

Huey P. Long Bridge – Innovative Truss Erection Scheme

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Summary: The Huey P. Long Bridge is a cantilever truss that carries rail and vehicular traffic over the Mississippi River in the busy shipping port of New Orleans, Louisiana, USA. The purpose of this paper is twofold. First and foremost it is to describe the process with which we unearthed an idea that would allow us to widen this bridge safely, efficiently and with minimal impact to traffic; where all the stakeholders win. We used a method never before tried, and it is this innovative spirit we wish to share with the reader in hopes that it will be contagious. Secondly, we will delve into the technical analysis that proved this erection method was not only feasible, but safe. It required no false work in the river and solved the truss fit-up issues the stick build method was saddled with. We will describe in detail how 2.800 ton trusses were lifted 45 vertical meters, and then telescoped inward over and then lowered down onto their permanent bearings.

Keywords: Innovative Bridge Erection, Stability Analysis, Heavy Lifts, Trusses, Shipping, Monitoring.

1. Introduction

The Huey P. Long Bridge crosses the Mississippi River in New Orleans, Louisiana. Built in 1935, it is a 561 meter span, continuous cantilever truss bridge with an adjacent 162 meter simple span through truss which carries rail and vehicular traffic. This project widens the bridge by adding two widening trusses to the existing trusses that form an integrated system. The widening trusses and the secondary steel needed to connect the new panels to the existing truss were completed in the fall of 2011. The newly widened bridge is expected to open to traffic in late 2012.

As this stretch of the Mississippi River is a heavily travelled shipping channel, one of the primary project goals is to minimize the risk of ship impact to falsework in the river. This gave rise to an innovative method by which the primary trusses were erected span-by-span which required no falsework in the river; a method which had never before been attempted for spans of this magnitude. During the widening, temporary stabilizing frames that span between the bottom chords of the proposed widening trusses brace the compression chord of the truss while lifting. The whole system is lifted at the four corners by strand jacks supported on the top of the widened pier trusses. Once the trusses are lifted 45 vertical meters, the stabilizing frames telescope inward to move the widening trusses transversely and then lower them slightly onto their permanent bearings.

A viable span-by-span erection scheme must include a plan that minimizes the navigation outages. This is particularly important in this location as the shipping traffic into the New Orleans port is extremely heavy. Efficient execution of the lifts to stay within the 36-hour navigation closure is accomplished by paying close attention to the details to facilitate rapid reconstruction. Systems must have back up plans and the plan must be carefully laid out. Specialized connections and