Request for Research Funding for FY 2019-2020			
Requesting Office	Forecasting and Trends	**Priority**	4 of 4
Proposed Title	Development of a high-resolution statewide socio-demographic and land use module for transportation planning		
Justification	Florida is experiencing population growth that is twice the national average since 2000 (FDOT, Office of Policy Planning Trends 2016). In fact, from 2011 to 2015 the population of Florida increased by 1 million and is expected to increase by 7.4 million by 2045. With population increase, new building permits issued have nearly quadrupled from 2011 through 2018 (Census Bureau, Building Permits Survey, 2019). The growing population, associated housing infrastructural additions and demand for retail and commercial establishments have resulted in rapid revamp of land use patterns across the state. These changes have resulted in a substantial increase in passenger and freight demand in the state. Passenger and freight demand and its spatio-temporal patterns is a result of intricate interactions between (a) socio-demographics of decision makers, (b) land use patterns (existing and future development) and (c) transportation infrastructure (current and projected additions). Thus, among the frameworks employed for transportation planning, travel demand modeling approaches are augmented with socio-economic and land use modeling frameworks. In Florida, Florida Standard Urban Transportation Model Structure (FSUTMS) provides a standardized travel demand modeling platform for transportation forecasting needs in the state. The availability of a standardized model allows urban metropolitan organizations and local jurisdictions to either directly employ the standardized model or customize the model for local conditions reducing the need for exhaustive financial and professional resources in these organizations for transportation planning exercises. However, there is no comparable standardized socio-economic and land use modules in the state. The proposed research is geared towards developing a standardized high resolution state-wide socio-demographic and land use model that will provide stakeholders with a framework analogous to the FSUTMS model. In the first part of the project, the research team will identify current socio-demographic and land use inputs for the travel demand model. The information compiled will be augmented with a literature review of existing state of the art socio-demographic and land use modules across the country. The research team will build an initial pool of variables and invite feedback from various stake holders across the state. Towards this end, the research team will design and deploy an extensive survey to seek information from FDOT stakeholders encompassing the various districts, turnpike, FDOT statewide model building personnel, consultants in the planning field (list compiled with discussions with project manager) and model task force members. Based on the survey feedback, and in consultation with the project manager and FDOT statewide Planning office personnel a universal template of information that will be useful for the development of the framework will be generated. For the universal template generated, the research team will generate socio-economic and land use variables based on their extensive data analytics and modeling experience. The research team envisions the consideration of publicly accessible data sources such as: U.S. Census Bureau, Florida Bureau of Economic & Business Research, 2017 National Household Travel Survey for Central Florida region, American Community Survey, Florida Department of Revenue, local property appraisers for housing, FDOT Traffic volume data, NPMRDS, RITIS, FDOT Roadway Characteristics Inventory and Florida Geographic Data Library. In addition, the research team will also attempt to acquire data from private vendors as appropriate. For example, recently Uber has made travel time data at a census tract and traffic analysis zone resolution available for Orlando region from 2016. The research team will compile the aforementioned information for a spatial resolution that can be directly employed for local jurisdictions and statewide models.		
Impact	The successful implementation of the project will reduce financial burden on local jurisdictions that need to develop socio-demographic and land use data for undertaking transportation planning exercises. Further, for agencies with requisite expertise, the availability of such an exhaustive base data can allow for more advanced		

	planning model development as necessary. Overall, the project will result in substantial savings in terms of financial and personnel resources for FDOT.		
Affected Offices	FDOT Central Office; with feedback from Central office various FDOT stakeholders will be surveyed for their inputs		
Existing Work	The proposed research effort will develop a land use model template for entire state of Florida. This is a unique effort that will be beneficial for FDOT and various jurisdictions		
Keywords Used In Existing Work Search **(Cannot leave blank)**	Statewide land use models, transportation planning		
Related Contracts (Give contract numbers)			
Funding Request	250,000	**Anticipated Duration**	24 Months
Project Manager	Thomas Hill, State Modeling Manager	**Contracting Method**	RFP to universities
Urgency	Score 1-5 1= highest , most immediate need 1	The availability of a standardized model allows urban metropolitan organizations and local jurisdictions to either directly employ the standardized model or customize the model for local conditions reducing the need for exhaustive financial and professional resources in these organizations for transportation planning exercises. However, there is no comparable standardized socio-economic and land use modules in the state.	
Implementability	Score 1-5 1=greatest likelihood of and proximity to implementing results 1	The proposed research is geared towards developing a standardized high resolution state-wide socio-demographic and land use model that will provide stakeholders with a framework analogous to the FSUTMS model. The successful implementation of the project will reduce financial burden on local jurisdictions that need to develop socio-demographic and land use data for undertaking transportation planning exercises. The proposed effort has excellent chance of implementation as there is a statewide need.	

Project Benefits (Succinct, complete explanation)

In Florida, Florida Standard Urban Transportation Model Structure (FSUTMS) provides a standardized travel demand modeling platform for transportation forecasting needs in the state. The availability of a standardized model allows urban metropolitan organizations and local jurisdictions to either directly employ the standardized model or customize the model for local conditions reducing the need for exhaustive financial and professional resources in these organizations for transportation planning exercises. However, there is no comparable standardized socio-economic and land use modules in the state. The proposed research is geared towards developing a standardized high resolution state-wide socio-demographic and land use model that will provide stakeholders with a framework analogous to the FSUTMS model.

The research team will organize district specific workshops (grouping closer regions) to provide hands on experience. In these workshops, training on data for the regions as well as the entire state will be provided thus allowing local jurisdictions to run the statewide model as well as the local jurisdiction model. In fact, the research team members will run transportation planning models using the land use files generated and illustrate the application of the research product during the course of the project. Further, for agencies with requisite expertise, the availability of such an exhaustive base data can allow for more advanced planning model development as necessary. Overall, the project will result in substantial savings in terms of financial and personnel resources for FDOT.

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		
o Other (Explain)		

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