

Request for Research Funding for FY 2023-2024

Project Number (Research Center Use Only): FTO-24-01

Requesting Office	FTO	Priority	1 of 1
Proposed Title	Zonal Analysis for Targeting Non-motorized Infrastructure Investment		
Justification	<p>Because non-motorized mode choice and route choice are influenced by many micro-scale components of the non-motorized network, these are difficult to capture in traditional zonal-based models. Non-motorized travel can be influenced by the network’s route directness, the level of traffic stress experienced along segments and while crossing streets, and micro-scale weather factors such as cover or shade. The key components of a successful non-motorized environment include accessibility (or route directness), safety (covered by level of traffic stress), and comfort (included in design elements such as sidewalk setback and shade). Therefore, an accurate understanding of the factors driving non-motorized travel behavior requires the measurement and accounting of such factors and how they affect the experience. Results of this research will directly influence statewide modeling guidance and recommended methodologies through the Florida Standard Urban Transportation Model Structure Next Generation (FSUTMS^{ng}).</p>		
Impact	<p>As a result of this research, regional, county, and city transportation planning offices would better prioritize their non-motorized investments. Long-term expected benefits include increased non-motorized mode share, increased traveler satisfaction, less traffic congestion, and a more sustainable transportation system.</p>		
Affected Offices	FDOT Public Transit Office		
Existing Work	<p>There are several research projects in process that are related but none that cover similar objectives:</p> <p>Evaluation of Different Curb Extension Treatments for Pedestrian Comfort and Safety at Intersections. [Project]. District Department of Transportation. Start date: 1 Jul. 2022. https://rip.trb.org/view/1952003</p> <p>An Exploration into the Nature and Formation of Bicycling Preference and Comfort. [Project]. California Department of Transportation. Start date: 1 Oct. 2009. https://rip.trb.org/view/1236267</p> <p>Assessing Cyclists' Stress on A Large-Scale: A Practical Smartphone-Based Data-Driven Approach. [Project]. Center for Transportation Equity, Decisions, & Dollars, University of Texas at Arlington, Department of Transportation. Start date: 1 Jun. 2022. https://rip.trb.org/view/2008002</p> <p>None of these projects concern the evaluation of pedestrian level of stress and comfort at the zonal level. There is some substantive overlap but none of these projects would serve to substitute for the proposed research.</p>		
Keywords Used In Existing Work Search (Cannot leave blank)	Level of traffic stress; pedestrian comfort; pedestrian accessibility; pedestrian infrastructure		
Related Contracts (Give contract numbers)	None Identified		
Funding Request	\$200,000	Anticipated Duration	24 months
Project Manager	Thomas Hill	Contracting Method	Direct contract with FAU
Equipment	Video camera, Tripod, Safety Vests. Estimated at \$500.	Comments: Video equipment is inexpensive and constantly improving. Acquiring a high-quality but up-to-date camera will only cost in the hundreds of dollars and will not significantly increase project cost.	
Urgency	2	Pedestrian infrastructure is a priority in multiple current FHWA grant programs, including the Rebuilding American Infrastructure with Sustainability and Equity program, the Safe Streets and Roads for All program, and the Reconnecting Communities Pilot Program.	

		Florida communities urgently need information on where and how to prioritize pedestrian investments to promote safety and sustainability and to reconnect communities.
Implementability	1	The proposed method will be implementable in GIS and will not require exclusive knowledge of the workings of travel demand models. Therefore, most regional, county, and local governments with in-house GIS expertise will be able to use the methods for identifying zones for prioritizing both the location and the type of pedestrian investments needed.
<p>Project Benefits (Succinct, complete explanation)</p> <ul style="list-style-type: none"> • Allows regional and local governments to prioritize areas for non-motorized investments. • Helps identify the type of non-motorized improvement most likely to yield significant results • Helps regional and local governments build out their non-motorized infrastructure data for future planning • Requires only GIS expertise to implement, so the method will be widely available for transportation planners and engineers • Allows regional and local governments to apply for competitive federal grants funding non-motorized infrastructure (RAISE, Safe Streets and Roads for All, Reconnecting Communities) • Promotes mode shift towards non-motorized travel, reducing traffic congestion and infrastructure expense • Increases economic value in local communities by creating inviting environments for non-motorized travel (i.e., “main streets,” etc.) 		
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="radio"/> Materials Enhancement		Not applicable
<input type="radio"/> Materials Savings	Dollars	Non-motorized mode shift reduces the need for investment in more roadway capacity; however, this benefit is difficult to quantify precisely.
<input type="radio"/> Time Savings	Minutes	Improving direct connections and access to destinations will result in shorter and faster non-motorized trips. Non-motorized “minutes,” i.e., the perceived length of route, is known to be experienced as longer when walking in unpleasant environments. This time savings can be quantified through analytical route choice methods.
<input type="radio"/> Lives Saved/Injuries Prevented	Lives saved	Non-motorized safety is known to be influenced by the safety in numbers effect; that is, it is safer to walk in an area with many people walking. Identifying and investing in priority non-motorized areas will likely make these locations yet safer for potential users. However, this effect is difficult to quantify.
<input type="radio"/> Other (Explain)	Comfort	FDOT’s Complete Streets policy acknowledges the importance of travelers of all modes being comfortable when using streets. Florida’s 2045 Transportation Plan sets a goal of Transportation Systems that Enhance Florida’s Communities. This project will help set the direction for future non-motorized investments that improve comfort and create quality places.

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