

UTC Project Information- Project # 3.7	
	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)
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Funding Source(s) and Amounts Provided (by each agency or organization)	\$ 62,500 UTC \$63,125 UMass Lowell (Year 3)
Total Project Cost	\$125,625 (Year 3)
Agency ID or Contract Number	
	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 grade on the substructure; and (3) a study of the constructability of HP piles supported on a site with shallow bedrock.
	Year 3
	The focus of the third year of this ongoing research has been: (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 such
	as the skew angle, the ratio of the length to the width of the bridge, and the
	stiffness parameters of substructure;
	(b) To provide enhanced guidelines for the finite-element modeling and the
Brief Description of Research Project	assessment of the impact of modeling techniques on the accuracy of the analysis

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	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.
Describe Implementation of Research Outcomes (or why not implemented)	The documentation of the findings of the 1 st two years of the research project has been completed and is available for implementation in the design of skew IABs. I created and offered a new graduate bridge design course covering the design and of IABs at UMass Lowell.
	The outcome of this research will contribute to a better understanding of the parameters controlling the behavior, an improvement in the modeling techniques, and an improvement of the design and construction efficiency of IABs.
Impacts/Benefits of	The feedback I have received from DOTs and practicing bridge engineers on skow
anticipated)	IAB's is evidence of the impact my ongoing research is having
Web Links	
Reports	
Project website	https://www.uml.edu/research/tidc/