UTC Project Information	
Project Title	MPC-390 – Design and Construction Monitoring of Surcharged Embankment
University	University of Utah
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Funding Agencies	USDOT, Research and Innovative Technology Administration
Agency ID or Contract Number	DTRT12-G-UTC08
Project Cost	$80,650
Start and End Dates	January 1, 2012 – December 31, 2013
Project Duration	2 Years
Brief Description of Research Project	Preserving the health of pavement and bridges, particularly on the National Highway System (NHS) is critical to the structural integrity, functionality, and cost effectiveness of the Nation's transportation system (DRAFT DOT Strategic Plan 2010-2015). In areas along the urban Wasatch Front in Utah, soft, clayey deposits can cause excessive differential settlement and premature pavement damage at bridge approaches resulting from secondary consolidation settlement of the foundation soils. Such settlement is long-term in that it accumulates over many years and can produce a significant bump at the bridge approach. In some cases, the approach fills need to be reconstructed, or frequently maintained using asphalt overlays in the damaged area. Surcharging of the embankment is a common strategy used by the Utah Department of Transportation (UDOT) to reduce secondary consolidation settlement of the underlying foundation soils. Surcharging entails the construction of additional embankment above the final design subgrade in order to overconsolidate the foundation soils. Such surcharging must be sufficiently high and left in place for sufficient duration to overconsolidate the foundation soils effectively; hence reducing the amount of secondary settlement. Unfortunately, design and monitoring of surcharged embankment is not well

	understood by local geotechnical practice and is often misapplied. The research proposes to develop guidance for the design, monitoring and release of surcharged fills.
Describe Implementation of Research Outcomes (or why not implemented) Place Any Photos Here	This research developed methods to complete the geotechnical laboratory testing required for surcharge design. This report and the surchage design methods introduced have been implemented by the Utah Department of Transportation in its Geotechnial Manual of Instruction.
Impacts/Benefits of Implementation (actual, not anticipated)	The implementation of the research will reduce the settlement damage at bridge crossings. It will also improve the ride quality at these bridge and extend to service life of the bridge approaches.
Web Links • Reports • Project Website	https://www.ugpti.org/resources/reports/details.php?id=1005