Appendix C – LTP Update - Carbon Baseline Assessment

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1. The Role of Local Transport Plans

1.1. The Local Transport Act 2008 provides a statutory requirement for Local Transport Authorities (LTAs) to have a Local Transport Plan (LTP).

1.2. LTPs are an important part of transport planning in England, setting out a council's policy and strategy framework for local transport and travel.

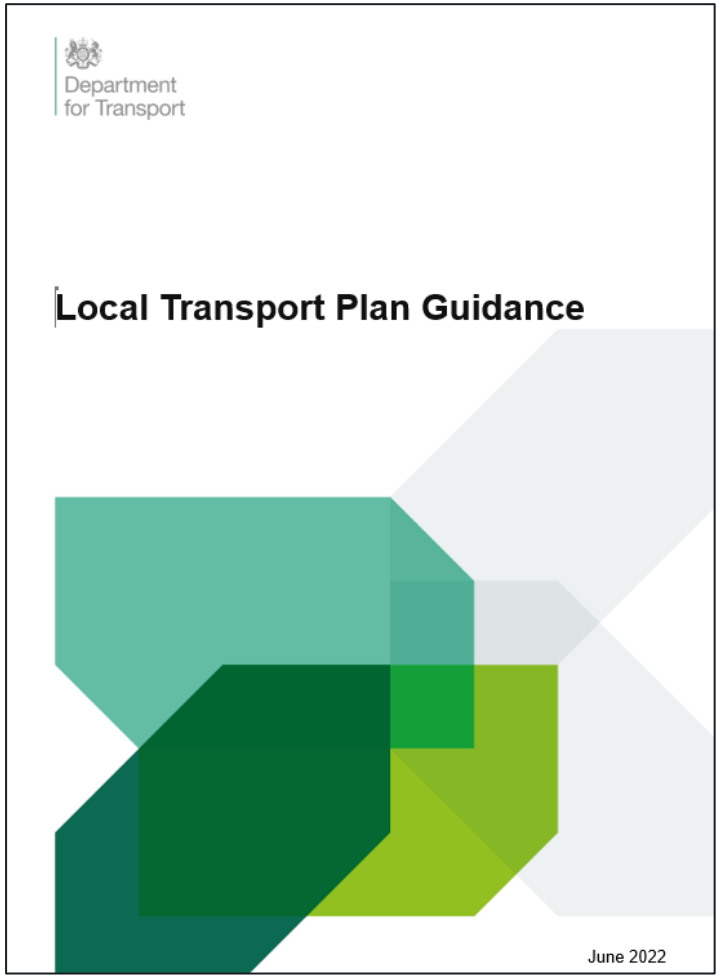
1.3. The LTP will set out the long-term strategy for the progression, development, management and maintenance of Herefordshire's highway and transport systems.

1.4. In 2021, the Government announced plans to issue new guidance on LTPs, with the expectation that LTAs will have new LTPs in place by Summer 2024.

1.5. A vision-led approach is advocated whereby LTAs can demonstrate how their transport systems can achieve better intended outcomes for people, goods, and places.

1.6. Strong links to the Government's economic growth and zero-carbon agendas are expected.

Figure 1 Department for Transport Local Transport Plan Guidance



2. National and International Context

2.1. The UK has signed up to international obligations to reduce emissions. The UK government has legislated to achieve ambitious reduction targets and carbon quantification is now being sought across different policy areas.

2.2. The new LTP guidance due from the Department for Transport (DfT) is expected to include support for:

- A ‘vision-led’ approach, focussed on outcomes and local priorities
- A ‘place-based’ approach, reflecting functional areas
- LTPs and Local Plans to have stronger alignment
- Developing LTPs like mini–Strategic/Business Cases

2.3. DfT also intend to issue new ‘Quantifiable Carbon Reduction (QCR) guidance’, standardising an evidence-led carbon approach to LTP development and reporting of LTP’s carbon impact.

2.4. WSP has been supporting DfT in authoring both the new LTP and QCR guidance.

3. Linking Outcomes and Interventions

A Golden Thread

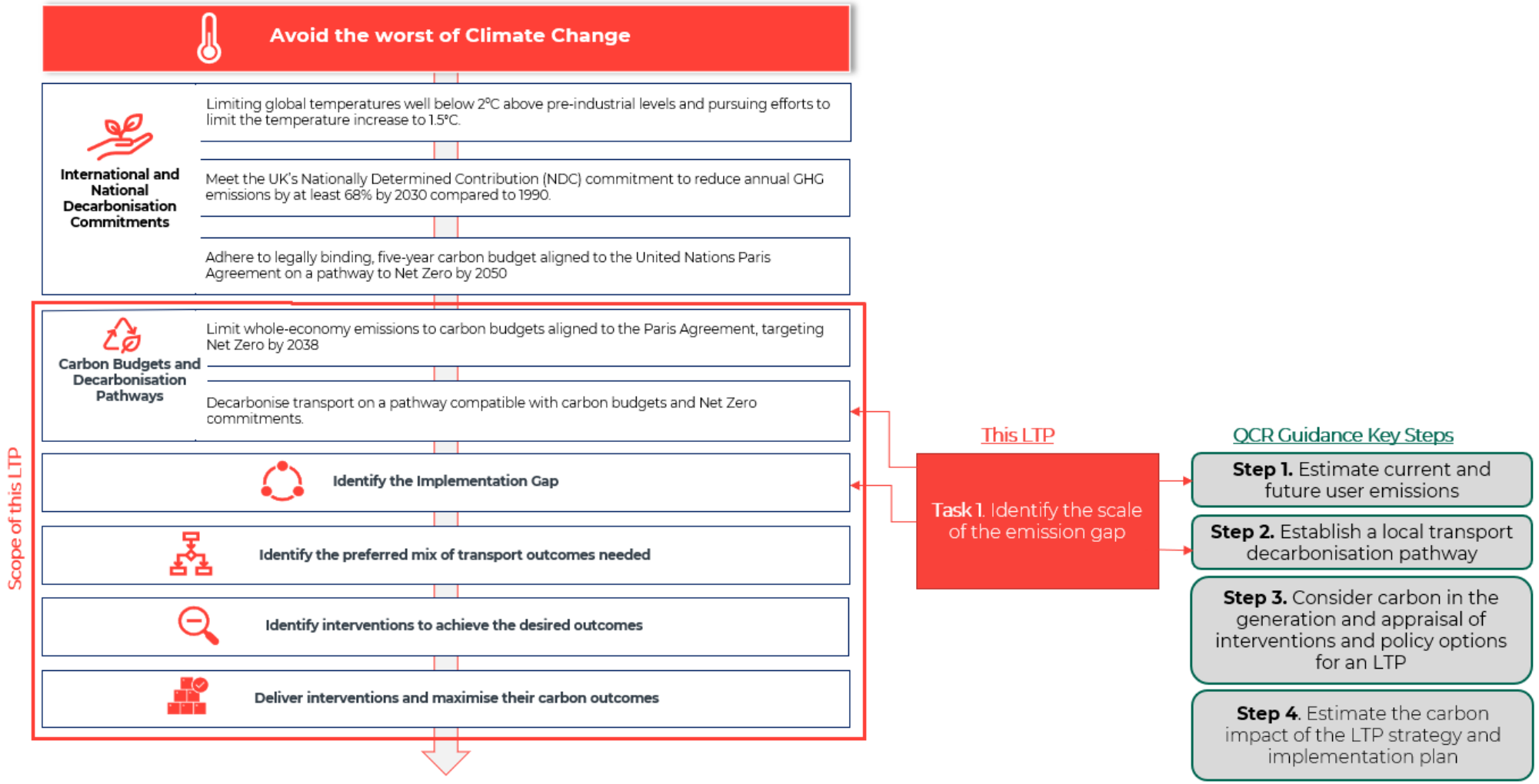
3.1. Figure 2 below illustrates a ‘golden thread’ that links outcomes to interventions. It is intended to:

- Provide a framework to explain how delivery of interventions links to the substantive outcome of avoiding the worst of climate change
- Help the local authority identify any gaps in evidence, policy or implementation within this framework

DfT Quantifiable Carbon Reduction Guidance

3.2. There are four overarching steps to the upcoming QCR guidance. As set out in Figure 2, this covers the process from the initial carbon baselining to the assessment of the LTP strategy and Implementation Plan.

Figure 2 'Golden thread' linking outcomes to interventions



4. The Difference between Carbon Neutrality and Net Zero

Carbon Neutrality

4.1. Reaching carbon neutrality by 2030 means off-setting residual emissions through initiatives such as tree planting so that any carbon emitted is removed from the atmosphere.

4.2. In line with PAS2080, carbon neutrality requires an accurate carbon footprint, certified carbon offsets to the sum of the footprint and a carbon reduction plan.

4.3. PAS2080 is a key reference in the Government's construction playbook, providing guidance for specifically managing GHG in buildings and infrastructure projects, in the built environment.

Net Zero

4.4. Reaching net zero means no carbon is emitted and therefore no carbon needs to be offset.

4.5. The Science Based Target initiative (SBTi) Net Zero standard requires an accurate carbon footprint with a minimum 90% reduction in emissions against a baseline by 2050. Carbon removal is to be used to neutralize any limited emissions that cannot yet be eliminated.

4.6. Advice is to measure against Net Zero methodology, this is in line with government guidance and ensures targets are measurable against the government's Net Zero aims.

5. Local Emission Context

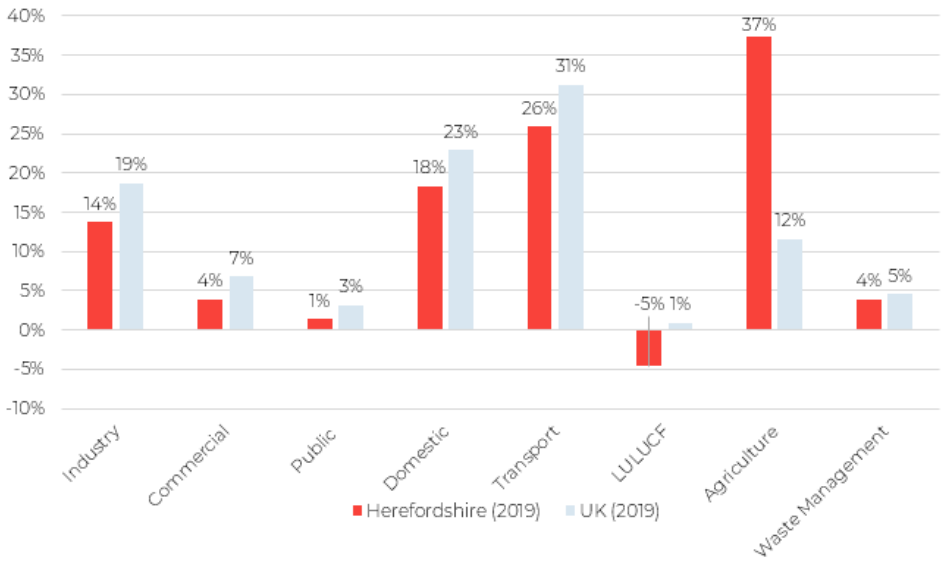
5.1. In 2019, transport was the largest contributor to the UK's domestic greenhouse gas (GHG) emissions, responsible for 31% of all emissions.

5.2. Whereas emissions from other sectors have fallen in the last 30 years, domestic transport GHG emissions have remained relatively static, with improvements in efficiency of new cars largely offset by their increased use.

5.3. In Herefordshire, transport contributed to 26% of GHG emissions in 2019, as shown in Figure 3. This lower proportional share for transport reflects higher emissions in sectors such as Agriculture (37%). Nationally, this sector accounts for 12%.

Current Commitments
Targeting a Carbon Neutral Herefordshire by 2030.

Figure 3 GHG emissions in Herefordshire per sector, compared to UK [Source: *BEIS UK Local Authority GHG emissions 2005-2020*]



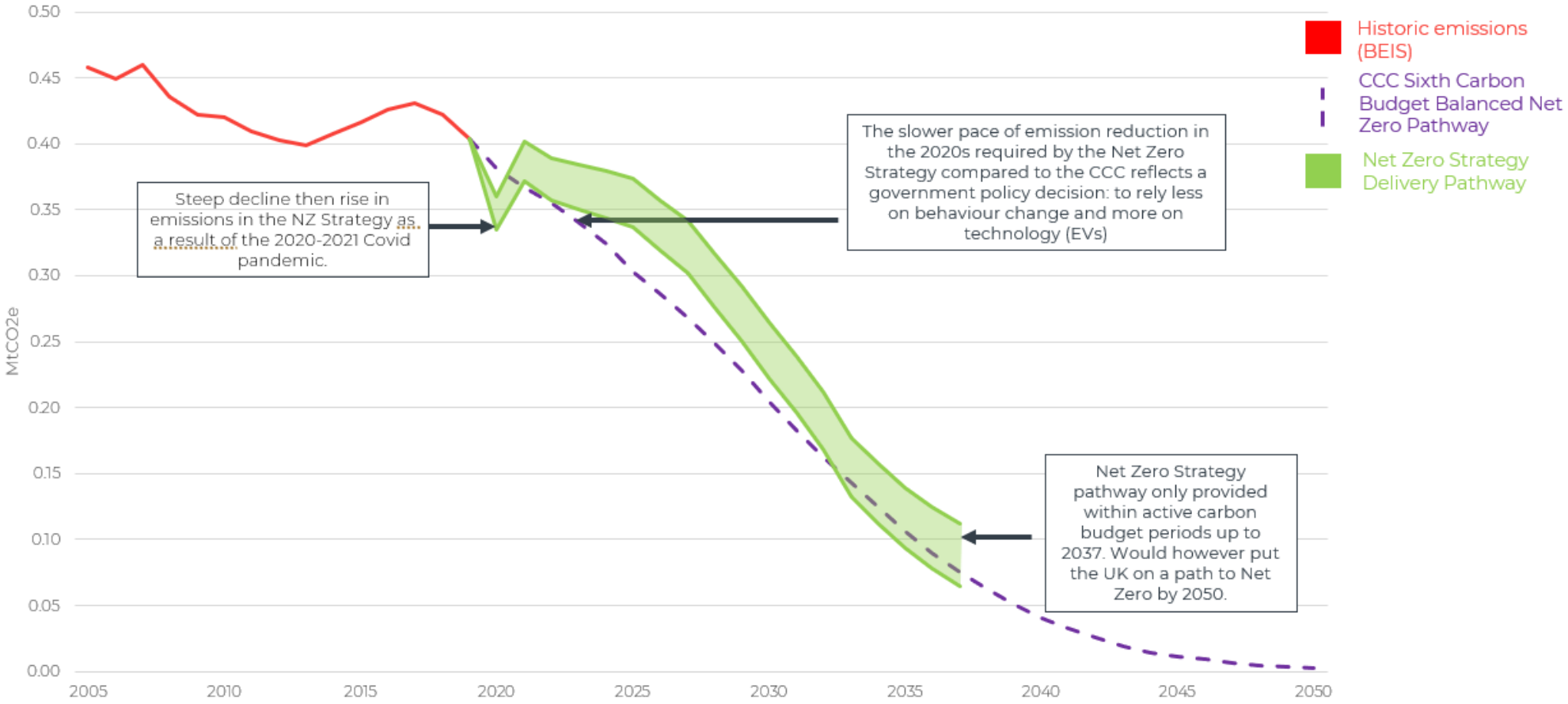
6. Transport Decarbonisation Pathways

6.1. There are a number of different national and regional pathways which represent different interpretations of the pace in which emissions must fall to mitigate climate change. Figure 4 below shows:

- The historical carbon emissions within Herefordshire from 2005 to 2019
- The balanced pathway advocated by the Committee for Climate Change (CCC), putting the UK on track for Net Zero by 2050 and supporting the required global path for decarbonisation.
- The Government's Net Zero Strategy: Build Back Greener which contains illustrative scenarios and an indicative delivery pathway for each sector, including domestic transport. If delivered successfully, the central pathway and consistent carbon budgets would meet statutory whole economy carbon budgets set by the UK. The Net Zero delivery pathway is informed by CCC's analysis but reflects Government policy decisions of how best to achieve targets.

6.2. Figure 4 shows that there needs to be a steep reduction in carbon emissions in Herefordshire from present day levels if the 2030 target is to be achieved.

Figure 4 Transport Decarbonisation Pathways 2005 to 2050



What Impact might Accelerated EV Uptake have?

6.3. Figure 5 illustrates the potential impact electric vehicles (EVs) would have in meeting the 2050 Net Zero target. It compares different levels of EV uptake to both a Business as Usual (BaU) scenario and the decarbonisation pathways described above.

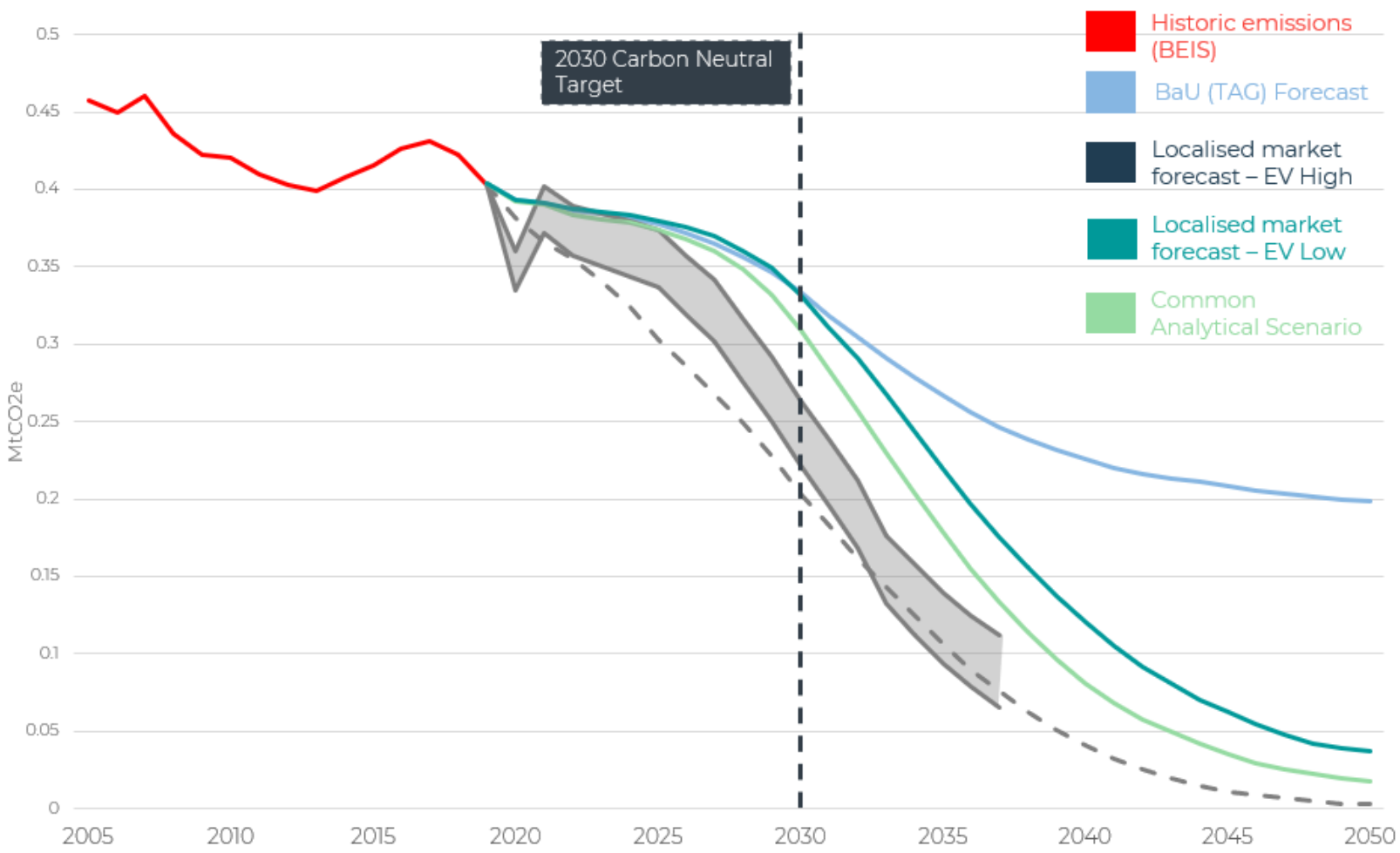
6.4. Two alternative scenarios of EV uptake are tested:

- DfT Common Analytical Scenario – table VL1 from the vehicle led decarbonisation scenario. This is a scenario only, not a forecast.
- A localised market forecast derived from WSP's EV: Ready tool – processed from a range of forecasts

6.5. The DfT's Transport Analysis Guidance (TAG) and Common Analytical Scenario (CAS) assumptions are national. The market forecast has been localised to Herefordshire based on local variations of data such as vehicle ownership, sales trends and propensity to switch based on socio-demographics and reliance on on-street parking.

6.6. All other assumptions (e.g., traffic growth, fuel efficiency) remain as per the BaU estimate.

Figure 5 Transport Decarbonisation Pathways 2005 to 2050, EV scenarios



EV assumptions under different datasets (% of cars)			
	TAG	CAS	Local market forecast (Low)
2025	15%	13%	10%
2030	36%	41%	31%
2035	52%	70%	60%
2040	62%	88%	81%
2045	66%	96%	92%
2050	67%	99%	95%

Size of the Gap

6.7. BaU estimates transport emissions in Herefordshire will equate to 4.88 MtCO2e between 2023 and 2037.

6.8. Under the most ambitious EV uptake scenario (Common Analytical Scenario) this would be reduced to 4.29MtCO2e.

6.9. Carbon budgets derived from the pathways would therefore be exceeded even with an ambitious EV uptake, with the exception of the Net Zero Strategy Upper pathway, as shown in Table 1.

6.10. Herefordshire emissions are likely already overspending a locally scaled proportion of current advisory UK carbon budgets (CCC). Emissions are also likely already over-shooting a locally scaled version of the national Net Zero Strategy Delivery Lower Delivery Pathway.

6.11. Within two years, (by 2025), Herefordshire emissions will begin to over-shoot the upper national Net Zero Strategy Delivery Pathway.

6.12. Misalignment with these pathways over the next 10 years will necessitate greater action in future LTP implementation periods.

6.13. Even under the most optimistic EV uptake scenarios, local transport emissions are still likely to over-shoot the upper national Net Zero Strategy Delivery Pathway and the Lower Delivery Pathway. Therefore, EVs cannot solve the carbon challenge on their own.

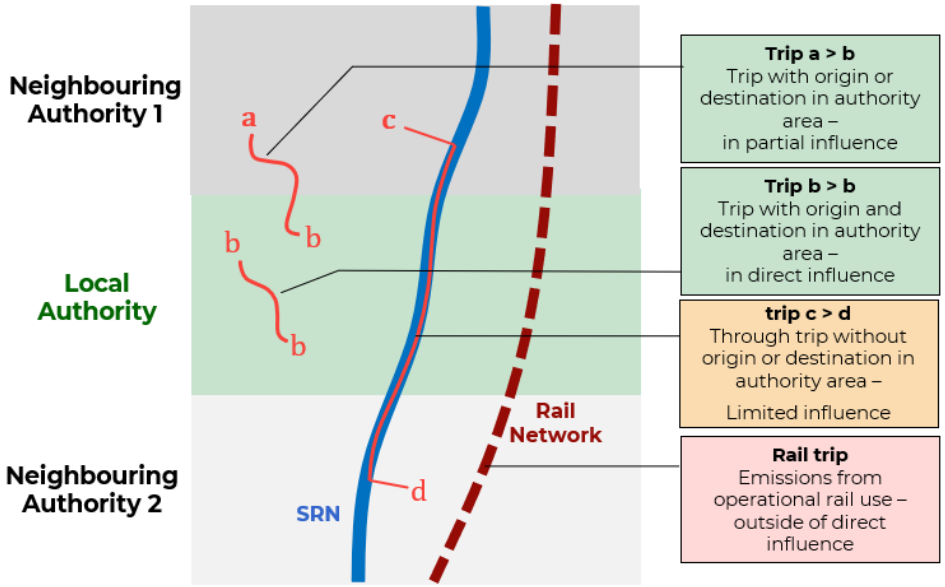
Table 1 Forecast Emissions by Carbon Budget Period

Carbon Budget Periods ($MtCO_2e$)	**CB4 2023-2027**	**CB5 2028-2032**	**CB6 2033-2037**	**Total CB4-6 2023-2037**
CCC Sixth Carbon Budget Balanced Net Zero Pathway	0.34 – 0.36	0.50 – 0.63	0.36 – 0.80	1.20 – 1.79
Net Zero Strategy Delivery Pathway Lower	0.21 – 0.23	0.42 – 0.55	0.42 – 0.86	1.05 – 1.63
Net Zero Strategy Delivery Pathway Upper	0.02 – 0.04	0.21 – 0.34	0.19 – 0.63	0.42 – 1.01

7. Understanding Emissions within an Authority's Influence

7.1. Figure 6 illustrates the extent to which any local authority can influence the transport emissions within its geographic boundary. For Herefordshire, whilst the greatest influence can be exerted on journeys which both start and finish within the county, the Council also has a key role in influencing other journeys which start or finish or pass through the county. This illustrates the importance of the Council working in partnership with other authorities and organisations in addressing the scale of the carbon challenge.

Figure 6 Trips based on origin and destination across neighbouring authorities and level of influence



8. Emissions within Herefordshire

8.1. In order to identify how best to influence future emissions within Herefordshire, it is important to understand the pattern of current emissions in more detail.

Surface Transport Emission – Road (2019)

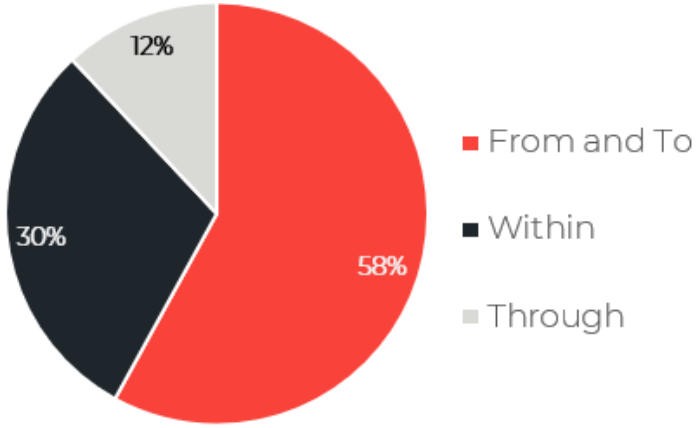
8.2. The largest proportion of surface transport emissions are attributed to road transport. This is true at a national level and for Herefordshire. In 2019 road transport accounted for:

- 96.6% of surface emissions in the UK
- 97.1% of surface emissions in Herefordshire

Emissions by Origin and Destination

8.3. 88% of transport emissions generated in Herefordshire are from trips either starting, ending or being made entirely within Herefordshire as shown in Figure 7. Of those, 30% of transport emissions are generated by internal Herefordshire journeys.

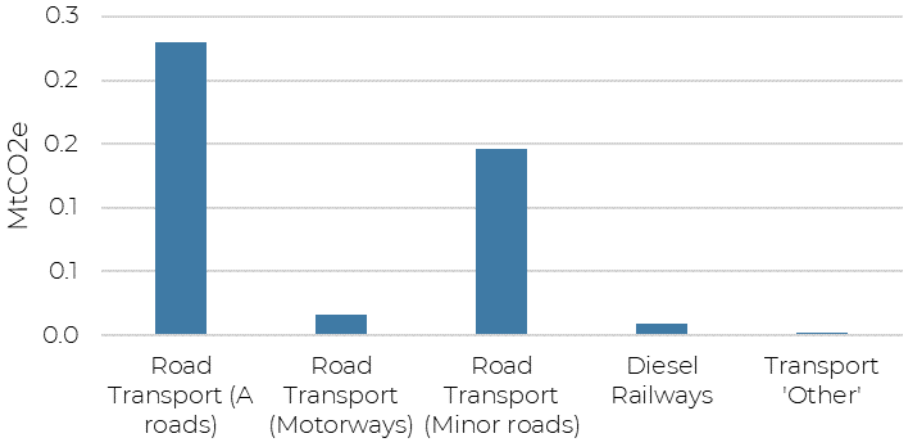
Figure 7 Proportion of emissions by trip genesis



Emissions by Road Type

8.4. Most emissions (70%) are generated on local roads, with forecasts showing this is likely to remain the case in the future.

Figure 8 Emission by road type, in Herefordshire [*Source: BEIS UK Local Authority GHG emissions 2005-2020,*]



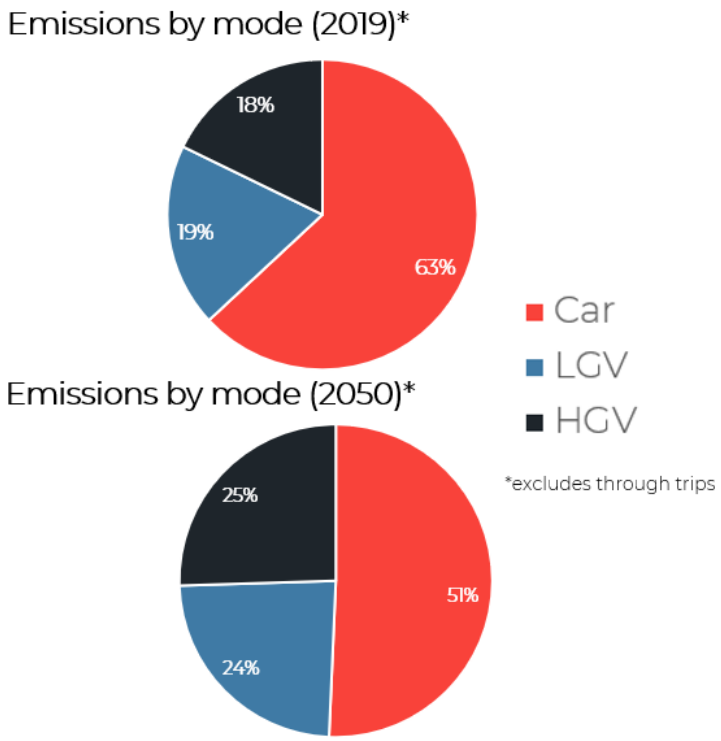
Emissions by Mode for Road Transport

8.5. The largest proportion of emissions by mode in Herefordshire are attributed to car use (63%).

8.6. This share is forecast to decrease with EV uptake, so the proportion of emissions attributable to HGVs and LGVs is forecast to increase.

8.7. However, under Business-as-Usual, cars still remain responsible for the highest proportion of emissions in 2050.

Figure 9 Proportion of emissions by mode in Herefordshire, 2019 and 2050



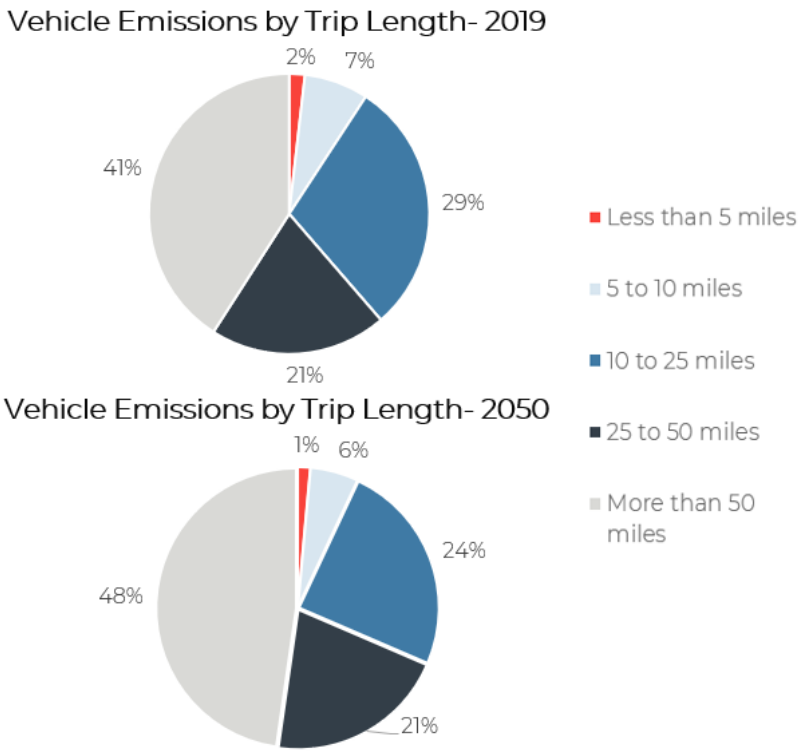
Emissions by Trip Length

8.8. **Error! Reference source not found.Error! Reference source not found.** illustrates the emissions by trip length for those journeys which are either wholly within Herefordshire or start/finish within Herefordshire (ie they exclude through traffic). Likewise, the trip length categories reflect the full length of the journey such that the emissions associated with many of the longer journeys lie beyond the Herefordshire boundary.

8.9. Notwithstanding this, each local authority in the country has a responsibility to influence trips that have an origin and/or a destination within their local area. Emissions from trips that originate in Herefordshire and extend beyond the boundary will therefore fall within the potential remit of the LTP to address, with the length of trip (regardless of destination) being key to determining the suitability of different interventions.

8.10. For Herefordshire journeys in 2019, only **2%** of emissions were from trips **less than 5 miles** in length, with this share forecast to shrink by 2050. These are trips considered amongst the easiest types of journeys to shift to alternative modes but would provide minimal emissions savings.

Figure 10 Proportion of emissions by trip length in Herefordshire, 2019 and 2050



8.11. **7%** of emissions are from trips **5 to 10 miles** in length, whilst still relatively easy to shift compared to other trips, emissions savings would still be modest overall.

8.12. **50%** of emissions are attributable to journeys between **10 to 50** miles. Whilst more challenging to shift, local solutions within this area of influence, enabling longer journeys to take place across multiple modes is within the remit of the LTP.

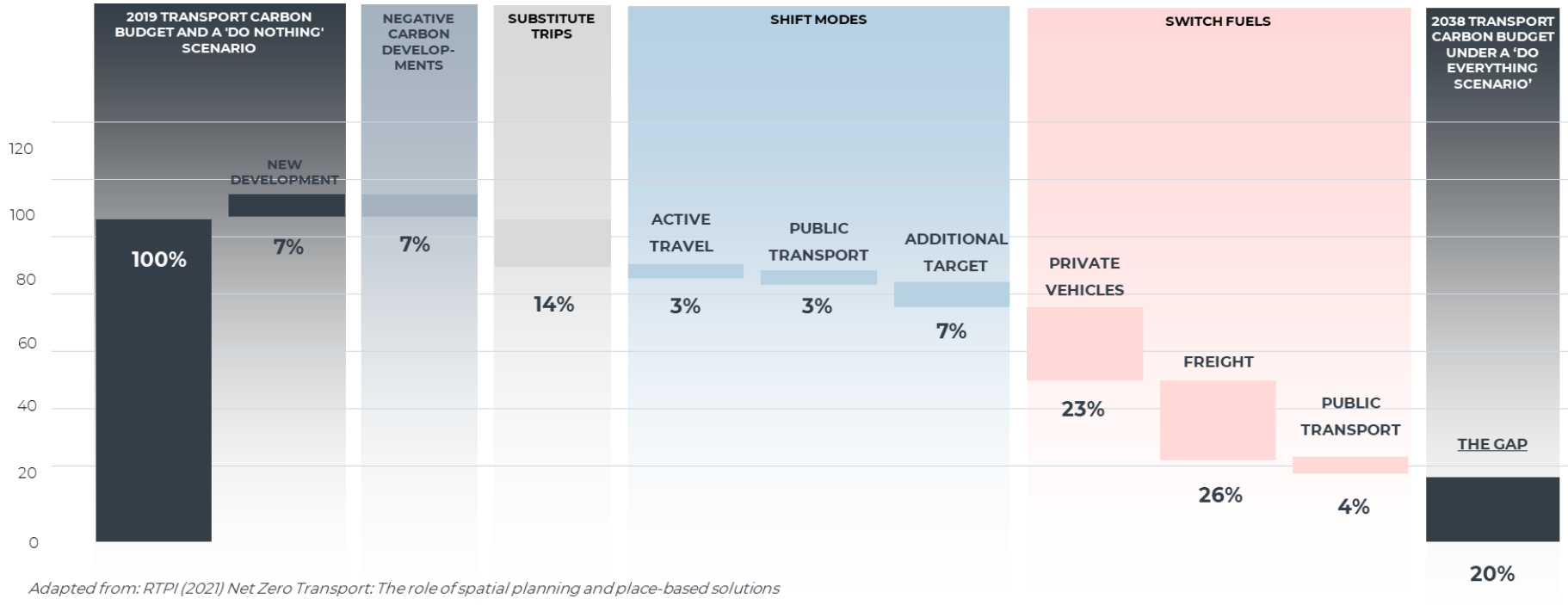
8.13. **41%** of emissions are from trips **greater than 50** miles. These journeys are likely to rely heavily on partnership working to decarbonise, beyond the boundary of the LTP's direct influence.

8.14. In a BAU 2050 scenario, longer journeys are forecast to make up a larger share of emissions overall, demonstrating need to take action to tackle emissions attributable to journeys of all lengths.

9. Carbon Reduction Pathway for Transport

9.1. The ‘waterfall’ depicted in Figure 11 shows the extent to which different forms of intervention are likely to assist in reducing carbon. Whilst based on national data, the underlying message applies equally to Herefordshire – namely that a wide range of different interventions are going to be needed to meet carbon targets and that the scale of the challenge is significant.

Figure 11 The role of different interventions in closing the Carbon Budget Gap



Adapted from: RTPI (2021) Net Zero Transport: The role of spatial planning and place-based solutions

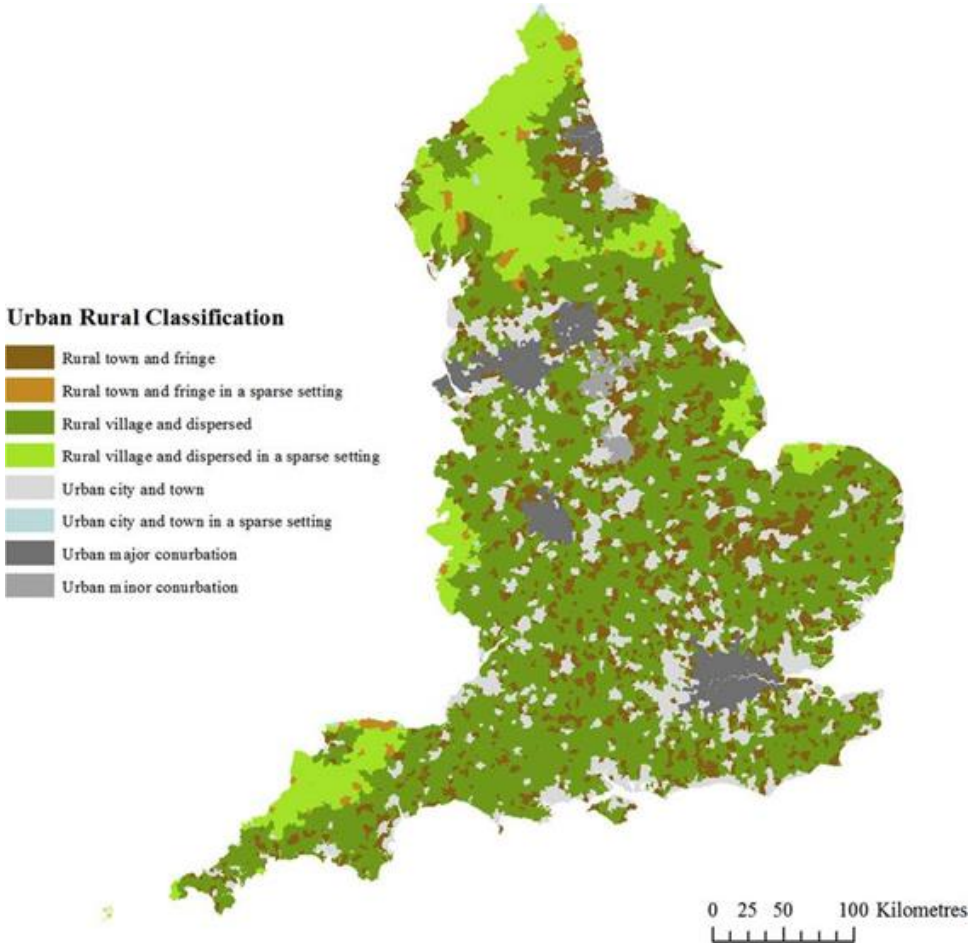
10. The Role of Different Place Types

10.1. Interventions typically fall under three categories:

- **Avoid** the need for travel through spatial planning and demand management (e.g. sustainable new developments, home working, on line shopping)
- **Shift** from less sustainable modes (e.g. private car) to more sustainable ones (e.g. walking, cycling, public transport)
- **Improve** the efficiency of the mode used (e.g. using electric vehicles).

10.2. Not all measures will be suited to all areas and it is therefore important to tailor interventions. This is particularly true for Herefordshire with its mix of urban and rural areas.

Figure 1312 Urban Rural Classification



Rural Areas

10.3. Rural areas:

- Often exhibit the highest emissions per capita.
- Are better suited to targeting reduced need to travel and shorter travel distances
- Have the greatest opportunity for **Avoid** and **Improve**
- Have more **Improve** constraints than urban areas
- Could benefit from incentives and spatial planning controls

Urban Areas

10.4. Urban areas:

- Tend to have the lowest emissions per capita
- Are better suited to targeting lowest car mode share
- Can benefit from measures focused on travel choice and placemaking
- Present opportunities across **Avoid**, **Shift** & **Improve**
- Have more opportunity to **Shift** than in rural areas
- Could benefit from disincentives for some modes where travel choice is available

11. Wider Policy Benefits

11.1. The decarbonisation of transport links to many other policy areas of relevance to Herefordshire and is shown in Figure 14 below. It is important to recognise that the challenges in decarbonising transport can lead to positive opportunities to assist some of the other policy areas.

Figure 14 - 13 Links between transport decarbonisation interventions and wider policy agenda