

**Evidence Base**

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### 1 Introduction

This LTCP is based on a thorough analysis of a range of supporting evidence. This evidence base examines the current transport conditions and socio-economic characteristics of the area, and an assessment of the likely future opportunities and constraints that we will need to plan for.

The previous iteration of our LTP and its precursors developed by Cambridgeshire County Council and Peterborough City Council (and integrated into the CPCAs Interim LTP, 2017) were built off the back of the following data picture.

- Strong economic growth in the Cambridge sub-region, driven by agglomeration in the knowledge-based sectors meant strong job growth. Subsequently, the population was increasing with significant new housing planned, which increased demand for travel. Employment and population growth were also relatively strong for the Peterborough subregion.
- Subsequently there was a forecast of significant increases in congestion across significant parts of the road network up to 2041 with a worsening decline in of peak travel journey times. Contemporary poor performance of several routes was noted together with parallel poor performance (in terms of travel times) in the bus network. Areas of concern included the Cambridge radial routes, the A47 into Peterborough, the Peterborough Parkway system as well as localised congestion for the larger towns.
- An inherent weakness in transport connectivity was also identified with the weakest linkages being between the rural fens (covering Fenland as well as parts of East Cambridgeshire and Huntingdonshire) and areas of strong employment growth which was limiting opportunity for people living in areas of relative deprivation such as north Wisbech.
- The need to move towards decarbonisation was noted alongside the impact of transport on air quality and public health outcomes. There was also an emphasis on improving local connectivity to encourage an increase in active travel and alternatives to the car for short journeys.

For this LTCP the data work has been focused around challenging the previous picture, looking at what has happened since the previous LTP was written to change the policy outlook.

### 2 Summary of Evidence

The transport network sits on top of a diverse socio-economic geography and the evidence review needs to focus on the main drivers of travel, the location of housing, jobs, and services. Whilst previously high, economic growth was slowing pre-pandemic. The slowdown was particularly noticeable for Peterborough with a decline in figures for GVA, Jobs and the number of small and medium sized businesses. During the pandemic the Cambridgeshire and Peterborough economy saw a reduction in economic activity (a 0.52% reduction in GVA between 2019 and 2020), however this was considerable less than the 3.36% reduction across the rest of the UK.

Our economic activity is concentrated in key 'clusters' of 'Knowledge- Intensive' businesses, particularly around Cambridge and Peterborough. The dense concentration of these businesses allows them to take advantage of 'agglomeration benefits' but means that the prosperity they generate is, in turn, concentrated into small geographical areas, for example the concentration of approximately 17,500 jobs at the Cambridge Bio-Medical, leading to high levels of inequality.

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There is a significant risk that without careful integrated planning and appropriate development, future economic growth might 'overheat' the economy causing it to 'burn-out' – a scenario widely discussed in CPIER. The most obvious manifestation of this for the Cambridge sub-region is the increase in house prices over the past two decades, driven by population growth, high wages and the build rate of new homes. This then impacts the transport system as commuting distances lengthen and congestion occurs as pinch-points in the network.

Transport connectivity has a role to play in both enabling and effectively connecting new development, as well as connecting more affordable areas to live with centres of employment and locations for key services and amenities.

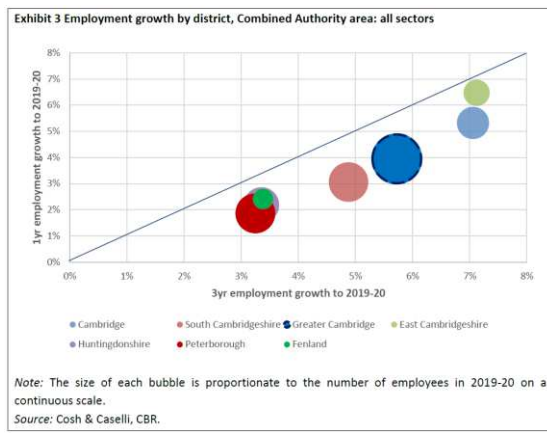


Figure x: Employment Growth, CPCA Constituent Authorities

The CPCA sponsors the monitoring of employment growth by the Centre for Business Research (University of Cambridge). The latest (2020 data), shows accelerated (7%) job growth for East Cambridgeshire as well as the Greater Cambridge area whilst other areas such as Huntingdonshire and Fenland are growing at rates just over 3%, closer to the national average.

### 3 Traffic, congestion, and delay (pre-pandemic)

Congestion and delay act to limit the effectiveness of the transport network. The average speed on all major roads entering Cambridge during the 'rush hour' is less than 60% of the 'free flow' speed. In addition, the road network often lacks resilience, where alternative routes do not exist (e.g., main inter-urban links across The Fens) or where opportunities for increasing highway capacity do not exist (e.g., in Cambridge and historic towns and cities where the network is constrained by listed buildings and historic streetscape). However, road traffic levels in both Cities, Cambridge and Peterborough, have fallen back slightly between 2015 and 2019, despite continuing housing and employment growth.

Road traffic counts in the rest of Cambridgeshire continued to show increasing traffic levels in this period, particularly in the market towns. This reflects Local Plans that have focused housing and population growth in these towns. Highest growth rates for road traffic were seen in Whittlesey (over 15%) and Chatteris (over 20%).

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Overall levels of travel into the city of Cambridge by other modes of transport increased. Rail passenger numbers grew strongly with annual movements in and out of Cambridge North rising to 950,000 in 2019/20 and total movements in and out of Cambridge (Central) of around twelve million, making it the busiest station in the east of England in 2019/20.

Congestion levels show ongoing problems within the Cambridge sub-region, particularly along the A428, and A10 (both sides of the city) corridors (with peak time flow speeds being less than 60% of normal). The focus in Peterborough continues to be around selected junctions of the Parkway network and areas of new housing development. On a smaller scale, there are also congestion points for some towns.

Congestion is not only detrimental for drivers of cars, lorries, and other vehicles, but also for people taking buses, cyclists, pedestrians, and other non-motorised users. On average, more than 20% of bus services within Cambridgeshire and Peterborough run late, in large part due to congestion. Future growth in housing and employment, and associated travel, is expected to result in worsening traffic congestion as capacity on the network becomes increasingly constrained, and act as a brake on the economy.

There will be significant growth in the number of commuting trips originating in the areas around the City of Cambridge and to the west of Peterborough. Consequently, the A47 between Peterborough and Wisbech, together with radial routes serving Cambridge, will all see significant rises in congestion by 2041.

Overall, the region has relatively good transport connectivity, with strong links to major cities, ports and airports outside the region, and good connections between major urban areas within it. From Peterborough and Cambridge urban areas, London can be reached by rail in under an hour, Stansted Airport can be accessed on direct Cross-Country rail services, and the A14, A1(M) and M11 provide good strategic connectivity, including for freight travelling to the ports of Harwich, Ipswich, and Felixstowe on the East Coast. This strategic freight that travels through Cambridgeshire rather than has a destination in Cambridgeshire can have significant, negative impacts on our communities, especially if the strategic networks experience disruption.

This high-level connectivity is critical for ensuring that the region's businesses have easy access to the staff, suppliers, and markets they need, and that tourist attractions can flourish. For example, domestic tourism alone brings an estimated 1.8 million visitor trips and £256 million annually into the area's economy.

Connectivity within our region is variable, with larger urban areas benefiting from significantly better transport network coverage than their small town and rural counterparts. This translates into poorer access to jobs and opportunities for rural residents. In Cambridge 88%, and in Peterborough, 95% of residents are within 15 minutes by walking or public transport of a local primary school. By contrast, in South Cambridgeshire and East Cambridgeshire this figure falls to 77% and 79% respectively.

Although 58% of the population of Cambridgeshire and Peterborough are within 30 minutes of a major employment centre (and a further 25% are within 60 minutes), many rural areas either lack direct public transport accessibility, or suffer from lengthy journey times that make it difficult to those without a car to access jobs and services elsewhere.

Overall rail travel in the CPCA area has shown growth. Usage of Manea station increased (2015-19) the most from just over 12,000 movements to over 18,000 (+50% growth). However, bus passenger numbers continued to decline; Peterborough saw a reduction of -

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27% between 2014/15 and 2018/19 (3 million fewer passenger journeys) whilst Cambridgeshire saw a reduction of 6% (1 million fewer).

For those without access to a car, rising fares and general cost of living are reducing the affordability of the public transport network. Fares have risen across the region, broadly in line with the national average, and significantly faster than RPI (for example, bus fares have increased nationally by an average of 66% since 2005; whilst the cost of motoring has increased by 27% in the last 10 years). This threatens to increase 'car-dependency' – the position whereby an individual has no viable option available other than to use a car when making a journey.

As well as significantly improving bus services and affordability, one potential solution is to further promote the use of active travel modes wherever appropriate. Their efficient use of road space makes them an effective way of tackling congestion in key locations, and the range of other benefits they bring, such as improvements to air quality, reductions in greenhouse gases, and improvements to public realm, are closely aligned to several of the LTCP's key objectives.

The use of active travel modes is already broadly popular within Cambridgeshire and Peterborough, and sees high levels of investment, particularly in Greater Cambridge where £16 per head is spent on cycling per annum, a higher figure than in any other area of the UK. Cambridge enjoys the highest 'mode-share' of cycling within the United Kingdom. However, in other areas of Cambridgeshire and Peterborough, levels of walking and cycling are significantly lower, for example South Cambridgeshire and Peterborough itself. New technology, such as the advent of affordable electric bikes, is already allowing new groups of people to cycle and lengthening the distance many are willing to travel by bike.

Recent active travel trends are harder to measure, with little measurement taking place outside of Cambridge and then only on routes that are dominated by road traffic (e.g., market town radials). What counts there were showed signs of a slight gain in mode share for active travel. In Cambridge cycling continued to be strong particular for cross-city movements. Previous analysis completed in 2017 showed the mode share for commuting to work within the city into some employment areas was as high as 72%. Cycling into the city was somewhat less, with a mode share of 16% (but still better than most cities in the UK).

Commented [MS1]: Consider moving the COVID impact section here.

## 4 Decarbonising transport

Promoting the uptake of public transport and active travel modes will have a significant, positive environmental and societal impact. The proportion of carbon dioxide (CO<sub>2</sub>) emissions produced by transport has seen a marked increase in all Local Authorities in Cambridgeshire and Peterborough over recent years.

In 2020, total CO<sub>2</sub> emissions in Cambridgeshire and Peterborough were 6,572 kilotonnes. In the same year per capita emissions in Cambridgeshire (8.5 tonnes) were higher than in Peterborough (5.0 tonnes) and the East of England average (4.9 tonnes).

The highest proportion of CO<sub>2</sub> emission in Cambridge derived from Domestic emissions (34.93%) followed by Public Sector emissions (21.75%) and transport emissions (20.41%).

In Peterborough, the sectors of equivalent significance

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were road transport emissions (37.46%), Domestic Emissions (24.96%) and LULUCF Emissions (15.47%).

There remains a considerable disparity between the cities and more rural districts, where car ownership and usage are higher.

This is represented in the data

showing that Fenland has a comparable per capita emissions (13.4 tonnes) to East Cambridgeshire (13.9 tonnes). Both being by far the highest in the CPCA area.

Forecasted traffic growth will subsequently result in an overall increase in CO2 emissions.

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Forecasted traffic growth will subsequently result in an overall increase in CO2 emissions, without a move to improved public transport provision in rural areas this trend will become inevitable.

The UK wide contribution of transport emissions to total CO2 emissions is 34.31%. Overall, The UK wide contribution of transport emissions to total CO2 emissions is 34.31%. Overall, transport emissions for the CPCA area have reduced by 13.95% between 2015 and 2020.

whilst for the UK in the same period there was significantly more progress with reducing transport emission with a reduction of 22.87%.

The Climate Change Commission for the CPCA area has produced its final report. This Plan aims to ensure that the recommendations made to reduce carbon emissions from transport are progressed, developed, and implemented wherever possible, including:

- A 15% reduction in driven car miles by 2030;
- The rollout of electric vehicle charging infrastructure, bringing those districts with low provision up towards the levels of the best;
- A transition towards zero emission bus and taxi fleets by 2030 – including improvements to public transport, trials of on-demand electric buses, and infrastructure for walking and cycling; and
- Exclusion of diesel van and trucks from urban centres by 2030.

With transport being the main cause of greenhouse gases in Cambridgeshire and Peterborough, the LTCP becomes central to reducing emissions successfully and fairly.

## 5 Equity, equality, and safety

There continues to be a disparity in economic growth across the CPCA region. This is particularly evident in the growth of businesses from micro (0-9 employees) to small (10-49). Between 2015-2020 the number of small businesses in Cambridge increased by 34% and by 23% in South Cambridgeshire compared to just a 4% growth rate in Fenland. A recent report by OSCI into 'left behind' neighbourhoods (areas with high deprivation and relatively poor infrastructure) in England identified Wisbech in Fenland. One Wisbech ward scoring in the top one hundred for places with such characteristics out of over 8,000.

Looking at the Index of Multiple Deprivation, Peterborough ranks as the 51st most deprived out of 317 district and unitary councils nationally. Peterborough is therefore in the most deprived 20% (quintile) of local authorities in England. This is reflected in lower-than-average health and educational outcomes for the city.

The trend in those Killed or Seriously Injured (KSI) on the areas roads is relatively flat, increasing between 2015-2017 then falling between 2017-2020, comparing 2015 and 2020 figures there has been a small increase of 43. Given

**Commented [AC02]:** Figures changed to latest (2020). Kept general flow. There is a lessening of significance in transport emissions for Cambridge, in 3rd place.

**Commented [MS3]:** Alex to review

**Commented [AC04]:** Most major change. Figures do not match latest publication. Surface transport related emissions figure previously stated does not reflect positive trend of decline in CO2 emissions from transport, albeit CPCA slower than national rate. With the moving away from figures in report not clear how to restructure - may need additional changes to flow better?

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the increases in road traffic this should be viewed **relatively** positively. Each area continues to have different high-risk groups; for Peterborough, pedestrians & motorists; Cambridge, cyclists & pedestrians; elsewhere in Cambridgeshire, motorists, and motorcyclists.

**Commented [MS5]:** Alex to check

**Commented [ACO6R5]:** Comparing 2015 and 2020 is fairly flat, year by year shows rise then decline.

### 6 Public health and air quality

Across Cambridgeshire & Peterborough, there are areas that suffer from poor air quality. Hotspots with a high concentration of business activity and transport movements lead to localised air quality problems. There are seven Air Quality Management Areas (AQMAs) in the region linked to the transport network. Addressing the causes of these hotspots, as well as other locations where poor travel-related air quality negatively impacts our health is key to the overall success of this LTCP.

The transportation of goods by freight plays a key role in servicing Cambridgeshire and Peterborough's industry, communities and supporting our growth and economic development. Freight offers our residents choice as consumers and businesses, keeping the county thriving and attractive. As we continue to grow, so does the volume of goods traffic and the potentially adverse impact on our local communities' public health, safety, and air quality.

### 7 Future of mobility – electric and digital connectivity

Reducing greenhouse gas emissions and removing air quality management areas requires a multifaceted approach, including encouraging better use of active travel modes such as walking and cycling, improving public transport, and increasing the number of electric vehicles in use. Electric vehicles require appropriate infrastructure, such as charging points, before they become a viable transport option.

The more urban areas of South Cambridgeshire, Cambridge and Peterborough all have charging point numbers broadly in line with the national average, while the more rural areas of East Cambridgeshire, Huntingdonshire and Fenland have numbers significantly below the national average. If widespread roll-out of electric vehicles is to become a reality across Cambridgeshire and Peterborough, a concerted effort will be needed to provide better charging provision across its geography, not only in more urban areas.

There are several barriers to uptake of EVs and hydrogen vehicles in Cambridgeshire and Peterborough and nationally, including:

- A lack of charge points – at home, at destination locations and on the strategic road network. Grid constraint – new and existing developments lack the necessary electricity distribution capacity to install charge points.
- Cost of vehicles – new EVs are significantly more expensive than internal combustion engine vehicles.
- Public perception – as an unfamiliar technology, not yet adopted at scale, there are issues around perceived reliability/range etc.
- Varied charging adapters – different car makes/models use different adapters decreasing the number of available charge points.
- Varied business models – different payment methods prohibit the uptake of EVs

*The Alternative Fuelled Vehicle Strategy* will ensure our continued focus on the development of the appropriate infrastructure across the region.



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In the same way that electric vehicles require charging infrastructure to make their roll-out a reality, autonomous vehicles need good mobile coverage to operate effectively. It is expected that for autonomous vehicles to be effective 5G coverage will be required. 5G is currently unavailable in some areas of the UK, but current rates of 4G coverage provide a good proxy for what 5G coverage might look like in the future.

### 8 The Impacts of Covid-19

The Covid-19 pandemic has had a very specific impact on trends in transport and travel. It has depressed travel across all modes of transport and accelerated the propensity for people to work at home; referencing 'Working from Home Propensity and Capacity Release' *"Our model predicts that if people who used to commute by car and who are now working from home were to continue to do so for two days per week, between 10% to 12% of peak hour traffic would be removed"*

Looking at local data shows that travel has been significantly curtailed in some places but has remained the same or increased in others.

Bus ridership is still (April 2022) significantly below pre-pandemic levels, with Stagecoach reporting an average reduction of around 68% across all services served from its Cambridgeshire depots. In both Cambridge and Peterborough motor vehicle movements have returned to near pre-pandemic levels.

Rail travel in Cambridgeshire and Peterborough as measured by entries and exits to stations saw a small drop in 2019/20, and then a 79% drop in 2020/21. Passenger numbers have since recovered but are still significantly below pre-pandemic levels, particularly for commuting trips. Intercity rail movement has been reduced considerably (commuting previously made up over 50% of heavy rail use). Pedestrian footfall measured around the station square Cambridge being 44% below pre-pandemic levels.

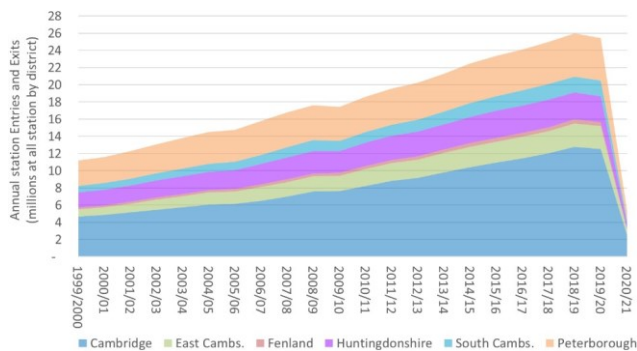


Figure 1 - Needs a caption

The various forecasts available for the economic recovery, point to the third quarter of 2022/23 as the point whereby the economic value lost during the pandemic will be restored (excluding any resurgence of the virus). From that point forward will be when a proper view of the pandemic's longer-term impacts on travel can be drawn. [The CPCA has commissioned a renewal of the Regional Transport Model and a significant data collection exercise for this will be carried out in the Spring of 2023.](#)

[This is the point at which the extent to which changes will revert or endure across our area will be known.](#) Until that point it would be [premature](#) to

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assume that long-term behaviour change will be significant enough to change transport policy.

### 9 Potential Future Trends: Post Covid-19

Whilst the actual long-term changes are yet to be established, the National Infrastructure Commission study 'Behaviour Change and Infrastructure Beyond Covid-19' provides a firm understanding of the possible scale and scope of the changes. Noting that it is not just the Covid-19 pandemic that will be driving the increase in home working. Research for British Telecom, Open Reach estimates that the impact of the roll out of full fibre broad band will see one million more people working from home, saving an estimated 300m commuter trips by 2025.

Focusing on four specific trends, working from home, social wariness, dispersal from cities and the use of virtual tools the author's scenarios show a possible future reduction in public transport use for travel to work in the range of 10%-20%. Within all scenarios there is an increase in demand for digital connectivity and digital services and modest (10%) reduction in private car travel. However, these figures need to be seen in the context of predicted population growth, which is very high in some parts of the region.