Roadside Safety Pooled Fund

Research Problem Statement

2019-40-LSRB

Project Title:	31" W-beam Guardrail (Steel and Wood Post) in Asphalt Mow Strips
Project Synopsis:	There is a need to install the W-beam guardrail system in asphalt without having to construct a concrete mow-strip to control vegetation. Currently there is no design of the mow-strip for asphalt.
Project Goal(s):	To develop and test an asphalt mow-strip that allows installation of wood post and steel post W-beam guardrails with posts installed directly in asphalt as opposed to a backfilled low-strength grout. Testing would be needed for MASH TL-3 for both systems
Project Background:	Previous MASH tests were successfully performed on steel post W-beam guardrail in concrete mow strip. In these tests, leave-outs around the posts were backfilled with low-strength grout. MASH Test 3-10 and 3-11 were performed and passed the MASH criteria. In the same project, the design was also tested for the wood-post W-beam guardrail. It passed MASH Test 3-10, but failed Test 3-11. Subsequently, the depth of the wood posts was reduced to 36 inches from 40 inches and another Test 3-11 was performed. This test also failed to pass the MASH criteria. There is a need to have a MASH system that allows installation of the wood and steel post guardrail in asphalt, without the need of a concrete mow-strip.
Proposed Work Plan:	The objectives of this project can be achieved by performing the following tasks. 1. Bogie Testing – Perform impact tests of posts installed in various thickness of asphalt and compare the force deflection behavior to posts directly installed in soil. Select designs for the full-scale system. Testing to be performed for both wood and steel posts. 2. Construction – Construct and repair test installations of wood-post W-beam guardrail and steel post W-beam guardrail 3. Testing and Final Report – Perform MASH Test 3-10 and Test 3-11 for both steel post and wood post guardrail systems

Deliverables:	An engineering drawing of the systems and final report
Urgency and Expected Benefit:	A successful design will allow agencies to install the W-beam guardrail system in asphalt without having to construct a concrete mow-strip to control vegetation. Currently there is no design of the mow-strip for asphalt. If successful, this design will see immediate implementation.
Problem Funding and Research Period:	*Task 1 – Bogie Testing: $45,000* *Task 2 – Construction (2 installations and 2 repairs): $36,000* *Test 3 – Test and Reporting* *Test 3-10 x 2 = $80,000* *Test 3-11 x 2 = $90,000* *Total Estimated Cost: $251,000* *Research Period: 12 months*
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