

# REIMAGINING AN INTER-CITY ROAD FOR A NET ZERO CARBON WORLD

Highways are central to how we move and live. However, the challenges with their use and future development are becoming increasingly clear, with a sharp focus now being placed on their carbon cost and the negative impacts they have on communities and the adjacent environment.

This illustrative graphic highlights six narratives which are critical to developing a positive future for inter-urban roads. They illustrate the need to change the way we think about highways and transport to help achieve a more resilient, net zero carbon world.

## THE ENERGY SYSTEMS STORY:

The transfer of energy around the country and the synergies between the road network, the gas grid and the electricity network require re-thinking. The mass role out of both electric and hydrogen vehicles can then be realised along with requirements for renewable energy generation, storage and grid balancing.

## THE DIGITAL STORY:

Technology could play a significant role in supporting the transition to a net zero carbon transport system. From supporting the platooning of heavy goods vehicles and autonomous mass transit modes, to Mobility as a Service apps, to sophisticated and user-friendly road user charging systems.

## THE MULTI-MODAL TRANSPORT AND REDUCED DEMAND STORY:

Travelling and moving people and goods by road should be considered as only part of a wider sustainable transport strategy. A significant, convenient and safe modal shift away from single occupancy vehicles to active travel, bus, mass transit and rail is needed - with seamless connections between modes. The approach should include strategies to help people travel less.

## THE LOW EMISSION VEHICLES STORY:

Low road user emissions requires both switching propulsion technology to electric or hydrogen, but also behaviour change. Individuals should be empowered to cut down on single occupancy vehicle journeys. Interventions such as clean air zones and road user charging can help and be designed to mitigate the impact on the poorest in society.

## THE ASSET BASED CARBON STORY:

The asset base of roads and road structures must be constructed, maintained and, at the end of life, removed in line with a net zero carbon trajectory. Construction and maintenance materials, methods and equipment should all be addressed. Operational emissions, such as how roads are lit at night are also important, as is the position and alignment of new or upgraded roads.

## THE LAND USE STORY:

The land adjacent to an inter-city road has significant potential to deliver carbon sequestration as well as biodiversity net gain through a regenerative land management approach. For example, green bridges can connect animal habitats and wetlands can be used to limit surface water runoff to rivers.

