

Request for Research Funding for FY 2022-2023

SPR Subpart B Project: SMO-23-03

Requesting Office	SMO	Priority	3 of 10
Proposed Title	Benchmarking Florida Asphalt Mix Design Performance		
Justification	<p>State agencies are beginning to design asphalt mixtures with cracking and rutting laboratory performance tests, sometimes known as performance-engineered mix designs (PEMD) instead of using a volumetric based design protocol, such as Superpave, which has been used by the Department since the late 1990's. The Department has performed these performance tests on research projects but has not comprehensively tested a wide variety of asphalt mixtures from across the state. This project would provide widespread benchmarking of laboratory rutting and cracking mixture properties during the mix design stage and during mixture production at the asphalt plant. While the Department does not currently have immediate plans to switch to a performance-engineered mix design protocol, this project would provide necessary information for implementation should the Department move towards this type of mix design system. <u>This project was proposed by the Asphalt Contractors Association of Florida.</u></p>		
Impact	<p>Should the Department implement a performance-engineered asphalt mix design protocol for the design of its asphalt mixtures, it would be critical to understand the current laboratory cracking and rutting performance levels of asphalt mixtures being produced today for both laboratory and plant produced mix. This information does not currently exist. The analysis of this data could also provide information on improving the cracking and rutting performance of Florida asphalt mixtures. Implementing performance-engineered mix design would be a significant departure from current practice and would affect all statewide mix designers, the State Materials Office, consultant design labs, and perhaps each asphalt plant, depending on how far reaching the scope of implementation is.</p>		
Affected Offices	<p>Mostly Materials Offices (SMO and Districts) would be affected, but there may be some impact on Construction, depending on the level of implementation of the research findings. SMO Bituminous staff will be responsible for scoping and initiating the research. District Materials and/or Construction staff will be asked to participate as research panel members.</p>		
Existing Work	<p>Significant work has been performed on this topic on a national basis, however, there is not adequate information with laboratory and asphalt plant produced asphalt mixture with Florida materials.</p>		
Keywords Used In Existing Work Search (Cannot leave blank)	<p>Performance engineered mix design. Balanced mix design.</p>		
Related Contracts (Give contract numbers)	<p>None.</p>		
Funding Request	\$240,000.00	Anticipated Duration	24 months
Project Manager	Greg Sholar	Contracting Method	Direct contract with the University of Florida.
Equipment	NA	NA	
Urgency	3 of 10	<p>Many states are moving towards Performance Engineered Mix Design (PEMD). PEMD has the benefit of using laboratory performance tests for cracking and rutting related to the real distresses observed in the road. This project will provide needed information for the Department to consider before moving forward with this type of mix design system.</p>	
Implementability	Score 1-5 1=greatest likelihood of and proximity to implementing results	<p>2. The information obtained from this project would be critical if the Department chose to move to a performance-engineered design system. The analysis of the information could also be used to improve our current volumetrically based mix design system.</p>	

Project Benefits

This research project would provide a rutting and cracking characterization of a representative range of asphalt mixtures using Florida materials. This information would help the Department determine whether to develop a performance engineered mix design system or to stay with volumetric mix design. Additionally, it could provide information to improve volumetric mix design if the Department decided not to pursue performance engineered mix design. For example, there could be strong correlations between performance engineered mix properties and volumetric properties.

Project Benefits	Quantifiable Benefits	Methodology or Data Sources Used to Determine Quantifiable Benefits. If not applicable, please give justification of project benefits
○ Other	Material properties for rutting and cracking resistance.	Laboratory tests will be performed to catalog a wide variety of Florida asphalt mixture types. This will provide SMO engineers necessary information for developing a new performance engineered mix design method and writing the appropriate specifications.