

Natural Environment Research Priority

The themes and topics for the Natural Environment Research Priority, are presented below.

Theme	Topic	Notes
Enhancing Biodiversity	Soil quality	Improving soil quality on soft estate.
	Water quality	Methods to prevent / filter pollutants in road runoff / drainage.
	Increase flora / fauna biodiversity	New methods of soft estate management to increase biodiversity.
	Ecosystem services	Ecosystem approach to developing infrastructure that is more sensitive to aquatic and terrestrial habitats and can create sustainable habitats, moving beyond typical mitigation measures.
	Night sky	Light pollution and ways to tackle.
Decarbonisation / Climate Neutral Operations	Infrastructure compatibility	Infrastructure compatibility, specifically for electric roads, i.e. ensure the same technology (overhead catenary, in-pavement catenary, wireless) is used everywhere.
	Long distance freight	Infrastructure to support green long-distance freight. Linked to electric roads and other alternative fuels.
	Hydrogen and alternative fuels	Infrastructure for these.
	Low rolling resistance	To reduce energy use of vehicles.
	Carbon account	Limits on carbon emissions.
	Climate neutral cities	Climate neutral cities are an EC priority. Strong potential for integration of transport and building energy in the future.
Energy Harvesting	Positive Energy Roads	Roads that generate more energy than they consume (not including vehicle energy use). The economics around applications and energy use is as important as the technology used.
	Solar noise screens and canopies	Noise screens integrated with solar photovoltaic (PV) panels. Solar PV canopies over or partially over road and rail lines.
	Low energy sensors	Harvesting of energy for low energy sensors to enhance to inspection or condition assessment.
Circular Economy and Resource Use	Resource efficiency	Improved management and use of finite resources.
	Cradle to cradle / circular infrastructure	Circularity for products to be used as the basis of new products rather than disposal (cradle to grave). Infrastructure that will be reused or recycled back into infrastructure of the same standard, prevents extraction of additional resources.

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	Recycling and 2nd, 3rd, 4th life sustainability assurance	Multiple recycling, Specifically, 2 nd , 3 rd , 4 th life etc. Technical assurance around material properties following multiple reuse / recycling cycles.
	Life cycle assessment	Assessment of environmental impacts over full lifecycle to make better informed decisions on option choice.
	Sustainable infrastructure	Infrastructure designed to be sustainable, however that is defined.
	Urban mining	Extraction of secondary aggregates from construction and demolition sources.
	New technologies	New technologies for circularity.
	New procedures	New procedures, e.g. technical, procurement, specifications to promote circular infrastructure.
Air Quality	NOx	Nitrous oxide emissions.
	SOx	Sulphur oxide emissions.
	Particulates	Particulates from all sources, including diesel emissions.
	Non-exhaust particulate emissions	Already, non-exhaust particulates (mainly from tyre, brake and road wear and resuspension of road dust), represent an important source of particulate matter. This will increase in proportion with more electric vehicle adoption.
Low Noise	Extension of life of Low Noise Pavements (LNP)	Technologies, processes, maintenance and rehabilitation to extend life of low noise pavements. Improved maintenance options to low noise pavements.
	Lower noise pavements	Development of even lower noise pavements, including low noise concrete pavements and low noise mastic asphalt pavements.
	Low Noise Pavements for cold climates	Low noise pavements designed to withstand cold climates and associated winter maintenance regimes and studded tyres.
	Low noise measurement	Comparison of road noise measurement techniques to improve strengths and weaknesses of each.
	Noise barriers	Use of sustainable materials for noise barriers. Assessment of the noise barrier performance in-situ without the need to close traffic
	Noise effects on ride quality	Assessment of how road noise affects the user experience of ride quality
	Vibrations as a nuisance	Low frequency and high amplitude noise. Understand nature and ways to combat it.