The role of transport in achieving the UN SDGs

Dr Juliet Mian Associate Director, Infrastructure Advisory, Arup and Technical Director, the Resilience Shift

Rebecca Powell, Senior Planner, Consulting, Arup

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“A reliable transport system is essential to a functioning and prosperous society”

DfT Transport Resilience Review (2014)
WAT IS SUSTAINABLE DEVELOPMENT?

Change

History
Globalisation

Urbanisation

Population

Climate and planetary boundaries
Sustainable development
Balancing sustainability and resilience

Adapted from: Elmqvist et al. 2019

Diagram:
- **Less general resilience**
  - High efficiency systems
  - Optimisation
  - Zero-waste, circular economy
  - Regulation-based governance
- **More general resilience**
  - Designed (intentional) diversity, redundancy and connectivity
  - Cross-scale systems perspective
  - Polycentric and collaborative governance
- **Less Sustainability**
  - Business as usual
- **More Sustainability**
  - Self-organised diversity, redundancy and connectivity
  - Local scale
  - Bottom-up management
Digital transformation
Urban transformation
Changing climate
Adaptive planning
Resilient systems
Resilient infrastructure for a safer world
The work we do

Supported by Lloyd’s Register Foundation and Arup, the Resilience Shift provides **knowledge** and **tools** for those responsible for planning, financing, designing, delivering, operating and maintaining critical infrastructure systems.
Influencing policy

Understanding how different mixes of legislation and policy instruments can incentivise and enhance the resilience of critical infrastructure, and shape resilience-led policy-making.
Building a global community equipped with the knowledge and tools needed to drive practice towards better, more resilient critical infrastructure and a safer world.
Sharing learning

Advancing best practice across the infrastructure value chain requires collaborative working and fostering knowledge transfer.
Learning from Day Zero

THE RESILIENCE SHIFT

THE CAPE TOWN DROUGHT RESPONSE LEARNING INITIATIVE
Outcome-led design for a sustainable future

With thanks to Jo da Silva
Resilience of the Strategic Road Network to geotechnical events

A resilient road network is one that can **anticipate**, **absorb**, **resist**, **respond** to and **recover** from unexpected geotechnical events.
Geotechnical asset performance

Highways England's geotechnical assets predominantly in 'reliable' phase

Uncertainty with regards to severe weather impacts on long-term

Adapted from Thuriby (2013) and Glendinning et al. (2015)
Innovative and sustainable approaches to geotechnical asset management

Willow poles

Electro kinetics

Source: TRL/Coffey
Carbon sequestration through land use upgrade and biodiversity increase

Catchment-level intervention – increased resilience for the wider area
Green Ribs
A30 Environmental Designated Funds

Improving valued features in the Cornish landscape

£2m connected habitat network across 30km² of countryside

Wide scale approach to framework for the whole area.
The A417 Missing Link, the last remaining stretch of single carriageway.

A417 Missing Link

- The A417 is located in Gloucestershire in the Cotswolds Area of Outstanding Natural Beauty (AONB) and is one of the south-west’s most important road corridors.
- The “Missing Link” is a 5.5 kilometer stretch of remaining single carriageway between the Brockworth bypass and Cowley roundabout.
A417 Missing Link
Landscape-led approach

This approach sensitively integrates the proposed scheme to ‘meet the character of the landscape’ and reduce negative impacts on the surrounding environment.

Its vision to improve opportunities for landscape, historic and natural environment enhancements.
Scheme objectives

1. **Transport and safety:**
   to reduce delays, create a free-flowing road network and improve safety along this stretch of the A417.

2. **Environment and heritage:**
   to reduce the impact on the landscape, natural and historic environment of the Cotswolds and, where possible, enhance the environment.

3. **Community and access:**
   to reduce traffic and pollution, improve access for local people to the road network, and support residents’ and visitors’ enjoyment of the countryside.

4. **Economic growth:**
   to help boost growth and prosperity by making journeys more reliable and improving connectivity.
A417 Missing Link
Important opportunities for benefit

Land use change and biodiversity enhancement
Carbon sequestration (not quantified)
Increased resilience (not quantified)
Outcome-Oriented Approach

Applying the SDGs to our work
Demonstrating the crucial role of transport in the Region’s economic growth
By 2040 we will be a forward-looking City Region with integrated transport connections that support economic growth and improve quality of life for all.
Outcome-Oriented Approach
Sheffield Electric Bus Study

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Outcome-Oriented Approach

Future Mobility – West Yorkshire and Sheffield City Regions
Outcome-Oriented Approach
Manchester Clean Air Plan

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- AFFORDABLE AND CLEAN ENERGY
- INDUSTRY, INNOVATION AND INFRASTRUCTURE
- REDUCED INEQUALITIES
- SUSTAINABLE CITIES AND COMMUNITIES
- CLIMATE ACTION
Outcome-Oriented Approach

Inclusive Cycling
WE NEED MORE FROM ROADS.

SUSTAINABLE DEVELOPMENT

TOTAL DESIGN

SOCIAL USEFULNESS

Reliable  Safe  Responsive to Locality  Healthy Communities  Accessible  Mobile  Environmentally Responsive  Adaptable
Thank you