

Request for Research Funding for FY 2024-2025			
Project Number (Research Center Use Only): TPE-25-01			
Requesting Office	Florida’s Turnpike Enterprise	Priority	1 of 1
Proposed Title	Evaluating the Willingness to Pay for Managed Lanes (MLs)		
Justification	<p>MLs have been implemented on some of the most heavily traveled highways in Florida and throughout the United States, to alleviate congestion, and enhance system efficiency and mobility, including thru lanes, congestion pricing lanes, reversible lanes, high-occupancy toll lanes, variable capacity lanes, etc. With the continuous expansion of ML facilities in Florida, particularly towards tolled facilities, it is critical to understand the travelers’ perception of, willingness to utilize, and their contributing factors in responding to the existing and new ML facilities to better serve the user and for the Florida Turnpike Enterprise to make more informed decisions in transportation investments.</p> <p>One of the key elements is evaluating travelers’ willingness to pay (WTP) to reduce travel time, and the variability in travel time, commonly referred to as value-of-time (VOT) and value-of-reliability (VOR), respectively. The current forecasts produced via the use of travel demand models only relied upon VOT and distributed value-of-travel-time-savings (VTTS) to evaluate a user's decision-making process at the entrance of the tolled facilities.</p> <p>While the Department conducted a study on this topic about a decade ago, most of the existing literature on this topic was also generated around that time. However, the recent pandemic has dramatically interrupted commute patterns and travel choices. Working from home has become part of the new norm of work arrangements and delivery of goods directly to home has significantly increased. Each of these trends have had great implications on travelers’ WTP and propensity to use tolled facilities, which result in uncertainties in revenue forecasting and planning for the future.</p> <p>Adding to the challenge, is the demographic shifts and societal trends that lead to changing preferences and attitudes toward mobility and ML programs. It is imperative that ML programs remain relevant and effective considering these recent changes. Planning agencies and practitioners now need to renew the user travel attributes and their importance: perception and VOT and their willingness toward the use of ML facilities. This study conducts new surveys to measure travelers' attitudes towards ML facilities and other user preferences in evaluating VOT and VOR. The newly collected post-pandemic data could also be used in secondary measures of changing attitudes across shifting demographics.</p> <p>This research project aims to investigate users’ WTP to use ML facilities in light of the recent and rapidly shifting demographic trends and develop a better understanding on how recent mobility options, shifts in telework, online shopping adoption, and demographic and societal trends may have affected the preferences and choices toward using ML facilities. The key objectives include:</p> <ul style="list-style-type: none">• Identify key attributes that contribute to the WTP, and explore the dataset needed to understand the behavior changes in responding to MLs;• Evaluate the perceptions, attitudes, and preferences toward ML facilities;• Examine how the impacts of MLs differ among users and under various circumstances, and how to represent user heterogeneity; and• Recommend approaches to derive VOT and VOR for the use in the toll traffic and revenue forecasting studies along with incorporation into the Turnpike State Model, regional models and revenue models. <p>To address the above research objectives, this project will conduct a survey focusing on travelers in the Southeast Florida region where the ML facilities have been in use for over a decade and are currently being expanded. Both users and non-users will be included in the survey to gauge potential market and user behavior toward ML facilities. Individuals’ travel behavior, usage of ML facilities for commute and non-commute purposes, and socioeconomic and demographic information will be collected.</p>		

	Stated preference scenarios will also be designed to measure individual travelers' VOT and VOR under different circumstances. This data would provide the information necessary to develop econometric models to evaluate travelers' WTP behavior. Elasticity analysis will also be conducted to evaluate the potential impacts of various contributing factors on WTP.		
Impact	This research will provide a comprehensive analysis in examining the VOT and VOR for MLs considering recent behavioral changes and take into account the heterogeneity in user preferences and travel conditions. This study will help in understanding the impacts of VOT & VOR in terms of travelers' choices toward ML facilities. The findings of this research will also provide insights into revising VOT structure and incorporating new VOR terms into the toll and revenue forecast models along with expanding Florida Standard Urban Transportation Model Structure (FSUTMS) framework in ML facilities. With a focus on the WTP behavior, this study provides new insights and additional interacting variables to revise the current mixed multinomial VOT model structures and develop new VOR structures to use in the route choice models. This equips planners and decision-makers with update-to-date trends through newly collected data targeted at travelers' preferences and choice behavior toward ML facilities and allows them to develop more effective ML forecasts to better serve the traveler and to improve network efficiency, mobility, and safety. More refined revenue forecast models will also improve the budget planning process.		
Affected Offices	Traffic Operations, Forecasting and Trends, SIS, Financial Management/Office of the Comptroller		
Existing Work	Many studies have investigated users' WTP toward ML programs, but most are outdated. The most recent work on VOT and VOR conducted by the FDOT was based on data collected in 2011. In addition, VOR still has not been formalized into the travel demand modeling process, while VOT structures could be improved for statewide modeling. All new ML studies conducted in the last two decades involved limited stated preference surveys mostly focused on the project vicinity and often lacked the holistic picture of all the travelers. These past studies rarely included reliability, implying the estimated VOT coefficients from one region to the applicability toward a project in another region was not fully understood. A better understanding of users' WTP and practical approach to improving VOT use and incorporating VOR into the modeling framework is critical.		
Keywords Used In Existing Work Search	Managed lanes (ML), value of time (VOT), value of reliability (VOR), willingness to pay (WTP).		
Related Contracts	n/a		
Funding Request	\$275,000	Anticipated Duration	18 months
Project Manager	Erin Sterk	Contracting Method	Direct contract with Florida International University
Urgency		To ensure the continuous success of ML programs and achieve long-term program goals of improving system efficiency and mobility, it is imperative that ML programs remain relevant and effective considering recent changes in user behavior. Planning agencies and practitioners need up-to-date information collected via stated preference surveys which are aimed at measuring new population groups and their attributes toward ML facilities. The study based on the new data is critical, especially in the post-pandemic era where significant shifts in commuter travel occurred along with the origination of new types of trips such as ride-share, next-day, next-hour shipping/delivery service trips.	
Implementability		This project will derive VOT and VOR measures to reflect travelers' WTP and recommend practical approaches to incorporate the values into the Turnpike State Model, regional models and revenue models. The use of VOR term in route-choice models is a novel outcome of this research.	

Project Benefits (Succinct, complete explanation)

ML programs have been successfully implemented in various urban areas in Florida as an effective tool to improve system performance and enhance mobility. However, recent societal changes and trends have dramatically changed the ways people live and travel, including their travel behavior toward MLs. This study evaluates users' WTP to use ML facilities and investigates how emerging mobility options, shifts in telework and online shopping adoption, and demographic and attitude shifts may have affected travelers' choices toward using ML facilities. This research will provide a better understanding of traveler behavior and recommend an approach to enhance VOT and incorporate VOR into the modeling framework to help planning agencies and policy makers to develop more effective ML programs and better achieve program goals. The survey results can be leveraged for ML studies, budget planning purposes, and can be considered for policy decisions for South Florida ML facilities. The primary objective of this research is to formulate and incorporate VOR into statewide models for use in ML project forecasts which is a novelty in practice.

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
<input type="checkbox"/> Materials Enhancement		
<input type="checkbox"/> Materials Savings		
<input type="checkbox"/> Time Savings		
<input type="checkbox"/> Lives Saved/Injuries Prevented		
<input type="checkbox"/> Other (Explain)	Enhanced system performance and mobility	The research results will contribute to better ML modeling practices and tool capability in evaluating and developing ML strategies. More effective ML programs would greatly enhance system throughput and the efficiency of the network, and reduce congestion, which lead to financial and economic benefits to users of tolled facilities, Florida's Turnpike Enterprise, Florida Department of Transportation, and the state.

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