

ADEPT

LIVELABS2

Decarbonising Local Roads



Live Labs 2

Decarbonising
Local Roads
in the UK

Summer 2022

ADEPT

Association of Directors of
Environment, Economy, Planning & Transport



Welcome to Live Labs 2: Decarbonising Local Roads in the UK.

In 2019, ADEPT and its commercial partners set off on a journey called Live Labs. We aimed to discover not only how innovative technologies could future-proof the local road network in local places, but also how to speed up adoption in a fragmented system.

Three years later, on 7th April 2022, we were delighted when DfT Minister Trudy Harrison announced that the Department would be supporting Live Labs 2 – this time focusing on decarbonising local roads via a £30m, three-year programme.

A major development for Live Labs 2 is that it will be a UK-wide programme, open to applications from Scotland, Wales and Northern Ireland, as well as England.

The Live Labs ethos has always been about far more than technology, and Live Labs 2 will be no different. We will be looking for transformational approaches, creative partnerships with academia and the public and private sectors, an openness to creating lasting change to the ways in which we maintain and construct our local highways, and a willingness to collaborate and share learning across the transport and highways sector.

This prospectus outlines the challenge, our mission and scope of Live Labs 2. It sets out how local highways authorities and other sub-national transport groups across the UK can pitch for a place in the programme. Funds will support the development, deployment, and monitoring & evaluation of zero carbon innovation over a three-year innovation programme, supplemented by a further five years of monitoring & evaluation to prove the new 'Business as Usual' for the local roads sector.

ADEPT is immensely proud to be able to present Live Labs 2, and I thank the Department for Transport for its continued support. I would also like to thank the members of our new Commissioning Board, drawn from both the public and private sectors, bringing with them a wealth of expertise and networks that will ensure the programme reaches far and wide.

As the success of Live Labs 1 has shown, ADEPT members are among the most committed innovators in public life - I look forward to seeing how Live Labs 2 can achieve similar success and to receiving applications for this transformational initiative.

Neil Gibson

**Live Labs Sponsor &
Chair of the Commissioning Board**



Department
for Transport



Innovation is a central pillar in our Government's approach to tackling our key national challenges.

Successful innovation is vital to delivering net zero emissions, a key factor in harnessing talent to drive growth across the UK, and critically is an enabler for improving the services we provide to the travelling public.

The Government wants to unleash the potential of the UK's local authority sector, small and medium enterprises, major contractors, and academic institutions. That's why it is investing in competitions which encourage bold new ideas and embrace risk.

The UK faces a significant challenge to decarbonise across all sectors to achieve our target of net zero emissions by 2050. Transport is the biggest-emitting sector, being responsible for over a quarter of emissions. Innovation and R&D are necessary to ensure new ideas and solutions are available to meet this challenge. This will enable us to: unlock new green technologies, cut the overall cost of decarbonisation, deliver system-level efficiencies, and help us deliver social and behavioural transformation.

Much innovation in road decarbonisation has focused primarily on the tailpipe – through areas such as promoting modal shift, behavioural change, and technological advancement. But more focus needs to be dedicated to decarbonising the construction and maintenance of our roads. This round of Live Labs is therefore focussed on stimulating the development of novel approaches to the net zero challenge, with a particular focus on the technically-challenging area of Scope 2 and 3 infrastructure carbon emissions.

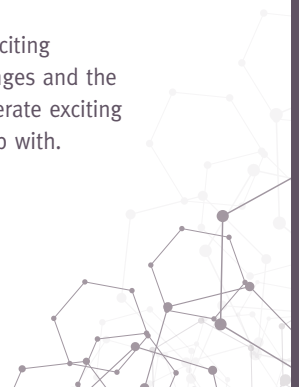
We are keen to build on the successes of the first Live Labs programme and see proposals that:

- bring local authorities across the UK together to launch ambitious trials which explore innovations at scale, such as neighbouring authorities testing an innovation over a wider geographical area, or authorities with different geographies testing and comparing interventions in different circumstances and contexts;
- raise the bar for innovation appetite within the local authority sector;
- monitor and evaluate their trials robustly to ensure we learn real lessons about what works and what doesn't;
- take a strong leadership role within the sector by acting as champions for those innovations which take off and make a real difference; and
- build in the best possible dissemination of successful innovations, and the sharing of key learnings.

The success of this second round of the Live Labs programme will be determined not by the improvements experienced within Live Lab areas but by the improvements experienced by the local roads sector as a whole and how quickly they are taken up and adopted.

The Department is delighted to be working in partnership with ADEPT in the delivery of this exciting programme. Please read through this prospectus, think about your key decarbonisation challenges and the potential opportunities, talk to your key contacts and stakeholders, and come together to generate exciting new ideas for decarbonising the UK's local roads. We look forward to seeing what you come up with.

Stephen Fidler,
Co-Director, Local Transport at Department for Transport (DfT)



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INTRODUCTION

ADEPT is a professional membership association representing ‘Directors of Place’ from over 70% of combined, county, unitary and metropolitan local authorities across England. The membership also includes sub-national transport bodies, Local Enterprise Partnerships and corporate partners drawn from the private sector.

The Live Labs programme is not new. The journey began back in 2017 when ADEPT joined with commercial partners to understand the opportunities that digital innovation could, and should, play in our local highways and places. The Live Labs programme was part of our practical response and with the support of the Department for Transport (DfT), we developed the Live Labs concept to undertake innovation at scale with a view to encourage new solutions, ways of working and business as usual (BAU).

Launched in May 2019, Live Labs was a two-year, £22.9m project funded by DfT. It was initially due to end in May 2021 but concluded earlier this year as a consequence of the pandemic. Eight English local authority areas and their partners delivered a varied programme of interventions in the thematic areas of SMART communications, materials, energy, mobility and environment.

More generally, advances made across these areas, typically linked by digital technology, have transformed how we live and work. They will continue to have far-reaching impacts for some time to come. Place directors need to be at the forefront of this rapid change; supporting communities, business and innovation in their areas.

With activity in over 115 locations and over 70 suppliers providing technology and insights, the first Live Labs programme has been an exemplar in the application of innovation in the local roads sector. It has not only provided real life use cases where today’s (and tomorrow’s) challenges are addressed, but also shared the learning, knowledge and underlying business cases for the benefit of industry.

Live Labs 2 will focus on the ‘hidden’ carbon agenda in national, regional and local thinking – a major challenge facing the local roads sector. Some £2bn is spent every year in the UK on maintaining our local highway assets and a further significant and unquantifiable sum on building new local infrastructure assets, be that improvement schemes or new industrial and housing highways assets.

These activities have a significant carbon impact and, to date, the decarbonisation focus has been on tailpipe emissions. Live Labs 2 will tackle embedded and hidden carbon in the local roads eco-system. It will focus across the life cycle from specification and procurement, through construction, delivery and operation right through to decommissioning and reinstatement.

The competition outlined in this prospectus has been structured to provide us with a portfolio of complementary Live Labs, which will tackle head on the challenges we face as a sector.

We recommend bidders read the content on the Live Labs website¹ to understand the ‘spirit’ of Live Labs, our ways of working and the collaborative ethos expected from our Live Labs 2 cohort. These include white papers, blogs and news articles as well as final reports including the Monitoring & Evaluation report.

¹ ADEPT Live Labs webpage
<https://www.adeptnet.org.uk/livelabs>



LIVE LABS BACKGROUND

In 2017, the government outlined its strategic ambition to reduce greenhouse gases and to achieve a net zero carbon growth position for the UK. Since then, it has developed a series of policy statements across various government departments, intimating how this is to be achieved.

In 2018, the Green Growth Strategy was updated, outlining how economic growth can be achieved whilst still cutting greenhouse gas emissions. Clean growth is at the heart of the UK Industrial Strategy with its goal to increase productivity, create good jobs / wealth across the country whilst protecting the climate and environment for future generations.

In June 2019, the UK became the first major global economy to pass a law requiring the country to achieve net zero greenhouse gas emissions by 2050.

In March 2020, DfT published *Decarbonising Transport: Setting the Challenge*. This started the conversation on what policies and plans would be needed to tackle transport emissions and to make transport's contribution to the national net zero target.

In June 2020, the Climate Change Committee published its latest annual review of progress and ongoing recommendations for government.

In October 2020, the government announced its commitment to publish a Net Zero Strategy ahead of 2021's COP26 event. The Strategy, published in October 2021, set out the vision for transitioning to a net zero economy and outlined the path to hit the 2050 target.

In December 2020, the Climate Change Committee published its Sixth Carbon Budget. The government announced in April 2021 that it would accept the CCC recommendations to cut carbon emissions by 78% by 2035, an ambitious goal that the CCC say will require big changes to hit.

The *Transport Decarbonisation Plan: A Better, Greener Britain*, published in July 2021, provides the overarching framework for transport decarbonisation with a wide-ranging set of commitments largely focused on vehicular and fuel related aspects of the agenda. Highways England (now National Highways) also published its *Net Zero Highways* plan in July 2021, with a focus on corporate emissions, maintenance and construction emissions, and user emissions.

In addition, we have seen around 300 UK councils declare climate emergencies and begin to consider supporting policies and strategies. To date, these have largely focused on tailpipe and easily addressed carbon impacts, avoiding the hidden or embedded carbon challenges, particularly around planned and existing assets.

Most recently, the *Climate Change Committee 2022 Progress Report*, published in June 2022, highlighted the need for a greater emphasis and focus on delivery to mitigate the fact that overall progress is lagging behind policy ambition.

Building upon the approach taken with the first set of Live Labs and the success of the programme overall, we now want to turn our attention to using the same approach to decarbonise all aspects of local roads' lifecycle through a similar programme of agile innovation.

The policy landscape

DfT's policy work is guided by its strategic priorities, which define the outcomes and impacts expected from interventions.

- **Growth and levelling up** – shifting the focus of DfT investment towards left behind places, supporting local growth and regeneration and more productive towns and cities.
- **Reduce environmental impacts** – accelerating the deployment of decarbonisation technologies, encouraging behaviour change and modal shift, and offering R&D support particularly to areas that show global market opportunities.
- **Improve transport for the user** – enabling more reliable, more integrated, safer, and more accessible journeys across modes, leading to a more enjoyable user experience and a resilient transport system that works for everyone.
- **Increase our global impact** – building the UK's position in the world following Brexit with ambitions for the UK to become a science superpower by 2030.

In addition, the current political context – economic recovery from COVID-19 and inflationary pressure – means that achieving maximum value for money from spending is more crucial than ever for local authorities.

The innovation focus of the Live Labs programme aligns well with DfT's strategic priorities and the current political context. However, Ministers have given us a clear steer on where they feel we can build on the successes of Live Labs 1 to deliver an even more effective innovation programme. In particular, they want to see innovations that go beyond the 'Lab' environment and get picked up by the public and private sectors across the UK. This will ensure the impact of investment and the associated interventions is captured, analysed, and communicated effectively across the sector.

In a progression from Live Labs 1, this competition will have a much sharper focus, primarily on the decarbonisation of Scope 2 and 3 emissions in the construction, operations, maintenance, and decommissioning phases of the local roads' lifecycle and all up and down-stream activities associated with the supply chain.

We want to see evidence that your suggested propositions will benefit the local roads sector across the country in decarbonising their emissions, both in the scalability of your proposal and in your demonstrated willingness and ability to communicate the successes and learnings from your experiences in this programme.

Adopting the Theory of Change

We will be adopting the government's *Theory of Change*² throughout the programme, along with the principles within the government's *Systems thinking for civil servants*, to drive improved outcomes in complex situations³.

The following diagram (overleaf) illustrates a high-level logic map for Live Labs 2. Appendix B sets out the thinking we require the successful Live Labs 2 cohort to embrace, making the firm link between the programme, the activities and the outcomes we wish to achieve.

We require bidders to develop their own logic map as part of their response to this prospectus. This will be a live document providing a touchstone to check that outputs, outcomes and impacts are on track.

² Theory of Change - <https://www.gov.uk/government/publications/evaluation-task-forces-theory-of-change/theory-of-change-html>

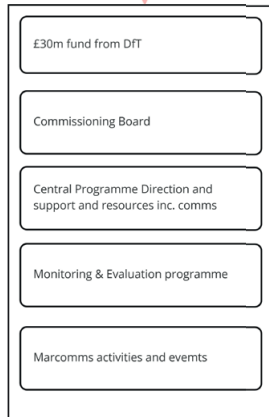
³ Systems Thinking - <https://www.gov.uk/government/publications/systems-thinking-for-civil-servants>

Backgrounds & Inputs

Background

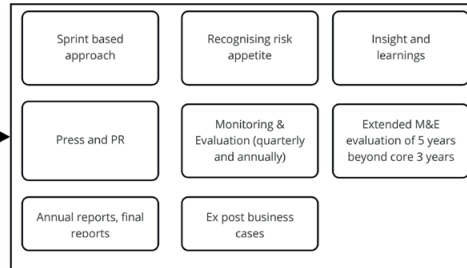


Background

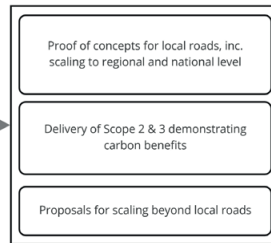


Outputs

Ways of working



Technology



Organisations

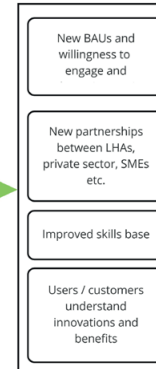


Outcomes

Structural Change



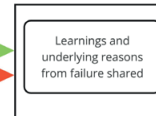
Behavioural Change



Successful Live Labs



Unsuccessful Live Labs



Impacts



OUR MISSION AND GOALS

To date, transportation strategy development in the UK has largely focused on modes of transport and the public's mobility behaviours, rather than on the contribution that the holistic planning and design of transport infrastructure or local roads assets can make to the net zero carbon agenda and its fundamental goals.

The construction, renewal, adaptation and maintenance of the UK's local roads assets make a significant and ongoing contribution to our greenhouse gas emissions, climate change impacts and future resilience through:

- **Specifications, designs and operational models.**
- **Materials choices, production, application and use.**
- **Plant and equipment choices, duty cycles and efficiency.**
- **Energy generation and use over the whole lifecycle.**
- **Extensive supply chains and their respective impacts.**
- **Modification, repurposing, decommissioning and demolition of assets.**

Discussions with partners have indicated that sub-national transport bodies, combined authorities, Local Highway Authorities (LHAs) and the local roads construction and maintenance sector have no clear or consistent game plans to bring about resilient net zero carbon local roads (across all carbon scopes) by 2050, or sooner.

There is widespread recognition in the sector that net zero carbon local roads must be our goal if we are going to make the contributions necessary to reducing the impacts of climate change. There is some positive work underway looking at different materials, alternative fuelled plant and equipment, alternative sustainable energy, etc. However, this is inconsistent across the sector because:

- **Net zero carbon in the local roads sector is not currently a BAU goal.**
- **Little integrated baselining work has been undertaken to understand and quantify the impacts currently being made by existing design standards and ways of working.**
- **The methods for data measurement, capture and monitoring that underpin action are varied or absent (across the whole lifecycle).**
- **There is limited shared learning and collaboration meaning lessons learned (positive and negative) are not being capitalised upon.**
- **The skills needed to make this a reality (in our sector) are in short supply.**
- **There is a risk of duplicated effort across the sector.**
- **Opportunities to learn from other sectors such as energy and digital are arguably being missed.**
- **The sectors' carbon impacts are not understood by decision makers and practitioners exacerbating the speed of change that is needed.**
- **UK plc may lag behind other nations in achieving net zero local roads and miss out on intellectual and product opportunities.**
- **Increasing climate events (that we are contributing to) are having an impact on the resilience and availability for users of our local road networks.**

Live Labs 2 mission

We want to set a new narrative for the transition to net zero carbon local roads, working in collaboration across the sector to bring about pace and to create practical exemplars that nudge towards new commercial norms and standards so we can all gain insights and learn.

This will be achieved by ADEPT working closely with its membership (including affiliated members in Scotland, Wales and Northern Ireland), academia, DfT, the UK Roads Leadership Group (UKRLG), government arm's length bodies (National Highways, Network Rail and HS2), the Transport Research Innovation Board (TRIB), the private sector including SMEs, academia and other bodies across the sector.

In addition, the Commissioning Board, which will govern Live Labs 2, has a carefully drawn and wide membership of senior experts, decision makers and industry influencers. Each member, drawn from the public and private sectors, is an expert in their field who will provide the channels for further outreach across industry.

Considering these huge challenges and opportunities, ADEPT and DfT's mission for *Live Labs 2: Decarbonising Local Roads in the UK* is simple:

Through deployments at demonstrable scale, we will achieve a step change in the normalisation and uptake of zero carbon techniques, solutions and materials in the local roads realm to meet the needs of today and prepare us for an uncertain tomorrow.

Live Labs 2 principles

We have defined a number of principles vital to achieving our objectives that provide a framework for enabling replication across the UK and elsewhere:

- **A laser sharp focus on net zero carbon outcomes rather than (just) technical capabilities.**
- **Demonstrable and measurable carbon savings and associated impacts.**
- **Attention to specific needs and / or problems which are commonplace elsewhere.**
- **Active private sector and academic collaboration.**
- **Demonstration of wider benefits within and outside the UK local roads sector.**
- **Adoption of open and interoperable to create innovation ecosystems.**
- **Scalability to other locations across the UK and internationally.**
- **An agile approach to innovation and achieving programme outcomes.**
- **Improved customer experience and outcomes.**
- **Improved network performance, reliability and resilience.**
- **Minimised capital costs through innovative deployments.**
- **Improved maintenance regimes and revenue cost savings.**

Our process

In cooperation with DfT, we are launching a competition to develop up to five or six Live Labs with innovation, collaboration and agility at its core. We recognise there have been numerous competitions over recent years, so as with Live Labs 1, we are adopting an accelerated 'Dragons' Den' type approach.

LHAs, combined authorities or sub-national bodies (with LHA involvement) are encouraged to develop and submit an initial Expression of Interest (as detailed later in this document). These submissions will be reviewed as an initial sift and a shortlist of bidders will be invited to participate in the Dragons' Den stage.

Senior Responsible Officers and political champions, along with key partners, will be required to make their case to an independent judging panel, which will assess the proposals and make recommendations for a cohort of Live Labs to progress to the programme mobilisation stage.

A key learning from Live Labs 1 was that legal, procurement and contractual details as well as establishing the systems, processes and teams to enable success, takes time. In Live Labs 2, we have built a three month 'mobilisation' period into the programme running from January to March 2023, to allow these crucial activities to be concluded.

Those Live Labs that successfully conclude the mobilisation stage will embark on the development and deployment programme, which will run for three years in total, cumulating in the publication and sharing of final insights and learnings in Spring 2026.

In a development from Live Labs 1, we will embark on a long-term extension to the monitoring and evaluation aspects of the programme over a subsequent five-year period to establish the effectiveness of innovations establishing new BAUs across the sector.

It should be noted that we are seeking a portfolio of blended solutions across our successful Live Labs and have constructed the competition process to facilitate this. The competition is not a straight 'first past the post'; we are seeking ambition, creativity, diversity and transformation within the proposals.



THE CHALLENGE

In the absence of a cohesive, industry-wide approach to addressing the immediacy of the climate emergency, many LHAs have developed their own, largely singular, approaches to supporting policies / strategies and the use of technology / solutions, with sometimes scarce in-house resources.

We recognise that LHAs must balance day-to-day network needs and pressures with the immediate and future problems and risks that climate change presents. Such constraints aside, it is notable that some low and zero carbon deployments are already proven at scale with demonstrable benefits. However, these are not commonplace across the UK local roads sector.

The rate of change of innovation is arguably outstripping the ability of many LHAs to deploy not just new technologies but new approaches, processes and thinking leading to a ‘wait and see’ approach. To compound the issue, many local authorities term and other maintenance contracts aren’t structured around net zero or zero carbon solutions – let alone building in climate resilience – leaving little flexibility to make meaningful, large-scale change quickly or indeed easily. However, there is no time to wait; **if we are to meet climate goals, we have to act now.**

Generally, LHAs are risk-averse when it comes to the use of new approaches, materials, techniques and technology due to risk of failure and the associated reinstatement impacts on the local roads network. With the challenges we face, that cannot continue.

Given the continued resource pressures (both funding and staffing) faced by LHAs, the pooling of knowledge and resources could enable the development of new methods and models of delivery to help tackle immediate and emerging problems, and prepare us for our uncertain future.

Doing nothing is not an option

The use of traditional approaches, techniques and technology could result in the sector missing overall carbon goals and exacerbating the already high impacts of road-based transportation. With DfT and National Highways’ plans setting out the transition to zero carbon (at point of use) propulsion and a net zero approach to improving the Strategic Road Network, we must do similar in the local roads sector.

Whilst many LHAs are addressing the needs of private electric vehicles through local strategies, there is no coherent approach to address how local road networks are operated, maintained and improved in a net zero future. Academia and the consultancy sector are playing their roles in pushing net zero thinking and agendas, but the connections between strategy, planning, funding, specification and delivery are missing.

The pressures of climate change are significant, particularly for local highway authorities who keep networks running during extreme weather conditions or through poor air quality in built up areas. Adopting an active net zero approach from cradle to grave could deliver benefits, not only in terms of contributions to planet wide and national measures, but importantly, to the health, wellbeing and safety of our local communities and customers.

Recognising the challenges ahead

Clearly there are differing needs and priorities between LHAs and differences in availability of resources to manage any new programmes of work. There may also be limited flexibility within existing contractual and legal structures to undertake innovative trials and pilots, especially where there are performance risk implications.

Similarly, existing design standards could be seen as a constraint to innovation, especially if risks are perceived in deviating from long established specifications. However, many of the assumptions that underpin our local roads were developed in an age that is vastly different from ours and will be radically different from those we now face.

We must not forget that the local road network performs an essential economic function, enabling every trip that every person makes each day. We must not risk that functionality but equally, we must recognise that how it is constructed, maintained, operated and ultimately decommissioned could be undertaken in a more efficient manner to meet net zero goals and provide a consistently resilient network.

Acknowledging the risks and liabilities associated with any innovative project is essential, often providing learning and an iterative approach to development. We recognise that issues relating to potential failure and rectification are significant and could be an unwelcome distraction for any LHA, but the risk of doing nothing is far greater and a route that we can no longer take.

Finally, the broader narrative, both politically and within the wider community as to why an innovation-led approach to 'hidden' or embodied carbon is necessary and what the benefits could be, needs careful consideration. Not just to achieve political support, but also to positively engage communities within Live Lab areas to integrate the network and its assets with those that rely upon it.

It is with these matters in mind that we have developed our dialogue-led approach to this competition to provide support to LHAs right through the process, help address any fundamental concerns and to provide the foundations for true innovation.

Now is the time for the sector to set the new narrative, to think and act disruptively, to challenge the norms and to set the new agenda. We are seeking Live Lab collaborations to do just that.



THE LIVE LABS 2 REALM

The second Live Labs programme will focus on finding ambitious joint venture partnerships between the public and private sectors in local areas to develop and implement zero carbon and climate change focused local roads plans, including:

- **Operation and maintenance of existing local roads assets.**
- **Supporting fixed and moving assets that enable successful operations.**
- **Construction of new local roads assets (including for new housing / developments).**
- **Enhancement, upgrade, adaptation and decommissioning of existing local roads assets.**

Greenhouse gas emissions are generally categorised into three groups or ‘Scopes’ by the most widely used international accounting tool, the Greenhouse Gas Protocol:

Scope 1	Direct emissions from owned or controlled sources	<ul style="list-style-type: none"> • Fuel combustion • Company vehicles • Fugitive emissions
Scope 2	Indirect emissions from the generation of purchased electricity, steam, heating and cooling consumed	<ul style="list-style-type: none"> • Purchased electricity, steam, heat and cooling
Scope 3	All other indirect emissions that occur in a company’s value chain	<ul style="list-style-type: none"> • Purchased goods and services • Business travel • Employee commuting • Waste disposal • Use of sold products • Transportation and distribution (up- and downstream) • Investments • Leased assets and franchises

Whilst these are useful in framing Live Labs 2 **we require bidders to consider the full life-cycle of proposed interventions**; not just thinking about the immediacy of now but the longer term issues and impacts that may arise.

In developing their proposals, bidders should note:

- The programme will cover all three scopes but the focus is on Scope 2 and 3 considering the full life-cycle.
- Scope 3 considerations must include the implications of wider up and down-stream supply chains – not just suppliers of products and solutions – but the constituent components, materials and impacts including transportation and energy used in manufacture.
- Off-setting (in all its forms) is outside the realm of this competition and should not be used a tool to mitigate carbon impacts.
- The programme will not include the decarbonisation of general vehicles and fleets using local highway networks (these are already well catered for through DfT, BEIS, OZEV and other programmes).
- It will include only the specialist plant, construction, operation and maintenance vehicles and their use cases (which could also include automated / autonomous technologies) that can clearly demonstrate delivery of the required outcomes.
- Active travel schemes are not the focus of this competition as they have been covered in numerous other funding programme. Whilst such interventions could be delivered with an innovative carbon approach, the focus is the mitigation of the construction through innovative materials and solutions, not offsetting carbon construction or adaption impacts through subsequent modal shift.
- Bidders should consider the use of the Future Highways Research Group (FHRG) Scope 1 & 2 Guidance for Local Highways Authorities⁴ to assist carbon assessment as part of Live Labs 2. The document provides step-by-step guidance for the measurement of combusted fuels (including natural gas, heating oil, petrol, and diesel), fugitive emissions from cooling systems (air conditioners and refrigerators) and purchased electricity. We recognise that numerous approaches exist and would welcome proposals to test these against FHRG thinking to further the knowledge pool to benefit partners' learning and to forward carbon baselining and measurement across the UK.

Live Lab 2 proposals should explore the following where applicable to the specific proposition or use case:

- The baselining, measurement and data relating to the existing carbon impacts of local roads (embracing full life-cycle thinking) including considering methodologies such as described in PAS2080 Carbon Management in Infrastructure⁵ (currently being updated) which points to the use of EN 17472 (infrastructure), EN 15978 (buildings) and EN 15804 (product EPDs). RICS is also currently updating its Professional Statement on Whole Life Carbon in the Built Environment, which will be the UK implementation of EN 17472 and EN 15978. This will provide a consistent methodology for the measurement and quantification of whole life carbon (embodied / capital carbon, operational and user carbon). Note: quantifying carbon impacts is a requirement for all Live Labs.
- The consideration and quantification of any unintended consequences / impacts of carbon reduction on other factors such as environment, sustainability and society. Note: again this is a requirement for all Live Labs.
- The links with national carbon budget cycles and the concept of a local roads carbon budget approach.

⁴ ADEPT, FHRG 'Scope 1 & 2 Guidance for Local Highways Authorities' <https://www.adeptnet.org.uk/proving-services-blog>

⁵ PAS20280 - <https://www.bsigroup.com/en-GB/our-services/product-certification/product-certification-schemes/pas-2080-carbon-management-in-infrastructure-verification/>

- Linkages with other highway related carbon initiatives to maximise learning and to avoid duplication with other work (e.g. DfT, LGA, TRIB, LCRIG) with other net zero initiatives, particularly in Scope 2 and 3 applications. The FHRG is now developing standards & guidance for Scope 3, which will provide a baseline standard for carbon measurement and reporting that can be applied across supply chains. It is anticipated these documents will be available towards the end of 2022.
- Links with emerging contract and framework procurement cycles particularly where providers may be changing.
- Links with other industries including utility companies (which is important given their ongoing interface and interdependency with local roads) and rail-based modes.
- Circular economy opportunities to achieve net zero carbon through innovation across the whole lifecycle.
- The needs and differences between rural, inter-urban and urban networks.







Proposals should encompass geographic areas (or corridors) in close proximity or remote but linked by common challenges and link interventions with people, the assets they use, the places they visit and the activities they undertake across urban, peri-urban and rural areas. Live Lab proposals should embed innovative carbon solutions and infrastructure in the everyday, and in a meaningful way that communities can engage with, understand and embrace.

The broad realm is defined as follows:

- Implement Live Lab application(s) in new settlements / developments, existing suburbs and towns including rural areas in geographical / non geographical clusters (inc. cross nations) or linear corridors.
- Use innovative, intelligent solutions to achieve a step change in the zero carbon performance of all types and life-cycle aspects of local roads.
- Consider tools, techniques and technologies to help maximise resilience in our networks covering the full breadth of climactic impacts.
- Encompass new and recycled materials, pre-fabrication and modular design.
- Support anticipated technology changes and future network usage such as electric and hydrogen fuels and associated energy infrastructure.
- Capitalise on digital technologies and data capabilities and the open sharing of data for the benefit of wider industry.
- Span all use cases (people, logistics and freight) on the local roads network.

Proposals should include a suite of technological and innovative improvements to future-proof the local road network in the place(s) / corridor(s) selected. They should clearly provide the foundations for our net zero future and be replicable across the UK and elsewhere for similar use cases and challenges.

This will be achieved through the following **six broad themes** within which we encourage creativity and agile innovation. The following table outlines the themes with an indication of scope. These descriptions are intended as a guide and in no way should limit creativity:

<p>Decarbonising the construction of new local road assets</p> <p>The identification, specification, implementation and delivery of new approaches, materials, processing and application techniques to reduce the impact of local roads construction (for local networks and housing / other developments). This should include everything from initial ground and earth works to road-lining and all stages in between. It could also include off-site, pre-fabrication and modular techniques.</p>	
<p>Decarbonising local roads operations and maintenance</p> <p>Processes and solutions to significantly reduce and mitigate the impacts of the day-to-day operations associated with operating and maintaining local roads. This could include lower carbon materials for maintenance, repairs and renewals, changes to planning and operational regimes as well as considering the role of community in the local roads sector.</p>	
<p>Decarbonising plant and machinery</p> <p>The use of battery, hydrogen and other sustainable technologies for the full range of plant and machinery used in the maintenance and operation of local roads assets. This could also include changes to the duty cycles and use cases of plant and machinery to improve their effectiveness and mitigate direct and indirect carbon impacts. As stated earlier, this will not cover light duty or non-specialist vehicles.</p>	
<p>Decarbonising the local roads lifecycle</p> <p>Techniques, approaches, solutions to decarbonise the enhancement, upgrade, adaptation and decommissioning of existing local roads assets. This could cover the conversion of assets from one type to another (local roads to low traffic neighbourhoods, or existing roads to cycle ways, for example) or the decommissioning of redundant assets not required (roads converted to public realm or greenways). It could also cover a holistic approach to decarbonising the supply chain over its lifecycle by addressing carbon at its various sources.</p>	
<p>Decarbonising community environments</p> <p>We recognise that the transition to zero carbon techniques will take time. Building upon some of the successes in Live Labs 1, we are keen to see solutions that can help deliver clean, reduced carbon, communities and places associated with the themes above. This could include at-scale green infrastructure to mitigate air quality and other impacts and blue infrastructure to mitigate climate effects on people, places and assets.</p>	
<p>Baking in decarbonised resilience</p> <p>The changing climate is having an impact on the accessibility and safety of our local roads network. We would like to see how low carbon tools, techniques and innovative solutions (including net zero carbon adaptation approaches) can help the wider system / network cope with increasingly frequent, extreme and uncertain climate conditions to help communities and businesses that rely on the local roads network.</p>	

Themes should be addressed singularly or in combination within an integrated programme of interventions that are tailored specifically to deliver identified ‘future-proofed’ net zero outcomes focused on local highway network needs.

These will vary within bidders’ responses and should include, but are not limited to, outcomes such as:

	Reduced carbon impacts – this being the primary, essential outcome	
	Reduced air quality impacts	
	Reduced safety incidents and near-misses	
	Reduced noise and vibration impacts	
	Reduced operation / maintenance costs and whole-life cost reduction	
	Reduced maintenance ‘down time’	
	Reduced instances of congestion and incidents	
	Reduced waste to landfill / incineration	
	Improved customer experience / perceptions	
	Improved community experience / perceptions	
	Improved citizen engagement	
	Improved local skills and innovation base	
	Improved network reliability and resilience	
	Improved speed of delivery	
	Improved recycling and second-life applications	
	Optimisation of network assets and whole system performance	

To demonstrate the impacts and associated benefits of Live Lab solutions within the proposals, we will require pre and post data collection, evaluation, monitoring and analysis to aid the development of ex-post business cases. These must support deployment elsewhere in the UK and wider afield, as well as assisting wider commercialisation.

Fundamentally, Live Labs 2 should be seen as a knowledge sharing opportunity. Successful promoters must agree to share their learning and insights with all LHAs and the wider local roads community within the UK and on the international stage.

We require our Live Labs to engage in the Live Labs communities in the transport and wider sectors (through other funded innovation programmes) and elsewhere (such as the European Network of Living Labs - <https://enoll.org/>).

Our requirements of successful Live Labs

In order to demonstrate the efficacy of the innovations, **we require each Live Lab to undertake all the following activities** over the duration of the programme and allocate the appropriate resources:

- Carbon baselining using established or novel tools (including covering the full breadth of Scope 3 as described above).
- Supplementary baselining to establish the existing position against which future benefits can be assessed.
- Measurement of the full life-cycle carbon impacts of interventions so benefits can be assessed in both quantitative and qualitative terms.
- Engagement with the continual M&E activities of Live Labs 2 through engagement with our appointed M&E contractor, including the associated quarterly reviews.
- Active engagement with the Live Labs 2 cohort, comprising monthly 'stand-ups' to report progress, share information and insights and to enable cross programme collaboration.
- Production, maintenance and adoption of a communications plan to manage message to internal and external stakeholders.
- Communications and marketing activities to externalise insights, findings and learnings (both positive and negative) from the outset of the programme. Monthly marcomms 'stand ups' will be held at which attendance is required.
- Produce regular content for blogs, white papers, news articles, conferences, events and social media as and when requested.
- Wide and deep stakeholder engagement within and beyond the local roads sector.
- Interim progress and final reports covering (as a minimum) technical approach and detail of the solutions.
- Ex-post business case(s) for interventions including benefits, long term benefits realisation to BAU.
- Provision of dedicated programme management resources including for communications and engagement.

VALUE-LED PARTNERSHIPS

Achieving a step-change in carbon innovation within the local roads sector can only occur with a truly collaborative approach to delivery that recognises potential value and benefits between all partners.

A challenge mentality will be key to delivering scalable, commercialised outcomes. We require participants to actively engage with stakeholders within and outside our industry, including for the benefit of the Live Labs and wider learning. The following list is a guide but not exhaustive:

- DfT, BEIS, DEFRA and other government departments.
- Innovate UK and the Catapults.
- Arms-length bodies including National Highways, Network Rail and HS2.
- Sub-national Transport Bodies.
- Local Highways Authorities.
- Local Planning Authorities.
- Local Enterprise Partnerships, skills bodies and the education sector.
- Private sector business partners, including developers (residential and commercial).
- The local roads term maintenance community.
- Technology and materials companies.
- The academic and research community.
- The energy, communications, manufacturing sectors.



We require that Live Lab proposals specifically demonstrate the following:

- A **laser sharp focus on carbon reduction** so that the local roads sector takes its fair share of the climate challenge.
- **Behaviour change within and beyond industry** (i.e. political leaders, specifiers, procurers, senior officers, suppliers and SMEs).
- **An equality, diversity and inclusivity (EDI) approach to managing and structuring teams** to ensure that the widest insights, perspectives and experiences are brought to the benefit of each Live Lab and the overall cohort.
- **Collaboration between local highways authorities and their term maintenance providers** to incentivise customer-focused outcomes with innovative forms of risk sharing.
- Adoption of a **collaborative approach with sub-national and regional bodies** to enable wider cross-pollination of ideas, learning and insights.
- Active and positive **collaboration with other local highways authorities in the Live Labs 2 cohort** and with those who are shadowing and tracking the project.
- **Demonstration of true partnership with the private sector** (including manufacturers, property developers and other industries including SMEs) and importantly the education (at all levels), research and academic sectors.
- An **open approach to sharing learning / insights** with local highways authorities, DfT and wider industry in the UK and internationally.
- **Development, maintenance and use of risk registers and innovation logs** throughout the programme.
- **Scalable proposals that demonstrate value for money**, are innovation focused and are directly relevant to other areas within the UK and beyond.
- **Showcase the best of UK innovation** and its export potential.

As announced by the Minister, **Live Labs 2 will grant fund up to five or six Live Lab proposals within an overall programme budget of £30m** (which includes programme support, M&E and communications activities) across the Live Labs over the delivery period to Spring 2026, as well as the further evaluation period of five years.

Proposals that specifically address how funding will leverage further contributions and investment, particularly from the private sector (including in-kind contributions) and demonstrate how they will influence wider change **will be judged as adding more value**. Proposals can also consider match funding from other public sector sources and programmes.

Suggested approaches could include:

- Term maintenance contractor contributions in terms of agile methods of working, demonstrable cost saving techniques and commercialisation advice.
- Developer contributions such as innovative solutions to reduce local authority maintenance requirements, solutions to meet future zero carbon and place-led needs.
- Industrial / commercial contributions in the form of materials, products, data and skills (such as programme management, technical insight and communications capability) to demonstrate innovation at scale.
- Additionality with other funding streams (housing, education, healthcare etc.) already secured through demonstrable influence on designs and outcomes and from previous funding rounds or competitions.
- Innovation as part of potential invest-to net zero use cases using Live Lab solutions.

We also recognise that skills within our sector are changing and as such we are keen to see proposals that make linkages with local educational and academic establishments to further the net zero carbon agenda.

It should also be noted that we would welcome proposals from LHAs working in partnership, whether in adjacent geographic areas tackling cross boundary challenges or from LHAs remote from each other with similar needs or challenges.



LIVE LABS 2 COMPETITION PROCESS

Live Labs 2 is envisaged as a means of demonstrating a step-change in the way our industry embraces zero carbon approaches for the benefit of local highways authorities, the wider highways sector and international peers. We have agreed an agile competitive approach to funding that has collaboration, trust and partnership at its core. This competition and subsequent implementation programme comprise the following broad stages:

- **Submission of Proposal (nine weeks, closes Fri 30th September, 12 noon 2022)** – following issue of this prospectus, LHAs have eight weeks to prepare an outline proposal using the template approach outlined in Appendix A. One-to-one sessions with the Programme Director will be held to provide advice to prospective applications during this stage – these can only be arranged via email to the contact on the back cover of this prospectus. It should be noted that the Programme Director will be independent of the assessment and will not be one of the Dragons, and is there to help all bidders make the best submissions.
- **Initial review (week commencing Mon 3rd October 2022 for 2 weeks)** – proposals will be reviewed and a shortlist drawn up by a team from ADEPT, DfT and programme partners. Feedback will be given to all applicants, particularly to those submissions progressing to the next stage.
- **Dragons' Den (week commencing Mon 31st October 2022)** – prospective teams will present their proposals to a panel of independent expert representatives from the industry. Presentations will be made by a Senior Responsible Officer accompanied by an appropriate Political Champion and senior representatives from partner organisations including (where possible) term maintenance contractors. The presentations will be followed by a short question and answer session. Presentation and answer content will be judged by the panel and any further clarifications may be sought in writing following the event. At the end of the process, the Dragons will make their recommendation to the Commissioning Board for the best blended programme of Live Labs. A final recommendation will then be made to the Minister for approval.
- **Mobilisation of preferred Live Labs (January to March 2023)** – successful Live Labs will be notified and invited to enter into a funded mobilisation stage. This will allow for proposals to be developed into a fully specified and costed programme of works with associated procurement, legal and communications strategies.
- **Final assessment (end of March 2023)** – following a final assessment to ensure that all Labs are capable of being successfully delivered, after approval from the Commissioning Board, the successful Live Labs will progress into the procurement and deployment stage.
- **Procurement and deployment (April 2023 to March 2026, 3 years)** – following agreement of the specification and programme, appropriate procurement will be undertaken to enable the deployment of agreed interventions.
- **Data collection, testing and analysis (throughout the work programme)** – an essential part of the Live Labs application will be the comparative testing of interventions (versus traditional and other scenarios) and the quantification and analysis of impacts and benefits.
- **M&E (throughout the core programme and subsequent 5-year period)** – successful Live Labs will engage in M&E activities with our appointed consultant. They will undertake regular independent assessment of the Live Lab at the programme and authority levels.
- **Establishing new BAUs April 2026 to March 2031** – successful Live Labs will be required to demonstrate how they take their learnings, insights and innovations so that these become new BAUs across the UK and beyond. The M&E and supporting communications programme (as below) will continue through this period.


Participants and their partners will be required to share knowledge, learning and insights with other local highways authorities and the wider highways community through a continual communications programme.

Each successful Live Lab applicant will be required to undertake regular communications activities supported by a dedicated communications champion and an in-house communications or press officer.

Activities should include, but are not limited to, local political and stakeholder engagement, media and social media management (particularly LinkedIn), provision of regular blogs and articles, content provision for white papers, participation in webinars and programme events, the creation of video content and the supply of high-resolution images. Live Labs are also required to share content from the central programme and other Live Labs.

All Live Labs and partners will be required to sign up to and follow the central communications and branding protocols for the programme.

It should be noted that unsuccessful participants will be invited to shadow chosen Live Labs with a view to accelerating innovation more widely across the sector.



Local highways authorities / sub-national bodies / combined authorities interested in expressing interest in the 'Live Labs 2: Decarbonising Local Roads in the UK' competition should develop a short submission based on the template in Appendix A.

This must be submitted to secretariat@adeptnet.org.uk and adeptsmartplaces@wsp.com by 12 noon on Friday 30th September 2022.

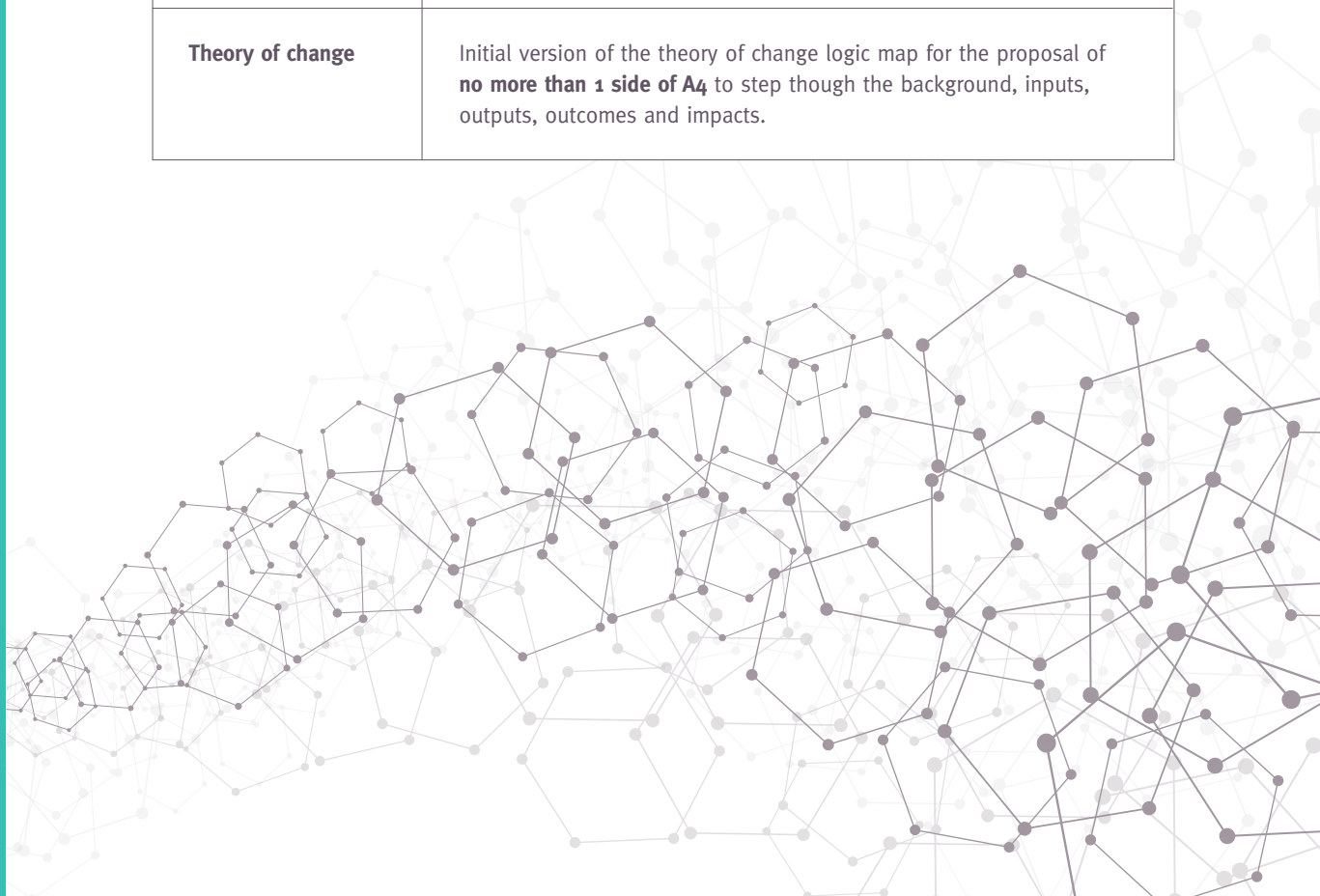
APPENDIX A - PROPOSAL TEMPLATE

- Bidders must follow the format as indicated in the table below.
- All sections must be included in the order in which they are presented below to allow fair scoring.
- Submissions must be **no more than 20 sides of A4** in total including graphics (which must not include any text smaller than Arial 11pt), and body text must be presented in 11pt Arial text, with pages set with 2cm page gutters.
- **Any unrequested supplemental material or appendices and any content after the stated 20 sides of A4 will be disregarded.**
- Applications must be led by a public sector body, namely a local highways authority, combined authority or sub-national body.

Live Lab title	Single line Live Lab title.
Lead authority	Name of the lead public sector body.
Owner & champion	<p>Name and contact details (email and phone) and short statements of support from:</p> <ul style="list-style-type: none"> • Senior Responsible Officer • Political champion <p><i>Note: the Senior Responsible Officer and political champion will be required to attend the Dragons' Den.</i></p>
Location(s)	Details of the proposed location(s) for the Live Lab. In the case of multiple authorities teaming, please outline all.
Elevator pitch	One succinct paragraph (no more than 10 lines) clearly outlining the Live Lab proposal, its vision and intended outcomes.
Short form proposal	<p>Outline of the proposal no more than 6 sides of A4, which must include as a minimum:</p> <ul style="list-style-type: none"> • Description of problem, needs and challenges to be addressed and a description of the route to the expected outcomes. • Overview of the Live Lab proposal and how it tackles the identified needs and challenges. • Description of constituent programme elements and how they interlink to amplify benefits. • Overview of identified innovations in manufacturing, deployment and operation. • Overview of how the proposal enables a net zero carbon, future-ready approach to the sector.

<p>Short form proposal (continued)</p>	<ul style="list-style-type: none"> • Description of interlinkages with other networks, systems and programmes. • Description of how the transition to a new BAU will be achieved. • Overview of anticipated benefits and outcomes.
<p>Term contractor</p>	<p>Details of term maintenance provider and lead contact details.</p> <p><i>Note: in the case where a local authority is going through procurement for a new provider, how this will be mitigated should be explained.</i></p>
<p>Educational / academic / research partners</p>	<p>Details of educational / academic / research partners, their role in the programme and contact information.</p>
<p>Other partners</p>	<p>Details of any other partners, their role in the programme and contacts.</p>
<p>Indication of scale and programme</p>	<p>Outline of grant funding requirements with a high-level breakdown and an indicative programme, including staged delivery of benefits.</p>
<p>Funding package, leverage etc.</p>	<p>Details of additional funding, leverage against existing programmes, private sector and other funding, contributions in kind etc.</p>
<p>Approach to delivery</p>	<p>Details of the proposed approach for programme delivery together with details of any dedicated programming, communications and other resources (no more than 1 side of A4).</p> <p><i>Note: this is a critical factor in the success of Live Labs.</i></p>
<p>Approach to EDI</p>	<p>Details of your approach to EDI in terms of management, structure and approaches to delivery to ensure that the widest insights, perspectives and experiences are brought to the benefit of each Live Lab and the overall cohort (no more than 1 side of A4).</p> <p><i>Note: based on our experiences in Live Labs 1 this is a critical differentiating factor for future success.</i></p>
<p>Approach to knowledge sharing</p>	<p>Overview of approach to knowledge sharing for:</p> <ul style="list-style-type: none"> • Local highways authorities • Wider highways sector • UK public sector beyond roads • UK industry • International audiences <p>This should include proposals for a supporting communications programme to supplement that undertaken by ADEPT and its partners as programme lead (no more than 1 side of A4).</p>

Carbon measurement and quantification	Details of the methodology, tools and approaches you will use to undertake carbon baselining against which you will demonstrate and quantify the effectiveness of the proposed interventions. This should include the testing of alternate tools (including the FHRG carbon tool) to enrich understanding across the sector (no more than 2 sides of A4) .
Data collection	Overview of pre and post data collection associated with the proposed innovation programme, any monitoring and analysis to demonstrate impacts and benefits and to support the M&E programme. This should include behavioural aspects across the programme and any other novel data led approaches relevant to the proposal (no more than 1 side of A4) .
Approach to commercialisation	Overview of partners' approaches to commercialisation of the Live Lab solutions, approaches and interventions with the UK and to export markets (no more than 1 side of A4) .
Risk register	An initial risk register of no more than 1 side of A4 to identify forecasted and other potential risks, impacts and mitigations associated with the proposal.
Innovation log	Your approach to capturing innovation (in a log) for the benefit of your proposal, the wider cohort and to inform M&E activities (no more than 1 side of A4) .
Theory of change	Initial version of the theory of change logic map for the proposal of no more than 1 side of A4 to step through the background, inputs, outputs, outcomes and impacts.



APPENDIX B - THEORY OF CHANGE

Background	Inputs	Outputs	Outcomes	Impacts
<p>Live Labs overarching objectives:</p> <ul style="list-style-type: none"> • Develop, test and roll out new innovations that can decarbonise local highways (Scope 2 & 3 focus) • Identify ways to encourage LAs to adopt new innovations early in their lifecycle • Ensure innovative solutions developed through Live Labs become widely adopted by LAs as BAU • Facilitate collaborative working between LAs and industry to develop innovative solutions to local problems • Understand what makes for successful collaboration between LAs and business to deliver innovation • To generate lessons learnt to support future innovation for local transport / highways • Provide a way for other LAs to benefit from the learnings (what worked, what didn't, how to do it) 	<p>The Live Labs programme will facilitate / enable the following:</p> <ul style="list-style-type: none"> • £30m funding for Live Labs 2 to be allocated to 5/6 successful Live Labs for Scope 2 & 3 decarbonisation • Commissioning Board to provide overall project governance and assist in dissemination of key learnings across industry • Oversight and inputs from the DfT Transport Research Innovation Board (TRIB) • The existing FHRG Scope 1 and 2 guidance and emerging Scope 3 guidance along with advice / guidance from DfT over the course of Live Labs 2 • Provision of central team for programme direction and associated support • Provision of programme and Live Lab level monitoring & evaluation activities and resource covering all aspects of Live Labs 2 (within and beyond the cohort across industry) from early in the competition, through the mobilisation stage, the core 3-year programme and the extended 5-year evaluation beyond 	<p>Ways of Working</p> <p>The Live Labs will adopt the following ways of working:</p> <ul style="list-style-type: none"> • Adoption of a spirit of collaboration and a “one team” approach to help drive innovation across Live Lab 2 cohort • Recognising local risk appetite and experience, a common / similar approach to tackling procurement / legal challenges and changes in approach • Contributions (insights, opinion and analysis) from each Live Lab covering different themes / subject areas across the programme lifecycle, including successes and failures to facilitate a regularised series of Live Labs 2 white papers • Press articles, interviews, news pieces, blogs etc. at the individual Live Lab and / or at the programme level • Quarterly, annual and final M&E reporting and comparative performance reports to the Commissioning Board over the core programme period 	<p>Structural Change</p> <p>We anticipate (as observed through Live Labs 1) that structural changes may result from Live Labs 2:</p> <ul style="list-style-type: none"> • Transformation of how innovation is enabled, facilitated and administered by LAs • Transformation of how innovation is encouraged, enabled and delivered by commercial partners (SMEs through to major globals) • Transformation of how innovation is observed, critiqued and delivered by academic and other partners • Wide and consistent recognition that innovation is required to deliver a decarbonised transport system, and that LA investment and support of innovation, can accelerate grow in their region • Overall decrease in carbon emissions where Live Labs 2 implementations have been implemented (vs. traditional deployments) 	<p>Live Labs 2 will contribute to the following impacts:</p> <ul style="list-style-type: none"> • Innovations in Scope 2 & 3 decarbonisation are BAU across the local roads sector • Innovations which drive down capital and revenue costs associated with local roads • That BAU will have had secondary beneficial impacts into the strategic and major roads sector and into adjacent sectors such as rail • SMEs have clear routes to market for any innovations developed • SME and major supplier market share (in the UK and beyond) has increased for innovative solutions • UK is held as an international exemplar for decarbonised local roads • Measurable jobs increase in new / emerging product lines over the M&E period • Quantifiable, reduced carbon impacts and potentially improved environmental, economic and social outcomes

Background <i>(cont)</i>	Inputs <i>(cont)</i>	Outputs <i>(cont)</i>	Outcomes <i>(cont)</i>	Impacts <i>(cont)</i>
	<ul style="list-style-type: none"> • Press PR and media process governed by DfT / ADEPT comms teams • Resources to develop white papers throughout the programme period • Access to the Live Labs 1 cohort for ad-hoc advice and opinion • Monthly “stand-up” sessions between all Live Lab technical teams to share knowledge, experience and thinking • Monthly “stand-up” sessions between all Live Lab communications teams to share and identify news stories / media opportunities • Annual and final Live Lab events to share insights, learnings, outputs and outcomes • Access to wider dissemination opportunities through 3rd party conferences, events, media etc. 	<ul style="list-style-type: none"> • Further M&E periodic reporting over the 5-year extended evaluation period • Annual reports illustrating progress within the programme and for each Live Lab will be published • Each Live Lab will publish a final report at the end of the 3-year programme period documenting all aspects of the Live Labs 2 journey with supporting “ex-post” business cases for each intervention / innovation • Reporting on updating our understanding of why LAs succeed or fail in innovation, and what routes have been successful in encouraging LAs to adopt innovations. This can be innovation in general, and decarbonisation-specific innovation in particular • Live Labs will take part in annual and final programme events • Longitudinal M&E reports over the core period and across the 5-year extended evaluation after the core programme 	<ul style="list-style-type: none"> • Demonstrable AQ and health benefits where Live Labs 2 innovations have been deployed 	

Background	Inputs	Outputs	Outcomes	Impacts
<p>For the Live Labs programme to help meet DfT strategic priorities:</p> <ul style="list-style-type: none"> • Grow and level up the economy • Improve transport for the user • Reduce environmental impacts • Increase our global impact • Be an excellent department 		<p>Technology</p> <p>Each Live Lab will deliver the following technological outputs:</p> <ul style="list-style-type: none"> • Delivery of proof of concept(s) in the local roads setting including proposals for how they can be scaled (regionally, nationally or internationally) • Delivery of proofs of concepts covering the whole of Scope 2 & 3 including up and downstream carbon impacts with associated demonstrable benefits • Delivery of proposals on how they can be scaled to the major and strategic roads sector as well as adjacent sectors (e.g. rail, aviation, developer sector) including supporting technical information, guides, evidence, data, digital models etc. to support the development / deployment of innovations 	<p>Behavioural Change</p> <p>We anticipate (as observed through Live Labs 1) that behavioural changes may result from Live Labs 2:</p> <ul style="list-style-type: none"> • A BAU of the local roads sector being intelligent clients / customers when faced / challenged with innovation • Increased willingness of Live Labs LA cohort to engage / adopt innovation • Increased willingness of Live Labs LA cohort to engage with SMEs • New partnerships between adjacent or remote LAs either as part of the Live Labs cohort or as a result of the programme with non-cohort LAs demonstrate increased willingness of the wider UK local roads (LAs and private) sector to engage in innovation (resource, capability, confidence) • Increased ability and skills of LAs to calculate scheme carbon savings based on successful use and potentially incremental improvement of carbon guidance doc (and sharing of lessons learned) • End users (network operatives and customers / users) understand the innovations made and their benefits 	

Background	Inputs	Outputs	Outcomes	Impacts
<p>Innovation of a key part of the governmental agenda and within DfT. There has been great success in tackling tailpipe emissions, but little concerted and coordinated innovation in tackling Scope 2 & 3 challenges including up and down stream.</p>		<p>Organisation</p> <p>We anticipate (as observed through Live Labs 1) that organisational changes may result from Live Labs 2:</p> <ul style="list-style-type: none"> • New processes that enable transformational change to the LA either in terms of adoption of new systems, processes, procedures, services and / or products at a tactical level • New processes that enable transformational change in the way that the LA executes activity as a result of the Live Labs programme or interventions • Establishment of new partnerships with SMEs, academia, stakeholders etc. as a direct result of the Live Lab journey • Strengthened links between Live Labs cohort and innovation bodies such as TRIB, TTF, Catapult etc. • Agility in “failing fast”, adapting, pivoting to alternatives whilst delivering similar / improved outcomes to be captured / shared and capitalised upon 	<p>Successful Live Labs (or components)</p> <p>We anticipate (as observed through Live Labs 1) that behavioural changes may result from Live Labs 2:</p> <ul style="list-style-type: none"> • The concepts, innovations and solutions proven are adopted more widely across the UK and beyond • The sector engages with the Live Labs cohort to further understand, externalise and improve outputs • The Live Labs programme influences other sub-sectors in transport across the DfT portfolio • Innovations influence and / or change established standards to deliver a new BAU 	

Background	Inputs	Outputs	Outcomes	Impacts
<p>To recognise and address local authority challenges:</p> <ul style="list-style-type: none"> • Scarce human resources and little capacity to innovate, in some cases few have capability • Many have declared a climate emergency but have not yet started to consider the hard decarbonisation use cases • Whilst capital resources is available in some cases, revenue funding is hard to solve – and there is little capital for innovation available directly to LAs • There are regional variances and different approaches being taken across the four nations • There are varying challenges between urban, peri-urban and rural communities and places 			<p>Unsuccessful Live Labs (or components)</p> <p>We anticipate (as observed through Live Labs 1) that behavioural changes may result from Live Labs 2:</p> <ul style="list-style-type: none"> • Learnings from failure, and the underlying reasons, conditions, inputs, externalities etc. are shared to deliver wider benefits through white papers, news articles, blogs and other channels 	



Further enquiries

For further advice or enquiries please contact the programme management team.

A specific email address has been set up for this competition, in the first instance please contact our consultant WSP and a member of the independent programme team will get back to you as soon as possible.

adeptsmartplaces@wsp.com