



Department
for Transport



ADEPT
Association of Directors of
Environment, Economy, Planning & Transport

ADEPT

LIVELABS 2

Decarbonising Local Roads

An overview

February 2023



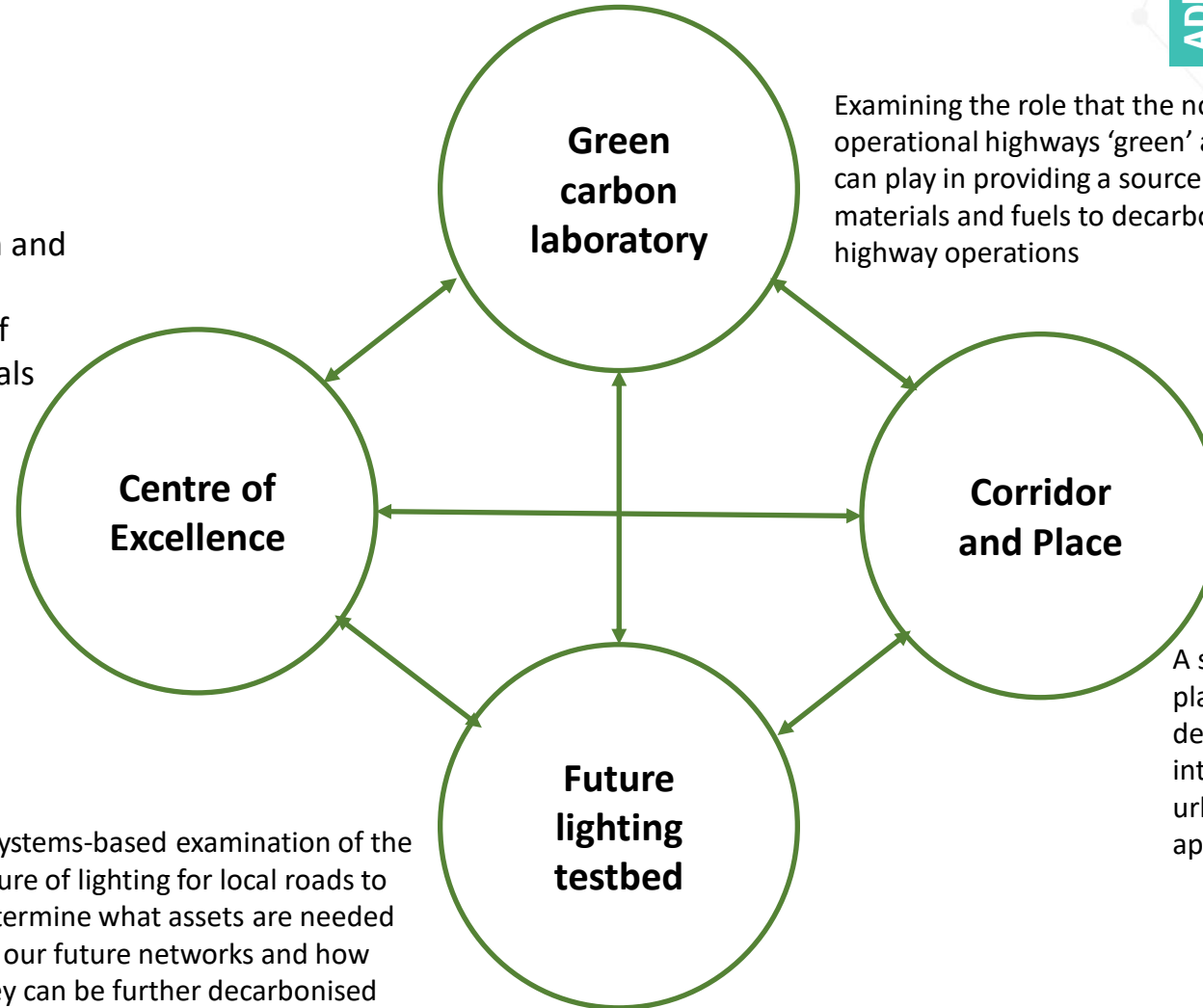
Department
for Transport

Four interconnected thematic areas

ADEPT

LIVELABS2
Decarbonising Local Roads

A hub for research and innovation for decarbonisation of local roads materials





Department
for Transport

Programme formation



Theme	Lead LAs	Other partners
<i>UK centre of excellence for materials</i>	North Lanarkshire & TfWM	SCOTS, Clackmannanshire, Ayrshire / other West Midlands councils
<i>Corridor and place-based decarbonisation</i>	Wessex, Devon & Liverpool	Hampshire County Council, Cornwall Council / Aberdeen City Council, Future Partners: Newcastle City Council, Royal Borough of Kensington & Chelsea and Liverpool City Region
<i>A green carbon laboratory</i>	South Gloucestershire & West Sussex	Western Gateway, South West Highways Alliance
<i>A future lighting testbed</i>	East Riding	York City Council and Hull City Council A1079 shared route, Department for Infrastructure, Northern Ireland, Cambridgeshire County Council Highways, Derbyshire County Council, Lancashire County Council, Westminster City Council, Oxfordshire County Council

Corridor and place-based decarbonisation

Local Authorities (Lead)	Wessex (Somerset County Council, Cornwall Council, Hampshire County Council), Liverpool City Council, Devon County Council
Title	Corridor & Place-based Decarbonisation Consortium
Partners	University of Exeter, Colas, Bird&Bird, Proving Services, Milestone Infrastructure, Doughnut Economics Action Lab, Aberdeen City Council, The Royal Borough of Kensington and Chelsea, Newcastle City Council, Pell Frischmann, Liverpool John Moores University, Dowhigh, Huyton Asphalt, Placed, Cocreation Partnership, Gap Group, Circle Economy, Cormac, Wainwright.
Overview/Local Authority Roles	<ul style="list-style-type: none"> • Wessex – developing a model for decarbonising delivery methods across nine 'net zero corridors' in Somerset, Cornwall and Hampshire, acting as a proxy for all highways. Wessex will progressively decarbonise maintenance across the whole asset lifecycle. Corridors will be a test bed for innovation, circular solutions and new ways of thinking. Their approach will be underpinned by the Doughnut Economics model. • Liverpool - decarbonising highways delivery in complex city contexts through the introduction of an 'Ecosystem of Things', a scalable and transferrable systems mapping approach at city-level. This spans design, public spaces, community engagement, materials/process technology, recycling infrastructure and the legal, contractual and procurement processes to be implemented so that decarbonisation initiatives can be adopted as BAU. • Devon - accelerating the reduction of carbon emissions associated with construction and maintenance of highways and demonstrating carbon negative highways are possible. The A382 project provides the opportunity to drive carbon changes to design, construction and maintenance. A multi-organisation partnership has formed to combine knowledge of known and theoretical carbon reduction methods to devise a route to 'carbon negative' spanning the whole project life cycle.
Funding	£12,798,550
Key Highlights/Innovations	<ul style="list-style-type: none"> • Laser sharp carbon focus with systemic thinking • Nine 'net zero corridors' with a Doughnut Economics model • 'Ecosystem of Things' – a scalable approach to decarbonising in the complex city context • Demonstration of carbon negative highways

UK Centre of Excellence for Materials

Local Authorities (Lead)	North Lanarkshire Council, Transport for West Midlands (TfWM)
Title	UK CO ₂ Collaboration Centre of Excellence for Materials Decarbonisation
Partners	Amey, Colas, SCOTS Group, Heriot Watt University, Catapult, The University of Nottingham, Manufacturing Technology Centre, TRL, Future Highways Research Group, National Highways
Overview/Local Authority Roles	<ul style="list-style-type: none"> • Joint - Creating the UK Collaboration Centre of Excellence for Materials Decarbonisation, which was the goal of both organisations. Provide access to test sites in two geographical areas. • North Lanarkshire – North Campus: <ul style="list-style-type: none"> ○ Live Lab demonstrators ○ Incubator programme ○ Industry database development ○ Recycled material programme ○ Translation of specifications & standards • TfWM – South Campus <ul style="list-style-type: none"> ○ Live Lab demonstrators ○ Challenge-led innovation programme ○ Full lifecycle enabling assets ○ Academic knowledge generation (Nottingham, Aston) ○ Skills development via Skills Academy ○ Translation of specifications & standards
Funding	£8,598,550
Key Highlights/Innovations	<ul style="list-style-type: none"> • Fencepost to fencepost approach on all materials, with a laser sharp focus on carbon • Two campuses, but one programme. Virtual campus North Lanarkshire and physical one at TfWM • FHRG Carbon Calculation & Accounting Standards – will also look at trialling other baselining tools • Significant knowledge sharing: workshops, webinars, White Papers, utilisation of social media, industry events • Commitment to immediate scale • Alignment and change of industry specifications

A green carbon laboratory

Local Authorities (Lead)	South Gloucestershire Council and West Sussex County Council
Title	Greenprint - A green carbon laboratory – examining the role that the highways ‘green’ asset can play in providing a source of materials and fuels to decarbonise highway operations
Partners	University of Brighton, University of the West of England, Amey, Tarmac, Plantlife, Ricardo, Suez Environment, Peakhill Associates
Overview/Local Authority Roles	<ul style="list-style-type: none">• This Live Lab introduces a first-of-its-kind whole system approach to creating a net carbon negative model for green infrastructure delivery• The Greenprint vision:<ol style="list-style-type: none">1. Set ambition for carbon negative, rather than net zero2. Break siloed thinking, putting carbon at the centre of decision making3. Design a replicable model for using green assets as a valuable commodity• The programme will model cross-functional fugitive and scope-three emissions within a digital twin that positions highways within a network of wider local authority functions and operations• The partnership will prove a replicable, circular economy approach for harnessing green estate biomass into power, alternative fuels and asphalt additive to achieve a net positive model for green estate management that pays for itself and more• This ‘greenprint’ aims to revolutionise the narrative for biomass drawn from councils’ estates from ‘waste’ to ‘value’ and prove a sustainable model and business case for highways and waste organisations to work together synergistically to achieve radical reductions in overall carbon• Six key carbon reduction measures:<ol style="list-style-type: none">1. Fugitive/hidden emissions2. Asphalt emissions from Hydrochar3. Resilience increase from Hydrochar4. Fossil fuels replaced by Biofuel5. Increase in embedded carbon in biodiverse verge6. Optimisation of delivery operations across system
Funding	£3,987,065
Key Highlights/Innovations	<ul style="list-style-type: none">• A unified programme across two councils• “Carbon negative, rather than net zero”• Harnessing green estate biomass into power in a circular model that pays for itself.

A future lighting testbed

Local Authorities (Lead)	East Riding of Yorkshire Council
Title	High Visual Efficiency for low carbon lighting decarbonising street lighting - A future lighting testbed to determine future lighting assets and light levels
Partners	Oxfordshire County Council, York City Council, Hull City Council, Aberdeenshire Council, Lancashire Council, Derbyshire Council, Cambridgeshire County Council, Pembrokeshire County Council, University of Sheffield, LCRIG, WJ, local transport projects, BSI, 3M, UK Road Leadership Group, ILP, SAS Lining Services, UK Lighting Board, City of Westminster, Department for Infrastructure, County Surveyors Society Wales, Clearview Intelligence, MEON, The Local Government Technical Advisors Group, Midlands Highway Alliance Plus
Overview/Local Authority Roles	<ul style="list-style-type: none">• Siloed interventions and regulations over 50 years have created significant and unmeasured carbon impact (construction and energy use). These unsustainable practices demand a total re-think that will reduce carbon impact and drive down UK street light energy costs (exceeding £1Bn annually). Twenty years since the first 'streetlight switch off', despite material advances, potential savings are constrained by regulations, guidance and outdated thinking. Driven by a vision towards zero carbon, cutting edge approaches including next generation signs, lines and solar studs, East Riding will create enhanced visual outcomes for all road users. Subject to strict milestones, and linked to hard evidence and academic rigour, we will create a framework for an alternative manual for highway lighting, signing and road marking that provides enhanced visual perception. Street furniture will thereby evolve around the specific ambition to reduce energy consumption.• East Riding's ambitions:<ul style="list-style-type: none">• To provide evidence that all road users achieve better visual perception through innovation• Create the evidence base for sustained modifications• Provide the catalyst for wholesale immediate change• Create a choice beyond British Standards & TSRGD regulations• Establish a robust invest 2 save / Prudential borrowing framework• Prove we can divert money already in the system• Switch current funding and reduce cost• Not seek new and fresh money beyond this Live Lab
Funding	£3,284,238
Key Highlights/Innovations	<ul style="list-style-type: none">• Every region of the UK - over 10% of the UK lighting asset• Not just looking at lighting but the whole highways visual environment. Signage, lining, visual perception of cyclist, pedestrian, HGV driver etc.• Provide a catalyst for immediate change and scrutinise the current British standards



Department
for Transport

Governance: the Commissioning Board



- Oversight for delivery of programme outcomes, including holding individual Live Labs and programme management team to account
- 18 active advocates / ambassadors for the programme including highlighting and promoting progress, real time learning and achievements into the highways sector (and beyond)
- Portfolio leads for finance, monitoring & evaluation, communications, carbon accounting
- Supported by a programme management team



Department
for Transport

Monitoring & Evaluation



- 8 year M&E programme – so with a 5-year M&E ‘tail’
- Will focus on the delivery and legacy phases of Live Labs 2
- Tender process about to commence
- Systra is currently reviewing the pre-delivery phase:
 - What worked well, not very well and why
 - What could be improved
 - How has competition context influenced the delivery of Live Labs 2
 - What learnings can be translated to other innovation competitions



Department
for Transport

Communications



- Communications is key and embedded into the programme
- Objectives:
 - to embed Live Labs 2 messaging and knowledge of innovation into wider sector and government policy
 - to encourage behavioural change
 - to see changes reach into approaches to procurement
- DfT Ministers are trusting us to meet the programme objectives
- Protect reputation, capitalise on brand and reach, consistency
- Each Live Lab has its own comms lead