

Project Title:	BIB Terminal Additional Crash Testing
Project Synopsis:	<p><i>Please describe the proposed project synopsis within 200 words.</i></p> <p>Conduct additional crash testing as required by FHWA, producing acceptable results under MASH conditions to qualify for an FHWA eligibility letter.</p> <p>Project will use analysis, simulation, as required, and conduct required testing.</p>
Project Goal(s):	<p>Conduct additional crash testing required by revision to MASH 2016. Additional crash testing required is TBD.</p> <p>Tests 3-34 and 3-35 were conducted successfully with the following BIB configuration: 4:1 Foreslope/ 2:1 Backslope/ V-Ditch. Test results were reported in TTI Test Report Number 608431-07-1&2, finalized in October 2018, as part of the Roadside Safety Research for MASH Implementation Pooled Fund.</p>
Project Background:	<p><i>Please describe the problem you would like to address.</i></p> <p>The Buried-in-Backslope (BIB) Terminal project (TTI project 608431) demonstrated the BIB system performs effectively under MASH conditions.</p> <p>The MASH BIB was tested to the same configuration used under NCHRP 350 in the early 2000s. Successive NCHRP 350 tests varied conditions of foreslope and backslope over three tests. The most of extreme NCHRP 350 configuration was matched for the MASH 2016 test.</p> <p>MASH 2016 full-scale crash tests 3-34 (car) and 3-35 (pickup) were conducted successfully with the following BIB configuration: 4:1 Foreslope/ 2:1 Backslope/ V-Ditch. Other terminal/crash cushion tests identified in MASH 2016 were evaluated as “non-relevant” for the BIB and were not conducted because test(s) are designed to examine impact:</p> <ul style="list-style-type: none"> ○ on terminal end, whereas BIB has no exposed end that can be impacted; ○ for devices attached to a rigid structure, whereas BIB has no rigid backup; ○ in the reverse-direction, whereas BIB has no cable system to release, and the flare for the BIB reduces impact angle and impact severity; ○ of a mid-sized (1500A) vehicle; whereas BIB is not a staged device; and ○ of a non-redirective crash-cushion, whereas BIB does not qualify as non-redirective. <p>The results were reported in TTI Test Report Number 608431-07-1&2, finalized in October 2018, as part of the Roadside Safety Research for MASH Implementation Pooled Fund.</p> <p>Subsequently, the crash test report and supporting data was submitted to FHWA requesting an eligibility letter. FHWA conferred with members of the AASHTO Technical Committee on Roadside Safety (TCRS) regarding a proposal to develop a regimen for testing BIB. The determination of the committee may require additional crash-tests to be conducted, but those tests are not defined at this time.</p>

Proposed Work Plan:	<p><i>Please describe what work or test will be done and what the result will be.</i></p> <p>Task 1. Finite Element Investigation on the Newly Proposed Tests. Conduct finite element simulation to investigate CIP for additional full-scale crash testing.</p> <p>Task 2. System Construction & Full-Scale Crash Testing. Build test article. Conduct additional full-scale crash testing.</p> <p>Task 3. Recommendations. Summarize recommendations based on additional testing.</p>
Deliverables:	<p>Crash test results (tests TBD) and supporting materials which, when presented in combination with the results and materials obtained under Test Report Number 608431-07-1&2, will be sufficient to request FHWA consideration for an eligibility letter.</p>
Urgency and Expected Benefit:	<p><i>Please describe the expected benefits of the research.</i></p> <p>MASH tests have been successfully completed (3-34, 3-35) which show that small cars do not snag with an elevated rail height and the system has strength to withstand pickup truck impact. At a future time, FHWA may require additional crash testing in order to issue an eligibility letter for installation on the NHS.</p> <p>BIB Terminal eliminates the potential for terminal end strike. Completing additional testing required in order to obtain an FHWA eligibility letter will enable wider installation of this terminal across the NHS with the potential to reduce risk to the traveling public.</p>
Problem Funding and Research Period:	<p><i>Please describe what are the estimated costs and time to complete the project</i></p> <p>Problem Anticipated Funding: \$100,000 (includes only one additional crash test) Research Period: 1 year</p>
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