

Request for Research Funding for FY 2020-2021

Requesting Office	State Materials Office (SMO)	Priority	SMO 3 / 10
Proposed Title	Practical Mix Design Guidelines for Reflective Cracking Resistant Mixtures		
Justification	The most common asphalt pavement distress is cracking. In many instances, the depth of the cracking is below the feasible milling depth of a resurfacing project. A suitable means of mitigating the reflective cracking is needed to extend the life of the pavement in these instances. Historically, an asphalt rubber membrane interlayer (ARMI) has been used to mitigate reflective cracking. While membrane interlayers are still in the standard specifications, they are seldom, if ever, used because of cost, lack of structural value, and mixed historical performance. This project would be a continuation of existing work performed by the University of Florida. The project would develop simple and practical mix design guidelines for reflective cracking resistant mixtures based on the discoveries from the previous UF project.		
Impact	The project will provide practical guidelines for mix designers to design reflective cracking resistant mixtures, which are significantly different from mixtures currently being used on FDOT projects. If this research is not performed, reflective cracking will continue to be an issue in Florida. Some pavements will have reduced life and require more frequent resurfacing due to premature reflective cracking.		
Affected Offices	Materials, Construction, Design, Maintenance		
Existing Work	The Transportation Research International Documentation (TRID) and the Research in Progress (RIP) online databases were reviewed. Practical mix design guidelines for the mix types that would be studied in this project do not exist.		
Keywords Used In Existing Work Search (Cannot leave blank)	Reflective cracking		
Related Contracts (Give contract numbers)	This is a continuation study from project BVD31-977-39		
Funding Request	\$200,000	Anticipated Duration	18 months
Project Manager	Howie Moseley	Contracting Method	Direct contract to the University of Florida
Urgency	Score 1-5 1= highest, most immediate need	2: Reflective cracking is currently not being addressed on resurfacing projects when the crack depth is deeper than the milling depth.	
Implementability	Score 1-5 1=greatest likelihood of and proximity to implementing results	2: The initial UF study, BVD31-977-39, showed promising results. This study will develop the guidelines for contractors to design these type of mixtures, which are significantly different from mixtures currently used in Florida today.	

Project Benefits (Succinct, complete explanation)

[This study will develop the guidelines for contractors to design these types of mixtures, which are significantly different from mixtures currently used in Florida today. The project will include multiple aggregate types that represent those commonly used in Florida. Significant performance testing will be performed to assure the developed guidelines provide adequate mixture performance with respect to cracking, rutting, and moisture susceptibility. The project will provide an actual mix design to be studied at the SMO accelerated pavement testing facility for constructability and performance.

Project Benefits (Select all that apply and explain)	Quantifiable Benefits (units, dollars, etc...if applicable)	Methodology or Data Sources Used to Determine Quantifiable Benefits. If not applicable, please give justification of project benefits
○ Materials Enhancement	Longer lifespan. Reduced resurfacing cycles.	The research will provide guidelines to design reflective cracking resistant mixtures, which can be used when milling is unable to remove the existing cracking. Consequently, pavement will not experience premature reflective cracking.
○ Materials Savings	N/A	
○ Time Savings	Reduced resurfacing cycles	Reduced resurfacing projects and less disruption to the public.
○ Lives Saved/Injuries Prevented	N/A	
○ Other (Explain)		

*Comments should explain and support urgency, financial benefit, and implementability scores