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| UTC Project Information | |
| Project Title | MPC-663 – Impacts of Vehicle Fires on Polymer Concrete Bridge Deck Overlays |
| University | Utah State University |
| Principal Investigator | Shua Ni, Ph.D.  Andrew Sorensen, Ph.D. |
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| Funding Source(s) and Amounts Provided (by each agency or organization) | USDOT, Office of the Assistant Secretary for Research and Technology $80,000  PI’s startup funding, non-resident tuition of the Ph.D. student, and faculty time & effort $80,000 |
| Total Project Cost | $160,000 |
| Agency ID or Contract Number | 69A3551747108 |
| Start and End Dates | August 24, 2021 to July 31, 2022 |
| Brief Description of Research Project | Polymer concrete (PC) has become a popular choice for deck overlays on new and existing bridges. However, PC’s high sensitivity to elevated temperatures, and the significant difference between its thermal expansion coefficient and that of the concrete substrate, have prompted concerns that vehicle fires may degrade or even completely destroy PC bridge deck overlays. With the wider aim of enhancing such overlays’ vehicle-fire resistance, the proposed research will investigate such fires’ specific impacts on them, both through a real vehicle-fire test on a large reinforced concrete (RC) panel protected by a PC overlay, and through overlay-performance tests before and after the vehicle-fire test. Then, based on the test data, effective preventive design/construction methods and post-fire repair strategies for PC bridge deck overlays will be proposed, and tested on medium-sized RC panels under controlled heating-cooling conditions. It is expected that applying the resulting recommendations in real projects will enhance the vehicle-fire resistance of PC bridge deck overlays, and thus reduce transportation interruptions due to vehicle fires. |
| Describe Implementation of Research Outcomes (or why not implemented)  Place Any Photos Here |  |
| Impacts/Benefits of Implementation  (actual, not anticipated) |  |
| Web Links   * Reports * Project Website |  |