



UTC Project Information- Project # 3.7

Project Title	<i>Development of general guidelines related to the effects of factors such as the bridge span range, range of pile length, roadway profile grade, and skew angle range on integral abutment bridges (IABs)</i>
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Funding Source(s) and Amounts Provided (by each agency or organization)	Federal: \$62,500; UMass Lowell: \$63,125
Total Project Cost	\$125,625
Agency ID or Contract Number	69A3551847101
Start and End Dates	9/1/2021-9/30/2024
Brief Description of Research Project	<p>The overall objective of this research is to improve the guidelines for the modeling, design, and construction of integral abutment bridges (IABs). Based on import from the DOTs the following topics were considered for the study: (1) a study of the effect of skew angle and other factors on the distribution of forces between superstructure and substructure; (2) a study of the effect of the roadway profile on the substructure; and (3) a study of the constructability of HP piles supported on a site with shallow bedrock.</p> <p>Year 3</p> <p>The focus of the third year of this ongoing research has been:</p> <p>(a) To verify the findings of the analytical study in Years 1 and 2 of skew IABs. This is being done by means of a parametric study using a full three dimensional finite element model of a sample single span skew IAB, varying parameters as the skew angle, the ratio of the length to the width of the bridge, and the stiffness parameters of substructure;</p> <p>(b) To provide enhanced guidelines for the finite-element modeling and the assessment of the impact of modeling techniques on the accuracy of the analysis</p>



	<p>results for skew and non-skew IABs. Input from the DOTs and from industry will be taken into consideration in the developing of these guidelines.</p>
<p>Describe Implementation of Research Outcomes (or why not implemented)</p>	<p>This project is in its initial research phase. Implementation of Research outcomes will be reported upon completion of initial research.</p>
<p>Impacts/Benefits of Implementation (actual, not anticipated)</p>	<p>This project is in its initial research phase. Impacts and benefits of the research will be reported after the implementation phase.</p>
<p>Web Links</p> <ul style="list-style-type: none">• Reports• Project website	<p>https://www.uml.edu/research/tidc/</p>