

Project Title:	MASH TL-3 Thrie-Beam transition from 31" W-Beam guardrail to single slope CIP concrete barrier
Project Synopsis:	Evaluate MASH TL-3 compliance of a Thrie-Beam transition from 31" W-Beam guardrail to single slope CIP concrete barriers
Project Goal(s):	Determine MASH TL-3 compliance of a Thrie-Beam transition from 31" W-Beam guardrail to single slope CIP concrete barrier either with engineering opinion or crash testing.
Project Background:	<p>31" guiderail to F-shape and single slope CIP concrete barrier transition along the side of the road is a very common application. There is already a MASH compliant thrie-beam to F-shape bridge barrier. However, the end of the bridge is modified where the thrie-beam connects. Can this MASH compliant thrie beam transition be modified to connect to a F-shape for various heights and 42" high single slope CIP barrier without modifying the end?</p>
Proposed Work Plan:	<p><u>Tasks:</u></p> <ol style="list-style-type: none"> 1. Literature Review and Engineering Analysis <ol style="list-style-type: none"> a. Evaluate current TL-3 Thrie-beam transition designs b. Determine the critical transition design and evaluate the transition for TL-3 compliance. c. Evaluate and perform MASH compliance via engineering opinion, simulation and/or crash testing. 2. Construction and Demolition 3. Full-Scale Crash Testing and Reporting <ol style="list-style-type: none"> a. Perform critical full-scale crash tests determined in Task 1. (Budgeting for two crash tests) b. Provide a final report summarizing the details of the test installation, final drawings, and our finding and conclusions c. Provide engineering opinion on any acceptable variations such as variations of heights of the barrier. States may not have the exact same slope on the single slope barrier, so engineering opinion needs to consider potential MASH compliant variations.

<p>Deliverables:</p>	<p>A report providing an evaluation of MASH TL-3 compliance of a Thrie-Beam transition from 31" W-Beam guardrail to single slope CIP concrete barrier. Include engineering opinion for MASH compliance for similar, less critical designs from various states which were not crash tested.</p>
<p>Urgency and Expected Benefit:</p>	<p>Transitions between w-beam and CIP concrete barriers is a common application. As new MASH compliant barriers are being adopted by DOT's, new transitions are needed in order to implement the new concrete barriers for use.</p>
<p>Problem Funding and Research Period:</p>	<p>Funding Total Estimated Cost = \$140,000 <u>Note:</u> Budgeting for two full-scale crash tests</p> <p>Work Schedule: (Project Duration = 10 months from initiation of the project)</p> <ul style="list-style-type: none"> • Task 1 = 3 months • Task 2 = 3 months • Task 3 = 4 months
<p>Developer(s) of the Problem Statement:</p>	<p>Name: Nina Ertel, P.E., PennDOT; Joe Hall, WVDOT Email: nertel@pa.gov Phone: 717-425-7679</p>