

be-READY – REsilient roAD pavements for sustainability

Summary

Aligned to the Sustainable Development Goals of the United Nations and in the context of the European Green Deal, transportation infrastructures are fundamental for global development, promoting socio-economic opportunities and enabling economies to operate more competitively and with more resilience against adverse conditions. The transportation infrastructure sector, particularly in its road construction and maintenance activities, has contributed significantly to the 34% of construction and demolition waste produced, considering the total waste generated worldwide. Bituminous roads represent more than 80% of the European road network, which presently integrates around 950 billion tonnes of bituminous materials, being this a 100% recyclable material.

Pavement asset management actors have been pursuing further sustainable solutions and practices to adopt in their construction and maintenance actions. The general approach for improving sustainability consists of reducing energy consumed, emissions generated, and the amounts of virgin material used. It means implementing preventive maintenance, lowering the bituminous mixture heat and adopting other eco-friendly pavement technologies.

The research group at Lusófona University has been involved in pavement research for the last nine years. On the other hand, the research group at Oslo Metropolitan University is

preparing a master course on sustainable pavement and has been pursuing an active role in supporting the Viken County in a project to build a near to zero-emission road section and green public procurement.

Therefore, in collaboration with Instituto Superior Técnico, National Laboratory for Civil Engineering, Infraestruturas de Portugal and JJR Group, the objectives of the proposal are: (i) update the existent specifications for the use of construction and demolition waste in road construction and maintenance; (ii) prepare a course on sustainable road design and construction, taking into consideration different climatic conditions and the extreme events (climate change and high loads); (iii) evaluate the performance of recycled pavements during the life-cycle by monitoring real road sections; (iv) calibrate models by performing Life Cycle Cost Analysis (LCCA) of sustainable and resilient pavement solutions considering the long-term performance of pavements and costs related to energy needs and greenhouse gas emissions.

The project will allow for stimulating innovative approaches to any area where bilateral interest exists:

- To promote joint initiatives with clear bilateral value and concrete results.
- To foster cooperation through the support of impactful bilateral initiatives.



Project Reference

FBR_OC2_21

Leading Institution

Lusófona University (Portugal)

Partners

IST – Instituto Superior Técnico (Portugal), LNEC – National Laboratory for Civil Engineering (Portugal), IP – Infraestruturas de Portugal (Portugal), JJR Group (Portugal), OsloMet – Oslo Metropolitan University (Norway), Viken County (Norway)

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EEA Grants

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14 985.60€

CERIS

3 450.40€

Project Website

civilresearchgroup.ulusofona.pt/be-ready-resilient-road-pavement-for-sustainability