

Request for Research Funding for FY 2020-2021

Requesting Office	State Traffic Engineering and Operations	Priority High	1 of 6
Proposed Title	Human Factors Study on the Use and Effectiveness of Innovative Safety Messages on Dynamic Message Signs		
Justification	<p>Dynamic Message Signs (DMS) are used on our nation’s roadways to provide traveler information to warn drivers of traffic congestion, crashes, construction work zones, travel times, AMBER/Silver/Blue Alerts, lane blocking incidents, travel advisories, and safety messages. FDOT Policy No. 000-750-015, “<i>Displaying Messages on Dynamic Message Signs Permanently Mounted on the State Highway System</i>” provides guidance to the Department in accordance with Chapter 2L, <i>Changeable Message Signs</i>, in the Manual on Uniform Traffic Control Devices (MUTCD). This policy is used by State Traffic Engineering and Operations Office to establish a process for approving safety messages for use on the DMS.</p> <p>An issue has developed with the availability of innovative and creative outreach safety messages that do not meet the current criteria in our policy and do not have any scientific basis beyond their development. While thinking outside the box to create and post safety messages to help remind and educate drivers on staying safe and preventing crashes, we do not know if the meaning behind the safety messages is understood by the driver.</p> <p>The purpose of this research is to study how younger (18-34), middle (35- 64), and older (65+) drivers comprehend and respond to the safety messages in a controlled setting using a driving simulator. At the completion of the project we will have completed the following tasks:</p> <ol style="list-style-type: none"> 1. Design a driving simulator experiment to test driver's behavior in response to different safety messages and invite enough subjects across all age groups to validate results. 2. Identify several human factors to be studied and evaluate the effectiveness of innovative safety messages. 3. Develop a statistical model that will accurately analyze the impacts of the safety messages on driver behavior. 4. Determine criteria to be incorporated into our safety message approval process (Topic Number 000-750-015). <p>Conducting human factors studies on the use and effectiveness of innovative safety messages will allow the Department to continue to provide consistency on the current safety message approval process while gaining a better understanding of driver reaction to the message.</p>		
Impact	This project has statewide impact and can help improve our current policy.		
Affected Offices	State Traffic Engineering and Operations, District Traffic Operations Offices, State Safety Office		
Existing Work	<p>Two ongoing studies were found to explore the impact of creative DMS messages on driver behavior:</p> <ul style="list-style-type: none"> - Kansas State University, ‘Effectiveness of ‘Entertaining, Non-Traffic Related Messages’ on Dynamic Message Signs’. - Virginia Transportation Research Council, ‘Driver Response to Dynamic Message Sign Safety Campaign Messages’. 		
Keywords Used In Existing Work Search	Dynamic Message Sign, DMS, Public Safety Announcements, Safety Messages		
Related Contracts (Give contract numbers)	Not applicable		
Funding Request	\$200,000	Anticipated Duration	18 months
Project Manager	Dana Knox; Co-PM: John Easterling (Tpk)	Contracting Method	Direct contract with UCF (Dr. Abou-Senna is Principal Investigator)
Urgency	1	This is a current issue being faced by Districts 4 and Turnpike and has statewide impact at every DMS location on the State Highway System.	

Implementability	1	Research results will be used to update FDOT Topic No. 000-750-015, "Displaying Messages on Dynamic Message Signs Permanently Mounted on the State Highway System."
<p>Project Benefits (Succinct, complete explanation)</p> <p>To provide clear direction on how innovative safety messages are comprehended by drivers of all ages. It will also allow the Department to address and modify our current policy to provide a consistent approval process for safety messages used on DMS on the State Highway System.</p>		
<p>Project Benefits (Select all that apply and explain)</p>	<p>Quantifiable Benefits (units, dollars, etc...if applicable)</p>	<p>Methodology or Data Sources Used to Determine Quantifiable Benefits. If not applicable, please give justification of project benefits</p>
<p><input type="radio"/> Materials Enhancement</p>		
<p><input type="radio"/> Materials Savings</p>		
<p><input type="radio"/> Time Savings</p>		<p>A policy can be developed that is clearly defined and supported with empirical evidence that will reduce the review and approval process for newly proposed creative messages.</p>
<p><input type="radio"/> Lives Saved/Injuries Prevented</p>		<p>Reduce crashes, fatalities, and serious injuries.</p>
<p><input type="radio"/> Other (Explain)</p>		<p>The development and use of creative safety messages are created with the intent to modify driver behavior. However, there is limited evidence to support the effectiveness that creative messages have on changing driver behavior. The results from this research can be used by FDOT, as well as other state and local agencies to develop guidelines on the appropriate use of changeable message signs that are appropriate for behavior change.</p>

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