Arkansas State Highway and Transportation Department
Transportation Research Committee

RESEARCH PROBLEM STATEMENT

DATE: 08/27/2010

PROJECT AREA: Design

TITLE: Design of Continuity Regions for Continuous Span Bridges

PROBLEM STATEMENT:

As the number of prestressed bridge girders increases in Arkansas, a number of design issues and questions have also arisen. When designing bridges, the engineer can design the bridge as a continuous or simple span. The benefit of continuous spans is the elimination of the joint between bridge girders. This joint, if it fails, can allow water and other debris onto the girder which can lead to deterioration. Therefore, the design of choice is a continuous bridge which eliminates the joint. Not only are jointless bridges more durable, they also possess improved ride quality and lower maintenance costs. To design a continuous bridge, a diaphragm is cast between the girders. This diaphragm consists of reinforced concrete that ties the two girders together, which makes the bridge continuous. There are many methods of detailing the continuity of the girders. The major problem that exists in Arkansas is cracking that begins at the girder interface and diaphragm.

OBJECTIVES:

The main objective of the proposed research program is to develop improved methods for designing and detailing the continuity regions of prestressed girder bridges. The main outcome of the proposed project is a detailing method for AHTD and other DOTs for the continuity regions of prestressed bridges. Another outcome of the project will be bridges with improved durability, which ultimately results in a longer service life.

Form of Research Implementation:

The contributions of the proposed research are far reaching. Not only will AHTD benefit from an improved design detail, other DOTs throughout the U.S. will also benefit from the research results.

Total Estimated Cost and Project Duration: **$** 180,000 **and** 24 **months.**

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