



Conférence Européenne
des Directeurs des Routes
Conference of European
Directors of Roads

QUESTIM:

Quietness and Economics Stimulate Infrastructure Management

Research project funded under the CEDR Transnational Road
Research Programme

**CEDR Call 2012: Noise - Integrating strategic noise management into the
operation and maintenance of national road networks**

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by CEDR (Conference of European Directors of Roads). The funding partners for this programme
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Details

Acronym:	QUESTIM
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Project summary

The main objective of this project is to develop procedures that enable the implementation of the acoustic performance of road infrastructure into asset management systems for road infrastructure. The following steps are planned:

1. Inventory of existing data on the age-related performance of barriers and of noise reducing pavements and analyse these in terms of spread in initial performances and effect of age.
2. Development of a survey method to assess the acoustic performance of barriers and pavements in a road infrastructure system. We will work on the actual measurement technology and procedure and the development of a practical scheme for scheduling the surveys, based on expected deterioration of the barrier and pavement performance.
3. Development of the procedure to implement the effect of low noise surfaces into the future calculation scheme CNOSSOS. This procedure will include the age effect of the surface and the investigation into the combined effect of low noise vehicles and tyres and the road surface performance.
4. Development of a cost/benefit procedure for mitigation measures, with an emphasis on road surfaces. This will be focused on the acoustic performance, but the effects on sustainability (represented by CO₂) and safety (represented by wet grip) will be taken into account.
5. Development of the necessary data and information in order to be able to implement low noise surfaces in a pavement management system.

The following specific results will be produced:

1. A report on the performance of low noise surfaces over their lifetime with statistical results in urban, extra-urban and highway situations, for several types of porous, dense asphalt and concrete surfaces. A scientific report explaining the cause and nature of the degradation and a pragmatic model to predict degradation with road type, surface type, winter conditions, vehicle usage etc. as input parameter. This model can then be used in

pavement management systems. We will formulate recommendations for applying low noise surfaces and to improve its lifetime performance through material technologies;

2. A guideline for scheduled measuring the performance of barriers and pavements on a regular base based on existing procedures such as ISO 11819-1 and -2 (SPB and CPX methods) and EN 1793 (barrier performance) and additional visual inspection;
3. A procedure for implementing the effect of the pavement in the CNOSSOS calculation procedure and an estimation on the effect of future vehicle and tyre technology on the effect of the road surface on the vehicle emission ;
4. Development of a cost/benefit procedure for noise mitigation measures based on the procedure developed by the EU-Noise Working Group on Health and Socio-Economic Aspects (WG-HSEA) and a procedure for life cycle costing and examples how it can be used in decision making systems;
5. Data and procedures to fit pavement and barrier performance in pavement management systems and at a higher level, asset management systems.