Future Highways Research Group

FHRG Waypoint Meeting: Q2, 2023

Virtual Meeting

ADEPT / Proving Research Partnership

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Agenda

- **Welcome, Introductions and ADEPT Update (Hannah Bartram)**
- **Sector News (Chris Ames, Deputy Editor, Highways Magazine)**
- **FHRG Members (Open Discussion)**
  - Critical current challenges.
  - Sharing best practice.
- **Reactive Maintenance Research Project (Neill Bennett, Derbyshire CC)**
  - Research briefing on the project proposed by Derbyshire.
- **CCAS Programme Update & Strategic Options Assessment Framework**
  - Proposed document and toolset release timeline.
  - Carbon Analyser (demonstration of web based version).
  - Proposed CIHT learning programme.
- **Value of Trees (Andy Jackson, Leicestershire CC)**
  - Re-establishing trees on the highway.
- **Comfort Break**

Agenda
Continued…

- **Live Labs 2 (Giles Perkins, WSP)**
  - Current status, next steps and timelines.
- **Human Capital Management (Karen Farquharson)**
  - Sector activity following conclusion of FHRG research project.
- **Sector Technical Update (Helen Bailey, Driven & Professor Nick Reed, Reed Mobility)**
  - Update on key technical research and developments in the sector.
- **Future Operating Models (Andy Perrin, Proving)**
  - Outcomes and themes from future operating studies over past two years.
  - Emerging market disruptors.
  - The importance of price.
- **Date of meeting and AOB**
- **Close**

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ADEPT News

Hannah Bartram, CEO, ADEPT

ADEPT News

- **Started some work with Association of Directors of Children's Service**
  - Looking at Home to School Transport, particularly SEN.
  - Co-chaired by ADEPT and ADCS. Also includes LGA and ACPO.
  - Task and Finish group to deliver:
    - Legislative and policy review
    - Collation of good practice to manage demand and efficiency of activity
  - Also developing relationships with Assoc of Directors for Adults and Assoc of Directors of Place.
- **Transport and Connectivity Board**
  - Working on policy challenge paper on Travel Demand Management including road user pricing.
  - Politically charged issue, been looking at it for several months now. Want to issue for Spring Conference.
- **Sub National Transport bodies**
  - Chair of SNTB group came to recent ADEPT meeting. Most SNTBs are members of ADEPT. Looking to maintain contacts with both CE and Operational groups.
- **Workforce**
  - Running workshop next week with Colas.
  - @50 attendees from LAs and professional bodies working across PLACE.
  - Looking at recruitment and retention into these services. Action orientated. Will include focus on campaigns and toolkit.
- **Spring Conference and Annual Awards –** 24th May.
  - Deadline for award entries is end of this week.

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Sector News: Chris Ames

Deputy Editor, Highways Magazine

Sector News

- **Cancellation of SMART motorways**
  - Would appear decision based on popularity rather than science.
  - Decision to leave existing SMART motorways in place not going down well. Some suggestions to re-instate hard shoulders.
  - £390m investment was made available to put in place 150 new safety zones by 2025. Very slow start by National Highways with only 13 in to date.
  - Still trying to find out status of alternative trials
- **Naked roads**
  - Concept supposed to see infrastructure such as gantries stripped out. Some key players in market saying tech to facilitate won't work without more investment in road markings.
- **Sub National Transport bodies**
  - Chair of SNTB group came to recent ADEPT meeting. Most SNTBs are members of ADEPT. Looking to maintain contacts with both CE and Operational groups.
- **Potholes**
  - Budget announcement was extra £200m for potholes. Suggestions this fund hasn't been properly ringfenced.
  - New regulations to implement performance based inspection regime. Some suggestion that relationships with utilities improving.
  - Different forms of permitting being explored.
- **Safer Roads fund**
  - Some more funds being released from Safer Roads Fund but still not the full amount promised. Some councils haven't received anything.

Sector News
Continued…

- **Inflation**
  - HM has continued to report impact of inflation on LG road building schemes dependent on CG financing. Particular problem with projects funded through Homes England Housing and Infrastructure Fund.
- **LOHAC procurement**
  - Continuing lack of enthusiasm. Value of work through this framework to date much less than forecast. Some councils going outside the framework.
- **Culture wars**
  - Protests to traffic management plans in Oxford are attracting people from outside. Also protests on other cities.
  - TfL has misreported impact in London by conflating pre and post pandemic figures.

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Member Updates: Open Discussion

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Member Updates

- **Note that Milestone has become a market disruptor with very keen pricing.**
  - This has ruffled the feathers of other providers – a good thing?
  - Noted that Milestone has taken a highly commercial approach with new contracts (existing Milestone clients haven't experienced this). This means we will have to upskill our own officers to apply with letter of NEC 4.
  - Conclude we will need to monitor impact of this disruption over time – in particular to ensure Milestone don't overstretch given extent of current success.

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Reactive Maintenance Research Project

Neill Bennett, Derbyshire County Council

Background Summary

Initial Project Drivers developed 2020

Focussed around the technical approach to delivering Reactive Maintenance i.e.

- The need for **Permanent repairs to induce network resilience**
- To get an understanding of the **Quality of repairs**
- To understand **Workforce competencies and Training needs/requirements**
- To undertake a **Review of repair materials**
- To reduce **Enquiry volumes**

We developed an approach driven by our highways laboratory with support from Helen Bailey

Clear that we needed resource support to deliver initial objectives

Successful business case earmarked highways reserves to undertake project ~mid 2022

CONTROLLED

Where are we now

Reviewed Project Drivers late 2022

Focussed on delivering the Derbyshire Highways Transformation Programme

- Root and Branch review of the Highways Service
- Delivery of the approved Outline Business Case – Strategic Objectives and Benefits Realisation
- Delivery of our Commissioning Framework

Original Drivers still relevant but framed as part of the Derbyshire Highways Transformation Programme

ToR developed + Work Packages Identified focussing on

- Policy
- End to end processes
- Resourcing
  - Competency
  - Training
- Systems
- Innovation

- Funding
- Performance
- Communications
- Network Resilience
  - Materials Policy
  - Adaptation
  - Carbon

Next Steps

Identify Work Package Owners, Budgets and Timeframes – *April/May*

2 Year Project to assess and measure benefits – *FHRG to be involved??…*

Identify Collaboration Opportunities – *Kirklees, Via EM, Lincs, Staffs expressed interest*

Share Project Details with those that want to be involved

Contact Neill to discuss…

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CCAS & Carbon Analyser: Programme Update

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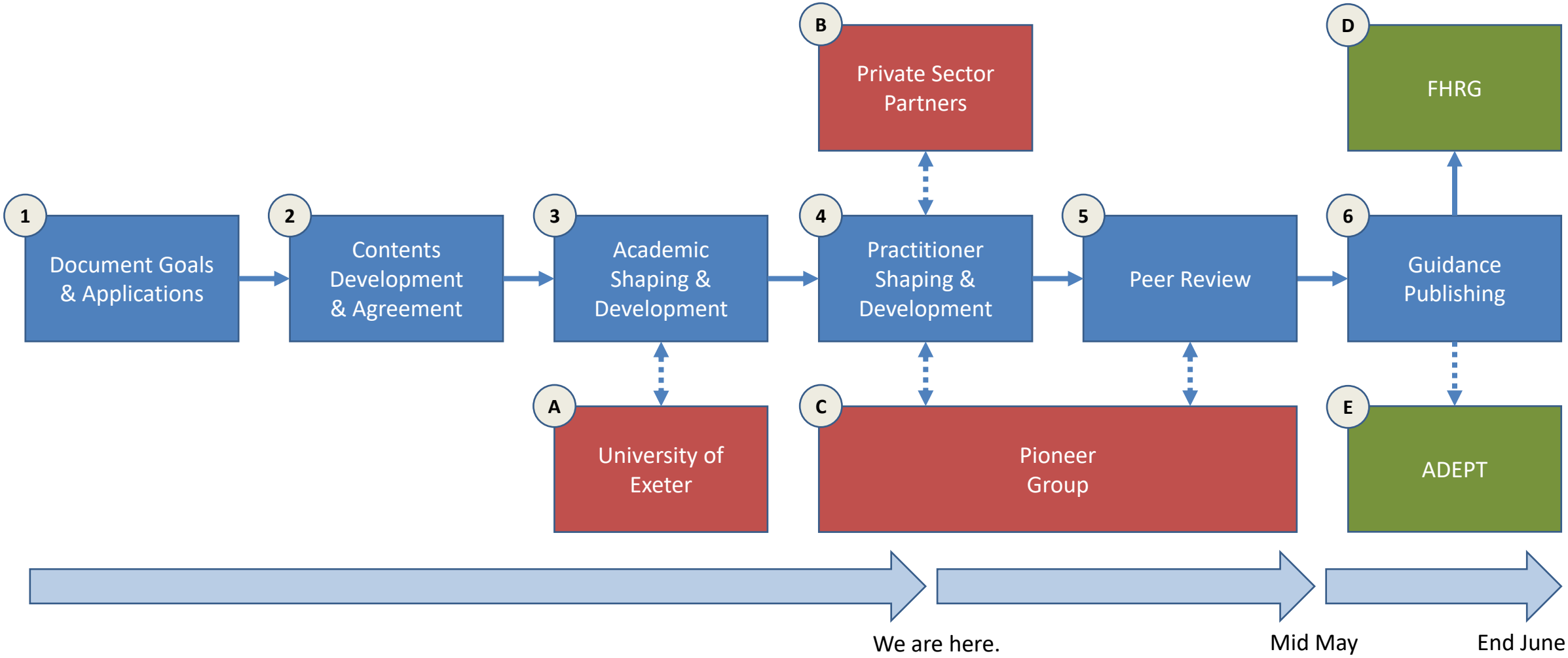
Carbon Calculation & Account Standard

Guidance Progress Update

CCAS Guidance



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Carbon Analyser

Toolset Development

Web App now available…

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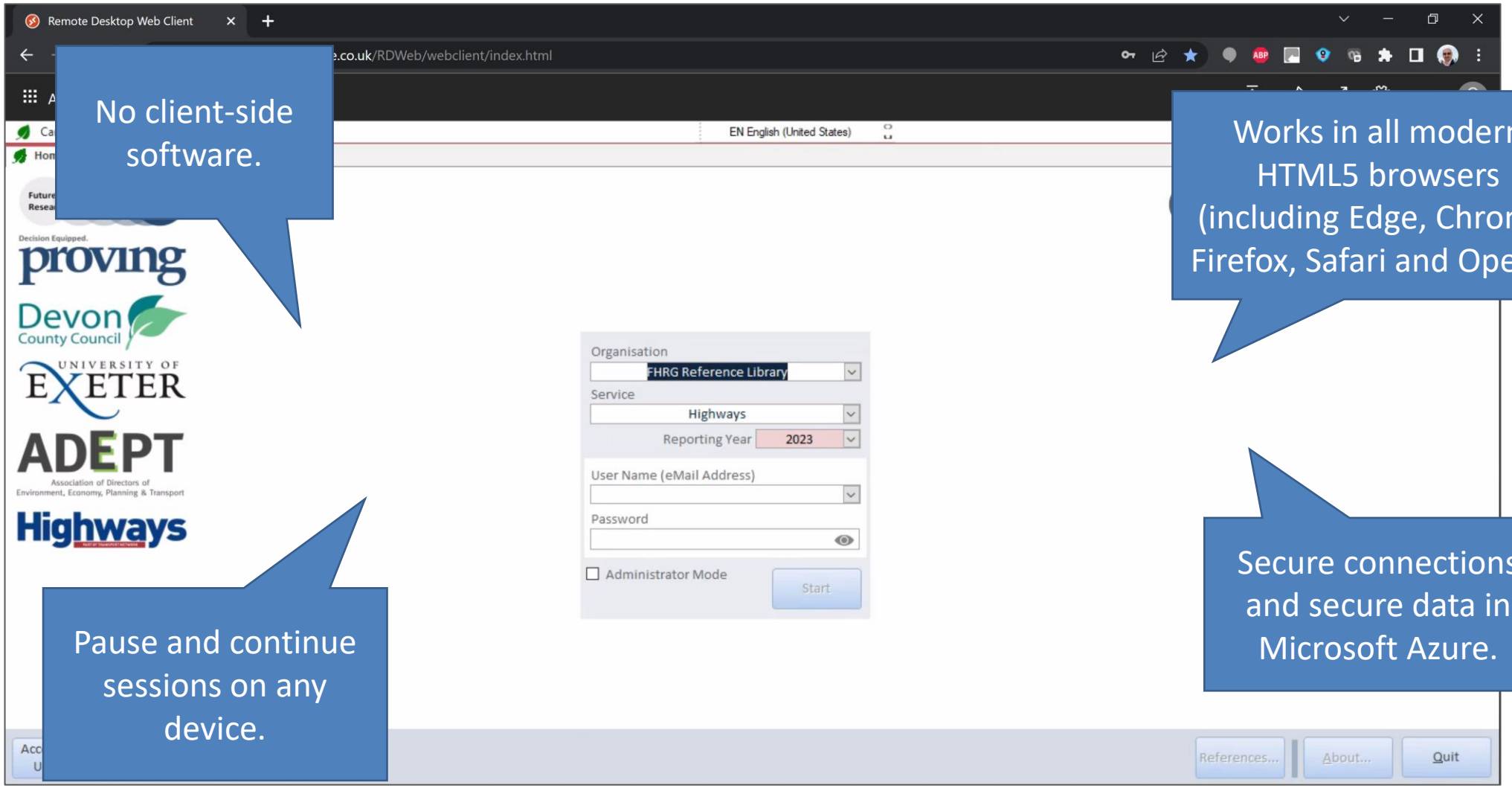

Also available as an RDS app…

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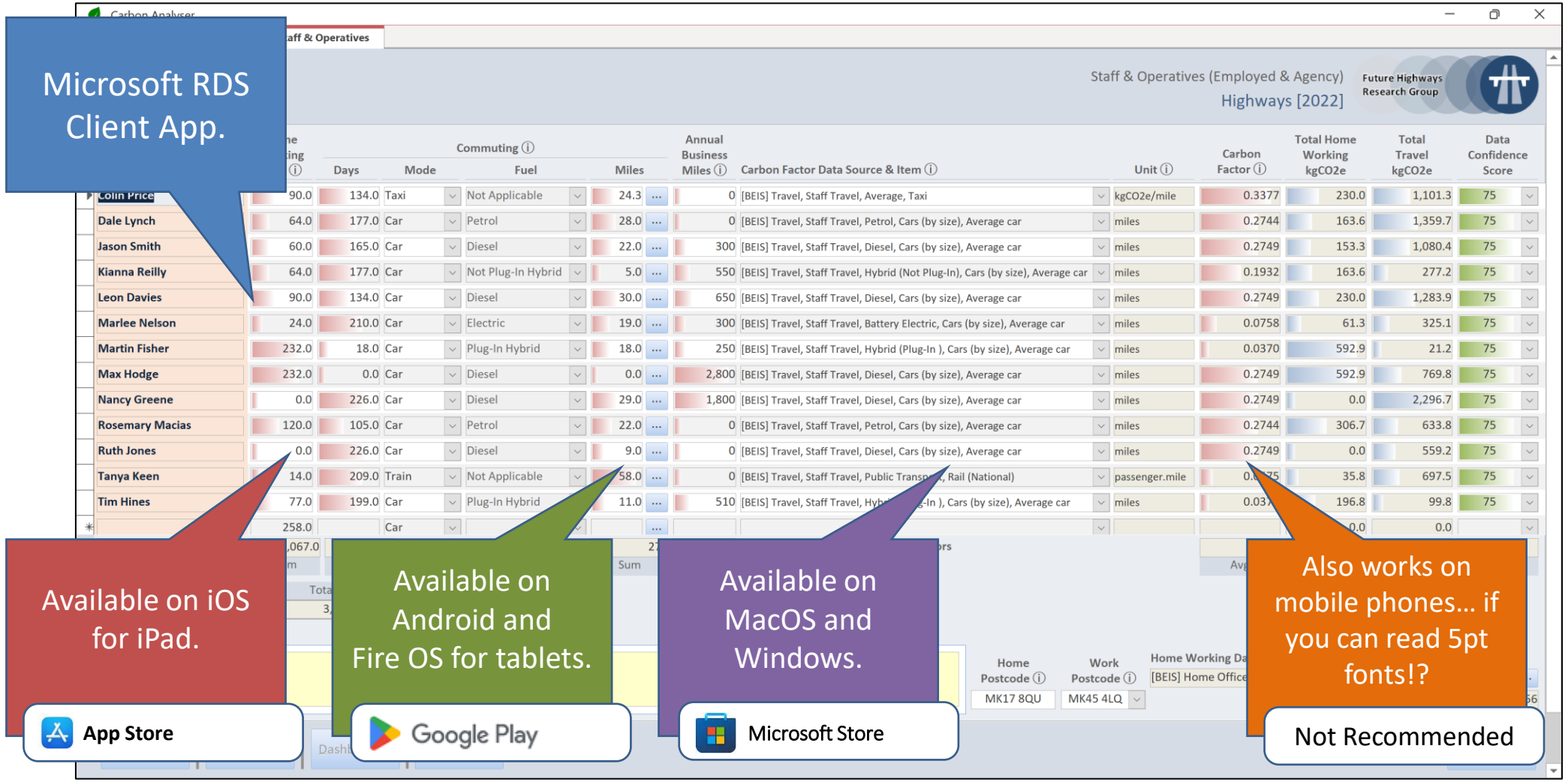

	Days	Mode	Fuel	Miles	Annual Business Miles	Carbon Factor Data Source & Item	Unit	Carbon Factor	Total Home Working kgCO2e	Total Travel kgCO2e	Data Confidence Score
Colin Price	134.0	Taxi	Not Applicable	24.3	0	[BEIS] Travel, Staff Travel, Average, Taxi	kgCO2e/mile	0.3377	230.0	1,101.3	75
Dale Lynch	177.0	Car	Petrol	28.0	0	[BEIS] Travel, Staff Travel, Petrol, Cars (by size), Average car	miles	0.2744	163.6	1,359.7	75
Jason Smith	165.0	Car	Diesel	22.0	300	[BEIS] Travel, Staff Travel, Diesel, Cars (by size), Average car	miles	0.2749	153.3	1,080.4	75
Kianna Reilly	177.0	Car	Not Plug-In Hybrid	5.0	550	[BEIS] Travel, Staff Travel, Hybrid (Not Plug-In), Cars (by size), Average car	miles	0.1932	163.6	277.2	75
Leon Davies	134.0	Car	Diesel	30.0	650	[BEIS] Travel, Staff Travel, Diesel, Cars (by size), Average car	miles	0.2749	230.0	1,283.9	75
Marlee Nelson	210.0	Car	Electric	19.0	300	[BEIS] Travel, Staff Travel, Battery Electric, Cars (by size), Average car	miles	0.0758	61.3	325.1	75
Martin Fisher	18.0	Car	Plug-In Hybrid	18.0	250	[BEIS] Travel, Staff Travel, Hybrid (Plug-In), Cars (by size), Average car	miles	0.0370	592.9	21.2	75
Max Hodge	0.0	Car	Diesel	0.0	2,800	[BEIS] Travel, Staff Travel, Diesel, Cars (by size), Average car	miles	0.2749	592.9	769.8	75
Nancy Greene	226.0	Car	Diesel	29.0	1,800	[BEIS] Travel, Staff Travel, Diesel, Cars (by size), Average car	miles	0.2749	0.0	2,296.7	75
Rosemary Macias	105.0	Car	Petrol	22.0	0	[BEIS] Travel, Staff Travel, Petrol, Cars (by size), Average car	miles	0.2744	306.7	633.8	75
Ruth Jones	226.0	Car	Diesel	9.0	0	[BEIS] Travel, Staff Travel, Diesel, Cars (by size), Average car	miles	0.2749	0.0	559.2	75
Tanya Keen	209.0	Train	Not Applicable	58.0	0	[BEIS] Travel, Staff Travel, Public Transp…, Rail (National)	passenger.mile	0.…75	35.8	697.5	75
Tim Hines	199.0	Car	Plug-In Hybrid	11.0	510	[BEIS] Travel, Staff Travel, Hyb…-In), Cars (by size), Average car	miles	0.037	196.8	99.8	75
		Car							0.0	0.0	

Home Postcode: MK17 8QU
Work Postcode: MK45 4LQ
Home Working Da…: [BEIS] Home Office…

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Strategic Options Analysis

Carbon Analyser & Value Analyser

Strategic Programme Portfolio Management

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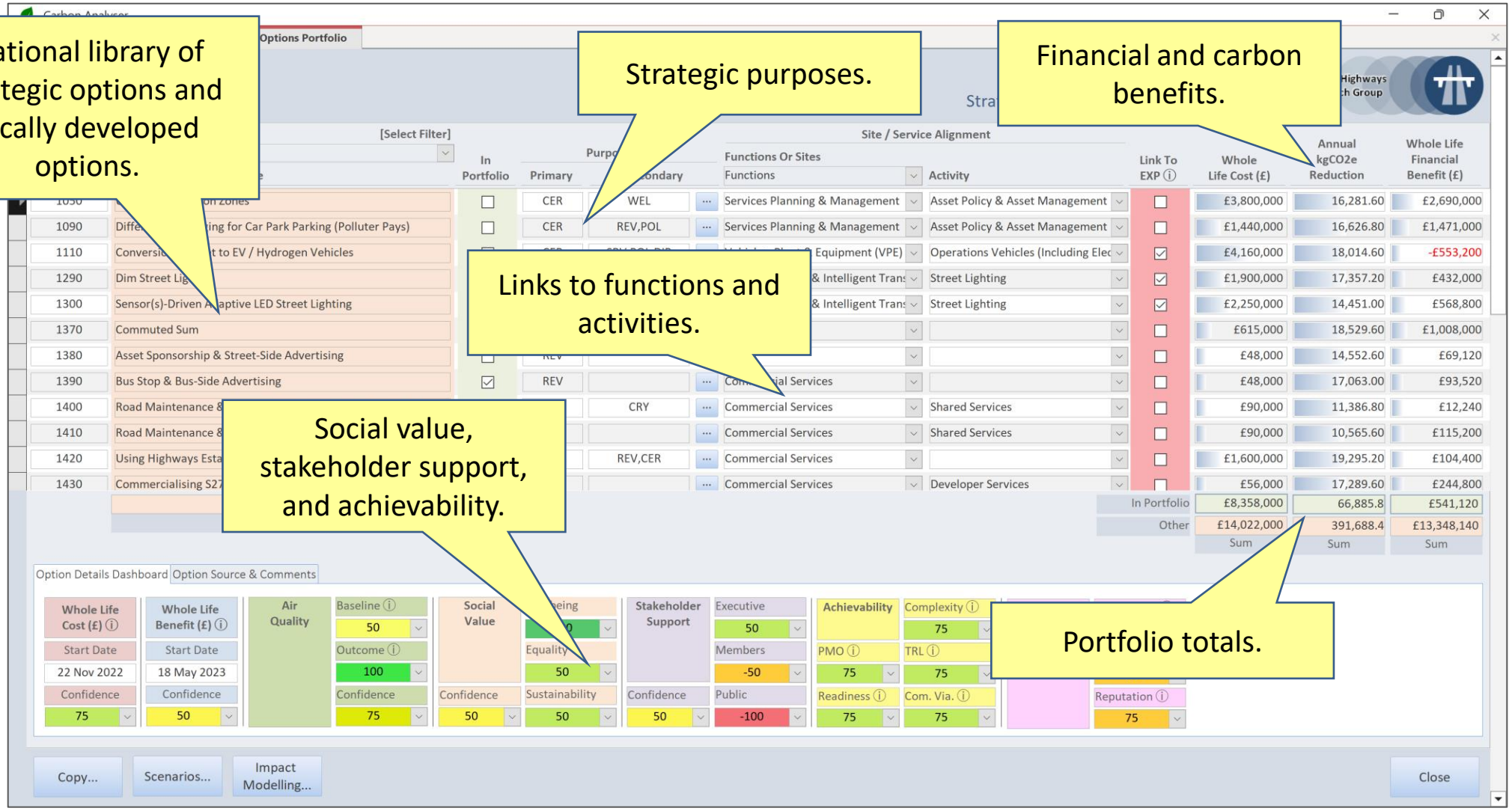

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Programme Options Analysis

Carbon Analyser & Value Analyser

Design Goals

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- **Transparent and robust options appraisal framework.**
  - Consistently appraise programme, project, innovation and / or service change options.
    - Using weighted factor sets.
- **Identify key data sources and data gaps.**
  - Qualitative analysis supported by evidence referencing.
  - Ensuring better business / change cases.
- **Work with any incumbent gateway assessment and authorisation process.**
  - …repeatable at any gateway stage (from concept, to business case, to post-delivery).
- **Create options trade spaces for trade-off analysis.**
  - Auto-prioritise based on user-specified factor weightings.
  - Goal seek “best fit” options.
- **Provide standard *Programme & Project Portfolio Management* reports.**
- **Integrate “new economy” factors and doughnut economic modelling considerations.**

Options & Trade Space Analysis

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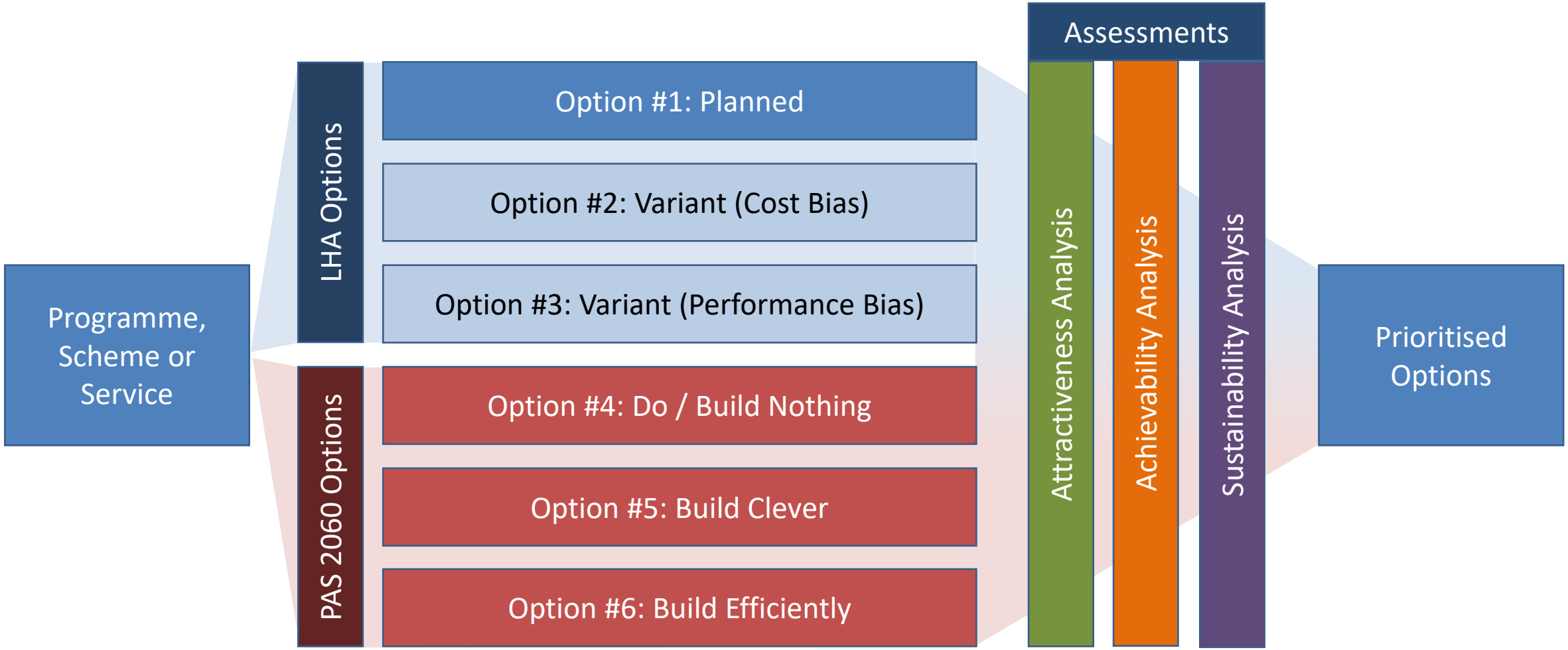

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Options Assessment Factors: FHRG Review & Feedback

Carbon Analyser & Value Analyser

Attractiveness Analysis

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- **Strategic Alignment & Contribution**
  - With the authority strategic goals.
  - With the current service strategic goals.
  - With national and local strategies, targets, and political priorities.
  - With industrial strategies and capabilities.
  - With citizen demands and expectations.
- **Benefits / Dis-Benefits Analysis**
  - Including (as standard benefits classes):
    - Future carbon reductions (asserted / assessed by lifecycle phase, see Sustainability Analysis),
    - Cashable financial benefits and revenue generating benefits,
    - Services performance benefits (VfM),
    - Assets performance benefits (longevity, safety, CoO),
    - Social benefits (specifically Wellbeing and Equality, as Sustainability benefits are considered elsewhere),
    - National and local economy benefits,
    - Reputational benefits (political (national and local), authority, and service).
  - Benefits measurement and calibration (for each specified benefit).
    - Scale, scope, start date, longevity, measurement method(s).
- **Wider Sector Benefits**
  - Wider LA applications and scaled benefits.
  - Provider applications and scaled benefits.
  - Adjacent sector applications scaled benefits.

Attractiveness Analysis
Continued…

- **Constraints Analysis**
  - Costs, timescales, and resources requirements.
    - To enable affordability analysis.
  - Resources management and reporting.
  - Grants and / or additional funding.
- **Scalability & Flexibility**
  - Opportunities for retreat,
  - Reducing costs,
  - Consolidating activities,
  - …and / or expanding the scope and scale of the option based on early findings.
- **Consistency & Coherence**
  - With the other programmes.
  - With authority policies and political priorities.
  - With national policies and directives.
  - With market trends and technology developments.
- **Stakeholder Support & Sponsorship**
  - Political stakeholders (national and local)
  - Communities, citizens, and asset(s) users.
  - Businesses.

Achievability

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- **Complexity Assessment (Inherent Risk)**
  - Scale, novelty, diversity, interdependencies, and volatility.
  - Cost of risk (anticipated and emergent).
- **Affordability**
  - Design, development, and delivery costs relative to the programme benefits.
  - Future costs of ownership and future cost of decommissioning or repurposing.
- **Resources Competence & Capacity**
  - Internal and our partners.
- **Readiness Levels**
  - Authority, partners, and technologies.
- **Stakeholders' Clarity & Perception**
  - Project and programme levels.
  - Partners, public, members, other agencies.
- **Governance & Accountability**
  - Governance structure.
  - Programme structure and programme coordination.
  - Evaluation and monitoring framework.
  - Reporting methods, tools, and timeline.

Sustainability Analysis

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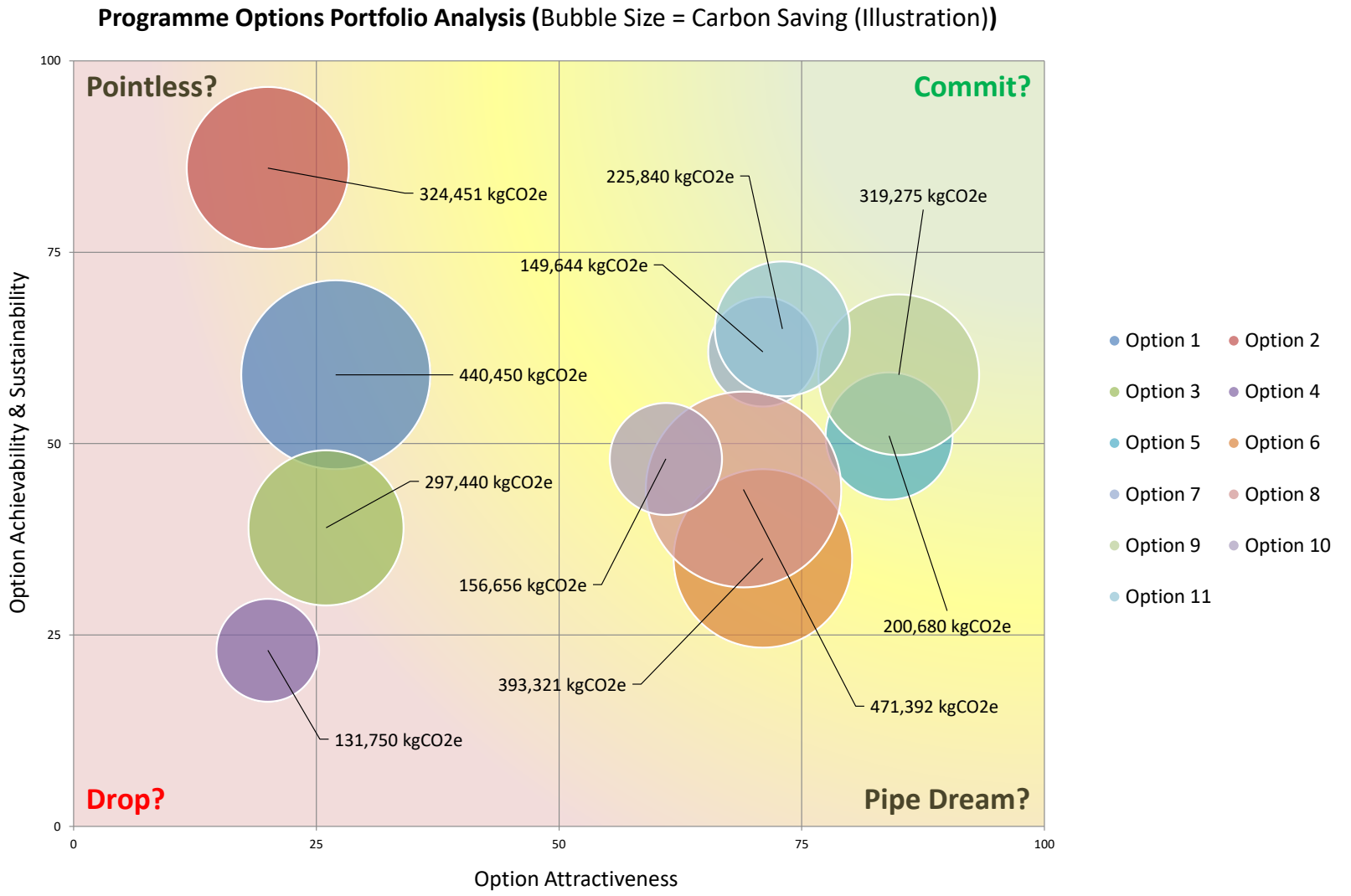
- **Whole Lifecycle Carbon Profile**
  - Design & Planning (Designing-Out Carbon).
  - Construction.
    - Materials, processes / activities, travel and transportation, and waste.
  - Maintenance & Operations.
    - Energy (e.g. street lighting, water pumping stations, etc.),
    - Maintenance (CCAS activities).
    - Optional considerations.
  - Reuse of Materials.
    - Circular economy.
  - Use Phase.
    - Operational carbon profile,
    - Encouraging lower carbon behaviours (downstream, asset users and served communities).
  - End of Life / Asset Repurposing.
- **Environmental Impact**
  - Biodiversity Impact & Mitigation
  - Ecology Impact & Mitigation
  - Human Wellbeing Impact & Mitigation
- **Doughnut Economic (DE) constraints (Live Labs II component).**
  - Social foundation boundaries (goals and limits).
  - Planetary boundaries (goals and limits).

Consistent Assessment Method

For each factor…

- **Factor weighting.**
  - Ranging from not considered (0) to very important (100).
  - Factor tree normalised.
- **Factor score.**
  - Ranging from poor (0) to excellent (100) (or -**100** to **+100**).
  - With scoring guidance.
- **Confidence score.**
  - Ranging from none (0) to high (100).
- **Opportunity to improve score / case.**
  - Ranging from none (0) to significant (100).
- **Evidence citation / hyperlink.**

Portfolio Analysis



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CIHT & CCAS: Training Programme Development

CIHT Workshop

Training Needs Assessment

Proposed Workshop, Exploring…

What	Why	Who	How
Level 1 (Foundation): A foundation level of knowledge of decarbonisation and carbon accounting in the highways context	Learner can engage with the issue and expert colleagues	Senior political and executive decision makers Front line staff who need a foundation before proceeding to L2 & L3	E-learning (1-2 hours max)
Level 2 (Intermediate): Overview of use of CCAS and key technical issues	Learner can oversee CCAS implementation	Functional leads	Blended or face to face (1 day?)
Level 3 (Advanced): Detailed guidance on practical implementation	Learner can implement the Standard across a diverse range of highways activities	Staff carrying out carbon accounting and reporting	Blended or face to face (1 day top-up of L2?)

Proposed Workshop Dates

- **Facilitated by the FHRG.**
- **Led by Andrew Crudgington, CIHT.**
- **Proposed dates (2-hour workshop):**
  - w/c 8th May
    - 10th May, AM
    - 11th May, AM
  - w/c 15th May
    - 17th May, AM
    - 18th May, AM

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Value of Trees

Andy Jackson, Leicestershire County Council

A VALUE OF TREES

RE-ESTABLISHING TREES ON THE HIGHWAY

Andy Jackson

Project Manager | Leicestershire County Council

Rees Jeffreys Road Fund

ADEPT

WHY NOW?

- **Trees and biodiversity in the County**
- **LCC's commitment**
- **Climate Change**
  - LCC's commitment to Net Zero authority by 2030
  - What do we plant given the challenges of diseases and climate change?
  - How can highway trees contribute to climate change mitigation and adaptation and other ecosystem services?
- **Changing national policy and growth**
  - NPPF, National Design Code and Guidance, Biodiversity Net Gain – beautiful tree lined streets.

CHALLENGES FOR RE-ESTABLISHING TREES IN THE HIGHWAY

- **Conflicting views and interests in relation to trees**
  Particularly in the urban environment
- **Concerns over safety**
- **Design, planting and maintenance of highway trees**
  What are the options for funding the maintenance of the "beautiful tree-lined places" that the Government wants to see. Managing negative impacts on adjacent infrastructure.
- **Infrastructure and growth**
  Planting amongst utilities (stakeholder) and all the infrastructure that comes with highways and the built environment

20% OF TREES ARE OUTSIDE OF WOODLANDS, A LARGE PROPORTION WITHIN THE URBAN ENVIRONMENT, WHERE 80% OF THE HUMAN POPULATION LIVES

Value of Trees
Re-establishing trees on the highway

THE PROPOSAL

- Supported by ADEPT and Rees Jeffreys Road Fund
- Approach to getting trees (and hedges) back on (or near) the highway.
- Stage 1 - Tree planting toolkit - Bespoke for Leicestershire but an approach that can be applied locally and nationally
- Stage 2 – Pilot delivery

THE TEAM

A

- Project management
- Highways
- Planning and Growth
- Forestry
- Ecology
- Environment
- Comms

Value of Trees
Re-establishing trees on the highway

PROJECT DELIVERY

- Desktop information gathering
- Workshops and consultation with key stakeholders including:
  - Developers
  - LPAs
  - Statutory Bodies – Forestry Commission
  - Conservation bodies – Woodland Trust, National Forest, Wildlife Trust
  - Technical organisations – Trees and Design Action Group
- Need for wider awareness raising – Members and residents
- Linking to other projects with similar aims
- National publicity.

Value of Trees
Re-establishing trees on the highway

News

Image courtesy of Getty Images.

New £2.3m study to evaluate the social and cultural values of urban trees 10 August 2021

STAGE 1 – THE TOOLKIT

Species	Share of Population %	Share of Leaf Area %	Dominance Value
Acer saccharinum	0.5	0.9	1.4
Tilia euchlora	0.2	0.3	0.5
Juglans regia	0.2	0.3	0.4
Tilia platyphyllus	0.1	0.2	0.4
Alnus cordata	0.2	0.2	0.3
Corylus colurna	0.2	0.1	0.3
Acer cappadocicum	0.1	0.1	0.2
Sequoiadendron giganticum	0.1	0.1	0.2
Liriodendron tulipifera	0.1	0.1	0.1
Metasequoia glyptostroboides	0.1	0.1	0.1

Value of Trees
Re-establishing trees on the highway

Species Selection
(The right tree in the right place)

- What have you got locally? A review of Leicestershire tree inventory.

STAGE 1 – THE TOOLKIT

Names					Tolerances								
Botanical Name	Common Name	Genus	Family	Group	Drought	Salt	Waterlogging	Shade	Hardiness zone	Successional	Natural range	Carbon Seq	Av Ru
Betula utilis	Himalayan Birch	*Betula*	Betulaceae	Broadleaf	Mod sensitive		Mod sensitive	Mod tolerant	5 6	Pioneer	Himalaya, We	High	Mo
Broussonetia papyrifera	Paper Mulberry	*Broussonetia*	Moraceae	Broadleaf					6 10			High	Mo
Carpinus betulus	Hornbeam	*Carpinus*	Betulaceae	Broadleaf	Mod-tolerant		Sensitive	Mod-tolerant	(4)5-7	Late successi	Europe, West	High	Mo
Carpinus japonica	Japanese Hornbeam	*Carpinus*	Betulaceae	Broadleaf	Mod-tolerant		Sensitive	Mod-tolerant	(4)5-7		Japan	High	Mo
Carya illinoinensis	Pecan	*Carya*	Juglandaceae	Broadleaf	Moderately sensitive		Mod-tolerant	Intolerant	5-9		Southern USA		
Castanea sativa	Sweet Chestnut	*Castanea*	Fagaceae	Broadleaf	Mod-tolerant		Sensitive	Mod-tolerant	5-7		Mediterranea	High	L
Catalpa bignonioides	Indian Bean Tree	*Catalpa*	Bignoniaceae	Broadleaf	Mod-sensitive	Mod-tolerant	Sensitive	Mod-tolerant	5-9	Pioneer	Eastern North	High	L
Cedrus atlantica	Atlas Cedar	*Cedrus*	Pinaceae	Conifer	Tolerant		Sensitive	Mod tolerant	6 9		Morocco, Alg	Medium	H
Cedrus deodara	Deodar Cedar	*Cedrus*	Pinaceae	Conifer	Tolerant		Sensitive	Mod tolerant	7 8(9)		Afghanistan, I	Medium	H
Cedrus libani	Cedar of Lebanon	*Cedrus*	Pinaceae	Conifer	Tolerant		Sensitive	Mod-tolerant	5-7		Lebanon, Syri	Medium	H
Celtis australis	Nettle Tree	*Celtis*	Cannabaceae	Broadleaf	Tolerant		Mod-sensitive	Mod-tolerant			Mediterranean, Balkans		
Celtis occidentalis	Hackberry	*Celtis*	Cannabaceae	Broadleaf	Mod-tolerant		Mod-sensitive	Mod-tolerant	3-9	Pioneer	Eastern North America		
Cercidiphyllum japonicum	Katsura Tree	*Cercidiphyllum*	Cercidiphyllaceae	Broadleaf	Sensitive		Mod-sensitive	Mod-tolerant	4-8	Late successi	China,Japan, Eastern Himalayas		
Cercis canadensis	Redbud	*Cercis*	Fabaceae	Broadleaf	Mod-tolerant		Sensitive	Mod tolerant	4-9	Pioneer	Eastern North	High	Mo
Cercis siliquastrum	Judas Tree	*Cercis*	Fabaceae	Broadleaf	Tolerant		Sensitive	Mod tolerant	(6)7 8	Pioneer	South Eastern	High	Mo
Chamaecyparis lawsoniana	Lawson Cypress	*Chamaecyparis*	Cupressaceae	Conifer	Mod tolerant		Sensitive	Mod tolerant	5 7		North Western USA		
Cladrastis kentukea	Yellow wood	*Cladrastis*	Fabaceae	Broadleaf	Mod-sensitive		Sensitive	Mod tolerant	4 8		Eastern North America		
Clerodendrum trichotomum	Harlequin glorybower	*Clerodendrum*	Verbenaceae	Broadleaf	Mod-tolerant		Mod-sensitive	Intolerant	(6)7-9		China,Japan, I	High	L
Corylus avellana	Hazel	*Corylus*	Betulaceae	Broadleaf	Moderately sensitive	Intolerant	Sensitive	Mod-tolerant	4-8	Late successi	Europe	High	L
Corylus colurna	Turkish Hazel	*Corylus*	Betulaceae	Broadleaf	Mod-tolerant	Intolerant	Sensitive	Intolerant	4-7	Pioneer	South East Eu	High	Mo
Crataegus laevigata	Woodland Hawthorn	*Crataegus*	Rosaceae	Broadleaf	Tolerant		Sensitive	Mod-tolerant	4-7		Hybrid	High	L
Crataegus monogyna	Common Hawthorn	*Crataegus*	Rosaceae	Broadleaf	Tolerant		Sensitive	Intolerant	4 7	Late successi	Europe, North	High	L
Crataegus monogyna Stricta	Common Hawthorn	*Crataegus*	Rosaceae	Broadleaf	Mod tolerant		Sensitive	Mod tolerant	4 7				
Crataegus prunifolia	Broad Leaved Cockspur Tho	*Crataegus*	Rosaceae	Broadleaf	Mod tolerant		Sensitive	Mod tolerant	4 7				
Crataegus x grignonensis	Grignon Hawthorn	*Crataegus*	Rosaceae	Broadleaf	Mod-tolerant		Tolerant	Mod-tolerant	4-7		Hybrid	High	L
Crataegus x lavallei	Lavalee Hawthorn	*Crataegus*	Rosaceae	Broadleaf	Sensitive	Mod-tolerant	Sensitive	Moderate	4-7		Hybrid		

Value of Trees
Re-establishing trees on the highway

Species Selection
(The right tree in the right place)

- The matrix – Tree characteristics and tolerances including ecosystem service delivery

STAGE 1 – THE TOOLKIT

Name	Age	Replacement Value (£)	Carbon storage (kg)	CO2e storage (kg)	Carbon storage (£)	Carbon Sequestration (kg)	CO2e Sequestration (kg)	Carbon Sequestration (£)	Avoided runoff (m3)	Avoided runoff (£)	Total pollution removal (g)	Total pollution removal (£)
Abies nordmanniana (Nordmann fir)	10	£54	58	214	£53	1.1	3.9	£0.95	0	£0.00	4.5	£0.19
Abies nordmanniana (Nordmann fir)	20	£254	241	885	£220	2.1	7.8	£1.95	0.2	£0.00	20.3	£0.82
Abies nordmanniana (Nordmann fir)	30	£750	554	2,030	£503	3.3	11.9	£2.96	0.5	£0.00	49.2	£2.00
Abies nordmanniana (Nordmann fir)	40	£1,444	994	3,645	£904	4.4	16.1	£3.98	0.9	£0.00	81.7	£3.33
Abies nordmanniana (Nordmann fir)	50	£2,336	1,561	5,723	£1,419	5.5	20.2	£5.02	1.1	£0.00	107.1	£4.37
Abies nordmanniana (Nordmann fir)	75	£5,250	3,490	12,796	£3,174	8.4	30.7	£7.61	1.4	£0.00	128.6	£5.25
Abies nordmanniana (Nordmann fir)	100	£8,406	6,200	22,736	£5,638	7.4	27.2	£6.74	1.2	£0.00	109.8	£4.48
Abies nordmanniana (Nordmann fir)	150	£9,645	7,500	27,503	£6,821	1.7	6.1	£1.50	1.2	£0.00	108.2	£4.44
Abies nordmanniana (Nordmann fir)	200	£10,783	7,500	27,503	£6,821	0.8	2.8	£0.68	1.4	£0.00	130.0	£5.32
Abies nordmanniana (Nordmann fir)	250	£11,821	7,500	27,503	£6,821	0.1	0.3	£0.08	1.6	£0.00	154.4	£6.32
Abies nordmanniana (Nordmann fir)	300	£12,758	7,500	27,503	£6,821	0.1	0.3	£0.08	1.9	£0.00	181.0	£7.40

Value of Trees
Re-establishing trees on the highway

Species Selection
(The right tree in the right place)

- Ecosystems service delivery valuation
  - Trees (by species)

STAGE 1 – THE TOOLKIT

Hedge Size (m) L x H x W	Species	Replacement Cost	Carbon Storage (kg)	Carbon Storage (£)	Carbon Sequestration (Kg/yr)	Carbon Sequestration (£)	Avoided Runoff (m^3/yr)	Avoided Runoff (£)	Pollutant Removal (g/yr)	Pollutant Removal (£)
10 x 2 x 2	*Acer campestre*	£865	42	38	16	0.02	0.27	0.33	<0.01	1.87
	Carpinus betulus	£865	66	60	28	0.03	0.35	0.42	<0.01	2.42
	Corylus avellana	£865	48	44	16	0.02	0.29	0.35	<0.01	1.97
	Crataegus monogyna	£763	37	34	16	0.02	0.29	0.35	<0.01	1.99
	Fagus sylvatica	£865	44	40	20	0.02	0.26	0.31	<0.01	1.75
	Ilex aquifolium	£865	40	36	12	0.01	0.24	0.29	<0.01	1.87
	Prunus spinosa	£865	44	40	28	0.03	0.28	0.33	<0.01	2.15

Value of Trees
Re-establishing trees on the highway

Species Selection
(The right tree in the right place)

- Ecosystems service delivery valuation
  - Hedges (by dimension)

STAGE 1 – THE TOOLKIT

Common Name	Scientific Name	Associated Insect Species	Associated Lichen Species
Oak (pedunculate & sessile)	*Quercus robur & Quercus petraea*	284 (423)	324
Willow species	*Salix*	266 (450)	160
Birch (silver & downy)	*Betula pendula & Betula pubescens*	229 (334)	126
Hawthorn	*Crataegus*	149	no data
Blackthorn	*Prunus spinosa*	109	no data
Poplar species (inc aspen)	*Populus*	97	no data
Crab Apple	*Malus Sylvestris*	93	no data
Scots Pine	*Pinus sylvestris*	91	132
Alder	*Alnus*	90	105
Elm	*Ulmus*	82	187
Hazel	*Corylus*	73	160
Beech	*Fagus*	64 (98)	206
Ash	*Fraxninus*	41	255
Spruce*	*Picea*	37	no data
Lime	*Tilia*	31	83
Hornbeam	*Carpinus*	28	44

Value of Trees
Re-establishing trees on the highway

Species Selection
(The right tree in the right place)

- Biodiversity by species

STAGE 1 – THE TOOLKIT

Location	Skeleton/ structural soil in a street	Crate system in a street or a podium	Retrofitting into existing hard street surface. (20% of cost of skeletal soil)	Soft verge in a street	Parkland or open space
Cost of an average 12-14 cm girth containerized tree allowing for a 20% underestimation	£145	£145	£145	£145	£145
Cost of planting trees allowing for a 20% underestimation	£10,671	£14,473	£2,134	£178	£178
Cost of Establishment allowing for a 20% underestimation	£453	£494	£453	£428	£428
Cost of routine management and maintenance throughout life	£2,000	£2,000	£2,000	£2,000	£2,000
Cost of removal at end of life estimated at an average 75 years (too low for many species)	£1,000	£1,000	£1,000	£1,000	£1,000
Total	**£12,269**	**£16,112**	**£3,732**	**£1,751**	**£1,751**

Value of Trees
Re-establishing trees on the highway

Species Selection
(The right tree in the right place)

- Whole life costs

STAGE 1 – THE TOOLKIT

BEST PRACTICE AND POLICY REVIEW

Value of Trees
Re-establishing trees on the highway

Figure 13. Examples of extreme root girdling

Crown Development

The purpose of nursery pruning is to select and define a central leader which becomes the main trunk of the tree which, as it develops, is mechanically able to support the eventual permanent structural branching system of the tree. Nursery pruning also should control and subordinate lateral branches to the main trunk while retaining photosynthetic integrity as the tree grows.

Much of the lower crown on a nursery tree is formed of temporary branches which are removed as the tree as the tree develops.

It has to be remembered that the nursery tree irrespective of its size at planting is not the finished article and formative and structural pruning should be continued post planting and should be built into any maintenance regimes post planting.

Stages in Crown Development at the nursery.

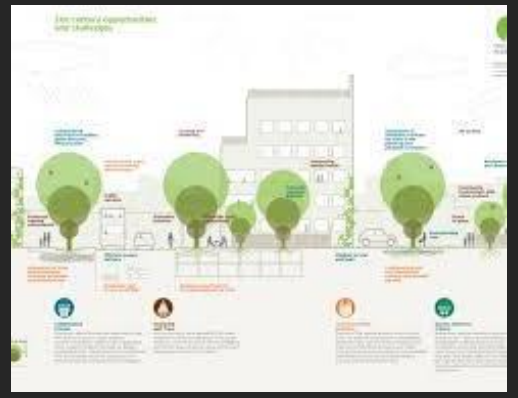
Figure 15. Removal of the stem of the understock

Figure 16. Young trees in the nursery field

Figure 17. Developing young trees in the nursery field.

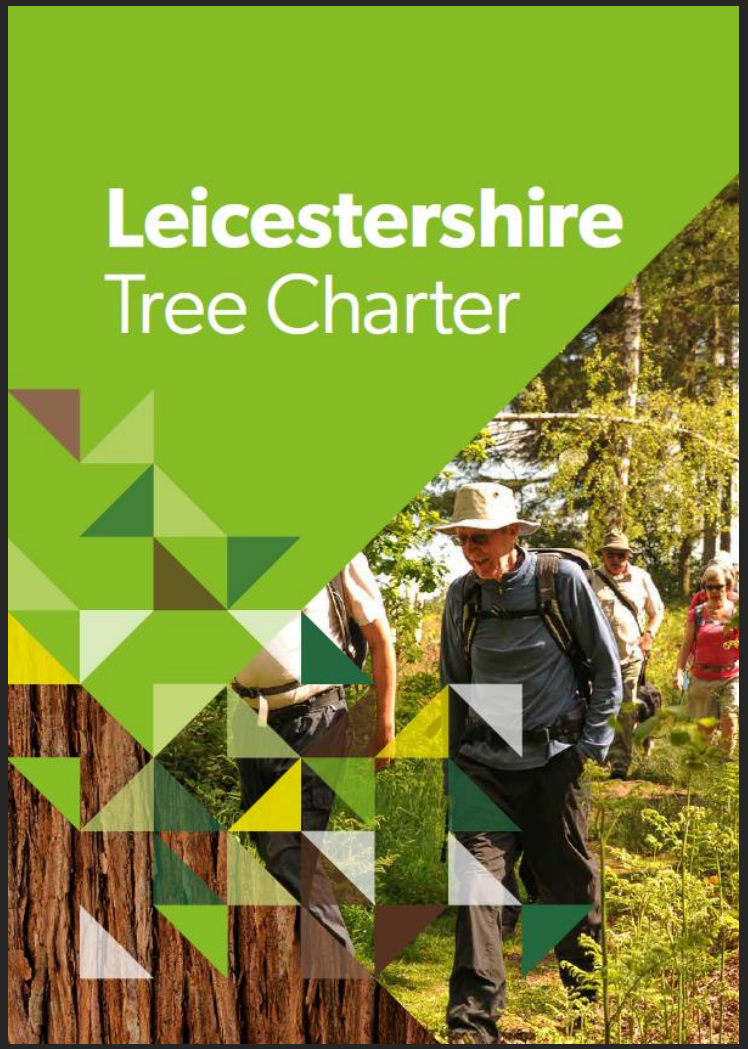
STAGE 2 – THE PILOT

- Test the toolkit on a live highway scheme
- Toolkit feedback and data analysis



STAGE 2

The Leicestershire Tree Charter



THE NATIONAL FOREST

a

PROJECT CHALLENGES

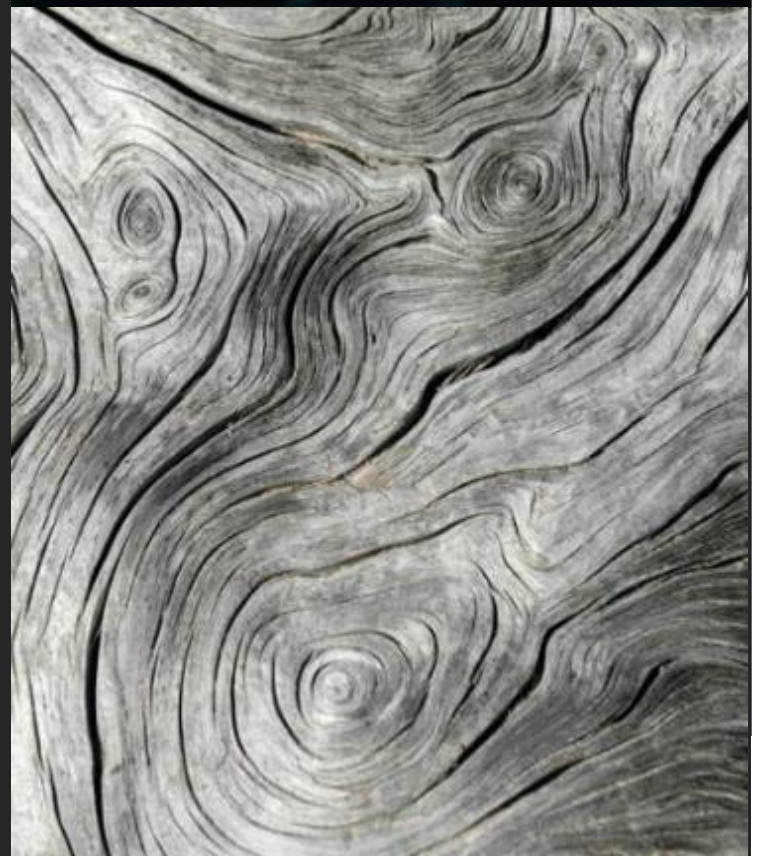
- Tree inventory information
- Life cycle costing
- Biodiversity data

BENEFITS

- **A considered approach to delivering ecosystem services and green infrastructure** A sound basis for mitigating the potential impacts of development
- **The right tree in the right place** - Trees that are resilient and appropriate in a variety of locations and conditions.
- **A blueprint for tree planting and management.** Consistent guidance for future third party development and in-house design that we can have confidence in.
- **Potential application within a revised Highway Design Guide and other local policy and guidance**
- **A sound understanding of the costs and benefits of trees** - A solid foundation from which to obtain funding for tree procurement and management and make a financial case for trees in communities.
- **A tool for engagement with a wider audience**

THANK YOU

Andy Jackson | andy.jackson@leics.gov.uk



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Rees Jeffreys Road Fund

Value of Trees
Re-establishing trees on the highway

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Comfort Break

10 Minutes

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Live Labs II: Programme Update

Giles Perkins, Programme Director

ADEPT LIVELABS2 Decarbonising Local Roads

Department for Transport

Live Labs 2

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

Decarbonising Local Roads

Overview April 2023

ADEPT LIVELABS2 Decarbonising Local Roads

Our mission

Department for Transport

“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”

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Live Labs 2 principles

Department for Transport

- Focus on **net zero carbon outcomes** rather than (just) technical capabilities
- **Demonstrable and measurable carbon savings** and associated impacts
- Attention to a **specific need and / or problem** which is **commonplace elsewhere**
- **Improved customer experience and outcomes**
- **Improved network performance, reliability and resilience**
- **Improved maintenance regimes and revenue cost savings**
- **Minimised capital costs** through innovative deployment

ADEPT LIVELABS2 Decarbonising Local Roads

Live Labs 2 principles (cont)

Department for Transport

- **Reduction in infrastructure / asset costs**
- **Ageing assets being replaced / supplemented by sustainable alternatives**
- **Active private sector and academic collaboration**
- Delivery of wider **benefits within and outside the UK local roads** sector
- Creating an **open and interoperable** to create innovation eco-systems
- **Potential for scalability** to other locations across the UK and internationally

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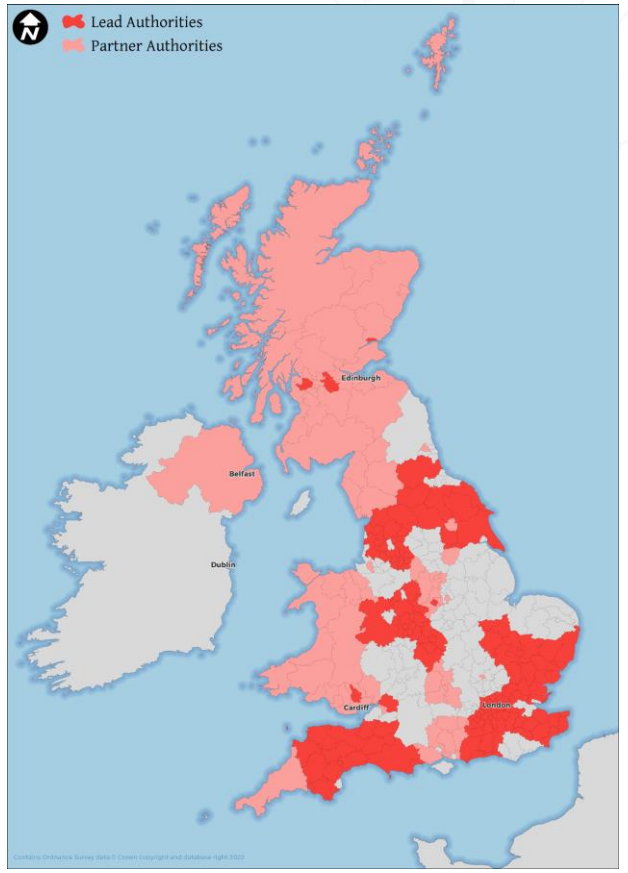
Competition

Department for Transport

- 4 soft market sessions
- 39 1-2-1 sessions
- 30 bids received
- Independent assessment by DfT
- 10 taken to Dragons Den
- Dragons recommendations
- Programme formulation
- SOBC stage & gateway



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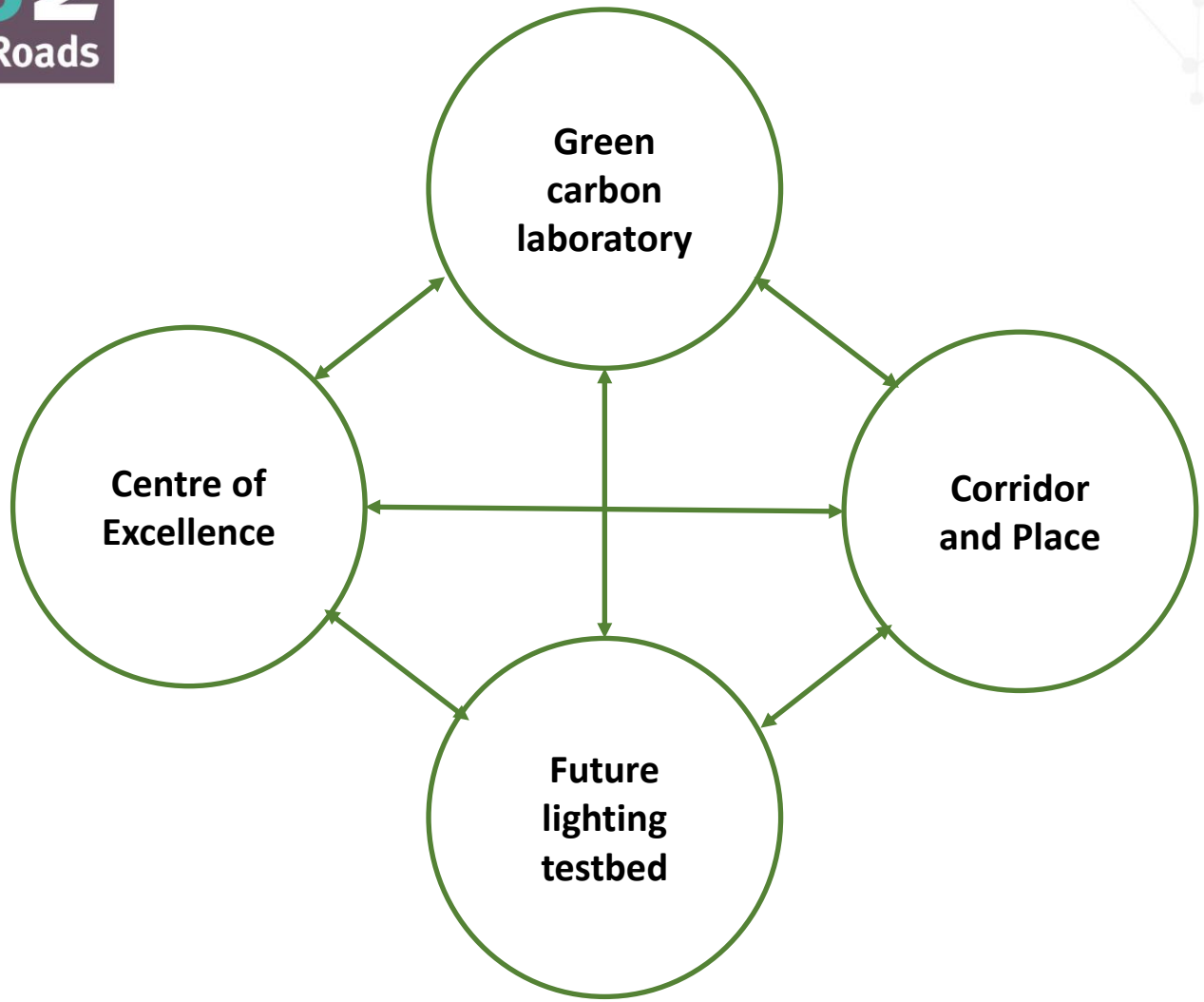
Four interconnected thematic areas

Department for Transport



ADEPT LIVELABS2 Decarbonising Local Roads

Programme formation

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

UK Centre of Excellence for Materials

Local Authorities **(Lead)**	**North Lanarkshire Council,** Transport for West Midlands (TfWM)
Title	UK CO_2llaboration Centre of Excellence for Materials Decarbonisation
Partners	Amey, Colas, SCOTS Group, Heriot Watt University, Catapult, The University of Nottingham, Manufacturing Technology Centre, TRL, Future Highways Research Group, National Highways
Overview/Local Authority Roles	• **Joint** - Creating the UK Collaboration Centre of Excellence for Materials Decarbonisation, which was the goal of both organisations. Provide access to test sites in two geographical areas. • North Lanarkshire – North Campus: ○ Live Lab demonstrators ○ Incubator programme ○ Industry database development ○ Recycled material programme ○ Translation of specifications & standards • TfWM – South Campus ○ Live Lab demonstrators ○ Challenge-led innovation programme ○ Full lifecycle enabling assets ○ Academic knowledge generation (Nottingham, Aston) ○ Skills development via Skills Academy ○ Translation of specifications & standards
Key Highlights/Innovations	• Fencepost to fencepost approach on all materials, with a laser sharp focus on carbon • Two campuses, but one programme. Virtual campus North Lanarkshire and physical one at TfWM • FHRG Carbon Calculation & Accounting Standards – will also look at trialling other baselining tools Significant knowledge sharing: workshops, webinars, White Papers, utilisation of social media, industry events Commitment to immediate scale • Alignment and change of industry specifications

Corridor and place-based decarbonisation

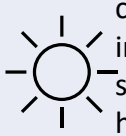
Local Authorities **(Lead)**	**Wessex (Somerset County Council, Cornwall Council, Hampshire County Council)**, Liverpool City Council, Devon County Council
Title	Corridor & Place-based Decarbonisation Consortium
Partners	University of Exeter, Colas, Bird&Bird, Proving Services, Milestone Infrastructure, Doughnut Economics Action Lab, Aberdeen City Council, The Royal Borough of Kensington and Chelsea, Newcastle City Council, Pell Frischmann, Liverpool John Moores University, Dowhigh, Huyton Asphalt, Placed, Cocreation Partnership, Gap Group, Circle Economy, Cormac, Wainwright.
Overview/Local Authority Roles	**Wessex** – developing a model for decarbonising delivery methods across nine 'net zero corridors' in Somerset, Cornwall and Hampshire, acting as a proxy for all highways. Wessex will progressively decarbonise maintenance across the whole asset lifecycle. Corridors will be a test bed for innovation, circular solutions and new ways of thinking. Their approach will be underpinned by the Doughnut Economics model. **Liverpool** - decarbonising highways delivery in complex city contexts through the introduction of an 'Ecosystem of Things', a scalable and transferrable systems mapping approach at city-level. This spans design, public spaces, community engagement, materials/process technology, recycling infrastructure and the legal, contractual and procurement processes to be implemented so that decarbonisation initiatives can be adopted as BAU. **Devon** - accelerating the reduction of carbon emissions associated with construction and maintenance of highways and demonstrating carbon negative highways are possible. The A382 project provides the opportunity to drive carbon changes to design, construction and maintenance. A multi-organisation partnership has formed to combine knowledge of known and theoretical carbon reduction methods to devise a route to 'carbon negative' spanning the whole project life cycle.
Key Highlights/Innovations	• Laser sharp carbon focus with systemic thinking Nine 'net zero corridors' with a Doughnut Economics model • 'Ecosystem of Things' – a scalable approach to decarbonising in the complex city context • Demonstration of carbon negative highways

A green carbon laboratory

Local Authorities **(Lead)**	**South Gloucestershire Council and West Sussex County Council**
Title	Greenprint - A green carbon laboratory – examining the role that the highways 'green' asset can play in providing a source of materials and fuels to decarbonise highway operations
Partners	University of Brighton, University of the West of England, Amey, Tarmac, Plantlife, Ricardo, Suez Environment, Peakhill Associates
Overview/Local Authority Roles	 • This Live Lab introduces a first-of-its-kind whole system approach to creating a net carbon negative model for green infrastructure delivery • The Greenprint vision: 1. Set ambition for carbon negative, rather than net zero 2. Break siloed thinking, putting carbon at the centre of decision making 3. Design a replicable model for using green assets as a valuable commodity • The programme will model cross-functional fugitive and scope-three emissions within a digital twin that positions highways within a network of wider local authority functions and operations • The partnership will prove a replicable, circular economy approach for harnessing green estate biomass into power, alternative fuels and asphalt additive to achieve a net positive model for green estate management that pays for itself and more • This 'greenprint' aims to revolutionise the narrative for biomass drawn from councils' estates from 'waste' to 'value' and prove a sustainable model and business case for highways and waste organisations to work together synergistically to achieve radical reductions in overall carbon • Six key carbon reduction measures: 1. Fugitive/hidden emissions 2. Asphalt emissions from Hydrochar 3. Resilience increase from Hydrochar 4. Fossil fuels replaced by Biofuel 5. Increase in embedded carbon in biodiverse verge 6. Optimisation of delivery operations across system
Key Highlights/Innovations	 • A unified programme across two councils • "Carbon negative, rather than net zero" • Harnessing green estate biomass into power in a circular model that pays for itself.

A future lighting testbed

Local Authorities **(Lead)**	**East Riding of Yorkshire Council**
Title	High Visual Efficiency for low carbon lighting decarbonising street lighting - A future lighting testbed to determine future lighting assets and light levels
Partners	Oxfordshire County Council, York City Council, Hull City Council, Aberdeenshire Council, Lancashire Council, Derbyshire Council, Cambridgeshire County Council, Pembrokeshire County Council, University of Sheffield, LCRIG, WJ, local transport projects, BSI, 3M, UK Road Leadership Group, ILP, SAS Lining Services, UK Lighting Board, City of Westminster, Department for Infrastructure, County Surveyors Society Wales, Clearview Intelligence, MEON, The Local Government Technical Advisors Group, Midlands Highway Alliance Plus

Overview/Local Authority Roles	Siloed interventions and regulations over 50 years have created significant and unmeasured carbon impact (construction and energy use). These unsustainable practices demand a total re-think that will reduce carbon impact and drive down UK street light energy costs (exceeding £1Bn annually). Twenty years since the first 'streetlight switch off', despite material advances, potential savings are constrained by regulations, guidance and outdated thinking. Driven by a vision towards zero carbon, cutting edge approaches including next generation signs, lines and solar studs, East Riding will create enhanced visual outcomes for all road users. Subject to strict milestones, and linked to hard evidence and academic rigour, we will create a framework for an alternative manual for highway lighting, signing and road marking that provides enhanced visual perception. Street furniture will thereby evolve around the specific ambition to reduce energy consumption.
	 
	
	• East Riding's ambitions:
	  • To provide evidence that all road users achieve better visual perception through innovation
	  • Create the evidence base for sustained modifications
	  • Provide the catalyst for wholesale immediate change
	  • Create a choice beyond British Standards & TSRGD regulations
	  • Establish a robust invest 2 save / Prudential borrowing framework
	  • Prove we can divert money already in the system
	  • Switch current funding and reduce cost
	  • Not seek new and fresh money beyond this Live Lab

Key Highlights/Innovations	Every region of the UK - over 10% of the UK lighting asset Not just looking at lighting but the whole highways visual environment. Signage, lining, visual perception of cyclist, pedestrian, HGV driver etc. • Provide a catalyst for immediate change and scrutinise the current British standards

ADEPT LIVELABS2 Decarbonising Local Roads

Department for Transport

Thank you

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Human Capital Management: Research Theme Update

Karen Farquharson (Research Leader)

HCM Sector Initiatives (Update)

Future Highways Research Group

- **LCRIG**
  - LCRIG Skills: Signposting of Courses.
  - Developing Highways Operative Apprenticeship in conjunction with Salford City College (estimated launch Sept 2023).
- **Midlands Highways Alliance +**
  - Skills Development (September 2023) / ‘Grow Your Own’.
- **ADEPT / Colas – Roundtable on Workforce Issues**
  - Focus on recruitment and retention.

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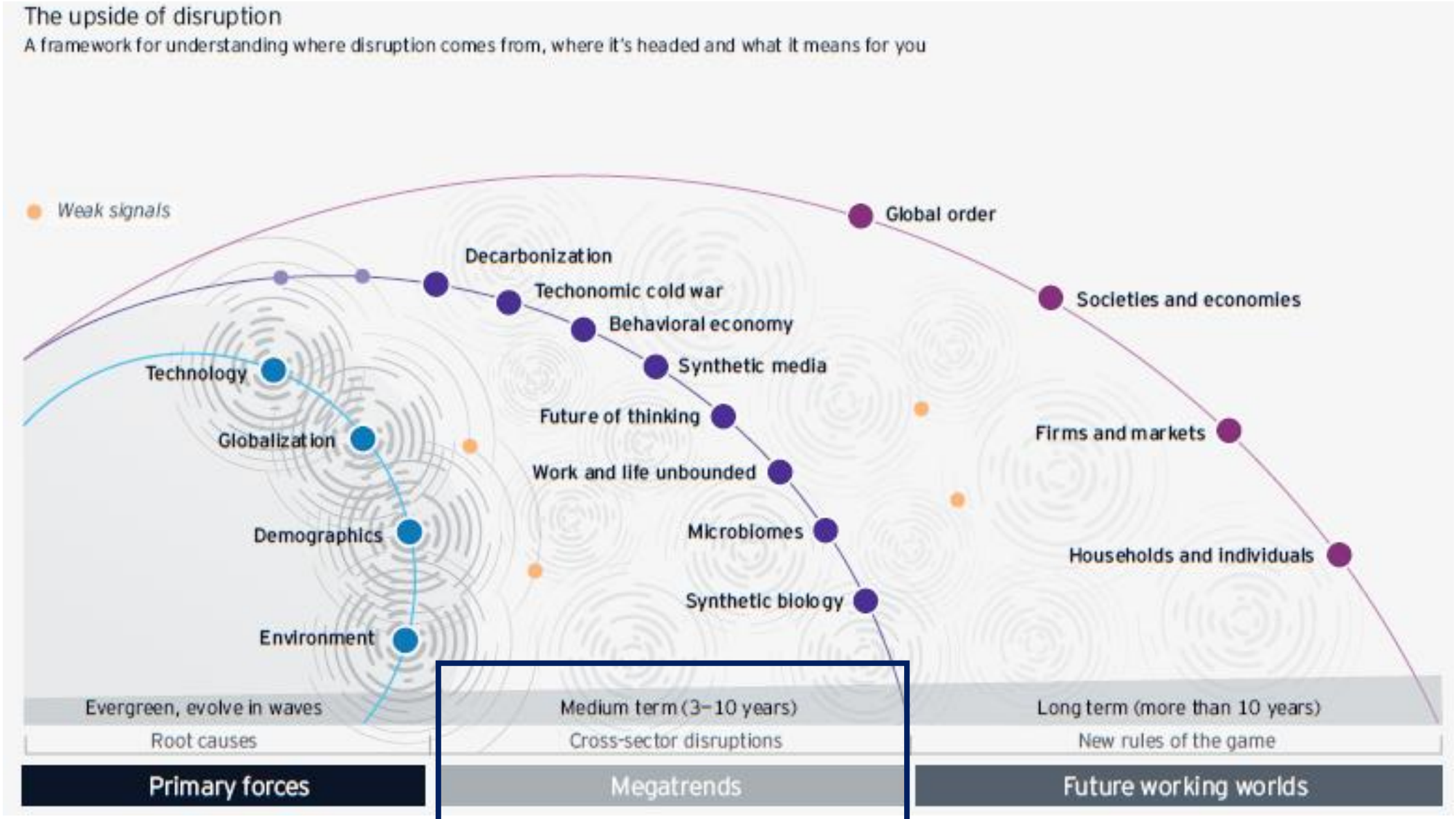
Technical Landscape: Looking Ahead

Helen Bailey

FHRG: Looking ahead

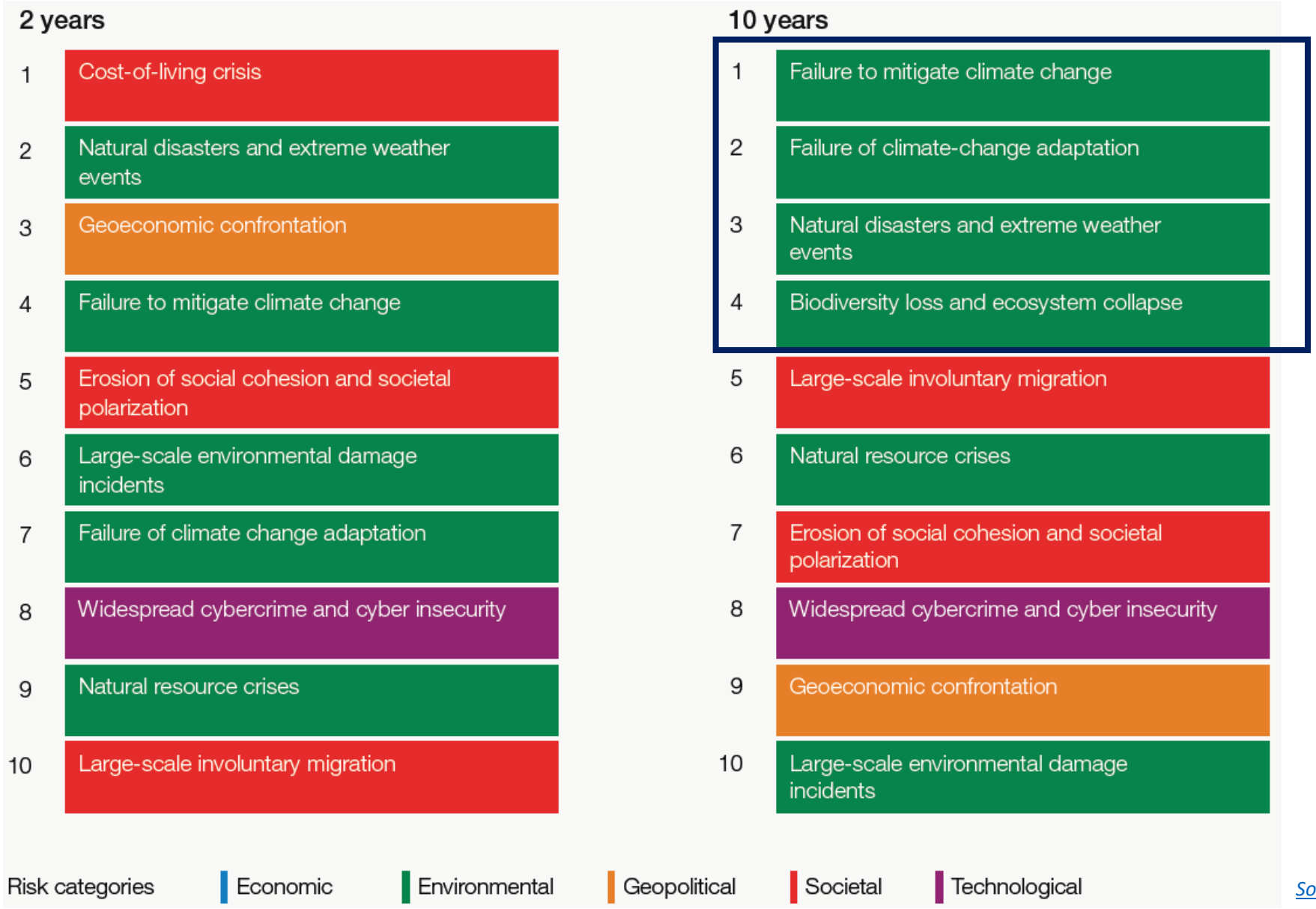
www.driven.co.com

Megatrends and disruptors



Source: EY (2023), https://www.ey.com/en_gl/megatrends.

Global risks ranked by severity



Source: World Economic Forum Global Risk Report 2020

Innovation and unintended consequences -doing less bad is not good enough

driven

Time to take a systems view

Measuring and benchmarking within the sector are just the start

We will need to transform and transition to Sustainability 3.0:

- Question the model - integrate into business practice (make friends with procurement)
- Be collaborative and flexible
- Be visionary and reimagine (product as a service, rental?)
- People focused – engage the individual, understand implications of choices in relation to behaviour (more effective)

‘Success stories’

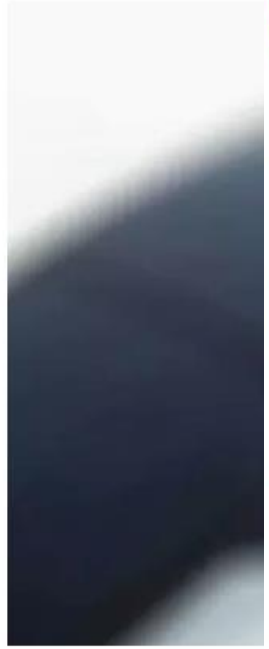
ENERGY: Teemill adopts hourly renewable energy tracking tech

As ever more busine
traditional tariff-bas
added and that their
generation and distri

RESOURCES: Portsmouth repair café sets out to also offer rental services

The first ‘repair café’ is
from her living room ir
members of the public

MOBILITY: Arval pre-orders 10,000 solar-electric vehicles



It’s been a busy week
Smart Charging Plan
to London and a furt
largest trial of EVs in

THE BUILT ENVIRONMENT: UK’s first 3D-printed home insurance policy launches

Image: The University of Maine – Advanced Structures and Composite Center (ASCC)

edie and our innovation partner Springwise have covered the emergence of 3D-printed homes in our monthly features on green innovations regularly in recent times. 3D-printed buildings present opportunities to use recycled and natural materials and to streamline construction supply chains, thereby cutting emissions.

Source: https://www.edie.net/

The challenges of future mobility (systems thinking)

April 2023

FHRG

Mobility as Prosperity

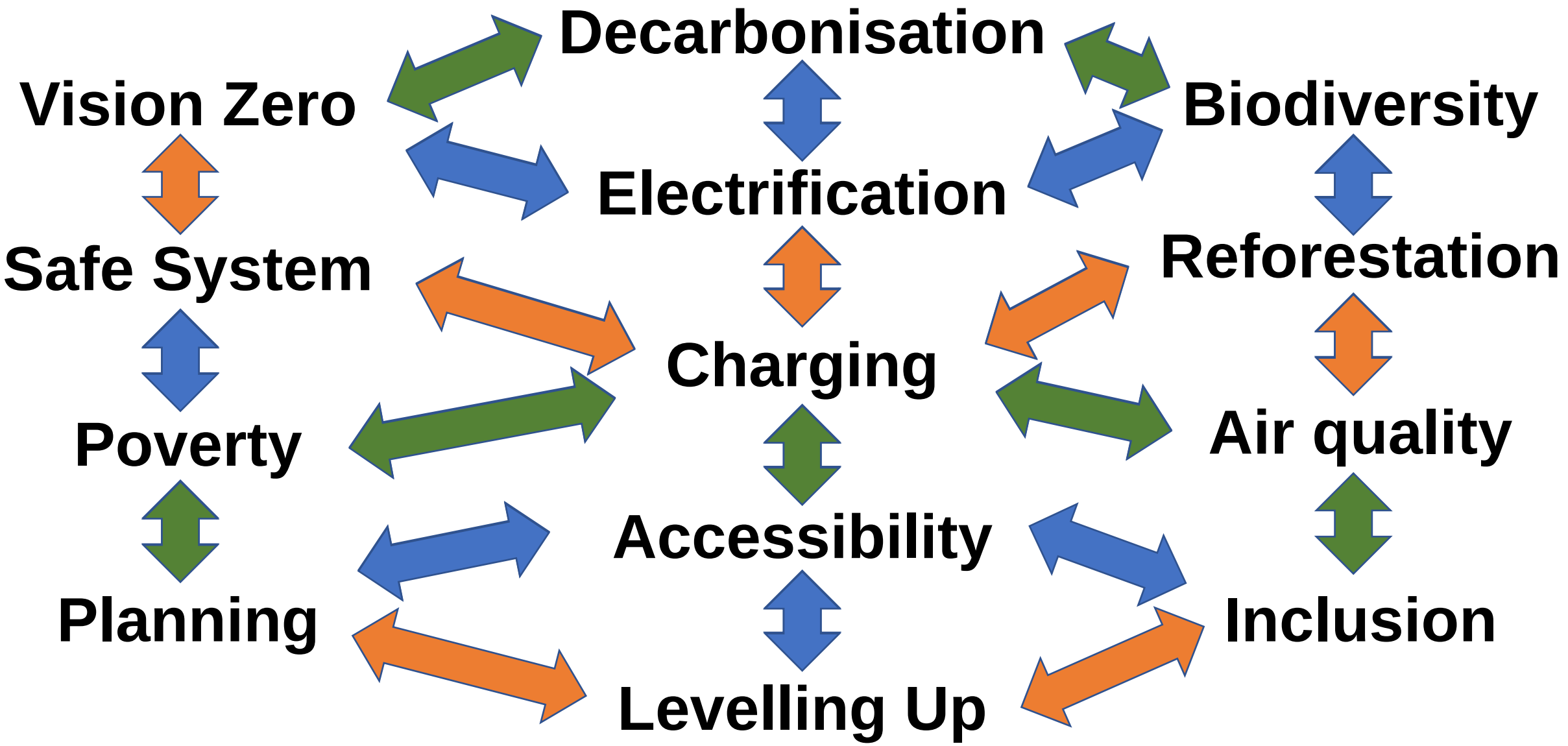
UCL Prosperity Model showing categorisation of important factors to prosperity (Institute for Global Prosperity, 2017)

reed mobility

Mobility as Civil Action

reed mobility

Multiple inter-related challenges to address



How do we get there?

https://youtu.be/aHmGKIVOSts

reed mobility

Thank you

driven

reed mobility

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April 2023

FHRG meeting

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Future Operating Models: LHA Preferences

Informing Future Strategy

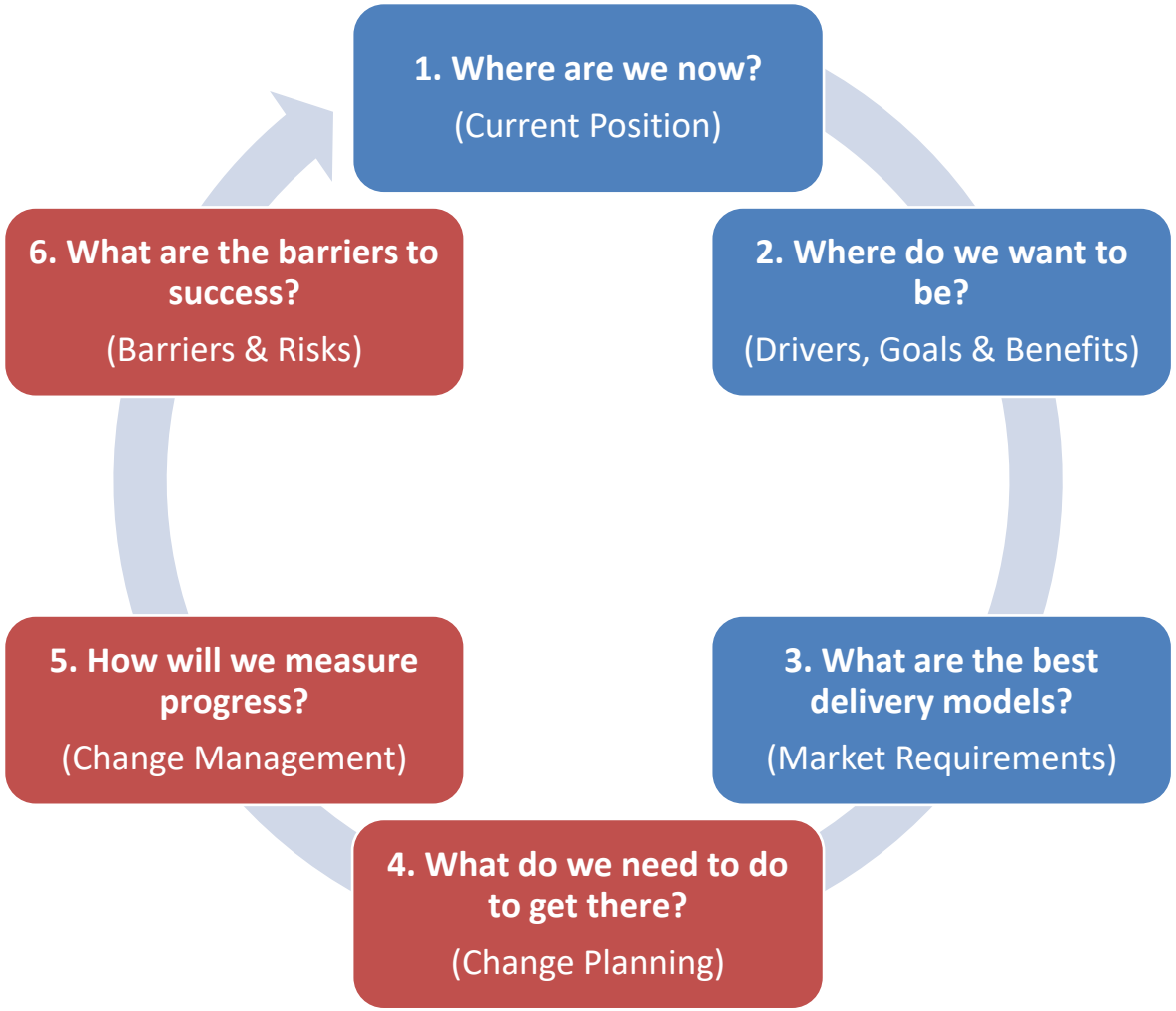
Future Service Delivery Options Review

Background and Purpose

- In Spring 2020, the FHRG identified that within the next five years, twenty-four local highways authorities would be coming to the end of their current highways delivery arrangements. Eight Future Highways Research Group (FHRG) members commissioned Proving to undertake a review of the marketplace and evaluate future service delivery options.
- A key objective of the review was to better understand how authorities and their partners can improve contractual and collaborative relationships to deliver mutually beneficial outcomes.
- As part of the study, Proving developed a methodology to enable individual authorities to evaluate some 15 potential future operating models and rank these in terms of their strategic fit, attractiveness and achievability.
- This methodology has now been used by 14 authorities over the past two years. Each review considered:
  - What are the strategic objectives the Service will want to deliver through its future service delivery model?
  - How might each potential service delivery option contribute to the delivery of our strategic objectives, relative to our current model?
  - How attractive and achievable is each potential service delivery option, relative to our current model?
- The outcome of the above process is a provisional ranking of the potential future service delivery options, which can be evolved as the procurement process develops and the scope and breadth of services to be encompassed becomes clearer.

Future Service Delivery Options Review

Scope



Future Highways Research Group Membership

- Buckinghamshire Council
- Central Bedfordshire Council
- Cumbria County Council
- Derby City Council
- Derbyshire County Council
- Devon County Council
- Dorset Council
- East Sussex County Council
- Essex County Council
- Hampshire County Council
- Herefordshire Council
- Hertfordshire County Council
- Kirklees Council
- Kent County Council
- Lancashire County Council
- Leicestershire County Council
- Lincolnshire County Council
- Liverpool City Council
- London Borough of Newham
- Luton Borough Council
- Milton Keynes Council
- Norfolk County Council
- North Somerset County Council
- North Yorkshire County Council
- Northumberland County Council
- Nottinghamshire County Council
- Oxfordshire County Council
- Shropshire Council
- Solihull Metropolitan Council
- Somerset County Council
- Southend Borough Council
- South Gloucester Council
- Staffordshire County Council
- Suffolk County Council
- Surrey County Council
- Warwickshire County Council
- West Sussex County Council

Members who have undertaken a future service delivery options review over the past 24 months are indicated in red.
Knowsley MBC, a non-FHRG member, has also undertaken a review.

Consolidated Strategic Goals of Highways Authorities
'Where do we want to be?'

Future Highways Research Group

1. **Support initiatives that deliver carbon neutral services, schemes and incentives.**
2. **Optimise and improve network performance for all users under all conditions (active travel).**
3. **Enhance the local economy through network expansion and improvement to meet the growth agenda.**
4. **Sustain a financially resilient service that delivers best value with the resources available.**
5. **Engage effectively to understand and meet the needs of our citizens and communities.**
6. **Embrace best practice, innovations and new technologies enabling the service to continuously evolve.**
7. **Develop and sustain collaborative partnerships that deliver the objectives of all partners.**
8. **Attract, develop, empower and retain the best people capable of driving a dynamic and agile service.**
9. **Develop a service that is understanding of social value and actively participates in the delivery of the benefits that it provides.**

We identified a high degree of strategic convergence across the sector. All 14 participants adopted a set of future strategic objectives broadly based on the above.

Future Service Delivery Options Review
The factors scored

Future Highways Research Group

Attractiveness		
Factor	**Weighting**	**Definition**
Economy	100	How much would this option cost to run compared to the current service delivery model. Are there any additional opportunities to reduce costs or increase revenues?
Efficiency	100	How productive and flexible would this option be once in operation, relative to the current delivery model?
Effectiveness	100	How would the outcomes and quality of service delivered under this option compare to the current delivery model?
Stakeholder Value	100	How would stakeholders (primarily service users) view this option relative to the current delivery model?
Achievability		
Factor	**Weighting**	**Definition**
Complexity	100	How complex (scale, diversity interdependencies, novelty and volatility) would the transition to this option be, relative to continuing with the current delivery model?
Capacity & Capability	50	How does our capacity and capability (including infrastructure and supporting services e.g. legal, HR and procurement), to transition to and maintain this option compare to our ability to continue with the current service delivery model?
Affordability	100	How affordable is it to transition to this option, relative to continuing with the current service delivery model?
Authority Readiness	75	How prepared is the authority to embrace this option, in terms of political preference, relative to continuing with the current service delivery model?
Provider Readiness	100	How willing is the provider market to embrace this option relative to the current service delivery model?
Sector Success Stories	75	Are there any relevant and proven success stories of similar service delivery models?
Governance and Reporting	25	How complex would the governance and reporting processes be for this option relative to those required for the current service delivery model?
Partner Management	50	How easy would it be to manage partner relationships and performance under this option, relative to the current service delivery model?
Cultural Alignment	75	How well does this option align to the operational culture of the organisation and service, relative to the current service delivery model?

Options Analysis Tool – Scores and Ranking

Future Highways Research Group

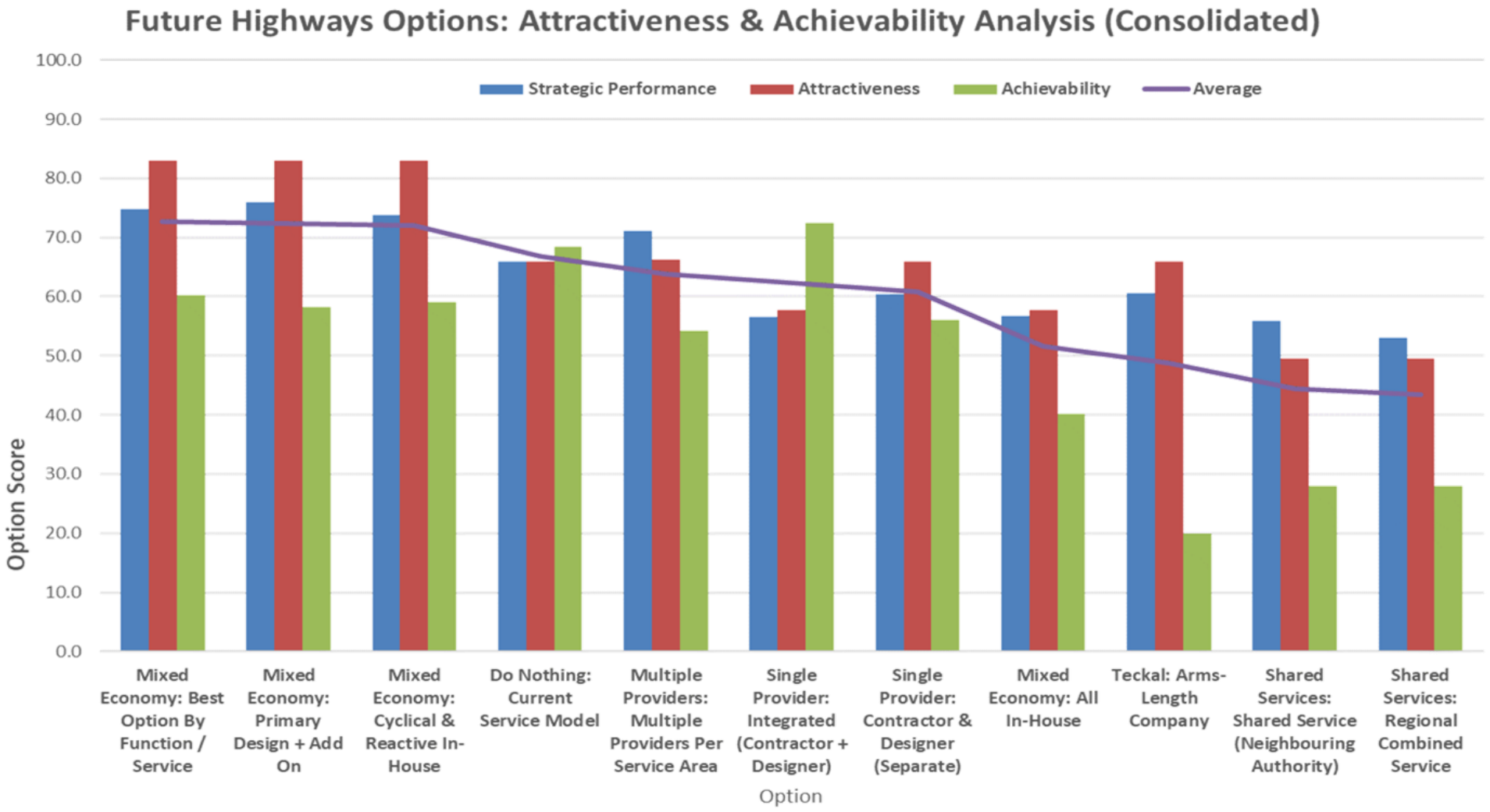
Refresh Data

Option Family	#	Option Name	Strategic Performance: Support initiatives that deliver carbon neutral services, schemes and incentives.	Deliver and enhance long term asset management.	Optimise and improve network and safety performance for all users under all conditions.	Enhance the local economy through well managed network expansion and improvement to meet the growth agenda .	Sustain a financially resilient service that delivers best value with the resources available.	Engage effectively with people and the communities we serve.	Embrace best practice and new technologies enabling the service to continuously evolve .	Attract, develop, empower and retain the best people capable of driving a dynamic and agile service.	Facilitate a flexible, adaptive and responsive approach to devolution and innovation.	Ability to have greater influence and transparency.	Total	Weight-Adjusted Score	Attractiveness Analysis (VfM): Economy	Efficiency	Effectiveness	Stakeholder Value	Total	Weight-Adjusted Score	Achievability Analysis: Complexity (Inherent Risk)	Capability & Capacity	Affordability	Authority Readiness	Provider Readiness	Sector Success Stories	Governance & Reporting	Partner Management	Cultural Alignment	Total	Weight-Adjusted Score	Position Analysis: Attractiveness, Achievability & Strategic Performance	Rank
Do Nothing	1	Current Service Model	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	100	100	100	66	66	66	66	66	66	77	68	66.8	4
Single Provider	2	Contractor & Designer (Separate)	100	33	33	33	66	66	66	66	66	66	58	60	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	56	60.8	7
	3	Integrated (Contractor + Designer)	66	33	33	33	66	66	66	66	66	66	54	57	33	66	66	66	58	58	100	100	100	66	100	66	66	66	66	81	72	62.3	6
Multiple	4	Multiple Providers Per Service Area	100	66	33	33	100	66	100	66	66	66	71	71	66	33	100	66	66	66	66	66	66	100	100	33	33	33	33	59	54	63.8	5
Teckal	10	Arms-Length Company	33	100	66	66	33	66	33	100	33	66	62	61	66	66	66	66	66	66	0	0	0	33	66	33	33	33	33	26	20	48.9	9
Mixed Economy	12	Cyclical & Reactive In-House	66	100	66	66	66	66	66	66	66	100	70	74	66	66	100	100	83	83	66	66	66	100	66	66	66	66	66	70	59	72.0	3
	13	Best Option By Function / Service	100	66	100	100	66	66	100	66	66	33	83	75	66	66	100	100	83	83	66	66	66	100	100	66	33	33	66	66	60	72.7	1
	15	All In-House	33	100	66	66	33	66	33	33	33	100	54	57	33	66	66	66	58	58	33	33	33	0	66	33	66	100	100	52	40	51.6	8
	16	Primary Design + Add On	100	100	100	100	33	66	66	33	66	100	75	76	66	66	100	100	83	83	66	66	66	100	33	66	66	66	100	70	58	72.4	2
Shared Services	17	Shared Service (Neighbouring Authority)	33	33	33	33	66	33	100	100	100	33	54	56	66	33	66	33	50	50	33	33	66	33	33	0	0	33	33	29	28	44.5	10
	18	Regional Combined Service	33	33	33	33	66	33	66	100	100	33	50	53	66	33	66	33	50	50	33	33	66	33	33	0	0	33	33	29	28	43.5	11
		Factor Importance	100	100	75	75	100	75	75	100	75	100			100	100	100	100			100	100	100	75	100	75	25	50	75				
		Average Factor Score	66	66	57	57	60	60	69	69	66	66			60	57	78	69	39	39	57	57	63	63	66	45	45	54	60	25	22		

Key: Anticipated Performance	
	Not Applicable (In This Context)
0	Critical Issue / Barrier to Implementation
33	Poorer Than Current Performance
66	Unknown or Parity (At Best) Performance
100	Parity Or Better Than Current Performance

Ranking Service Delivery Options

Future Highways Research Group



Future Service Delivery Options Review

Average Ranking Across 14 authorities

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Service Delivery Option	Ranking			
	Overall	Strategic Fit	Attractiveness	Achievability
Primary Design + Add On	**1**	3	3	3
Function Orientated Provider	**2**	7	1	6
Contractor + Designer (Integrated)	**3**	4	8	1
Best Option by Function	**4**	6	2	5
Contractor + Designer (Separate)	**5**	5	7	2
Cyclical & Reactive In-House	**6**	9	4	6
Arms Length Company	**7**	2	5	11
Joint Venture	**8**	1	6	9
All In-House	**9**	8	9	8
Multiple Providers	**10**	11	11	12
4 Year Framework	**11**	12	12	7
Shared Service	**12**	10	10	10

Highways Sector Service Delivery Models
Status and Direction - Overall

Future Highways Research Group

- **FHRG members deploy a highly diverse range of service delivery models currently. With one or two notable exceptions, few services are looking to fundamentally change their service delivery model when current contracts expire.**
  - There is a general recognition that scarcity of skills and capacity suggests change must be evolutionary rather than revolutionary.
  - The majority of services are looking to move toward a more mixed economy in future. This stands true whether the current service is a DLO, fully outsourced or somewhere in between.
  - The majority of services are also looking to install a stronger, more intelligent client function in future models.
  - Some services are willing to retain or move toward inhouse services to support political priorities, whilst acknowledging that these models may not deliver best economy or efficiency.
  - There remains no appetite for shared service models.
  - A minority of services are considering or have implemented a more fundamental change of operating model, e.g. North Yorkshire moving to a Teckal.
- **Within this overall context, drawing on the outcomes of the 14 future operating model reviews and a supplementary survey of all FHRG members, several conclusions can be drawn as set out on the following slides.**

Highways Sector Service Delivery Models
Status and Direction – Delivery Services

Future Highways Research Group

- **Delivery Services**
  - The majority of authorities that currently outsource delivery services intend to continue with a term maintenance contract or similar when they come to re-procure. However,
    - Whilst a minority of authorities are considering placing more services within the core contract, most are considering bringing certain under performing functions inhouse and/ or using national, regional or local frameworks or dynamic purchasing systems to complement the core contract.
    - Asset management, network management and safety and communications are common functions that many services are looking to bring inhouse.
  - There is little evidence from value for money reviews to support elected members' oft held assumptions that inhouse maintenance services are more responsive. However, several services are considering complementing their term maintenance contract with a small, inhouse 'rapid response' service that can respond to concerns raised by elected members and members of the public outside the core asset management strategy and annual plan.
  - A minority of services (e.g. North Yorkshire) have moved to or are considering a Teckal.

Highways Sector Service Delivery Models
Status and Direction – Design Services

Future Highways Research Group

- **Professional Services**
  - The majority of authorities that currently have an in-house design service consider that model delivers best value and have no plans to change. One authority is looking to outsource professional services as it cannot recruit sufficient skills and capacity to the current in house service.
  - Common complaints for authorities that outsource the majority of the design function to a single provider relate to price, quality and lack of local knowledge.
    - These issues can occur across models whether the external professional services provider is fully integrated or not with the delivery services provider.
    - Where properly delivered and integrated however, this model does offer good ECI.
  - Some services are considering bringing design services in house, but acknowledge the challenge posed by current recruitment market to standing up this model.
  - Many services use or are contemplating the use of frameworks for professional services, to promote competition, choice and greater access to specialist design services. A potential downside to this model is loss of ECI.

Highways Sector Service Delivery Models
Critical Success Factors

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Certain factors were identified that undermine success, regardless of the delivery model.

- Under investment in the service, relative to the chosen strategic objectives and member expectations.
- Absence of an adequately resourced, intelligent client function, especially where this diminishes capacity to:
  - Exercise control over core functions such as policy setting, asset management and communications.
  - Apply robust contract management (in respect of both core operations and added value).
  - Devote dedicated and sufficient resource to stakeholder management and communications.
- Recruitment and retention, a sector wide challenge that restricts the scope for significant delivery model change.
- Failure to put in place a robust forward programme.
- Relationships and collaboration; these factors are viewed as more critical to success than the choice of delivery model.

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Next Meeting: Proposed 13th July 2023?

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End of Document

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