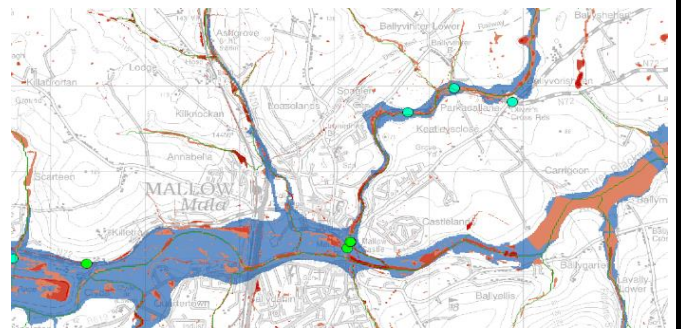


PROJECT PROFILE



Title	Assessment and management of flooding risks at a structural level on the national road network
Contractor	JBA Consulting Engineers and Scientists Limited
Contact details	Ross Bryant, JBA 24 Grove Island, Corbally, Limerick ross.bryant@jbaconsulting.ie
TII Mentor	Vincent O'Malley
Start date	Nov-11
End date	Oct-12
Status	Complete
Type of project	TII Research Project
Project reference	NRA04250

<p>Description</p>	<p>Risk management for structures on the national roads with regard to Climate Change is an area subject to great uncertainty. For example, a greater frequency and intensity of flooding is expected in many parts of Ireland. Flooding poses a great threat to roads, and may in severe cases lead to significant obstruction of traffic and damages to the road structures themselves. Already in some countries, design guidelines for the construction of new roads and structures have changed in response to the anticipated future changing climate. For example, some countries have adopted a nationwide uniform modification of e.g. the design flood, while others have suggested a climate factor that varies with the geographical (or rather climatologically) region of the country. This is broadly seen as Climate Change adaption rather than the mitigation of Climate Change. Assessing flooding risks to structures such as bridges, culverts, etc, on the national road network initially involved the identification of areas prone to flooding using advanced mapping tools. Once potential structures are identified to be prone to flooding, the objective is to carry out a risk management study to mitigate threats, reduce vulnerabilities and minimise the consequences of such a flooding event.</p> <p>Identifying structures that are prone to flooding impacts is an important part of a climate adaptation strategy. This project will address critical issues of finding the structures on parts of the road network that are most vulnerable to flooding, using a geographical information system as a primary basis. These structures can be identified to be in locations known as blue spots (put in ref to blue spot model). Once such structures are identified steps should be undertaken to prepare a risk management study at a structural level. These steps will include risk analysis, risk evaluation and mitigation. In many situations the worst socio-economic costs, which appear to be related to obstruction of traffic, may be avoided simply by using early-warning systems combined with effective communication to the road users.</p>
<p>Objectives</p>	<p>The objective of this research project were to:</p> <ol style="list-style-type: none"> 1. Development of flood maps for the Irish road network 2. Identification of areas prone to flooding taking account of potential Climate Change 3. Development of risk assesment protocol for vulnerable structures
<p>Benefits</p>	<p>This project addressed the critical issues of identifying parts of the road network that are most vulnerable to flooding, using a geographical information system as a primary basis. These structures were identified in locations known as blue spots (developed as part of a previous ERA-NET ROAD project). Once such structures are identified a risk management study at a structural level will be developed. This will enable TII to carry out a risk evaluation and mitigation, quantify the socio-economic costs, and develop early-warning systems combined with effective communication to the road users.</p>



Outputs	Project outputs include: <ol style="list-style-type: none"><li data-bbox="432 73 1155 107">1. Flood maps identifying critical sections of the road network<li data-bbox="432 109 879 143">2. Evaluation of socia-economic costs<li data-bbox="432 145 767 179">3. Risk assessment protocol<li data-bbox="432 181 727 215">4. Early warning systems
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