

RESEARCH PROBLEM STATEMENT

DATE: 09/07/2018	PROJECT AREA: Maintenance
TITLE: CSA Cement for Rapid Structural Repairs	
PROBLEM STATEMENT:	
<p>Calcium Sulfoaluminate Cement is a rapid setting, rapid strength gain hydraulic cement similar to portland cement. If a typical portland cement concrete mixture can reach 4,500 psi in 28 days, the complementary CSA cement mixture would reach 4,500 psi in 4 hours. Because of this extremely fast strength gain, CSA cement is an ideal material for repairs. Recent research shows that CSA cement performs at least as well or even better than portland cement in reinforced concrete, for this reason, it should be considered for repairs to bridges in Arkansas. Many Arkansas bridge decks have aesthetic or structural damage that require extensive repairs. Most current repair methods are either superficial, or require the bridge to be taken out of service for a longer period of time. If CSA cement was used to repair the bridge deck, a structural quality repair could be made in a day, or even overnight. The goal of this project is to develop an appropriate CSA cement mixture for bridge deck repairs (specifically at the joints), and apply the mixture in the lab and the field to test its structural performance and longevity. This new repair strategy will save time and money for Arkansas.</p>	
OBJECTIVES:	
<p>The project has 3 primary objectives:</p> <ol style="list-style-type: none"> 1. Develop a cost effective CSA cement concrete mixture that can be mixed and finished by the using standard practices for concrete. 2. Test the repair on lab scale beam specimens by removing a section of a portland cement concrete beam and repairing it with the CSA repair material. 3. Select an Arkansas bridge deck in need of structural repairs and apply method in the field. 	
FORM OF RESEARCH IMPLEMENTATION AND RETURN ON INVESTMENT:	
<p>The goal of this project will be to provide guidance on how to use CSA cement for structural bridge deck repairs. This will provide a rapid repair method that can be applied in a short period of time but should last as long as the rest of the bridge is in service. Reducing repair times for heavily used bridges will save time and money for Arkansans, and prevent the need to use more intrusive repair techniques.</p>	
Estimated Project Duration: 36 Months	
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Standing Subcommittee
Ranking

1/6

Advisory Council
Ranking

1/37

Statement Combined with
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