

**Request for Research Funding for FY 2019-2020**

<b>Requesting Office</b>	Policy Planning	<b>Priority</b>	1 of 1
<b>Proposed Title</b>	Assessment of Transportation Systems Resilience for Vulnerable Communities and Populations		
<b>Justification</b>	<p>Florida Department of Transportation identified resilience as a critical priority in its Florida Transportation Plan (FTP). Both the FTP Vision Element and Policy Element set a goal of <i>enhanced, resilient, and agile infrastructure systems</i>. Resilient transportation systems, including their interconnected, interdependent subsystems and social systems, are assets that can withstand disruptions, adapt to changing conditions, perform effectively, and recover rapidly. To effectively address these critical challenges, existing and new infrastructure must be planned, designed, built, retrofitted, maintained, operated, and disposed of within the paradigm of resilience. However, recently, Hurricanes Michael, Harvey, and Irma were harrowing reminders for the nation, and especially Floridians, that much progress is needed in infrastructure resilience planning and research. Florida is frequently subjected to natural hazard events, such as hurricanes and storm surges, testing its infrastructure resilience and consequently its population.</p> <p>Historically, disruptions are more consequential, with more negative disproportionate impact, for older adults, ethnic minority groups, and rural populations. They are disproportionately represented among people failing to evacuate, as well as those injured or killed during hurricanes. Additionally, vulnerable communities and populations suffer disproportionately larger economic losses during and after natural disasters compared to other population groups. Florida, as the state with the highest percentage of older population nationally, and with large number of minority residents, is an ideal site for studying these issues. The FDOT Office of Policy Planning will commission researchers to develop an assessment of resilience of transportation systems for vulnerable populations, develop planning and policy guidelines pertaining to vulnerable populations to be integrated in the updated FTP, develop prioritization decision models to assist in FDOT investments and resource allocation, and suggest methods to disseminate information and communicate with vulnerable populations before, during and after disasters.</p>		
<b>Impact</b>	<p>This research seeks to investigate, understand, model, and develop innovative solutions for risks and vulnerabilities of elderly, minority, disabled, and rural populations pertaining to critical infrastructure and develop transportation systems resilience policy and guidelines to improve the outcomes for vulnerable communities and populations. The specific impacts of this research include: 1) Provide policy guidelines pertaining to infrastructure adaptation to satisfy FTP Vision and Policy elements' resilience objective; 2) Provide and facilitate optimal solutions for critical infrastructure resilience pertaining to vulnerable populations to improve their health, social, and economic wellbeing outcomes; 3) Advance discovery and understanding with concomitant promotion of research, education, and training in collaboration with FDOT and appropriate local agencies; 4) Broaden FDOT outreach and diversity by catering for and participation of underrepresented vulnerable groups; and 5) Achieve the overarching goal of transportation equity by improving the outcomes for vulnerable communities and populations.</p>		
<b>Affected Offices</b>	<p>This proposed project will potentially benefit a wide range of FDOT Offices and stakeholders, including:</p> <ul style="list-style-type: none"> <li>• <b>FDOT Office of Policy Planning</b></li> <li>• FDOT Forecasting and Trends Office</li> <li>• FDOT Office of Maintenance</li> <li>• FDOT Systems Implementation Office</li> <li>• FDOT Office of Environmental Management</li> <li>• FDOT Emergency Management Office</li> <li>• Florida's Metropolitan Planning Organizations</li> </ul> <p>• Various local city and county departments and regional planning councils throughout the State of Florida</p>		
<b>Existing Work</b>	<p>While there have been prior research projects about resilience in transportation; no current or prior research is focusing on resilience in the context of vulnerable communities and populations.</p>		
<b>Keywords Used In Existing Work Search</b>	<p>Vulnerable Populations, vulnerable communities, community resilience, resilient transportation, resilient infrastructure</p>		
<b>Related Contracts (Give contract numbers)</b>	<p>N/A</p>		
<b>Funding Request</b>	\$225,000	<b>Anticipated Duration</b>	20 months
<b>Project Manager</b>	Jennifer Carver	<b>Contracting Method</b>	Direct contract with university

<b>Urgency</b>	1	Recent hurricanes and storm surges consequences in Florida, especially for vulnerable populations, clearly demonstrate the urgent need for improved community and infrastructure resilience for vulnerable populations to reduce fatalities, injuries, and economic losses.
<b>Implementability</b>	1	Results of this research can be immediately implementable in resilience policy and guidelines and prioritization of resources investment and allocation. Also, results can be used to update emergency management plans. Results can be implemented in community outreach programs. Research outcomes can be integrated in the next FTP Policy and Vision elements updates in 2020.
<b>Project Benefits (Succinct, complete explanation)</b>		
<b>Project Benefits (Select all that apply and explain)</b>	<b>Quantifiable Benefits (units, dollars, etc...if applicable)</b>	<b>Methodology or Data Sources Used to Determine Quantifiable Benefits. If not applicable, please give justification of project benefits</b>
<input type="checkbox"/> Materials Enhancement		
<input type="checkbox"/> Materials Savings		
<input type="checkbox"/> Time Savings		
<input type="checkbox"/> Lives Saved/Injuries Prevented		<ul style="list-style-type: none"> <li>• Reduction in fatalities and injuries for vulnerable populations during and after disasters.</li> </ul>
<input type="checkbox"/> Other (Explain)		<ul style="list-style-type: none"> <li>• Prioritizing and Optimizing FDOT Investment and Engineering Decisions for Critical Infrastructure Resilience for Vulnerable Populations.</li> <li>• Rapid Disaster Recovery for Vulnerable Populations: Application Feasibility of Emerging Technologies.</li> <li>• Reduction in costs for disaster mitigation and recovery by optimizing infrastructure adaptation for resilience, especially for vulnerable populations.</li> <li>• Reduction in economic losses for vulnerable populations during and after disasters.</li> <li>• Improve FDOT outreach, transportation equity, and information dissemination and communication with vulnerable populations before, during and after disasters.</li> </ul>

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