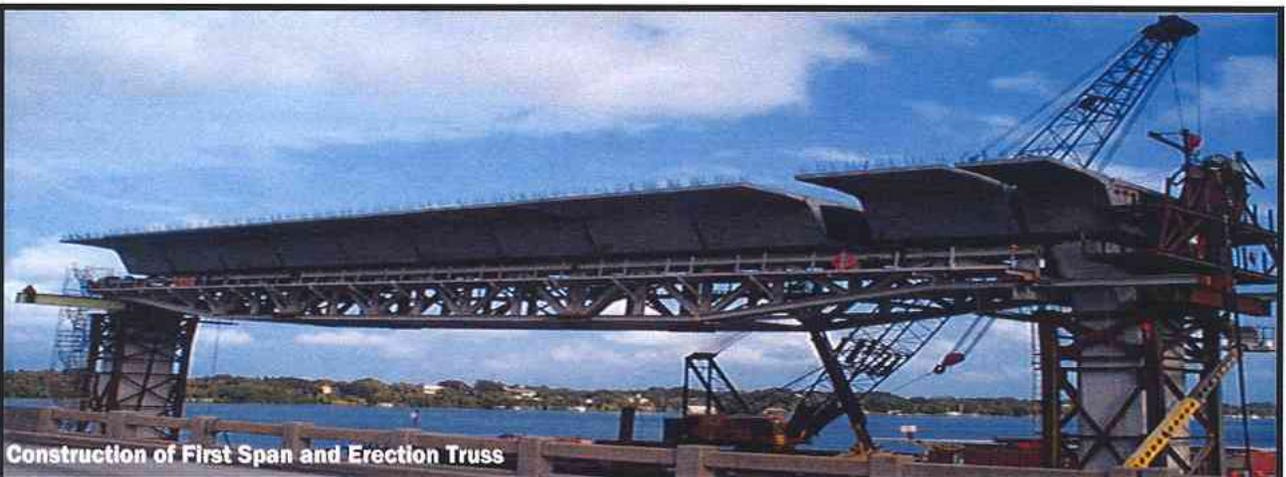
Evans Crary VECP Bridge Replacement Martin County, Florida



Artist's Rendering of Bridge and Site



Sketch of Bridge Cross-Section



Construction of First Span and Erection Truss