

**Request for Research Funding for FY 2022-2023**

**SPR Subpart B Project: TEO-23-22**

<b>Requesting Office</b>	Florida's Turnpike Enterprise	<b>Priority</b>	22 of 23
<b>Proposed Title</b>	A study on RISC Contract and Event Evaluation on Limited Access Facilities		
<b>Justification</b>	<p>According to the Manual on Uniform Traffic Control Devices (MUTCD) Section 6I-01, traffic incidents are “an emergency road user occurrence, a natural disaster, or other unplanned event that affects or impedes the normal flow of traffic”. Incident clearance time is very critical for limited access high speed facilities as it directly relates to road safety as well as mobility. When an incident causes by large vehicles, it usually takes more time to clear the roadway for motorists. Florida Department of Transportation (FDOT) implemented Rapid Incident Scene Clearance (RISC) program which establishes a 90-minutes goal for clearance a major highway incidents and truck crashes on Florida’s roadways. In 2020, Florida’s Turnpike Enterprise roadway experienced a total 149 large vehicle crashes. According to the FHWA, the likelihood of a secondary crash increases by 2.8% for each minute the primary incident occurs as it makes difficult for responders to get to and from the scene. Moreover, a quick roadway clearance could save billions of dollars in respect to customer delays. Per FHWA, idling in traffic costs the U.S. trucking industry over \$7.8 billion annually. Therefore, it is very important to study incident management practices that involve large vehicle crashes on limited access facilities. By understanding the different response plans, transportation agencies can make sure for a quick and safe clearance of large vehicle incidents (i.e., crashes).</p> <p>Given the need for research, the project objectives are as follows:</p> <ul style="list-style-type: none"> <li>• Perform a comprehensive literature review and examine contract, equipment/personnel requirements, dispatch, and incident management strategies taken by the different transportation agencies.</li> <li>• Determine the factors affecting response and incident clearance time involving large vehicles on limited access facilities.</li> <li>• Determine the likelihood of secondary crashes due to an event involving large vehicles and recommend possible solutions based on the best practices.</li> </ul>		
<b>Impact</b>	It is expected that the outcome of this research will help Florida’s Turnpike Enterprise (FTE) and other FDOT districts to manage RISC events more efficiently and reduce the potential risk of secondary crashes.		
<b>Affected Offices</b>	State Traffic Engineering and Operations, State Safety Office, Traffic Incident Management (TIM), District Traffic Operations		
<b>Existing Work</b>	<p>A thorough literature review on the state of the practice regarding RISC program will be conducted as part of this project. Below are some examples of related research on traffic incident clearance.</p> <p>Jin, X., Hossan, M. S., Gan, A., &amp; Chen, D. (2014). Comprehensive Framework for Planning and Assessment of Traffic Incident Management Programs. <i>Transportation Research Record</i>, 2470(1), 1-12.</p> <p>Lee, J. T., &amp; Fazio, J. (2005). Influential factors in freeway crash response and clearance times by emergency management services in peak periods. <i>Traffic injury prevention</i>, 6(4), 331-339.</p> <p>Dunn, W. M. (2003). Safe and Quick Clearance of Traffic Incidents: <i>A Synthesis of Highway Practice</i> (Vol. 318). Transportation Research Board.</p> <p>McKnight, A. J., &amp; Bahouth, G. T. (2009). Analysis of large truck rollover crashes. <i>Traffic injury prevention</i>, 10(5), 421-426.</p>		
<b>Keywords Used in Existing Work Search</b>	Rapid Incident Scene Clearance (RISC), Heavy/Large Vehicle, Traffic Management Center (TMC)		
<b>Related Contracts</b>	None that we are aware		
<b>Funding Request</b>	\$200,000	<b>Anticipated Duration</b>	18-24 months

<b>Project Manager</b>	Eric Gordin, P.E. (PM) Jeff Frost (Co-PM) Shawn Kinney (Co-PM)	<b>Contracting Method</b>	RFP
<b>Equipment</b>	N/A	Comments* (understanding leases are preferred, include the proposed use of the equipment, whether lease options are feasible, whether work to be done with equipment could instead be procured through service0 expenditure, etc.)	
<b>Urgency</b>	1	Safety and mobility are the two most critical goals for transportation agencies. Traffic incidents specially that involve large vehicles on a limited access roadway need to be cleared very quickly and efficiently. This research is needed immediately to study and identify the best practices that can reduce the clearance time as well as secondary crash risks. Understanding from this research can help the transportation agencies to implement innovative techniques into their incident management programs.	
<b>Implementability</b>	1	FTE along with the other districts of FDOT have already implemented RISC program to restore highway facilities quickly for safe public use. This project will help FDOT to understand how to make the RISC program more efficient. Each agency has its own strategi to clear a roadway facility when it comes to large vehicles incidents. These strategies will be examined to find out the most effective practices that could be applied statewide.	

**Project Benefits (Succinct, complete explanation)**

- Understand the concept of using RISC program and the effect of incidents involving large vehicles on limited access facilities from comprehensive literature review.
- Help agency staff know how decisions made during planning, design, and construction are likely to affect incident management performance in the events when large vehicles are involved.
- Estimate the secondary crash risk associated with the RISC events.
- Understand the historical trend and factors that might affect the response and clearance time of RISC events.
- Comprehensive review of proven and innovative strategies that have been used to reduce the RISC event clearance time successfully.

<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	Improved Incident Response, Reduced Traffic Delay	Statewide RISC event data will be used to analyze and compare the response and clearance time. The response and clearance time depend on multiple factors including month of the year, time of the day, roadway type, weather conditions, etc. The result of this research project will assist the agency to reduce the traffic delay by minimizing the RISC event response and clearance time.
<input type="checkbox"/> Lives Saved/Injuries Prevented	Reduction in Secondary Crashes and Associated Fatalities/Serious Injuries	Crash data will be pulled from Crash Analysis Reporting On-Line and Signal Four Analytics websites. A significant number of secondary crashes are occurred due to the RISC events. This research project will be identifying the main factors that increase the likelihood of a secondary crash occurrence. Fatalities and serious injuries will be also reviewed to find the association with the RISC events.
<input type="checkbox"/> Other (Explain)	Efficient Utilization of Equipment and Dispatch Personnel	The findings from this research project will assist the agencies to have better strategies in utilizing the equipment and dispatch personnel more effectively.

\*Comments should explain and support urgency, financial benefit, and implement ability scores.