PROJECT PROFILE

Title	**Performance of thin surfacing on Irish road pavements**
Contractor	Ove Arup & Partners Ireland
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TII Mentor	Tom Casey
Start date	Feb-11
End date	Jan-13
Status	Complete
Type of project	TII Research Project
Project reference	NRA04250

Description	 Negative feedback was received by TII in relation to the behaviour of thin surfacings in wet weather especially with respect to spray. Essentially TII had modified the orginal German specification for Stone Mastic Asphalt insofar as the binder content was increased and specific initial texture depths were requested. A minimum texture for a continued minimum operational time-span was also specified. It had been noted that the use of vibro line marking had the potential to effect surface water run-off as did the drainage paths resultant from both vertical alignment design and drainage design. The research focus consisted of a review of the optimal balance between all design elements and operational characteristics of the material. The project was carried out by Arup who had formed a research team with the University of Ulster to investigate the background and use of thin surface course materials (TSCS) on road schemes in Ireland and to ascertain the performance of these materials on already constructed schemes. The research included a review of the Specifications in use in Ireland, the UK and Germany, compared the designs with the performance of the material on site and made recommendations on any modifications which would be appropriate for inclusion in the TII specification based on the findings of the research.
Objectives	The research was composed of the following elements: 1. A review of Irish/UK practice and comparison with the original German Specification; 2. An examination of the key differences in approach to the design and operation of the material; 3. A sensitivity analyses of the mix characteristics; 4. A sensitivity analyses of in-situ performance; 5. An examination of the optimal drainage and geometric site conditions as a function of material performance to optimise wet skidding resistance and reduction of vehicle spray in wet conditions.
Benefits	In the aftermath of the major road construction in Ireland over the previous 15 years, this was an opportunity to update the TII Specification with knowledge based on the direct experience Arup gained through its involvement with major road schemes where TSCS was utilised. That experience, combined with the research and testing expertise of the University of Ulster allowed the Specification to be amended to ensure that future road schemes will be constructed to the highest standards, reducing the potential for surface course failure in advance of the stated design life. This piece of research will lead to better value road pavements for TII, reducing the long term maintenance costs for the national road network through better specification of TSCS materials.
Outputs	The output of the research was a report on the optimal mix design for thin surfacings in relation to the operational functions of the road. The report contained proposed revisions for inclusion in the TII specification, which will contribute to safer, more durable road surfacing material.