



## Exhibit F - UTCRS

UTC Project Information	
Project Title	Dynamic Live Load Effects of Railroads on Retaining Walls and Temporary Shoring
University	Texas A&M University (TAMU)
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Funding Source(s) and Amounts Provided (by each agency or organization)	Federal Funds (USDOT UTC Program): \$75,000
Total Project Cost	\$75,000
Agency ID or Contract Number	DTRT13-G-UTC59
Start and End Dates	May 2016 – December 2017
Brief Description of Research Project	Analysis of causes of major train derailment and their effect on accident rates shows that the second major reason of train derailment is change of track geometry. Shored excavations near railway alignments can introduce significant potential for changes in the track geometry; thus, a thorough understanding of the mechanisms of wall and soil mass movements is essential to limiting changes of track geometry to acceptable levels, thereby making a significant contribution to railroad safety. Recently, an instrumented test wall site comprising a sheet pile wall segment and a soldier pile/timber lagging wall segment was installed adjacent to a UPRR

	<p>site in south College Station, Texas. This project is designed to measure both instantaneous and long-term permanent displacements and strains in the wall. Additionally, periodic surveys will be performed to measure changes in track geometry, and correlate these measurements to wall movements. High quality measurements from this test site can be used to validate numerical models of wall response. Such numerical models provide a means for extrapolating the findings from the test site to other soil types, wall types and wall geometries. An instrumented test wall adjacent to an active railway is a very unique asset, so this test site presents a rare opportunity to improve the current level of understanding of wall systems subjected to repeated live railroad loads.</p>
<p>Describe Implementation of Research Outcomes (or why not implemented)</p> <p>Place Any Photos Here</p>	Pending Project Completion.
Impacts/Benefits of Implementation (actual, not anticipated)	Pending Project Completion.
<p>Web Links</p> <ul style="list-style-type: none"> <li>• Report</li> <li>• Project Website</li> </ul>	<a href="http://www.utrgv.edu/railwaysafety/research/infrastructure/dynamic-live-load-effects-of-railroads-on-retaining-walls/index.htm">http://www.utrgv.edu/railwaysafety/research/infrastructure/dynamic-live-load-effects-of-railroads-on-retaining-walls/index.htm</a>