

<b>UTC Project Information</b>	
Project Title	MPC-560 – Rapid Set Cement for Precast Prestressed Bridge Girder Applications
University	Utah State University
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Funding Source(s) and Amounts Provided (by each agency or organization)	<p>USDOT, Research and Innovative Technology Administration \$59,733.51</p> <p>CEE Department Salary \$59,733.51</p>
Total Project Cost	\$119,467.02
Agency ID or Contract Number	69A3551747108
Start and End Dates	December 11, 2017 to July 31, 2022
Brief Description of Research Project	<p>This study will investigate calcium sulfoaluminate (CSA) cement as a sustainable alternative to portland cement in precast concrete. Compared with portland cement, CSA cement offers a 60% reduction in consumption of natural resources, 50% lower associated carbon emissions, and 35% lower embodied energy. CSA cement offers the additional benefits of very rapid hydration and improved durability over portland cement. CSA cement exhibits setting times between ten minutes and one hour, which will allow precast CSA concrete elements to be cast and demolded in a fraction of the time that their portland cement concrete counterparts require. Since CSA-based materials exhibit improved dimensional stability and resistance to chloride ingress, as well as immunity to alkali-silica reaction and sulfate attack, the durability of the resulting precast elements will be exceptional.</p>
Describe Implementation of Research Outcomes (or why not implemented)	We are currently working with precasters on developing workable mixtures for CSA cement that can be produced economically based on our experiences. Furthermore, getting state transportation

Place Any Photos Here	agencies interested in this sustainable option will be a focus going forward.
Impacts/Benefits of Implementation (actual, not anticipated)	This research will enable the use of CSA cement, a more sustainable cement that is arguably more durable and can harden rapidly. This is the first testing of a full-scale structure using CSA cement in the United States.
Web Links <ul style="list-style-type: none"><li>• Reports</li><li>• Project Website</li></ul>	<a href="https://www.ugpti.org/resources/reports/details.php?id=985">https://www.ugpti.org/resources/reports/details.php?id=985</a>