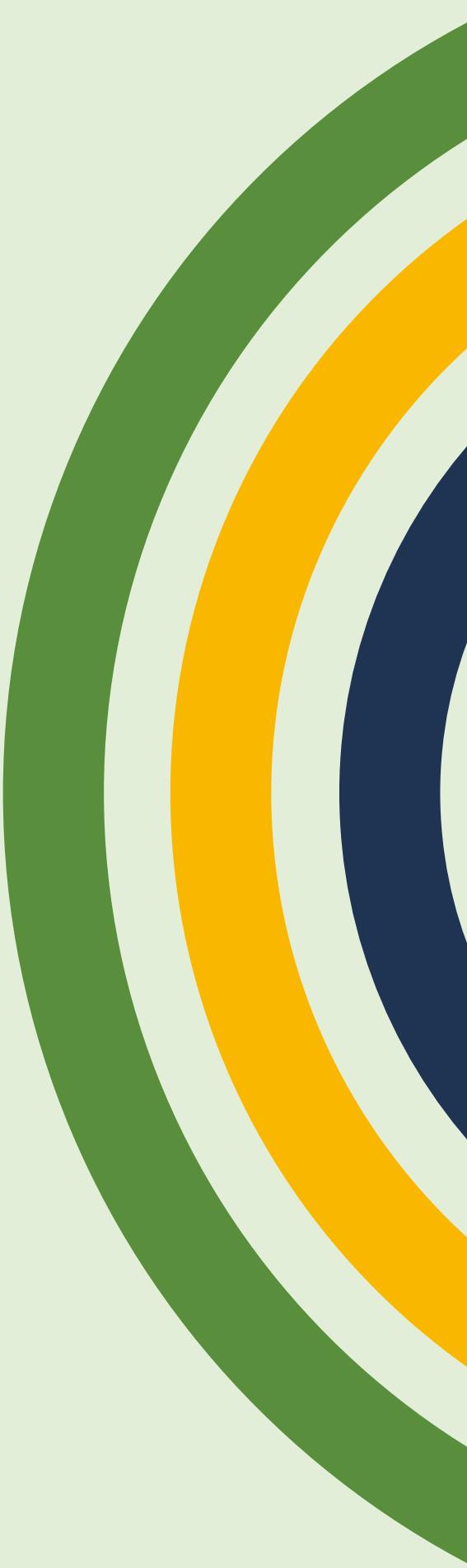
HIGHWAYS DOUGHNUT ALLIANCE

A JOURNEY FOR SECTORAL TRANSFORMATION



Department for Transport

ADEPT LIVELABS2 Decarbonising Local Roads

Cornwall Council

Hampshire County Council

Somerset Council

Net Zero Roads Wessex Live Lab

Circle Economy

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EXECUTIVE SUMMARY

How the UK's roads are planned and maintained has far-reaching consequences for both social wellbeing and ecological health. While decarbonisation efforts are advancing, they are rarely addressed together with wider sectoral challenges such as biodiversity loss, pollution, accessibility and long term health impacts. To combat this, the Highways Doughnut Toolkit was developed as part of Wessex Live Lab to evaluate how both highway strategies and projects consider social needs while operating within ecological limits. Trialling the Toolkit demonstrated both its value and its limitations. In particular, it showed that **Local Highway Authorities cannot drive systemic change alone**, as they operate within mandates and with limitations shaped by national legislation, standards, procurement rules, material availability and funding structures. Many of the barriers to aligning with the Highways Doughnut therefore sit outside the direct control of any single organisation.

In response, the **Highways Doughnut Alliance** was established as a cross-sector forum to explore the system-level challenges collectively hindering the sector to operate sustainably. Representatives from key actor clusters, including Local Highway Authorities, Central Government, Contractors, Suppliers, Academia and Community Groups, were invited to co-develop a transformative pathway for the highway sector.

Between June and November 2025, the Alliance went through a structured and collaborative process to identify the main systemic barriers limiting progress toward a socially just and ecologically safe highway sector, which are as follows:

1. Limited willingness for innovation and lacking adoption of piloted innovations
2. Rigid policies and standards hinder adoption of more sustainable alternatives
3. Lack of standardised metrics and limited data collection
4. Procurement and funding reward fast, low-cost delivery

To combat these, the Alliance co-developed a long list of transformation actions spanning three complementary areas, Structural, Procedural and Cultural Actions. Each action is mapped to the barrier it addresses, alongside the main and supporting actors required for delivery. Together, these actions set out a clear, coordinated pathway for aligning the highways sector with the Highways Doughnut principles through cross-sector collaboration.

Structural actions - Changing rules, roles, and systems that govern long term value in the sector	Restructure tendering to prioritise long-term ecological and social value using Procurement Act flexibility with lifecycle metrics
	Establish cross-council partnerships pooling resources and sharing innovation risks
	Develop a national library of innovative procurement criteria
	Build an online platform consolidating tested innovations, trial protocols, and context-specific guidance
	Create guided pathways with technical and financial support for supply chain innovators testing sustainable materials
	Embed senior-level innovation roles with cabinet accountability coordinating across functions
	Establish a cross-sector team supporting the digital Code of Practice integrating social/ecological criteria and impact indicators
Procedural actions - Changing day-to-day processes and decision-making to value long term benefits	Implement post-delivery reviews capturing lessons to inform future improvements and procurement cycles
	Create a consolidated database mapping existing data to Highways Doughnut themes for impact measurement and service planning
Cultural actions - Shifting mindsets and skills within the sector	Reposition innovation beyond technology focused on tangible benefits through targeted training
	Build a peer-to-peer learning community sharing lessons and collaborating on standards integration
	Promote "good enough" data culture and train practitioners on qualitative metrics
	Communicate community-centred success stories highlighting social and ecological outcomes
	Expand procurement officer training on embedding social/ecological criteria

1. INTRODUCTION

WESSEX LIVE LAB

Live Labs 2 is a three-year, £30 million, UK-wide programme funded by the Department for Transport running between 2023 and March 2026. Seven projects, grouped by four interconnected themes, are being led by local authorities working alongside commercial and academic partners. One of those projects, Wessex Live Lab, will pioneer the UK's first net zero emission roads in Somerset, Cornwall and Hampshire in nine 'Net Zero Corridors', which will act as a proxy for maintenance on all highways. These corridors will be a test bed for innovation, circular solutions and be underpinned by new ways of thinking such as Doughnut Economics.

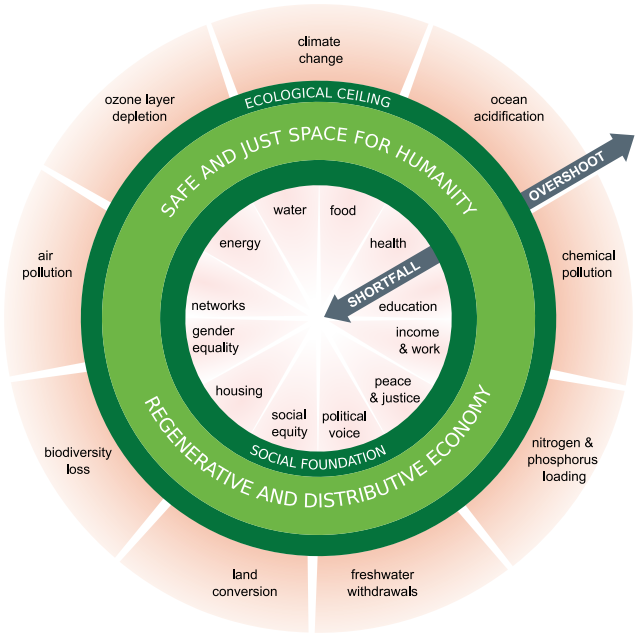


Figure one: The Doughnut of social and planetary boundaries

INTRODUCING DOUGHNUT ECONOMICS

In 2017, Kate Raworth published *Doughnut Economics: Seven Ways to Think Like a 21st Century Economist*, introducing a transformative approach to economic thinking that focuses on human and planetary well-being. The book presents the Doughnut model, a visual framework depicting what it means to achieve human prosperity within ecological limits.

THE DOUGHNUT OF SOCIAL AND PLANETARY BOUNDARIES

Think of the Doughnut as a compass for human prosperity in the 21st century, aiming to meet the needs of all people within the means of our planet. As illustrated by Figure one, this model is represented by two concentric rings: **the social foundation and the ecological ceiling**.

The social foundation represents the minimum standard of living required to avoid critical human deprivation. It encompasses 12 dimensions derived from the Sustainable Development Goals (SDGs) established by the United Nations in 2015.

The ecological ceiling represents the limits beyond which environmental degradation occurs. Exceeding this boundary results in serious damage to the planet's ecosystems. The ecological ceiling is defined by nine planetary boundaries, as identified by Earth-system scientists. The space between these two rings forms a doughnut-shaped zone where both ecological safety and social justice coexist, creating an environment where humanity can thrive. Together, these boundaries establish the conditions that humanity must maintain to prevent both critical human deprivation and ecological collapse.

2. HIGHWAYS DOUGHNUT

The highways Doughnut is an adaptation of the Doughnut Economics model to the highway maintenance sector. It applies the Doughnut's core concept—meeting the needs of all people within the means of the planet—to decisions around road policies and strategies, planning, maintenance, and delivery. The framework assesses the impacts of highway activities across the Doughnut boundaries:

- The **ecological ceiling** represents the planet's environmental limits in the context of highways. Nine themes have been selected, such as climate change, biodiversity, air quality, chemical pollution, waste, and material footprint.
- The **social foundation** defines the aspects to consider to ensure a fair and just society in relation to Highway services. Also here nine themes have been defined, including, for example, accessibility, health, safety, employment, and equality.

Each Doughnut theme is anchored by a clearly defined **Doughnut State**—an ideal future defining what it means to stay within the safe operating space of the Doughnut for that specific topic. See figure two below and figure three on the following page.

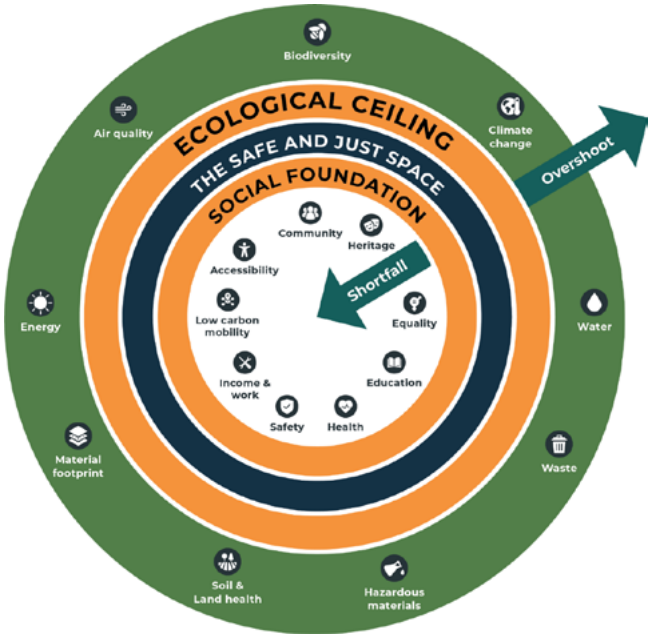


Figure two: Highways Doughnut visual

HIGHWAYS DOUGHNUT TOOLKIT STRUCTURE

The Highways Doughnut Toolkit operationalises the Doughnut vision through two interrelated tools: the **Strategic Tool** and the **Project Tool**. These tools support decision-making at different levels within highway authorities, ensuring that both long-term planning and day-to-day project delivery align with Doughnut principles.

The **Strategic Tool** is used for high-level policy and planning. It helps assess whether key strategic documents (such as the Local Transportation Plan or the Asset Management Plan) are aligned with the social and ecological goals of the Highways Doughnut. It uses guiding questions to prompt reflection on how the policies are translated into targets, monitoring frameworks, systematic processes and risk monitoring measures.

The **Project Tool** focuses on short-term, project-level decisions and translates the Doughnut Themes into operational sub-theme questions. It combines qualitative and quantitative indicators—such as carbon reduction metrics or inclusion of accessibility features—and offers a tailored scoring framework for each sub-theme question.

The Highways Doughnut Toolkit is free for anyone to use and can be downloaded here.

SOCIAL THEMES AND DOUGHNUT STATE

ACCESSIBILITY	COMMUNITY	HERITAGE
The delivery of highway maintenance service enables road networks to be accessible and usable by all intended users, considering their diverse capabilities and needs.	All community members are provided with equal opportunities to be engaged in and well-informed about highway activities.	Highway maintenance activities are conducted in a manner that protects and safeguards cultural and natural heritage from negative impacts.
EDUCATION	**EQUALITY**	**HEALTH**
All staff involved in the delivery of highways maintenance services acquire the knowledge and skills needed to promote and deliver regenerative practices.	Road networks are maintained with equal quality and fair distribution of resources across the county, ensuring that all areas receive the same level of care and attention.	The delivery of highway maintenance service and its supply chains contribute to mental or physical health and wellbeing by improving ecological conditions, specifically targeting ambient air quality, noise levels, light pollution, and odour sources.
INCOME AND WORK	**LOW-CARBON MOBILITY**	**SAFETY**
The highway maintenance staff, volunteers and associated supply chain workers are provided with employment security and fair compensation while upholding workers' rights and promoting local employment opporunities.	The delivery of highway maintenance service ensures that low-carbon modes of transport (such as active mobility, shared mobility, public transport) are available for all and the infrastructure that supports them is enhanced.	The quality of air is always maintained, preserved and restored when necessary by eliminating the generation of pollutants at the source. Regenerative measures are actively promoted to restore and maintain clean air.

ECOLOGICAL THEMES AND DOUGHNUT STATE

ENERGY	HAZARDOUS MATERIALS	CLIMATE CHANGE
Energy comes predominantly from renewable energy sources, while energy consumption is minimised and energy efficiency is maximised.	Hazardous materials, substances, and mixtures in local operations are carefully managed, thereby eliminating impacts on human health, natural ecosystems, and biodiversity.	Climate change is mitigated by limiting the global temperature increase to well below 1.5 degrees Celsius above pre-industrial levels, by drastically reducing greenhouse gas emissions (CO_2, CH_4, N_2O, HFCs), achieving carbon neutrality, and actively striving towards carbon positivity through carbon sequestration methods.
SOIL AND LAND HEALTH	**WASTE**	**BIODIVERSITY**
Soil and land health is preserved and enhanced by minimising soil disturbance, mitigating man-made or natural geohazards in local operations and avoiding land degradation (such as loss of productive lands, deforestation and desertification) in the supply chain.	Waste management follows the Waste Hierarchy principles, which give top priority to waste prevention, followed by reuse, recycling, recovery and final disposal.	Highway maintenance activities ensure that biodiversity is maintained and enhanced, ensuring healthy ecosystems and resilient habitats.
MATERIAL FOOTPRINT	**WATER**	**AIR QUALITY**
Materials used meet the three fundamental principles of a circular economy: 1) Use regenerative resources, 2) Implement reuse and recycle practices, and 3) Maximise resource efficiency.	Water consumption is minimised through increased water use efficiency, recycling, and reuse. The rate of water extraction never exceeds the natural replenishment rate of aquifers and surface water sources.	Highway maintenance activities ensure that biodiversity is maintained and enhanced, ensuring healthy ecosystems and resilient habitats.

Figure three: The social and ecological themes of the Highways Doughnut Toolkit and the desired state for each of them, inspired by the principles of Doughnut Economics

3. SNAPSHOT OF THE CURRENT STATE

While the UK's highways are a critical public asset that connects people to work, each other and leisure, it also carries significant ecological and social impacts.

The highways sector is highly material-intensive and carries significant embodied carbon. Asphalt dominates UK road maintenance, with over 20 million tonnes produced each year, driving large-scale demand for virgin aggregates and bitumen[1]. Material extraction and processing account for a substantial proportion of the sector's carbon impact, with studies showing that materials can contribute over half of total lifecycle emissions for highway maintenance activities[2]. Beyond carbon, the sector affects a wide range of ecological factors, including land use, soil compaction, and air and water pollution. For example, around 80% of land in the UK lies within 1 km of a road, contributing to habitat fragmentation and posing risks to wildlife[3]. Road run-off has also been linked to nearly a fifth (18%) of water body failures in England[4]. Looking ahead, emerging trends such as the impacts of climate change and the growing prevalence of heavier electric vehicles are expected to place additional strain on highway infrastructure and increase maintenance costs and demands[5,6].

The sector also generates significant social impacts, particularly in relation to safety, health, and equity. Road deaths and injuries remain a major concern, while worker safety is an emerging issue, with around 70% of highway workers report experiencing verbal or physical abuse on a monthly basis[7]. Inequalities are also evident: persons with disabilities in the UK take, on average, 38% fewer trips due to inadequate transport options, while residents of the most deprived areas of London face twice the level of road danger compared to those in the least deprived areas[8,9]. Additional sectoral social and environmental impacts are explored in Figure four.

While the UK has committed to decarbonising roads through local net zero targets, emissions reductions, and national frameworks such as *Net Zero Highways*[10] and the *Zero Emissions Roadmap*[11], these efforts do not fully address wider social and environmental impacts. Persistent systemic challenges—including a substantial maintenance backlog, data and information gaps, funding constraints, and a lack of cohesive long-term strategic planning—continue to limit progress across the sector[12].

Figure four: How the Highways sector impacts the different dimensions of the Doughnut

4. SETTING UP A HIGHWAYS DOUGHNUT ALLIANCE

The Highways Doughnut Alliance was created to convene actors with the ability to influence and transform the highways sector. It brings together organisations willing to explore an alternative future for the sector by identifying and addressing the systemic challenges that prevent it from operating in a socially just and ecologically safe way. The trial of the Highways Doughnut Toolkit also highlighted that Local Highway Authorities operate within a defined and often constrained mandate, and therefore cannot drive systemic change in isolation. In response, the Alliance provides a cross-sector forum to jointly explore barriers and opportunities for change, and to support coordinated action across the wider system of actors.

Building on this intent, the Highways Doughnut Alliance was formed through a systematic mapping of activities that shape the UK highways and its social and ecological impacts. Drawing on insights from the Highways Doughnut Toolkit trial, the full sequence of the main sector steps and who is involved in them were analysed, from funding, regulation and material provision to construction and service delivery. This revealed both direct influences, such as statutory requirements and asset ownership, and indirect influences, through for example material standards, certifications and training programmes. Understanding this broader landscape was essential, as progress toward a socially just and ecologically safe highways system depends on action across both operational and non-operational actors.

From this mapping, a set of core actor clusters emerged. These groups maintain and uphold the current system but also hold the mandate and capability to transform it. Representatives from each cluster were invited to join the Highways Doughnut Alliance and asked to contribute insights on behalf of their wider group. Bringing these broad sets of actors together was crucial to explore the systemic challenges limiting alignment with the Highways Doughnut principles and to co-develop coordinated actions for long-term sector transformation.

See members of the Highways Doughnut Alliance in figure five below.

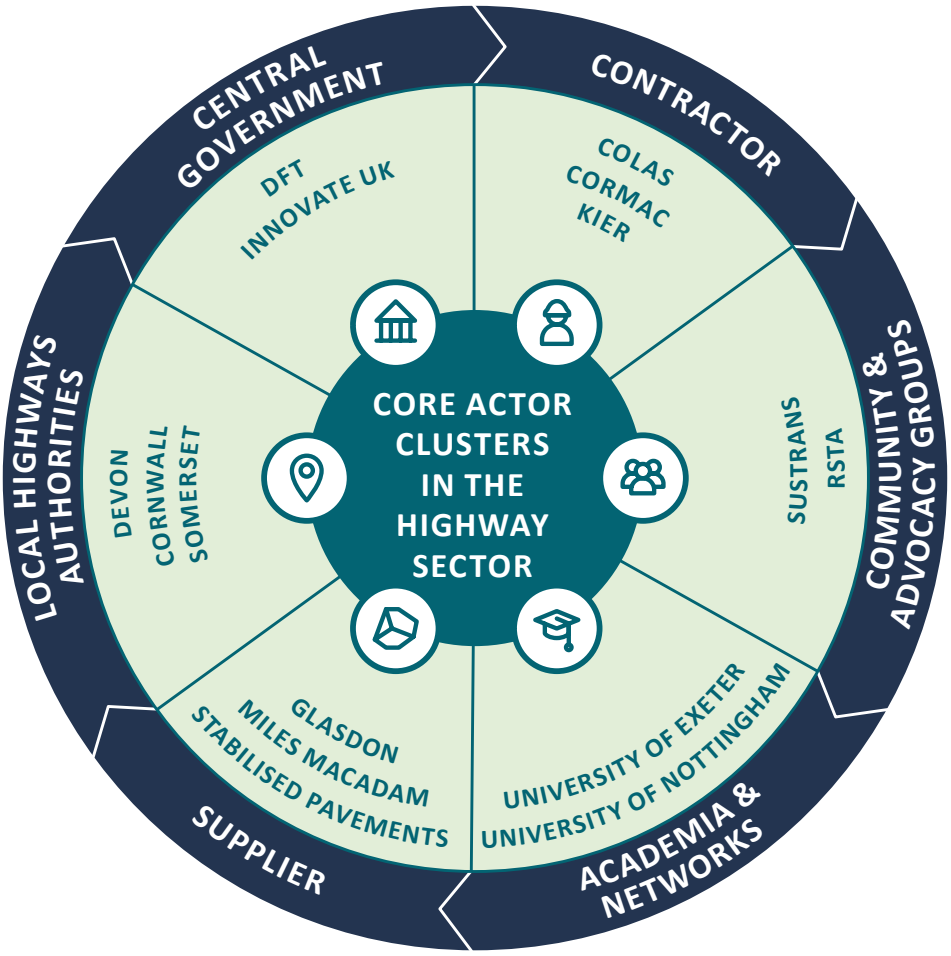


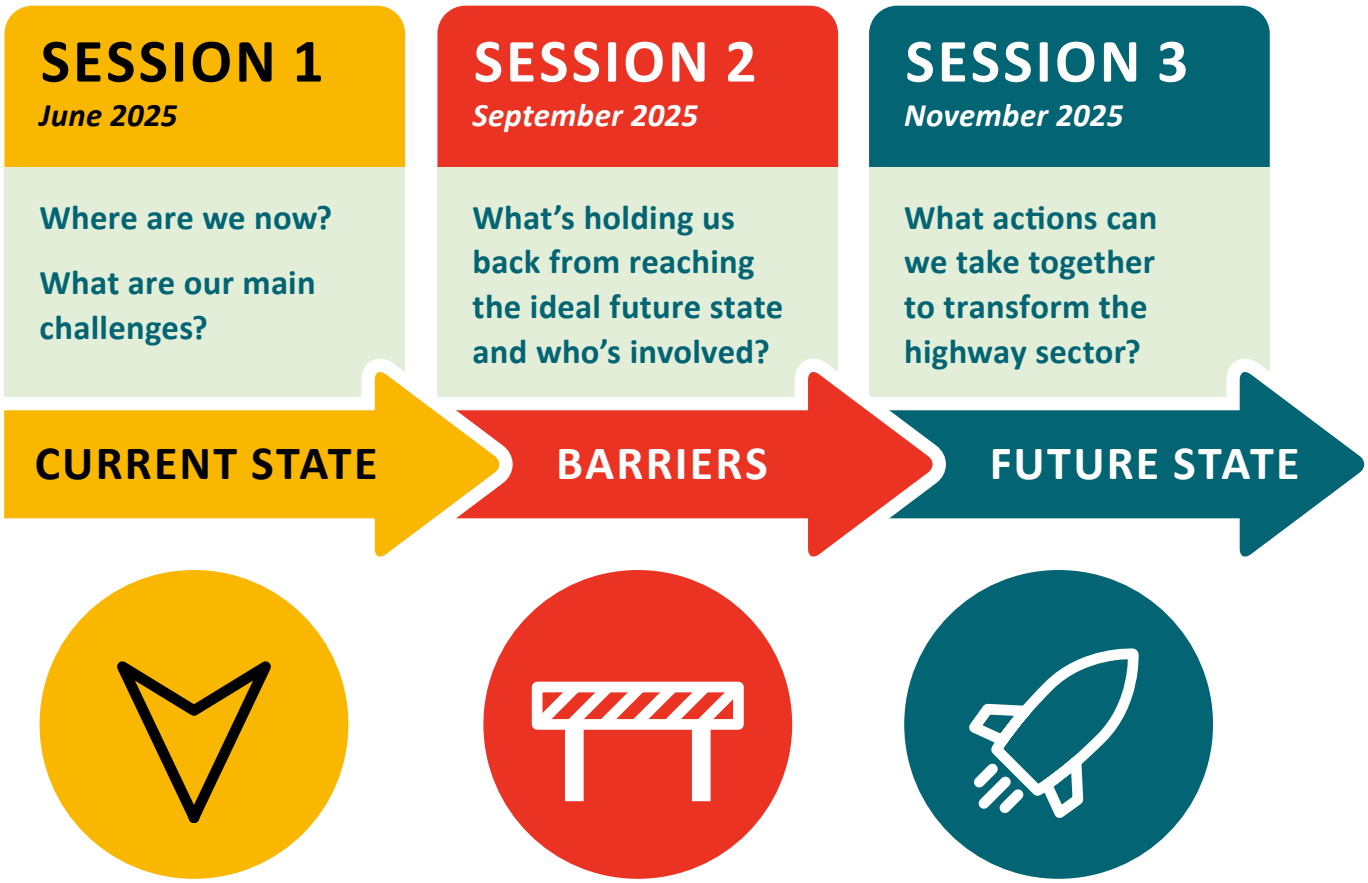
Figure five: The Highways Doughnut Alliance actor clusters and participating organisations

ALLIANCE CO-CREATION PROCESS

The Alliance met three times between June and November 2025, including an in-person workshop in Taunton. During the first session the participants mapped key sectoral challenges, looking at them from each actor cluster perspective. These challenges were then consolidated into a set of systemic barriers hindering the sector to operate in a sustainable way.

During the second workshop, the participants refined these barriers, selected the four with the greatest systemic impact, and carried out deep dive exercises to analyse their underlying norms, what success would look like and the actors involved.

In the third workshop, the members explored a set of transformative actions to address the identified barriers. These have then been consolidated and refined into the action table presented in this report.



5. EMERGING SECTORAL BARRIERS

During the co-creation process described above, members of the Highways Doughnut Alliance identified six systemic barriers that prevent the sector from moving toward a more sustainable future:

1. **Limited willingness for innovation and lacking adoption of piloted innovations**
2. **Rigid policies and standards hinder adoption of more sustainable alternatives**
3. **Lack of standardised metrics and limited data collection**
4. **Procurement and funding reward fast, low-cost delivery**
5. **Siloed working processes block collaboration and knowledge sharing**
6. **Impacted communities and road users are not sufficiently included in decision-making processes**

After a voting exercise, the Alliance narrowed down to four most impactful barriers to address and analyse deeper. The four key barriers that were selected are presented here below:

BARRIER 1

LIMITED WILLINGNESS FOR INNOVATION AND LACK OF ADOPTION OF PILOTED INNOVATIONS

In the highways sector, one of the main barriers that the participants identified is the general limited willingness to embrace innovation as well as the slow adoption of piloted innovations. Innovation was found to be more often associated with topics like carbon and energy, while social themes such as accessibility or community inclusion are less prioritised. Safety was identified as the number one priority of the sector and where most care and attention go to. However, this risk aversion was found to be skewed to the short-term, as the focus on immediate road safety often overshadows long-term health risks, such as those from pollution or degradation of the natural environment.

To succeed in this area, participants noted that both external and internal shifts are needed. Externally, innovation needs to be consistently funded and systematically evaluated, with lessons from trials being actively shared and used to inform future programmes and the development of standards. Internally, a stronger culture of learning is required, where successful innovation builds confidence for future experimentation and where failure is treated as a source of insight rather than something to be penalised. Together, these conditions would help embed innovation into business-as-usual practices and create a healthier environment in which new approaches can be tested, adapted and scaled over time.

However, the participants mentioned that there is a strong sense of caution permeating the sector, often leading to limiting norms such as “If it worked elsewhere, we cannot be sure it will work here.” and “Innovation is new technology, not new ways of working.” There’s a pervasive belief that innovation must yield immediate cost savings or profit, resulting in scepticism toward pilot studies, which are frequently dismissed as lacking real-world impact. Furthermore, the rigid and short-term view on safety and its prioritisation above all other considerations is found to stifle creativity and accountability, making stakeholders reluctant to embrace new ideas or bear the risk of potential failure.

BARRIER 2

RIGID POLICIES AND STANDARDS HINDER ADOPTION OF MORE SUSTAINABLE ALTERNATIVES

Another barrier that was identified as a key bottleneck by the participants was the existence of rigid policies and standards that hinder the adoption of new sustainable alternatives. A major issue arises from the slow decision-making processes at local levels, which significantly hampers the timely uptake of new standards. The absence of mandatory carbon reporting was found to further stifle accountability, creating a landscape where innovation struggles to gain traction. Consequently, without the necessary financial incentives for integrating innovation, or better financial penalties in case innovative materials are not integrated, the sector finds itself lagging.

According to the participants, to foster progress, success in this area would require the implementation of dynamic and flexible policies that consistently integrate the best available materials and practices available at time, that create positive impacts on both people and planet. To facilitate this process, approval mechanisms should be simplified, enabling the rapid adoption of well-tested innovations.

However, several limiting norms were found to currently contribute to this barrier. A hierarchical culture often resists change i.e. “I have always done it that way and it works”- fostering a prevailing belief that “sustainable equals change which is expensive.” Moreover, local decision makers are often preoccupied with potential legal liabilities resulting from failed innovations, raising questions about who would be responsible for the financial repercussions. The pressure to deliver noticeable improvements within a four-year electoral cycle further exacerbates this issue, leading to resistance against adopting innovations or new ways of working for fear they may not yield favourable outcomes in such a short timeframe.

BARRIER 3

LACK OF STANDARDISED METRICS AND LIMITED DATA COLLECTION

A third significant barrier identified by the participants is the lack of standardised metrics and limited data collection. Although metrics exist, the challenge is to find clear, standardised measures that can be consistently implemented at all levels of the sector. Striking a balance was found to be crucial; metrics should be collected, reported, and monitored without overburdening service providers, suppliers or contractors who may lack the resources to gather and share extensive data.

Currently, the participants mentioned that there are more metrics for environmental impacts than for social impacts, which are insufficiently addressed in highways maintenance. Raising awareness and achieving consensus on which social impact metrics to include was found vital.

Furthermore, the participants found the voluntary nature of data collection resulting in a lack of standardised metrics and minimal incentives for stakeholders to invest time and resources. Success hinges on establishing a harmonised approach to metrics that ensures comparability while allowing for a balanced data collection burden. On-the-ground suppliers and contractors must understand their responsibilities and have the necessary resources and technical expertise to fulfil them.

However, several limiting norms were noted as contributors to this barrier. Common sentiments such as “...it’s too complex”, “...we shouldn’t be the ones putting effort into this”, or “...we don’t have the resources” prevent proactive engagement. The pressure to deliver results quickly often overshadows the time needed for strategic planning and resource allocation, leading to a reluctance to take responsibility for data collection.

BARRIER 4

PROCUREMENT AND FUNDING REWARD FAST, LOW-COST DELIVERY

The final barrier identified by the Alliance participants is the way procurement and funding processes in the highways sector prioritise fast and low-cost delivery over long-term sustainability and resilience. Although the industry is found to be gradually transitioning toward using more sustainable materials and methods, there seems to be still limited political and public awareness necessary for pushing towards long-term thinking. Political terms and council budgets that operate on annual cycles, were identified to exacerbate the short-term mindset. It’s important to realise that although multi-year plans are requested, funding still happens in yearly cycles, creating uncertainties for suppliers and contractors.

Consequently, the participants noted that whole life costing is often overlooked in tender evaluations, making innovative materials seem riskier and more expensive in the short-term. Moreover, tendering was found to not sufficiently incorporate social or ecological values, and they are often treated as mere checkboxes rather than integral strategic design components of the project. Even when such requirements are included, they usually lack proper follow-up or incentives for thorough impact measurement.

Reflections were shared by the participants that if procurement and funding rewarded resilience and sustainability, there would eventually be a highway network in better condition, with lower lifetime costs and reduced ecological footprint. This approach would minimise maintenance needs, thus lessening social impacts and disruptions.

However, several norms hinder this shift. For example, discussions on climate change are often avoided due to political sensitivities. There is also a perception that innovative materials come with higher costs and reputational risks, while at the same time there is strong scepticism about adopting solutions that have succeeded elsewhere, as each authority sees the need for local testing and approvals.

6. RECOMMENDATIONS FOR TRANSFORMATION ACTIONS

As an outcome of the co-creation process, a series of strategic pathways have been developed through comprehensive discussions and interviews with stakeholders from the Highways Doughnut Alliance. These actions aim to address the barriers identified during the workshops. The table below provides a concise summary of these transformation actions, outlining their direct relationship with specific barriers (B1, B2, B3, B4) and highlighting the key actors responsible for driving these initiatives forward. It distinguishes between main actors, who have the mandate and responsibility to lead, fund and drive each action, and supporting actors, who enable, inform and reinforce delivery through expertise, resources or implementation support. By leveraging collective expertise and resources, these recommendations serve as a roadmap for transforming the highways sector into a system operating in a socially just and ecologically safe way, according to Doughnut Economics.

TYPE OF ACTION	ACTIONS	BARRIERS	ACTOR ROLES
STRUCTURAL ACTIONS - *Changing rules, roles, and systems that govern long term value in the sector*	1. **Redesign tendering criteria** to prioritise long-term ecological and social value across contract lifecycles. Explore using the updated Procurement Act's flexibility to embed lifecycle metrics into tendering criteria, and highlight the role of innovation to meet the social and ecological goals.	B3, B4	**Main:** LHA **Support:** Central Government, Academia, Contractors, Suppliers
	2. **Create cross-council and public-private collaborative procurement agreements** that pool purchasing power, link payments and evaluations to maximise social and ecological outcomes and share risk when trialling innovations.	B4	**Main:** LHA **Support:** Central Government Contractors, Suppliers
	3. **Create a national library of innovative procurement criteria** that motivate local authorities and contractors to incorporate the latest social and ecological requirements. See example from The Netherlands.	B4	**Main:** Central government **Support:** Academia, LHA, Contractors, Suppliers
	4. **Systematise tested innovations** by listing them in an online platform, consolidating streamlined trial protocols, legal precedents, practical implementation guidance, and contextual insights (e.g. urban, rural, coastal sites) to de-risk and accelerate adoption.	B1, B2, B4	**Main:** Central government **Support:** LHA, Suppliers, Contractors
	5. **Create a guided pathway for innovators in the supply chain to trial and scale new sustainable materials**, combining clear steps, technical assistance, and financial support so that the cost of testing does not increase product cost.	B1, B2, B4	**Main:** LHA **Support:** Central Government Contractors, Suppliers

B1- Limited Willingness for Innovation and lacking adoption of piloted innovations
B2 - Rigid policies and standards hinder adoption of more sustainable alternatives
B3 - Lack of Standardised Metrics and Limited Data Collection
B4 - Procurement and funding reward fast, low-cost delivery

TYPE OF ACTION	ACTIONS	BARRIERS	ACTOR ROLES
STRUCTURAL ACTIONS - *Changing rules, roles, and systems that govern long term value in the sector*	6. **Rebuild and resource Local Authority highway laboratories** as a national network to support innovation adoption that: • invests in in-house testing and assurance capacity that is independent of suppliers and consultants, • shares best practice across councils, • supports local supply chains to develop and thrive.	B1, B2, B3, B4	**Main:** Central Government, LHA **Support:** All actors
	7. **Embed dedicated innovation roles at the top of local authority and delivery organisations, linked to cabinet-level accountability.** These roles should coordinate strategy, procurement, and delivery, and help overcome the time and risk pressures that keep teams locked into business as usual.	B1, B4	**Main:** LHA, Contractors **Support:** Central government, Suppliers
	8. **Create a dedicated team across the sector that will support the development of the digital Code of Practice and the continuing evolvement of it.** Focus should be given to integrating: a) social and ecological criteria, b) best practices and lessons from the field, c) monitoring and evaluation indicators that cover social and ecological impacts, d) enhanced procurement criteria that consider impacts both locally and across the supply chain.	B1, B2, B3, B4	**Main:** Central government **Support:** all partners
PROCEDURAL ACTIONS - *Changing day-to-day processes and decision- making to value long term benefits*	9. **Implement post-delivery impact reviews ("Lessons from the Field")** for pilots and projects that focus on performance in ecological and social aspects. These reviews should capture lessons learned, insights gained, and suggestions for potential updates to standards. Ensure that these findings are incorporated into future procurement cycles to enhance effectiveness and sustainability.	B2	**Main:** LHA, Contractor **Support:** Suppliers, ADEP
	10. **Identify and create a consolidated database of all social and ecological data that is already collected at organisational level.** Map these data points to the Highways Doughnut themes, and use them to measure impact, identify data gaps, and proactively inform service planning, design and delivery.	B3	**Main:** LHA **Support:** Central Government, Contractors, Suppliers
	11. **Embed a whole-highway mindset in maintenance decisions** by ensuring footways, cycle facilities, and carriageways are considered together when prioritising works, recognising accessibility and mode-shift impacts and avoiding investment patterns that favour driving at the expense of walking, wheeling, and cycling.	B1, B3	**Main:** LHA **Support:** ADEPT, Contractors, Advocacy groups

B1- Limited Willingness for Innovation and lacking adoption of piloted innovations
B2 - Rigid policies and standards hinder adoption of more sustainable alternatives
B3 - Lack of Standardised Metrics and Limited Data Collection
B4 - Procurement and funding reward fast, low-cost delivery

TYPE OF ACTION	ACTIONS	BARRIERS	ACTOR ROLES
CULTURAL ACTIONS - *Shifting mindsets and skills within the sector*	**12. Set up targeted training and webinars that reposition innovation as social and organisational change as much as technology**, putting the emphasis on tangible benefits rather than on novelty.	B1	**Main:** ADEPT **Support:** LHA
	13. Create a peer-to-peer learning community across the ecosystem of the sector, responsible for: a) Sharing and learning from 'Lessons from the Field' about what has worked and what hasn't when applying innovation. b) Disseminating updates on latest standards, shifting the narrative from endless pilots to adoption. c) Collaborating with BSI on integrating tested innovation into standards;	B1, B2	**Main:** ADEPT **Support:** All actors
	14. Normalise "good enough" data for decision-making by promoting a learning culture that values early, indicative data and trains practitioners to interpret qualitative and proxy metrics for strategic or project insights.	B3	**Main:** ADEPT **Support:** LHA, Contractors
	15. Capture and communicate success stories that highlight positive social and ecological outcomes from highways projects (extract narratives from the 'Lessons from the Field'). Use on the ground stories from impacted communities, rather than just data points to increase reach and engagement.	B3	**Main:** ADEPT **Support:** LHA, Contractors
	16. Expand procurement officer training to learn how to embed social and ecological criteria into procurement processes.	B4	**Main:** LHA **Support:** Central Govt, Contractors, Suppliers

B1- Limited Willingness for Innovation and lacking adoption of piloted innovations
B2 - Rigid policies and standards hinder adoption of more sustainable alternatives
B3 - Lack of Standardised Metrics and Limited Data Collection
B4 - Procurement and funding reward fast, low-cost delivery

7. CONCLUSIONS

These first steps of forming and working together with the Highways Doughnut Alliance create a significant opportunity to foster collaboration across various actor clusters, setting the stage for systemic transformation within the Highway sector. Participants unanimously recognised the value of these inter-organisational meetings, emphasising the importance of open communication channels that facilitate shared insights and collective development. In addition, members highlighted individual benefits of their participation, describing it as an engaging and stimulating experience. The interaction of the Alliance underlines the critical need for a shared language that addresses common pain points and identifies opportunities for transformative change. By collaboratively acknowledging both successes and challenges within the sector, the Alliance lays the groundwork for informed and effective action.

To enhance the impact of the Highways Doughnut Alliance, it is essential to have a recognised network organisation taking stewardship of this collaborative effort. This organisation would be responsible for sustaining interaction and gatherings as well as advocacy, ensuring that the Alliance's recommendations are not only heard but also implemented. For the successful execution of the recommendations developed by the Alliance and presented in this document, the network could further expand the work regarding e.g. priorities across the actions, timelines, responsibilities, funding, and coordination between alliance actors. In addition, the two unselected barriers could undergo a similar process to identify further and more complete actions for sector transformation.

Furthermore, the current landscape presents a timely opportunity to influence updates to the Well-Managed Highway Infrastructure: A Code of Practice. The perspectives and challenges articulated by the Highways Doughnut Alliance would be highly valuable contributions to shaping this critical document. It's important to harness the momentum and be part of these discussions.

In conclusion, there is a strong sense of optimism regarding future collaborations and the continued evolution of the Highways Doughnut Alliance.

By uniting diverse voices from across the sector, this unique coalition has the potential to drive meaningful transformation, guiding the sector towards a more sustainable future for all actors involved.

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