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| **UTC Project Information** | |
| Project Title | MPC-586 – Mitigation of Differential Settlement at Highway Bridge Approaches |
| University | University of Utah |
| Principal Investigator | Steven F. Bartlett |
| PI Contact Information | Associate Professor  University of Utah  Phone: (435) 841-9837  Email: bartlett@civil.utah.edu  ORCID: 0000-0003-2266-9672 |
| Funding Source(s) and Amounts Provided (by each agency or organization) | USDOT, Research and Innovative Technology Administration  $40,000  Utah Department of Transportation  $104,368 |
| Total Project Cost | $144,368 |
| Agency ID or Contract Number | 69A3551747108 |
| Start and End Dates | January 12, 2019 to July 31, 2022 |
| Brief Description of Research Project | Differential settlement in the transition zone between the bridge structure and the approach embankment often creates a "bump" which is a potential safety hazard and comfort issue for drivers. Studies conducted by DOTs around the country suggest that about 25 percent of the 600,000 bridges in the US are affected by bridge approach settlement or the "bump at the end of the bridge." The settlements can result in unsafe driving conditions, rider discomfort, structural deterioration of bridges and long-term maintenance costs. Identifying additional geotechnical or structural means to mitigate this issue, which might be employed in conjunction with preloading, is of benefit to many State DOTs. These benefits might be achieved by providing the project team with the advantages and detriments of supplemental options in terms of their efficacy, cost, schedule, and ease-of-construction. This research focuses on identifying innovative means to mitigate this issue during design and construction, whether through initial cost savings or by providing superior long-term performance, will provide value. This might be gained either through savings from initial capital investment or through life-cycle cost reductions, hence assisting in the preservation of key infrastructure. |
| Describe Implementation of Research Outcomes (or why not implemented)  Place Any Photos Here | Report to include recommendations to UDOT regarding methods, practices, and technologies holding the most promise for immediate implementation, and the technology selection procedure.  The technology selection procedure will be organized similarly to that of GEOTECHTOOLS (<http://www.geotechtools.org/>). The selection system will guide the user to a short list of unranked, candidate technologies. Guidance will be given for the completion of a comparable, quantifiable analysis of the short-listed technologies to aid the user in selection of the preferred alternative. The information provided for each technology will allow the user to complete preliminary design and subsequently compare the technologies. |
| Impacts/Benefits of Implementation  (actual, not anticipated) |  |
| Web Links   * Reports * Project Website |  |