|  |  |
| --- | --- |
| **UTC Project Information** | |
| Project Title | MPC-571 – Monitoring Transportation Structure Integrity Loss and Risk with Structure-From-Motion |
| University | Colorado State University |
| Principal Investigator | Paul R. Heyliger |
| PI Contact Information | Professor  Colorado State University  Phone: (970) 491-6685  Email: prh@engr.colostate.edu  ORCID: 0000-0001-6884-6967 |
| Funding Source(s) and Amounts Provided (by each agency or organization) | USDOT, Research and Innovative Technology Administration  $60,000  CSU salary, NSF  $60,000 |
| Total Project Cost | $120,000 |
| Agency ID or Contract Number | 69A3551747108 |
| Start and End Dates | June 27, 2018 to July 31, 2024 |
| Brief Description of Research Project | A hybrid method of analysis using Structure-from-Motion photographic imaging and finite element models are proposed to monitor and characterize physical changes in transportation systems using standard digital photographs. The proposed methodology is suggested to study a wide variety of representative structures and systems that can be damaged or subjected to varying environmental threats. |
| Describe Implementation of Research Outcomes (or why not implemented)  Place Any Photos Here | We have used these results to leverage additional efforts to continue to expand these methods, and have also used them to justify and execute the teaching of an undergraduate class at Colorado State that uses UAS methods in engineering. |
| Impacts/Benefits of Implementation  (actual, not anticipated) | This methodology allows engineers and inspectors to quantify and track levels of damage and degradation over long periods of time and compare original designs and geometries with current conditions. As these methods improve in accuracy, there will be a trend to automate and combine the current approach of using several different tools for the imaging, processing, and analysis, into a single entity. |
| Web Links   * Reports * Project Website | * MPC Final Report – [Monitoring Transportation Structure Integrity Loss and Risk with Structure-From-Motion](https://www.ugpti.org/resources/reports/details.php?id=1230) |