

# PROJECT PROFILE

<b>Title</b>	Optimising the use of existing masonry arch bridge assessment methods and developing a new load capacity assessment tool	 <b>NRA</b> National Roads Authority <small>An tUdards um Bóithre Náisiúnta</small>
<b>Contractor</b>	UCD	
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<b>NRA Mentor</b>	Liam Duffy	
<b>Start date</b>	Dec-08	
<b>End date</b>	Nov-11	
<b>Status</b>	On-going	
<b>Type of project</b>	Research Fellowship: PhD (Niamh Gibbons)	
<b>Cost</b>	€136.7k	
<b>Project reference</b>	NR/250/04 PO 6911	

<b>Description</b>	<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 will improve confidence in the integrity of the structure stock.</p>
<b>Objectives</b>	<p>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.</p>
<b>Benefits</b>	<p>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.</p>
<b>Outputs</b>	<p>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</p>