

GLOUCESTERSHIRE COUNTY COUNCIL

GLOUCESTERSHIRE ECONOMIC GROWTH JOINT COMMITTEE

Title:	Decarbonising Transport
Reporting to:	Gloucestershire Economic Growth Joint Committee
Date:	19 th May 2022
Chairman:	Cllr Tony Dale
Presenting Officer:	Luisa Senft-Hayward, Transport Planning Manager
Purpose of report:	To brief this Committee on the challenge for decarbonising transport for the county and GCC's proposed steps to reach net zero transport emissions by 2045 in line with our target.
Background documents:	<p>Adopted Gloucestershire Local Transport Plan (LTP) (2020-2041) https://www.gloucestershire.gov.uk/transport/gloucestershires-local-transport-plan-2020-2041/gloucestershire-ltp-2020-2041/</p> <p>Gloucestershire's Climate Change Strategy https://www.gloucestershire.gov.uk/planning-and-environment/climate-change/greener-gloucestershire-climate-action/our-vision/gloucestershires-climate-change-strategy/</p>
Summary:	<p>In Gloucestershire, there will need to be a rapid reduction in transport emissions in the next 5, 10 and 20 years to reduce in line with the county's and district authorities' decarbonisation commitments. Action will be required at national, regional, and local levels to meet these strategic objectives. To achieve the targets that have been set for climate change and transport decarbonisation, significant change will be necessary. Whilst this will need to be led and driven by all public sector partners through Climate Leadership Gloucestershire, it will also require ownership by the private sector and by all the citizens of Gloucestershire through their own, personal behaviour. A wide variety of interventions will need to be pursued at the same time, to achieve the reductions required.</p>
Anticipated Outcomes:	<p>To progress this work, GCC will undertake further data analysis of the source of transport emissions in Gloucestershire. GCC has been selected by UK 100 as a partner in their Local Power in Action project which will provide advice on how to gain support from the entire Gloucestershire community for the ambitions outlined in this report. A Decarbonising Transport</p>

	<p>Forum will be held in Summer 2022 to gain stakeholder feedback on our emerging findings.</p> <p>Further carbon reduction pathway phased work to provide better understanding of the implications of traffic growth and development growth.</p> <p>GCC's ambition is to have a clearly defined Transport Decarbonisation Plan, identifying proposed schemes and interventions in line with the LTP, that has the support from our key stakeholders, by December 2022. This will take account of any future government guidance on transport decarbonisation and scheme development.</p>
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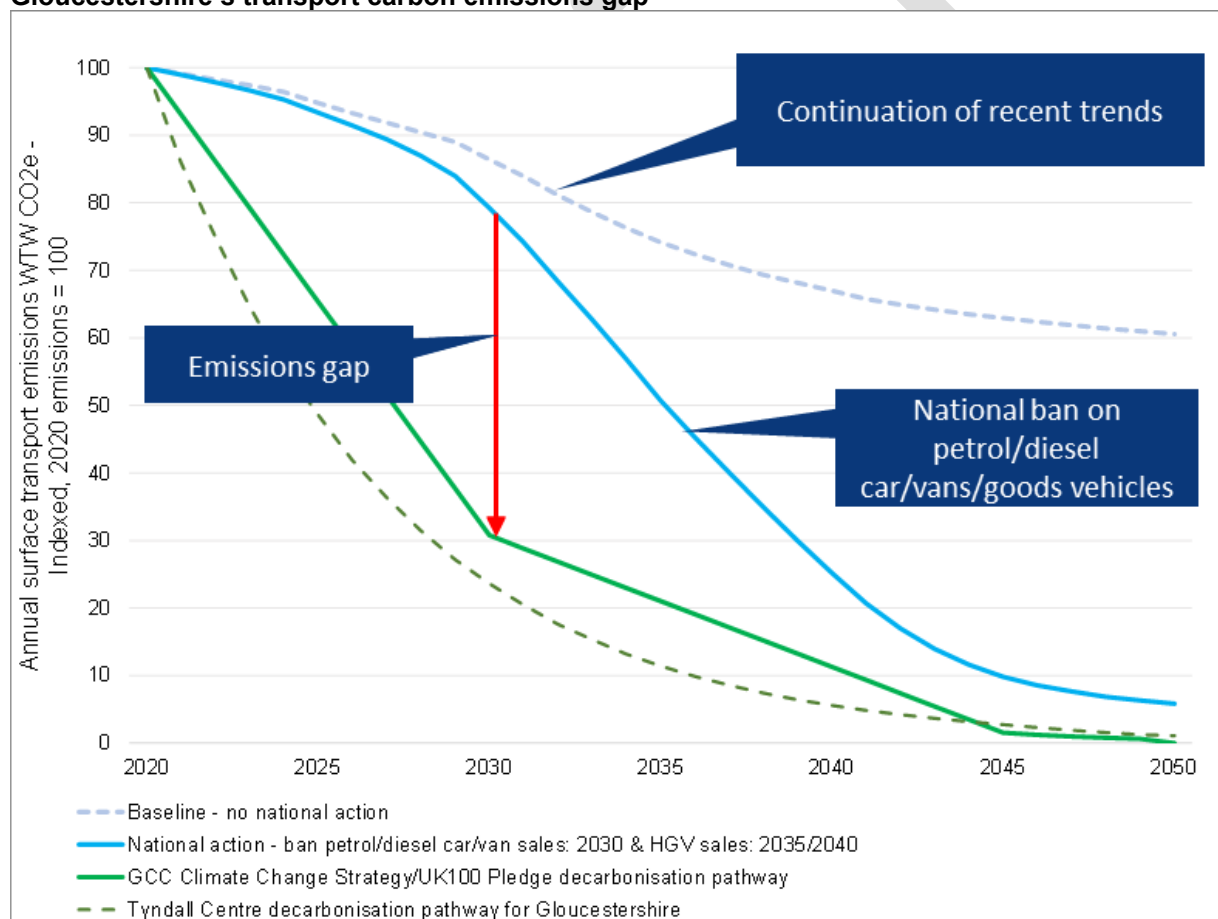
1. Background

- 1.1 In 2018, transport accounted for 32% of all CO² emissions per capita in Gloucestershire. This proportion rises to 44% if emissions associated with motorways and railways are included. While other sectors, such as 'energy' have been able to achieve significant reductions in their CO² emissions, transport carbon emissions have remained basically unchanged.
- 1.2 In June 2019, the UK Government passed legislation committing to achieving net zero greenhouse gas emission by 2050. In the same year, GCC and all other Gloucestershire authorities each declared a climate emergency and GCC adopted a Climate Change Strategy setting out the following carbon reduction targets:
 - The County Council's own operational emissions to be net zero by 2030;
 - Emissions from all sources across the county to be net zero by 2050; and
 - The county to work with partners to deliver an 80% reduction in emissions by 2030, relative to 2005.
- 1.2 In 2020, GCC strengthened its targets, committing to reaching net zero emissions from all sources across the county by 2045. This target is reflected in Gloucestershire's fourth LTP, adopted in March 2021. The LTP also states that a Transport Carbon Reduction Pathway will be developed, setting out the interventions necessary to achieve this target.
- 1.4 Work on this transport carbon reduction pathway has started and initial findings from data analysis, potential interventions and emerging ambitions are summarised in this report. They clearly show that our joint climate change targets will only be achieved if the entire Gloucestershire community fully commit and adapt to the behavioural changes needed.
- 1.5 As the Local Transport Authority, GCC is providing the leadership in respect to decarbonising transport, starting with this report. However, the success of Gloucestershire's pathway to carbon zero will depend on all parties involved playing their part and on our joint ability to convince the public of the need for, and opportunities associated with, a decarbonised transport system. GCC has been selected by UK 100 as a partner in their Local Power in Action project which will provide advice on how to gain support from the entire Gloucestershire community for the ambitions outlined in this report.

2. Data analysis

2.1 The carbon reduction pathway (phase 1) study applies a 'top down' approach to identifying the scale of intervention needed for Gloucestershire to meet its transport carbon reduction targets. In the graph below, the blue dotted line shows carbon emissions if current traffic trends continue. This line is brought down by taking into consideration the impacts of the Government sales ban for petrol and diesel cars, as indicated by the blue solid line. This solid blue line can be compared to the solid green line, which represents GCC's carbon reduction targets. The red arrow between these two solid lines identifies Gloucestershire's 'emission gap' in 2030. For information and context, the dotted green line shows a view of academic experts at the Tyndall Centre for Climate Change Research on the rate of decarbonisation required to stay within Gloucestershire's remaining CO₂ budget which would leave an even bigger emissions gap.

Gloucestershire's transport carbon emissions gap

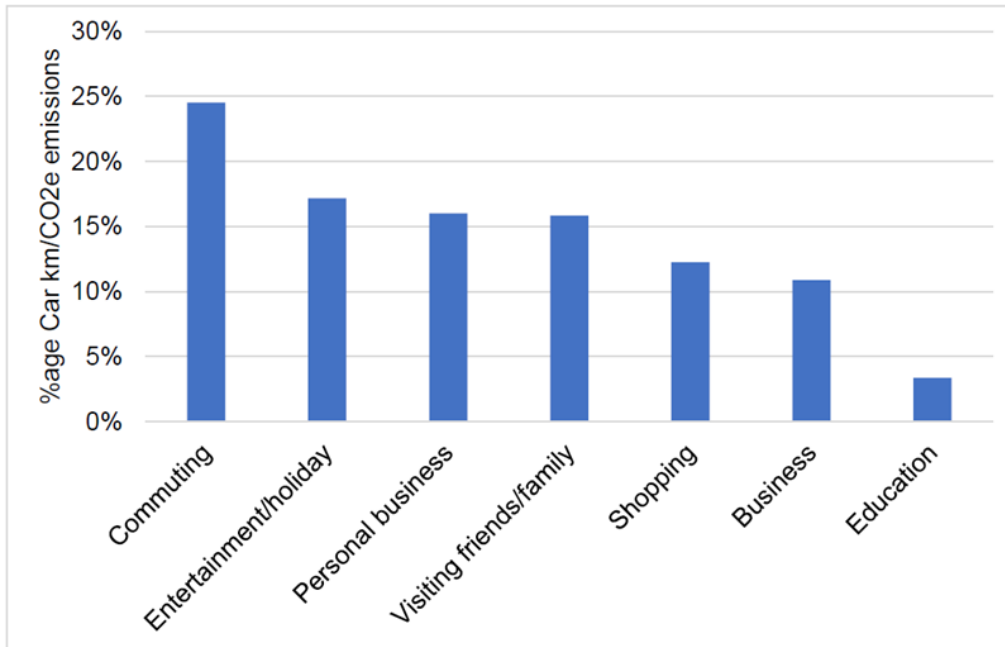


2.2 The report then goes on to provide further information on the breakdown of transport emissions in Gloucestershire by vehicle type, road type, through trip, distance band and purpose (for car emissions). Key findings from this analysis are:

2.2.1 Trip purpose

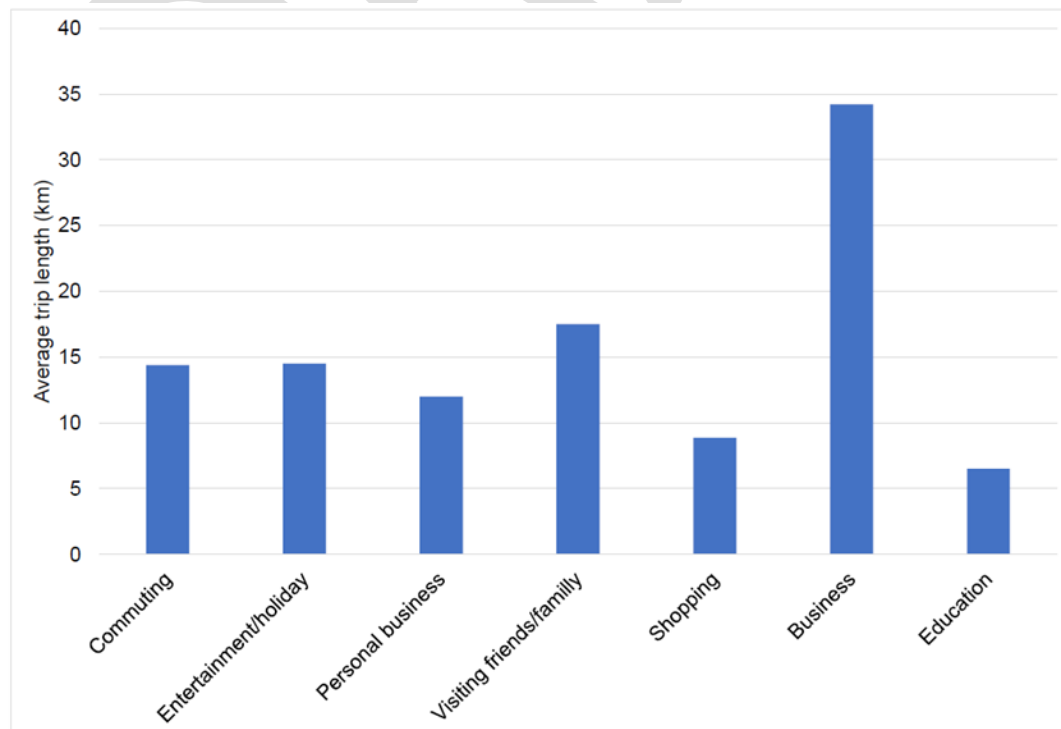
Pre-COVID19, commuting was the trip purpose that accounted for the highest single proportion of emissions (25%), with other social and personal trips accounting for most of the rest.

% Car km/CO2 emissions by trip purpose



However, business trips have an average trip length nearly double all other purposes and therefore contribute 10% to emissions despite relatively few trips being made.

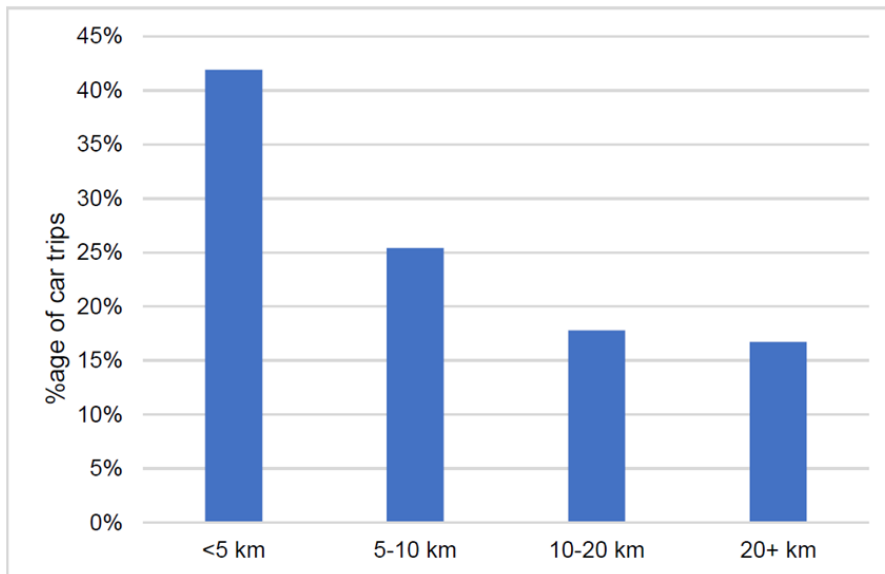
Average trip length (km) by trip purpose



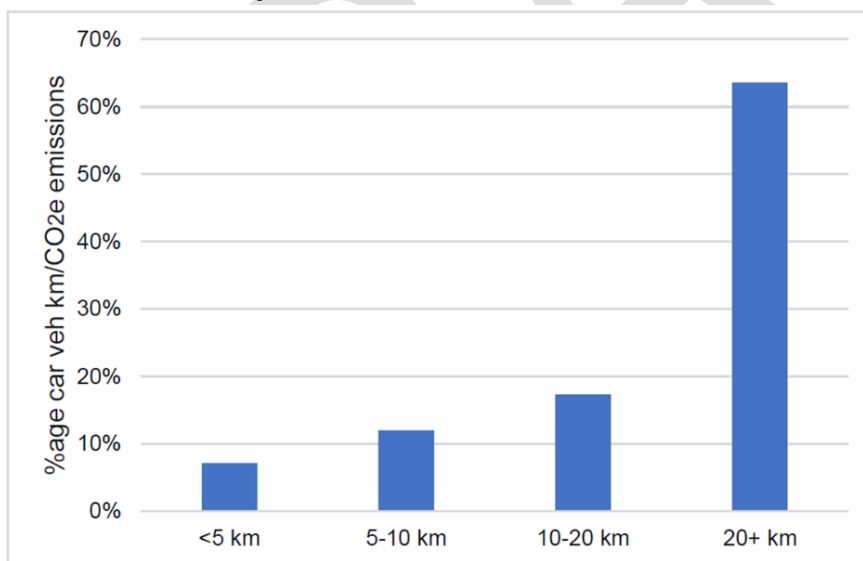
2.2.2 Trip length

Although trips under 5 kilometres account for over 40% of trips, due to their short length they account for less than 10% of total distance and emissions. The most significant distance bands are 20 kilometres and above, accounting for over 60% of emissions (and just over 15% of trips).

% Of car trips by distance band



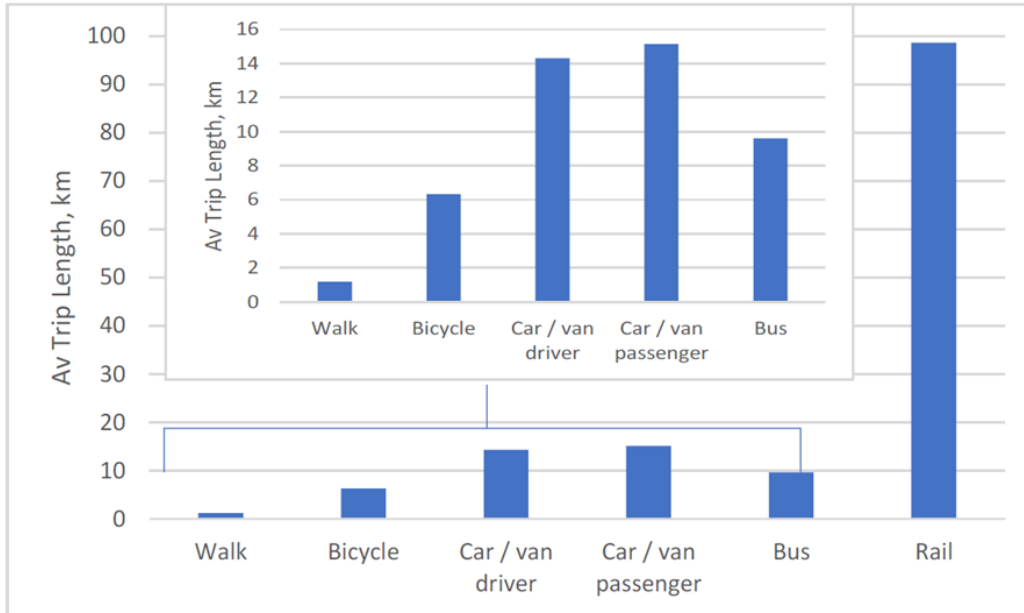
Car CO² emissions by distance band



2.2.3 Trip length by mode

Analysis of average trip length by mode indicate that bus and rail have the most potential to serve trips of the length that contribute most to carbon emissions. Cycling has the potential to provide an alternative up to 10km and beyond, particularly if trip lengths can be extended by improved facilities and the use of e-bikes.

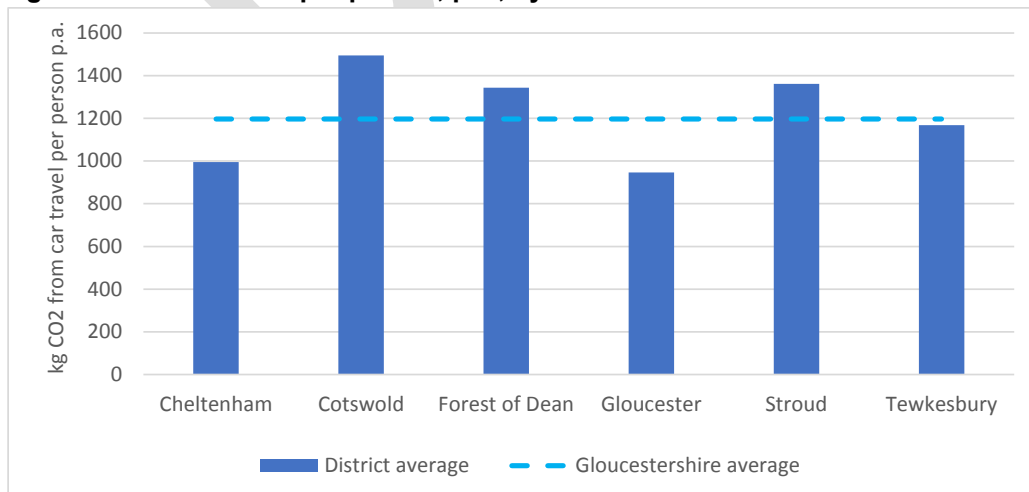
Average trip length (km) by mode



2.2.4 Transport carbon emissions by district

Significant differences are evident between Gloucestershire's districts. For instance, the residents of Cotswold generate on average 50% more emissions through car travel per year than the residents of Cheltenham and Gloucester, reflecting the nationwide difference between transport patterns in urban and rural communities.

Kg CO² from car travel per person, p.a., by Gloucestershire district






3. Potential measures to reduce emissions

3.1 Research was undertaken to identify measures generally applied to reduce carbon emissions. These were compared to interventions proposed in Gloucestershire’s LTP.

In line with the Local Government Association and several other bodies, measures were categorised in terms of the route through which they reduce carbon, grouping them in terms of the Avoid, Shift, Improve.

Levers for change

Category	Lever for change	Emissions reduction approach
Avoid	Smarter access 	Reduce overall travel through reduced trips or length due to improved accessibility (logistics, land use planning, online activities)
Shift	Shift mode of travel 	Increase the proportion of travel by the most efficient and sustainable modes
Improve	Improve vehicle emissions 	Increase energy efficiency of vehicles and driving conditions. Move to alternative, less carbon intensive fuel/energy sources, particularly electricity.

3.2 Applying these three levers, potential measures to reduce carbon can be summarised as follows:

- **Smarter access:**
 - Land use planning
 - Digital connectivity
- **Shift mode of travel:**
 - Active travel/personal mobility
 - Public/shared transport
 - Demand management
 - Behaviour change
- **Improve vehicle emissions:**
 - Efficient network management
 - Ultra-low emission vehicles

3.3 All of these levers for change need to be pursued at the same time, for Gloucestershire to reduce its transport carbon emission gap. They also make clear that change can only be achieved if all of GCC’s partners work together to reduce transport carbon emissions.

4. Emerging indicative ambitions

4.1. To illustrate the scale of change needed to meet the GCC target to reduce CO² emissions by 80% by 2030, and assuming that we use all possible areas of change (rather than focusing on just one), closing the Gloucestershire transport carbon emissions gap would require changes that would in total lead to reductions similar to those that may be achieved with the below sketched scenario. Please note that this is an illustrative scenario only.

- A reduction in average trip length by 7.5% (0.6 miles);
- A reduction of 7.5% of car trips (3 trips/month each);
- Ride sharing for an extra 2.5% of car travel;
- An increase in active travel by 300%;
- An increase in public transport use by 100%;
- Eco-driving with a smoothed speed on 75% of car km; and
- A 100% increase in car km by EV.

4.2 It should be noted that these are not set targets, but figures that are meant to illustrate and provide a feel for the scale of change needed by 2030. Higher achievement in one area would offset lower achievement in another area. Further phases of the carbon reduction pathway work will identify potential interventions and how much they would be able to contribute towards Gloucestershire's carbon reduction ambitions.

5. Joint responsibilities

5.1 GCC is the Local Transport Authority and is therefore leading on the transport portfolio for Climate Leadership Gloucestershire. However, the change needed is too comprehensive, affecting all aspects of everyday life as well as planning and investment decisions, for one organisation alone to be able to deliver the change needed. Decarbonising Gloucestershire's transport system requires a united, comprehensive and positive response from all Gloucestershire partners.

6. Conclusion and next steps

6.1 In Gloucestershire, there will need to be a rapid reduction in transport emissions in the next 5, 10 and 20 years to reduce in line with the county's and district authorities' decarbonisation commitments. Action will be required at national, regional and local levels to meet these strategic objectives. To achieve the targets that have been set for climate change and transport decarbonisation, significant change will be necessary. Whilst this will need to be led and driven by all public sector partners through Climate Leadership Gloucestershire, it will also require ownership by the private sector and by all of the citizens of Gloucestershire through their own, personal choices and behaviour.

6.2 A wide variety of interventions will need to be pursued, at the same time, to achieve the reductions required. To progress this work, GCC will undertake the following next steps:

- Further data analysis of the source of transport emissions in Gloucestershire.
- Engage in the UK 100 as a partner in their Local Power in Action project, which will provide advice on how to gain support from the entire Gloucestershire community for the ambitions outlined in this report.
- Arrange a Summer 2022 Climate Change Transport Forum to gain stakeholder feedback on our emerging findings.
- Further carbon reduction pathway phased work to provide better understanding of the implications of traffic growth and development growth.

6.3 GCC's ambition is to have a clearly defined Transport Decarbonisation Plan that has the support from our key stakeholders, by December 2022. This will take account of any future government guidance on transport decarbonisation and scheme development.