Request for Research Funding for FY 2019-2020			
Requesting Office	State Traffic Engineering and Operations	**Priority** Medium	8 of 8
Proposed Title	Human Factor Study on Driver Behavior in Managed Lanes Separation Scenarios		
Justification	FDOT has hundreds of miles of proposed managed lanes in the planning and design phases. A unique characteristic of these types of lanes is the need to separate or delineate the managed lanes from the general lanes. The effects to driver behavior on younger, middle, and older adults when delineation is provided within a limited access facility is not well understood. It is believed that separation type has an effect on safety performance, operational performance, driver behavior, and driver perception, but these effects have not been quantitatively studied. This issue effects our most strategic limited access corridors.		
Impact	This study will directly support decision making during Planning, PD&E and Design for Managed Lane projects. Without this research, the decision of which separation type to use will continue to be based on subjective information on the benefits and costs of the available options.		
Affected Offices	It is recommended that the Roadway Design Office be included in the scoping of the research. Depending on the outcome of the research, the implementation of the results may involve both the Traffic Engineering and Operations Office and the Roadway Design Office.		
Existing Work	A study entitled "Human Factors Study on the Use of Colors for Express Lane Delineators" is currently underway which is evaluating approved MUTCD colors to determine the most effective color to enhance the visibility of the Express Lane Delineator. NCHRP Project 17-89A: High Occupancy Vehicle (HOV)/ High Occupancy Toll (HOT) Freeway Crash Prediction Method for the Highway Safety Manual. The objective of this research, sponsored by the AASHTO Committee on Safety, is to develop a safety predictive method for freeway facilities with HOV/HOT lanes to enhance the freeway capabilities of the Highway Safety Manual. While not specific to separation type, this research does aim to identify a predictive method for safety performance of these types of facilities based on design characteristics.		
Keywords Used In Existing Work Search **(Cannot leave blank)**	Separation, Delineator, Delineation, Express lanes, Managed lanes, Buffer, Barrier		
Related Contracts (Give contract numbers)	N/A		
Funding Request	$250,000	**Anticipated Duration**	18-24 Months
Project Manager	Jennifer Fortunas	**Contracting Method**	RFP to universities only
Urgency	1	The number and cost associated with projects affected by this topic is continuing to rise. At this quantifiable information is not available to support the decision-making process. Considering the production process for highway projects, the sooner information can be made available to support decision making, the sooner it can be incorporated into projects.	
Implementability	1	The results of this research are very likely to be implemented. Objective information supporting the decision making process for separation type is needed but currently not available.	

Project Benefits (Succinct, complete explanation)

Evaluate driver (younger, middle, and older adult) behavior characteristics in a variety of scenarios, identify variations in driver behavior when presented with different separation techniques. The scenarios will include differences in separation type as well as amounts of congestion. It is expected that drivers will react differently to the different separation types by changing speed and lane diving, however the study is not limited to

these types of reactions. The study will also evaluate drivers' perception of the safety and efficiency of the different separation types to understand how drivers view the separation options. Other relevant behaviors may be identified during the research design. The goal is to understand differences in how drivers behave when presented with the various separation types.

At least five different separation types will be evaluated. These include a 2 ft. buffer with express lane marker, 4 ft. buffer with express lane marker, rigid barrier, 2 ft. painted stripe, 4 ft. painted stripe.

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		The relative safety performance of separation techniques is not well understood. At present there are no facilities operating in Florida with painted stripe or rigid barrier separation, therefore using crash data to evaluate safety performance and driver behavior is not available. It is possible to simulate these scenarios to better understand driver behavior relative to separation type to support decision making.
o Other (Explain)		The choice of separation type has a right-of-way and cost impact on interstate projects in addition to the less quantifiable operations and safety impacts. Better information is needed to support decision making during project development

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