

<b>Project Title:</b>	Investigation of MASH, TL-5 TBTA Bridge Railing Mounted on Traditional Concrete Deck
<b>Project Synopsis:</b>	The TBTA bridge railing was successfully crash tested under MASH, TL-5 criteria, and an FHWA eligibility letter (B-274) was issued for this bridge railing. However, the TBTA railing was tested on a surrogate composite bridge span, and transportation agencies may wish to use this railing type on a traditional concrete bridge deck.
<b>Project Goal(s):</b>	<ol style="list-style-type: none"> <li>1. Evaluate the TBTA bridge railing mounted on a traditional concrete bridge deck.</li> <li>2. Establish design criteria for mounting the TBTA bridge railing on a traditional concrete deck.</li> <li>3. Determine if the TBTA bridge railing can be mounted on top of a concrete brush block.</li> </ol>
<b>Project Background:</b>	<p>The TBTA bridge railing was successfully crash tested under MASH, TL-5 criteria, and an FHWA eligibility letter (B-274) was issued for this bridge railing. However, the TBTA railing was tested on a surrogate composite bridge span, and transportation agencies may wish to use this railing type on a traditional concrete bridge deck.</p> <p>It may be possible to use this railing on a concrete deck, but a design of the post to deck connection is needed.</p>
<b>Proposed Work Plan:</b>	<p><i>Following work plan is expected to meet the objectives of this project.</i></p> <p><i>Task 1: Post-to-Deck Design – In this task, a design of the post attached to the concrete deck using adhesive or screw-in anchors will be developed. The design criteria for this post-to-concrete deck attachment will be to meet the design capacity of the post-to-steel orthotropic deck connection used in the TBTA crash testing.</i></p> <p><i>Task 2: Dynamic Bogie Testing – In this task, dynamic impacts using a surrogate bogie vehicle will be performed to evaluate the performance of the post connection design for concrete and steel. Four bogie tests will be performed, two with post installed on concrete and two on steel deck similar to the orthotropic deck used in the TBTA testing. Force-deflection response will be measured and compared for the two types of posts. If they exhibit similar post-deflection response, it would imply that the new concrete post and the one used in TBTA testing are interchangeable.</i></p>

<b>Deliverables:</b>	<ul style="list-style-type: none"> <li>- Final report containing details of the new post attachment design and the full-scale bogie impact testing.</li> <li>- Movie files and photos from testing</li> </ul>
<b>Urgency and Expected Benefit:</b>	<p><i>Successful design will allow user agencies to use the TBTA bridge on concrete decks.</i></p>
<b>Problem Funding and Research Period:</b>	<p><i>Estimated Costs: Task 1 – \$20,000 Task 2 – \$20,000</i></p> <p><i>Estimated Project Period: 10 months</i></p>
<b>Developer(s) of the Problem Statement:</b>	<p>Name: Carlos Torres Email: TorresC@michigan.gov Phone: (517) 335-2852</p>