Request for Research Funding for FY 2021-2022			
Requesting Office	Forecasting and Trends Office	**Priority**	3 of 4
Proposed Title	Implementation of Florida Index for Transportation (FIT) for Decision Making in Transportation Planning – Phase 2		
Justification	Florida has been experiencing continuous demographic change and growth in the population, economic development, and advances in technology. Such external factors are affecting the travel needs of Floridians and challenging the current transportation system while often causing emergent behaviors to accommodate changes. Meanwhile, transportation planning generally involves decisions that commit a large amount of investment, and success or failure may result in substantial impacts on the economic and social well-being of Floridian communities over generations. Due to the enormous consequences, effective decision-making in transportation requires the exploration of a full range of problems through measurement along many dimensions. In this vein, it would be useful to track and evaluate a broad range of external factors and apply any derived insights into the transportation planning process. The FDOT Forecasting & Trends Office has reported trends of external factors (i.e., mainly traditional census-type information) along with various performance measures in the annually published FDOT Source Book while funding two research projects to track and identify various external factors. In particular, one of the projects developed a composite index, called "Florida Index for Transportation" or FIT as the primary medium that allows broad utilization of the information derived from multiple external factor indicators in various transportation planning and demonstrated its potential benefits as a new planning tool. In the continuing effort to utilize external factors, the FDOT Forecasting &Trends Office will employ researchers to further investigate the external factors, of which the influence mechanism is not clearly understandable.		
Impact	Many federal and state agencies have acknowledged the importance of external factors and tried to integrate them into the planning process. However, because transportation planning is complex and multifaceted by nature, decision makers often must handle an overwhelming amount of information or sets of external factors in policy- and decision-making. Such abundant information impedes deriving insights for planning purposes. In this regard, FIT has great potential as a planning tool to effectively streamline and analyze the abundant amount of information that comes from tracking multiple external factors and to facilitate better-informed policy- and decision-making. Furthermore, prior projects on external factors primarily focus on the identification of external factors without investigation of how these factors affect the Florida transportation system. As such, planning agencies are aware of many external factors based on prior studies but do not comprehensively consider them for various planning. All in all, this project will enable various transportation planners to actively engage analyses of relevant external factors in their planning process with confidence.		
Affected Offices	FIT can support various decision-making processes ranging from mode-specific planning to regional- and state-level planning. Considering its broad applicability, this proposed project will potentially benefit a range of FDOT Offices and stakeholders, including: • FDOT Forecasting and Trends Office • FDOT Office of Policy Planning • FDOT Systems Implementation Office • FDOT Seaport and Waterways Office • FDOT Strategic Development Office • FDOT Transit Office • Metropolitan Planning Organizations • Various local city departments throughout the State of Florida		
Existing Work	- Previously, the Federal Highway Administration and the US DOT supported a research project to evaluate external factors on highway performance measures and to further guide on how to include key external factors in performance reporting. Acknowledging the importance of external factors, the FDOT Forecasting and Trends Office has funded two research projects in order to identify external factors specific to various transportation modes of Florida and develop best management practices for considering external factors in planning processes. While these two projects give a good insight into a broad range of external factors and inform the use of them for decision making, these studies are limited to the concept development and demonstration.		
Keywords Used In Existing Work Search **(Cannot leave blank)**	The following keywords were used to search for similar existing work: "external factor" and "dashboard."		

Related Contracts (Give contract numbers)	In the Phase 1 Project (#BDV30 977-28), the researcher team identified a broad range of external factors, proposed a system-of-systems framework to effectively monitor and analyze their trends through a composite index, called Florida Index for Transportation (FIT), and demonstrate the implementation of FIT under several planning scenarios. In the proposed project (i.e., Phase 2), researchers will shed light on previously unexplained relationships between transportation modes and their relevant external factors.		
Funding Request	$240,000	**Anticipated Duration**	24 months
Project Manager	Jessica VanDenBogaert	**Contracting Method**	Direct contract with Florida State University
Urgency	2	The FDOT Forecasting & Trends Office publishes the FDOT Source Book annually, which reports various indicators ranging from mobility performance to trends of external factors affecting travel demands and transportation performance. The importance of external factors has been acknowledged and highlighted in previous federal and state projects. In contrast, the FDOT Source Book is somewhat limited to mainly reporting traditional census-type information rather than provide insights directly applicable to inform policy- and decision-making. As such, the proposed project will supplement the existing effort by further reporting trends of various external factors and their implication from planning perspectives. Also, it is anticipated that the coronavirus pandemic will have a long-lasting impact on the Florida transportation system. Understanding how the pandemic has influenced the system and taking timely actions are important to minimize its prolonged impact. FIT will provide transportation planners the capability for capturing any emergent phenomena that have occurred during the pandemic through the analyses of external factors. As such, analyses of external factors through FIT for the pandemic event are an urgent matter and need to be done.	
Implementability	1	Since the framework of the proposed composite index was already developed during the Phase 1 project, FIT can be immediately implemented and reported annually during the project duration (i.e., in the end of Year 1 and Year 2).	

Project Benefits (Succinct, complete explanation)

B1. In an effort to understand the changing nature of transportation, many transportation agencies (including FDOT) have collected and analyzed a large number of external factors. The requested project will use a novel approach to monitor and analyze the otherwise abundant information derived from external factors in an effective manner and report the trends through a web-based dashboard, thereby saving time and effort to analyze external factors.

B2. While prior projects identified various external factors, the application of their findings for planning is a challenge because of the lack of interpretation. The requested project will provide implications of external factors and their trends to support various decision-making.

B3. The online platform will enable various transportation planners throughout the state and beyond to customize FIT in order to support their own planning processes. In other words, not only state planning agencies but also regional planners can use FIT to consider external factors for planning.

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**
o Materials Enhancement		
o Materials Savings		
o Time Savings		
o Lives Saved/Injuries Prevented		

○ Other (Explain)	Number of visitors to the online platform	The aforementioned benefits (B1~B3) can be evaluated quantitatively by measuring the number of visitors to the web-based interactive dashboard. To be more specific, the number of visitors along with the statistics of visitors' information (e.g., the visitors' geographic location, decision-making problems of their interest, etc.) can evaluate the success of this project in terms of its usability and implementability.

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