Department for Transport

ADEPT LIVELABS 2 Decarbonising Local Roads

South Gloucestershire Council
Delivering climate action

west sussex county council

Greenprint.

A carbon negative systems model for green infrastructure management

In the UK, with over 313,000 miles of rural road verge, optimising grass verges maintenance for reducing CO_2 is crucial

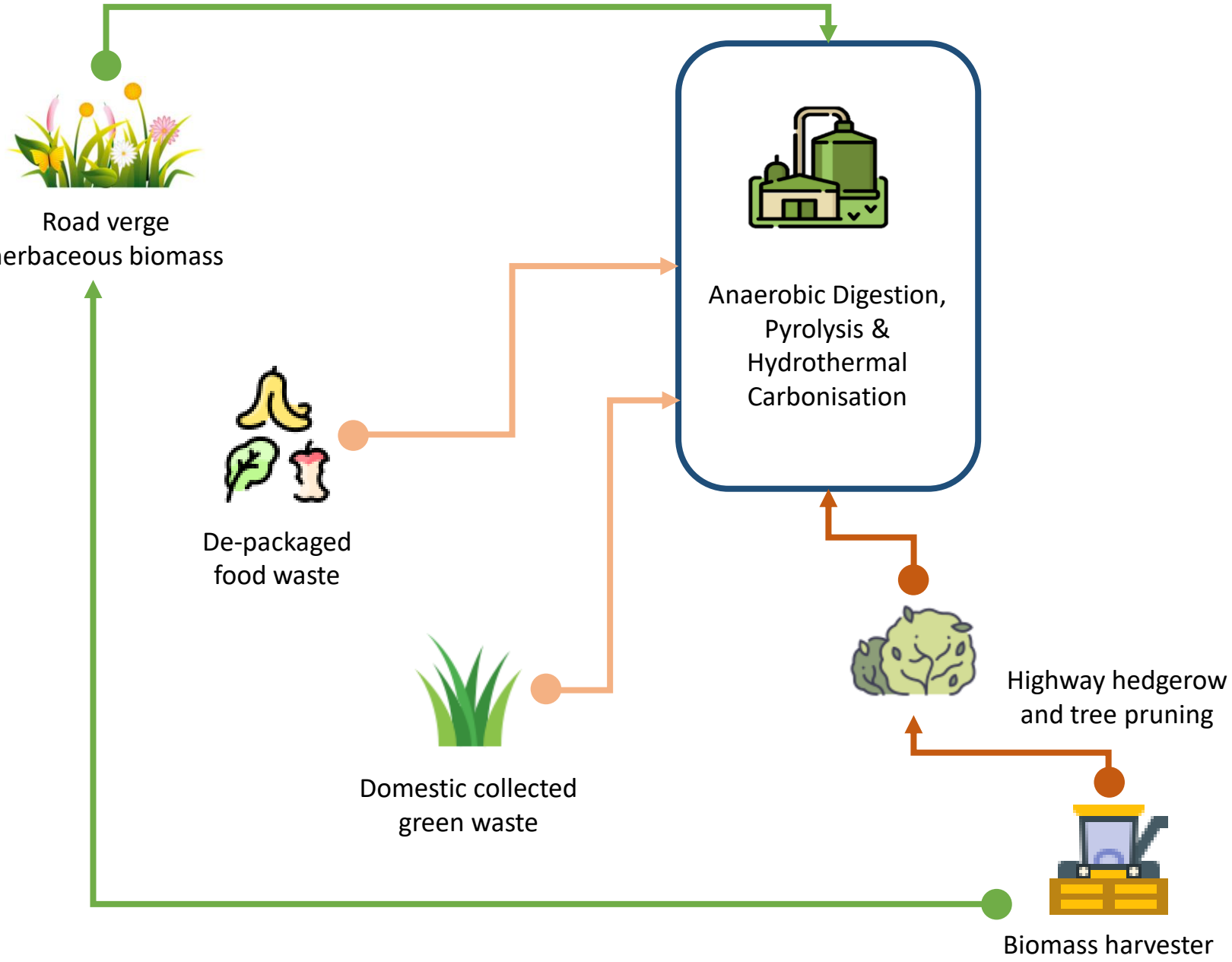
The value of this resource necessitates comprehensive investigation

South Gloucestershire Council and West Sussex County Council are working in partnership, trialling a new way to manage grass verges, including using cuttings to generate energy and reduce the carbon footprint associated with highways maintenance

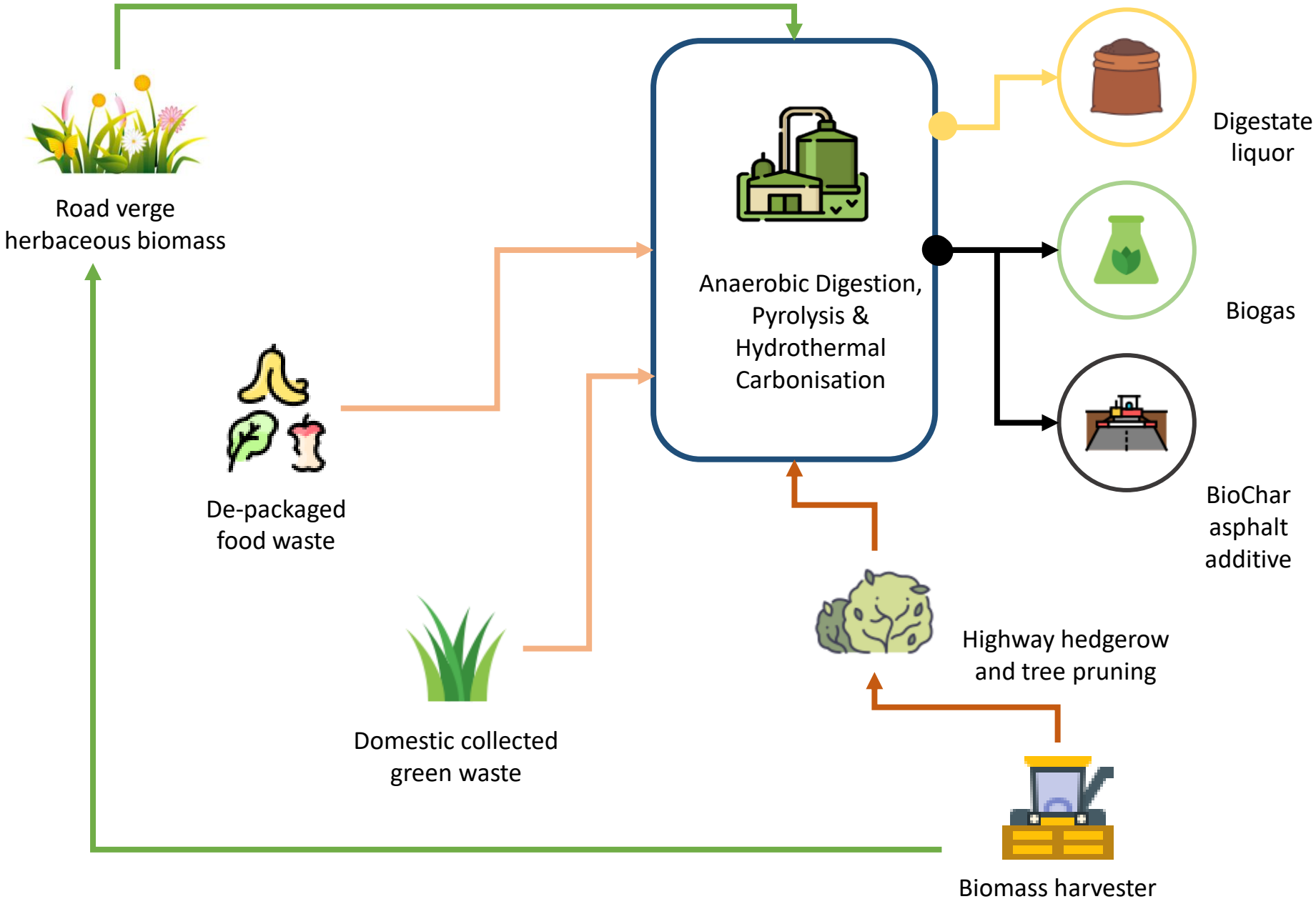
Greenprint.

A fundamental aspect of the trial is that it involves a phased reduction in cutting frequency – this requires careful early engagement with stakeholders, to manage expectations

Phase 1


Road verge herbaceous biomass
Anaerobic Digestion, Pyrolysis & Hydrothermal Carbonisation
De-packaged food waste
Domestic collected green waste
Highway hedgerow and tree pruning
Biomass harvester

Phase 2


Road verge herbaceous biomass
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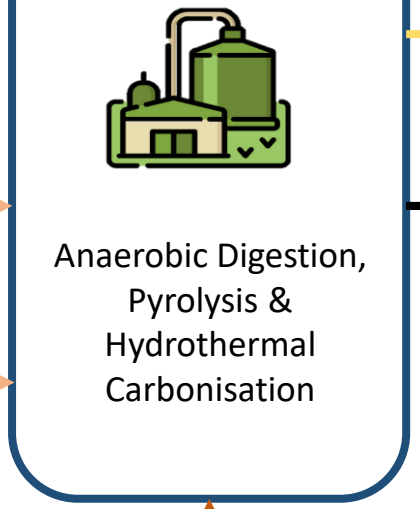
Digestate liquor
Biogas
BioChar asphalt additive
Highway hedgerow and tree pruning
Biomass harvester

Phase 3

Road verge herbaceous biomass

De-packaged food waste

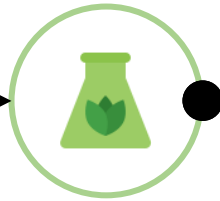
Domestic collected green waste



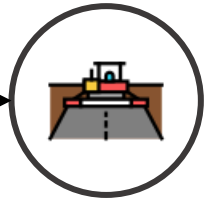
Highway hedgerow and tree pruning

Biomass harvester

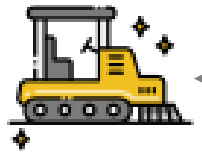
Digestate liquor



Biogas



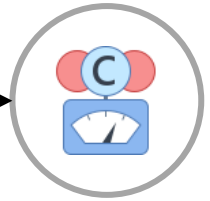
BioChar asphalt additive



Highway maintenance machinery

Organic fertiliser

Clean water



CO2 for industry

Biomethane vehicles fuel

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Project objectives:

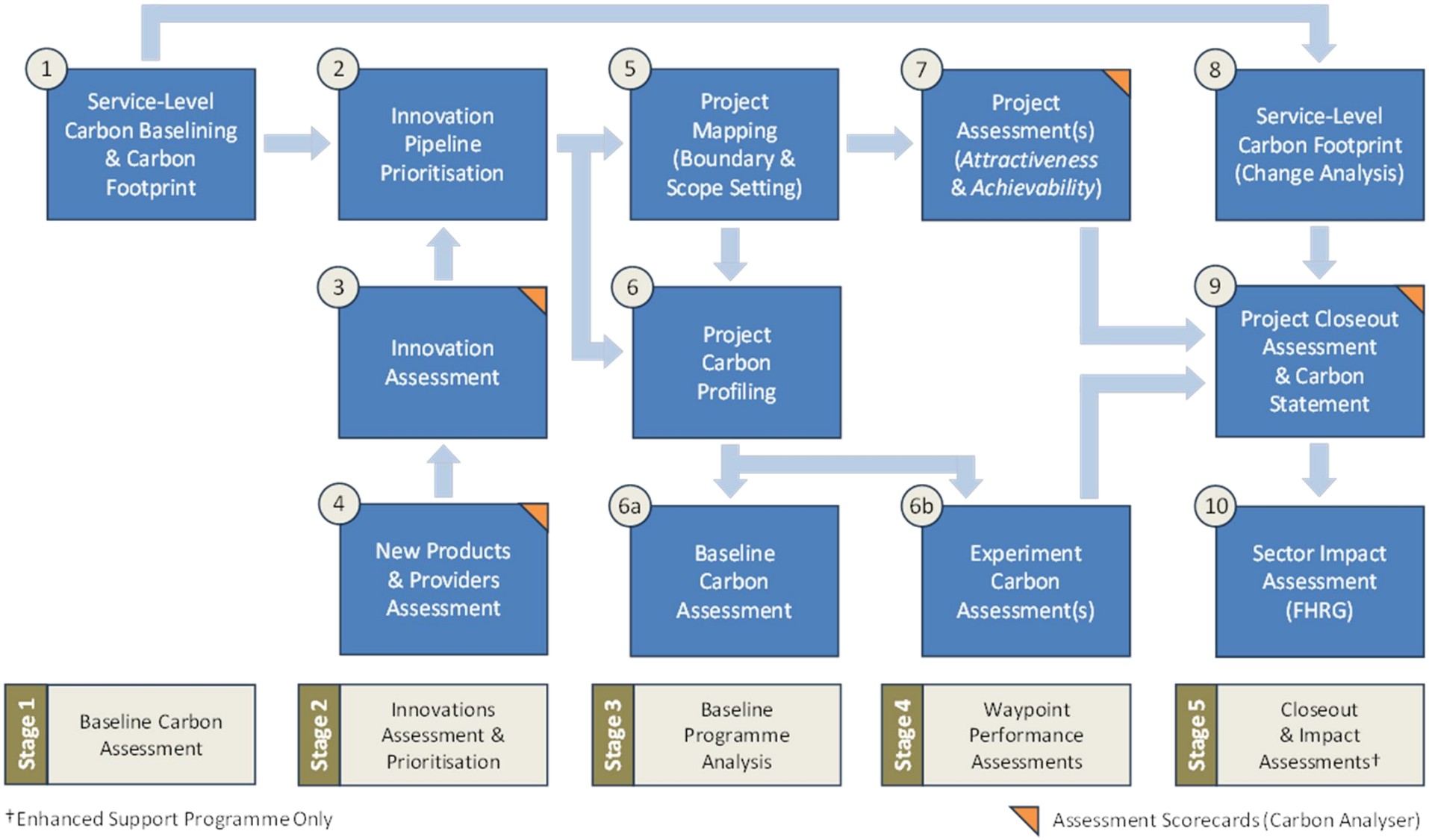
- **Achieve net zero**
- **Ensure an integrated 'ecosystem approach', knowledge sharing and scalability**
- **Deliver financial savings**
- **Collaborate across the sector**
- **Ensure customer satisfaction**
- **Increase biodiversity**

We are monitoring carbon to calculate outcomes from the trials

This work is being supported by the Future Highway Research Group (FHRG)

Greenprint has adopted the FHRG approach to measuring carbon

The FHRG approach to measuring carbon:



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Project activity so far……..

Image ©MattPitts

- **Trialled small-scale urban cut and collect equipment**
- **Increased use of existing ride-on mower team, (testing various protocols, operational limits, costs, etc)**
- **Established new cut and collect strategies for large scale trials in year 2**
- **Procured machinery for year 2 and scaled-up operations and logistics for cut and collect**
- **Planned roll out of cut and collect programme via engagement with parishes and boroughs, (to scale-up the trial for year 2)**

- **Collected soil carbon samples from over 14 survey sites. Carried out lab testing for characterisation and pollutants of the soil and grass**

- **Established baseline carbon footprint with FHRG support**

- **University of Nottingham and University of the West of England, (UWE), onboarded for research into transforming the grass to energy and measuring the carbon savings of the whole process**

Project outcomes include the following:

- **Testing the technical and commercial viability of the change in verge management – measuring the benefits**

- **Researching and adapting biomass technology to test direct applications in a local circular economy**

- **Knowledge sharing and communicating to encourage behaviour change and provide a replicable "Greenprint" toolkit for the wider highways sector**

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