

Request for Research Funding for FY 2023-2024

Project Number (Research Center Use Only): D5-24-02

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| Requesting Office | District 5 | Priority | 2 of 3 |
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Proposed Title **Human-centric approach to identifying mobility needs and barriers of the residents along SR 436.**

Justification

Describe the current situation, why the research is needed, and how the research affects your office’s mission critical focus areas

Because of its unique traffic composition, the SR 436 corridor has experienced a disproportionately large number of crashes over the years including many bicyclist and pedestrian crashes. The segment of interest stretches between the Orlando International Airport and the I-4 interchange in Altamonte Springs. This route is a gateway corridor to the Orlando International Airport and serves very diverse user groups. The roadway also serves LYNX’s most heavily used transit routes in the Orlando metropolitan area with trips dispersed along the corridor. Although many resources have been already devoted to studying the complexity of this unique environment and much good work has been done, a more user centric study approach has not been completed to shed light the specifics of the user groups found along the corridor.

Given the FDOT Strategic Plan that emphasizes safe and equitable mobility for all road users, the proposed project aims to provide additional insights into the travel behavior of the population living and working along the SR 436. Equity, that is central to the Strategic Plan, will stem from acknowledging that first, the commute-oriented transport system does not support all user groups equally (service workers or caregivers with off-peak travel have often been overlooked in transportation planning), and second, considering safety, access, or even culture and health as important factors that need to be evaluated in a multi-modal transportation planning. The proposed research will study different road users’ profiles, identify their needs, and suggest ways to support their mobility while being in line with the FDOT vision.

The research to identify the needs of specific groups, their most common destinations, and mobility barriers is needed to be able to form the policies that best serve those groups. Econometric analysis allows to provide insights that are relevant and statistically significant. While the evaluation of the general trends is useful to recognize trends on a macroscopic level, statistical analysis allows to deliver data driven answers relating to the individual needs and behaviors. Because the general trends and crash analysis have been done, it is utmost important to deepen the findings with additional information that will reflect how different socio-demographic groups travel, what experiences they have as well as how to improve their mobility and safety. Involving the community and inviting its members to participate in a survey will not only offer location specific and relevant findings but will also contribute to building trust.

Impact

How shall the results impact practice? Consequences of not doing the research?

Identifying specific needs and mobility barriers of different user groups will inform decision/policy makers and city/county/state officials on how to approach mobility improvements to address historically overlooked groups. The next generation of transportation solutions recognize that ‘one size fits all’ approach often ignores the needs of individuals who do not fit the mold of a regular road user (who owns a car, is able-bodied, and does not have to perform care trips). Because of this research, the practice can be enriched with additional information that is specific to the communities along SR 436. Given the fact that the auto ownership can take up to 20% of one’s income, there are many residents who cannot afford it and consequently have to rely on alternative modes. Failing to consider a human-centric approach to explore the details of travel behavior of the communities along the SR 436 may result in measures that are potentially ignored because they fail to address what the users perceive as improving their quality of life and safety.

Past research has confirmed that different user groups will have different experiences in the same transportation system therefore expanding the project portfolio with research that seeks to identify these differences will ultimately benefit more user groups. Furthermore, the project will invite the community to participate in focus group and a survey to identify and analyze specific needs of individuals from different socio-demographic groups.

Success of the methods and work performed on SR 436 would allow us to extend efficiently to all major corridors in Central Florida and eventually the whole State.

This research will also directly add to/impact/inform LYNX’s recent \$300,000 Transit Oriented Development grant effort, which will also investigate multimodal development/improvements on SR 436 in relation to a potential Bus Rapid Transit system, as well as Orange County’s recent Multimodal Hub study efforts.

Affected Offices Identify any office and names of office personnel that will need to be involved in the scoping or conduct of the research, will be affected by implementation of the results, or will need to participate in the implementation process—including

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| | <p>OTIT, if enterprise data/network software application will be a deliverable, and district staff, as appropriate, e.g., through statewide meetings. If the requesting office will not be the implementing office, please identify which office and names of specific personnel which will have to serve in that capacity—have they been involved?</p> <p>Affected offices</p> <p>FDOT: D5 Modal Office/ Passenger Operations, D5 Safety, Planning Transit Agency: LYNX</p> <p>Name of office personnel Libertad Acosta-Anderson</p> | | |
| Existing Work | <p>Learning About and Using the Research in Progress (RiP) Database http://www.trb.org/main/blurbs/176215.aspx As a minimum, the Transportation Research International Documentation (TRID) and the Research in Progress (RIP) online databases should be reviewed by an expert in the research subject matter to assure research effort and resources shall not duplicate prior or ongoing work. TRID: https://trid.trb.org/Results RIP: https://rip.trb.org/</p> <p>Upon doing the search, one recently completed project was found. Given that the project focused primarily on identifying factors affecting speeding related crashes and non-motorized crashes based on multi-source Big Data, there is virtually no overlap with the proposed project. Because the proposed research will dive deeper into studying travel behavior and the needs of the residents along the SR 436, complementing the former work and providing an additional human-centric layer that will add value to the ongoing efforts.</p> | | |
| Keywords Used In Existing Work Search (Cannot leave blank) | SR 436, travel needs, travel behavior, equity, quality of life and safety | | |
| Related Contracts (Give contract numbers) | N/A | | |
| Funding Request | \$180,000 | Anticipated Duration | 21 months |
| Project Manager | Libertad Acosta-Anderson | Contracting Method | direct contract with UCF |
| Equipment | Estimated equipment cost (or N/A) | N/A | |
| Urgency | Score 1-5 1= highest, most immediate need | <p>Because of the high number of crashes along the SR 436 and the fact that they often involve pedestrians and other non-motorized road users, it is essential to study the mobility of these users. The project will not only explore their current mobility patterns but will also identify their most common destinations, trips' lengths as well as evaluate their willingness to adopt potential solutions. Because of the complexity and length of the corridor, gaining further insights into the road users of that region will allow to provide recommendations for implementing measures that ultimately target improving the overall safety of all road users.</p> | |
| Implementability | Score 1-5 1=greatest likelihood of and proximity to implementing results | <p>The project will use the lessons learned from the former and ongoing work that has been done to identify the most important and urgent opportunities and draft recommendations. The project will not be focusing on any major changes to the infrastructure but rather seek opportunities in mode shift, supporting safer behaviors, exploring road user education as well as evaluating the implementation of new mobility technologies such as peer-to-peer carsharing or micromobility modes. The recommendations drafted will emphasize the measures to increase access and mobility and focus on increasing equity and adopting new transportation modes and behaviors.</p> | |
| Project Benefits (Succinct, complete explanation) | | | |
| <p>Intro The communities along the SR 436 have been experiencing disproportionately high number of crashes that involve non-motorized transportation road users. The experience that is provided to the road users along the SR 436 varies by the socio-demographic groups. Depending on their socio-demographic background and whether they own a car, they will engage in different mobility behaviors and ultimately experience different risks. The current situation of non-motorists taking unnecessary risks and engaging in dangerous behaviors may be the result of conditions that can make it</p> | | | |

more challenging from non-motorists to use the corridor. Identifying the barriers that each group experiences together with their specific needs is essential to make targeted improvements in the corridor and form policies that support the safety of all users.

Project objectives

The proposed project will first, evaluate in depth the existing work that was done and that relates to the segment of interest along the SR 436 between the Orlando International Airport and I-4, second, it will identify specific regions/areas along the corridor that should be prioritized, third, it will collect a survey data and employ statistical analysis to study the mobility needs, barriers and the key destinations of the residents who live in the selected regions, and last it will provide specific and targeted recommendations to improve the mobility and safety of the residents who live along the SR 436 corridor. The proposed project combines statistical and econometric analysis, equity and multimodal approach to evaluate the corridor and support policy formation.

Tasks

Task 1. Evaluate former work that used the crash data along the SR 436 corridor (done by the FDOT) as well as other past work such as studies done by LYNX.

Task 2. Identify the most urgent locations needed be addressed.

Task 4. Reach out to the communities and organize community focus groups to gather the details on their mobility needs and barriers.

Task 5. Based on the result of the focus groups, design an anonymous survey, and distribute it to the communities in the identified areas (the QR code could be provided at the bus stops, in community centers or other local attractions).

Task 6. Perform statistical and econometric analysis to uncover the relationships and experiences of different socio-demographic groups.

Task 7. Draft the final report and provide recommendations based on the statistically significant results.

| 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 |
|---|--|---|
| ○ Materials Enhancement | | |
| ○ Materials Savings | | |
| ○ Time Savings | Savings in time by exploring the key destinations for the communities along the SR 436 | |
| ○ Lives Saved/Injuries Prevented | Lives and injuries | By exploring the needs of communities and studying how to best accommodate them, safety improvement will be a consequence of implementing the project’s findings. |
| ○ Other (Explain) | Equity | Addressing the mobility needs of historically underserved groups will improve the equity along the SR 436 corridor (equity could be also defined as access or number of destinations reached within a certain time period or distance). |

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