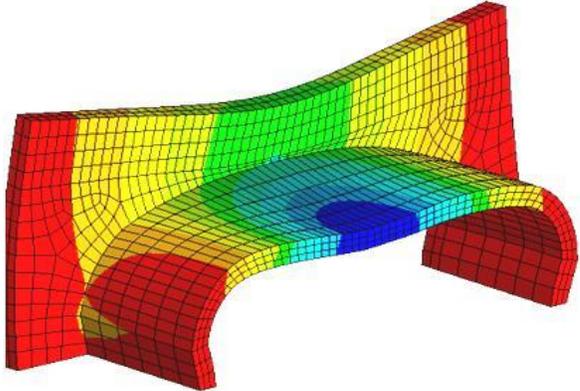


PROJECT PROFILE

Title	Optimising the use of existing masonry arch bridge assessment methods and developing a new load capacity assessment tool	 <small>An Údarás um Bóithre Náisiúnta</small>
Contractor	UCD	
Contact details	Dr Paul Fanning School of Architecture Landscape and Civil Engineering University College Dublin, Newstead Belfield, Dublin 4 paul.fanning@ucd.ie	
NRA Mentor	Liam Duffy	
Start date	Dec-08	
End date	Nov-11	
Status	On-going	
Type of project	Research Fellowship: PhD (Niamh Gibbons)	
Cost	€136.7k	
Project reference	NR/250/04 PO 6911	

Description	<p>There are approximately 20,000 bridges on the Irish network of national and non-national roads. Arch bridges make up a significant proportion of these bridges (36% of bridge on the National roads, 80% overall). As such, they represent a critical component of the road infrastructure. Because of the age of these structures (many are over 200 years old), and because of their architectural and heritage value, they require careful management if their service lives are to be maximised. Effective and practical methods are necessary to determine their load carrying capacity and identify appropriate strengthening and rehabilitation methods.</p> <p>The current bridge assessment programme has identified a significant proportion of these bridges that require strengthening or weight-restriction. This project involves reviewing the available range of existing stage 1 (screening) bridge assessment methods and developing a new stage 1 (screening) and stage 2 (in-depth) assessment method. The project output</p>	
Objectives	To make recommendations to improve the use of assessment methods giving consideration to the parameters which affect the load-carrying capacity of arch bridges. These will be used to develop better preliminary and in-depth assessment methods which will improve confidence regarding the accuracy of load-capacity ratings for arch bridges.	
Benefits	Improving the use of stage 1 assessment methods, and developing a more accurate strength assessment technique, will result in a higher proportion of assessment passes than is currently being achieved. Consequently, fewer in-depth stage 2 or stage 3 assessments, fewer weight-restricted bridges and fewer bridge strengthening schemes, would be necessary. The project could therefore offer very considerable cost savings in bridge management and rehabilitation requirements.	
Outputs	Review of current assessment methods for arch bridges Recommendation regarding the limitations of existing methods Development of new assessment method Delivery of new assessment methodology for arch bridges	

Detailed analysis of arch bridge