Roadside Safety Pooled Fund

Research Problem Statement

Project Title:	Guidelines for Overlapping Precast Concrete Portable Barriers **(**2023-01-WZ**)**
Project Synopsis:	When site conditions, such as work zones, result in exposed barrier ends that are different or cannot otherwise be connected due to spacing, a common practice is to overlap barriers in direction of traffic. No guidelines based on research currently exist for such practice. Overlap of barriers must be adequate to protect workers and redirect errant vehicles without excessive deflections into opposing traffic and avoid the need of anchoring barriers ends. There is a need to develop guidelines for the minimum adequate overlapping length for different portable concrete barrier types used by the member states. 
Project Goal(s):	Develop MASH compliant guidelines for overlapping precast concrete portable barriers.
Project Background:	This study will develop guidelines for overlapping the free ends of two runs of portable concrete barriers when connection of the barriers is not possible due to having different connection types or a gap that is smaller than the barrier segment length. The research will consider the different portable concrete barrier types used by the member DOTs. No other known research has been funded to address the scope of this proposed project.
Proposed Work Plan:	Finite element impact simulations will be conducted to determine the required overlap length for single slope concrete barrier and F-Shape barrier systems. Full-scale crash tests will be performed to evaluate impact performance of the selected barrier overlap distances.

Deliverables:	A comprehensive report will include: 1) Summary of current practices for overlap of concrete portable barriers; 2) Details of research including results of analyses and full-scale crash tests; 3) MASH compliant guidelines for overlapping length of the free ends of portable concrete barriers including single slope and F-shape barrier systems.
Urgency and Expected Benefit:	Safety is a major mission for the MASH Pooled Fund members. The current practices for overlapping concrete barriers have not been investigated or evaluated by any previous study and pose an unknown risk to the safety of motorists and workers. The development of MASH compliant guidelines for these systems will significantly increase safety to both motorists and work zone personnel when such practice is needed.
Problem Funding and Research Period:	**Total Estimated Cost = $240,000** **Research Period = 18 months**
Developer(s) of the Problem Statement:	Name: Derwood C. Sheppard, FDOT Email: Derwood.Sheppard@dot.state.fl.us Phone: (850) 414-4334