

**Request for Research Funding for FY 2020-2021**

<b>Requesting Office</b>	Florida's Turnpike Enterprise	<b>Priority</b> Medium	6 of 6
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<b>Proposed Title</b>	Study of Operational and Safety Impacts of Disabled and Abandoned Vehicles on FDOT Roadways
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<b>Justification</b>	<p>According to the FDOT Road Ranger Performance Measures Annual Report (July 1, 2015 to June 30, 2016), Florida Road Rangers responded to approximately 250,000 events caused by disabled or abandoned vehicles (about 72% of all events during this period). These events can cause significant operational and safety impacts to travelers, responders, and traffic management center (TMC) operators, including crashes, congestion, and time spent observing and responding to these events. In a summary review of crash data from Signal 4 Analytics from 2017 through 2019 (in Districts 4, 5, 6 and 8, for crashes involving Disabled and Abandoned Vehicles), identified <b>901 crashes resulting in 25 fatalities and over 325 injuries</b>. The impacts of these events and identifying improved methods of handling them can help improve travel and safety for roadway users and reduce time spent by responders and TMC operators.</p> <div style="text-align: center;"> <p><b>DAV Crashes District 4, 5, 6 and 8</b></p> <table border="1"> <caption>DAV Crashes District 4, 5, 6 and 8 (Estimated Data)</caption> <thead> <tr> <th>Year</th> <th>PDO</th> <th>Injury</th> <th>Fatality</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>2017</td> <td>~180</td> <td>~120</td> <td>~5</td> <td>~305</td> </tr> <tr> <td>2018</td> <td>~180</td> <td>~120</td> <td>~5</td> <td>~305</td> </tr> <tr> <td>2019</td> <td>~220</td> <td>~100</td> <td>~5</td> <td>~325</td> </tr> <tr> <td>Overall</td> <td>~550</td> <td>~325</td> <td>~25</td> <td>~901</td> </tr> </tbody> </table> </div>	Year	PDO	Injury	Fatality	Total	2017	~180	~120	~5	~305	2018	~180	~120	~5	~305	2019	~220	~100	~5	~325	Overall	~550	~325	~25	~901
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<b>Impact</b>	<p>Identifying the impacts of disabled and abandoned vehicles on FDOT roadways will help the Department understand the characteristics of these events and improve practices and procedures regarding the handling of these events. Recommendations will be made on the best operational changes which can reduce the impacts of these events to travelers, responders, and TMC operators. These recommended practices can apply to all FDOT districts and will assist in promoting a safe roadside environment, establishing guidance on relocation times, and reducing the likelihood of crashes that result in narratives like this:</p> <p>Vehicle 1 (V01) tractor-trailer was traveling north on Northbound State Road 91 (Florida Turnpike) in an unknown lane of travel. Vehicle-2 (V02) pick-up truck/lawn trailer were parked partially on the outside paved shoulder/outside grass shoulder facing in a northerly direction. Non-Motorist 1 (NM01) was attempting to adjust straps on the left side of V02's trailer facing in a southerly direction. For reasons yet to be determined, D-1 veered off the roadway onto the outside paved shoulder, striking V02's left side trailer and NM01. As V01 continued in a northerly direction, it caused V02 and V02's trailer to separate. A secondary collision occurred as V02 rotated counterclockwise on the grass shoulder. V01's left front struck the left front of V02. After the secondary impact, V01 continued in a northerly direction, striking a chain link and light pole. V01 came to final rest on the outside grass shoulder facing in a northerly direction on the chain link fence line. V02 came to final rest on the outside grass shoulder facing on a southerly direction. V02's trailer came to final rest on the outside grass shoulder facing in a northerly direction. NM01 came to final rest on the outside grass shoulder, lying in a prone position (facedown) facing in a southerly direction. NM01 was lying between the outside paved shoulder and the left side of V02's trailer D-1 was transported to Saint Mary's Hospital by Trauma Hawk.</p>
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<b>Affected Offices</b>	This research will initially focus on FTE roadways, and expanded to include other FDOT roadways, so that results and improved practices from this study can be used by all districts to reduce the impacts of disabled and abandoned vehicles.
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<b>Existing Work</b>	<p>While a thorough literature review will be conducted as part of this study, some existing work on disabled and abandoned vehicles were found.</p> <p>Studies on the impacts of disabled and abandoned vehicles:</p> <p>Chimba, D., B. Kutela, G. Ogletree, F. Horne, and M. Tugwell. Impact of Abandoned and Disabled Vehicles on Freeway Incident Duration. <i>Journal of Transportation Engineering</i>, Vol. 140, Issue 3, March 2014.</p>
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	<p>Agent, K. R., Pigman, J. G. Accidents Involving Vehicles Parked on Shoulders of Limited Access Highways. Final Report. <i>Kentucky Transportation Center Research Report KTC-89-36</i>, University of Kentucky, Lexington, 1989.</p> <p>Study on various response procedures for disabled and abandoned vehicle events:</p> <p>Dougald, L. E., N. J. Goodall, and R. Venkatanarayana. Traffic Incident Management Quick Clearance Guidance and Implications. Virginia Department of Transportation Final Report No. FHWA/VTRC 16-9, Virginia Transportation Research Council, Charlottesville, VA, February 2016.</p> <p>The following additional documents pertaining to Florida policies and programs to respond to disabled and abandoned vehicle events were also found:</p> <p>State of Florida Open Roads Policy Agreement, January 2014.  <a href="http://www.floridatim.com/documents/Training/Open%20Roads%20Policy.pdf">http://www.floridatim.com/documents/Training/Open%20Roads%20Policy.pdf</a>.</p> <p>Rapid Incident Scene Clearance (RISC) Annual Report Fiscal Year 2016/2017, FDOT, August 2017.  <a href="http://www.floridatim.com/documents/RISC/Rapid%20Incident%20Scene%20Clearance%20(RISC)%20FY16-17%20Annual%20Report%20-%20Final.pdf">http://www.floridatim.com/documents/RISC/Rapid%20Incident%20Scene%20Clearance%20(RISC)%20FY16-17%20Annual%20Report%20-%20Final.pdf</a>.</p>		
<b>Keywords Used In Existing Work Search</b>	Abandoned Vehicle, Disabled Vehicle, Highway, Freeway		
<b>Related Contracts</b>	None		
<b>Funding Request</b>	\$199,999	<b>Anticipated Duration</b>	21 months (18 months study + 3 months reporting)
<b>Project Manager</b>	Eric Gordin, P.E. Co-PM: Jeff Frost	<b>Contracting Method</b>	Direct Contract with UCF with Dr. Haitham Al-Deek as the Principle Investigator
<b>Urgency</b>	1	Disabled and abandoned vehicles make up a large portion of the events Road Rangers respond to. These events cause significant safety and operational impacts, including crashes, congestion, and time spent by responders and operators tracking and responding to the events. For instance, there were multiple crashes involving parked vehicles on FTE roadways in 2017. By reducing the impacts of disabled and abandoned vehicles, FTE and FDOT can provide safer travel for their customers and reduce unnecessary time spent by responders and TMC operators.	
<b>Implementability</b>	1	Using the results of this research, FTE (and other FDOT districts) can identify the frequency, potential mitigating factors, and impacts of disabled and abandoned vehicles to better understand these events. Improvements to existing handling procedures, as well as new practices identified during this project, can be implemented by FTE and FDOT to reduce the impacts of these events.	
<p><b>Project Benefits (Succinct, complete explanation)</b> This project will quantify the safety and operational impacts of disabled and abandoned vehicles on FTE and FDOT roadways, including the impacts of crashes, congestion, and response. Existing handling procedures and procedures used by other Florida agencies and other states will be examined to identify new procedures and/or improvements to existing practices. Implementing these new procedures and improvements will help reduce the impacts of the events, saving time for travelers and responders and reducing crashes caused by disabled and abandoned vehicles.</p>			
<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="radio"/> Materials Enhancement			

○ Materials Savings		
○ Time Savings		By analyzing disabled and abandoned vehicle events and reviewing existing response procedures in Florida and other states, ways to reduce response time to these events can be identified. These improvements saving time for travelers (by reducing congestion), responders, and TMC operators.
○ Lives Saved/Injuries Prevented		Reducing the response time to disabled and abandoned vehicles can reduce the chance of crashes occurring due to these vehicles, preventing potential injuries or fatalities. Therefore, supporting this research is very important because it saves lives.
○ Other (Explain)		

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