The role of Intelligent Transport Systems in an Era of Decarbonisation

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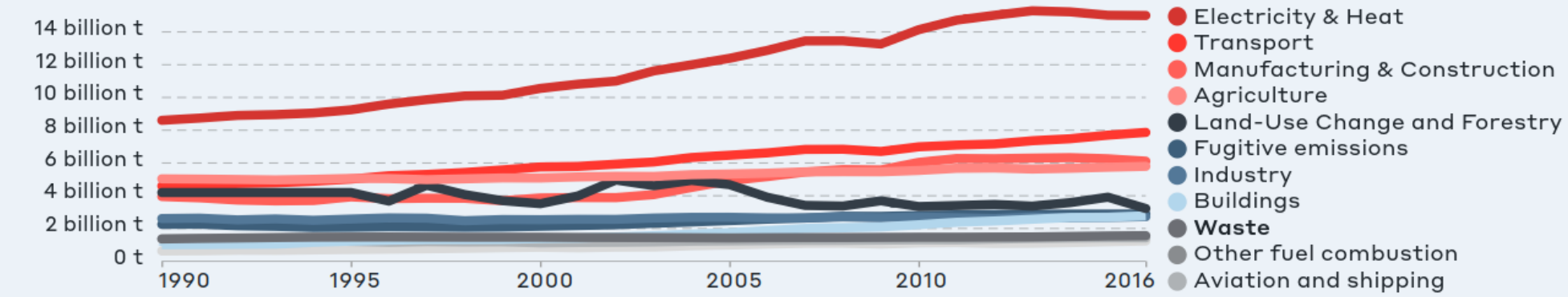
Setting the context

Our planet is warming at its fastest pace in history.

The urgent global climate change challenge is everyone's responsibility

Reducing greenhouse gas (GHG) emissions demands decarbonization efforts across all sectors.

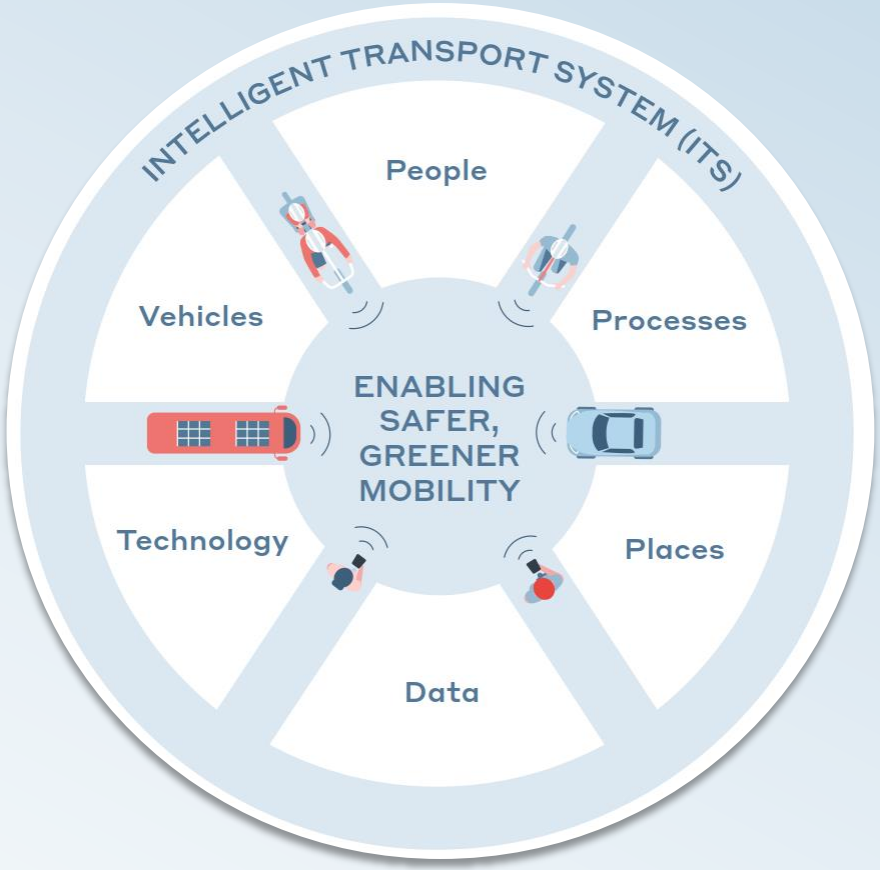


Source: CAIT Climate Data Explorer via Climate Watch

Figure 1 – Annual global GHG emissions by sector, up to 2016

ITS Design Principles to support Net Zero transition

- **Human-centric solutions**
- **Whole-system approach**
- **Adaptability across the system lifecycle**



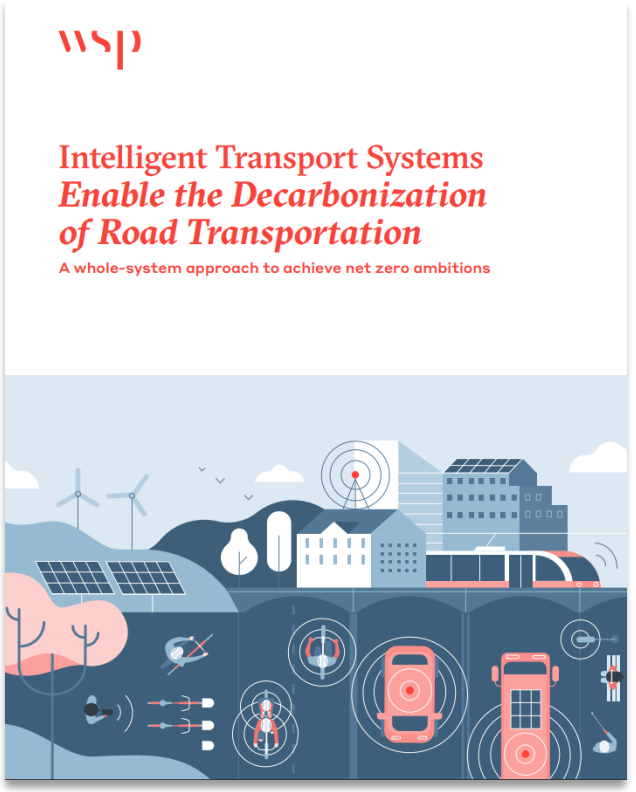
On the ITS road to net zero

ITS can accelerate decarbonisation through three core themes:

1 - Modal shift to public and active transport

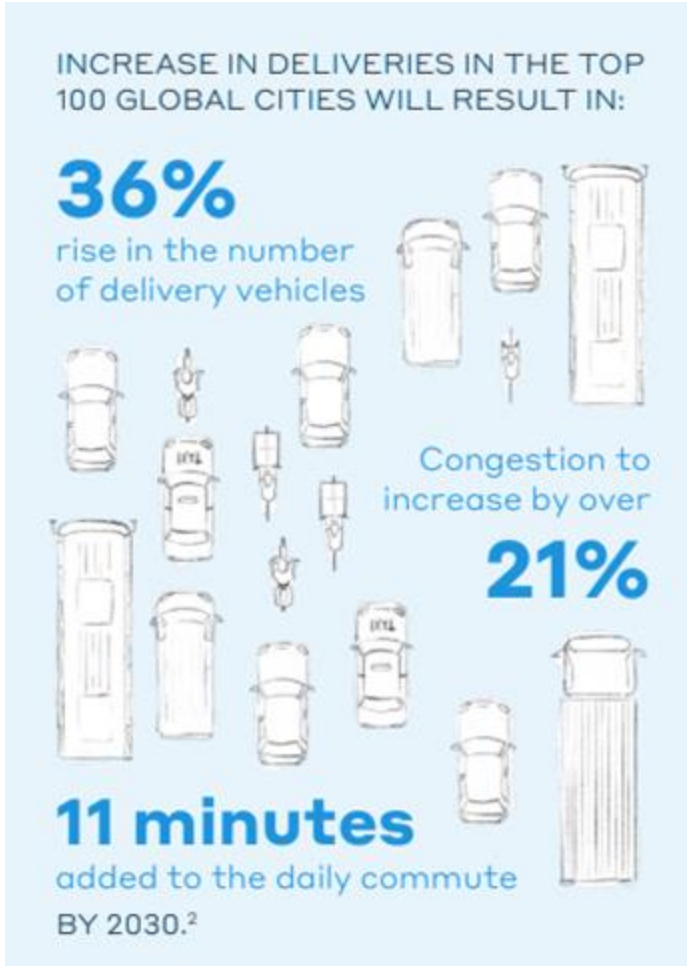
2 - Adoption of zero emission vehicles

3 - Efficient use of existing transport networks



Modal Shift

The challenge - Facilitating modal shift to more sustainable modes of transport



Solutions

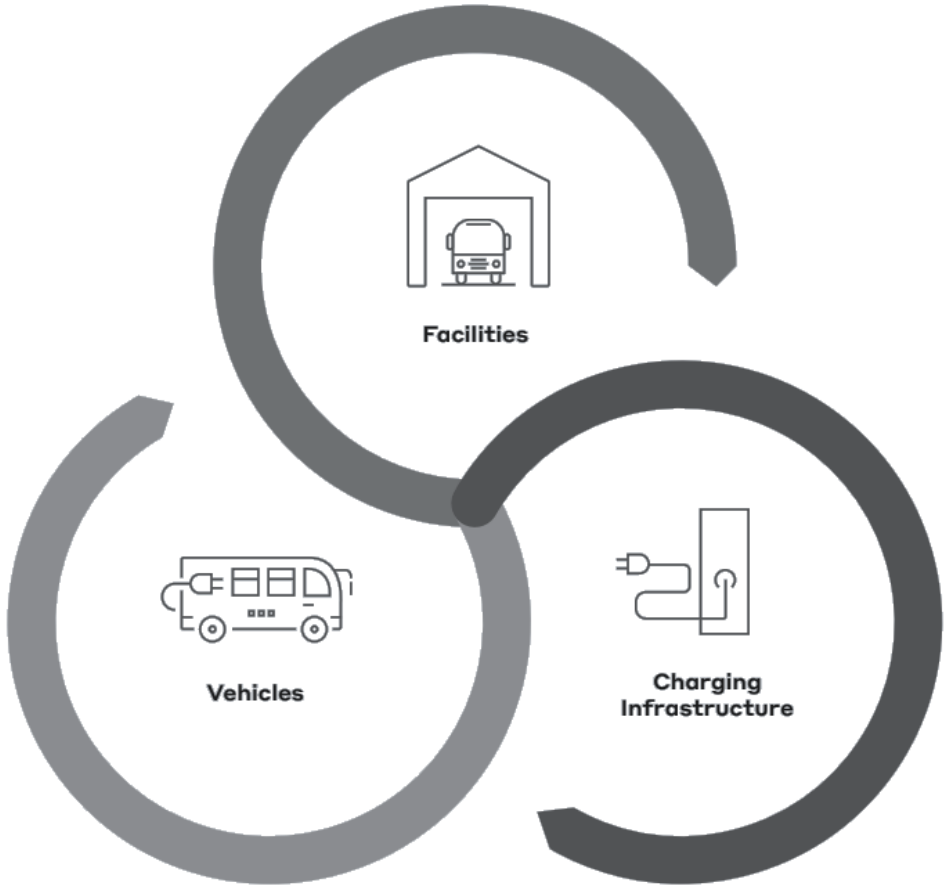
MaaS and Future Transport Zones, United Kingdom

Future Ready Kerbside, Australia and New Zealand

Digital Roads, United Kingdom

Zero Emission

Challenge – Accelerating adoption of ZEV



Solutions

Midlands Connect Accelerating EV Charging Infrastructure, United Kingdom

ZEV Feasibility Report, Barrie Transit, Canada

Electrifying Vehicle Fleets, UK

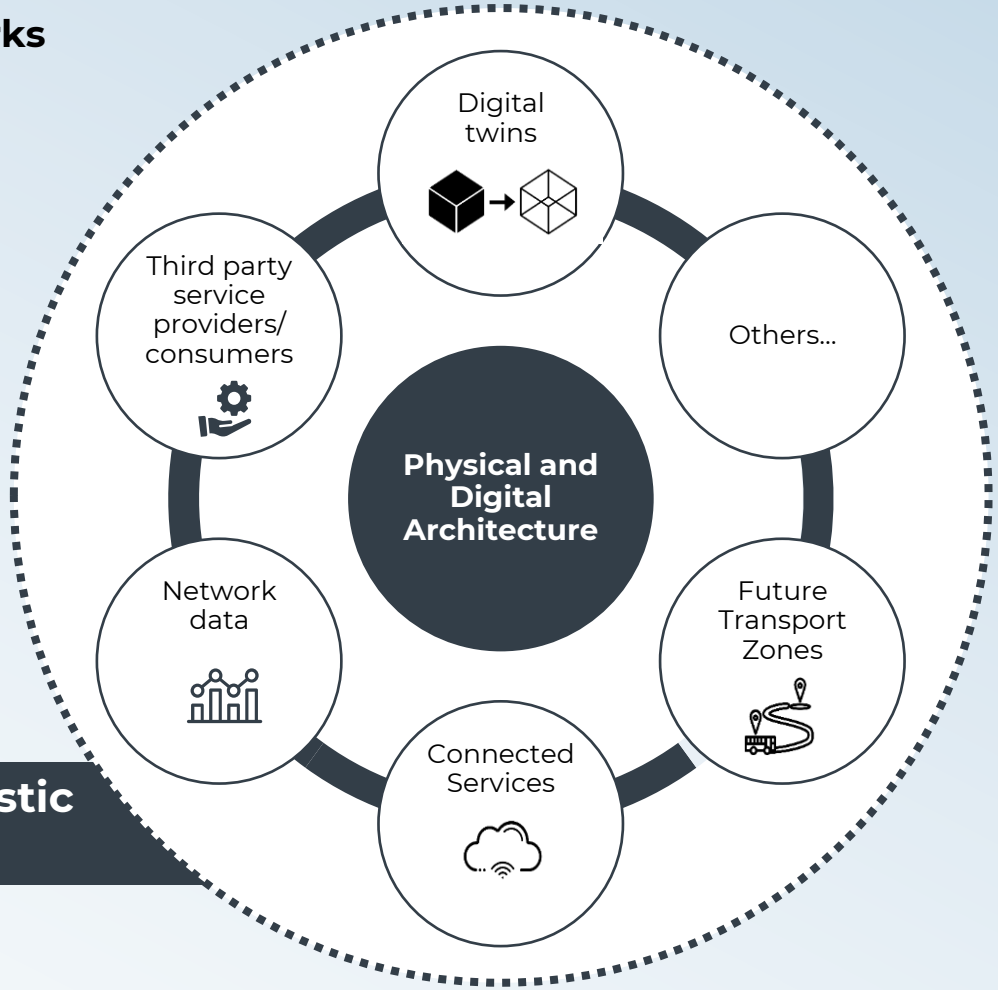
Maximising Efficiency

Challenge – Maximising efficiency across existing Transport networks

DfT One Network Vision

Maximizing efficiency across existing networks

To bring the various **new transport initiatives** together in a **consistent**, **harmonised** way, we could think about creating one **national holistic transport network** encompassing all of these...



Benefits of Connected Vehicles

Context of how Connected Services can unlock key benefits to UK PLC

Connected service **technologies** are key in unlocking other cornerstones of digital enabled mobility

- **Electric and decarbonised mobility**
- **Connected and Automated Vehicles (CAVs)**
- **User centric shared mobility services (e.g. micro-mobility)**
- **Seamless multimodal mobility (e.g. MaaS)**

Enabling technologies: connectivity technologies (e.g. 5G), AI, cloud-edge-IoT, data sharing

Connected Services are proven to provide **cashable and economic benefits and savings**

- **Reduced carbon emissions**
- **Efficient operations and services**
- **Improved network management**
- **Supports active and sustainable travel**
- **Capitalising on connected data opportunities**
- **Quality places and infrastructure**
- **Increased safety (reduction in accidents)**
- **Improved air quality**
- **Enables cashless and digital services**
- **Optimised traffic and goods movement**

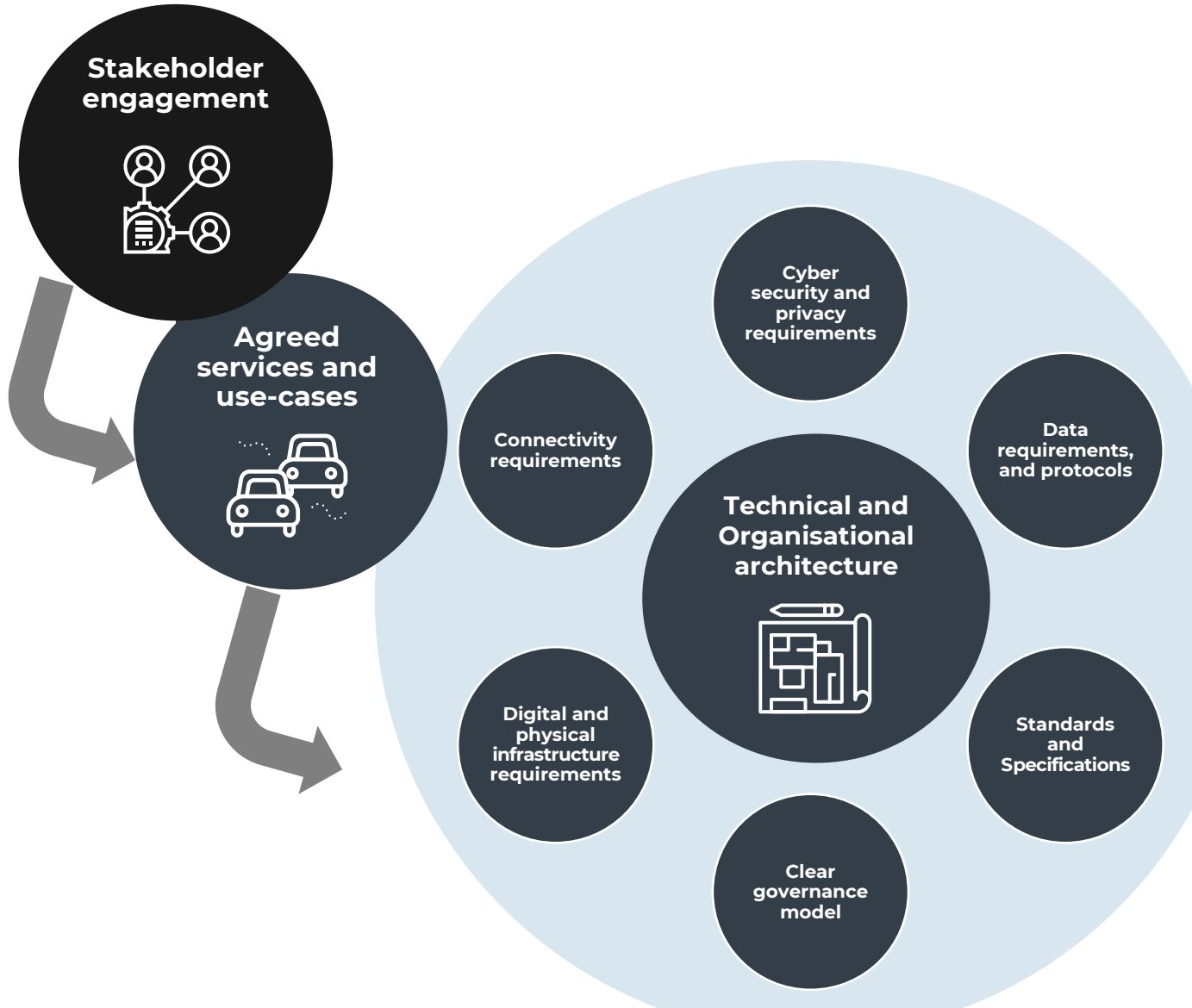
Realising Connected Services **benefits** require

- Real-time, accurate, and trusted data
- Co-ordination at a national level
- A trust and governance in collaboration with private and public stakeholders
- Alignment with national and international standards
- Understanding of what must be standardised, regulated or legislated
- An ecosystem and 'One Network' approach to deliver this

Connected Services Architecture Scope

Maximizing efficiency across existing networks

- CSA programme covers 3 key activities/areas of work:
  - Stakeholder engagement
  - Consensus on key services (at a national level)
  - Defining the **technical and organisational architecture** – considers 6 key aspects encompassed into a comprehensive programme of work
  - Status report to CSA stakeholders March 2023
  - Guidance to CSA stakeholders and industry Q1 2024



Main Problem Statement

"As DfT, what do I need to **guide, standardise, regulate, and legislate** to enable a Connected Services **ecosystem and market** to operate and flourish?"

"How do I, as a Local Highway Authority **migrate** from existing legacy systems to systems that support the **mass deployment of Connected Services**?"

"As a Local Highway Authority, how can I **better manage and operate my road network** to bring benefits to end users and UK plc?"

What may be required?

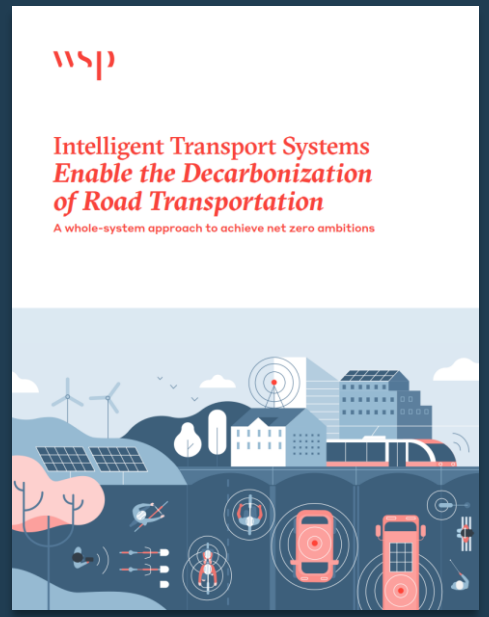
What do we as an industry need to consider to kick-start a CVS market?

- Stakeholder consensus to identify commonalities, and uncover gaps for further development (WSP currently have a live survey for LHAs via the TTF, link here, or QR code below).
- Clear guidance from government, meeting the objectives of both public and private stakeholders to kick-start a market.
  - An organisational architecture, in the form of a governance model.
  - Guidance on the use of standards and specifications to ensure interoperability
  - An agreed cybersecurity strategy, to minimise attack vectors when systems are scaled.
  - A migration plan for legacy systems as Highway Authorities start adopting connected systems.
  - An agreed 'roadmap of roadmaps' to set out key milestones Highway Authorities and wider industry can abide to.
- **A common trend is that the organisational aspects may be more challenging to establish, compared to the technical aspects, particular within a commercial environment.**

CSA Survey for LHAs

Thank you

Find out more, read our Greenprint...



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