Future Highways Research Group

FHRG Forward Research Programme & Waypoint Meeting (Q1, 2026)

Part 2 of 2

ADEPT / Proving Research Partnership

Home

Future Highways Research Group

Decision Equipped.

proving

ADEPT

Association of Directors of Environment, Economy, Planning & Transport

Highways

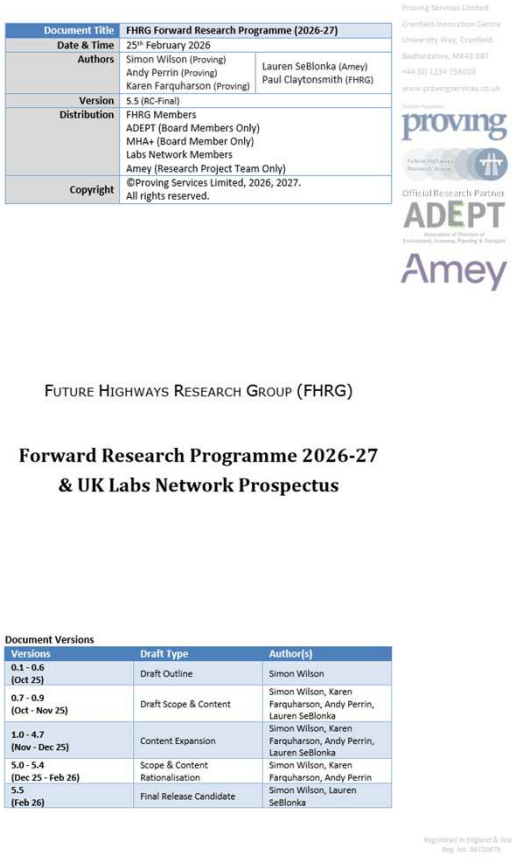
PART OF TRANSPORT NETWORK

Forward Research Programme: 2026 - 2027

Simon Wilson, Lauren SeBlonka, Paula Claytonsmith

Forward Research Programme (FRP)

Research Themes Briefing



Document Title	FHRG Forward Research Programme (2026-27)	
Date & Time	25th February 2026	
Authors	Simon Wilson (Proving) Andy Perrin (Proving) Karen Farquharson (Proving)	Lauren SeBlonka (Amey) Paul Claytonsmith (FHRG)
Version	5.5 (RC-Final)	
Distribution	FHRG Members ADEPT (Board Members Only) MHA+ (Board Member Only) Labs Network Members Amey (Research Project Team Only)	
Copyright	©Proving Services Limited, 2026, 2027. All rights reserved.	

Document Versions

Versions	Draft Type	Author(s)
0.1 - 0.6 (Oct 25)	Draft Outline	Simon Wilson
0.7 - 0.9 (Oct - Nov 25)	Draft Scope & Content	Simon Wilson, Karen Farquharson, Andy Perrin, Lauren SeBlonka
1.0 - 4.7 (Nov - Dec 25)	Content Expansion	Simon Wilson, Karen Farquharson, Andy Perrin, Lauren SeBlonka
5.0 - 5.4 (Dec 25 - Feb 26)	Scope & Content Rationalisation	Simon Wilson, Karen Farquharson, Andy Perrin
5.5 (Feb 26)	Final Release Candidate	Simon Wilson, Lauren SeBlonka

- **The Forward Research Programme comprises research four themes:**
  - **Theme #1: Agentic & Assignable AI**
  - **Theme #2: Local Green Energy Generation & Carbon Sequestration**
    - Beyond Greenprint
  - **Theme #3: Climate Change Resilience**
  - **Theme #4: UK LHA Labs Network**
- **The full prospectus is available in:**
  - *FHRG Forward Research Programme (2026-27) (v5-5).pdf*
  - **This is released today to all FHRG members**.

Future Highways Research Group

Decision Equipped.

proving

ADEPT

Association of Directors of Environment, Economy, Planning & Transport

Highways

PART OF TRANSPORT NETWORK

Amey: FRP Support

Lauren SeBlonka, Amey Lead

Lauren SeBlonka

Research Lead and Amey Representative

- **Innovation Business Partner at Amey, responsible for overseeing projects to enhance and improve our Highways contracts performance.**
- **Programme management of Live Labs 2 project with North Lanarkshire Council (Centre of Excellence for Decarbonising Roads – North Campus).**
- **UK member and Working Group Co-Lead for PIARC (World Road Association) Technical Committee 1.2 Contribution of Roads to Economic and Social Development.**
- **Background in social research, with two degrees in Sociology, previous experience in organisational transformation in the Third Sector, and Board Member for a local charity.**
- **Currently regretting her choice to run the Edinburgh Half Marathon.**
- **Amateur golfer!**

Why now?

Amey's commitment to the cutting edge through the FRP

Future Highways Research Group

Challenges

Increasing complexity in **embedding AI** in highways operations

Inconsistent technical performance data on materials and methods

Rising risks associated with **climate change** resilience and adaptation

Untapped waste streams that offer **carbon sequestration** benefits

Opportunities

Clear use cases for agentic AI ready to be deployed on Amey contracts

Labs Network to validate the materials and methods we use

Quickest access to toolkits for planning climate resilience and adaptation

Methods for generating greater value for our LHA contracts through green revenue streams

How will Amey be involved?

Future Highways Research Group

Inputs:

Literature Reviews

- **Who:** Amey Lead, Subject-Matter Experts, and signposting to partners from research organisations and/or supply chain.
- **What**: Provision of in-kind expertise and partner management.
- **Why**: AI & Innovation Studio and dedicated teams for climate resilience; Live Labs 2 learnings from CEDR and Greenprint

▲ Staff time
▲ Guidance
▲ Secondary data

Evidence Collection

- **Who:** Amey Lead and operational teams.
- **What**: Provision of testbeds with our LHA partners.
- **Why**: Multiple testbeds and innovation team to support trial delivery where required.

▲ Staff time
▲ Live network testbeds
▲ Trial evaluation expertise

Scaling

- **Who:** Operational teams.
- **What**: Commitment to scaling the outputs across Amey Highways.
- **Why**: The toolkits developed are critical to ensuring resilient, efficient and effective services.

▲ Staff time
▲ Pathway to scale
▲ Continued commitment

Home

Future Highways Research Group

Decision Equipped.

proving

ADEPT

Association of Directors of Environment, Economy, Planning & Transport

Highways

PART OF TRANSPORT NETWORK

Research Theme #1: Assignable & Agentic AI

Paula Claytonsmith, Research Theme Leader

Simon Wilson, FHRG

AI: Why we paused…

- **The FHRG considered AI technologies in Q1 2025 – Q3 2025.**
  - The benefits were assessed relative to the costs and risks.
- **Static AI technology was already widely adopted.**
  - Co-pilot document analysis and drafting, for example.
- **The technologies required for autonomous, assignable AI were immature.**
  - Agentic AI was still at a low TRL… although rapidly evolving.
- **The risks of early adoption were too high relative to the benefits and costs.**
  - After reporting to the FHRG, the research theme was paused.
- **The landscape has changed in 12 months…**
  - **Recursive Self-Improvement**, a key foundation of next-generation AI, is now emerging.

What does Agentic AI mean?

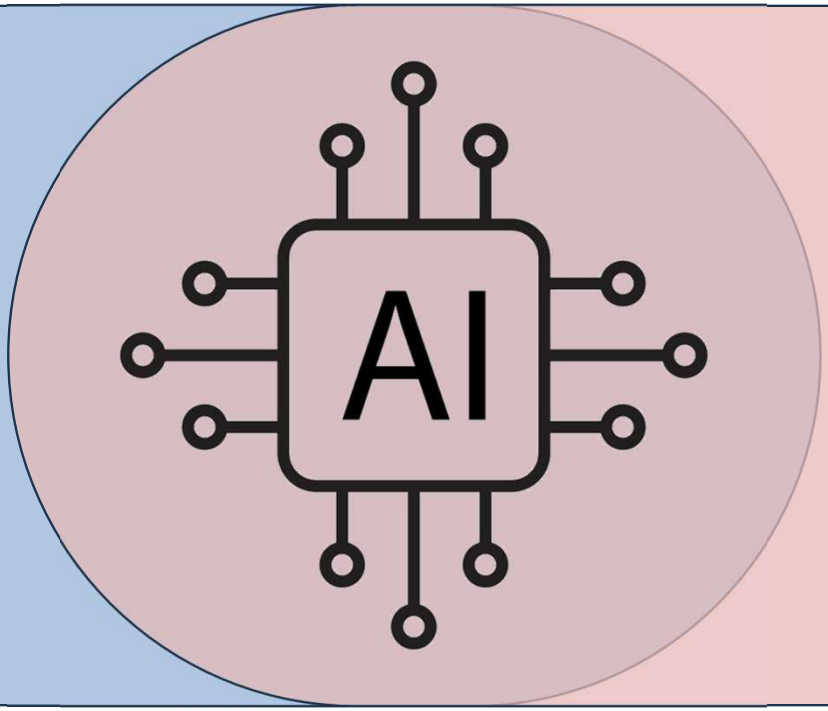
Traditional (Assistive) AI vs Agentic AI

Traditional AI

Requires prompts from humans and/or explicitly programmed rules.

Generative AI (Images, Video & Text)
Datasets Analysis & Summaries
Predictions & Extrapolations
Directed Task Support
Scheduled Tasks

~$1.1T worldwide spending to 2025 (Financial Times)



Agentic AI

Takes action to achieve a defined outcome, often without direct human input.

Environment Sensing
Adaptive Reasoning
Broad Rules-Based Actions
Learning From Outcomes
Human Language Reporting

~$1.5T worldwide Agentic AI spending in 2025 (Gartner)

Recursive Self-Improvement

Recursive Self-Improvement (RSI) enables AI to advance without constant human supervision; moving from static, pre-trained models toward dynamic, evolving agents. AI increasingly uses its own outputs as inputs to iteratively analyse, critique, and improve its own performance.

- **Core Mechanisms of Recursive Learning**
  - Self-Correction & Reflection
    - Models produce an output, evaluate it (using self-reflection or external signals), and refine it, enhancing performance on tasks like coding or reasoning.
  - Self-Generated Data (Synthetic Data)
    - AI models generate their own training data, allowing them to train on increasingly complex examples.
  - Nested Learning
    - Self-modifying architectures, such as those that can adjust their own memory mechanisms, allow for infinite, looped learning levels.
- **Key Approaches and Technologies**
  - Reflection & Verbal Feedback
    - Models like LLMs engage in self-criticism, using natural language to reflect on errors and improve subsequent attempts.
  - LADDER (Learning through Autonomous Difficulty-Driven Example Recursion)
    - A framework where LLMs autonomously progressively harder tasks, which has been shown to drastically improve performance on complex problems.
  - Recursive Language Models (RLMs)
    - Inference strategies where LLMs interact with REPL environments (like Python) to break down and solve, for example, unbounded input lengths by self-querying.
  - AutoML & Self-Designing Agents
    - Systems, such as those used in chip design or AI development, that iterate on their own structure... Essential for robotics.

Recursive Self-Improvement

Continued…

- **Applications and Benefits**
  - Advanced Problem-Solving
    - Systems that break down complex problems into smaller, manageable sub-problems, improving efficiency over time.
  - Specialist Roles Appropriation
    - Specialist human roles increasingly replaced by adaptive AI… increasing exponentially with robotics.
  - Cybersecurity
    - Adaptive AI in tools like Microsoft Defender and CrowdStrike that learn to recognize new, evolving threats.
  - Digital World Development & Management
    - 20% - 25% of new code is already AI-authored. This will rise to 60% over the next two years, replacing most traditional coding jobs and DBM roles (Google).
- **Future Implications**
  - Recursive AI is considered a potential path toward Artificial General Intelligence (AGI) or superintelligence. It is seen as moving from "static tools" to "adaptive agents" that can learn and grow independently, potentially enabling AI to operate without human intervention in the loop. **The implications are profound.**

Research Theme #1: Assignable & Agentic AI

Paula Claytonsmith, Research Theme Leader

Paula Claytonsmith

Research Theme Leader

- **Welcome and introduction.**
  - Started as a landscape architect (or, as we say down south, “gardener”).
  - Long history in senior roles in local authorities.
  - Previously CEO of LCRIG.
  - Possibly one of the best-known and best-connected people in the sector.
  - Has overseen and / or supported many highways innovation initiatives.
  - (Inexplicably) keeps horses.
- **…and needing no further introduction… welcome to the FHRG, Paula.**
  - Paula will lead Theme #1: Agentic AI.

What does this mean for highways services?

**AI will change the world…
what might it mean…**

For services?
For suppliers?
For the public / road users?
For employees?

Can anyone predict the implications?

Home

Future Highways Research Group

Decision Equipped.

proving

ADEPT

Association of Directors of Environment, Economy, Planning & Transport

Highways

PART OF TRANSPORT NETWORK

Assignable & Agentic AI

Paula Claytonsmith

Purpose

- **Understand how agentic and assignable AI could transform highways operations.**
  - Beyond assistive AI roles.
- **Assess market readiness and technology maturity.**
  - Current market players and possible new entrants.
- **Identify suitable operational tasks for AI delegation.**
- **Evaluate benefits, risks, and cultural implications.**

Research Structure

- **Agentic AI roles and applications.**
  - Operational task suitability and benefits.
- **AI technology and provider landscape.**
- **Business, cultural, and system-level impacts.**
  - People, processes, legacy systems integration, cultural considerations.
- **Governance, risk mitigation, and implementation roadmap.**

What Do We Mean by Agentic & Assignable AI?

- **AI systems that can be delegated defined tasks and objectives.**
  - Using human language and predicated on task-specific knowledge and situation awareness.
- **Operate semi-autonomously within guardrails.**
- **Interact with other systems, data, and humans.**
- **Escalate decisions or exceptions when thresholds are breached.**
- **Interacting and reporting to humans using human language.**

Future Highways Research Group

Decision Equipped.

proving

ADEPT

Association of Directors of Environment, Economy, Planning & Transport

Highways

PART OF TRANSPORT NETWORK

Agentic AI in Highways Services

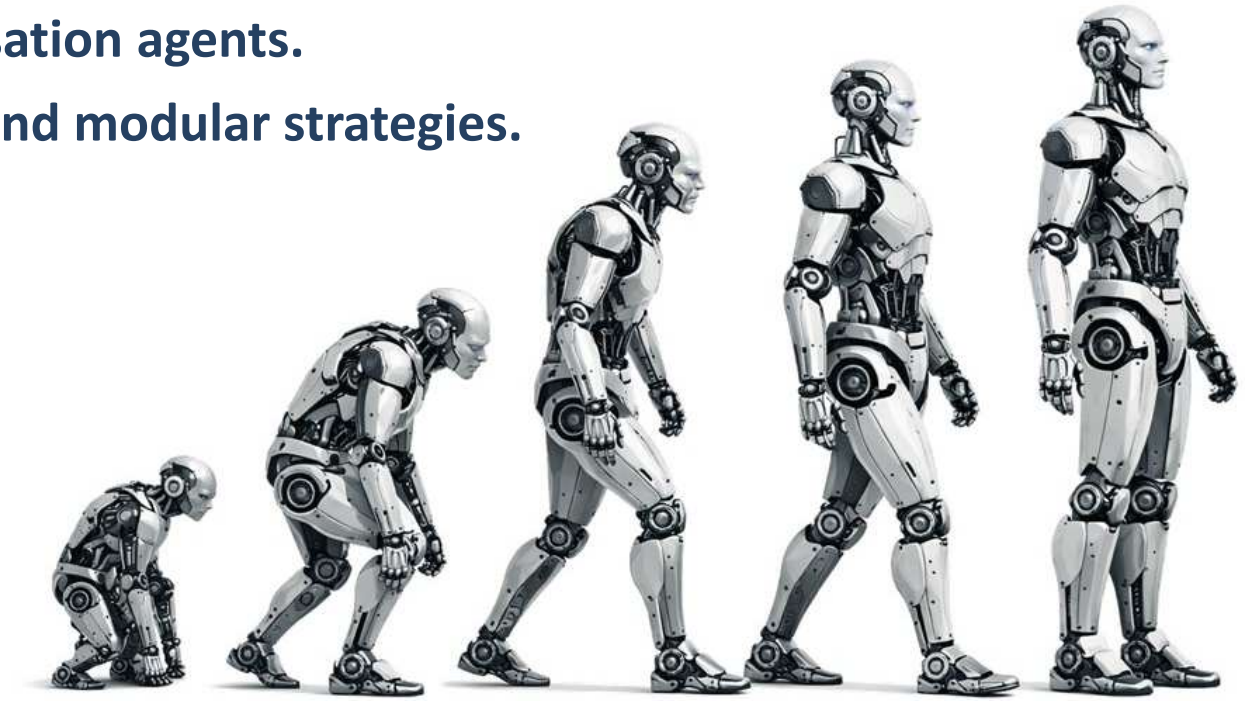
Paula Claytonsmith

AI Technology Landscape for Highways

- **Core AI capabilities: vision, prediction, optimisation, language.**
- **Agentic AI layered on top of analytics and automation.**
- **Integration with digital twins, sensors, and operational platforms.**
- **Strong dependency on data quality and interoperability.**

Market Maturity View

- **Market ready: analytics, prediction, workflow automation.**
- **Near-term: agentic coordination, automated decision support.**
- **Emerging: fully autonomous optimisation agents.**
- **Volatility requires vendor-agnostic and modular strategies.**



Assessing AI Providers

- **Technical maturity and scalability.**
- **Experience in safety-critical environments.**
- **Explainability and auditability.**
- **Integration with highways and asset systems.**
- **Strength of AI governance and security.**

OpenAI

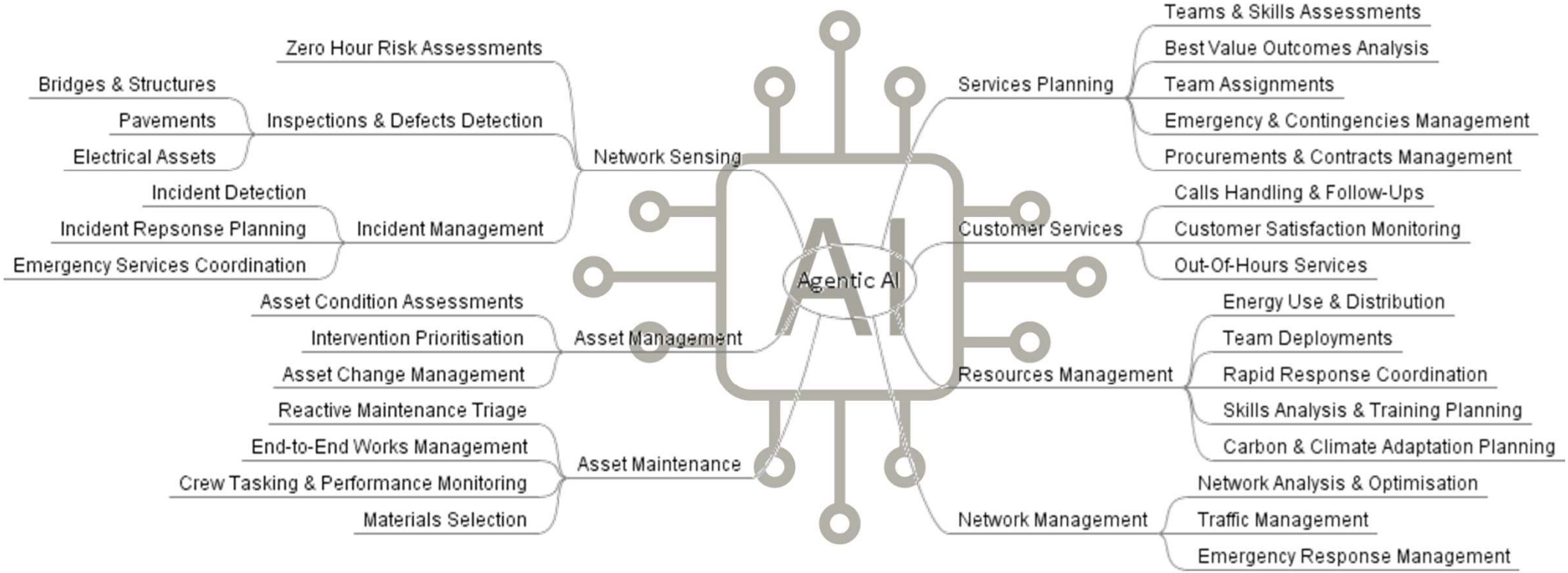
Microsoft

ANTHROPIC

Google

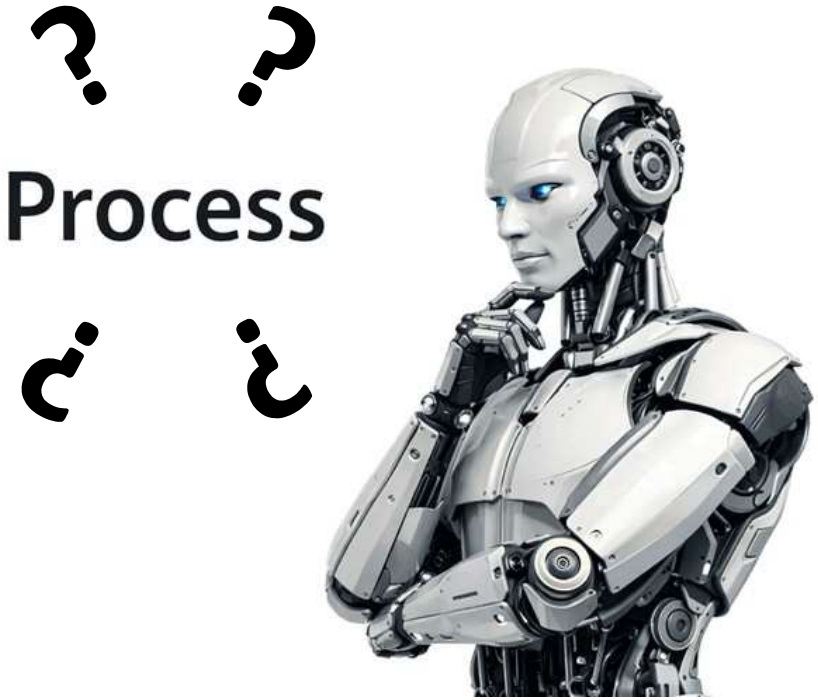
Meta

Highways Operations Task Inventory



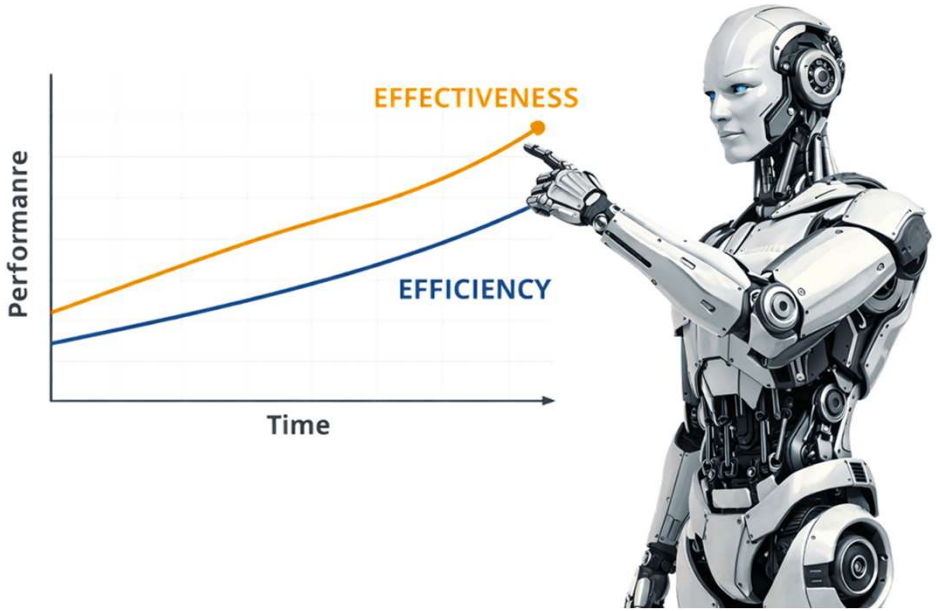
Suitability for Agentic AI Automation

- **High-volume, repeatable decision tasks.**
- **Data-rich processes with measurable outcomes.**
- **Tasks requiring coordination across systems.**
- **Human-in-the-loop requirements.**
  - For safety-critical decisions.



Expected Effectiveness & Efficiency Gains

- **Faster decision cycles and response times.**
- **More consistent application of standards.**
- **Improved forecasting and preventive maintenance.**
- **Better use of skilled human expertise.**



Costs & Risks

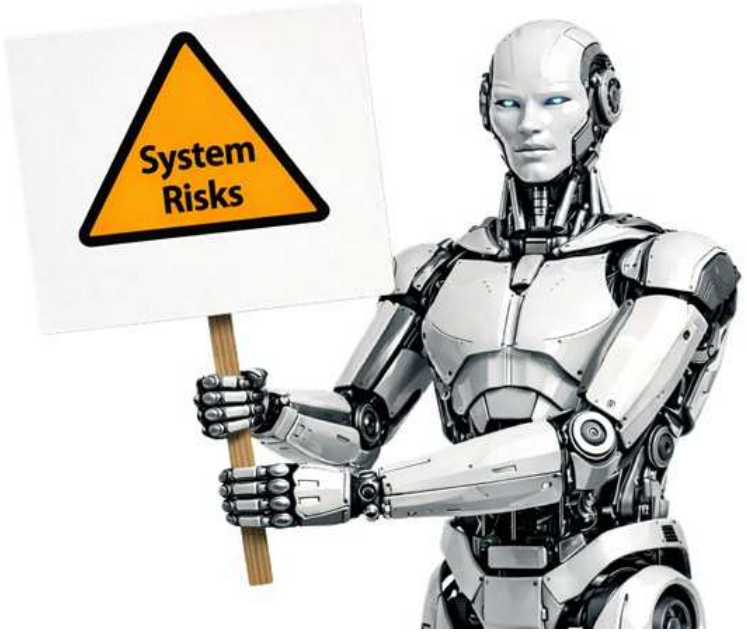
- **Upfront investment in data, integration, and assurance.**
- **Model bias and brittleness under abnormal conditions.**
- **Over-reliance on automated recommendations.**
- **Cybersecurity and data governance risks.**

Business & Cultural Implications

- **Shift from task execution to oversight and judgement.**
- **Need for new skills and confidence in AI-supported decisions.**
- **Potential resistance due to trust and accountability concerns.**
- **Leadership role in setting norms and guardrails.**

System-Level Risks for Local Highway Authorities

- **Optimisation that unintentionally degrades safety.**
- **Loss of situational awareness through abstraction.**
- **Fragmentation of accountability.**
- **Misalignment with statutory and regulatory duties.**



Monitoring & Mitigation Approaches

- **Human-in-the-loop decision checkpoints.**
- **Explainable and auditable AI outputs.**
- **Operational KPIs and safety indicators.**
- **Regular assurance, testing, and red-teaming.**

Agentic AI Use Case Heat Map

Value vs Risk

Risk	Low Value	Medium Value	High Value	Very High Value
Low Risk		Asset condition analytics	Predictive maintenance planning	
Moderate Risk		Project schedule optimisation	Traffic flow optimisation agents	
High Risk			Incident detection & response coordination	Network-wide optimisation agents
Very High Risk				Fully autonomous operational decision-making

Indicative positioning of highways use cases by potential operational value and system / safety risk. Intended to support prioritisation discussions.

Agentic AI Use Case Heat Map

Operations & Asset Management

	Low Value	Medium Value	High Value	Very High Value
Low Assurance Complexity		Asset condition analytics	Predictive maintenance prioritisation	
Moderate Complexity			Traffic signal optimisation	
High Complexity				Incident response coordination agents
Very High Complexity				Autonomous network optimisation

Axes: Operational Value vs Assurance & Safety Complexity (DfT / LHA perspective)

Agentic AI Use Case Heat Map

Design & Project Management

	Low Value	Medium Value	High Value	Very High Value
Low Assurance Complexity		Design option generation		
Moderate Complexity			Programme scheduling optimisation	
High Complexity			Risk forecasting agents	
Very High Complexity				Autonomous design approval systems

Focus on planning, assurance, and statutory accountability impacts.

Next Steps…

- **Develop and agree the research plan.**
  - Circulated to FHRG members for feedback (Q1 2026).
- **Literature search.**
  - Focusing on highways services and operations.
  - State-of-the-art for each highways function.
- **Prioritised highways use cases.**
  - Analysing potential business benefits,
  - Adoption and operating risks,
  - Providers and procurement implications,
  - Adoption costs (acquisition, ownership, switching),
  - Policy, safety and security (governance and assurance) implications.
- **Progress report to FHRG members in September 2026 (FHRG Autumn Conference).**
  - Next step recommendations and roadmap.

Home

Future Highways Research Group

Decision Equipped.

proving

ADEPT

Association of Directors of Environment, Economy, Planning & Transport

Highways

PART OF TRANSPORT NETWORK

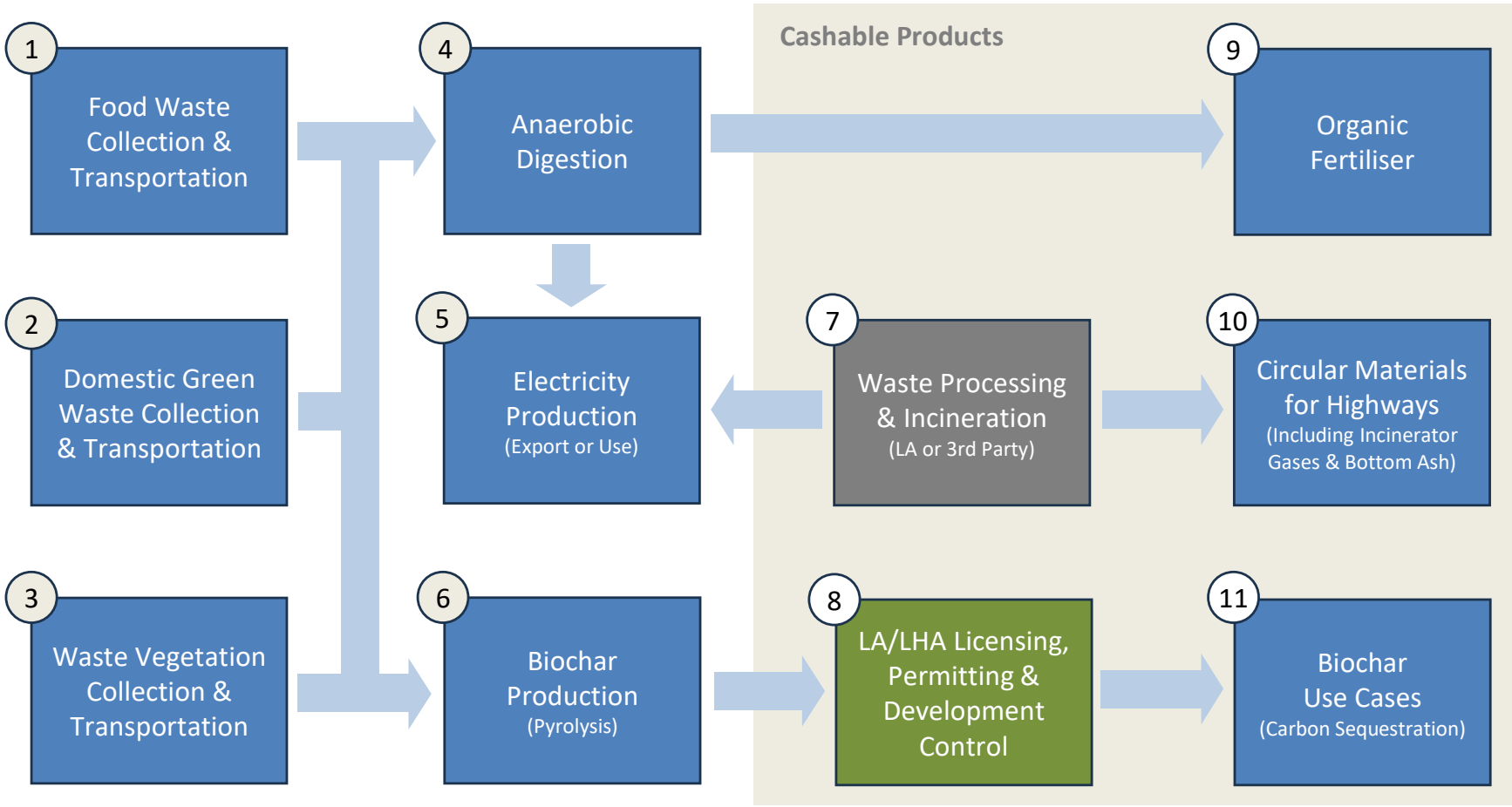
Research Theme #2: Local Green Energy Generation & Carbon Sequestration

Simon Wilson & Lauren SeBlonka

Purpose & Goals

- **To build an AD and biochar assessment framework for FHRG members.**
  - Assessing local authority sourced feedstocks (and mixes).
  - Calculating the cashable and non-cashable benefits.
    - Including permitting and licensing benefits.
    - Including tradable carbon sequestration benefits.
- **Evolve the models developed and tested for Greenprint.**
  - Adjusted for differing authority types, feedstock mixes, and services providers.
  - Adjusted for specified highways applications.
- **To assess the benefits / dis-benefits for FHRG LHAs.**
  - Relative to a “do nothing” baseline.
- **Explore the opportunities for other local energy generation and carbon sequestration technologies.**

Building on Live Labs II: Greenprint

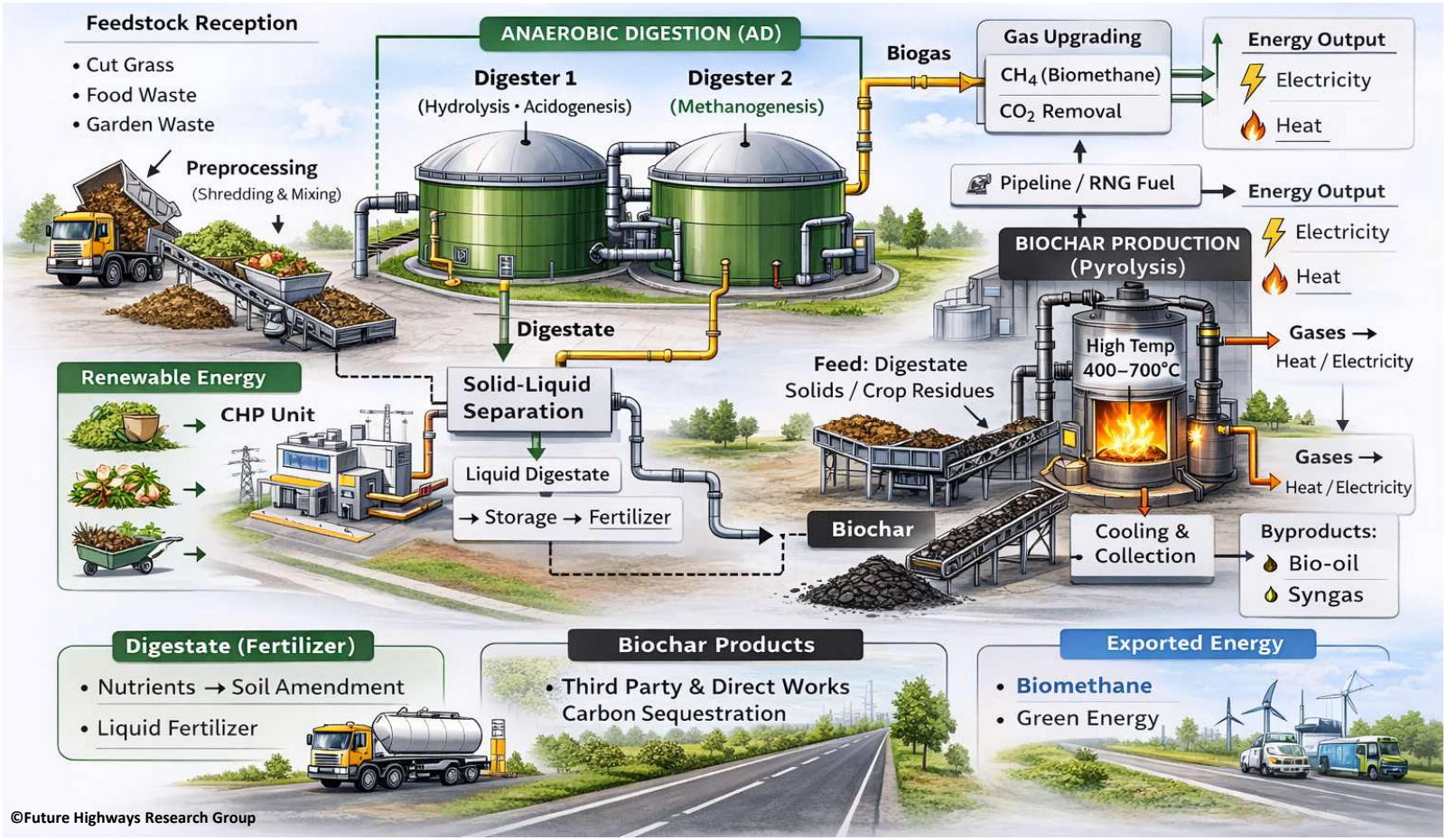


Business Benefits

- **Increased Revenues**
  - Biochar-inclusive permits.
  - Energy sales.
  - Biomethane sales (to grid).
- **Costs Offsetting**
  - Waste gate fees costs offsetting.
  - Digestate sales (TKN: organic nitrogen + ammonia (NH_3/NH_4^+)).
  - Energy to grid (PPA, export agreements).
  - Energy to services (streetlighting / electrical assets).
- **Carbon Reduction**
  - Biochar sequestration.
  - Green energy utilisation.
  - Circular economy materials applications.

Small Scale or Shared Facility AD / Biochar Plant

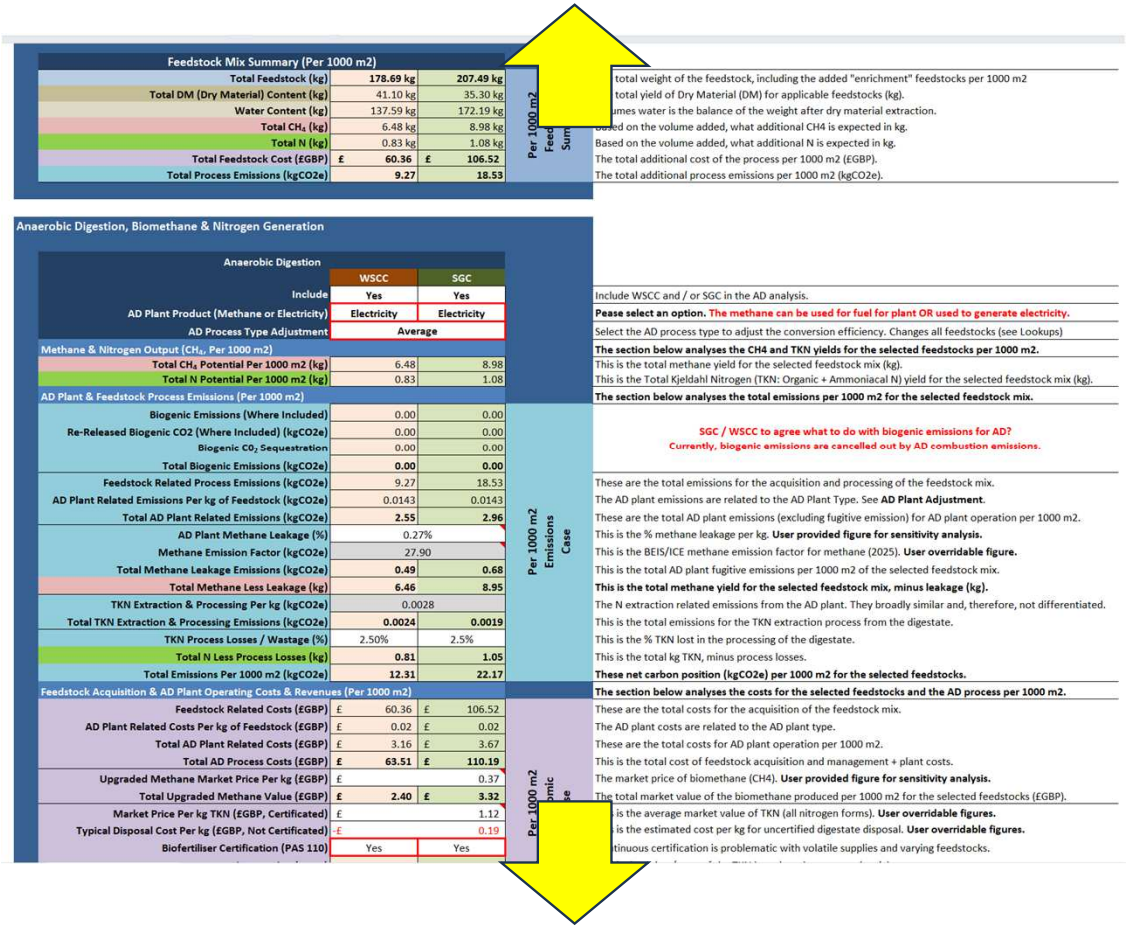
Converting LA Waste Into Cashable Benefits



What is it worth?

- **Are the cashable benefits significant enough to a warrant a deep-dive investigation?**
  - What investment / infrastructure is required?
  - What feed stock mixes are available, what are they worth?
  - Should an LA consider forward integration (i.e., building their own facilities).
    - Or create a shared facility serving multiple authorities?
    - Or utilise existing bio-energy / biochar service providers?
  - **Are there alternative arrangements yielding similar cashable benefits?**
- **What are the political and policy implications?**
- **What are the consumer and supply-chain implications?**
  - Permitting.
  - Restoration of free waste collection services?
- **What are the risks?**
- **What does this mean for low-carbon futures?**
- **What is the pivotal role of highways services?**

Expanding the Greenprint Analytical Framework



Feedstock Mix Summary (Per 1000 m2)			
Total Feedstock (kg)	178.69 kg	207.49 kg	total weight of the feedstock, including the added "enrichment" feedstocks per 1000 m2
Total DM (Dry Material) Content (kg)	41.10 kg	35.30 kg	total yield of Dry Material (DM) for applicable feedstocks (kg).
Water Content (kg)	137.59 kg	172.19 kg	umes water is the balance of the weight after dry material extraction.
Total CH_4 (kg)	6.48 kg	8.98 kg	ased on the volume added, what additional CH4 is expected in kg.
Total N (kg)	0.83 kg	1.08 kg	Based on the volume added, what additional N is expected in kg.
Total Feedstock Cost (£GBP)	£ 60.36	£ 106.52	The total additional cost of the process per 1000 m2 (£GBP).
Total Process Emissions (kgCO2e)	9.27	18.53	The total additional process emissions per 1000 m2 (kgCO2e).

Anaerobic Digestion, Biomethane & Nitrogen Generation

Anaerobic Digestion	WSCC	SGC	
Include	Yes	Yes	Include WSCC and / or SGC in the AD analysis.
AD Plant Product (Methane or Electricity)	Electricity	Electricity	**Pease select an option.** The methane can be used for fuel for plant OR used to generate electricity.
AD Process Type Adjustment	Average		Select the AD process type to adjust the conversion efficiency. Changes all feedstocks (see Lookups)
Methane & Nitrogen Output (CH_4, Per 1000 m2)			**The section below analyses the CH4 and TKN yields for the selected feedstocks per 1000 m2.**
Total CH_4 Potential Per 1000 m2 (kg)	6.48	8.98	This is the total methane yield for the selected feedstock mix (kg).
Total N Potential Per 1000 m2 (kg)	0.83	1.08	This is the Total Kjeldahl Nitrogen (TKN: Organic + Ammoniacal N) yield for the selected feedstock mix (kg).
AD Plant & Feedstock Process Emissions (Per 1000 m2)			**The section below analyses the total emissions per 1000 m2 for the selected feedstock mix.**
Biogenic Emissions (Where Included)	0.00	0.00	SGC / WSCC to agree what to do with biogenic emissions for AD? Currently, biogenic emissions are cancelled out by AD combustion emissions.
Re-Released Biogenic CO2 (Where Included) (kgCO2e)	0.00	0.00	
Biogenic CO_2 Sequestration	0.00	0.00	
Total Biogenic Emissions (kgCO2e)	0.00	0.00	
Feedstock Related Process Emissions (kgCO2e)	9.27	18.53	These are the total emissions for the acquisition and processing of the feedstock mix.
AD Plant Related Emissions Per kg of Feedstock (kgCO2e)	0.0143	0.0143	The AD plant emissions are related to the AD Plant Type. See **AD Plant Adjustment**.
Total AD Plant Related Emissions (kgCO2e)	2.55	2.96	These are the total AD plant emissions (excluding fugitive emission) for AD plant operation per 1000 m2.
AD Plant Methane Leakage (%)	0.27%		This is the % methane leakage per kg. **User provided figure for sensitivity analysis.**
Methane Emission Factor (kgCO2e)	27.90		This is the BEIS/ICE methane emission factor for methane (2025). **User overridable figure.**
Total Methane Leakage Emissions (kgCO2e)	0.49	0.68	This is the total AD plant fugitive emissions per 1000 m2 of the selected feedstock mix.
Total Methane Less Leakage (kg)	6.46	8.95	**This is the total methane yield for the selected feedstock mix, minus leakage (kg).**
TKN Extraction & Processing Per kg (kgCO2e)	0.0028		The N extraction related emissions from the AD plant. They broadly similar and, therefore, not differentiated.
Total TKN Extraction & Processing Emissions (kgCO2e)	0.0024	0.0019	This is the total emissions for the TKN extraction process from the digestate.
TKN Process Losses / Wastage (%)	2.50%	2.5%	This is the % TKN lost in the processing of the digestate.
Total N Less Process Losses (kg)	0.81	1.05	This is the total kg TKN, minus process losses.
Total Emissions Per 1000 m2 (kgCO2e)	12.31	22.17	**These net carbon position (kgCO2e) per 1000 m2 for the selected feedstocks.**
Feedstock Acquisition & AD Plant Operating Costs & Revenues (Per 1000 m2)			**The section below analyses the costs for the selected feedstocks and the AD process per 1000 m2.**
Feedstock Related Costs (£GBP)	£ 60.36	£ 106.52	These are the total costs for the acquisition of the feedstock mix.
AD Plant Related Costs Per kg of Feedstock (£GBP)	£ 0.02	£ 0.02	The AD plant costs are related to the AD plant type.
Total AD Plant Related Costs (£GBP)	£ 3.16	£ 3.67	These are the total costs for AD plant operation per 1000 m2.
Total AD Process Costs (£GBP)	£ 63.51	£ 110.19	This is the total cost of feedstock acquisition and management + plant costs.
Upgraded Methane Market Price Per kg (£GBP)	£	0.37	The market price of biomethane (CH4). **User provided figure for sensitivity analysis.**
Total Upgraded Methane Value (£GBP)	£ 2.40	£ 3.32	The total market value of the biomethane produced per 1000 m2 for the selected feedstocks (£GBP).
Market Price Per kg TKN (£GBP, Certificated)	£	1.12	is the average market value of TKN (all nitrogen forms). **User overridable figures.**
Typical Disposal Cost Per kg (£GBP, Not Certificated)	-£	0.19	is the estimated cost per kg for uncertified digestate disposal. **User overridable figures.**
Biofertiliser Certification (PAS 110)	Yes	Yes	tinuous certification is problematic with volatile supplies and varying feedstocks.

- **Feedstock analysis.**
  - Sources, costs, quality, market values, volatility (seasonality).
- **Optimised mixes for:**
  - Biochar.
  - Biomethane.
  - Electricity.
- **Costs and resources:**
  - Feedstock collection?
  - Gate fees?
  - Processing and storage costs?
  - Costs of risks?
  - Human resources and skills?

Wider Impact Analysis

- **What does this mean for:**
  - Future services design and delivery?
  - Public services and consumer experiences?
  - Green policies and strategic services development?
  - Biodiversity, water courses, and SuDS?
- **How should services collaborate around cashable benefits?**
  - Do these goals require a different approach to services provision / management?
- **What is the role of supply chain partners?**
- **What are the implications for 3rd parties working on the network?**

Next Steps…

- **Develop and agree an assessment framework (from the Greenprint model).**
  - Circulated to FHRG members for feedback.
- **Analyse potential business benefits / dis-benefits.**
  - Revenues.
  - Costs offsets and savings.
  - Carbon savings.
- **Assess implementation risks and future operating costs.**
  - Feedstock management costs and revenues.
  - Infrastructure costs (forward integration vs supply chain partners).
  - Operational risks analysis.
  - Additional structural considerations for shared-facilities organisations.
- **Progress report to FHRG members in September 2026 (FHRG Autumn Conference).**

Future Highways Research Group

Decision Equipped.

proving

ADEPT

Association of Directors of Environment, Economy, Planning & Transport

Highways

PART OF TRANSPORT NETWORK

Research Theme #3: Climate Change Readiness

Karen Farquharson

Climate Change Readiness

- **This research theme proposes to consider local authority *Climate Change Readiness;* identifying sector and local climate change vulnerabilities, the likely impacts of climate change on services, assets, public and staff safety, supply chains and future financial resilience, and exploring the actions and initiatives that may address or mitigate the risks.**
- **The initial stages will explore the viability of a generic highway's climate change readiness assessment. This includes an assessment of the following anticipated dimensions:**
  - Risk Assessment & Vulnerability Mapping
  - Governance & Strategy
  - Mitigation: Construction & Maintenance
  - Mitigation: Network Operations & Use
  - Adaptation & Asset Resilience
  - Drainage, Nature-Based Solutions & Environment
  - Data, Monitoring & Reporting
  - People, Skills & Partnerships

Climate Change Readiness Assessment

Potential Applications

- **Risk identification and prioritisation.**
  - establish the main physical climate hazards, exposures, vulnerabilities and materiality across the sector, and rank them consistently.
- **A common evidence base for adaptation planning.**
  - create a shared baseline that organisations can use to develop (or align) adaptation plans and actions, including cross-organisation dependencies.
- **Integration into routine governance and risk management.**
  - Embed climate risks into existing enterprise/operational risk processes rather than treating them as a separate exercise.
- **Investment and business case development.**
  - Support prioritised pipelines of resilience interventions and justify spend (capex/opex) against the highest risks.
- **Standards-based assurance and consistency.**
  - Structure the assessment so results are comparable and repeatable across organisations (eg ISO adaptation standards and management-system approaches).
- **Scenario testing and strategic resilience.**
  - Test whether sector strategies remain robust under different climate futures (and where they fail).
- **Regulatory and reporting readiness.**
  - Provide an organised basis for climate adaptation reporting requirements and stakeholder scrutiny.
- **Capability and maturity benchmarking.**
  - Assess “readiness” (skills, data, governance, partnerships) and track improvement over time.
- **Coordination and collaboration.**
  - Identify where joint action is needed (shared assets, supply chains, mutual aid, regional interdependencies).

Next Steps…

- **Membership engagement.**
  - What challenges does climate change represent for the local roads sector?
  - What good practice and innovation is currently taking place across the membership?
  - **How can the FHRG best support members and complement other work in this area?**
- **Post engagement, develop and agree the research plan.**
  - Circulated to FHRG members for feedback (Q2 2026).
- **Literature search.**
  - Focusing on the implications of climate change on highways services, operations and assets.
  - Identifying the key sector contributors / agencies for local roads climate change.
    - The focus of their work and their contributions to-date.
- **Progress report to FHRG members in September 2026 (FHRG Autumn Conference).**

Home

Future Highways Research Group

Decision Equipped.

proving

ADEPT

Association of Directors of Environment, Economy, Planning & Transport

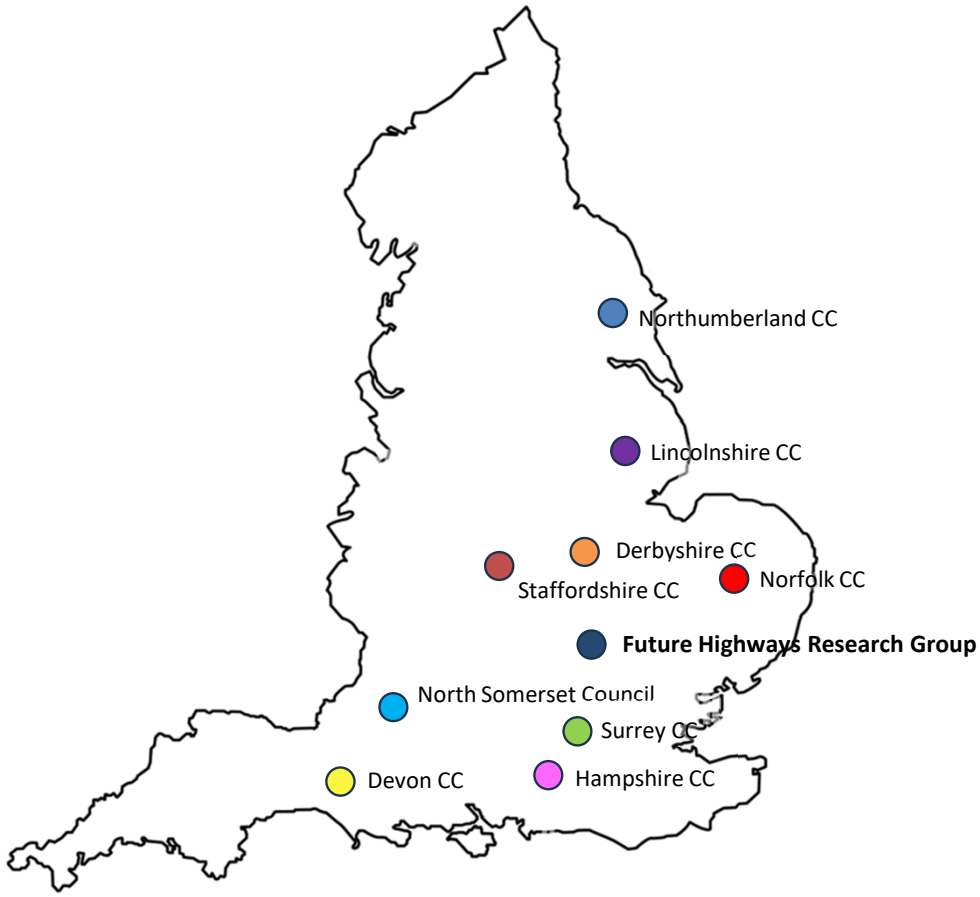
Highways

PART OF TRANSPORT NETWORK

Research Theme #4: UK Labs Network

Simon Wilson, FHRG

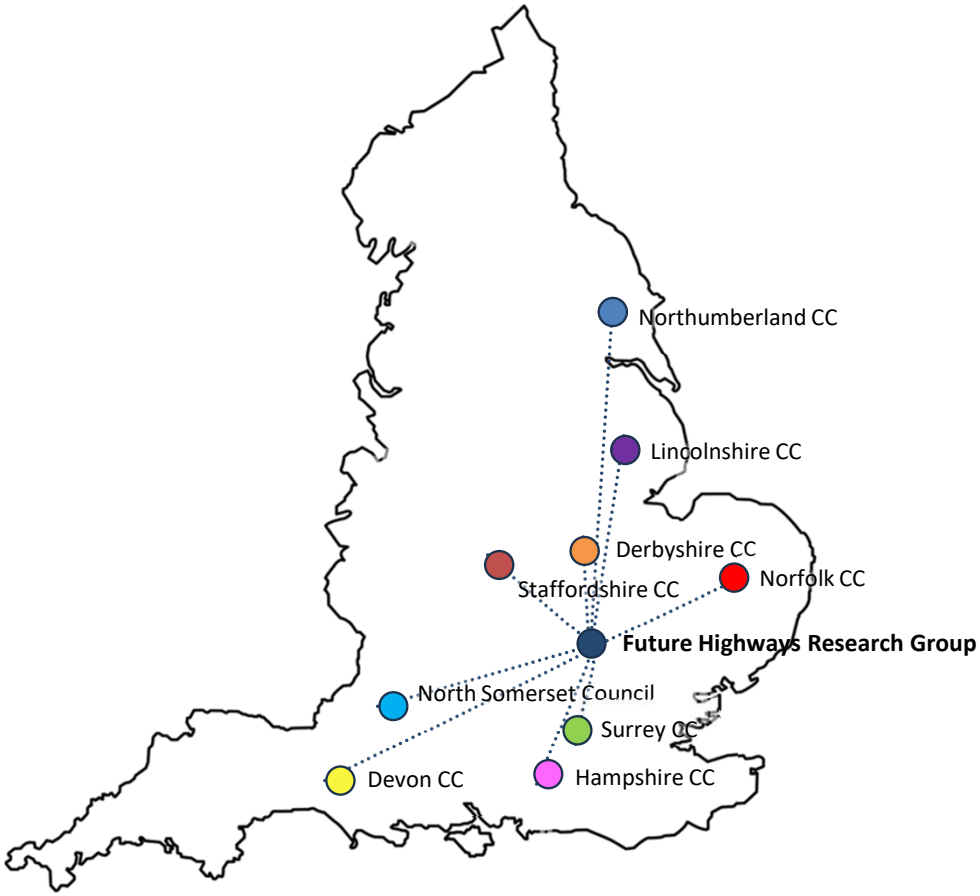
Remaining LHA-Based Labs (England, ADEPT)



- **UKAS accredited labs.**
- **Providing critical services:**
  - Materials testing and compliance.
  - Quality assurance and audit.
  - Asset condition assessment.
  - Site investigations.
  - Technical advice and expert support.
  - Network safety support.
  - Carbon, sustainability, and innovation.
  - Legal and insurance support.
- **Supporting own and other LHAs.**

FHRG + A Client-Side Network of LHA Labs

Sector Benefits



- **A locus for local roads excellence for LHAs and national agencies.**
- **A forum for collaboration, knowledge exchange and collective learning.**
- **Access to specifications of approved, value for money, proven materials; tested across geologies with collective lessons learnt.**
- **Access to wider assessments of equipment and processes.**
- **Access to specialists and expertise; as consultants and / or mentors.**
- **Capacity planning and levelling across the Labs network for greater testing coverage.**

UK LHA Labs

Challenges

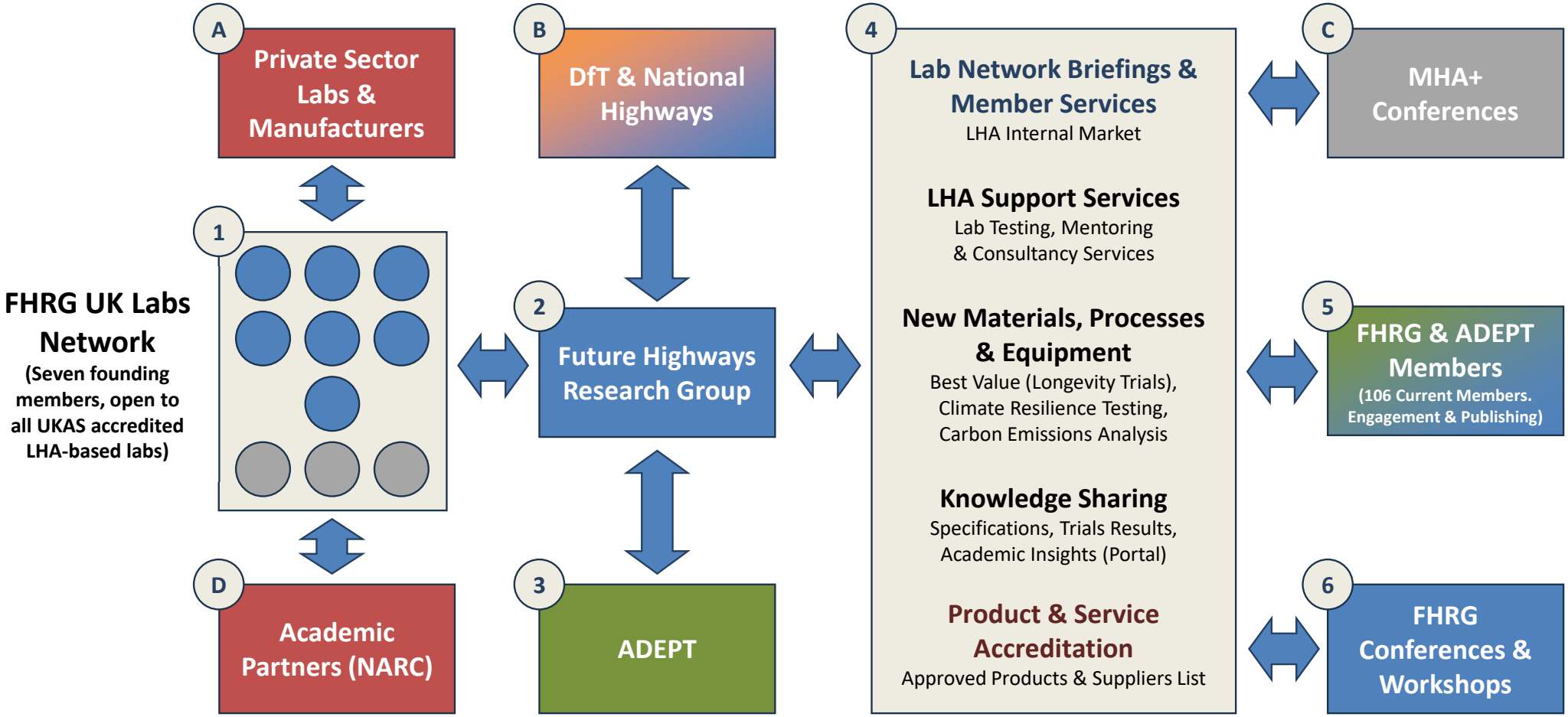
- **Investment and funding.**
  - Years of underinvestment in LHA labs resulting in fewer labs.
  - Promotion of private sector labs has filled the void, but at a loss of capability and sovereignty.
  - **DfT *Local Roads Maintenance Ratings* may apply further pressure on LHA Labs.**
- **A fragmented landscape.**
  - Valuable test data is often siloed within individual authorities.
  - Similar trials and tests are repeated independently in different locations.
  - Lessons learned are not consistently captured or disseminated.
- **Successes and failures stay local.**
  - Lost opportunities for improving efficiencies and operational effectiveness sector-wide.
  - Could be used for procurement negotiations with focused “Approved Products” lists.
- **Significant sector changes and challenges will drive an increase in demand.**
  - For specialist, trusted, lab services around new materials, processes and equipment.

Purpose & Goals

- **Support FHRG's mission to promote innovation and sustainability in highways.**
- **Link existing Local Authority highways laboratories into a single, recognisable network.**
- **Facilitate the sharing of test results and specifications for:**
  - New materials, processes, and equipment…
  - Extending knowledge management across the sector.
- **Provide Lab Services to LHAs without labs.**
  - Access to robust, practice-based evidence.
  - Transparent materials, processes and equipment testing.
  - Shared specifications.
  - Advisory, mentoring and support services.
- **Reduce duplication of testing effort and improve value for money.**
- **Provide FHRG members with access to relevant labs to improve client-side collaborations.**
- **Creating an internal market of trusted LA-based labs.**
  - Balancing the investment with privately operated labs.
- **Explore an online FHRG UK Labs Network portal.**
  - For knowledge sharing.

UK Labs Network

Outline Structure



Proposed UK Labs Network / FHRG Partnership

- **New, permanent section for UK Labs Reporting at FHRG conferences and meetings.**
  - Presenting results from innovations testing.
  - Updating FHRG members on local roads trends.
  - Presenting new additions to the **FHRG UK Labs Network** portal.
- **Explore an FHRG UK Labs Network portal.**
  - AI generated and maintained portal (e.g., possibly using Flutterflow) for managing UK Labs content, covering:
    - Labs services?
    - Completed trials and updated longevity / performance data (materials and equipment)?
    - Trends and impact assessments (assets and services)?
    - Approved products and specifications schedule?
    - Schedule of LHA sector experts and mentors?
    - Highways Magazine portal (to discuss with Dom Browne)?
  - Logins for FHRG and ADEPT members.
    - Possible expansion to Scotland, Wales and Northern Ireland.
- **Gateway for 3rd party trials requests.**
  - New product and services client-side trials.
- **Assigned, funded, FHRG resource for co-development, implementation, and labs network management.**
  - As a core element of the FRP.

Next Steps…

- **Meeting with CoLab members to discuss the scope and protocols for an FHRG collaboration.**
- **Identify and assign a resource for UK Labs Network development.**
- **Coordinate UK Labs Network development with DfT and National Highways.**
  - Mirroring the structures created by National Highways, but for local roads.
- **Create a communications plan for FHRG / ADEPT members.**
  - Briefings and invitations for UK Labs Network shaping.
- **Collate and document the current network's approved products.**
  - With lab-based specialists.
- **Collate and agree outline engagement protocols for 3rd parties.**
  - For new products, processes and services.
- **Collate engagement protocols for FHRG / ADEPT members.**
  - With lab-based specialists.
  - Protocols and schedules of prices for LHAs.
- **Explore engagements with aligned agencies and services providers.**
  - Including CEDR, NARC and private sector labs.

Foward Research Programme: Feedback & Q&A

Future Highway Research Group

Home

Future Highways Research Group

Decision Equipped.

proving

ADEPT

Association of Directors of Environment, Economy, Planning & Transport

Highways PART OF TRANSPORT NETWORK

Next Meeting Date: 18th June 2026 Hybrid @ Cranfield University

Future Highway Research Group

Future Highways Research Group

Decision Equipped.

proving

ADEPT

Association of Directors of Environment, Economy, Planning & Transport

Highways

PART OF TRANSPORT NETWORK

End of Document

Future Highway Research Group