



# Wessex Live Labs Carbon Plenary

12<sup>th</sup> March 2024





Working in partnership to decarbonise highways maintenance



# Wessex Live Lab – Project Context

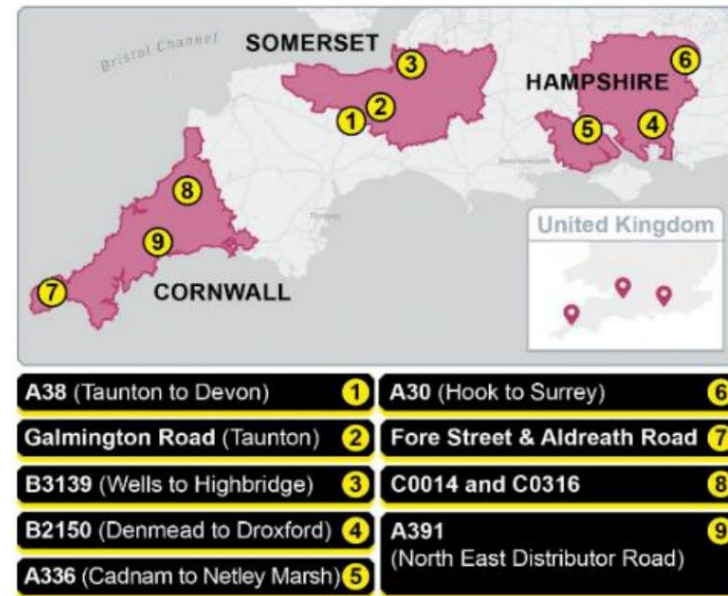
- **Theme:** Corridor & Place-Based Decarbonisation

- **3 Local Authorities:**

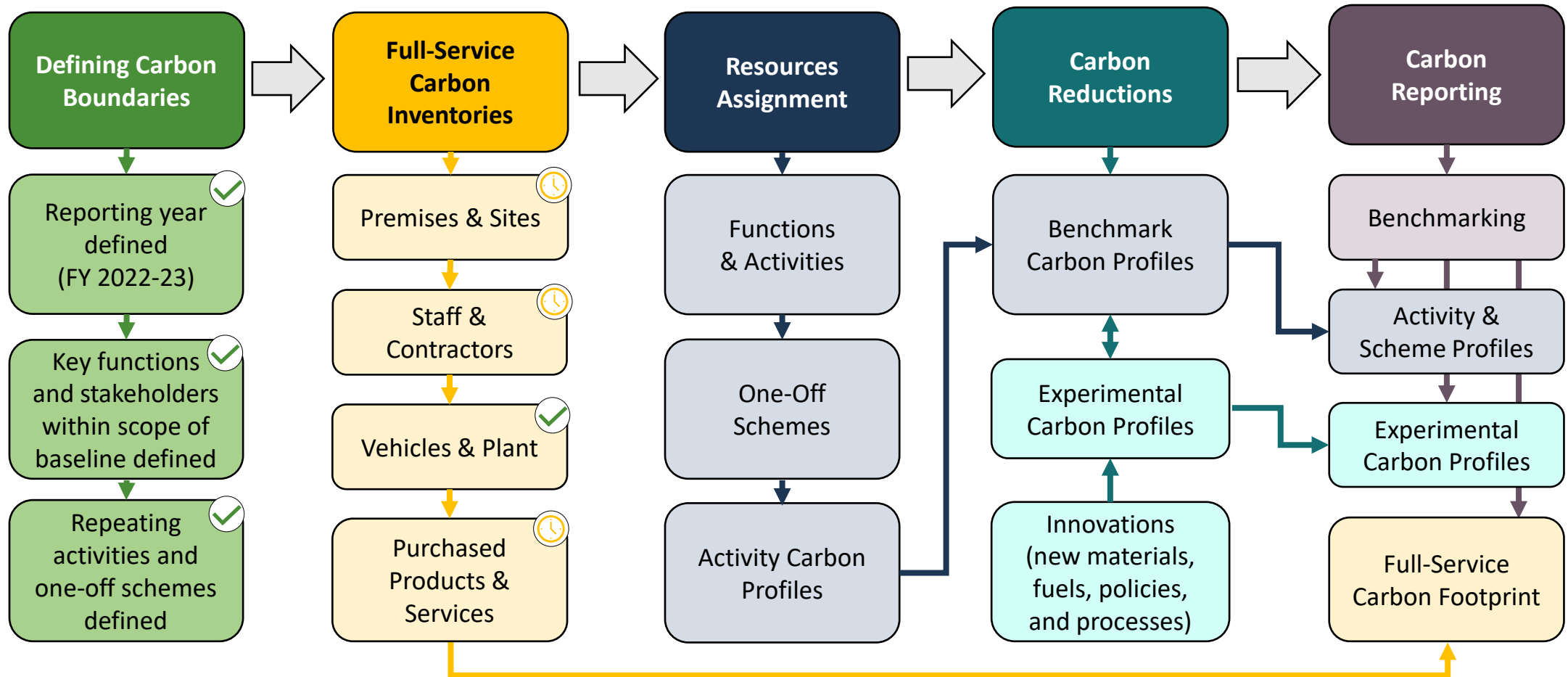



- Developing innovative solutions for decarbonising highways maintenance on **9 corridors**.

- **Doughnut Economics** – balancing social needs & ecological impacts.







# Carbon Calculation & Accounting Process



✓ = completed

🕒 = almost completed

# Full-Service Baseline Data Collection






	<b>Premises &amp; Sites</b> 	<b>Staff &amp; Contractors</b> 	<b>Vehicles &amp; Plant</b> 	<b>Purchased Products &amp; Services</b> 
<b>What data was collected?</b>	<ul style="list-style-type: none"> <li>Electricity usage</li> <li>Gas usage</li> <li>Water usage</li> </ul>	<ul style="list-style-type: none"> <li>No. of home working &amp; commuting days</li> <li>Commuting mode, distance, &amp; fuel type</li> <li>Annual business miles</li> </ul>	<ul style="list-style-type: none"> <li>Vehicle &amp; plant functions and fuel types</li> <li>Vehicle mileages</li> <li>Plant fuel consumption</li> </ul>	<ul style="list-style-type: none"> <li>Purchased materials &amp; goods</li> <li>Waste management services</li> <li>3<sup>rd</sup>-party transportation</li> <li>Other 3<sup>rd</sup>-party services</li> </ul>
<b>How was the data collected?</b>	<ul style="list-style-type: none"> <li>Meter readings supplied for each depot / site</li> </ul>	<ul style="list-style-type: none"> <li>Staff commute survey</li> <li>Business mileage claims obtained from HR</li> </ul>	<ul style="list-style-type: none"> <li>Fleet list provided with fuel types / VRNs and mileages.</li> <li>Bulk fuel consumption (plant &amp; Cornwall vehicles).</li> </ul>	<ul style="list-style-type: none"> <li>List of products &amp; services purchased</li> <li>Names of suppliers</li> <li>Quantities in tonnes or £</li> </ul>
<b>From whom was the data collected?</b>	<ul style="list-style-type: none"> <li>Local Authorities</li> <li>Tier 1 contractors</li> </ul>	<ul style="list-style-type: none"> <li>Local Authorities</li> <li>Tier 1 contractors</li> </ul>	<ul style="list-style-type: none"> <li>Local Authorities</li> <li>Tier 1 contractors</li> <li>Tier 2 subcontractors</li> </ul>	<ul style="list-style-type: none"> <li>Local Authorities</li> <li>Tier 1 contractors</li> <li>Tier 2 subcontractors</li> </ul>



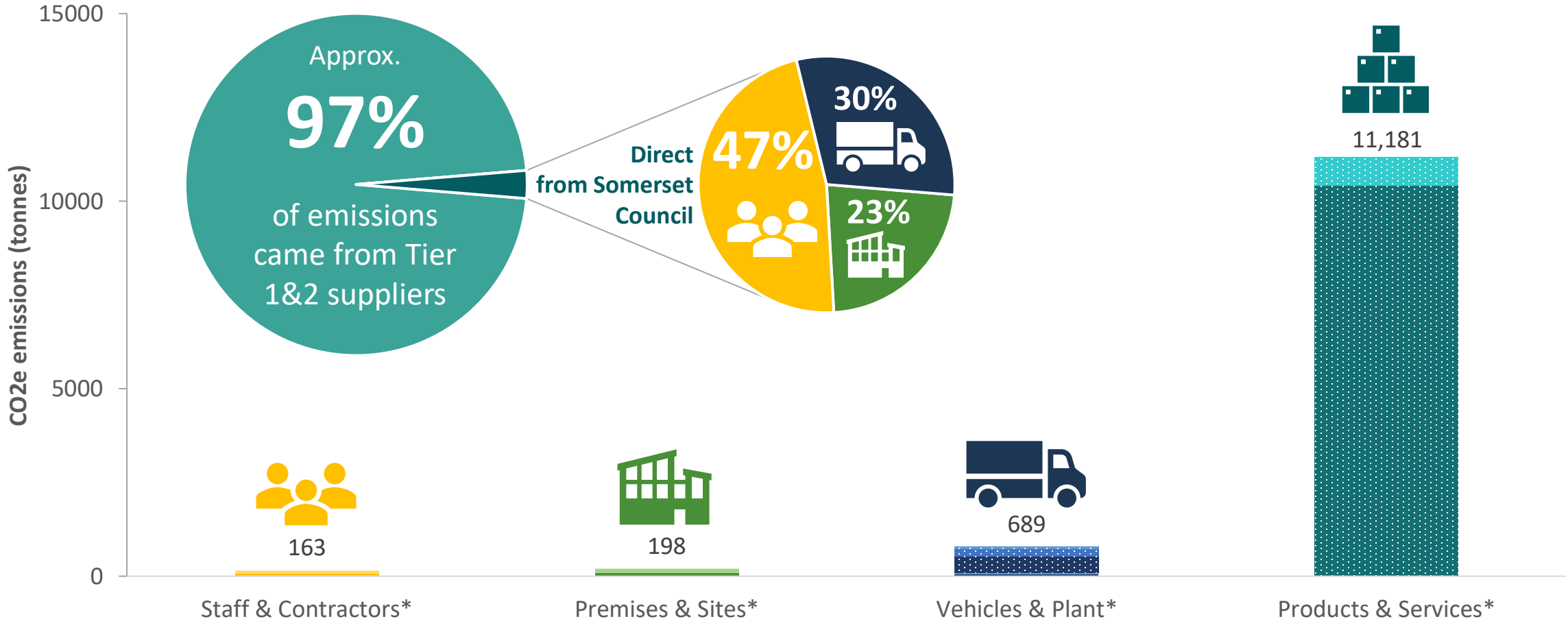
# Carbon Baseline Calculation

- **Using FHRG Carbon Analyser**
  - Carbon factors from BEIS, ICE, NH, & FHRG
  - Including upstream CO<sub>2</sub>e (WTT and T&D)
  - Premises & Sites energy by % of desks allocated to Highways staff.
- **Cornwall carbon data already calculated for audit**
  - Carbon factors from BEIS 2022.
  - Fuel & travel split down by % Highways staff.
  - Additional data (staff commute survey & water) collected for consistency with other LAs.
  - REGO tariffs – carbon factor from supplier where electricity consumption exceeded threshold.

# Carbon Baselineing - Next Steps

	Finalise full-service data collection	Import into CA 	Baseline verification	Data analysis 	Scheme-level carbon baselining
 <b>CORNWALL COUNCIL</b> <i>one and all • onen hag all</i>	Confirm no. of staff in Highways dept. for survey extrapolation	All data	Review & verify data in CA	Carbon reporting & hotspot identification	Starting with Madron scheme (resurfacing, virtual footways, etc.)
 <b>Hampshire County Council</b>	Staff commute survey, business mileage claims, & HQ water	All data	Review & verify data in CA	Carbon reporting & hotspot identification	TBD
 <b>Somerset Council</b>	IT services, HQ water, confirm no. of pool vehicles	Tier 1&2 data (SC data has been entered)	Review & verify data in CA	Carbon reporting & hotspot identification	Including Galmington Road (footways) and A38 junction improvement

# Headline Data



## Emissions sources

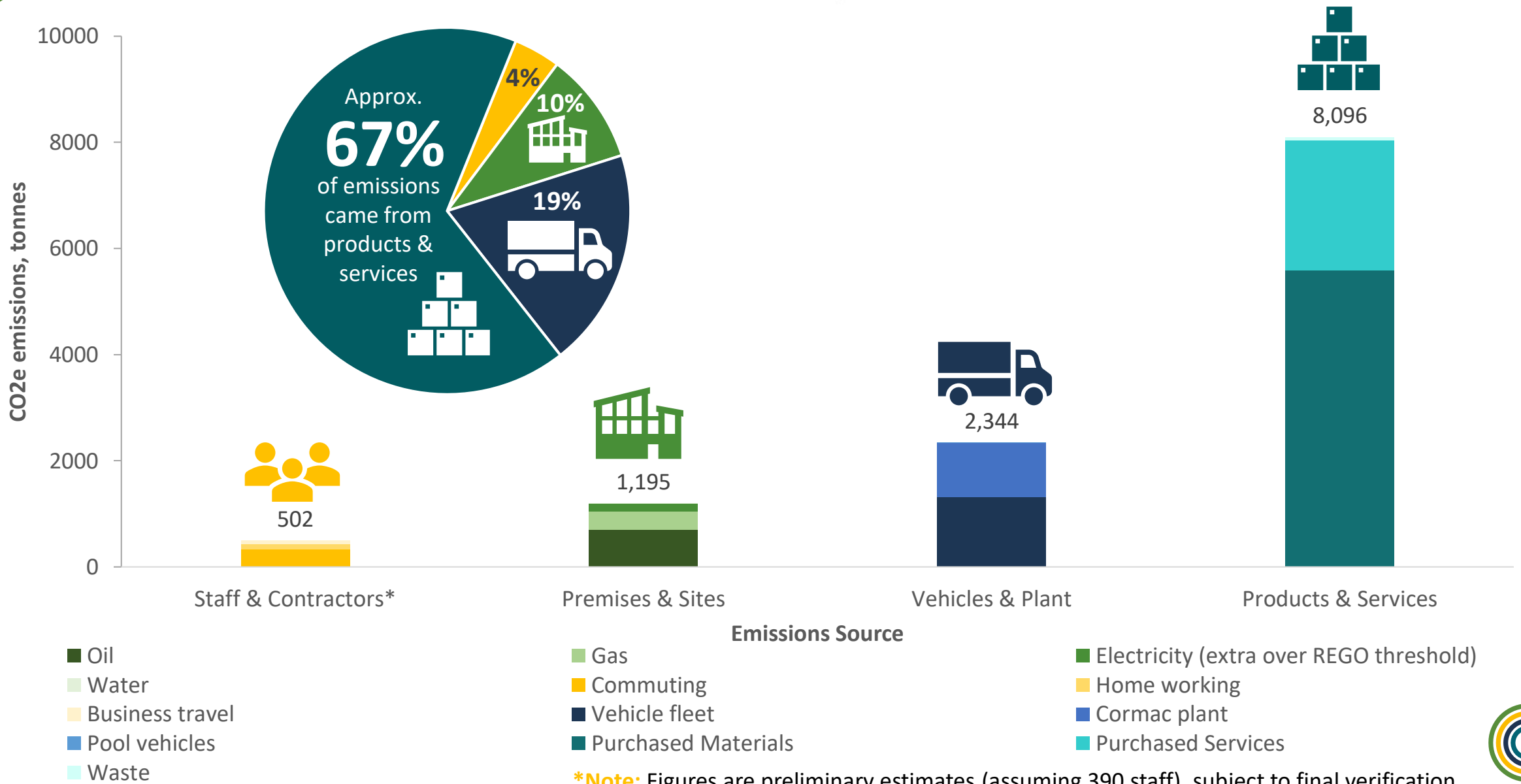
- Electricity
- Gas
- Water
- Commuting
- Home working
- Business travel
- Inspections vans (SC)
- Pool vehicles (SC)
- Ops vehicles (Milestone)
- Plant (Milestone)
- Pool vehicles (Milestone)
- Purchased services
- Purchased materials
- Purchased transport
- Waste

**\*Note:** All figures are preliminary values subject to final data collation & carbon calculation





# Headline Data



\*Note: Figures are preliminary estimates (assuming 390 staff), subject to final verification.

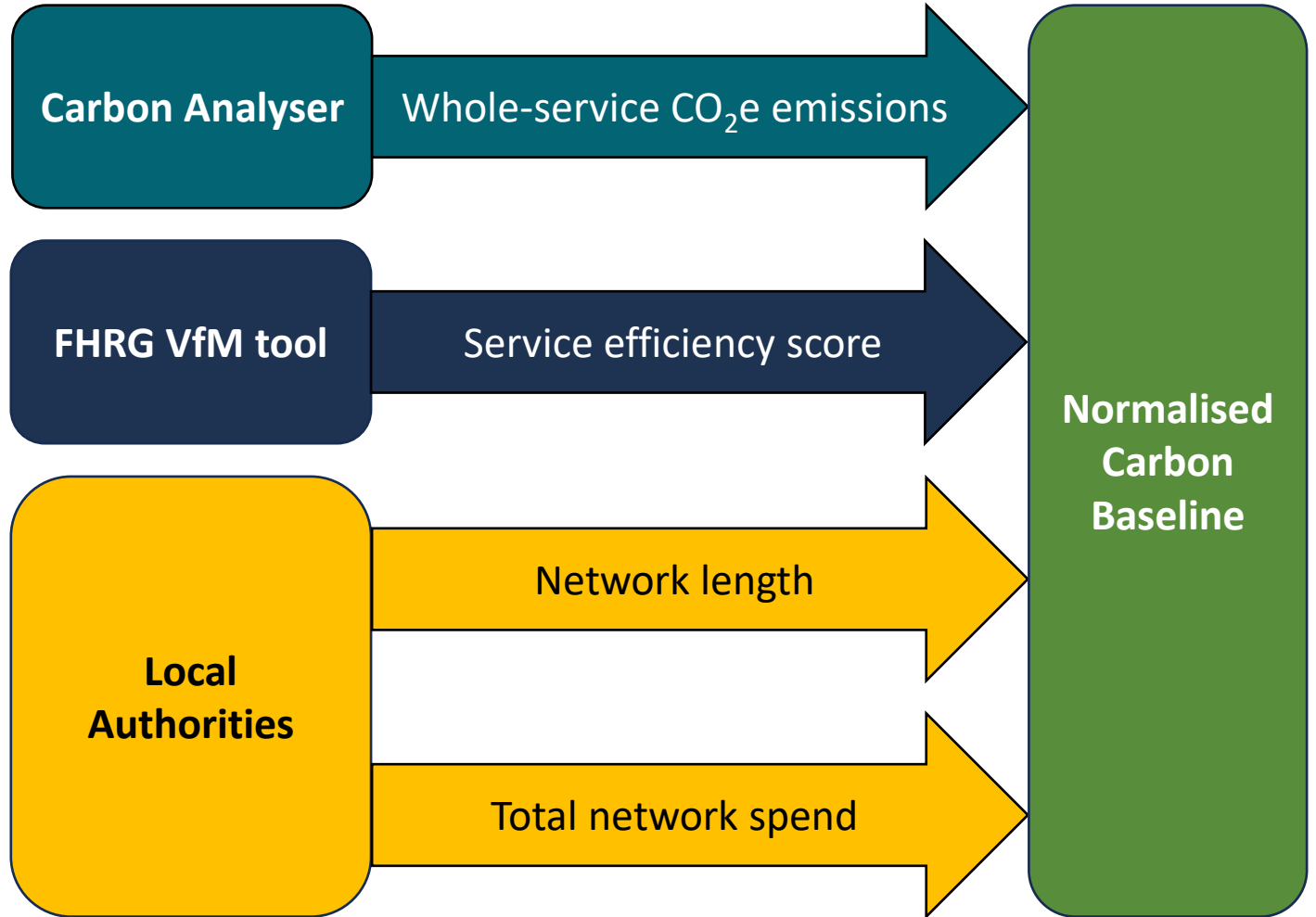
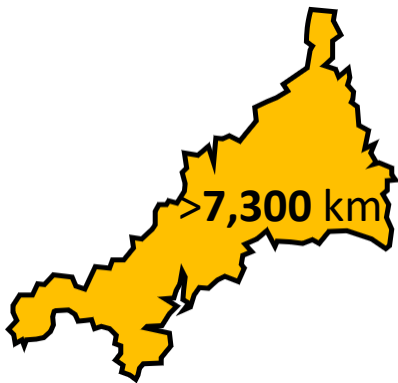


# Normalising emissions by Local Authority

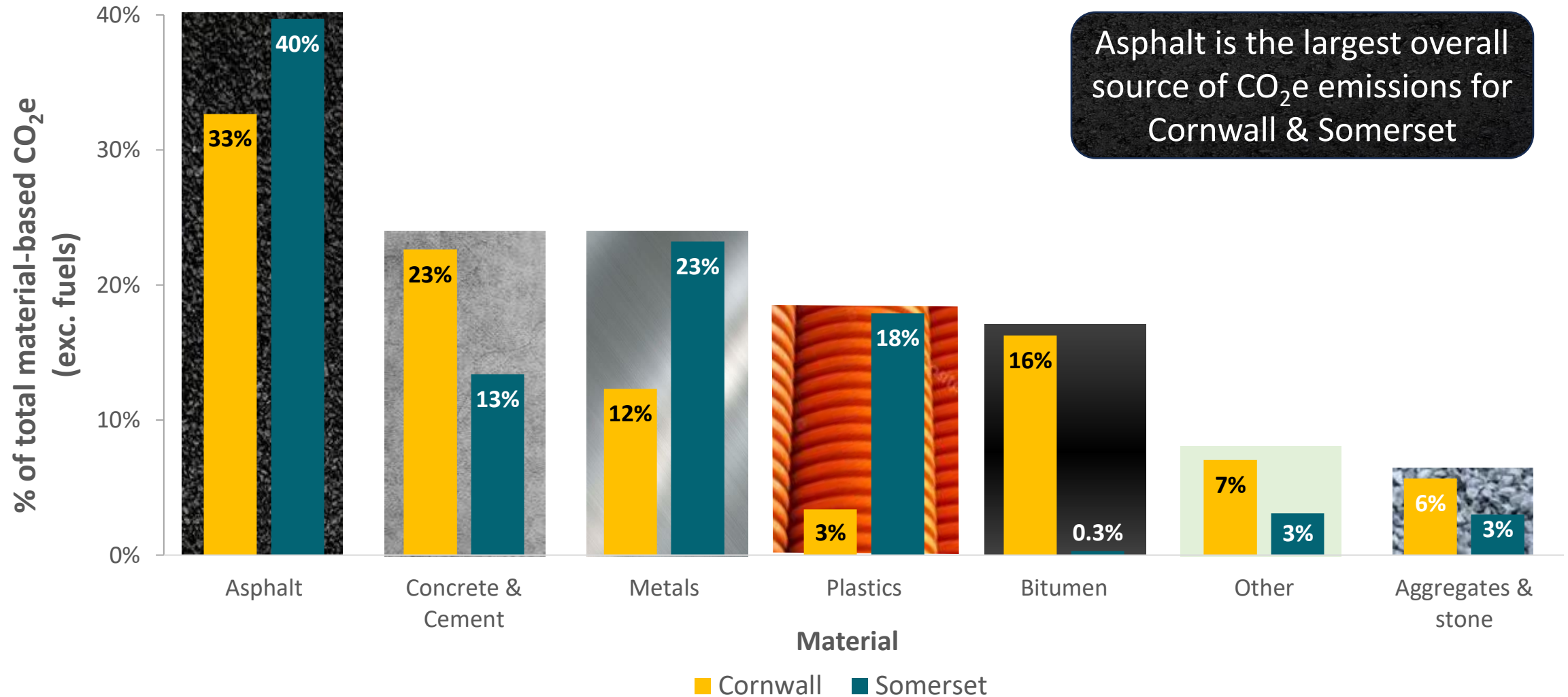


12,136  
tCO<sub>2</sub>e

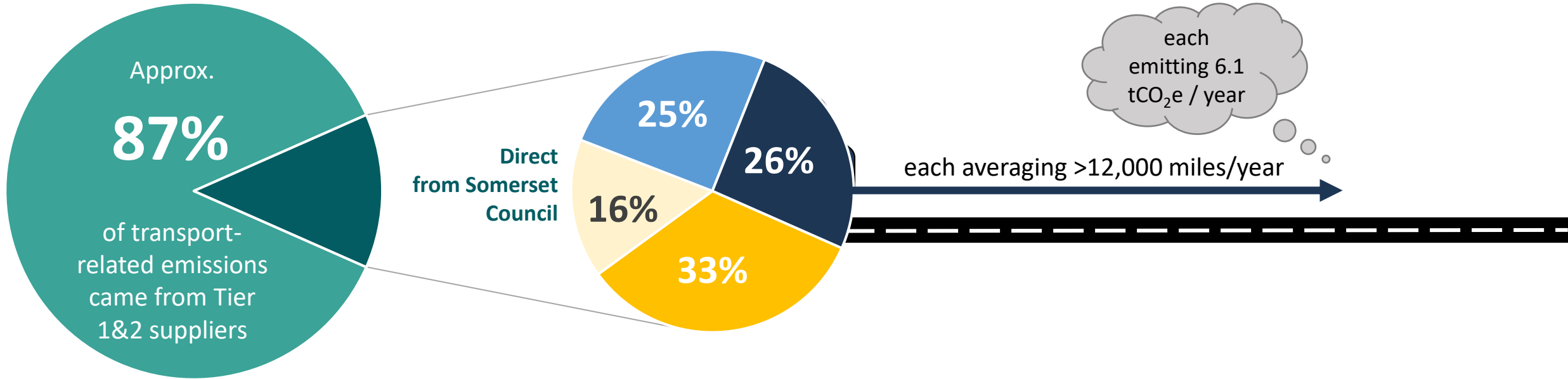
12,230  
tCO<sub>2</sub>e



# Materials Data (exc. fuels for consistency – absolute values to be finalised)

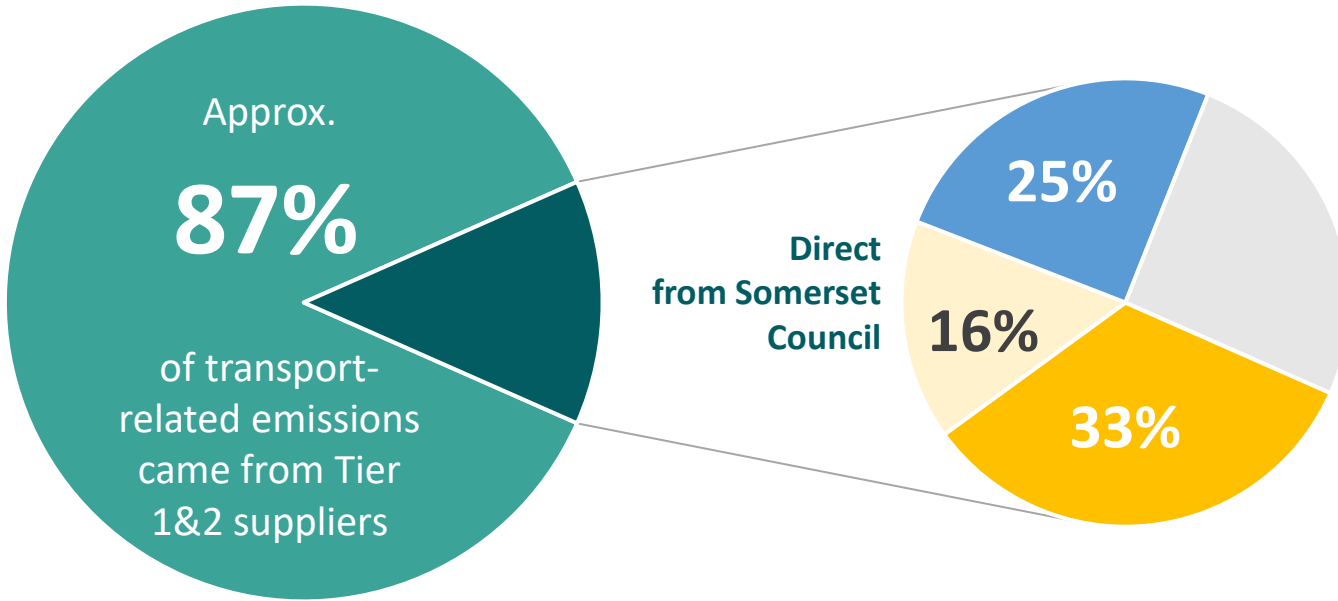


# Travel & Transport

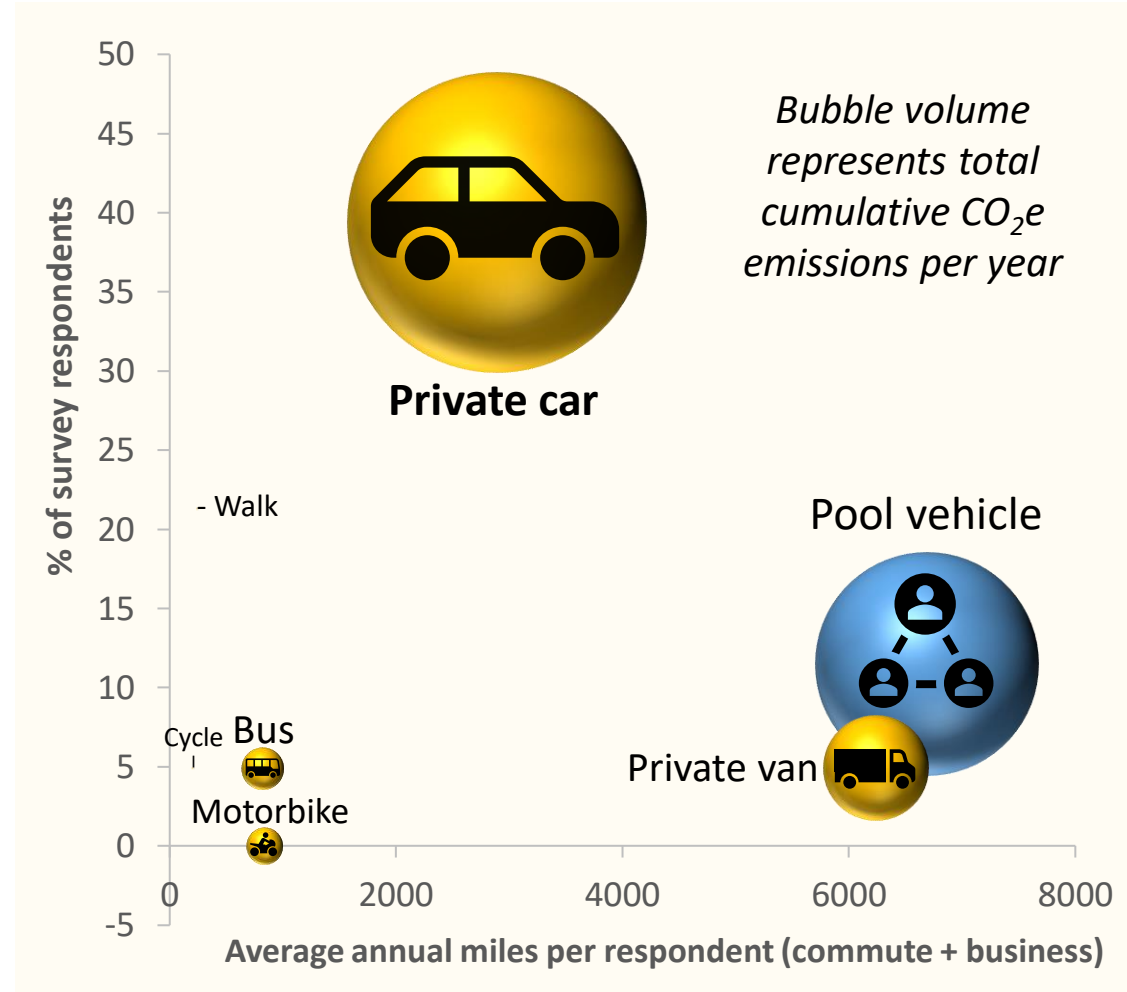


- Commuting (private/public transport)
- Somerset Council pool vehicles
- Business travel (private vehicles)
- Somerset Council Inspections vans

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# How the data is helping shape the way forward

- **Building understanding and awareness of the current carbon-picture and the challenges ahead**
- **Informing corridor analysis and delivery**
  - Using Carbon Analyser is enabling us to take a ‘whole corridor’ approach by identifying a mix of physical works and simulated scenarios to demonstrate maximum carbon savings
  - The initial demonstrator is underway for Madron, supporting the toolkit development for other corridors
- **Informing our prioritisation and selection of innovations**
  - Data-led decision-making ensuring VfM & optimal delivery of low-carbon solutions
- **Identifying overarching areas for immediate action**
  - Carbon Hotspot Studies’ the LEAN travel review (see next slide)



# LEAN Carbon Review

## A unique way of applying the LEAN methodology to remove carbon

A deep-dive into understanding how to reduce carbon emissions from inspections, based on the 'problem statement' ...

*'Highways and associated asset Inspections undertaken using Somerset Council vehicles account for approximately 48.8 tonnes of CO<sub>2</sub> emissions per annum across the county.'*

*This is based on the existing fleet of 8 diesel vans traveling an average of 12,000 miles per annum.*

*This amounts to over 25% of transport-related carbon emissions directly attributable to Somerset Council staff.*

*The review will cover the full spectrum of inspection activities (including inspections of statutory undertakers' work, bridges & structures & more).*

# Key Reflections

## Discoveries

Importance of **engaging with supply chain** - otherwise, major carbon hotspots remain hidden.

**Early commitment to Net Zero & carbon reporting** proved advantageous for Cornwall.

Exciting opportunities for **creative problem-solving & strategic planning**.

**Diverse collaborative partnerships** provide the expertise & resources needed to address project challenges.

## Challenges

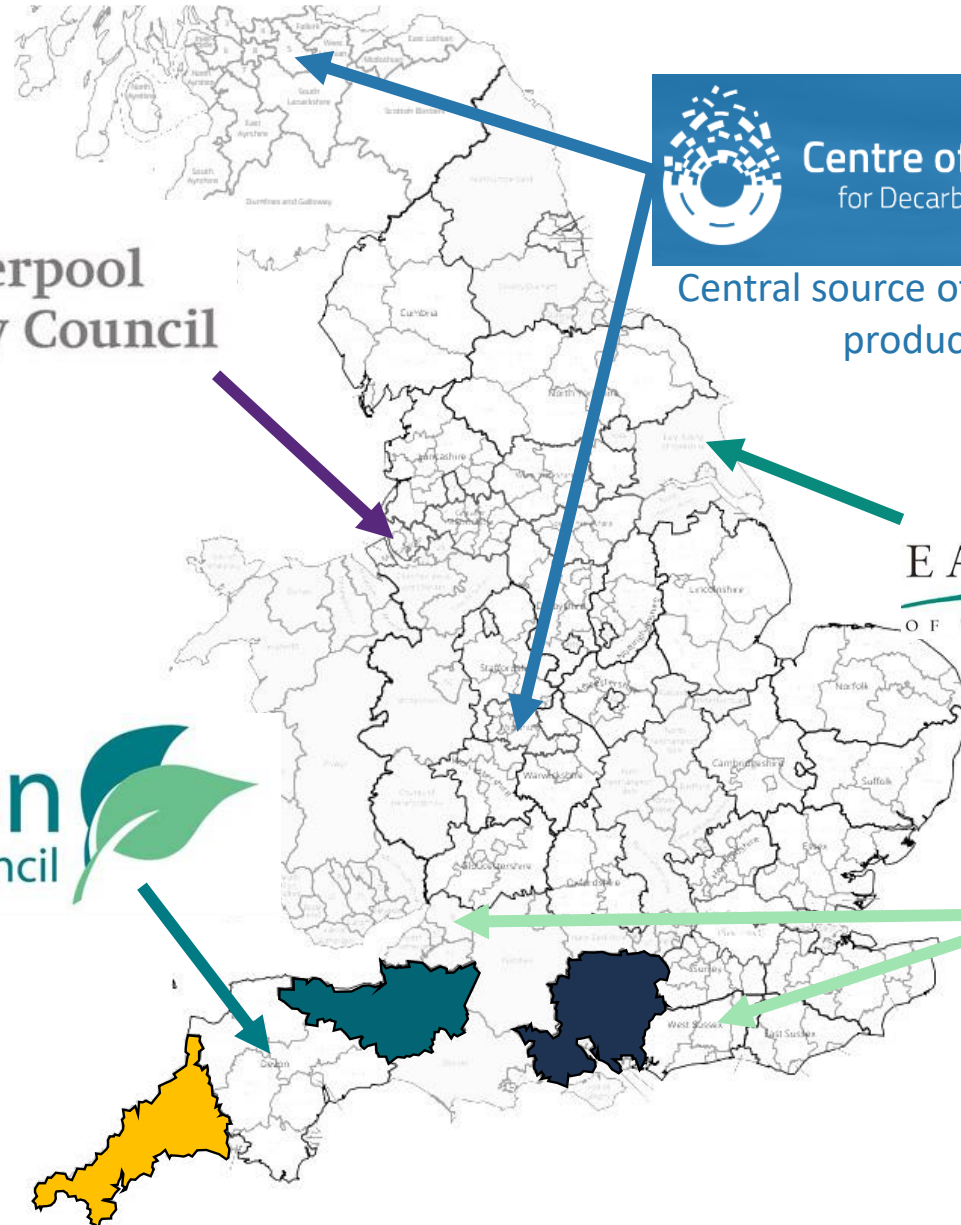
Agreeing upon suitable & consistent methodologies for **carbon baselining & innovation management**.

Difficulty of obtaining data - **extensive staff engagement** required.

Challenges with **staff commute survey** – content, GDPR, and low response rates.



# Links with other Live Labs – sharing & learning



Shared learning, resources & tools for carbon accounting (Colas & FHRG)



Liverpool City Council

Shared theme of corridor & place-based decarbonisation

Shared learning & innovations through the thematic group & innovation match-making

Devon County Council



Central source of innovative products



EAST RIDING OF YORKSHIRE COUNCIL

Shared resources & tools for carbon accounting (Colas & FHRG), and innovation match-making

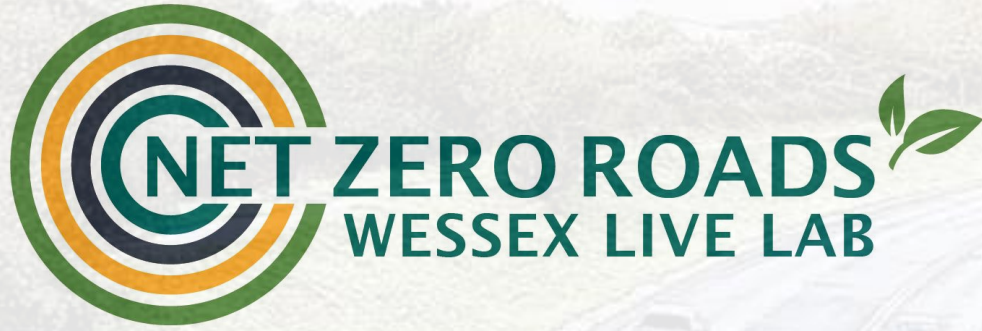
Shared learning on innovations through innovation match-making on lighting solutions



Greenprint.

Shared learning on innovations through innovation match-making





# Thank you for your attention

