

Request for Research Funding for FY 2020-2021

Requesting Office	Central Office, Pavement Management Office	Priority	10 of 10
Proposed Title	Local Calibration for AASHTO Pavement ME, Version 2.6 <u>for Flexible Pavement Design</u>		
Justification	<p>FDOT currently uses a mechanistic-empirical (ME) design for rigid pavements (specifically, AASHTOWare Pavement ME Design, Version 2.2), and the AASHTO 93 Method for design of flexible pavements. FDOT has been waiting for a flexible pavement top-down cracking module to be available in Pavement ME to begin using it for flexible pavements. AASHTO anticipates the flexible pavement top-down cracking module (Version 2.6) to be released in <u>February-June</u> of 2020.</p> <p>Upon the release of Pavement ME, Version 2.6, FDOT will need to perform a local calibration for Florida conditions. This calibration is necessary for both rigid and flexible pavements. It should be noted that local calibration was previously completed for rigid pavements. However, it is necessary to recalibrate for each new version of Pavement ME due to the significant differences in outputs observed from newer versions of the software.</p>		
Impact	<p>The model calibration coefficients and design requirement values recommended in this study will be used by FDOT to develop new design values in the FDOT Flexible Pavement Design Manual. The design values currently in the FDOT Rigid Pavement Design Manual will be validated using the results of this research. All projects in the state use these manuals for pavement design.</p>		
Affected Offices	Pavement Design, Materials		
Existing Work	The Transportation Research International Documentation (TRID) and the Research in Progress (RIP) online databases were reviewed. This is research that is specific to Florida, and no additional research studies were found.		
Keywords Used In Existing Work Search (Cannot leave blank)	Local calibration		
Related Contracts (Give contract numbers)	None		
Funding Request	\$200,000	Anticipated Duration	24 months
Project Manager	Mary Jane Hayden	Contracting Method	RFP
Urgency	3	The flexible pavement top-down cracking module in Pavement ME has been anticipated for many years. While this research need is not necessarily urgent, by nature, it is long-awaited and overdue.	
Implementability	3	This research is the first step in development of new (for flexible) or validated (for rigid) design values in the FDOT's <u>Flexible</u> Pavement Design Manuals. The coefficients that are developed in this research study will be used by Central Office staff to update validate design methodologies in the Manuals. The update process is labor-intensive and would be implemented in the annual release of the Manuals that follows the conclusion of this research.	
Project Benefits (Succinct, complete explanation)			
A mechanistic-empirical pavement design procedure allows for analyzing and selecting pavement structures based on predicted distress progression resulting from stresses and strains within the pavement over its design life. Pavement performance models embedded within the Pavement ME program require calibration to match expected performance under local conditions. Without this calibration, predicted performance may not be consistent with observed performance.			

Commented [MJH1]: Rigid values will be verified with Concrete Test Road. No need to duplicate efforts for this right now.

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	N/A	N/A
○ Materials Savings	N/A	N/A
○ Time Savings	N/A	N/A
○ Lives Saved/Injuries Prevented	N/A	N/A
○ Other (Explain)	Consistency	The benefit to this research is not necessarily quantifiable in terms of dollars or staff hours. The benefit to performing this calibration is that FDOT's design methodologies for both rigid and flexible pavement design will be up to date with current national practices. It will also provide a single design approach for all pavements, regardless of the type of material used (rigid/flexible).

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