ADEPT Carbon Leadership Programme

The ADEPT Carbon Leadership Programme, supported by the Department for Transport, will fund local highway authorities to measure and identify how to reduce their carbon emissions.

It provides a simple, standardised way to calculate how much carbon is emitted from road maintenance activities and where best to direct efforts to reduce this carbon footprint. The programme also enables local highway authorities to assess their progress on the journey to net zero using a best practice carbon assessment.

As a Department for Transport (DfT) funded programme, the aim is to enable all local highway authorities across England to participate. The programme has evolved from research undertaken by Proving Services on behalf of the Future Highways Research Group, and further refined through the Live Labs 2[1] programme.

Launched in June 2025, the aim is for all local highway authorities across England to participate.

KEY FEATURES

The Carbon Leadership Programme will allow local highway authorities (LHAs) to:

- **Measure and evidence carbon emissions accurately.**
- **Develop practical strategies for emissions reduction.**
- **Improve operational efficiency.**
- **Demonstrate environmental leadership.**
- **Make progress towards net zero targets.**

[1] *ADEPT Live Labs 2: Decarbonising Local Roads in the UK* is a three-year, UK-wide £30 million programme funded by the Department for Transport that aims to decarbonise the local highway network. www.adeptnet.org.uk/livelabs2

ADEPT Carbon Leadership Programme

Programme overview

The central aim of the Carbon Leadership Programme is to deliver a low-cost, rapid assessment of LHA carbon footprints and the extent to which best practices for carbon management are being implemented in England.

The collected data will be aggregated to provide a local roads carbon footprint and an assessment of the scale of best practice adoption in the local roads sector. Data will be collected at both a service and highways-function level.

This DfT supported programme will be open to all English LHAs and will run over three years, from June 2025 to June 2028. Authorities with the longest networks, highest spend and with the best data, will be prioritised in Year 1. Over the three-year programme, baseline Carbon Footprint Assessments (CFA) and Best Practice Carbon Assessments (BPCA) will be completed once for each LHA.

The Carbon Leadership Programme has been designed to address the sector net zero challenges by increasing the uniformity and transparency of carbon measurement, carbon management and carbon reduction initiatives across the local roads sector. To achieve these goals, the programme comprises a range of modules, two of which are included within the scope of the DfT funded programme: **Carbon Footprint Assessments** and **Best Practice Carbon Assessments**.

The Carbon Leadership Programme will provide LHAs, the DfT and the FHRG with consistent, benchmarkable datasets for local road carbon emissions, together with an assessment of each LHA's progress towards best practice carbon management. This is especially important for highways maintenance activities, as reliable carbon emissions data is not currently available.

From a DfT perspective, this programme addresses three specific needs:

1. An assessment of the true scale of LHA-related emissions for each highway's functions.
2. The progress and steps being undertaken by LHAs in reducing current and future emissions.
3. Robust data for planning, reporting and prioritising future funding and better targeted support for the rollout of best practice initiatives.

BACKGROUND

The Association of Directors of Environment, Economy, Planning & Transport (ADEPT) is the voice of place directors who are responsible for providing day to day services including local highways, recycling, waste and planning, whilst preparing for the longer term.

Proving Services host and manage the Future Highways Research Group (FHRG), a research and innovation group comprising 40 LHAs, including county councils, unitaries, London boroughs and metropolitan authorities. The FHRG is the official research partner of ADEPT and our members currently represent over 84% of the UK highways network (outside of the metropolitan areas).

A principal research theme of the FHRG is climate change, including the measurement, reporting and reduction of carbon emissions across LHA supply chains. As part of their research collaboration, Proving Services and ADEPT have worked together to provide carbon measurement tools and processes to the participants of the ADEPT Live Labs 2 programme.

Net zero challenges

The local roads sector faces a wide range of challenges on the road to net zero emissions.
Many of these were identified by the FHRG *Carbon Research Programme*, completed in 2024:

- **Poor quality data for decision making (centrally, regionally and locally).**
  - Resulting in poorly informed investment decisions or stalled carbon reduction programmes.
- **No basis for highways sector carbon footprint benchmarking.**
  - Fragmented approaches to carbon reporting have made it difficult to establish a consistent, sector-wide view of carbon performance.
- **Fragmented approaches.**
  - Interpretations, reporting cycles, boundaries, assumptions, data sources and calculations.
- **Duplicated effort.**
  - Occurring in each LHA supply chain (multiplied by the number of LHAs).
- **Repeated errors and risks.**
  - As each LHA develops and adopts its own approach.
- **Significant sector costs.**
  - Repeated, concurrent investments to achieve the same goals have fuelled fragmentation and reduced the value for money of net zero initiatives.
- **Inability to identify and dismiss greenwash products and services.**
  - Inability to properly assess vendor claims[2].

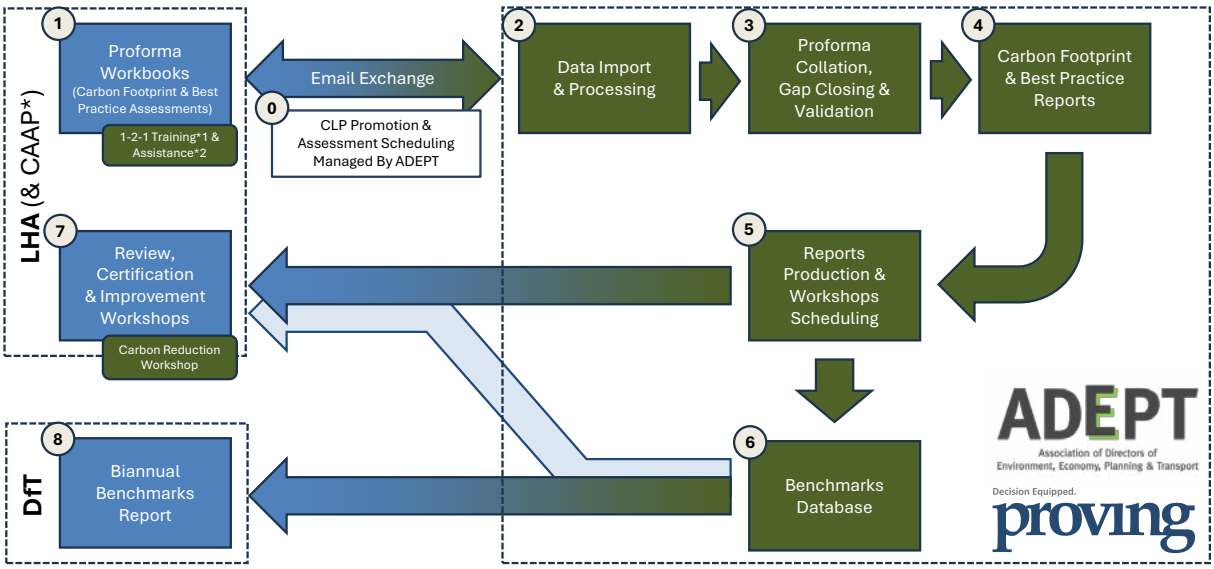
Combined, these barriers and challenges have impeded progress, reduced best practice sharing, and adversely impacted the value for money of publicly funded carbon reduction programmes.

[2] 54% of the carbon reduction initiatives reviewed by the FHRG were based on untested or unreliable data and / or assumptions.

Carbon Footprint and Best Practice Assessments

The assessment and reporting process has been developed based on the lessons learned from the FHRG *Carbon Research Programme (2020 – 2024)* and the FHRG *VfM Benchmarking Club*. The process aims to be simple, accessible and with a minimum demand on LHA resources. Self assessment stages are supported by guidance notes within the proforma assessment.

Figure 1: Carbon Leadership Programme Process Overview



*: Carbon Analyser Assistance Partner
*1: LHA specific briefing, orientation and training.
*2: LHA specific support and guidance (proforma completion).

As illustrated in Figure 1, the Carbon Leadership Programme process comprises the following stages:

1. **ADEPT and FHRG invite English LHAs for briefings and training sessions. This stage includes the issuing of the proforma assessment workbooks.**
   a. Online training sessions are scheduled for those participating in each phase.
   b. The proforma workbooks are issued to each LHA as standard Microsoft Excel 365[3] .xlsx workbooks.
   c. Optional paid-for assessments assistance will be available through FHRG / ADEPT (LHA mentors) or partners where required / requested.
   d. For LHAs requiring self-assessment support, the FHRG has partnered with the Colas' Carbon Management Team[4].

2. **Completed proformas are returned to Proving Services for data import and processing.**
   a. On completion of the proformas, the Excel workbooks are returned to Proving by email. A dedicated email account is available for these exchanges (carbonanalyser@gmail.com)
   b. Datasets from the returned assessment workbooks are uploaded to cloud-based storage.
   c. Where submission deadlines are missed, email reminders will be issued. Failure to submit will be recorded and future programme participation will be offered in subsequent phases.

[3] Excel versions supported include 2010, 2013, 2016, 2019, 2021 (LTSC), 2024 (LTSC), and Excel 365. The proforma workbooks do not include automation (macros) or require internet connections. This will enable all LHAs to access the proformas without security concerns.

[4] For this exercise, the Colas' Carbon Management Team can provide support services at a discounted day rate.

3. Completed assessments are reviewed for errors and omissions.

a. Incomplete submissions or submissions with range errors[5] are reviewed and returned to LHAs, highlighting the issue(s).

b. Where data gaps cannot be closed by an LHA, a mid-range value will be applied using authorities of a similar profile. In these cases, data confidence will be set to 'Low (Based on Average)'.

c. Error-free submissions and resubmissions will be uploaded to the cloud server.

4. Error-checked submissions are converted into LHA reports.

a. Carbon footprint assessments are imported into the Carbon Footprint Assessment Toolkit and emissions factors are applied to applicable / completed fields.

b. Best practice assessments are imported into Value Analyser and the weighted scores for the assessment are calculated.

5. Reports production and workshops scheduling.

a. Provisional assessment reports are produced for the follow-up *Review, Certification & Improvement* workshops with each LHA.

b. Reports are forwarded to each LHA for review prior to the workshop.

6. Assessments are uploaded to the benchmarks database.

a. Individual assessments are uploaded to the cloud-based benchmarks database.

b. Data is converted into CSV[6] format to ensure compatibility with common reporting tools (e.g., Microsoft Excel, Power BI, Cognos BI, SAP BusinessObjects, etc).

7. *Review, Certification & Improvement* workshops.

a. Authority-specific workshops with senior leaders from highways teams, will be supported by FHRG peer reviewers (mirroring the FHRG VfM Benchmarking process).

b. Reports and datasets will be reviewed, discussed and challenged by the attendees and Proving Services.

c. On confirmation that the Carbon Footprint and Carbon Best Practice reports represent a fair and accurate reflection for the current carbon emissions and carbon management performance of the LHA, the reports will be marked as 'certified'.

8. Biannual reporting to DfT.

a. DfT will receive a copy of the dataset as an Excel table embedded within an Excel workbook. This dataset will include all captured and applied data (including emissions factors and calculated scores).

b. A summary of agreed carbon management improvements and emissions reductions will be provided in a separate Excel workbook.

c. In addition, DfT will receive a copy of the Excel charts created from this dataset for programme participants.

5 Range errors will be generated where the value for a field is outside of the expected range. Range testing evaluates a value against previously submitted assessments, or the pre-defined upper and lower limits set for a field based on the original FHRG Carbon Research Programme.

6 Comma Separated Variable.

Carbon Footprint Assessment (CFA)

In 2022, the *Carbon Research Programme* adopted a primarily bottom-up approach, leveraging highly granular, low-level data to construct an aggregated carbon footprint. While this method provided a detailed and accurate representation of emissions, it was resource-intensive and often constrained by the availability and quality of source data. This was especially the case for scope 3 (supply chain) emissions, where the overall data quality was poorer than expected. These issues were further compounded by the lack of reliable emissions factors for a wide range of materials and processes.

To address these issues, the CFA process has been redesigned to combine both bottom-up and top-down methods. Where accurate data is readily available, the bottom-up method is applied (this typically applies to Scope 1 and Scope 2 emissions). As supply chain data is difficult to access and / or verify, a top-down approach has been applied.

To complete the CFA proforma, you will need to provide data that, in most cases is readily available from in-house finance teams, from service KPIs, and / or DfT returns.

1. Information on your Carbon Overheads for the reporting year 2024/25:

a. For owned / controlled premises and sites.

i. Total purchases of combusted fuels (mains gas, diesel, petrol, bottled gas and fuel oil).

ii. Total electricity used (and the percentage used for streetlighting).

iii. Total water and sewerage (from site meters).

iv. Optional: total fugitive emissions (the amount of coolant top-up for air conditioners).

b. Staff and contractors.

i. Number of staff and contractors.

ii. Average working days in the reporting year.

iii. Average home working days.

iv. Average commute distances.

v. Percentage use of transport modes.

vi. The total reclaimed business miles[7].

c. Owned / controlled vehicles and plant.

i. Number of vehicles by type.

ii. Total fuel usage or mileage for each type.

iii. Other combusted fuels usage (for plant).

7 This covers reimbursed travel expenses for employees using their own vehicles for LHA business (sometimes referred to as 'grey fleet' expenses).

2. Maintenance Activities, as a top-down assessment, includes:

a. Planned maintenance.

i. Total resurfacing[8] (m^2).

ii. Total surface dressing (m^2).

iii. Total micro asphalt (m^2).

iv. Total retexturing (m^2).

v. Total footway slurry sealing (m^2).

b. Reactive maintenance.

i. Total patching and pothole repairs (number completed).

ii. Total emergency tree cuts and vegetation removals (number completed).

c. Cyclical maintenance.

i. Total gullies emptying (number completed).

ii. Total grass cutting (m^2).

d. Streetlighting

i. Total new and replacement columns (number replaced or installed).

ii. Total LED lantern upgrades (number installed).

e. Signs

i. Total new and replacement signs (number installed).

ii. Total new sign illuminations (mains and solar, number installed).

f. Electrical assets (flow control)

i. Total new and replacement traffic signals.

ii. Total new and replacement Belisha beacons.

iii. Total new and replacement control cabinets.

g. Lining

i. Total lining (by weight or km, by type).

h. Winter maintenance

i. Total winter treatments applied (in km).

i. Waste and recycling

i. Total waste recycled (by type, tonnes).

ii. Total waste to landfill (tonnes).

iii. Total waste to incineration (green waste, tonnes).

[8] Using an LHA defined specification, including material type, depth, and % RAP, for surface, binder and base layers.

3. Construction Schemes, a bottom-up assessment, utilising:

a. Total carbon emissions from scheme bills of materials and schedules of resources.

i. Alternatively, the total expenditure for each project in the reporting year.

ii. Only emissions for project elements delivered in the reporting year will be included.

Where data is not readily available for a category, LHAs can submit an estimate and mark down their confidence, or omit a category and the FHRG will apply a sector average.

Best Practice Carbon Assessment (BPCA)

The Value Analyser assessment framework will be used for BPCAs. This proven framework (process and toolkit) has been in use since 2015 and is currently used to support the FHRG Value for Money Benchmarking Club.

The assessment considers 78 factors across seven dimensions:

- **Corporate /Service Carbon Policy**
- **Purchased Goods and Services (Provider Policy and Management)**
- **Premises and Sites**
- **Staff and Contractors**
- **Vehicles and Plant**
- **Functions and Activities (Operations)**
- **Major Schemes**

For each scored factor the following data is captured:

1. Dimension (section of the assessment).

2. Factor (a description of the factor being assessed).

3. Weighting.

a. 0 (No Importance) to 100 (High Importance).

4. Score (a factor-specific scoring range).

a. 0 (Fail) to 100 (Excellent), includes N/A for not applicable factors.

5. Confidence (in the data sources used to score the factor).

a. 0 (None) to 100 (High), includes N/A for not applicable factors.

6. Opportunity (for improving the score and / or the confidence).

a. 0 (None) to 100 (Definitely)

7. Weight-adjusted score (calculated).

8. Priority for remedial action / improvement (calculated).

The BPCA scorecard is a simple self-assessment and includes detailed scoring guidance for each factor. Completion of the scorecard may require contributions from a range of service stakeholders.

Programme goals and benefits

The programme seeks to deliver the following goals and benefits:

1. **Establish the current carbon footprint (emissions) for each participating LHA.**
    a. Using the Carbon Footprint Assessment (CFA) toolset and a streamlined methodology evolved from the FHRG and ADEPT guidance.

2. **Determine each LHA's current performance in terms of best practice carbon management.**
    a. Using the Best Practice Carbon Assessments (BPCA) toolset and an assessment factor set that has been specifically tailored for the local roads sector.

3. **Provide comprehensive benchmarking data.**
    a. Including the carbon footprints for LHA services and individual functions.
    b. Using best practice assessments to compare progress to net zero.

4. **Identify and share between LHAs, the actions and business changes being implemented by LHAs to reduce their carbon emissions.**
    a. Agreeing and recording a prioritised list of carbon management improvements and carbon reduction initiatives with LHA leadership teams.
    b. Guiding LHAs toward effective carbon reduction options and away from unproven initiatives.
    c. Inform future procurements to ensure best practice is embedded within future contracts.

5. **Aggregate the individual LHA assessments to provide a carbon footprint for local roads maintenance and construction schemes for the target reporting year (April 2024 to March 2025).**
    a. To enable better local and central planning, targeted funding, and sector resources coordination.

6. **Establish a carbon baseline from which LHAs can plan, monitor, report, and benchmark progress towards net zero.**
    a. Ensuring knowledge sharing and optimised investments, sector wide.

Programme eligibility and rollout

The Carbon Leadership Programme will be offered to all English LHAs in three phases, over three years:

Table 2: Proposed Carbon Leadership Programme Implementation Phases

Carbon Leadership Programme Phases	% of LHAs	No. of LHAs	No. of LHAs Per Month	Cumulative Total
Phase I *(Year 1, May '25)*	***38%***	***58***	***5***	***58***
Phase II *(Year 2, May '26)*	***37%***	***57***	***5***	***115***
Phase III *(Year 3, May '27)*	***25%***	***38***	***3***	***153***

LHAs will be able to select which cohort (year) they would like to join. Once started, it is expected that each participant will complete their assessment in 90 days. If an LHA fails to complete the process within the allocated time, then the assessment may be postponed, subject to future availability.

ADEPT Carbon Leadership Programme

Joining instructions

To find out more about the programme, please visit:
www.adeptnet.org.uk/carbon-leadership-programme

For any additional questions about the Carbon Leadership Programme please contact:
secretariat@adeptnet.org.uk

Department for Transport
ADEPT Association of Directors of Environment, Economy, Planning & Transport
Future Highways Research Group
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