Grant Deliverables and Reporting Requirements for UTC Grants

UTC Project Information	
Project Title	Use of epoxy asphalt with reclaimed asphalt pavement (RAP) in new pavement mixture
University	University of South Florida
Principal Investigator	Qing Lu
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Funding Source(s) and Amounts Provided (by each agency or organization)	USDOT: $97,506 USF: $48,753
Total Project Cost	$146,259
Agency ID or Contract Number	Sponsor Source: Federal Government CFDA #: 20.701 Agreement ID: 69A3551747119
Start and End Dates	Start date: 10/01/2021 End date: 04/30/2023
Brief Description of Research Project	Periodic maintenance and rehabilitation of asphalt pavements result in vast amounts of waste materials known as reclaimed asphalt pavement (RAP). The asphalt industry has been recycling RAP by putting it back in pavement for use, but the nationwide average percent RAP in asphalt mixtures has not increased in recent years, which remained at about 21% in 2019, due to the concern that increasing the RAP content may not warrant pavement performance. Therefore, there is a need to increase the reuse of RAP in road projects. The current designs of asphalt mixtures containing RAP typically use recycling agents or a softer asphalt binder to compensate for the brittleness of aged asphalt in RAP. The prior work by the PI has revealed the superior performance of epoxy asphalt in virgin asphalt mixtures. Epoxy asphalt is a thermosetting material that can improve asphalt mixture performance by one or several orders of magnitude. It, however, has not been explored for use in RAP mixtures. Based on the PI's experience with epoxy asphalt, it is hypothesized that the use of epoxy asphalt in RAP mixtures can ensure that the mixtures perform equal to or better than asphalt mixtures with all virgin materials and a low percentage of epoxy asphalt suffices

	in RAP mixtures. If these hypotheses are validated, it may provide road agencies a new approach to design RAP mixtures and increase the use of RAP in road projects. The main objective of this proposed project is to validate the above hypotheses with the following tasks planned: • Perform a literature review of state-of-the-art and state-of-the-practice of RAP mixture and epoxy asphalt; • Develop and execute a laboratory experimental plan to evaluate the performance of RAP mixtures containing epoxy asphalt; and • Develop recommendations on the design and production of RAP mixtures with epoxy asphalt.
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	http://ctech.cee.cornell.edu/final-project-reports/