Local Transport Plan (2020-2041)
Summary of Evidence Base

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Last Revised	March 2021
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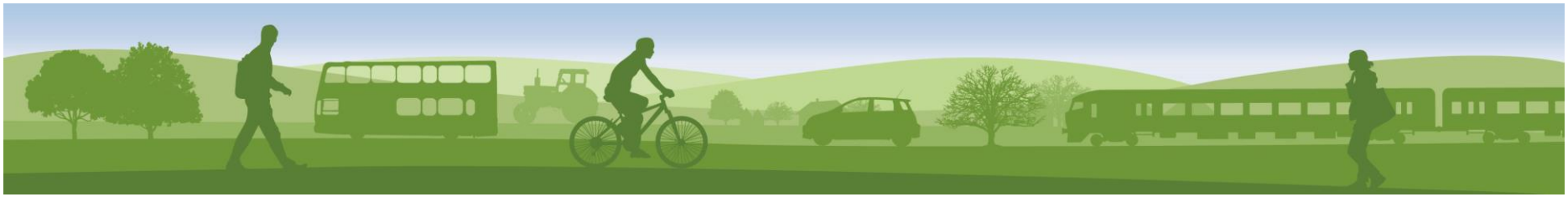
Category	Transport Planning
Owner	Gloucestershire County Council (GCC)
Target Audience	GCC, District/Parish/Town Councils, Developers, Stakeholders



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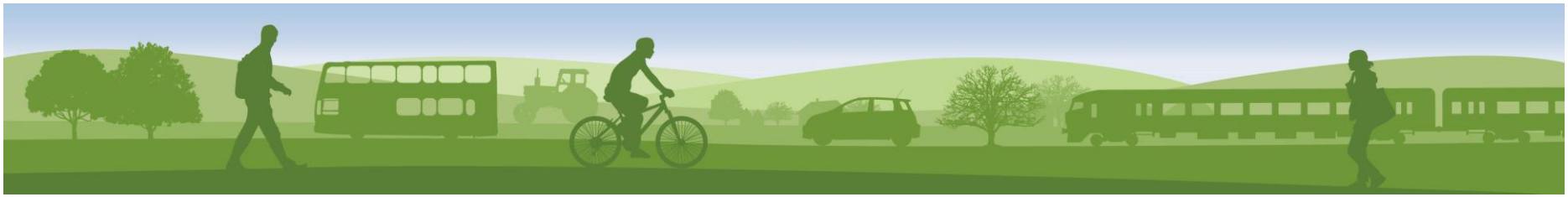


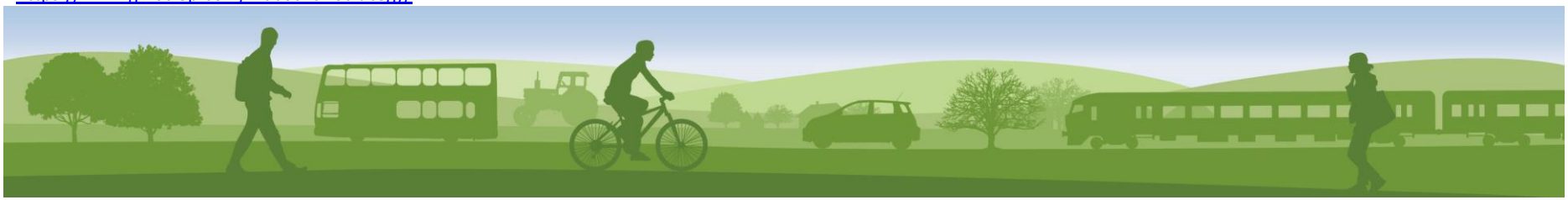
1. Introduction

1.1.1. Gloucestershire County Council (GCC) has produced an evidence base to inform the Local Transport Plan (LTP). This was updated as part of the 2019/20 LTP review, so that LTP policies are based on sound evidence.

1.1.2. A summary of this update is provided here. It gives valuable background information on statistics and the wider strategic context. It also shows in-depth analysis that could not be fully represented in the main LTP policy document. The evidence base ensures that transport investment focuses on key challenges facing Gloucestershire as captured through; its existing LTP, emerging District Local Plans; GCC's Council Strategy - Looking to the Future 2019-2022 vision,[1] Gloucestershire's Climate Change Strategy,[2] Gloucestershire's Sustainable Energy Strategy,[3] and GFirst LEP's Strategic Economic Plan,[4] Local Industrial Strategy[5] and other relevant strategy documents.

1.1.3. This document is set out in ten chapters; the information in Chapters 2 – 8 covers the LTP overarching policies and those of the six modes of transport; public & community transport, cycle, freight, highways, rail and walk. Chapter 9 provides further details on the issues and opportunities for each Connection Place Strategy area (CPS1 – CPS6). Finally, Chapter 10 sets out the LTP targets and provides the details for each LTP performance indicator.

[1] https://www.gloucestershire.gov.uk/media/2083042/gcc_2325-council-strategy-2019_dev20.pdf
[2] https://www.gloucestershire.gov.uk/planning-and-environment/climate-change/gloucestershires-climate-change-strategy/
[3] https://www.gfirstlep.com/downloads/2019/gloucestershire-energy-strategy-2019.pdf
[4] https://www.gfirstlep.com/about-us/our-vision/strategic-economic-plan/
[5] https://www.gfirstlep.com/industrial-strategy/



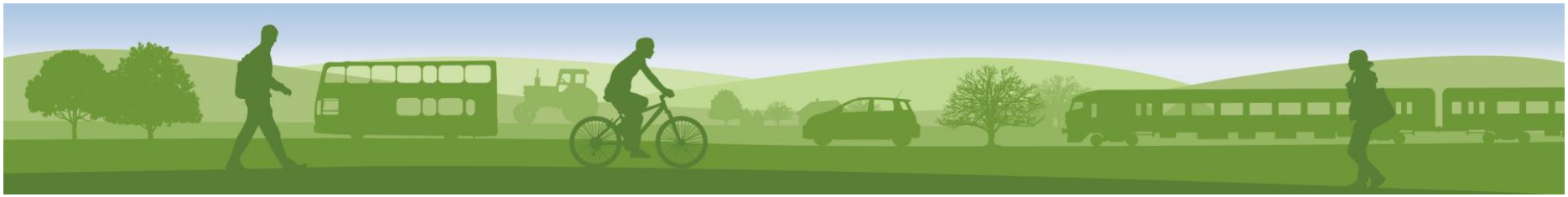
2. Summary of Evidence Supporting Overarching Policies (PD0)

2.1. Overarching Policies - Context

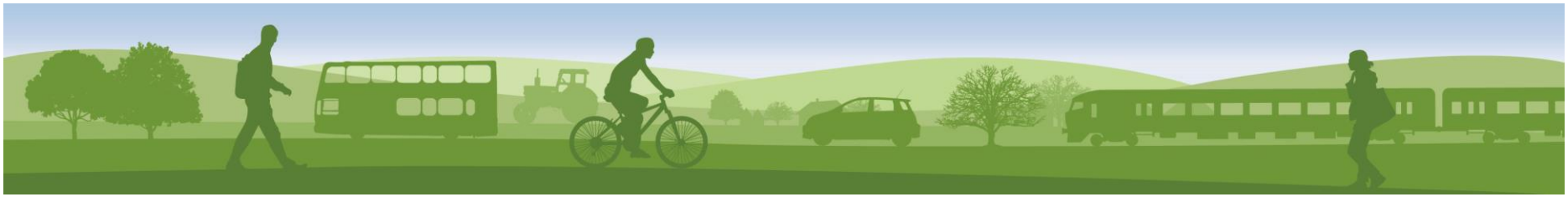
2.1.1. This chapter covers the LTP overarching policies set out below. The supporting summary evidence base is discussed for each policy in section 2.2 – section 2.7 inclusive.

Overarching Strategy Policies
LTP PD0.1 - Reducing Transport Carbon Emissions and Adapting to Climate Change
LTP PD0.2 - Local Environmental Protections
LTP PD0.3 - Maximising Investment in a Sustainable Transport Network
LTP PD0.4 - Integration with Land Use Planning and New Development
LTP PD0.5 - Community Health & Wellbeing
LTP PD0.6 - Thinktravel Influencing Travel Behaviour Change

2.1.2. The graphic following shows how the LTP Overarching policies link to the LTP Objectives and how the Overarching policies will contribute to achieving these objectives. It indicates the expected policy outcomes for each Overarching policy as well as the investment priorities needed to support them.



LTP objectives and expected outcomes for Overarching Strategy	Overarching Policies
Protect and enhance the natural and built environment • Reduced transport derived carbon emissions • A reduction in solo car use, and an increased uptake of sustainable transport modes (walking, cycling and public transport) • Transport schemes are designed to reduce the adverse impacts on Gloucestershire's high quality natural, built and historic environments	**LTP PD0.1** **Reducing Transport Carbon Emissions and Adapting to Climate Change**
Support sustainable economic growth • Gloucestershire is a place to do business and attract investment • The transport network is accessible, efficient, reliable, fit for purpose and demonstrates value for money • A transport network resilient to extreme weather events	**LTP PD0.2** **Local Environmental Protections**
Enable safe and affordable community connectivity • Individuals benefit from economic prosperity and social benefits, such as being able to access employment, education and training • Reduced risk of social isolation • An integrated transport network which provides genuine transport choices for all ages and abilities • A transport network which provides individuals with the confidence to consider all travel choices • A financially sustainable passenger transport network	**LTP PD0.3** **Maximising Investment in a Sustainable Transport Network**
	LTP PD0.4 **Integration with Land Use Planning and New Development**
Improve community health and wellbeing and promote equality of opportunity • Less car trips resulting in fewer journey delays • Increased number of walking and cycling trips • Improved air quality • A healthy more active population, supporting physical and mental health and wellbeing • Better safety, security and health by reducing the risk of death, injury or illness arising from transport • Access to services, employment, education, training, amenities and a social network	**LTP PD0.5** **Community Health & Wellbeing**
	LTP PD0.6 **Thinktravel Influencing Travel Behaviour Change**



Overarching strategy Policies	Expected policy outcomes	Investment priorities include
LTP PD0.1 Reducing Transport Carbon Emissions and Adapting to Climate Change	• Contribute to Gloucestershire's ambitions to become carbon neutral by 2045 & Deliver on the Council's commitment to climate change • Accelerate the uptake of ultra-low emission vehicles • Reduce travel demand and support agile working through digital connectivity • Support demand management by optimal use of the existing highway network and repositioning the highway for active travel modes • Increase sustainable and active travel modes to benefit public health and air quality • Create well designed, implemented and managed transport infrastructure • Maximise ecological connectivity and nature recovery through BwN • Transition towards a circular economy	• 'Active Travel Routes' • Bikeability training • Bus stop & bus priority improvements • Bus services supported • Comply with: Gloucestershire Highways Biodiversity Guidance / Green Infrastructure Pledge / Nature Recovery Networks / Building with Nature Standards / Road Safety & other context audits & design standards / SuDs • Cycle parking & storage • Cycle Route Corridor improvements • Develop 'Total Transport' portal • EV-charge points or alternative technology • Fastershire – digital connectivity • Highway & Junction improvements • Local Cycling & Walking Infrastructure Plan (LCWIP) • Pedestrian & cycle access improvements • Rail Station enhancements • Rail Infrastructure improvements • Support: active travel / 'access for all' /agile working /AQAPs / heritage & historic assets / geodiversity / permeability & 'invisible infrastructure'/ peed cameras 20mph zones & community restriction zones • Strategic & Local Interchange Hubs • Thinktravel programme for travel behaviour change
LTP PD0.2 Local Environmental Protections	• Contribute to the delivery of an effective transport network that serves to support growth whilst balancing sustainability and environmental concerns • Improve the air quality in AQMA areas by; minimising congestion and delays and reducing transport demand by optimal use of the existing highway network, and re-positioning the highway for active travel modes • Improved green infrastructure and enhanced natural capital	
LTP PD0.3 Maximising Investment in a Sustainable Transport Network	• Investment focused on transport infrastructure that reduces carbon emissions and recurring congestion, further mitigates against the impacts of development, and secures a sustainable and resilient highway network	
LTP PD0.4 Integration with Land Use Planning and New Development	• Secure future development and growth at sustainable locations by delivering transport infrastructure that does not act as a constraint and provides safe, reliable and convenient transport choices connected to new developments • The priorities linking proposed developments with existing networks and development opportunities will be those identified in the Infrastructure Delivery Plans for the District Local Plans	
LTP PD0.5 Community Health & Wellbeing	• Ensure Gloucestershire has an inclusive transport network that encourages people to be physically active thus improving health and wellbeing, increasing social interaction and contact with the outdoor environment • Promote equality of opportunity to access employment, housing, education, services, amenities and social networks to maintain a vibrant community that supports economic growth for all	
LTP PD0.6 Thinktravel Influencing Travel Behaviour Change	• Embed the Thinktravel programme into the delivery of LTP objectives and ensure that initiatives enable people to benefit from existing and emerging travel opportunities • Increase the attractiveness, understanding and wide use of transport alternatives to the private car in more parts of the county, to reduce reliance on the private car	

2.2. Policy LTP PD 0.1 – Reducing Transport Carbon Emissions and Adapting to Climate Change – Supporting Evidence

2.2.1. Gloucestershire is a highly attractive place for people to live and work, do business and to visit. It has a large number of natural assets, including three Areas of Outstanding Natural Beauty. Gloucestershire's population is growing, unemployment is low and Gloucestershire's economy is strong and resilient.

2.2.2 The impacts of a growing population and subsequent increase in traffic and congestion will have to be mitigated. With Gloucestershire currently meeting at least 85% of it's energy needs (for heating, power and transport) from fossil fuels,[6] there needs to be a step change in way we travel, including significant mode shift in combination with a dramatic rise in the use of clean emission vehicles, if GCC wants to fulfil its target to be carbon neutral.[7]

2.2.2. In May 2019 the UK Parliament declared a climate change emergency, a decision endorsed by GCC County Council. In 2018, transport accounted for 32% of all carbon dioxide (CO_2) emissions per capita in Gloucestershire, this was below the national figure of 42% CO_2 emissions.[8] Nationally, road passenger cars account for 55% of all transport related greenhouse gas emissions (GHG), HGVs 16.6%, LGVs 15.6% and buses 2.5%, as opposed to railways 1.4% (by source 2018) in **Figure PD0(1).**[9]

2.2.3. Gloucestershire's Local Transport Plan aligns with the Gloucestershire Climate Change Strategy for a low carbon and resilient county. The Gloucestershire Sustainable Energy Strategy aims to reduce per capita transport carbon emissions, in order to contribute to achieving the government's climate change commitments. The LTP target to reduce per capita transport carbon emissions has been strengthened in line with a commitment at local and national level. Gloucestershire County Council, along with a number of District Authorities, has declared a climate change emergency in recognition of the priority to work towards a low carbon county.[10] Furthermore, in 2020, GCC made a further consideration to sign up to the UK100 Pledge and follow the pledge guidance to be net zero by 2045.[11]

[6] Gloucestershire's Energy Strategy 2019: www.gfirstlep.com/downloads/2019/gloucestershire-energy-strategy-2019.pdf

[7] As per May 2019 motion on climate change, unanimously supported at County Council (15 May 2019): www.gloucestershire.gov.uk/gloucestershire-county-council-news/news-may-2019/council-commits-to-becoming-carbon-neutral-by-2030 Response to Climate Emergency (Item 8) at Cabinet (20 Dec 2019) – 80% reduction by 2030 and carbon neutral by 2050 https://glostext.gloucestershire.gov.uk/ieListDocuments.aspx?CId=117&MId=9232

[8] Final UK Greenhouse Gas Emissions (GHG) National Statistics (2020)

[9] Final UK GHG emissions covers the period to 2020 https://www.gov.uk/government/statistics/final-uk-greenhouse-gas-emissions-national-statistics-1990-to-2018

[10] http://glostext.gloucestershire.gov.uk/documents/s55044/14%20Climate%20Change%20Information%20Report%20-%20Final.pdf

[11] UK100 Pledge ambition making all cities/towns/villages across the UK 100% clean energy before 2050 - https://www.uk100.org/pledge-faqs

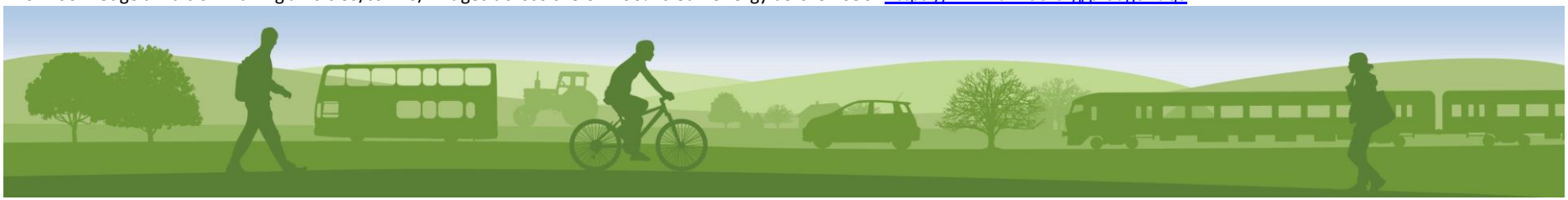
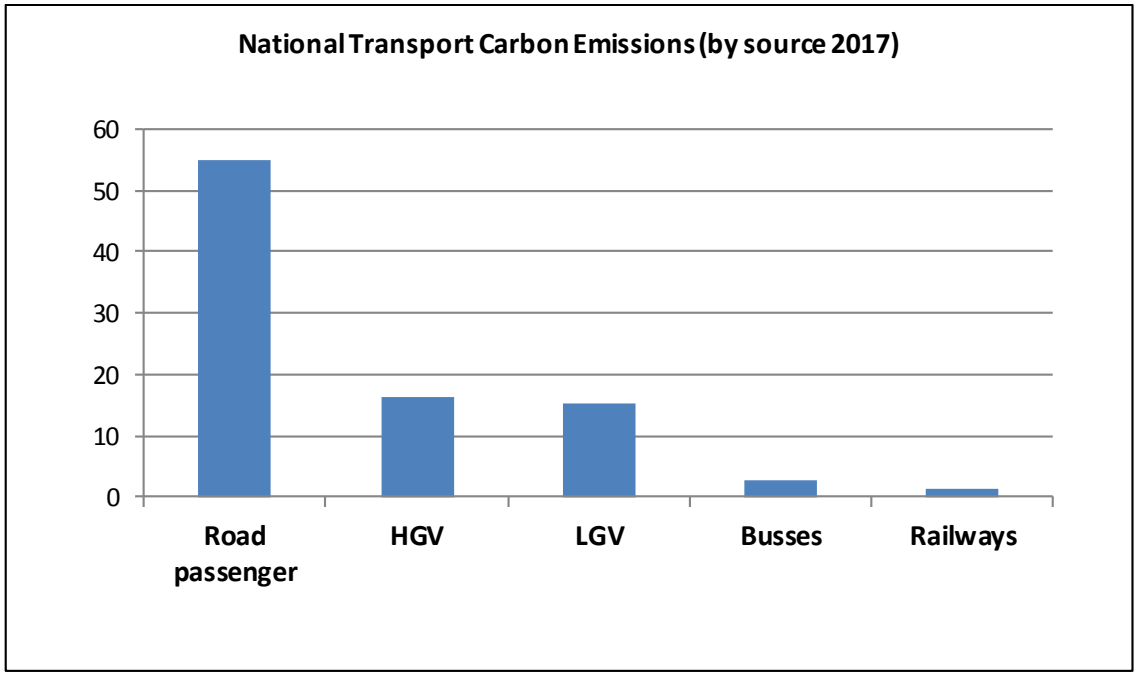
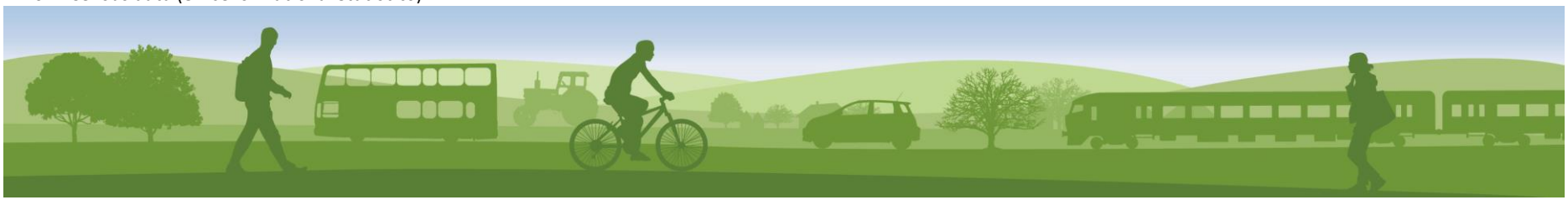


Figure PD0 (1) – National Greenhouse Gas Emissions (by source 2017)



2.2.4. A move towards a more sustainable transport network will not only reduce carbon emissions, it will also reduce air and noise pollution and create a healthier and more inclusive society. There is a challenge for Gloucestershire, as the number of non-car households in the county is 17%,[12] which is significantly lower than the national average of 26%. This reflects the county's generally rural and affluent nature. As would be expected from high car ownership, car and van travel is the predominant choice of travel to work within Gloucestershire, making up 67% of the modal share.

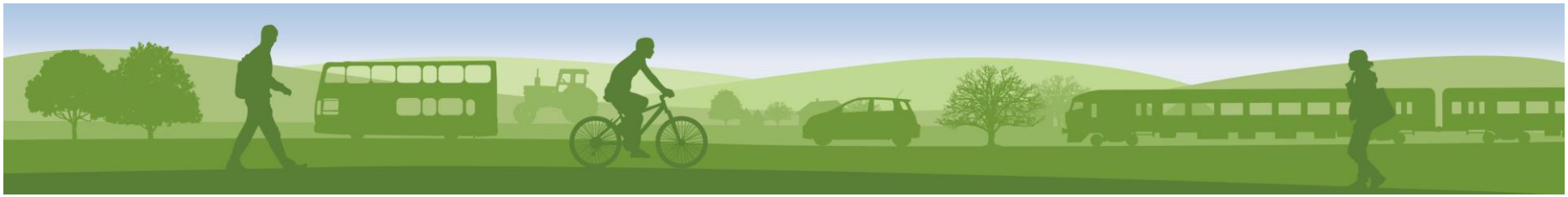
[12] 2011 Census data (Office for National Statistics)



2.3. Policy LTP PD0.2– Local Environmental Protection – Supporting Evidence

2.3.1. The Local Transport Plan is subject to an Integrated Sustainability Assessment (ISA) which includes five assessment criteria; including Strategic Environmental Assessment and Habitats Regulations Assessment, but extends into Equalities Impact Assessment, Health Impact Assessment and Community Safety Assessment, which will be published alongside the Local Transport Plan on the GCC website. The ISA includes the following objectives that cover overarching impacts on our; environment, heritage, safety, health and wellbeing:

- Improve air quality
- Reduce carbon dioxide emissions from transport
- Protect and enhance protected habitats, sites, species, valuable ecological network and promote ecosystem resilience and functionality
- Protect, enhance and promote geodiversity
- Protect and enhance the character and quality of landscapes and townscapes and visual amenity
- Conserve and enhance the heritage assets and the wider historic environment including buildings, structures, landscapes and archaeological remains and their settings
- Protect and enhance the water environment.
- Conserve soil and agricultural resources and seek to remediate / avoid land contamination.
- Reduce risk of flooding
- Promote the prudent use of finite natural resources from primary sources, maximise the use of alternative, secondary and recycled materials, reduce the level of waste generated, minimise the production of waste and support re-use and recycling
- Reduce the need to travel by car or move goods by road and promote sustainable modes of transport
- Coordinate land use and transport planning across Gloucestershire
- Improve health and wellbeing of all citizens and reduce inequalities in health
- Promote greater equality of opportunity for all citizens, with the desired outcome of achieving a fairer society



2.3.2. As a county with three Areas of Outstanding Natural Beauty (AONB), protection and enhancement of the county's natural and historical environment is vital to Gloucestershire's prosperity, as it attracts people to live, study and work in the county or to visit for the purposes of leisure and tourism. Transport infrastructure can help people access healthy environments; for example, through the provision of green infrastructure, which is a network of multi-purpose spaces that provide the opportunity for the co-ordination and delivery of environmental improvements, to support investment and improve quality of life. The Gloucestershire Local Nature Partnership has published a Green Infrastructure Pledge[13] which commits signatories to 'making Gloucestershire a pioneer of green infrastructure, creating a better, more attractive place to live, work and visit, as well as becoming an exemplar for the rest of the country.' These initiatives are usually inclusive of blue infrastructure such as rivers, ponds, ditches and canals. Furthermore, access to healthy, natural environments can help:

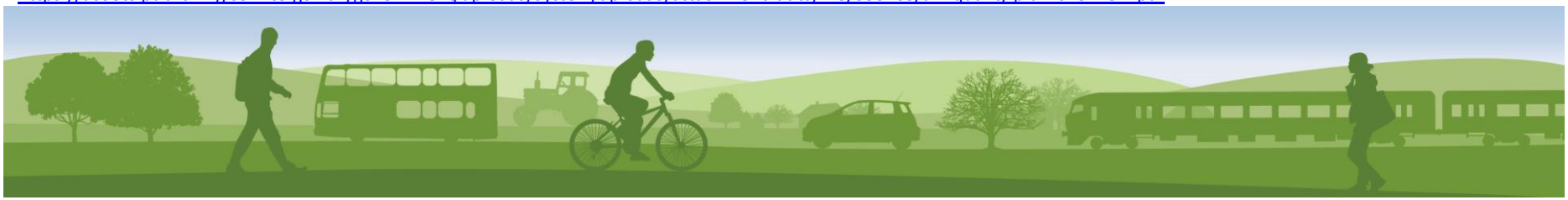
- Support economic and social regeneration
- Improve public health
- Improve educational outcomes
- Reduce crime and antisocial behaviour
- Help communities adapt to climate change
- Improve quality of life across an entire area

2.3.3. The Government has set out their strategy to address air pollution in their Plan for tackling roadside Nitrogen Dioxide concentrations, 2017.[14] Air Quality Management Areas (AQMA) for nitrogen dioxide (NO_2) are designated if current or projected levels breach, or are likely to breach, the objective of 40 micrograms per cubic metre (40 µg/m^3) as prescribed by the Air Quality Regulations.

2.3.4. The European Commission requires the government to create noise maps indicating the public's exposure to environmental noise and to adopt action plans based on the noise mapping results. These are to be updated on a 5 year cycle, with the latest update in 2017. The action plans are expected to investigate and, if necessary, manage noise issues including identifying appropriate noise reduction measures.

[13] www.gloucestershirenature.org.uk/green-infrastructure-pledge

[14] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/633269/air-quality-plan-overview.pdf

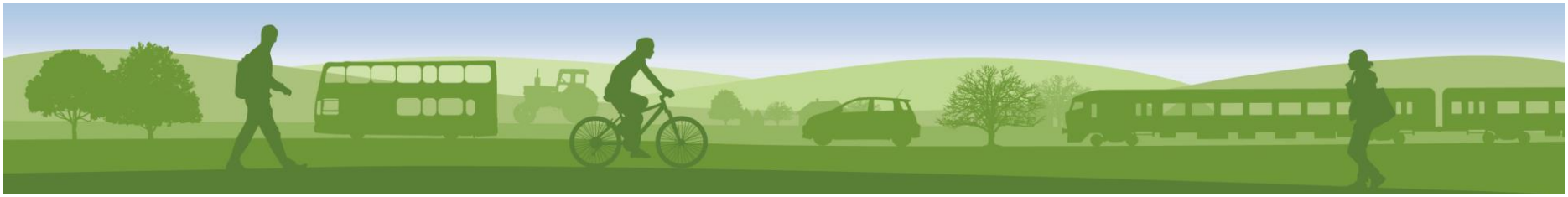


2.3.5. Gloucestershire contains both statutory and non-statutory designated sites that are protected for their importance for nature conservation. Prime among these sites are Special Areas of Conservation and Special Protection Areas, which form the Natura 2000 European network of core internationally important habitats and/or rare, declining and threatened species. In addition to the Natura 2000 sites, there are also globally important wetlands designated as Ramsar Sites. There are also a large number of nationally important Sites of Special Scientific Interest, National Nature Reserves, Ancient Woodlands, Local Wildlife Sites, Local Geological Sites, some Local Nature Reserves and many green spaces that support wildlife and enhance the wellbeing of the local population.

2.3.6. Any potential direct or indirect impacts on these sites that may arise from new or upgraded transport interventions will be appropriately assessed, mitigated, and/or compensated for, in line with existing best practice and relevant legislation over the lifetime of the LTP. This would include the Natura 2000 (European) sites and Ramsar sites for which Habitats Regulation Assessment will be carried out, as necessary, prior to final decisions being made on transport interventions. Opportunities for enhancement of these sites through transport interventions will be explored wherever it is feasible and appropriate to do so.

2.3.7. At scheme development stage GCC commits to following the necessary stage process for Habitats Regulations Assessment (HRA), thus ensuring no significant adverse impacts on the integrity of European or Ramsar sites as a result of schemes arising from the LTP. Opportunities for enhancement of these sites through transport interventions will be explored wherever it is feasible and appropriate to do so.

2.3.8. It is GCC policy to avoid the unnecessary sterilisation of valuable mineral resources and safeguard the county's minerals and waste infrastructure. All transport schemes within or impacting on designated Mineral Safeguarding Areas (MSAs) are subject to a MSA assessment. GCC is mindful of minimising the loss of natural and historic capital. Land contamination remediation is considered at a strategic level through the Gloucestershire Pollution Group to which GCC are a partner and at a local highway level at scheme feasibility.



2.4. Policy LTP PD 0.3 - Maximising Investment in a Sustainable Transport Network - – Supporting Evidence

2.4.1. Between 2012 and 2016 the economy of Gloucestershire grew from £14.2 billion to £16.3 billion.[15] Gloucestershire has seen an above average growth in productivity since 2015-16.[16] Employment in the county includes a range of high skilled jobs, including in advanced manufacturing, cyber security and intelligence, research and development, and increasingly in digital and creative sectors. Gloucestershire has a large small to medium enterprise (SME) community (84.5% in 2018); and our larger business sector accounts for around one hundred organisations, with 250 or more employees.[17] The drivers of the county's future economic success will be critical to determining the long term connectivity priorities for Gloucestershire.

2.4.2. Along with economic and population growth, annual average daily flows (AADF) in Gloucestershire for all major roads has increased by 17% between 2000 and 2017[18] as illustrated in **Figure PD0 (2)**. In comparison, the observed changes in AADF) nationally increased by 2.3% over the same period.[19] Increased traffic leads to peak hour congestion across the urban and some rural road networks. Department for Transport's (DfT) Road Transport Forecasts 2011 publication forecasts that nationally, by 2035, 24% of all traffic will be travelling in very congested conditions in urban areas (compared to a 2010 baseline of 13%), with congestion expected to worsen on all classification of road. In the UK, the traffic scorecard analysed congestion and the severity of it in the top 20 urban areas. Drivers in the UK lost an average of 178 hours a year due to congestion, costing UK drivers in 2018 £7.9billion, an average of £1,317 per driver.[20]

[15] GVA balanced by GFirst LEP
[16] www.ons.gov.uk – sub- regional productivity (labour productivity GVA per hour worked and GVA per filled job indices by local enterprise partnership
[17] www.nomisweb.co.uk
[18] www.gov.uk/government/statistical-data-sets/road-traffic-statistics-tra
[19] www.gov.uk/government/statistical-data-sets/road-traffic-statistics-tra (TRA0301)
[20] http://inrix.com/press-releases/scorecard-2018-uk

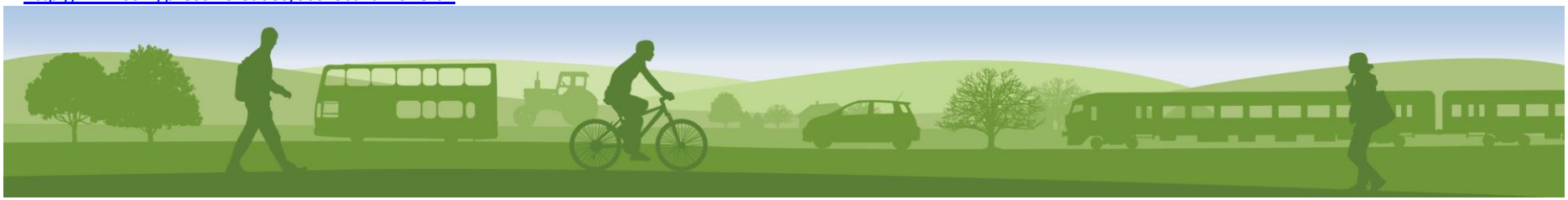
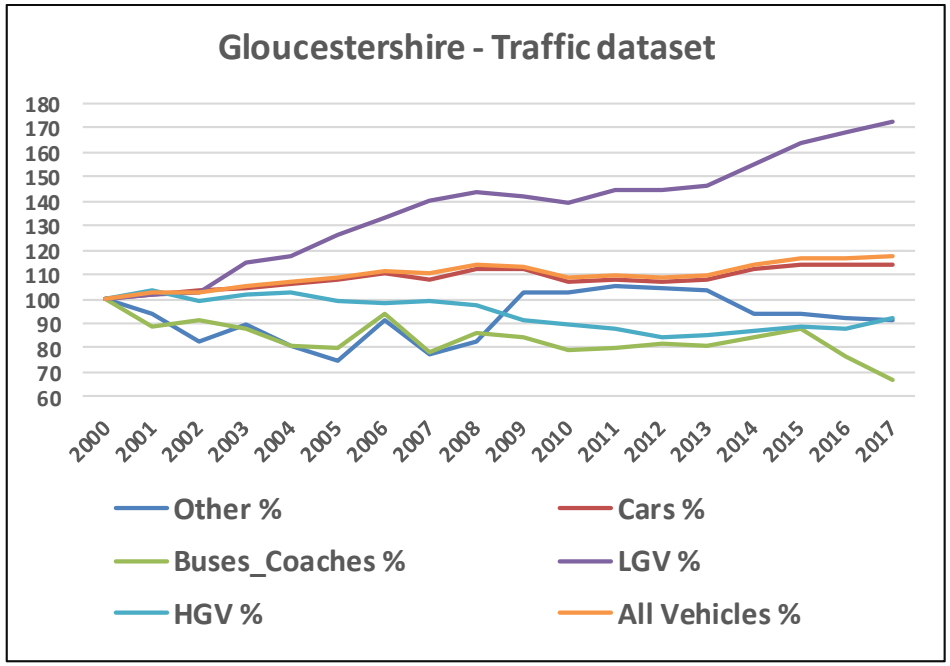


Figure PD0 (2) - Gloucestershire Annual Average Daily Flow Profile (all major roads) 2000 - 2017



2.4.3. There is an increasing trend towards a widening of travel patterns, spread across a broad range of origins and destinations, with 'pull' destinations such as Swindon, Bristol, Birmingham and Cardiff drawing people out of the county for their shopping, leisure and employment. **Figure PD0 (3)** Gloucestershire Connects – Out Commuting, shows that there are strong connections to neighbouring counties. The West of England (incorporating South Gloucestershire, Bristol, and Bath & North East Somerset) has twice the number of cross boundary journey to work trips commencing in Gloucestershire as any other neighbouring county or local authority area. Worcestershire is next, followed by Swindon, Wiltshire, and Oxfordshire. Journeys to work on an east-west axis are lower in number.

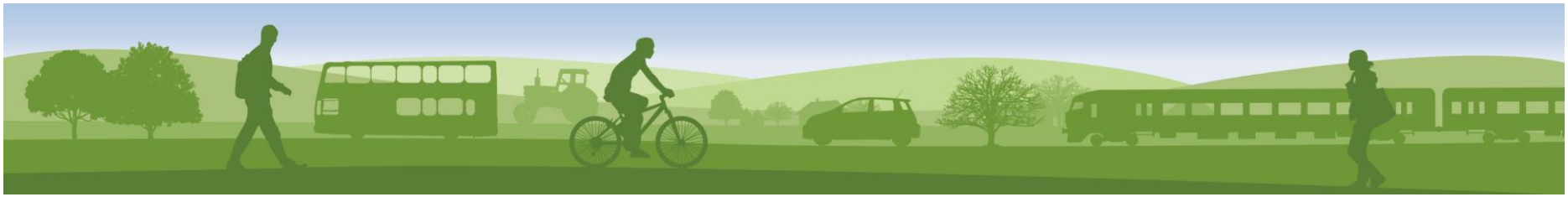
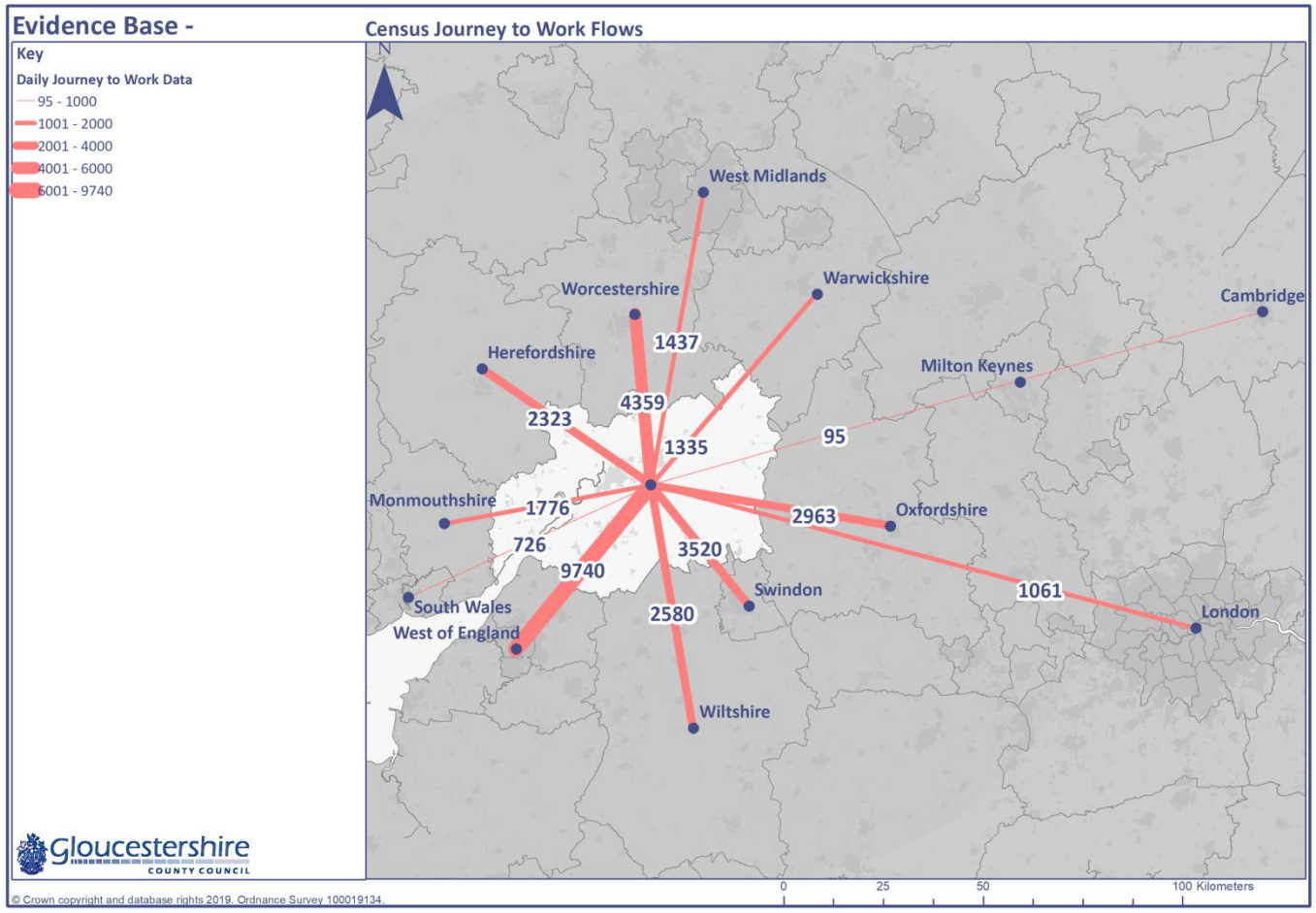
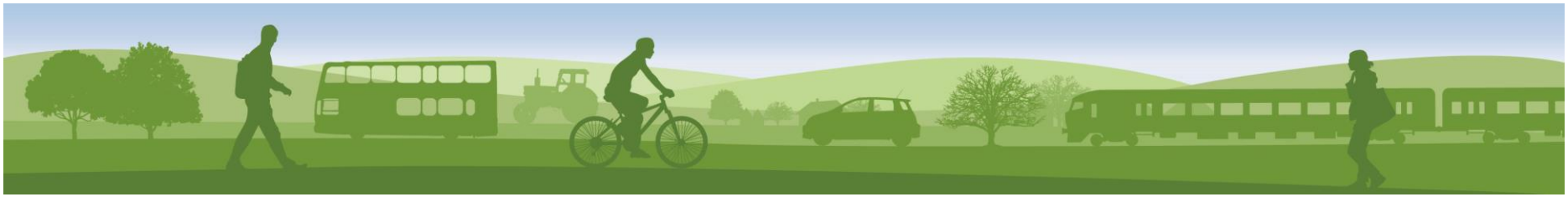


Figure PD0 (3) – Gloucestershire Connects -Out Commuting (2011 Census Journey to Work Flows)





2.4.4. London is an important destination for work trips from Gloucestershire, as is the West Midlands. These two large urban areas attract similar numbers of commuting trips from the county. Gloucestershire to London journeys from Cotswold district are higher than from any other district, reflecting the location and presence of rail stations with direct services to London both from the North Cotswold Line (Moreton) and South Cotswold Line (Kemble). The next largest flows from Stroud and Cheltenham reflect a number of factors, including rail service availability. This underlines that as national and international connections become ever more important, sustainable clean transport connections with existing major urban centres will be vital for the future connectivity of Gloucestershire.

2.4.5. Despite the importance of regional connectivity, Gloucestershire's strong local economy and high levels of employment. Cheltenham and the Cotswolds have a job density of more than 1 job for every resident of working age and Forest of Dean, Gloucester, Stroud, Tewkesbury and Gloucestershire also have high job density ratios (0.55, 0.85, 0.85, 0.99 and 0.88 respectively).[21] Resulting in a high degree of 'self-containment' with more than 80% of journeys to work for people residing in Gloucestershire made to employment within the County.[22] This self-containment highlights the potential for short distance trips to transfer where appropriate to non-car modes, such as active or public transport. **Figure PD0 (4)** maps the patterns for Gloucestershire for both in and out commuting, based on mode of travel.

[21] https://www.nomisweb.co.uk/reports/lmp/wpca/1929380023/report.aspx (residential population by working age (aged 16 – 64) in 2017

[22] Based on 2011 Census data

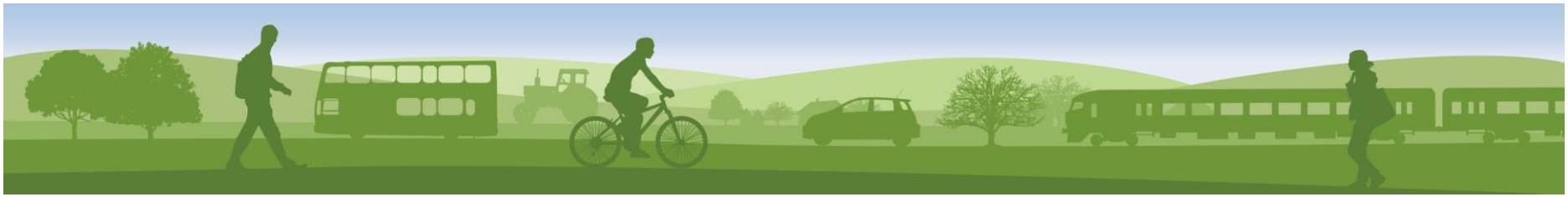
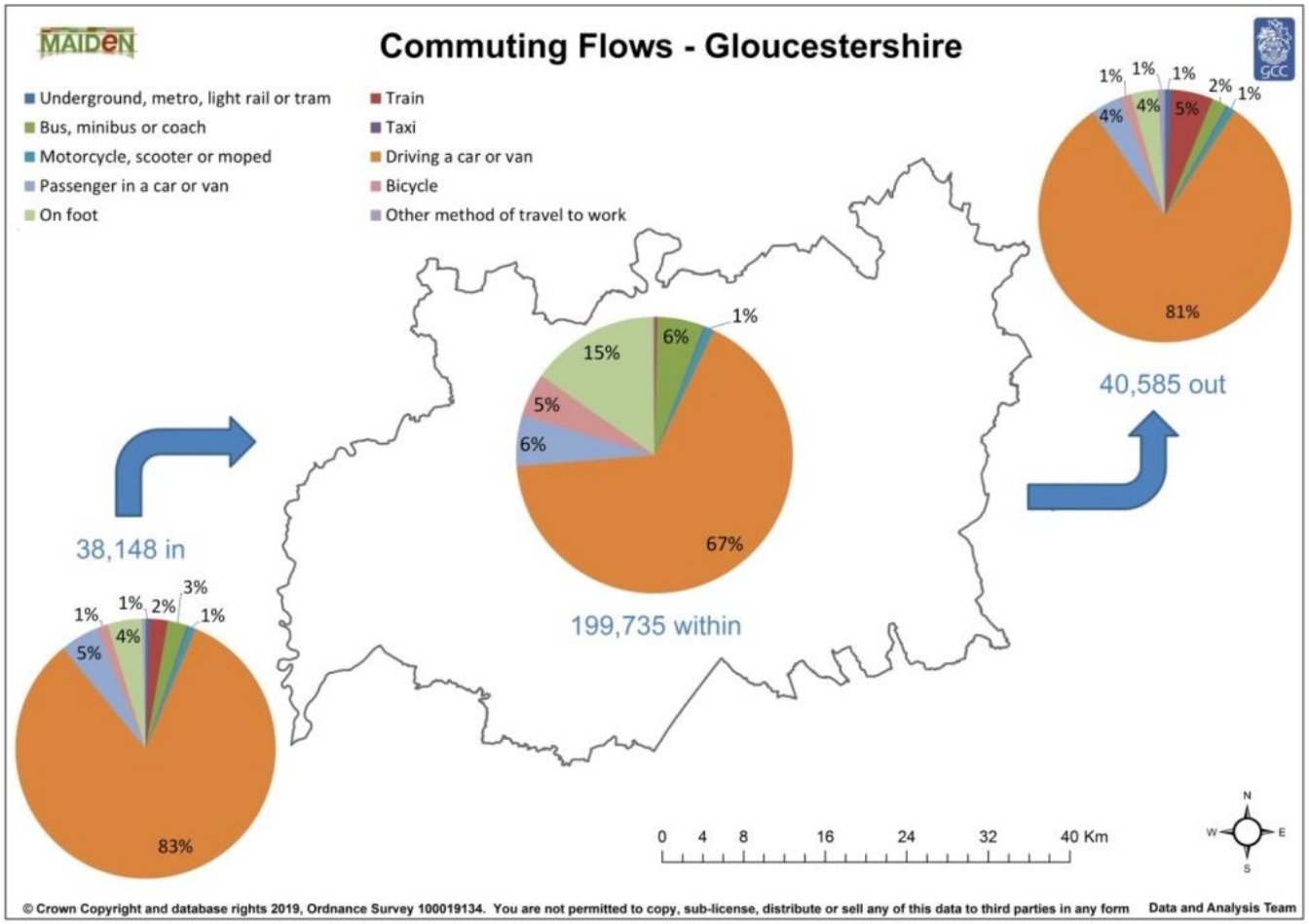
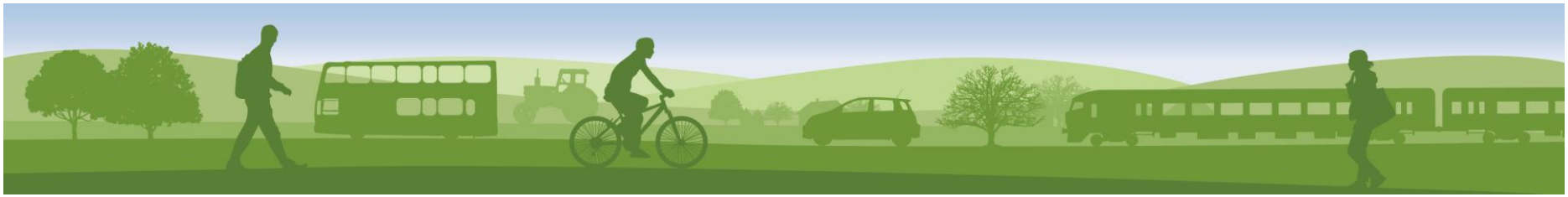


Figure PD0 (4) – Gloucestershire County Commuting - Annual Population Survey (2010-2011)





2.5. Policy PD 0.4 Integration with Land Use Planning and New Development - – Supporting Evidence

2.5.1. The population of Gloucestershire is expected to increase by almost 63,000 people (10.1%), over the period 2016 to 2031. Population growth in this period will be focused in and around existing urban areas of Gloucester City (14.9% increase) and Cheltenham (6% increase), where already over two thirds of Gloucestershire's residents live.

2.5.2. Assuming the current population trends continue, Office of National Statistics (ONS) projections suggest that the population in Gloucestershire will rise by 92,200 (2016 – 2041). **Figure PD0 (5)** shows Tewkesbury and Gloucester are projected to have the largest percentage increase over the 25 years to 2041 (21.05% and 17.5% respectively, whilst Cheltenham is projected to have the smallest increase (9.2%).[23] Mid 2017 estimates show the majority of the population live in urban areas, but still a high percentage live in rural areas (28.6%).[24]

[23] https://inform.gloucestershire.gov.uk/media/2082298/overview_-_population_projections_for_gloucestershire_2016-41-2.pdf
[24] Source Office of National Statistics - www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates

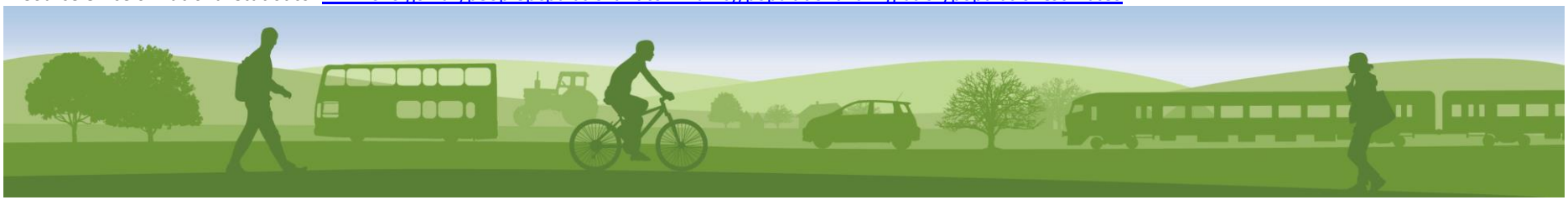
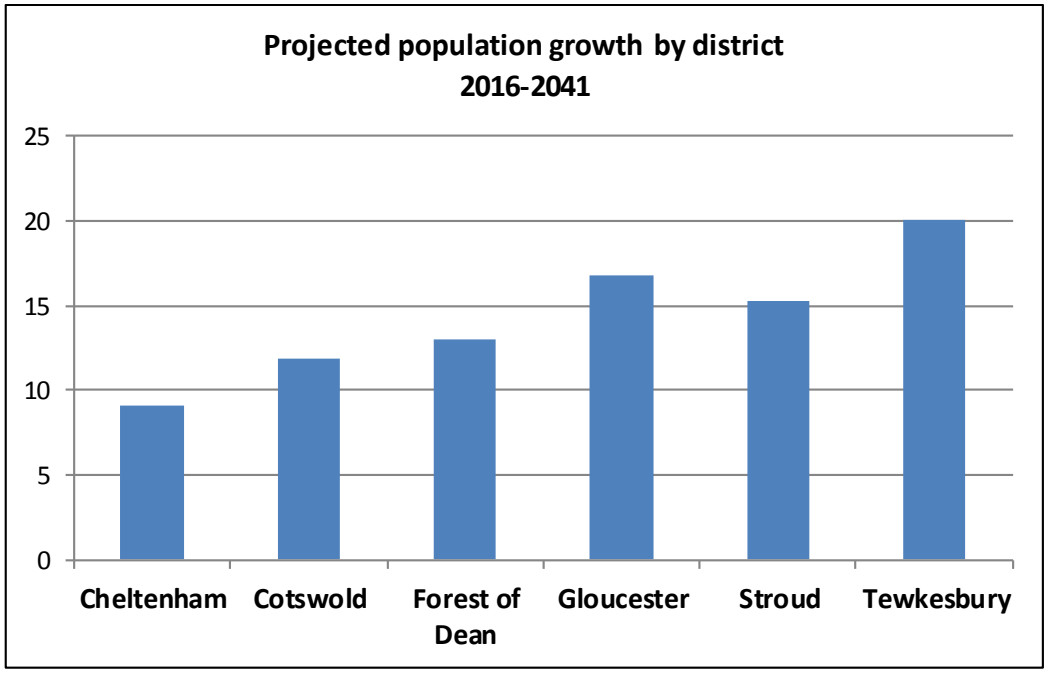
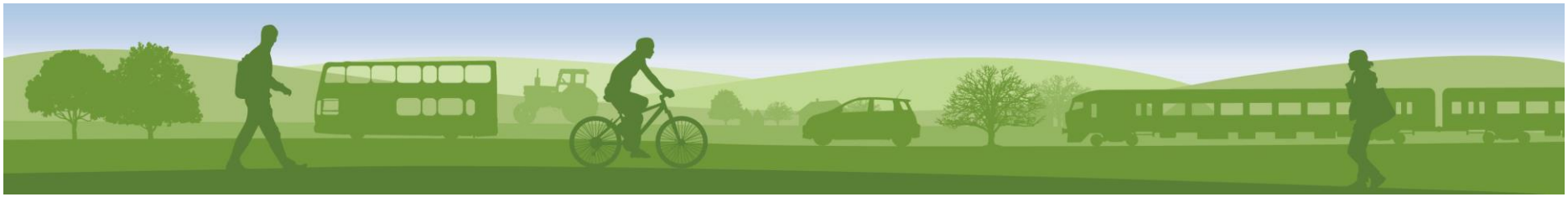


Figure PD0 (5) – Gloucestershire projected population growth to 2041



2.5.3. The dominating feature of the projections above the national average is the sharp increase in the population 65 years and above. The proportion of those over 65 years or above will have risen from 20.8% (2016) to 28.9% (2041) of the population of Gloucestershire. By comparison, the working age population (aged 20-64) is projected to rise by only 1% over the same period. This increase is lower than the national trend for this age group and means that by 2041 the working population in Gloucestershire will have fallen from 56.7% (2016) to 49.9% (2041) of the population.



2.5.4. The Gloucestershire 2050 Vision research has suggested that while the number of jobs in Gloucestershire will grow over the next 20 years, the number of working age residents to fill those jobs will not grow at the same rate, but more slowly. However, economic projections should be viewed with caution and only give us the general direction of travel. This is because the future nature of jobs is changing in a global society and it is predicted that employment in the future will be based on a portfolio of careers of fixed and short term roles in a move towards what is known as a 'gig' economy.[25] The nature of employment available in Gloucestershire will also change over the next 20 years.

2.5.5. The majority of Gloucestershire's housing and employment growth will be in the urban centres of Gloucester and Cheltenham. The housing requirement for Gloucester, Cheltenham and Tewkesbury were set out in the Joint Core Strategy (JCS), which was approved in December 2017, identifying housing and employment land across the 3 Districts to 2031. Local Plans identify further housing requirements for the other districts: Cotswold (8,400), Forest of Dean (6,600) and Stroud (11,400). The agreed provision for the county is therefore 61,575 houses by 2031. The JCS identified a need for additional housing and employment consisting of 35,175 new home and 192ha of employment land creating 39,500 new jobs to 2031, however it was adopted with a commitment for immediate review and as such these totals may increase. Local plans for Cotswold, Forest of Dean, and Stroud have approved employment land of 24ha, 25-30ha, and 50ha respectively. **Figure PD0 (6)** illustrates the anticipated projections for growth to 2031. In addition to the significant growth already identified in the existing Local Plans, the Stroud Local Plan is currently under review and aims to deliver a 40% increase from the figure in Stroud's adopted Local Plan.

2.5.6. It therefore only shows part of the economic benefits from transport investment and reduced journey times. The importance of these regional transport connections will also be influenced by future growth, both within the County, and beyond. The map therefore also highlights the significant growth ambitions in Gloucestershire, with Local Plans in Gloucestershire, in combination seeking to provide around 60,000 new homes, and to support a similar number of new jobs through the allocation of approximately 300 ha of employment land. It also highlights the significant growth ambitions in our neighbouring authorities.

[25] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/303335/the_future_of_work_key_findings_edit.pdf

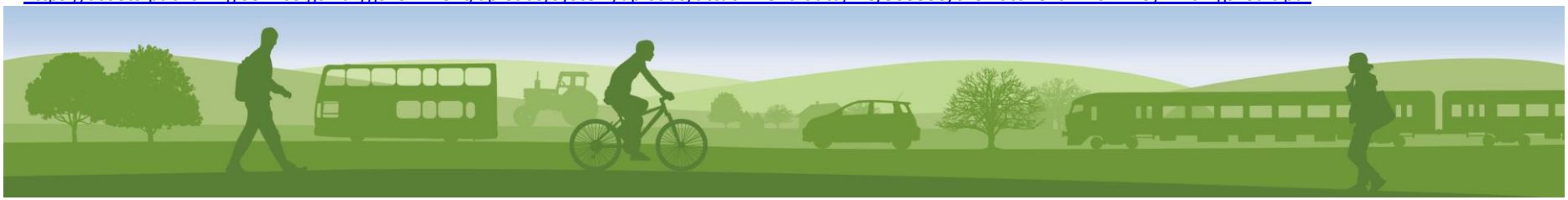
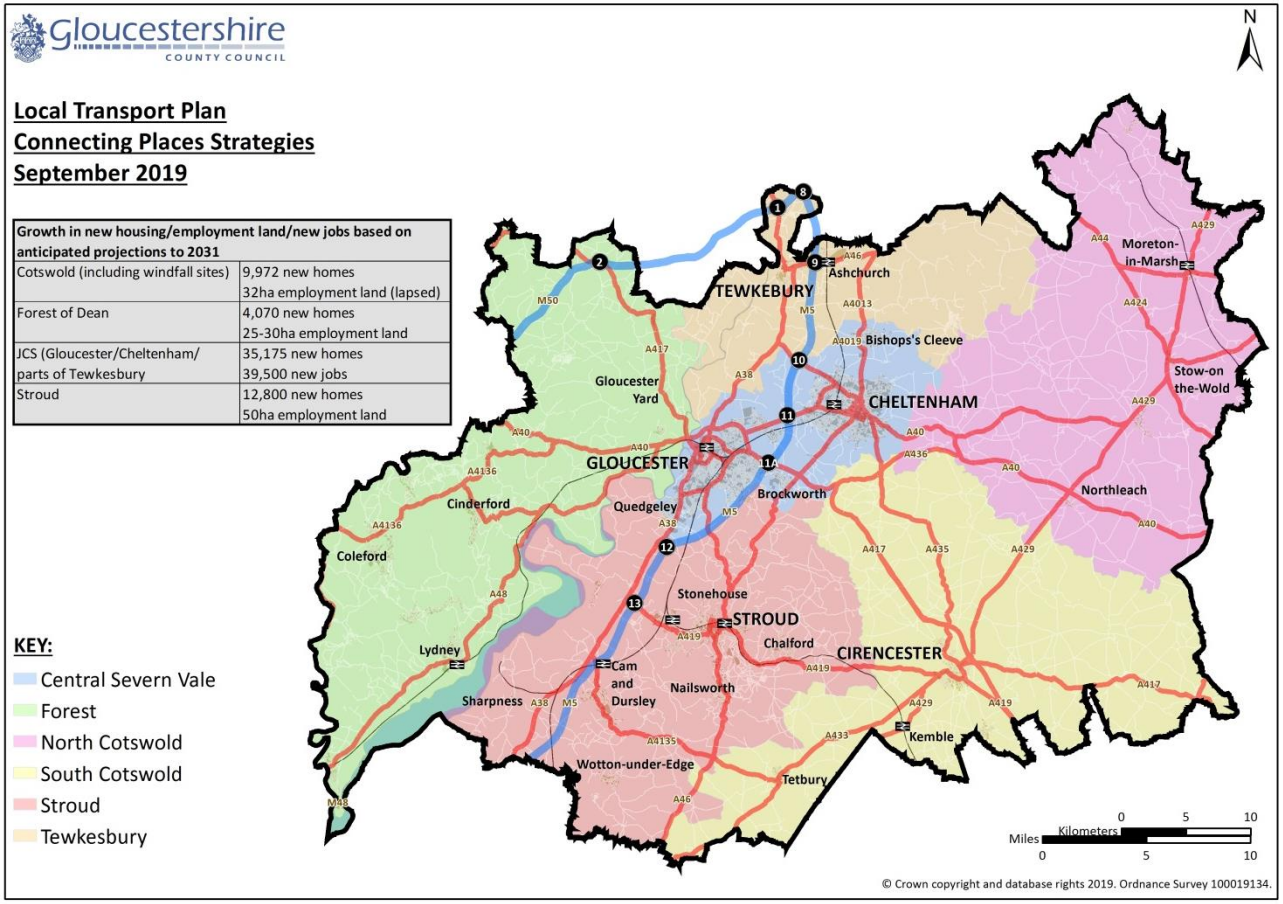
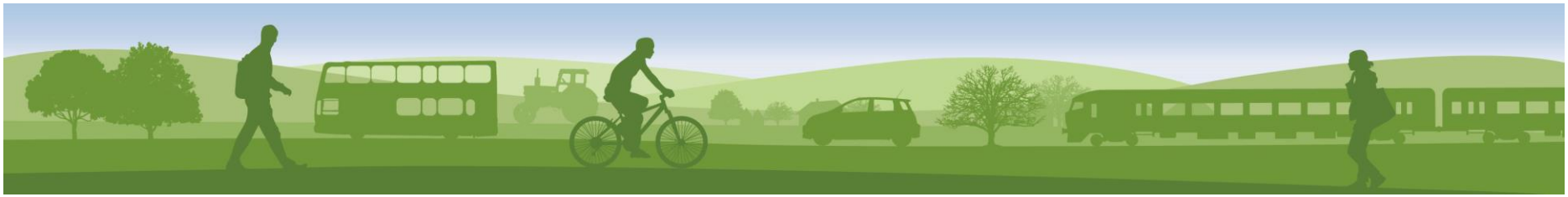


Figure PD0 (6) – Gloucestershire's Growth to 2031





2.6. Policy LTP PD 0.5 Community Health and Wellbeing – Supporting Evidence

2.6.1. The challenge for Gloucestershire will be to provide an inclusive transport network, accessible for all, which acknowledges the rural nature of the County while providing mobility for all age groups and abilities, including for households without access to a private car (nearly 20% of Gloucestershire's households). This will be particularly important for Gloucestershire's pockets of deprivation which include eight of the most deprived wards in England.[26] These wards suffer from rates of low income, unemployment, low educational attainment, poor health and housing. For this reason, access to affordable travel options including active travel options, public and community transport is essential to provide continued accessibility to healthcare, education, employment, skills and training for all. Gloucestershire's current level of accessibility of key services is measured and mapped through Inform Gloucestershire.[27]

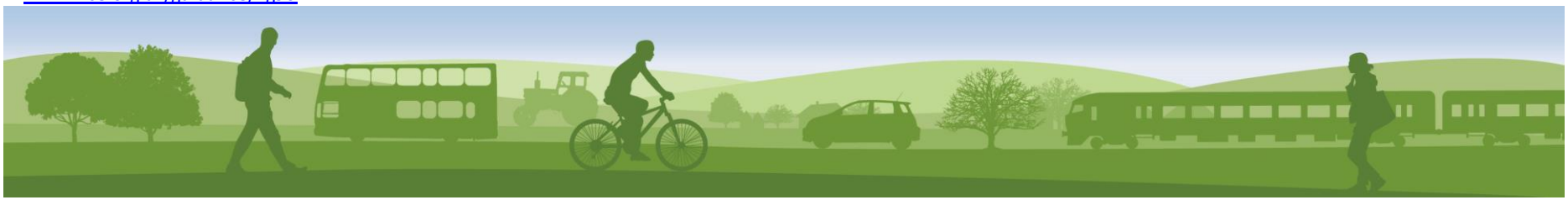
2.6.2. Active travel modes will be important to improving health, wellbeing and accessibility for all. The use of a cycle network extends the radius in which people may look for work and access education and services considerably, especially with the introduction of e-bikes. It helps reduce social exclusion often within the groups experiencing the greatest isolation. For some people with disabilities cycling can allow them to engage in work and education opportunities. It can also be instrumental in helping them improve their mental and physical wellbeing.[28]

2.6.3. The switch to more active modes of travel (walking and cycling) and away from the private car usage can provide opportunities for physical activity as an integral part of daily activities. Heart disease, respiratory disease, stroke and cancer are amongst the most common causes of death in the UK. Adults who are physically active have a 20-30% reduced risk of premature death and up to 50% reduced risk of developing major chronic diseases such as coronary heart disease, stroke, diabetes and cancer.

2.6.4. The National Institute for Clinical Excellence (NICE) has produced guidance on the importance of place making and urban environments which promote walking and cycling as a means of improving public health.[29] Good urban design can also attract investment, create jobs and improve quality of life.

2.6.5. NICE Quality Statement [QS:183] Physical activity: encouraging activity in the community[30] recommends that local authorities prioritise pedestrians, cyclists and people who use public transport when developing and maintaining connected travel routes; that workplaces have a

[26] https://inform.gloucestershire.gov.uk/deprivation
[27] https://inform.gloucestershire.gov.uk/accessibility-transport-and-internet/accessibility-transport
[28] https://wheelsforwellbeing.org.uk/wp-content/uploads/2018/02/v2-Nov-2017.pdf
[29] www.nice.org.uk/guidance/ng90



physical activity programme to encourage employees to move more and be more physically active including having evidence that employees receive information tailored to the workplace about accessible walking and cycling routes which include public transport options, distances involved, cycle parking, maps, routes, alternative route directions and safety; and that schools and early years settings have active travel plans that are monitored and updated annually.

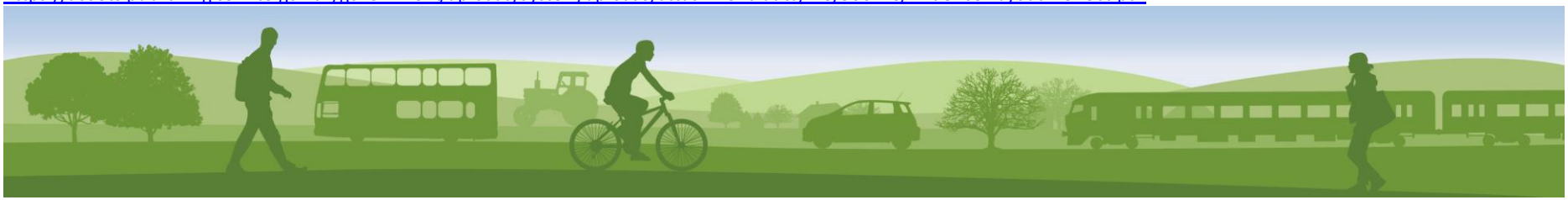
2.6.6. NICE quality standard 181 Air pollution: outdoor air quality and health (2019)[31] recommend that: local authorities identify in the Local Plan, local transport plan and other key strategies; how they will address air pollution, including enabling zero and low-emission travel and developing buildings and spaces to reduce exposure to air pollution; that local planning authorities assess proposals to minimise and mitigate road-traffic-related air pollution in planning applications for major developments; and that public sector organisations reduce emissions from their vehicle fleets to address air pollution.

A number of **good practice guides** have been produced including:

Healthy Placemaking Report, Design Council[32]
Urban Design Guide[33]
Manual for Streets, DfT and GCC technical specifications
Sport England Active Design guidance[34]
'Everybody active, every day. What works: the evidence[35]

2.6.7. A reviewed Gloucestershire Joint Health & Wellbeing Strategy will be launched later in 2019, following extensive community and partner consultation. The new strategy contains seven priorities of relevance to a lesser or greater extent to the transport strategy for the county; physical

[30] www.nice.org.uk/guidance/qs183/chapter/Quality-statements (QS:183), June 2019
[31] www.nice.org.uk/guidance/QS181
[32] Source -Healthy Placemaking Report, Design Council - www.designcouncil.org.uk/sites/default/files/asset/document/Healthy_Placemaking_Report.pdf
[33] Source- National Association of Transportation Officers https://nacto.org/publication/urban-street-design-guide
[34] www.sportengland.org/facilities-and-planning/active-design
[35] Source Public Health England –'Everybody active every day – what works: the evidence
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/366113/Evidence_layout_23_Oct.pdf



activity, adverse childhood experiences (ACEs), mental wellbeing, social isolation and loneliness, healthy lifestyles (initially focusing in reducing obesity), early years and best start in life and housing. In regard to community safety, there are links to this strategy and the strategic priorities set out in the Police and Crime Commissioner's Plan and Gloucestershire Constabulary's Strategic Threat Assessment. The new board, 'Safer Gloucestershire' will work closely with local authorities to support a county where people live well together and feel safer.

2.6.8. Active Gloucestershire is the local Active Partnership whose vision is to get everyone in Gloucestershire active every day. To this end Active Gloucestershire is the lead organisation for a whole systems behaviour change programme, called 'We Can Move' (formerly Gloucestershire Moves)[36] Gloucestershire County Council's Thinktravel programme supports the principles of Active Gloucestershire, providing travel choices that enable active travel as part of daily activity for all.

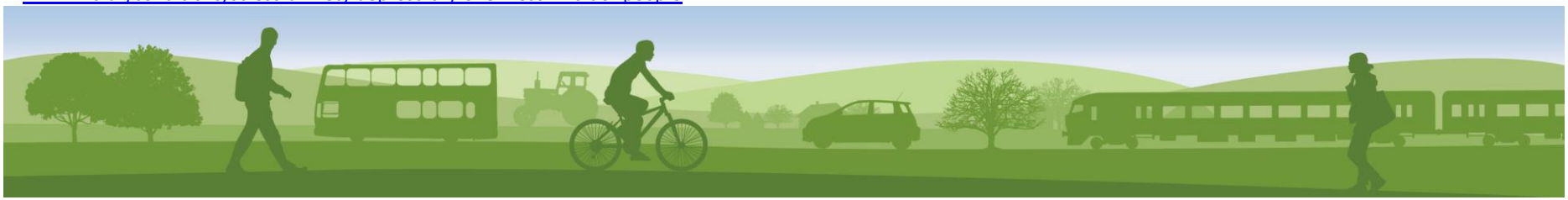
2.6.9. Consideration of 'Human Health' is a legal requirement in the **Integrated Sustainability Assessment** (ISA) in the LTP accompanying documents. A health impact assessment (HIA) is an integral part of the ISA to identify and inform health issues in the Local Transport Plan. The HIA should provide an evidence base for the LTP and help to mitigate the negative effects of transport on health and well being. It addition, the HIA can help to:

- Coordinate the public health concerns in respect of air quality, noise and climate change, and
- Contribute to the wider agenda relating to quality of life and reducing health inequalities.

2.6.10. Improving public health is important in achieving long-term savings in health care. The Gloucestershire Integrated Care System (ICS)[37] includes three priorities, one of which is that "*there will be more support for people to stay healthy and independent and develop active communities that promote prevention and self-care."*

2.6.11. Wellbeing is also strongly linked to how connected individuals are to services and communities. According to the NHS, Older people are especially vulnerable to loneliness and social isolation, which can have a serious effect on health.[38] With an ageing population in Gloucestershire, providing a high level of community connectivity, accessible to all, is therefore a key objective of this LTP. Along with this is the recognition of the benefits to health and wellbeing from other policies that protect and enhance; biodiversity net gain, blue and green infrastructure, landscapes, townscapes

[36] www.activegloucestershire.org
[37] www.england.nhs.uk/integratedcare/integrated-care-systems/gloucestershire-ics
[38] www.nhs.uk/conditions/stress-anxiety-depression/loneliness-in-older-people



and the historic environment from the adverse effects of transport, these are outlined also in the policy document on **Public & Community Transport** policy document.

2.7. Policy LTP PD 0.6 Thinktravel - Influencing Travel Behaviour – Supporting Evidence

2.7.1. Behavioural change is at the heart of the aims and objectives set out in this Plan. Gloucestershire's Thinktravel initiative aims to inform, educate and inspire people to make journeys in a smarter, more sustainable way and therefore reduce single occupancy car journeys on the transport network. The Thinktravel initiative is supported by an online information portal providing information about sustainable travel options such as walking, cycling, using public transport and car sharing aimed at individuals, communities, schools and businesses.

2.7.2. As part of Local Sustainable Transport Fund (LSTF) delivery, segmentation analysis was used to determine, street-by-street, people's probable propensity in the Cheltenham and Gloucester to change travel habits and to what modes. [39] This is particularly relevant in a county with large rural areas and an urban core, which will require very different approaches to the challenge of convincing people to travel more actively and sustainably.

2.7.3. Transfer from car to other modes is most likely in larger urban settlements with high quality, reliable and frequent public transport. Levels of walking and cycling are also strongly influenced by feelings of personal safety.

2.7.4. To enable greater awareness of travel choice, each CPS area will require its own bespoke approach to behavioural interventions covering local cultural, social and economic factors. As these types of measures rely so heavily on human choice and perception, it will be essential for Local Plans and, importantly, Neighbourhood Plans to embed smarter choices tools within these localised strategies.

2.7.5. Reliable, up to the minute travel information on travel conditions can influence travel behaviour. GCC will increase the role of technology to assist in the dissemination of journey information. There are several tools available to support this and, as funding becomes available, GCC will aim to upgrade its travel information offer through the Thinktravel web portal.

[39] Segmentation or mosaic analysis considered propensity for mode shift at a street level; Propensity is affected by the extent to which residents can use a mode other than the private car to make some of their daily journeys combined with the extent to which they might want to

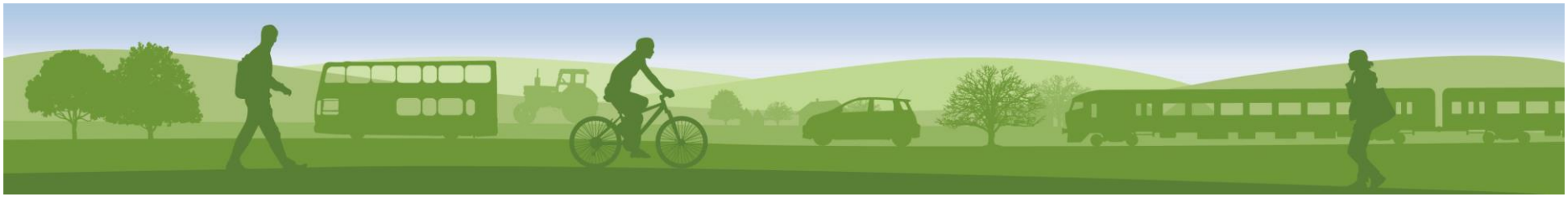
3. Summary of Evidence Supporting Public & Community Transport Policies (PD1)

3.1. Public & Community Transport Policies - Context

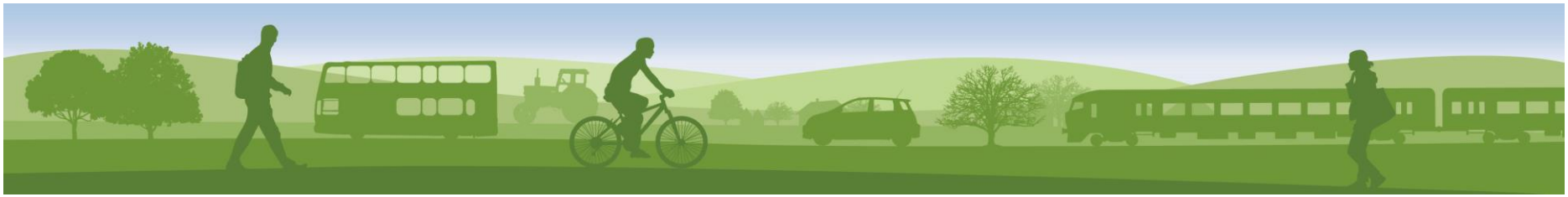
3.1.1. This chapter covers the LTP overarching policies set out below. The supporting summary evidence base is discussed for each policy in section 3.2 – section 3.8 inclusive.

Public & Community Transport Policies
LTP PD 1.1 Gloucestershire's Bus Network
LTP PD 1.2 - Improving the quality of road based public transport
LTP PD 1.3 - Bus Priority
LTP PD 1.4 - Coach Travel
LTP PD 1.5 - Community Transport
LTP PD 1.6 - Transport Interchange Hubs
LTP PD 1.7 Communicating Travel Information

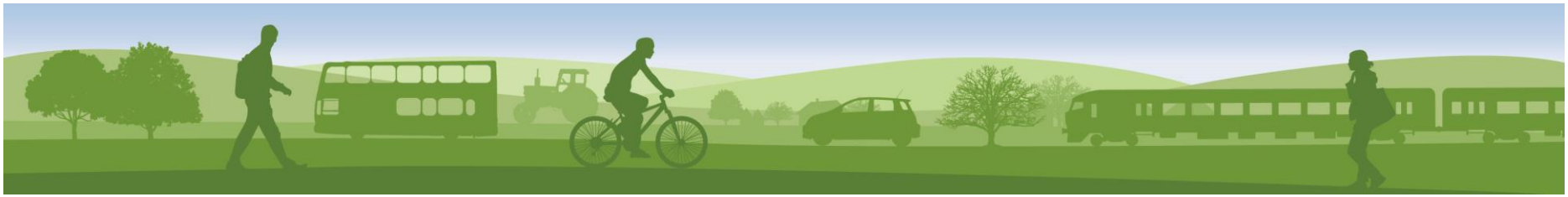
3.1.2. The graphic following shows how the LTP Public & Community Transport policies link to the LTP Objectives and how the Public & Community Transport policies will contribute to achieving these objectives. It also clearly indicates the expected policy outcomes for each Public & Community Transport policy as well as investment priorities needed to support these policies.



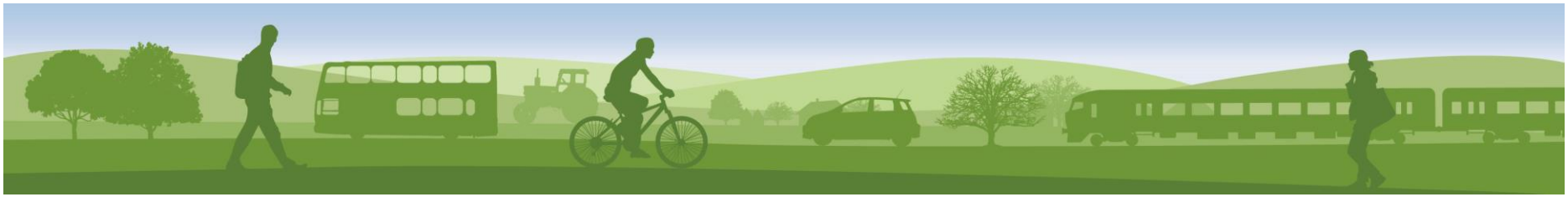
LTP objectives for Public & Community Transport	Public & Community Transport LTP Policies
Protect and enhance the natural and built environment • Reduced transport derived carbon emissions • A reduction in solo car use, and an increased uptake of sustainable transport modes (walking, cycling and public transport) • Transport schemes are designed to reduce the adverse impacts on Gloucestershire's high quality natural, built and historic environments	**LTP PD 1.1** **Gloucestershire's Bus Network**
Support sustainable economic growth • The transport network is reliable, accessible, efficient, reliable fit for purpose and demonstrates value for money • Increased journey time reliability • Greater economic activity • Increased footfall in retail areas • A thriving tourist industry which benefits from ease of access to the county's natural, built and historic environmental assets	**LTP PD 1.2** **Improving the quality of road based public transport**
Enable safe and affordable community connectivity • Individuals benefit from economic prosperity and social benefits, such as being able to access employment , education and training • A financially sustainable passenger transport network • Reduce risk of social isolation • An integrated transport network which provides genuine transport choices for all ages and abilities • A transport network which provides individuals with the confidence to consider all travel choices	**LTP PD 1.3** **Bus Priority** **LTP PD 1.4** **Coach Travel** **LTP PD 1.5** **Community Transport**
Improve community health and wellbeing and promote equality of opportunity • Less car trips resulting in fewer journey delays • Improved air quality • A healthy more active population, , supporting physical and mental health and wellbeing • Better safety, security and health by reducing the risk of death, injury or illness arising from transport • Access to services, employment, education, training, amenities and a social network	**LTP PD 1.6** **Transport Interchange Hubs** **LTP PD 1.7** **Communicating Travel Information**



Public Transport LTP Policies	Expected Policy Outcomes	Investment priorities include
LTP PD 1.1 Gloucestershire's Bus Network	The implementation of this policy will result in a fit for purpose and financially sustainable bus network that provides strong connections for Gloucestershire to allow everyone to benefit from economic prosperity and the social benefits that the bus network has the potential to provide.	The priorities for maintaining a functioning bus network include: • A40 bus corridor improvements, Cheltenham • A438 / A46 bus corridor improvements, Tewkesbury • A4019 bus corridor improvements, Cheltenham • Interchange Hubs, both local and strategic • Bus advantage improvements for Bruton Way • Bus advantage at signals at Innsworth Lane and Oxstalls Lane
LTP PD 1.2 Improving the quality of road based public transport	The implementation of this policy will result in affordable and focused investment in the bus network that will increase the demand, accessibility, service quality and safety of bus travel in Gloucestershire. The mix between investment and affordability will be tackled through maximising funding opportunities, prioritising investment via the Bus Hierarchy and the formal appraisal of bus investment schemes. Our Integrated Transport Unit (ITU) work with key partners to maintain inward investment into local bus services. Going forward, the opportunities for funding will come from a greater range of sources and ITU will act as a central point of contact for discussions with developers regarding contributions and designs of their schemes.	The priorities for investing in the bus network includes following schemes: • Ongoing bus infrastructure improvements to existing stops including the upgrade of facilities such as Real Time Passenger Information, bus shelters and information availability • Introduction of contactless payment mechanisms for remaining major bus operators to facilitate multi-operator SMART ticketing • Bus Corridor Improvements – Cheltenham – Gloucester via Churchdown. • Bus Corridor Improvements Tewkesbury- Cheltenham • Bus Corridors Improvements - Lydney – Gloucester / Lydney-Coleford-Cinderford / Coleford-Cinderford-Gloucester; and Bus Corridor Improvements - Stroud – Gloucester
LTP PD 1.3 Bus Priority	The implementation of this policy will develop the network of bus priority measures and maintain the efficient and safe use of bus lanes.	The priorities for investing in bus priority measures are provided in the schemes tables in the Delivery chapter.
LTP PD 1.4 Coach Travel	The implementation of this policy will enhance coach travel in and out of the county resulting in more travel choice available for long distance travel.	Encourage coach travel to support the county's bus network.



Public Transport LTP Policies	Expected Policy Outcomes	Investment priorities include
LTP PD 1.5 Community Transport	The implementation of this policy will result in an enhanced role for community transport type schemes within Gloucestershire, in particular by providing better access to rural areas where subsidy levels for conventional bus services are too high and providing more accessible services for all.	The priorities for delivering a strong and engaged Community transport offer to those with limited choice include: • Providing support towards the delivery of passenger transport in partnership with local communities to maintain quality of life. • Through Fastershire improve broadband connectivity to increase awareness of Thinktravel initiatives, travel information and service delivery. • Advice and training for local communities regarding community transport permits and service planning.
LTP PD 1.6 Transport Interchange Hubs	The implementation of this policy will result in more integrated travel choices for transport users through the availability of strategic and local interchange facilities. These sites will offer more financially secure services, the ability to encourage increased levels of physical activity through the promotion of active travel and infrastructure connections to/from sites, support demand responsive services, and a greater opportunity to reduce the number of private vehicles in urban areas, with the associated benefits for the environment and journey travel times.	• Priorities include the delivery of strategic and local interchange facilities located on existing very high frequency routes 'core super routes' and high frequency routes, respectively. New interchange hub schemes are subject to feasibility studies and site prioritisation will be based on capacity, likely mode transfer and bus frequency • Existing strategic interchange sites will continue to be developed and improved by GCC, with the long term aim of reducing financial subsidy, without undermining the frequencies and facilities. Any new strategic interchange sites will need to demonstrate their commercial viability.
LTP PD 1.7 Communicating Travel Information	The implementation of this policy will provide comprehensive yet simple information about journey times, reducing information as a barrier to public transport and community transport use in Gloucestershire.	• Enhanced passenger waiting facilities including RTPI at bus stops in market towns and interchange hubs. • Simplify bus travel information through real-time applications such as GlosTalk and website portal Thinktravel.



3.2. Policy LTP PD 1.1 – Gloucestershire's Bus Network – Supporting Evidence

3.2.1. Investing in Gloucestershire's bus network is critical, as poor bus connections, services and network efficiency undermines links between people, places and businesses. Local bus services play a key role in enabling communities to function and the local economy to prosper. Local bus services aim to provide:

- Opportunities to access work and services, facilitating economic development and improving quality of life – this is particularly the case for population groups without access to private transport, such as the elderly, mobility impaired, rural communities and the increasing proportion of young people who chose not to drive
- Environmental and public heath improvements resulting from reduced car use (particularly in respect of air quality, noise and pollution)
- Improved road safety as public transport options are safer than using the car
- Significant increase in carrying capacity and efficient use of road space, especially compared to the single occupancy car driver
- Reducing the cost of congestion to businesses
- Equality benefits as public transport options are more affordable and accessible to younger, older, disabled and lower income users.
- Active life styles and healthier communities
- Public realm improvements by reducing traffic volume and severance in town centres

3.2.2. Gloucestershire Bus Network is supported by Bus Network Standards to ensure GCC aim for an efficient network. In order to meaningfully target resources and identify opportunities, in **Table PD1 (a)**, the Bus Network Standards sets out where subsidy and investment will be targeted. Tier 1 do not receive subsidy, this is targeted where most needed in Tier 2 & Tier 3 that serve inter-urban and rural areas of the county. The 'core' bus network is entirely within urban areas, and should be expected to run commercially every 30 minutes or less, where the existing and potential high frequency 'core' bus network, would be the priority for bus priority investment. As a result this is likely to involve a higher minimum peak frequency of every 15 minutes or better. GCC recognises the need to improve rural and inter-urban connectivity through a variety of interventions. The LTP seeks to strengthen the overall mobility offer in rural areas, including conventional bus services on key routes, demand responsive bus services and wider mobility solutions. The identification of local Interchange Hubs will be a central component of a rural mobility strategy, as a focal point, where these mobility solutions come together and passengers can interchange.

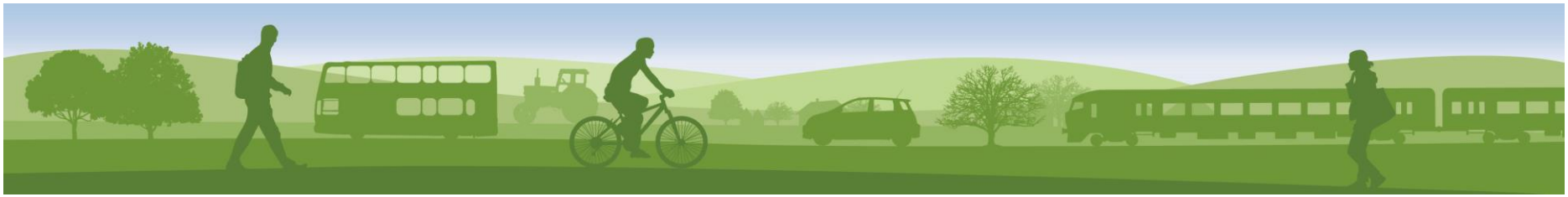
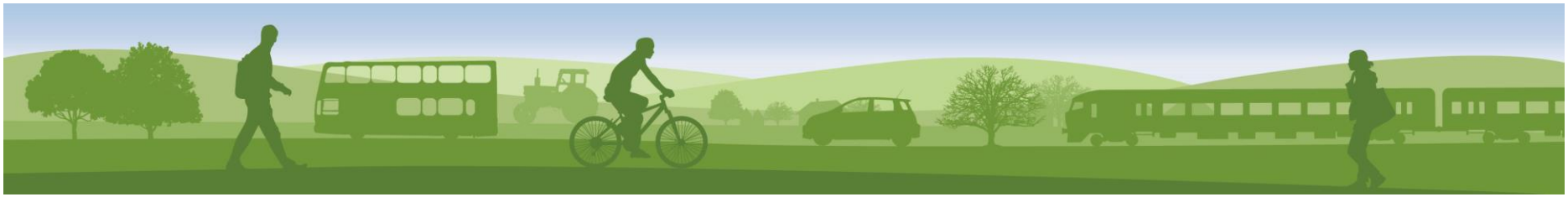


Table PD1 (a) - Bus Network Standards – towards an effective network

Core Services (Tier 1)	High frequency core bus services (mostly commercial), on a route that is one or more of: • Commercially operated (i.e. no GCC subsidy) • High frequency (one bus every 30 minutes or less) • High use (a minimum of 250,000 passenger trips per year) • Inter-urban (operating between 2 urban areas of at least 20,000 population) • Intra-urban (operating entirely within an urban area of at least 20,000 population)
Intermediate (Tier 2)	Frequent bus services (mixture of commercial and subsidised), on a route that is one or more of: • Partially commercial (GCC subsidises a maximum of 50% of the route) • Medium frequency (one bus every 31-180 minutes) • Medium use (50,000-250,000 passenger trips per year) • Part urban (serves at least one urban area of at least 10,000 population)
Supported Services (Tier 3)	Supported bus services (infrequent and mostly subsidised), on a route that does not meet any tier 1 or 2 criteria, likely to include: • Majority or entirely subsidised • Low frequency (2 buses per day or less) • Low use (under 50,000 passenger trips per year) • Rural (no urban centres of at least 10,000 population)

3.2.3. There are a number of different bus operators in the county, ranging from those who operate a single route only to those such as Stagecoach who operate a large number of routes, for example the majority of the network in Cheltenham and Gloucester. One of the challenges facing bus service provision in the county is that current services are focussed on radial movements; however, orbital movements are likely to become more important as areas on the edge of key settlements are developed for housing and employment.



3.2.4. GCC spends about £3 million p.a. supporting various bus and community transport services. In rural areas, bus use and provision has been reducing, such that supported service in those areas often provide poorer value for money. However, many needs still exist in these areas. Therefore, a new model of provision will be needed, which provides more appropriate solutions that make good use of new technology. This is likely to include agile, innovative, MaaS and community-based solutions, where transport is flexible and responsive. A change in public, community and users' expectations will need to occur, with all interested parties becoming more involved in the design and provision of services, some of which might be crowd-funded. Equally, solutions may well be car based on car share and lift sharing, rather than bus.

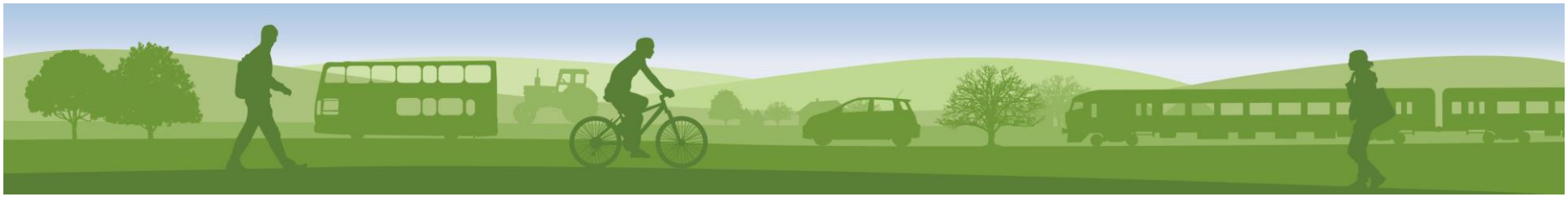
Concessionary Travel Scheme

3.2.5. GCC continues to administer the English National Concessionary Travel Schemes within Gloucestershire for those of pensionable age or with a qualifying disability, meeting the full terms of the legislative requirements related to the provision of concessionary bus passes to those entitled to them. GCC also considers discretionary elements for the scheme to ensure they maximise opportunities to reduce social and rural isolation.

3.2.6. The scheme has 'spill-over' benefits to other groups and policy areas such as enhanced bus service frequencies driven by enhanced demand, less reliance on bespoke alternative transport, such as patient transport, complementing health care objectives and other county council strategies such as Single Adult Programme. The aim is to reduce reliance on the private car and provide the ability to travel that might not otherwise be available to some concessionary bus pass holders, opening up travel opportunities that support healthy, safe and engaged communities. Concessionary travel reimbursement rates for operators are set by the Department for Transport calculator. Gloucestershire offers a slightly higher level or reimbursement recognising the importance of a healthy commercial bus network. Further information can be found here: www.gloucestershire.gov.uk/transport/apply-for-a-free-concessionary-bus-pass.

Home to School Transport

3.2.7. Home to School bus services are contracted transport services that operate across Gloucestershire. In 2019 GCC carry around 5,200 young people per day on transport services funded by the council. The remainder find their own way by local bus services, privately commissioned school transport, cycling, walking and car. Policy changes regarding post 16, grammar and faith schools have brought the number of funded bus passes for students down considerably.

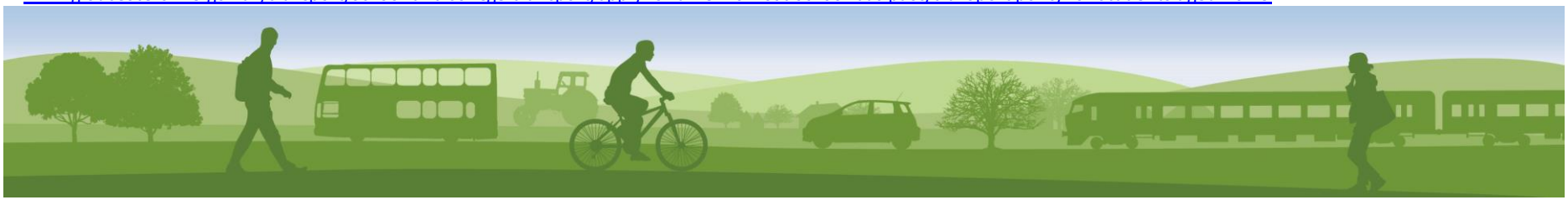


3.2.8. GCC has a statutory requirement to ensure that all children are able to access compulsory school age education, as poor access to schools can be a cause of deprivation and social exclusion. To meet this requirement GCC has published its home to school transport policy[40] for children between 4-16 years on the GCC website. It states which 4-16 year olds are entitled to bus passes and how to apply for them.[41]

3.2.9. Students post 16 years are not entitled to receive free transport to their school/college. Transport assistance for most students aged over 16 is a discretionary provision, however, the county council remains committed to ensuring that all students receive access to education and will continue to meet best practice expectations set out within the home to school travel policy guidance.[42]

3.2.10. GCC continues to work with bus operators to ensure driver standards subject to DBS checks and a high quality bus fleet with CCTV and compliant with the latest emission standards and Government (VOSA) safety regulations for all council contracts operating home to school transport.

[40] www.gloucestershire.gov.uk/media/2082383/transport-policy-update-sept-18.pdf
[41] www.gloucestershire.gov.uk/transport/school-and-college-transport/apply-for-a-new-or-lost-school-bus-pass
[42] www.gloucestershire.gov.uk/transport/school-and-college-transport/apply-for-a-new-or-lost-school-bus-pass/transport-policy-for-students-aged-16-19



3.3. Policy LTP PD 1.2 – Improving the quality of road based public transport – Supporting Evidence

3.3.1. Buses have a key role to play in reducing transport emissions and GCC's target to become carbon neutral by 2045. The potential to reduce greenhouse gas emissions through mode shift to buses is considerable, as buses accounted for only 2.6% of transport emissions in the UK in 2017[43]. However, the challenges to achieve this mode shift are equally great with bus vehicle traffic declining by 18% over that last 5yrs and Gloucestershire's bus passenger journeys reducing by 1.1% in 2017/18 compared to the previous year, although this is still better than the national decline in bus passenger journeys of 3.2% (England outside London).[44]

3.3.2. County wide just 4% of travel to work is by bus. Only in the main urban centres of Cheltenham and Gloucester is bus use comparable with the national average of 7%. The areas of Cotswolds, Forest of Dean and Stroud have particularly low bus usage for travel to work, reflecting their more rural character. This is concerning, not only for environmental reasons, but also because a lack of transport is recognised as a barrier to access employment and other services.

3.3.3. In 2018/19, 20.0 million passenger journeys in Gloucestershire were made by bus. Of these, 29% were made by older and disabled people holding concessionary travel passes.[45] Such journeys have reduced in recent years from 6.7 million in 2010/11 to 5.4 million in 2018/19 partly due to demographic changes and the eligible age rising to 66yrs for pensionable concessionary pass holders.

3.3.4. Concessionary travel users influence the inter-peak bus service provision. The rise in pensionable age for women in particular has seen falling concessionary journeys over the last 5 years but for bus operators this has been offset by a rise in fare paying passengers, making inter-peak services more commercially viable. **Figure PD1 (1)** illustrates the frequency of services operating across Gloucestershire bus network.

[43] www.gov.uk/government/statistics/final-uk-greenhouse-gas-emissions-national-statistics-1990-2017
[44] www.gov.uk/government/statistics/annual-bus-statistics-year-ending-march-2018
[45] 2018/19 Bus Statistics (Department for Transport)

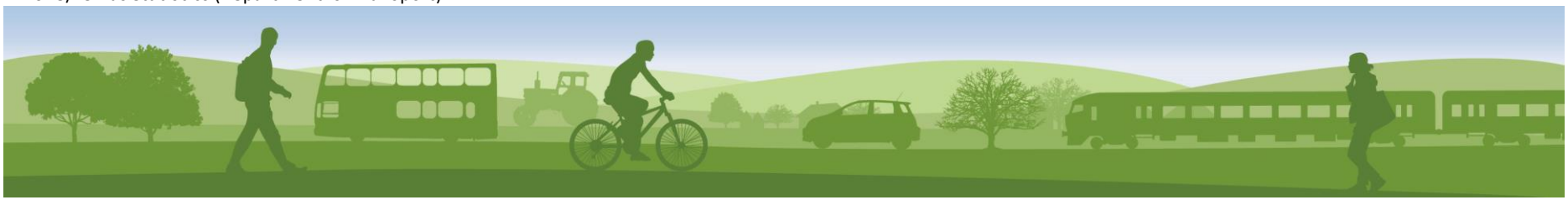
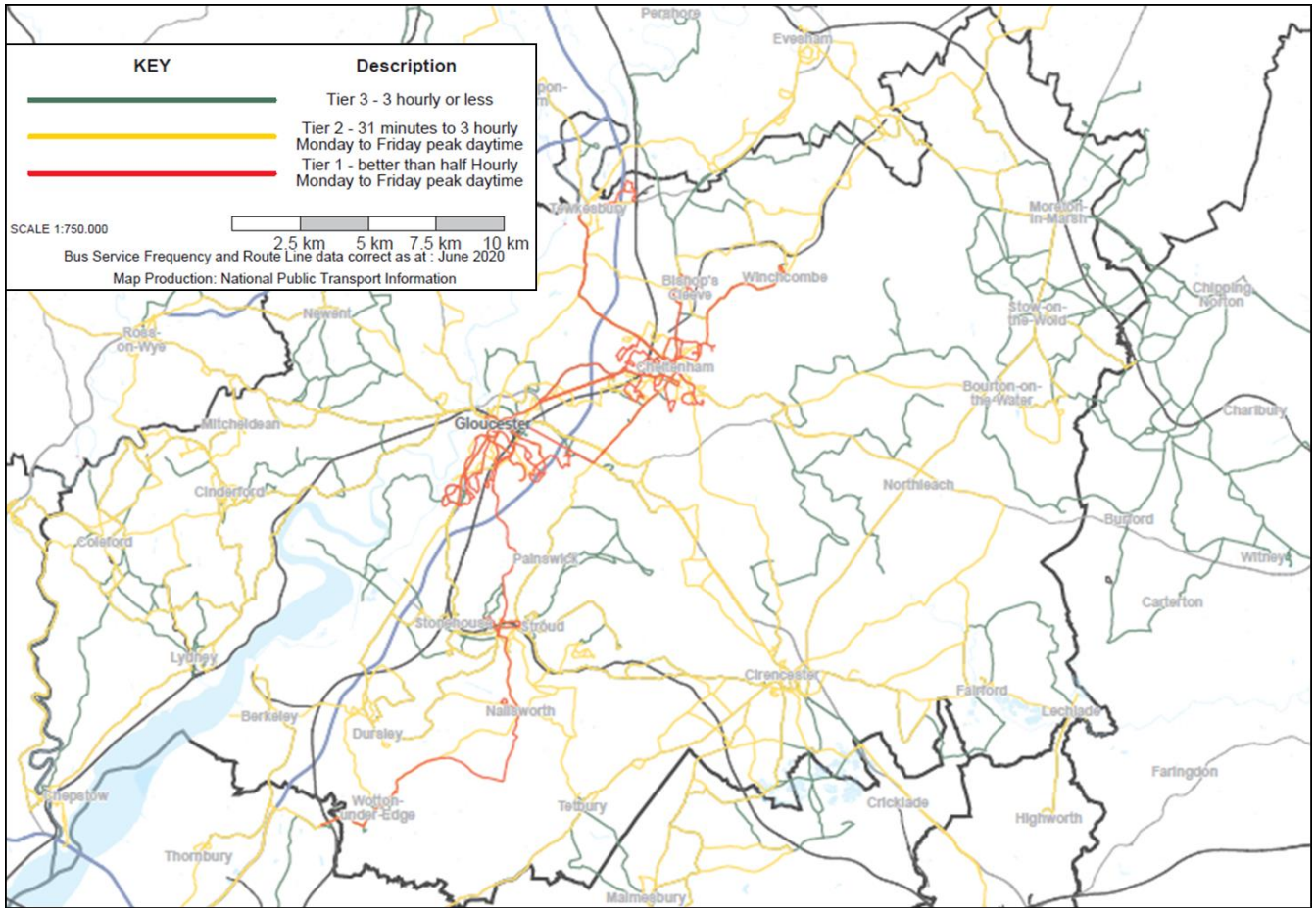
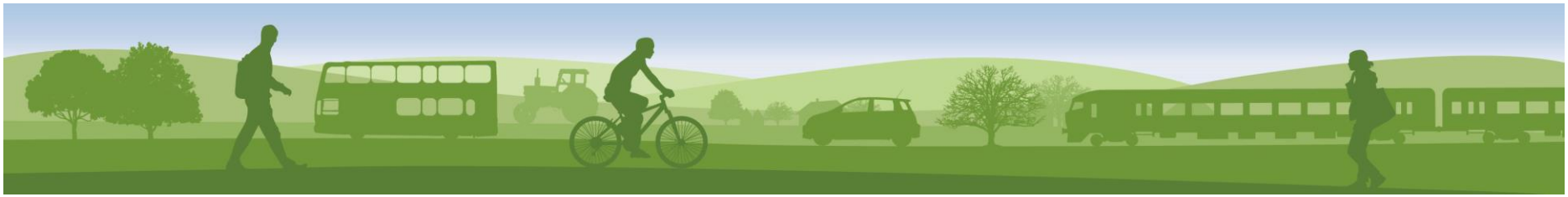


Figure PD1 (1) – Gloucestershire Bus Network (by frequency of bus services)

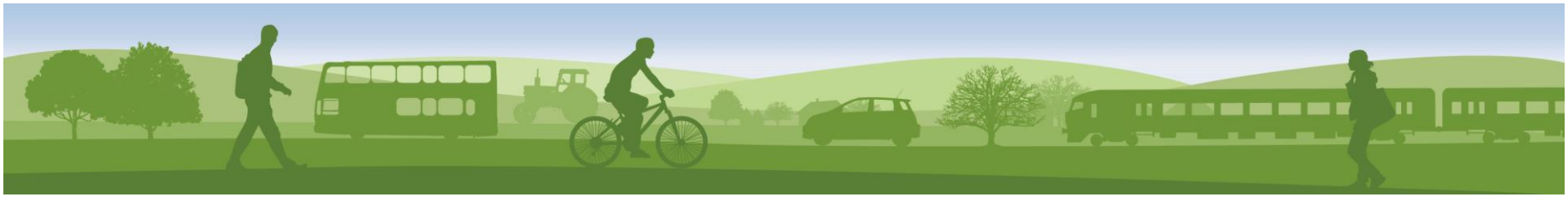




3.3.5. 90% of bus services are operated commercially by private operators. This accounts for most services within the county's urban areas and the major inter-urban routes. Additional subsidised bus and community transport services provide links where demand is less, such as in rural areas, or to meet the needs of vulnerable users. A summary analysis of the existing position regarding bus services in Gloucestershire is shown below in **Table PD1 (b).**

Table PD1 (b) – Gloucestershire Bus Service SWOT Analysis

Strengths	Weaknesses
• Extensive and fairly strong commercial network, with good levels of investment in high quality services • Some Transport Hub provision in place • Budget to support other services • Network of community transport providers • Real time information	• Congestion slows travel times and makes buses unreliable • High car ownership • Poor perception of bus services • Peripheral employment sites poorly served, as bus services tend to be arterial (lack of orbital services) • Non-users find buses difficult to understand • Community transport provision patchy across the county
Opportunities	**Threats**
• Total transport approach to achieve greater integration of different services • Bus Services Act 2017 provides new powers for franchising and enhanced partnerships with opportunities for improved ticketing and information • Funding from development and growth • On-demand transport and technology developments • Young people not as car-dependant • Development of portal to access information about all types of passenger transport services	• Funding reductions for supported services • Worsening road congestion, which will increase costs and lead to reductions in service or unviability • Increasing car ownership and usage • Changing patterns of travel demand (flexible working, on-line retailing and home deliveries)



3.4. Policy LTP PD 1.3 Bus Priority – Supporting Evidence

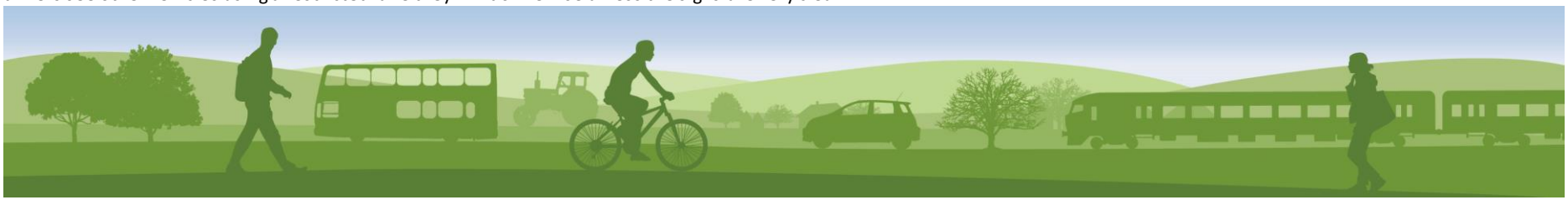
3.4.1. The use of bus lanes and the application of prohibition of driving orders are managed by Traffic Regulation Orders, but the effectiveness of these orders relies on enforcement. In the case of bus lanes there are two options, either the Police as it is a "moving violation" or by the use of Automatic Number Plate Recognition (ANPR) cameras operated by GCC. The latter can be difficult to administer if there are a large number of "other" vehicles permitted to use the lanes as they need to be included on a white list of exempted vehicles. ANPR is only currently used on "bus gates" within the county where the restriction is maintained to only permit local buses, taxis (hackney carriage, but not private hire vehicles) and pedal cycles. Clear signage is also important to ensure bus lanes are used appropriately.[46]

3.5. Policy LTP PD 1.4 – Coach Travel – Supporting Evidence

3.5.1. Long distance coach travel plays a key role in providing long distance road based public transport options and can support the county's bus network, connect to interchange hubs in towns and cities, and provide for tourism into the county, to key locations in and to Gloucestershire.

3.5.2. The majority of long distance services, which provide an alternative travel choice to the car and train mainly for leisure and recreation purposes, are provided by National Express and Megabus, linking Gloucestershire with destinations such as Bristol, Hereford, the West Midlands and London and airports and rail connections to Europe and Ireland.

[46] There are limitations on how bus lanes and prohibition of driving orders can be signed so that they are compliant to TSRGD and therefore enforceable. There is evidence that when some drivers see other vehicles using a restricted lane they will do likewise unless the signs are very clear.



3.6. Policy LTP PD 1.5 – Community Transport – Supporting Evidence

3.6.1. There are several community transport organisations, usually charities in their own right, across the county that focus on meeting needs in their areas. Some schemes collaborate with others to achieve economies of scale or to improve their visibility. The Forest Routes initiative jointly promoted provision and achieved mutual assistance amongst community transport providers within the Forest of Dean.

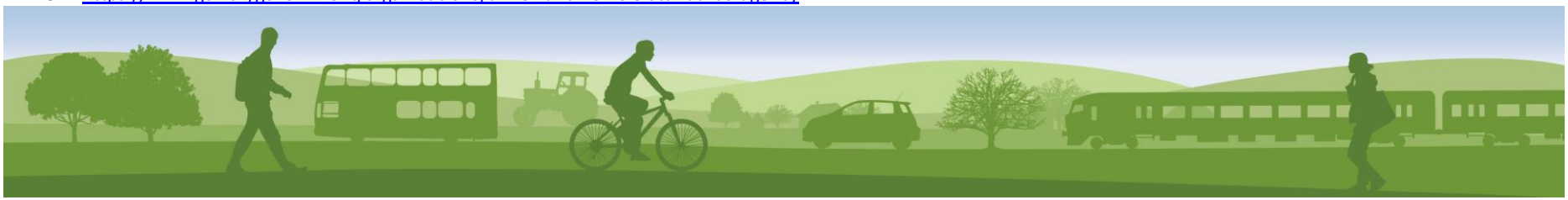
3.6.2. The Department for Transport (DfT) has been consulting on "The use of section 19 and section 22 permits for road passenger transport in Great Britain". The consultation sets out why and how they propose to amend legislation and guidance about who can operate public service vehicles (PSV) without a PSV operator licence, using the system of permits set out in sections 18 to 23A in the 1985 Transport Act. The outcome following a consultation has been announced by the government.

3.6.3. Previously, the DfT and Driver Vehicle Standards Agency (DVSA) took the view that holders of section 19 and 22 permits were exempt from the need to hold a PSV operators licence because they are either engaged in road passenger transport services exclusively for non-commercial purposes or their main occupation is not being a road passenger transport operator. The term 'non-commercial' was equated to not-for-profit and it was assumed that permit-holders would not compete with PSV licence-holders. However, following a legal challenge, these assumptions are no longer sustainable and, as a general rule, if a transport service is provided in return for payment, it should be treated as commercial, even if the organisation providing it operates on a not-for-profit basis.

3.6.4. Since the Transport 1985 Act, some not-for-profit permit-holders have expanded and now compete actively with profit-making PSV licence-holders, particularly for local authority contract work. The Government has consulted on how to clarify domestic law and guidance to ensure fair competition for commercial contracts and greater clarity for operators about their legal obligations. It proposes to amend the 1985 Act to clarify that permits may only be granted to, and held by, organisations that meet one or more of the exemptions set out in the Regulation.

3.6.5. The Department for Transport and the Driving and Vehicle Standards Agency (DVSA)[47] also propose to update their guidance to better explain the circumstances where exemptions may apply and permits may be granted. The Government has no plans to end the permit system.

[47] DVSA - https://www.gov.uk/government/organisations/driver-and-vehicle-standards-agency



3.7. Policy LTP PD 1.6 –Transport Interchange Hubs – Supporting Evidence

3.7.1. Gloucestershire has plans to move towards an interchange model, which is multi-modal and encompasses car share, community transport demand responsive services, bus, rail and bike interchange facilities. These Interchange Hubs will support housing growth pressures, urban traffic congestion, carbon emissions and rural transport challenges.

3.7.2. Transport Interchange Hubs are the future new model to replace existing Park & Ride facilities and consider additional locations. These hubs should be located on strategic rail or bus corridors where existing commercial super high frequency services (core super routes) and frequent services (high frequency) are in place. In addition, Strategic Interchange Hubs will become a vital transport strategy at interchange points on the highway network, e.g., at motorway junctions, such as M5 J10 & J12 where the opportunities to remove traffic from the highway network is greatest and the potential to attract commercial bus services is viable in the long-term.

3.7.3. The Interchange Hub model has potential to provide commercially viable facilities, which attract business rates and other maintenance charges, resourced through parking charges and third party contributions and commercial operator contracts, such as development, private sector, public transport operators.

3.7.4. Transport Interchange Hubs identified in **Figure PD1 (2)** will:

- Identify Core Super Routes. This will be based on the Core Super Routes identified on the below map (though further Core Super Routes in the urban centres of Gloucester and Cheltenham will also be identified).
- Support bus priority along high frequency and core super routes
- Support the implementation of Interchange hubs at all train stations and existing P&R sites as well as at a number of additional locations. These Transport Interchange Hubs will be multi-modal, providing interchange between rail stations, conventional bus services, demand responsive transport options, and active modes of transport

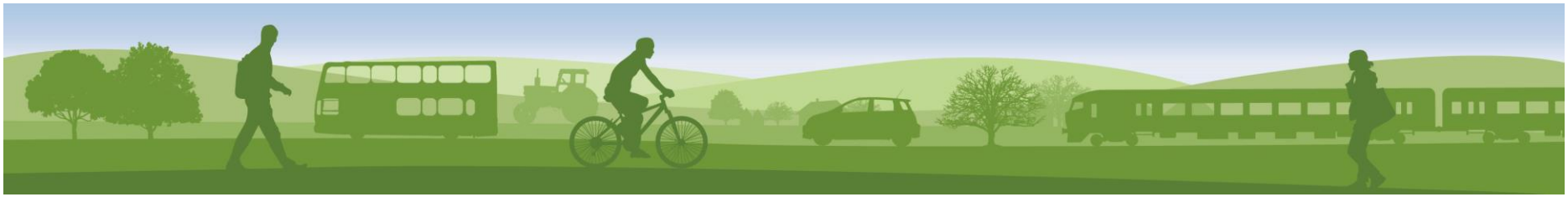
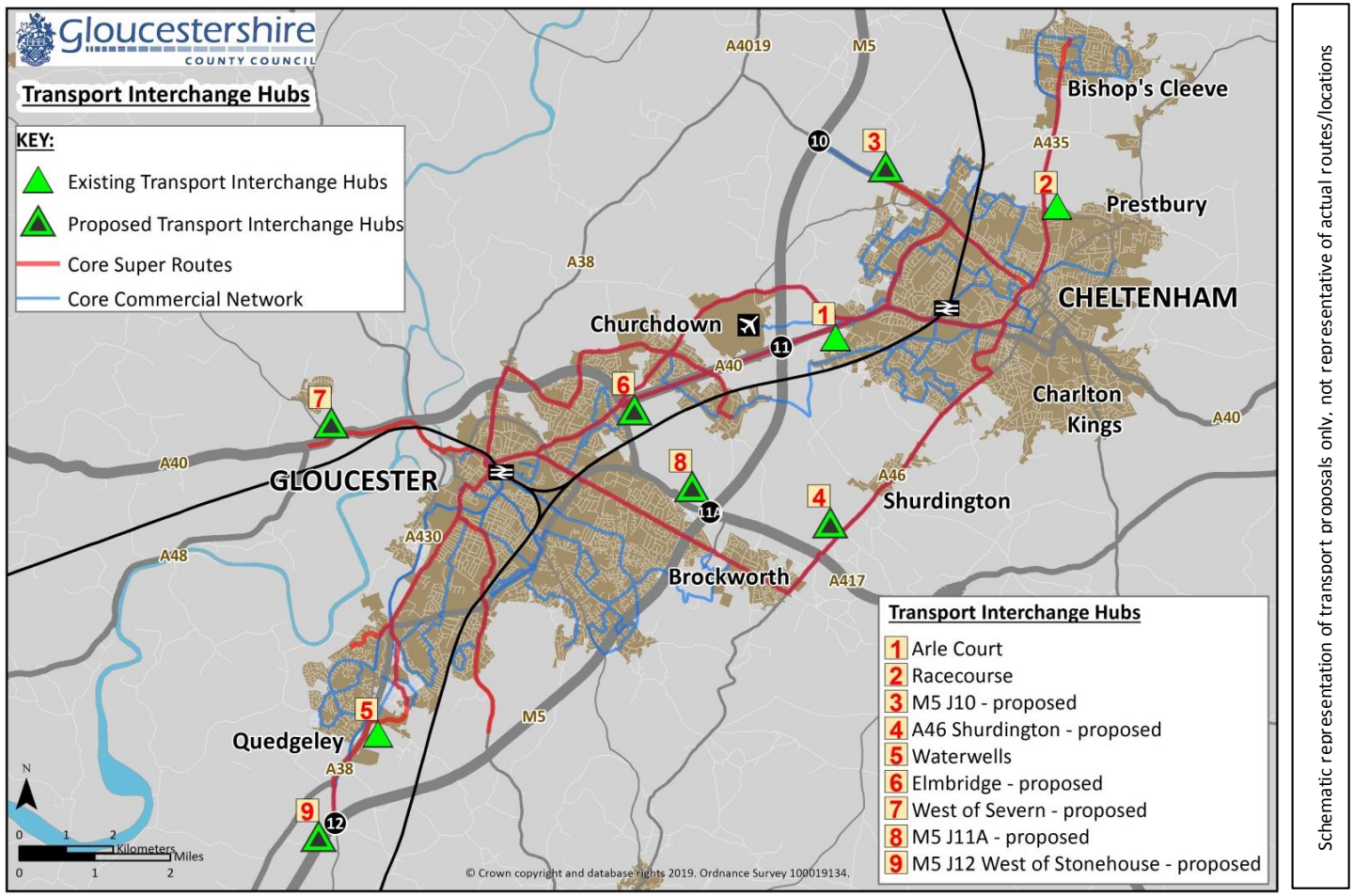
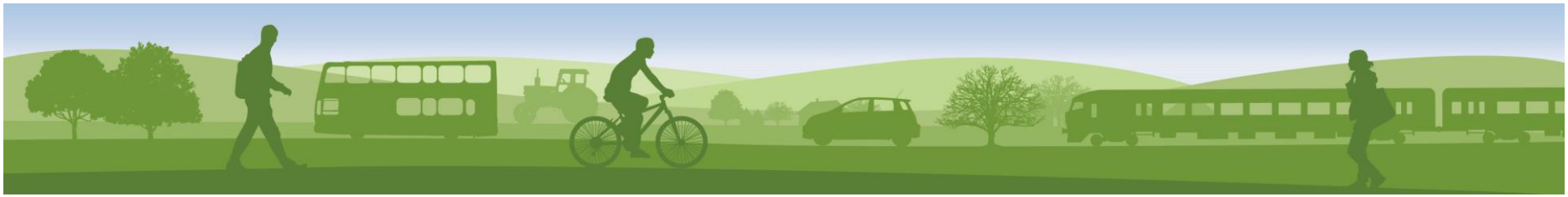


Figure PD1 (2) – Transport Interchange Locations (incl. proposed)

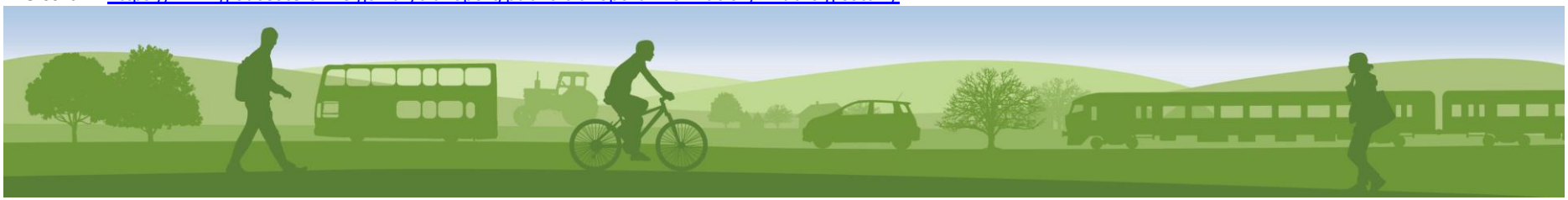




3.8. Policy LTP PD 1.7 – Communicating Travel Information – Supporting Evidence

3.8.1. The availability of good quality travel information is fundamental in supporting the use of buses and enabling travel choice. A lack of information can lead to a reliance on private transport modes increasing demand placed on the highway network. There are a number of technical solutions outlined in the LTP that will improve access to travel information. This includes GlosTalk,[48] is a mobile phone App designed to assist any one who needs to access bus information within Gloucestershire. It provides clear, reliable and accurate information about bus services, in both text and audible format. GlosTalk is designed to deliver seamless travel choices within Gloucestershire while on the move.

[48] GlosTalk - https://www.gloucestershire.gov.uk/transport/public-transport-information/what-is-glostalk/



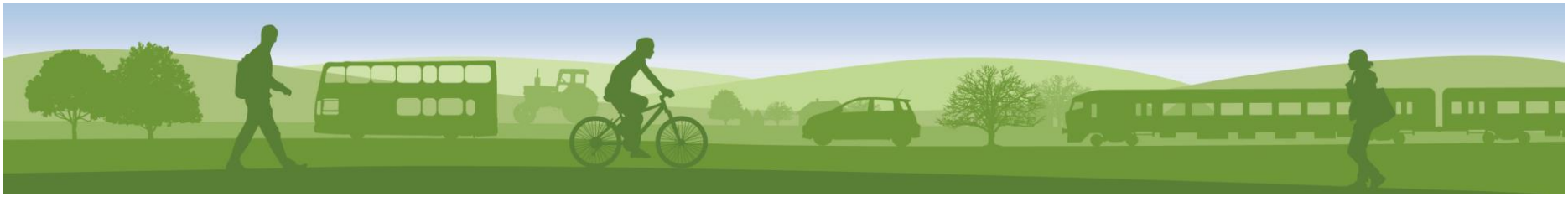
4. Summary of Evidence Supporting Cycle Policies (PD2)

4.1. Cycle Policies - Context

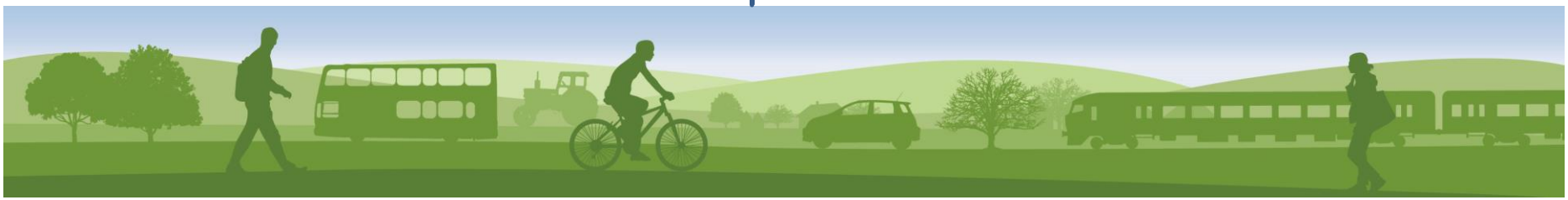
4.1.1. This chapter covers the LTP overarching policies set out below. The supporting summary evidence base is discussed for each policy in section 4.2 – section 4.4 inclusive.

Cycle Policies
LTP PD 2.1 Gloucestershire's Cycle Network
LTP PD 2.2 – Cycle Asset Management
LTP PD 2.3 – Active Travel, Awareness and Confidence

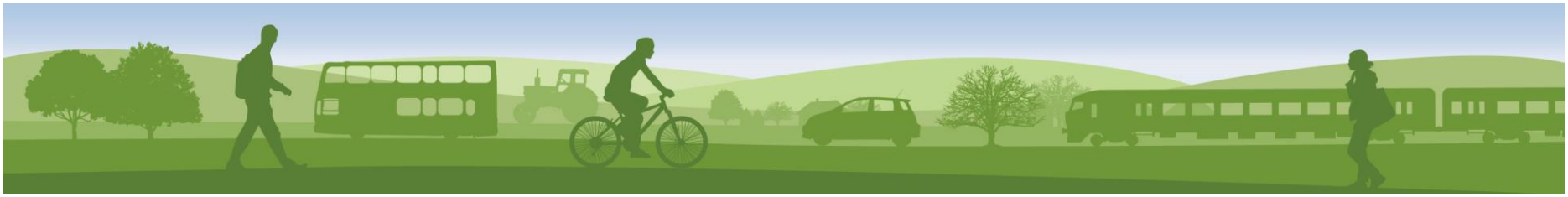
4.1.2. The graphic following shows how the LTP Cycle policies link to the LTP Objectives and how Cycle policies will contribute to achieving these objectives. It also clearly indicates the expected policy outcomes for each Cycle policy as well as investment priorities needed to support these policies.



LTP objectives for Cycling	LTP Cycle policies
Protect and enhance the natural and built environment • Reduced transport-derived carbon emissions • A reduction in solo car use, and an Increased uptake of more sustainable transport modes (walking, cycling and public transport) • Transport schemes that minimise impact on Gloucestershire's natural, built and historic environments	**LTP PD2.1** **Gloucestershire Cycle Network**
Support sustainable economic growth • Gloucestershire is a place to do business and attract investment • The transport network is accessible, efficient, reliable, fit for purpose and demonstrates value for money • Increased journey time reliability • Greater economic activity • Increased footfall in retail areas • A thriving tourist industry, which benefits from ease of access to the county's natural, built and historic environmental assets	**LTP PD2.2** **Cycle Asset Management**
Enable safe and affordable community connectivity • Individuals benefit from economic prosperity and social benefits such as being able to access employment, education and training • An integrated transport network which provides genuine transport choices for all ages and abilities • A transport network which provides individuals with the confidence to consider all transport choices	
Improve community health and wellbeing and promote equality of opportunity • Less car trips resulting in fewer journey delay • Increased number of cycling trips • A more active population, supporting physical and mental health and wellbeing • Improved air quality • Better safety, security and health by reducing the risk of death, injury or illness arising from transport • Access to services, employment, education, training, amenities and a social network	**LTP PD 2.3** **Active Travel: Safety, Awareness and Confidence**



LTP Cycle policies	Expected Policy Outcomes	Investment priorities include
LTP PD2.1 Gloucestershire Cycle Network	This policy will seek to improve the cycle network by: • Utilising opportunities as they arise • Responding to safety requirements • Identifying and addressing barriers to cycle movement Implementation of this policy will focus on the delivery of physical infrastructure, providing more segregated routes for cyclists, together with 'soft' measures to promote cycling as a feasible and attractive mode of travel. A key policy outcome will be greater connectivity within and between communities at reduced social and economic cost, including improved access to schools and employers.	The priorities for further developing a function cycle network can be found in the schemes tables in the Delivery chapter.
LTP PD2.2 Cycle Asset Management	The implementation of this policy will result in well maintained infrastructure, which offers significant and sometimes disproportionate benefit to cyclists. The above policies ensure that the factors affecting cyclist comfort and safety are addressed through LTP policy and the Transport Asset Management Framework.	The priorities for maintaining a functioning cycle network and cycle access improvements will be prioritised in line with GCC's highway maintenance programme.
LTP PD 2.3 Active Travel: Safety, Awareness and Confidence	The outcome of this policy will be to identify and address the factors that promoting active travel modes. The use of training, promotions, and information will encourage people to improve their cycling (and driving) skills whilst making an informed choice about risk.	The main opportunities to improve cycle safety include: • Bikeability in school • Workplace Travel Plans • Station Travel Plans • Personalised Travel Plans for new developments • Thinktravel branded safety campaigns • Reduced speed limits • Joint safety campaigns with Gloucestershire Police • Increased awareness of Thinktravel programme, sustainable travel information and service delivery



4.2. Policy LTP PD 2.1 Gloucestershire's Cycle Network – Supporting Evidence

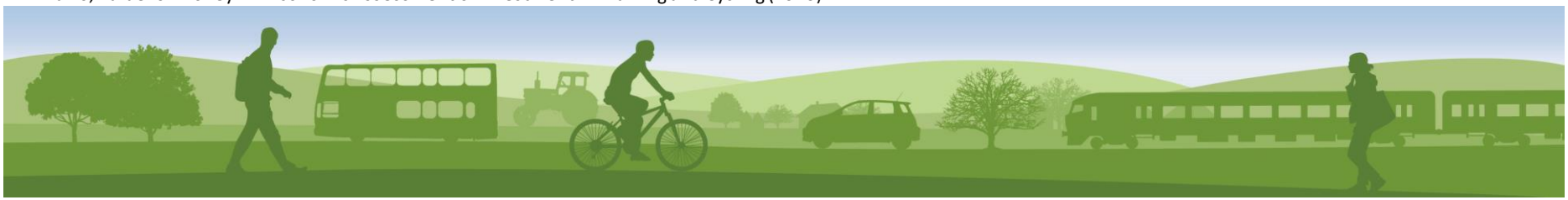
4.2.1. Research undertaken for the Department for Transport (DfT) into the value of cycling[49] sought to quantify the health, economic and environmental benefits of cycling. Some of the highlighted benefits are listed below. Furthermore, investment in walking and cycling seems to offer good returns. The low costs and significant benefits of walking and cycling schemes mean that they offer high benefit-cost ratios of up to 19:1.[50]

- Cycle friendly environments promote more physical activity across the course of life
- Children who cycle are more attentive and achieve better results in their education
- Well designed infrastructure facilities more cycling by a wide section of the community, including more women and people with disabilities
- A typical cycling city could be worth £377 million in healthcare cost savings
- Cycle parking delivers 5 times higher retail spend than the same area of car parking
- Compact town centres that are optimised for walking and cycling have 2.5 times higher retail spend per unit area than traditional towns

4.2.2. The 2011 Census records a greater percentage of cycle to work trips in Gloucestershire (5.3%), compared to the national average in England of 2.8%, as illustrated in **Figure PD2 (1).** The share of cycle trips is particularly high in the Central Severn Vale and Tewkesbury Connecting Places Strategy (CPS) areas, where more cycle infrastructure is available. In Cheltenham, cycling to work accounts for 7.2% of all journeys taken. Whilst wards, such as Tewkesbury Newtown, exhibit high cycle to work trip levels (over 9%). **Figure PD2 (2)** illustrates the county's cycling hotspots in red.

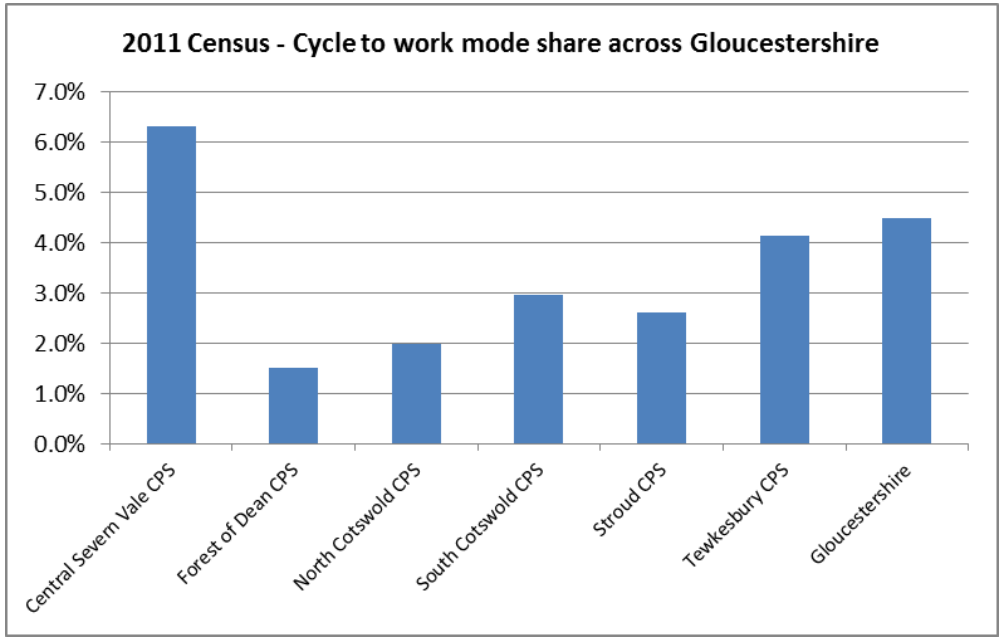
4.2.3. Much of the county's population is within reach of facilities, jobs and education by bike from the point of view of distance (up to 5km). Reducing physical or psychological barriers to cycling, and encouraging greater numbers to consider cycling, is fundamental to this policy document. The focus of investment in cycling during the LTP period will be in the more developed areas and especially where new development is to be allocated through local development plans.

[49] Fiona Raje & Andrew Saffrey: The Value of Cycling (2016)
[50] A. Davis, Value for Money: An Economic Assessment of Investment in Walking and Cycling (2010)



4.2.4. Utility cycling (i.e. cycle trips with a purpose, such as for work or education) in rural areas is less likely to occur than in urban areas, which are more densely populated and where destinations are closer. Nevertheless, utility trips between communities and from rural areas into urban centres contribute to LTP objectives. Recreational cycling can benefit Gloucestershire's local economy especially in rural areas. Where practicable, opportunities will be taken to maximise the benefits of both utility and recreational cycling when delivering inter-urban measures such as elements of the National Cycle Network (NCN).

Figure PD2 (1) - Cycle to Work Levels across Gloucestershire (2011 Census)



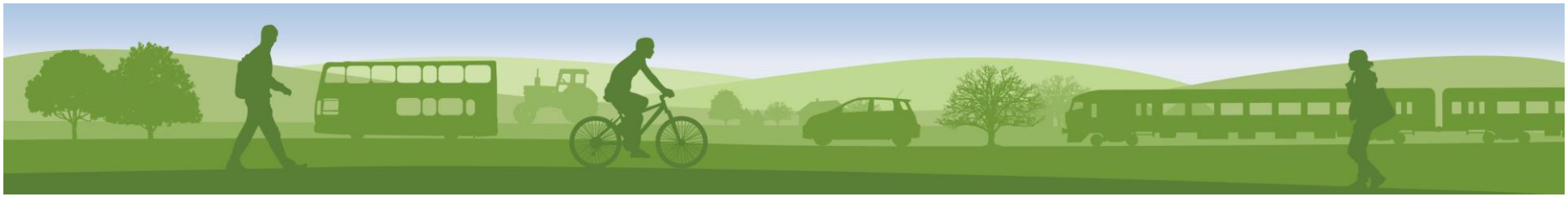
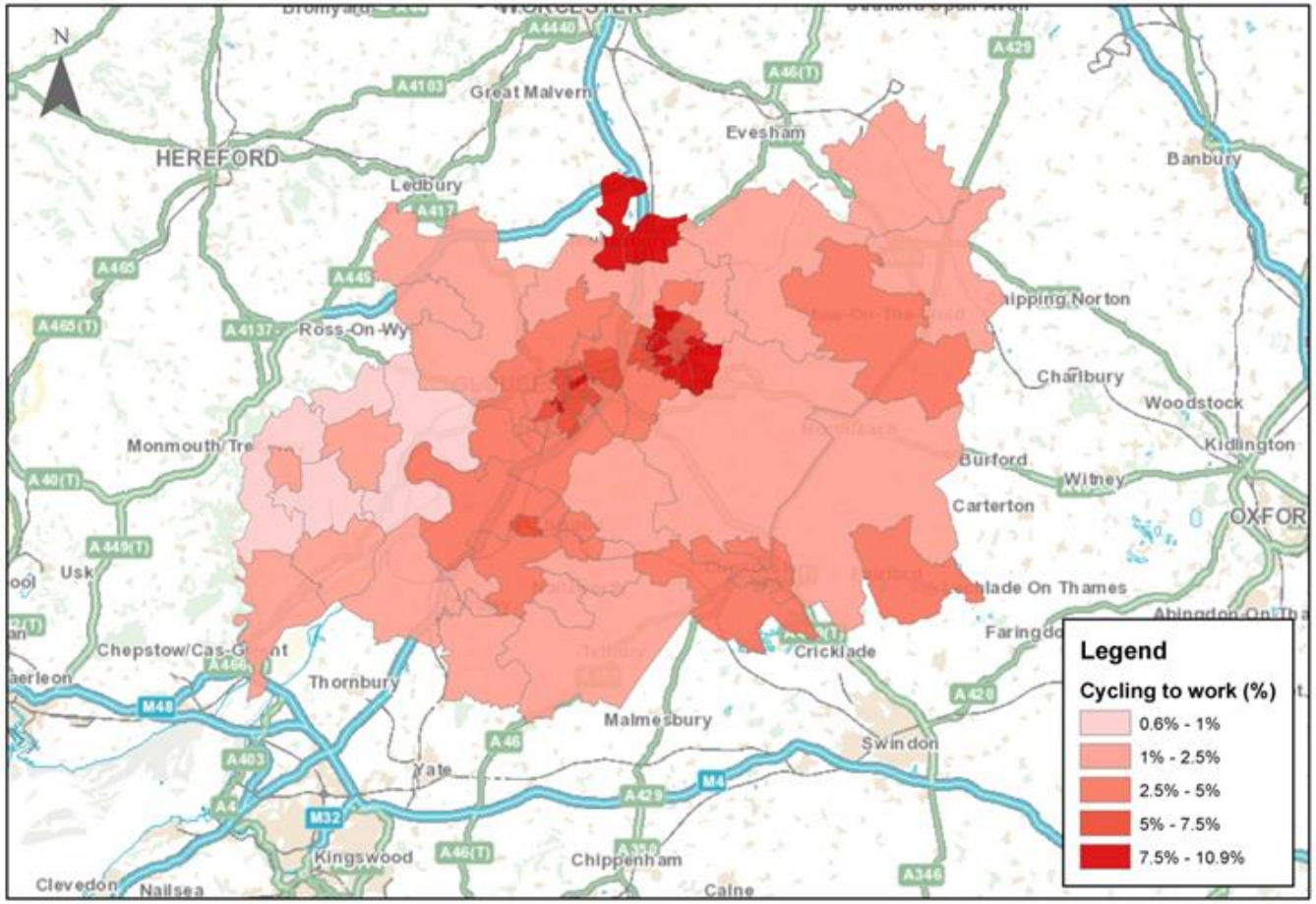
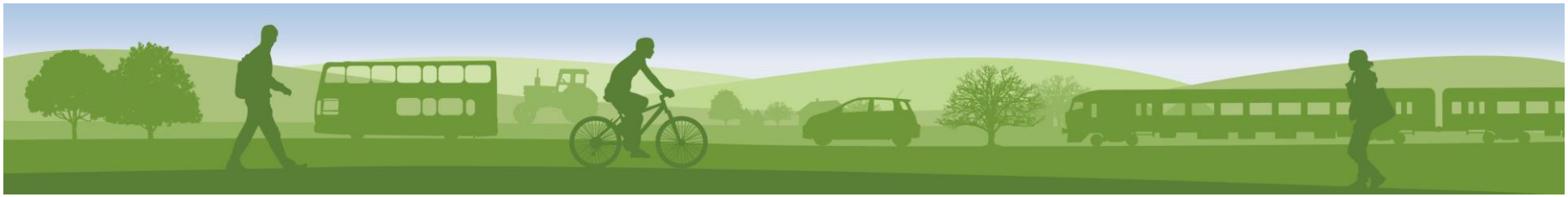


Figure PD2 (2) - Cycle to Work hotspots across Gloucestershire (2011 Census)





4.2.5. National government pilot programmes have demonstrated that growth in cycling can be achieved through focused investment in both infrastructure and 'soft' measures such as cycle-training. As an example, during the three-year Cycling Demonstration Towns programme[51] cycling levels across the six towns within the trial showed an overall increase of 27% compared with their 2005 baselines.[52]

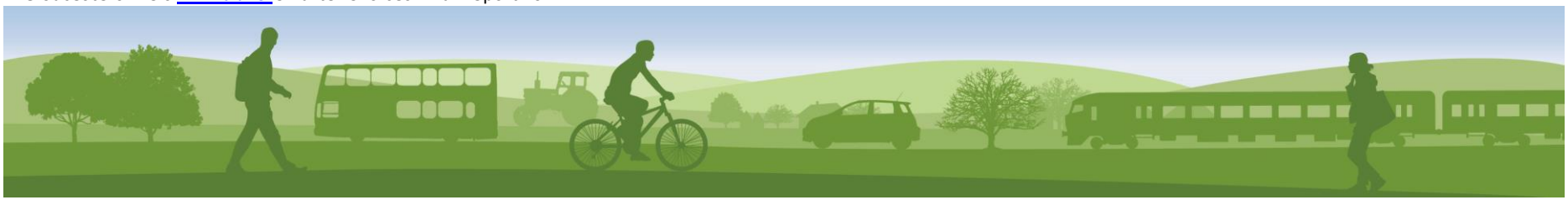
4.2.6. Given their inherent advantages of relatively flat, compact urban areas, Gloucester, Cheltenham and Tewkesbury could potentially achieve similar levels of growth, given sufficient support and funding (although it may be noted that they already exceed the cycling levels of some comparable towns). This would contribute to the capacity of the local transport network and accommodate increased transport demand generated by ambitious growth proposals through the Joint Core Strategy.

4.2.7. Gloucestershire has a track record for the successful delivery of behaviour change programmes, evidenced by the Thinktravel programme which, funded through the Government Local Sustainable Transport Fund (LSTF), delivered a range of successful projects between 2012-2017 in education, job centres, training providers, businesses, and in communities to encourage mode shift and reducing air pollution in Gloucestershire. It also made a major difference to accessing education, employment and training:

- Bike IT Plus (Schools 2012-16) – 64% of pupils engaged in the project for over 2yrs travel actively to school, 5% reduction in pupils travelling to school by car[53]
- Journeys to Jobs (2016-17) – 400 people benefitted from bus & bike vouchers[54]
- Business Engagement (2016-17) – 50% of staff encouraged to cycle to work (West Cheltenham Business Survey)[55]
- Thinktravel CIC Toolkit (2016) – Legacy online toolkit for business, communities and schools
- Thinktravel website (ongoing) – Legacy online resource for all sustainable travel options

4.2.8. The study 'Changing Travel Behaviour Scoping Exercise', produced in 2013 as part of the Local Sustainable Transport Fund (LSTF) programme for Cheltenham and Gloucester, identified scope for increased cycling. In particular, it highlighted educated suburban families and young urbanites without cars as being those with the greatest propensity to change travel behaviour. Transport for London came to similar conclusions.[56]

[51] Valuing increased cycling in the Cycling Demonstration Towns DfT and Cycling England 2009
[52] Analysis and synthesis of evidence on the effects of investment in six Cycling Demonstration Towns DfT 2009
[53] Bike IT Plus Gloucestershire Final Report 2015-2016
[54] Gloucestershire's Thinktravel Smarter Choices Final Report 2017
[55] Gloucestershire's Thinktravel Smarter Choices Final Report 2017



4.2.9. With cycling (including e-bikes and other low-carbon alternative) the increasing popularity of cycling (including use of e-bikes and other low carbon alternatives) open the opportunity for cycling to appeal to a wider audience, for example, older people, those living in hilly areas and women who are currently less likely to cycle than men. For example, 3.9% of male workers compared with 1.6% of female workers, travel to work by bike.[57] Targeting those less inclined to cycle can be as valuable as encouraging those who are more willing to cycle, and can be a key determinant of significant mode shift towards cycling and 'tipping points' (where a modest rise in cycling levels suddenly gathers pace).

4.2.10. Another approach, advocated by Cycling England, concentrates activities around 'hubs' with a focus on the three Ps: People, Place and Purpose. A hub need not be physical place devoted to cycling; it might be a programme that encourages cycling to school. The People are the students; the Place is their school; and the Purpose is health and more sustainable trips to school. Other hubs could comprise workplaces, public transport interchanges, health programmes or shopping centres. In such ways, not only are the easy wins captured, but also those segments of the market that are more difficult to reach.

4.2.11. The benefits of cycling contribute to a reduced need for public expenditure directly, in terms of decongestion of the road network, and, indirectly, in terms of the costs to society of poor health and wellbeing due to sedentary lifestyles. This fundamentally supports not just transport demand management, but wider service demand management, especially in relation to social care. Cycling is the key to preventative investment.

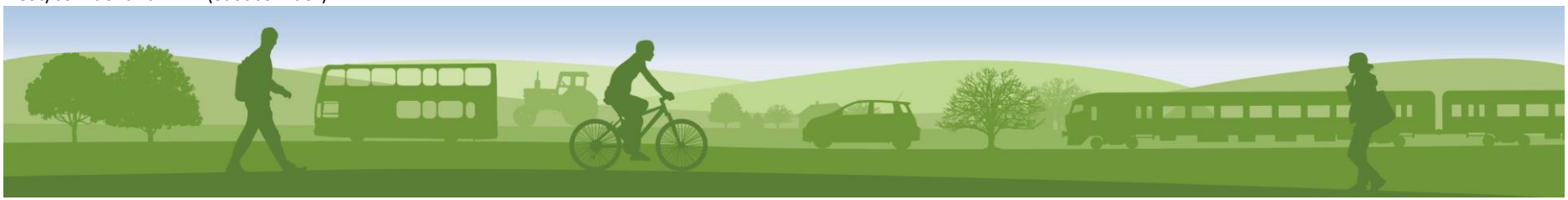
4.2.12. Barriers to higher levels of cycling can be varied and complex; they may reflect physical barriers on the network or factors around safety, navigability or signing (for example). To understand this better the county council completed the 'Barriers to Cycling Study' (2014/15) identifying barriers across urban and some parts of the rural areas. This captured insights from local cyclists and culminated in a list of prioritised infrastructure investments.[58]

4.2.13. The Barriers to Cycling Study also revealed support for segregated (off-carriageway) cycling provision, citing lack of off-road infrastructure as the most prevalent barrier to cycling, and improving provision for cyclists in rural areas. The information has framed cycle network priorities (the key

[56] Analysis of Cycling Potential TfL 2010 identifies the segments with the greatest propensity to cycle as being 'Urban Living' (young, professional city dwellers who travel more than average but have low levels of car ownership, driven by lifestyle choice rather than income), 'High earning professionals' and 'Young couples with families'. Note, according to this study, young couples have little in common with the two other segments. This demonstrates the need to target interventions according to local needs

[57] Census 2011 – analysis of method of travel to work by gender

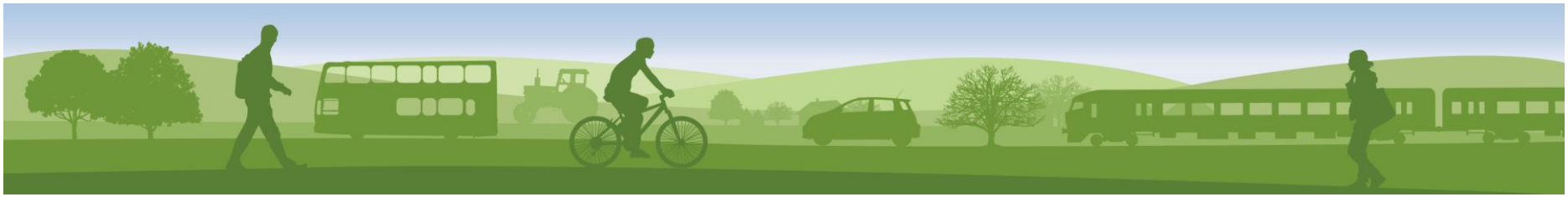
[58] The study identified priorities for improved cycling infrastructure on six corridors: Cheltenham: Centre to A40 east and to A435 south corridor; Lydney: central area barriers; Stroud: central area barriers; Tewkesbury - A38/A438 junction to A38 south corridor to east of town; Gloucester: Outer ring road network linking Walls roundabout to Cole Avenue; Cirencester: A429 (south west) corridor and A417 (east corridor).



corridors). It helped reveal which strategic gaps should be addressed, in order to create an effective cycle network. Similarly, Sustrans noted busy traffic in Gloucester, indirect routing between Gloucester and Cheltenham and the incomplete route with varying path widths beside the A40 in Cheltenham as part of its National Cycle Network Review in 2018.

4.2.14. The proposed strategic cycle desire lines across the county; with the aim to link the main urban settlements and areas of housing and jobs growth through a combination of quiet ways and dedicated cycle facilities. Investment in cycle facilities will be targeted at these desire lines, with a view to complete sections of cycleway as opportunities arise and funding becomes available.

4.2.15. In addition to connecting the strategic county cycleway desire lines, the Local Cycling and Walking Infrastructure Plans (LCWIP) has developed cycle network maps for Cheltenham and Gloucester that set out; the strategic desire lines, the primary and secondary network. This is the starting point of a rolling programme of cycle route assessments for the county. As part of the development of the Local Cycling and Walking Infrastructure Plan (LCWIP) for Cheltenham and Gloucester, a number of proposals for improved cycling infrastructure have been identified and assessed, including the proposed cycle improvements between Arle Court Roundabout, Cheltenham and Gloucester centres. The LCWIP proposals then link the Highways England scheme to the canal towpath adjacent to the A430. Ongoing LCWIP development can be tracked through https://www.gloucestershire.gov.uk/lcwip.



4.3. Policy LTP PD 2.2 Cycle Asset Management – Supporting Evidence

4.3.1. The Transport Asset Management Plan (TAMP)[59] provides the highway policy and guidance to cover general operation of the highway services in Gloucestershire. The TAMP and its associated appendices and guidance documents are part of the wider Gloucestershire Local Transport Plan.

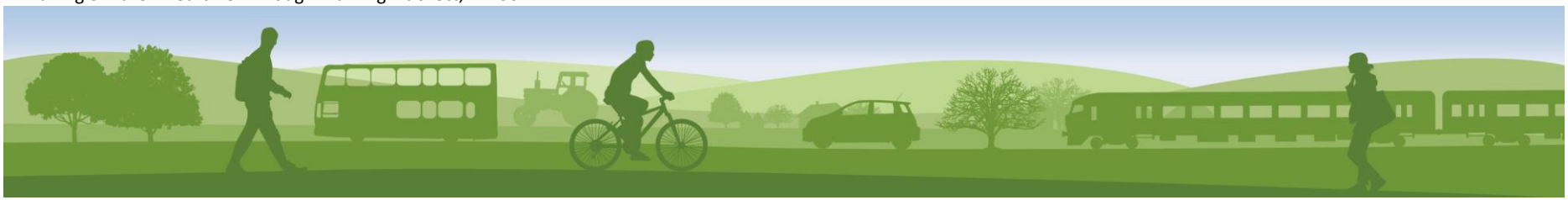
4.4. Policy LTP PD 2.3 Active Travel: Safety, Awareness and Confidence – Supporting Evidence

4.4.1. Less than 2% of commuters (nationally) and 4.5% (in Gloucestershire) cycle to work.[60] Evidence indicates that there can be safety in numbers. The more cyclists that are present on the network, the more motorists anticipate them and adjust their speed.[61] Cycling casualties are now around a third less than the 1994-98 average. At the same time, more people are cycling, with an increase of more than 10% since 2007-2008. If a cyclist is trained and behaves assertively their risk of injury reduces further. The LTP supports the provision of cycle training for both children and adults, including school and workplace training.

4.4.2. Children generally want to cycle.[62] They are known to prefer to walk and cycle to school than be driven by their parents. Studies have shown that nationally only 2% cycle to school whilst 50% would like to.[63] It is estimated that by 2050 with current trends, 70% of children will be affected by obesity.[64] Encouraging active travel by walking and cycling to school can contribute to helping children to maintain a healthier weight.

4.4.3. It is well recognised that the best opportunities to encourage cycling are at life stage changes, when new habits are formed. These include changing schools or jobs, issues affecting health and mobility, reduced access to a private car or moving to a new house. Travel Plans that frame these junctures in people's lives can aid changes in travel behaviour in favour of more sustainable modes such as cycling.

[59] https://www.gloucestershire.gov.uk/highways/plans-policies-procedures-manuals/highways-policy-and-guidance-documents/
[60] National Census 2011
[61] Strategic Environmental Assessment Environmental Report for Gloucestershire's Third Local Transport Plan 2011-26 Appendix D: Effects on Human Heath January 2011
[62] Nearly half of children surveyed by Sustrans in 2010 wanted to cycle to school but only 4% were allowed to.
[63] Bike It review Sustrans 2010
[64] Making Children Healthier Through Walking Mackett, P. 2004



4.4.4. A previous LTP consultation revealed significant support for cycling in both urban and rural Gloucestershire. Issues highlighted included:

- Cycling is an important mode in Gloucestershire for existing and potential cyclists, as well as those who do not wish to cycle but understand its value to wider quality of life objectives.
- There is significant support for segregated cycling provision. For example, 79% of women would like to see more protected cycle lanes even if this means less space for other road traffic.[65] This may be seen as controversial as the presumption is in favour of providing for cyclists on carriageway with other traffic unless traffic volumes and speeds preclude this.[66] However, in the light of this response there needs to be closer consideration of the role of segregated cycling facilities, particularly in the vicinity of schools, colleges and land uses which may generate a high cycle trip demand. Gloucestershire County Council's, Walking and Cycling Network Report (2018), highlights the growth in cycle use on segregated routes. For example, a 70% increase has been recorded on the Honeybourne Line in Cheltenham since 2010 and 24% along Metz Way in Gloucester.[67]
- Desire to see more integration between cycling and other modes to allow journey versatility and easier 'seamless trips'. This document picks this up with its proposal for local, integrated, interchange hubs contained in the Public & Community Transport Policy Document (PD1) Bike carriage on buses and trains should also be encouraged.
- In rural areas, there is significant potential for leisure and tourism cycling to benefit the local economy whilst having important spin off benefits for utility travel between the smaller settlements as the electric bike market grows. UK cycle retailer has forecast an increase of 30% in e-bike sales in 2020.[68]

4.4.5. National government pilot programmes have demonstrated that growth in cycling can be achieved through focused investment in both infrastructure and 'soft' measures such as cycle-training. As an example, during the three-year Cycling Demonstration Towns programme[69] cycling levels across the six towns within the trial showed an overall increase of 27% compared with their 2005 baselines.[70]

4.4.6. Given their inherent advantages of relatively flat, compact urban areas, Gloucester, Cheltenham and Tewkesbury could potentially achieve similar levels of growth, given sufficient support and funding (although it may be noted that they already exceed the cycling levels of some comparable

[65] Sustrans: Bike Life - Women: Reducing the gender gap (2018)
[66] DfT Local Transport Note no. 2/08
[67] GCC historic loop counter data (2010-2017)
[68] https://environmentjournal.online/articles/serious-growth-in-e-bike-sales-predicted-by-2050/
[69] Valuing increased cycling in the Cycling Demonstration Towns DfT and Cycling England 2009
[70] Analysis and synthesis of evidence on the effects of investment in six Cycling Demonstration Towns DfT 2009

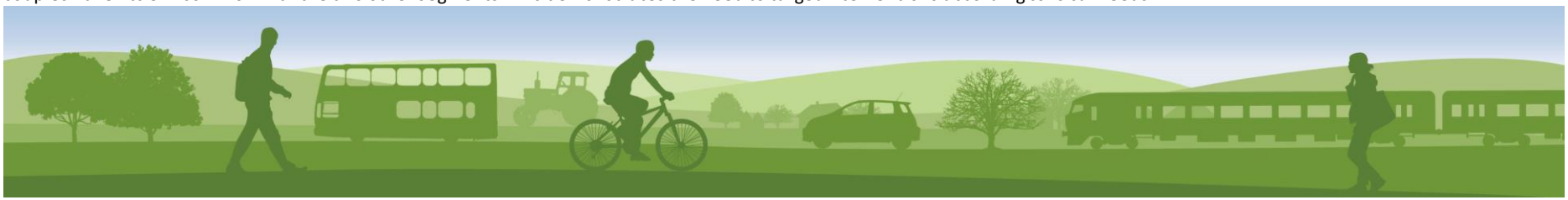
towns). This would contribute to the capacity of the local transport network and accommodate increased transport demand generated by ambitious growth proposals through the Joint Core Strategy.

4.4.7. Gloucestershire has a track record for the successful delivery of behaviour change programmes, evidenced by the Thinktravel programme which, funded through the Government Local Sustainable Transport Fund (LSTF), delivered a range of successful projects between 2012-2017 in education, job centres, training providers, businesses, and in communities to encourage mode shift and reducing air pollution in Gloucestershire. It also made a major difference to accessing education, employment and training:

- Bike IT Plus (Schools 2012-16) – 64% of pupils engaged in the project for over 2yrs travel actively to school, 5% reduction in pupils travelling to school by car[71]
- Journeys to Jobs (2016-17) – 400 people benefitted from bus & bike vouchers[72]
- Business Engagement (2016-17) – 50% of staff encouraged to cycle to work (West Cheltenham Business Survey)[73]
- Thinktravel CIC Toolkit (2016) – Legacy online toolkit for business, communities and schools
- Thinktravel website (ongoing) – Legacy online resource for all sustainable travel options

4.4.8. The study 'Changing Travel Behaviour Scoping Exercise', produced in 2013 as part of the Local Sustainable Transport Fund (LSTF) programme for Cheltenham and Gloucester, identified scope for increased cycling. In particular, it highlighted educated suburban families and young urbanites without cars as being those with the greatest propensity to change travel behaviour. Transport for London came to similar conclusions.[74]

[71] Bike IT Plus Gloucestershire Final Report 2015-2016
[72] Gloucestershire's Thinktravel Smarter Choices Final Report 2017
[73] Gloucestershire's Thinktravel Smarter Choices Final Report 2017
[74] Analysis of Cycling Potential TfL 2010 identifies the segments with the greatest propensity to cycle as being 'Urban Living' (young, professional city dwellers who travel more than average but have low levels of car ownership, driven by lifestyle choice rather than income), 'High earning professionals' and 'Young couples with families'. Note, according to this study, young couples have little in common with the two other segments. This demonstrates the need to target interventions according to local needs



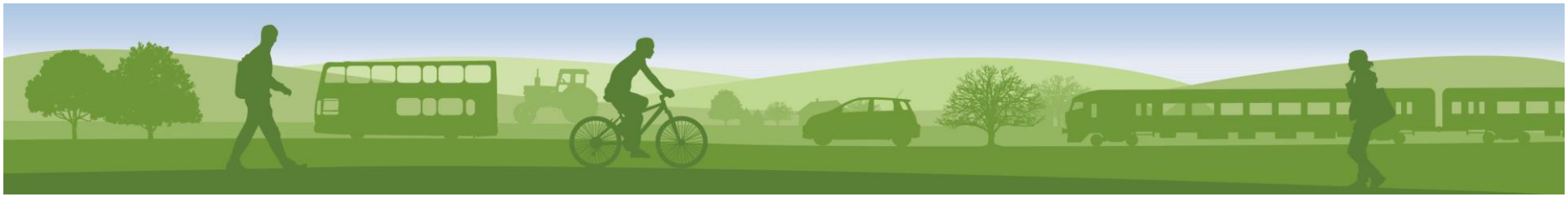
5. Summary of Evidence Supporting Freight Policies (PD3)

5.1. Freight Policies - Context

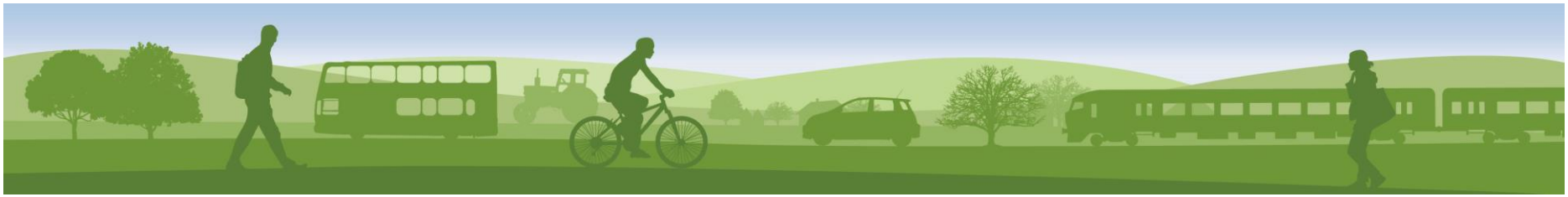
5.1.1. This chapter covers the LTP overarching policies set out below. The supporting summary evidence base is discussed for each policy in section 5.2 – section 5.7 inclusive.

Freight Policies
LTP PD 3.1- Gloucestershire's Freight Network
LTP PD 3.2 –Freight Journey Routing Information
LTP PD 3.3 Driver Facilities
LTP PD 3.4 Driving Better Practice
LTP PD 3.5 Managing deliveries in urban or other sensitive locations
LTP PD 3.6 Rail and Water Freight

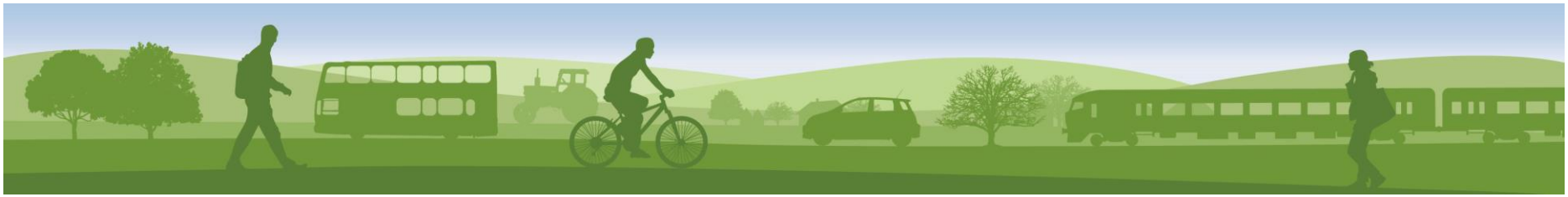
5.1.2. The graphic following shows how the LTP Freight policies link to the LTP Objectives and how Freight policies will contribute to achieving these objectives. It also clearly indicates the expected policy outcomes for each Freight policy as well as investment priorities needed to support these policies.



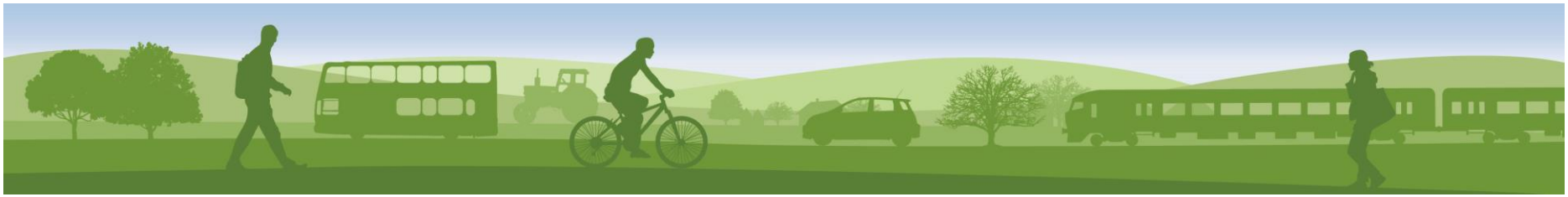
LTP objectives for Freight	Freight Policies
Protect and enhance the natural and built environment • Reduced transport-derived carbon emissions	**LTP PD 3.1** **Gloucestershire's Freight Network**
Support sustainable economic growth • Gloucestershire is a place to do business and attract investment • The transport network is accessible, efficient, reliable, fit for purpose and demonstrates value for money • Increased journey time reliability • Greater economic activity • A transport network resilient to extreme weather events • Heavy Goods Vehicle movements are balanced between the needs of business and local communities	**LTP PD 3.2** **Freight Journey Routing Information**
Enable safe and affordable community connectivity • A business community which benefits from connectivity with local, national and international markets • Individuals benefit from economic prosperity and social benefits	**LTP PD 3.3** **Driver Facilities**
	LTP PD 3.4 **Driving Better Practice**
	LTP PD 3.5 **Managing deliveries in urban or other sensitive locations**
Improve community health and well being and promote equality of opportunity • Improved air quality • Better safety, security and health by reducing the risk of death, injury, noise or illness arising from transport	**LTP PD 3.6** **Rail and Water Freight**



Freight Policies	Expected Policy Outcomes	Investment priorities include
LTP PD 3.1- Gloucestershire's Freight Network	The implementation of this policy will result in an advisory freight network, where the function of the highway network is understood by its users and the communities it impacts. The environmental impacts of freight transport will be reduced by exploring opportunities for trans modal freight facilities and ensuring the uptake of ultra low emission vehicles by the freight industry The primary route corridors for HGVs and the Link and Place Spectrum will inform future investment decisions by recognising those links which are essential to securing conditions for sustainable economic growth and demonstrating Gloucestershire is a place to do business and attract investment. The use of advisory routes will also balance the needs of business and local communities.	• Targeted investment to improve junctions and network pinch points • Support opportunities for transmodal freight facilities and opportunities for more sustainable freight transport • On-going maintenance of highways and highway structures to ensure they remain fit for purpose • Ensuring freight routes are clearly identified on signs and mapped to support digital mapping and GIS systems • Ensure adequate HGV parking and waiting facilities are available • Promote ultra low emission vehicles
LTP PD 3.2 Freight Journey Routing Information	The implementation of this policy will result in a more reliable transport network that reduces business overheads and reduces the impact of Freight transport on local communities.	• Updating the advisory freight map information provided at lay-bys and the long-term introduction of smart information point at strategic lay-bys. • Using the freight journey planning platform including the Lorry Watch portal. • Increased partnership working with Highways England and neighbouring authorities to develop a common vehicle messaging information strategy. • Investigate making relevant council data available as open source data.
LTP PD 3.3 Driver Facilities	The expected outcome of this policy is a fit for purpose transport network which provides facilities which offer journey routing information, improve road safety and the local environment, and can support safe driving. There are 17 lay-bys on primary routes, previously shown in Figure D, that have freight information signs. These need to be periodically reviewed to assess their condition and the availability of information provision	• Update or replace the information signs at each of the 17 lay-bys • Maintain the number and capacity of lay-bys



Freight Policies	Expected Policy Outcomes	Investment priorities include
LTP PD 3.4 Driving Better Practice	The expected outcome of this policy is a safer transport network that balances the needs of business and the local community	• The development of Gloucestershire specific advisory guidance on CMPs and supply chain management will be important to facilitate major growth sites as it forms part of pre-application discussions to ensure issues of concern are raised early in the planning process, supporting the uptake of new codes of practice.
LTP PD 3.5 Managing deliveries in urban or other sensitive locations	The expected outcome of this policy is compliance with national best practice through the promotion of a safe transport network that balances the needs of business with the local community in an environmental sensitive way. It also reduces the number of vehicle miles travelled by removing wasted delivery miles. Contributes towards improving air quality, reducing congestion and carbon emissions.	
LTP PD 3.6 Rail and Water Freight	The expected outcome of this policy is reduced number of HGV trips within the county reducing the impact of freight movements on the natural, built and historic environment.	Encourage the greater use of non-road modes for the transportation of freight to relieve pressure on the strategic road network.



5.2. Policy LTP PD 3.1- Gloucestershire's Freight Network – Supporting Evidence

5.2.1. HGV average daily traffic flows in Gloucestershire between 2000 and 2017 have decreased by 7%, whilst LGVs have increased by 72% over the same period, illustrated in **Figure PD3 (1).**[75] The Freight Transport Association, Road Haulage Association, Federation of Small Businesses and other business networks advise that future logistics and servicing demand will arise from heavy freight movement but more significantly from independent traders and further "white van" expansion. In parallel, economic growth, particularly within the M5 and to a lesser extent the M4 and M40 corridors, means that demand for cross county and in-out county movements will continue to increase.

5.2.2. In 2018, 78% of adults bought goods or services online (Office of National Statistics). Online grocery sales accounted for 6.4% of the market. In the last year alone spending online in the UK increased by 15.3% and the latest road traffic estimates indicate van traffic increased by 4.7% to 49.5 billion vehicle miles in 2016.[76] Given the national trend in the use of smaller delivery vehicles and the onset of home delivery services, this change in the mix of freight is to be expected and is likely to continue, demonstrated in **Figure PD3 (1).**

[75] https://roadtraffic.dft.gov.uk/local-authorities/70
[76] www.gov.uk/government/news/funding-boost-for-green-last-mile-delivery-bikes

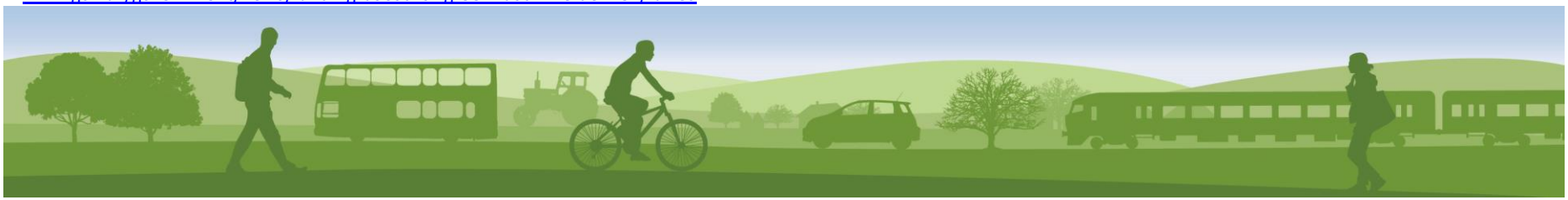
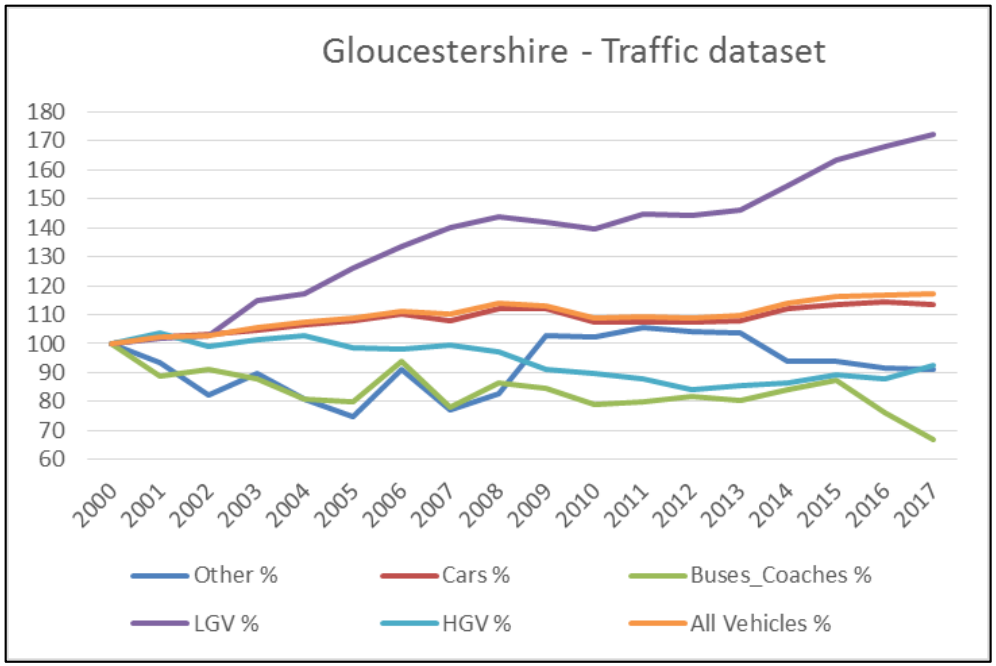


Figure PD3 (1) - Gloucestershire Annual Average Daily Traffic Flow Profile 2017[77]



[77] Other includes: *Pedal Cycles, Motorcycles, Buses /Coaches

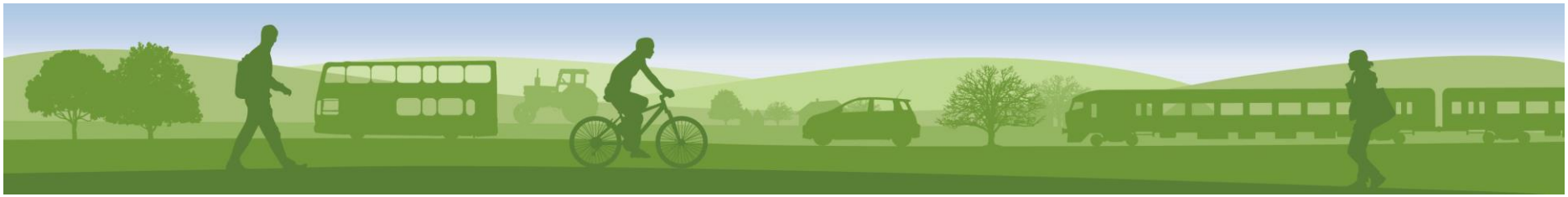
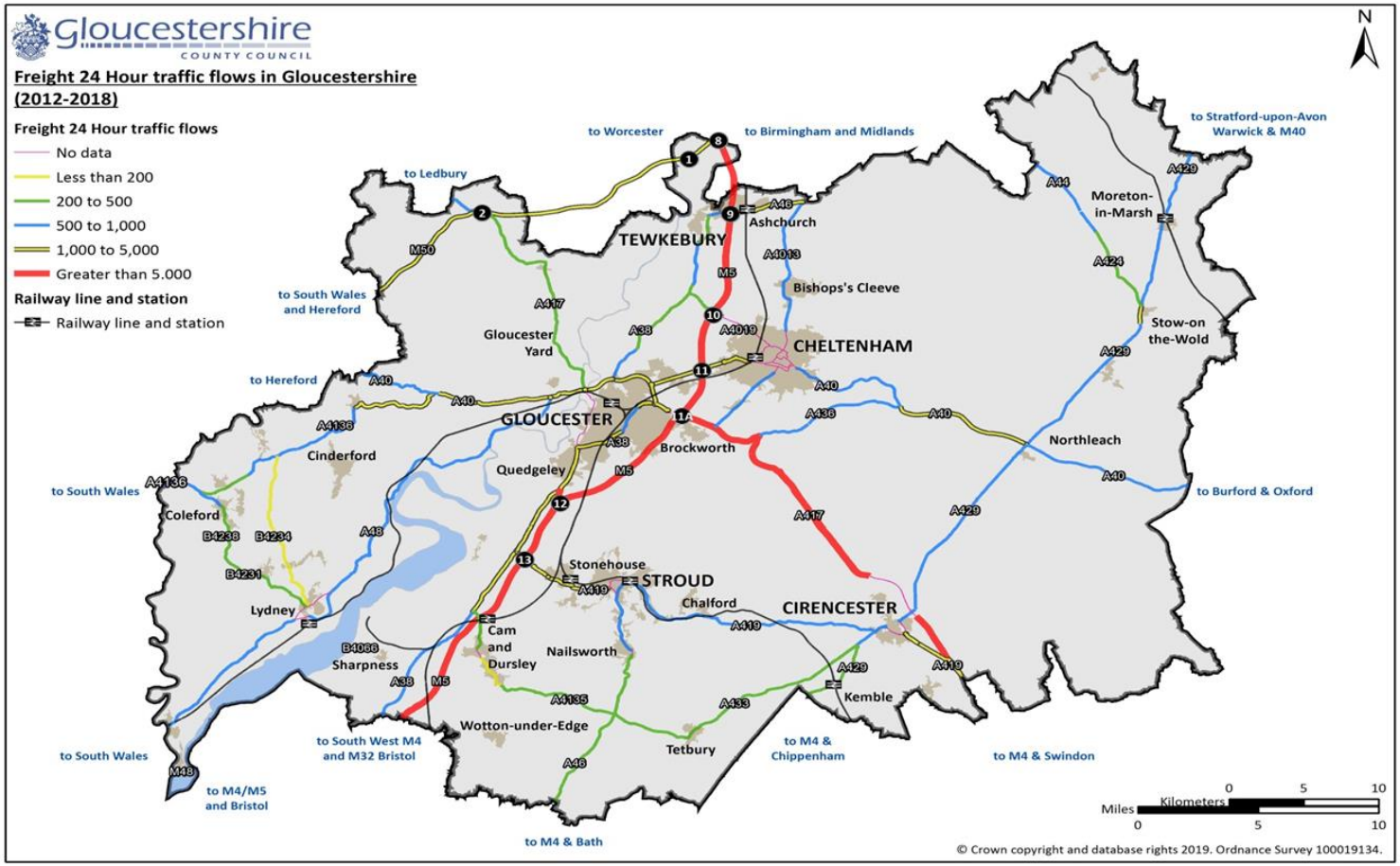
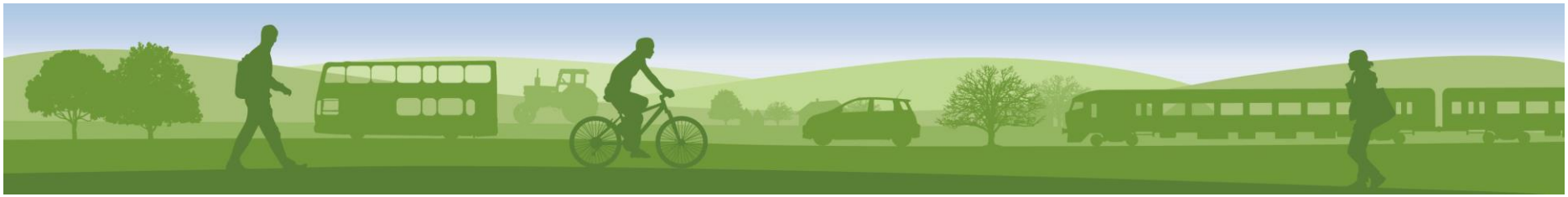


Figure PD3 (2) – Gloucestershire Annual Average Daily HGV Traffic flows by corridor (2012-2018)





5.2.3. The highway network in Gloucestershire acts as a crossroads for routes in the West of England and into South Wales. Gloucestershire is surrounded by eight other local transport authorities and bisected by the M5 and other strategic trunk routes. Many of Gloucestershire's challenges arise from HGV movements originating from outside the county, particularly where drivers may not be aware of the optimum routing or local restrictions.

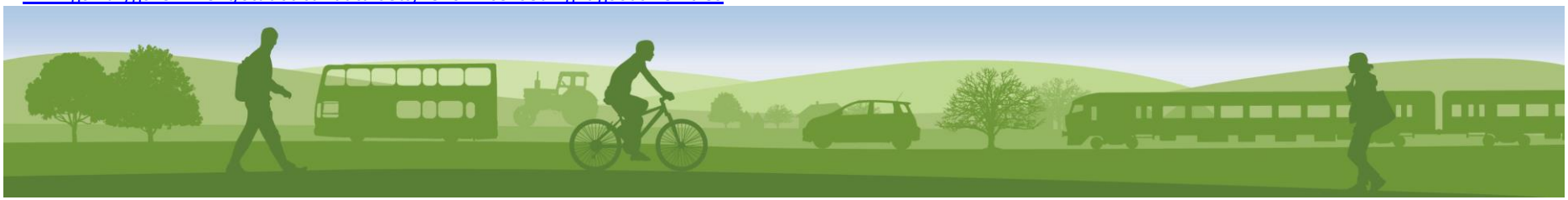
5.2.4. From the classified HGV traffic flows shown in **Figure PD3 (2)**, a number of strategic freight corridors across the county can be seen. Typically, freight vehicles account for between 1% and 9% of all vehicle movements. However, some communities experience higher proportions.

5.2.5. Vehicle flows only provide part of the story, as for some communities it is the proportion of freight vehicles that impacts upon daily lives. Nationally, Lorries make up 5% of all traffic, motorways and A roads remain the largest carrier of lorry miles travelled (93%). In 2018 rural A roads carried 37%, an increase of 11.3% from 5 years ago, compared to rural minor roads which decreased by 10.5%in the same period[78]. Longer term lorry trend relate to vehicles sizes, traffic for Lorries with four or more axles was 87% higher in 2018 than 25 years ago. As a result more goods are moved by heavier HGV vehicles travelling fewer road miles.[79]

5.2.6. Freight transport not only impacts on local communities, it also significantly contributes to transport derived carbon emissions. Better land use planning for freight is a core recommendation in the National Infrastructure Commission (NIC) report 'Better delivery- the challenge for freight' which calls on the government to decarbonise road and rail freight by 2050 and tackle the industry's contribution towards congestion.

5.2.7. Government must provide long term clarity to the freight industry and commit to a common objective for road and rail freight to be zero emissions by 2050. Decarbonising road freight will make a difference, as HGVs and vans together contributed to 32.2% of the UK's greenhouse gas emissions for transport in 2018.[80] To support government ambitions, and to bring in line with GCC's ambition, it is the aim of this plan is to facilitate the decarbonisation of road and rail freight by 2045. For HGVs, both battery electric and hydrogen are emerging as the most viable potential alternatives to diesel, with models expected to become commercially available from the early 2020s. Electric vans are emerging as a viable zero emissions alternative, but update has lagged significantly behind electric cars, with only 02% of the UK's vans and 0.3% of new van sales being electrically powered in 2017.[81]

[78] Road Traffic Estimates: Great Britain 2018
[79] Road Traffic Estimates: Great Britain 2018
[80] GHG by source ($MtCO_2$ equivalent) -https://www.gov.uk/government/statistics/final-uk-greenhouse-gas-emissions-national-statistics-1990-to-2018
[81] www.gov.uk/government/statistical-data-sets/veh04-licensed-light-goods-vehicles



5.2.8. While most technologies look likely to have marginal impacts on the freight system, robotics and automation, connected and autonomous vehicles (CAVs) could fundamentally alter the operation of freight in the UK. Such a major change in the structure of costs could mean significant change in the geography of the freight system, including the main ports of entry and exit.[82]

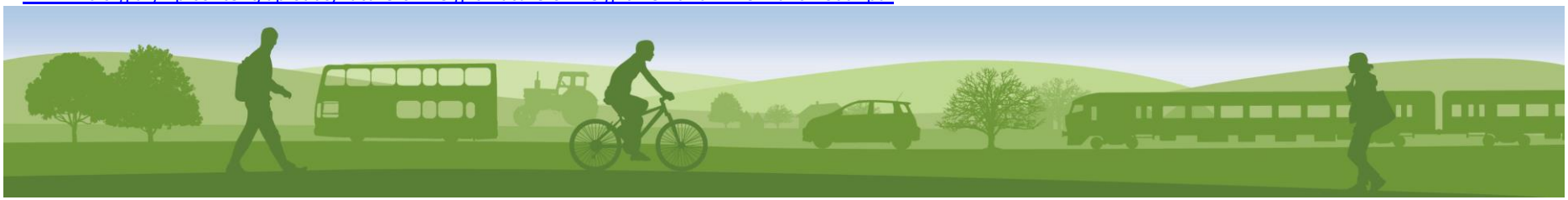
5.2.9. Future freight demand will need to be accommodated by a 'transmodal' model to include road, rail and port infrastructure along with demand for passenger transport in order to accommodate growth. Location of freight distribution centres on rail and water connected routes, not only on the strategic road network would encourage non-road freight and help reduce road congestion. Land use planning will play a key role in facilitating the greater use of rail, inland waterways and shipping and the encouraging the greater use of non-road modes to relieve pressure on the strategic road network.[83]

5.2.10. Typically, once local routes off the primary network are used (which may be 'B' or 'C' roads inappropriate for freight use or 'A' roads with height and weight restrictions), there is reliance on satellite navigation systems and other technology which anecdotally has caused routeing problems for lorry drivers lacking local knowledge. This is one of the reasons why improved technological and operational management solutions form a key part of our 'menu' of measures.

5.2.11. Given the network constraints and pinch points beyond the county boundary, it is vital that journey time predictability and reliability is maintained across the strategic and primary road networks. This needs to be reinforced by information through appropriate information channels. Preservation of these routes will also be vital for other users, including express coach and bus operators, other public transport providers and the tourism sector.

5.2.12. To achieve sustainable growth, our freight network cannot be 'fixed' and needs to be able to respond dynamically to changes in development, traffic, spatial growth policies and changes in the way supply chains operate at a local and sub-regional level.

[82] www.nic.org.uk/wp-content/uploads/Better-Delivery-April-2019.pdf
[83] www.nic.org.uk/wp-content/uploads/Future-of-Freight_Future-of-Freight-Demand_MDS-Transmodal.pdf



5.3. Policy LTP PD 3.2 –Freight Journey Routing Information – Supporting Evidence

5.3.1. The primary route corridor map provided) support the **Link & Place Spectrum (Annex 4.0).** It should be noted that these routes are, for the most part, only advisory and form the Advisory Freight Route Map, set out in **Figure PD3 (3),** is set in policy and periodically reviewed to mirror the HGV traffic flows. GCC has revised the advisory route map by introducing a route corridor weighting, based on HGV traffic flows, without altering the primary route corridor. Levels of HGV flows is monitored at County level through automatic traffic counts and at local level through 'Lorry Watch' at a parish council level and in consultation with Highways England.

5.3.2. When considering the identification of these routes consideration has been given to routes which are under pressure, particularly where this impacts on the quality of place, air quality and accessibility for vulnerable road users. From previous consultations, there are certain routes that are seen as critical for community wellbeing and which HGVs should avoid. Our primary route corridor map for heavy goods vehicles takes account of this feedback and, in particular, recognises the communities of Gorsley, Dymock, Fairford, Lechlade-on-Thames and the impact of Oxfordshire County Council's Freight Strategy for proposed weight restrictions in Burford and Chipping Norton.

5.3.3. Reliable travel information is essential for freight companies and freight drivers. GCC will increase the role of technology to assist in the dissemination of freight journey routing information. There are online tools available to support this and as funding becomes available. GCC will aim to upgrade its journey routing offer.

5.3.4. For a period Freight Gateway provided free to use compliant freight route journey planning platform to the freight industry, to help reduce the use of inappropriate freight routes. The gateway system will need to be replaced by a HGV freight weight restrictions compliant platform. GCC is investigating an appropriate replacement. The significant advantage of using a compliant freight journey planning system, is that it is supports a dynamic journey routing function which can be updated to reflect planned incidents on the highway network such as road closures or temporary highway restrictions impacted by major events which aims to rival the drivers' use of satellite navigation systems.

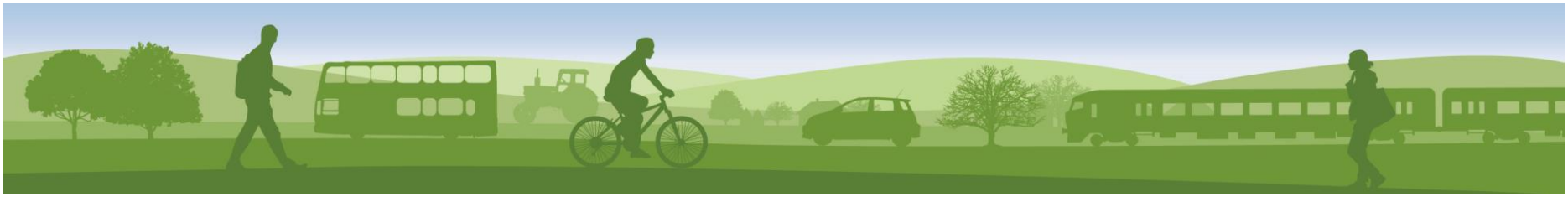
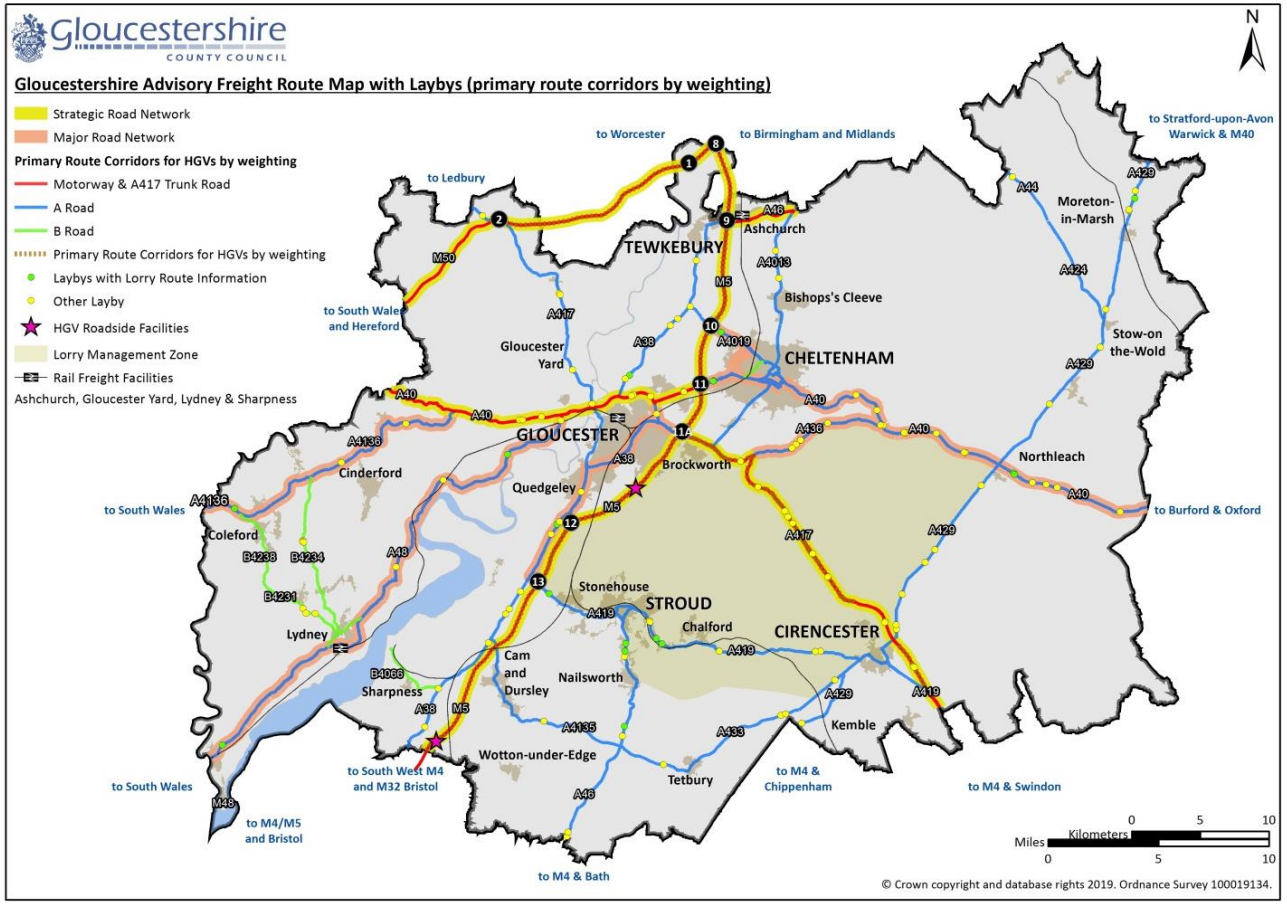
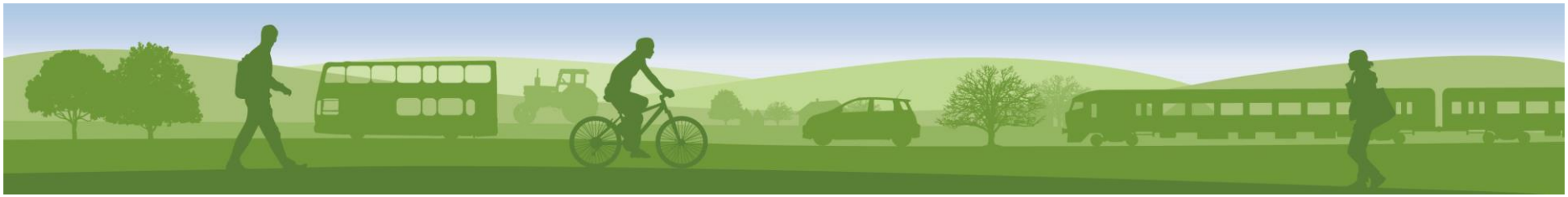


Figure PD3 (3) – Advisory Freight Route Map (primary route corridors by weighting)





5.4. Policy LTP PD 3.3 Driver Facilities – Supporting Evidence

5.4.1. There has been a significant growth in use of lorry parking – 58% utilised in 2010 rising to 76% in 2017[84]. For the South West, the level of utilisation was considered 'serious' and if it continues to grow at this rate, will be 'critical' by 2024. Nationally, 14% of all HGV overnight parking is on industrial estates or retail parks, whilst 25% of parking is in lay-bys, of which only 1% has toilets, 2% a café, and 6% are lit.

5.4.2. Lay-bys are an important asset for freight vehicles. They provide the opportunity for drivers to stop for short breaks, plan routes and take advantage of facilities. These are also used for overnight parking by vehicles on longer distance journeys. There are 163 lay-bys in Gloucestershire, shown in **Figure PD3 (3) Advisory Freight Route Map**. There are three broad categories of lay-bys in Gloucestershire:

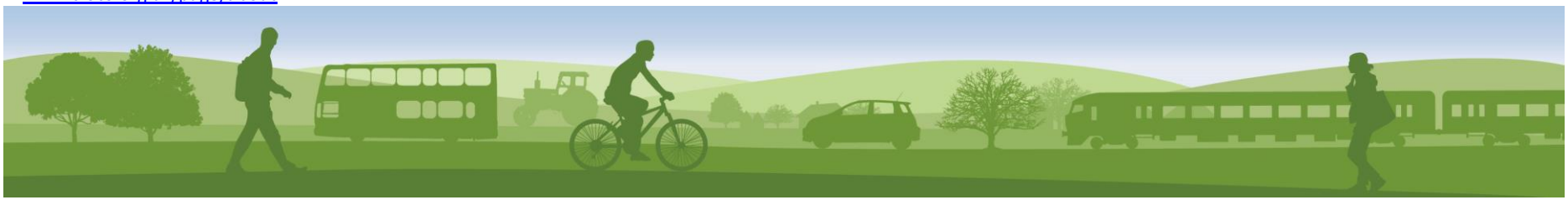
- Lay-bys on an advisory freight route with lorry route information.
- Lay-bys on an advisory freight route with no lorry route information.
- Lay-bys which are not on the advisory freight route.

5.5. Policy LTP PD 3.4 Driving Better Practice – Supporting Evidence

5.5.1. Best practice promotes the use of Construction Management Plans (CMP), to ensure developers, planning and highway authorities and local community organisations work together to agree and monitor mutually beneficial arrangements for construction traffic that work for all parties. Building on good practice and guidance in relation to events planning and to mitigate the temporary impacts caused by road works, development and other pre-planned activities.

5.5.2. New codes of practice are being advanced across the construction and logistics industry which aim to improve driving standards, road safety and conserving fuel. FORS[85] (Fleet Operator Recognition Scheme and CLOCS[86] (Construction Logistics and Community Safety) are an important component of several local authority procurement processes. The FORS scheme is a voluntary accreditation scheme for fleet operators that aim to raise the level of quality within fleet operations, and to demonstrate which operators are achieving exemplary levels of best practice in safety, efficiency, and environmental protection. Driving for Better Business is a Highways England programme to raise awareness of the dramatic

[84] DfT's National Survey of Lorry Parking (2018)
[85] https://www.fors-online.org.uk/cms/
[86] www.clocs.org.uk/page/about



benefits that employers in both the private and public sectors can achieve from managing work-related driving more effectively.[87] Policy PD 3.5 Managing deliveries in urban or other sensitive locations – Supporting Evidence

5.5.3. For urban areas, additional delivery traffic at peak times has implications for network efficiency, as well as carbon and other emission levels. For rural areas, the cost and time factors associated with failed deliveries is significant, because of the distances involved.

5.5.4. Consideration is needed for the use of appropriate 'last mile' delivery methods in urban or other sensitive locations. Using 'Quiet Deliveries' best practice including the retiming of last mile deliveries as a positive tool to manage travel demand in town centres and locations where there are residential properties close by. Through using the 'shoulders' of the day it is possible to make more effective use of the existing network whilst minimising distance and environmental impact, as seen in **Figure PD3 (4)**.

[87] www.drivingforbetterbusiness.com

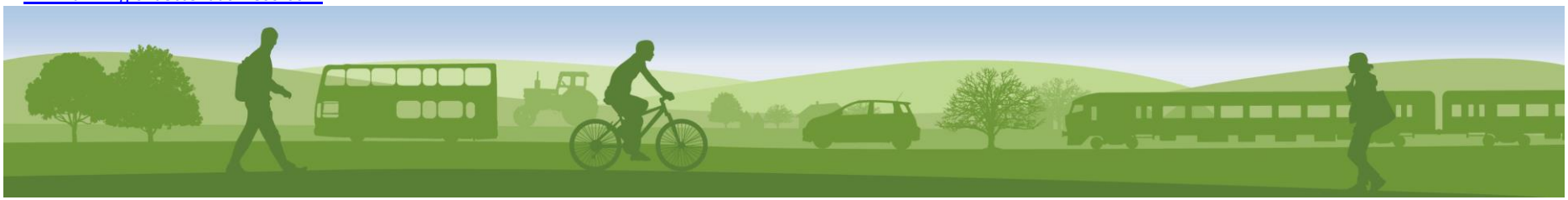
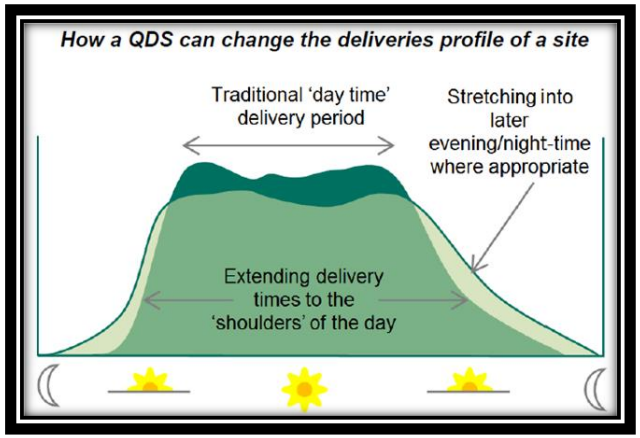


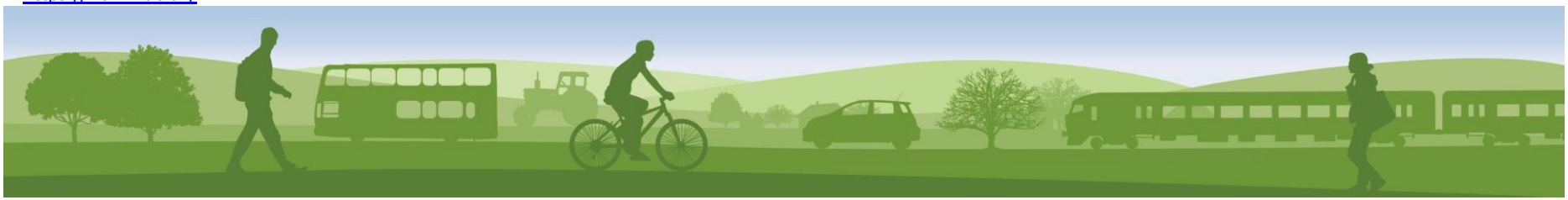
Figure PD3 (4) - How a Quiet Delivery Service can change delivery profiles of a site[88]



5.5.5. Failed UK deliveries cost the industry, but the volume and demand has increased. This brings challenges, as the culture of home delivery in the UK remains at 80% preferred, however the industry research IMRG (UK's industry association for online retail), are recommending incentivising greater use of 'click an collect', improvements in in-transit data among other options to reduce failed deliveries and make last mile deliveries more efficient.[89]

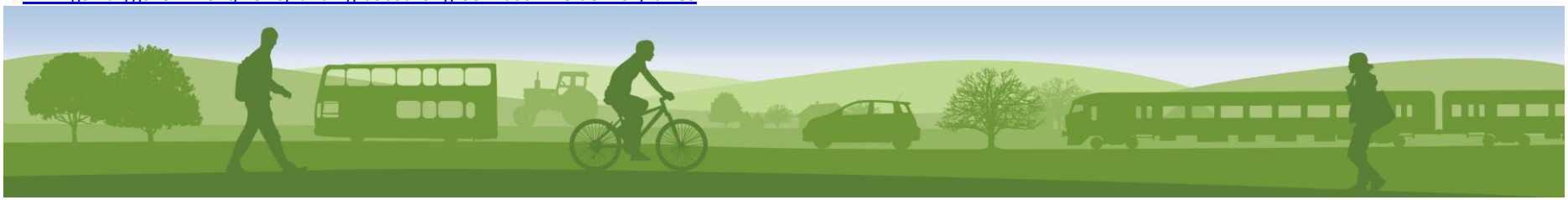
5.5.6. Heriot-Watt University carried out some key logistics research into the impact of failed non-food deliveries, including the additional carbon produced when a failed parcel requires re-delivery by the carrier, with the knock-on effect of a customer travelling to the local depot to collect an undelivered order. On average a single successful first-time delivery generates around 180g of carbon, whereas a 50% fail rate will generates just over 270g of carbon in making that re-delivery.[90] On top of this there are addition carbon emissions when the customer has to drive to collect their parcel from a sorting office or other collections centre.

[88] Department for Transport, Quiet Deliveries Guidance for Local Authorities, 2014
[89] https://www.imrg.org/data-and-reports/imrg-reports/imrg-uk-consumer-home-delivery-review-2018-19/
[90] https://lrc.hw.ac.uk/



5.5.7. The government has announced £2 million to support the uptake of e-cargo bikes, driving UK companies towards a greener future.[91] The funding will help pave the way for electric delivery vehicles to replace older, polluting vans - helping to improve the environment and reduce congestion. Such schemes may be important in areas with vehicle restrictions or high density employment centres where there is an increasing trend for people to receive personal deliveries at work. It also builds on previous government-funded UK trials for e-cargo bikes in the spring 2017. The Department for Transport's Innovation Challenge Fund grant enabled London-based e-cargo bikes to set up their first Micro Hub on an industrial estate in Islington from which grocery delivery trials with Sainsbury's were conducted.

[91] www.gov.uk/government/news/funding-boost-for-green-last-mile-delivery-bikes



5.6. Policy LTP PD 3.6 Rail and Water Freight – Supporting Evidence

5.6.1. There is a national priority to improve connectivity to ports and airports, with ports at Poole, Bristol and Newport and connections to Bristol Airport being particularly important. The Government's Rail Freight Strategy[92] highlighted that each tonne of freight carried by rail reduces carbon emissions by 76% compared to rail.

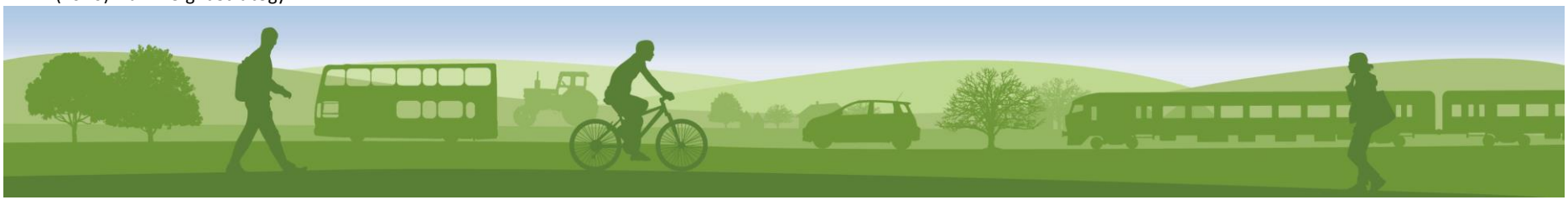
5.6.2. Whilst there are no commercial rail freight terminals in Gloucestershire infrastructure such as sidings exist which could be used as small scale terminals for specific types of freight. These include Gloucester Yard and Lydney. A number of freight facilities exist in neighbouring areas such as at Westerleigh petroleum terminal, Tytherington quarry and Long Marston and generate freight movements through Gloucestershire.

5.6.3. The Ministry of Defence (MOD) currently operate trains to its base in Ashchurch. An earlier LTP identified the aspiration for a commercial freight interchange facility at this location. A technical study considered the commercial potential for the site and concluded that delivery of an intermodal facility would rely on a number of technical constraints being overcome including its ability to accommodate 750m long trains and turning restrictions. The report concluded that the facility would be commercially unviable. The conclusions of this technical study, alongside the aspirations for redeveloping the MOD site for housing and employment, have resulted in GCC no longer supporting a commercial rail interchange facility at Ashchurch.

5.6.4. Small amounts of low level nuclear waste are transferred by rail from the storage facility at Berkeley to Cumbria on a spur that links it to the Bristol to Birmingham mainline.

5.6.5. Sharpness Docks manages bulk trade (mainly aggregates, scrap metal and other bulk products) with routes to France, Spain and Portugal. Entrance to the port is restricted by the tide and the site is accessed by road only. There have been aspirations to reinstate a rail connection to the docks to provide for the transfer of freight, but this would be dependent on a viable business case being agreed by Network Rail and financed through the private sector. Sharpness Docks has potential for onward connectivity to major ports at Southampton, Poole, Newport for example.

[92] DfT (2016): Rail Freight Strategy



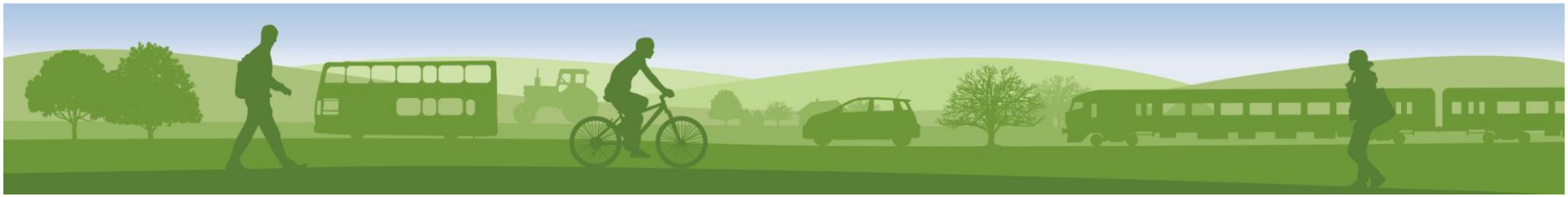
6. Summary of Evidence Supporting Highways Policies (PD4)

6.1. Highways Policies - Context

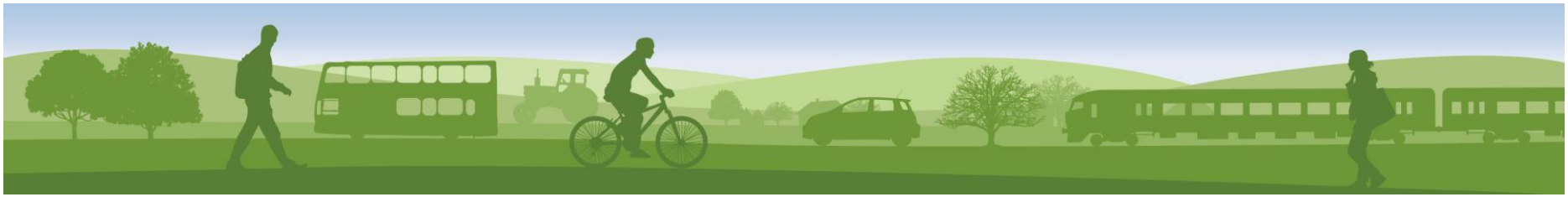
6.1.1. This chapter covers the LTP overarching policies set out below. The supporting summary evidence base is discussed for each policy in section 6.2 – section 6.6 inclusive.

Highways Policies
LTP PD 4.1 - Gloucestershire's Highway Network
LTP PD 4.2 – Highway Network Resilience
LTP PD 4.3 – Highway Maintenance
LTP PD 4.4 – Road Safety
LTP PD 4.5 – On-Street Car Parking

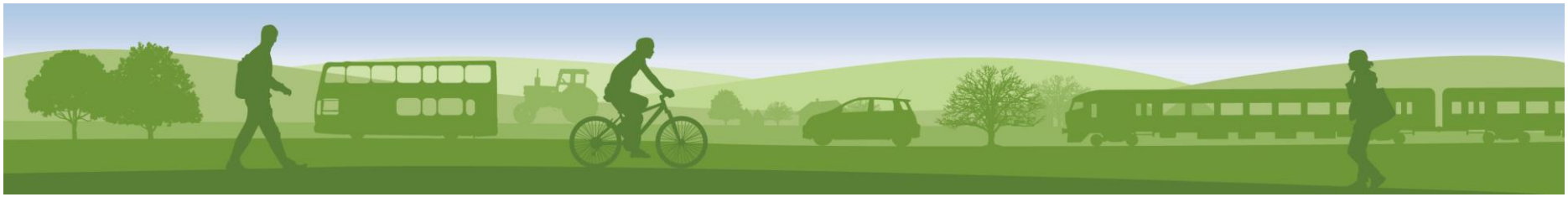
6.1.2. The graphic following shows how the LTP Highways policies link to the LTP Objectives and how Highways policies will contribute to achieving these objectives. It also clearly indicates the expected policy outcomes for each Highways policy as well as investment priorities needed to support these policies.



LTP objective for Highways	LTP Highways policies
Protect and enhance the natural and built environment • Reduced transport derived carbon emission • Transport scheme are designed to reduce the adverse impact of transport on Gloucestershire's high quality natural, built and historic environments	**LTP PD 4.1** **Gloucestershire's Highway Network**
Support sustainable economic growth • Gloucestershire is a place to do business and attract investment • The transport network is accessible, efficient, reliable, fit for purpose and demonstrates value for money • Increased journey time reliability • Greater economic activity • Increased footfall in retail areas • A transport network resilient to extreme weather events • A thriving tourist industry which benefits from ease of access to the county's natural, built and historic environmental assets	**LTP PD 4.2** **Highway Network Resilience**
Enable safe and affordable community connectivity • A business community which benefits from connectivity with local, national and international markets • Individuals benefit from economic prosperity and social benefits such as being able to access employment, education and training	**LTP PD 4.3** **Highway Maintenance**
Improve community health and wellbeing and promote equality of opportunity • Improved air quality • Better safety, security and health by reducing the risk of death, injury or illness arising from transport • Access to services, employment, education, training, amenities and a social network	**LTP PD 4.4** **Road Safety**
	LTP PD 4.5 **On-Street Car Parking**



LTP Highways policies	Expected policy outcomes	Investment priorities include
LTP PD 4.1 Gloucestershire's Highway Network	Implementation of this policy will result in a fit for purpose, reliable and efficient transport network that reduces carbon emissions and air pollution and connects communities, employment and services, with minimal congestion and competitive journey times.	The priorities for further developing a function highway network can be found in the schemes tables in the Delivery chapter.
	The Link and Place Spectrum will inform future investment decisions by recognising those links which are essential to securing conditions for sustainable economic growth as well as the place function of our streets. As evidence from the local plan process emerges, this will inform the need for other network pinch points to be addressed.	
LTP PD 4.2 Highway Network Resilience	Implementation of this policy will result in a highway network which is more robust during unplanned events and a communications system which better informs highway users before and during these events to minimise network disruption.	Continue to deliver highway and flood alleviation schemes which reduce the risk of highway closures on class one and two routes.
	GCC will work to identify the most vulnerable parts of the transport network, making the most of shared intelligence and evidence, and to ensure due regard is paid to flood risk in the creation of policies and plans for Gloucestershire, whilst recognising that it is not economically viable to eliminate flooding altogether, but will look to pool resources to secure funding and provide sustainable highway flood resilience.	
LTP PD 4.3 Highway Maintenance	A strong approach to asset management in Gloucestershire has been developed which, coupled with the implementation of this policy, will provide a level of service which meets our obligations to manage the highway network and contribute to network safety. This will keep the county moving, making Gloucestershire an attractive place to live and do business and that directly protects the public from harm.	The priorities for managing the highways asset include: • Ensuring highways are fit for purpose. • Delivering investment to reduce the highway maintenance backlog. • Upgrading traffic signals including an increased role of intelligent transport systems to better manage travel demand and increase awareness of vehicle delays and alternative travel options.
LTP PD 4.4 Road Safety	The implementation of this policy will result in an improved road safety record on the most dangerous roads, saving lives and minimising economic damage through well designed infrastructure and timeliness of safety defect repairs.	The delivery of road safety schemes will be informed by the safety scheme priority list.
LTP PD 4.5 On-Street Car Parking	The implementation of this policy will result in car parking that is both managed and enforced in a clear way across the county, whilst reducing costs and introducing the potential for flexibility when looking at individual solutions for local parking problems.	The priorities for car parking in Gloucestershire include the ongoing review of supply, demand and charging structure within the main urban areas.



6.2. Policy LTP PD 4.1 Gloucestershire's Highway Network – Supporting Evidence

6.2.1. Gloucestershire benefits from a relatively well connected and efficient highway network, though with a number of challenges due to increased traffic flow growth of 17% between 2000–2017 as seen in **Figure PD3 (1)**, and an increasing awareness of the environmental impacts of transport.

6.2.2. In total, Gloucestershire has about 80 miles of motorway and trunk road and approximately 3,300 miles of local authority managed highway. The network is dominated by the M5 motorway, which runs north-south through the county and provides good connectivity to Birmingham, the Midlands, the North, Bristol and the South West and the M4 corridor (Wales and London).

6.2.3. The Strategic Road Network (SRN) of motorways and other major routes is managed by Highways England and benefits from the Road Investment Strategy. Government announced, as part of the Transport Investment Strategy, that it would take forward proposals to create the Major Road Network (MRN). This middle-tier of local authority 'A' roads sit between the nationally-managed Strategic Road Network (SRN) and the rest of the Local Road Network, as illustrated in **Figure PD4 (1)**.

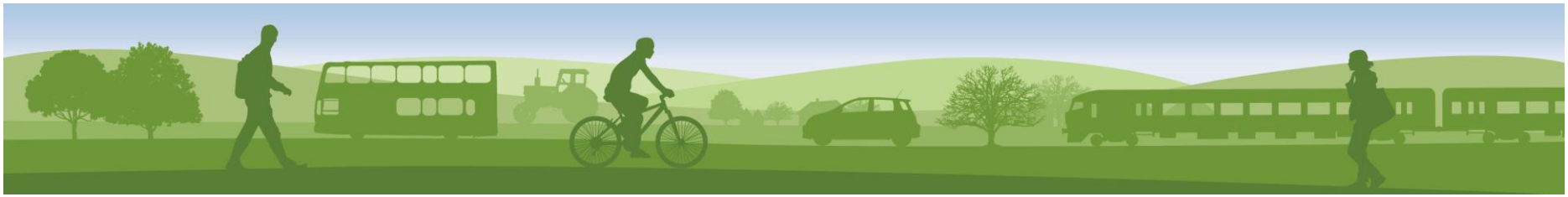
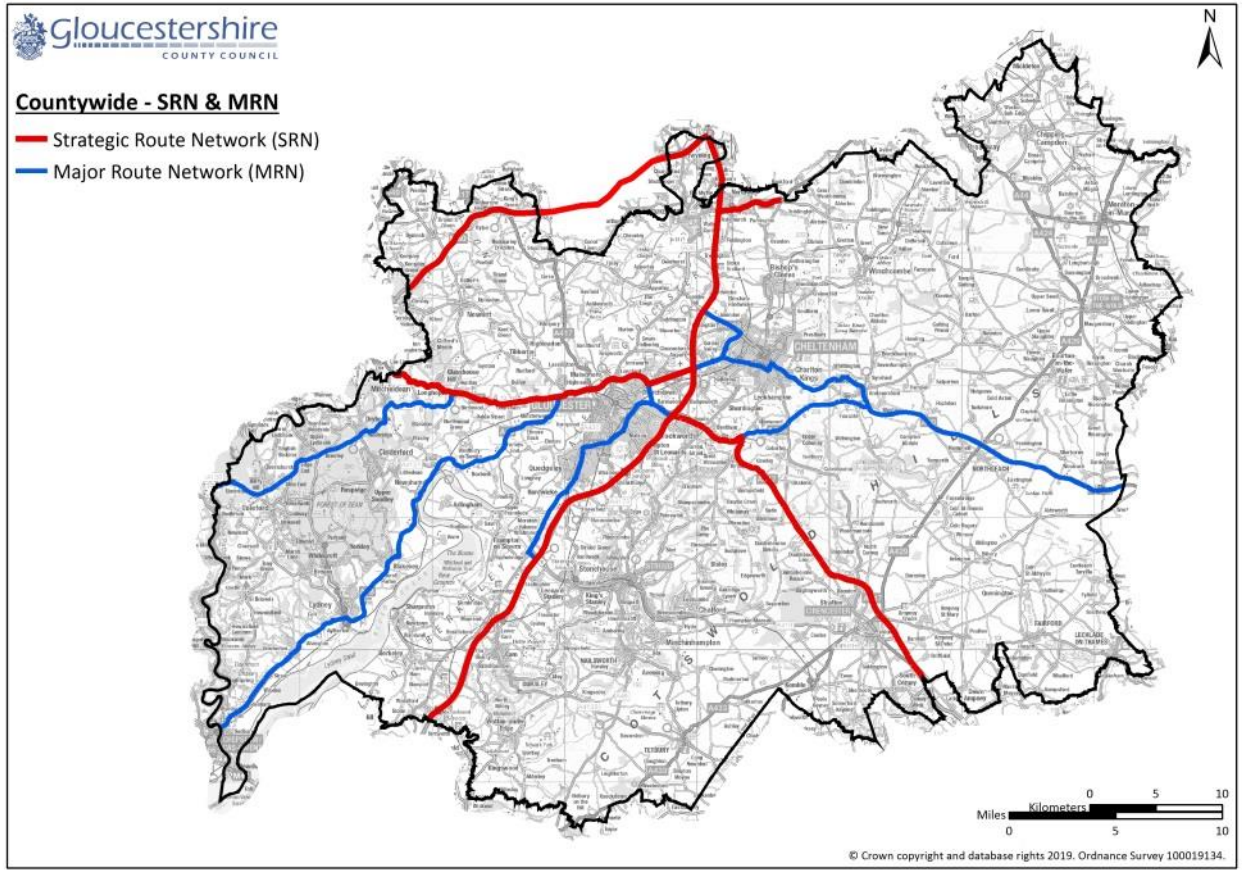
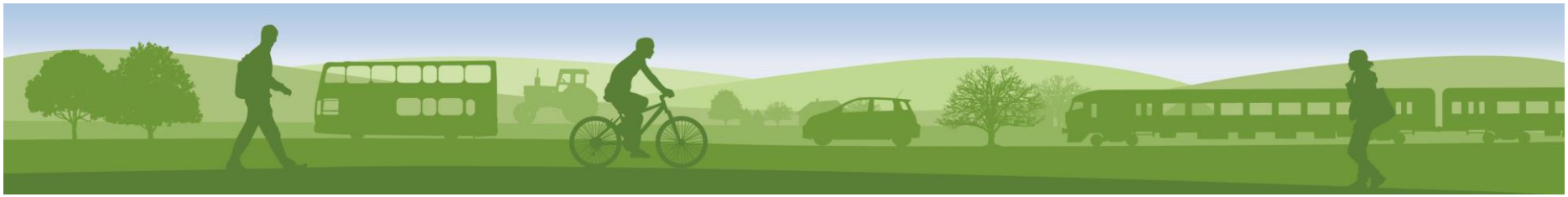


Figure PD4 (1) Gloucestershire Strategic and Major Road Network





6.2.4. The MRN is a new programme that will see substantial amounts of new investment available for road enhancement schemes on the most important local authority roads from 2020/21. Investment Planning Guidance and Regional Evidence Base will enable regions to plan and prioritise investments in the in a way which makes best use of the targeted funding from the NRF, and sets out a structured approach to investment planning. It is aimed at Sub-national Transport Boards (SNTBs). Gloucestershire County Council is part of the Western Gateway SNTB, and is actively engaged in producing the Regional Evidence Base. Any action by GCC to secure benefits through the MRN programme will be within a wider collaboration.

6.2.5. Nationally, the range of traffic growth by vehicle miles forecast is 17% to 51% between 2015 and 2050. High GDP, low fuel and low GDP, high fuel forecasts show a wider range of uncertainty compared to the population based scenarios. The impact on road traffic demand in these scenarios is dominated by the impact of fuel costs, which impact trip distances and the total cost of driving causing switching to or from other modes.[93]

6.2.6. Congestion increases transport emissions and journey time reliability is also strategically critical for the local economy. It is therefore measured in LTP indicator **PI-1 Journey time reliability on strategic important routes during the AM peak,** seen in **Figure PD4 (2)**, showing overall a speeding up of minutes travelled per kilometre, but congestion at peak times remains prevalent between Cheltenham and Gloucester where progress is slowest. LTP Indicator **PI-2 Number of peak hour vehicle journeys** show that in Gloucestershire, journeys are increasing at an average of 1.5% and 1.6% in the AM and PM peaks respectively. Although this exceeds the target set in the LTP, it is less than the national trend of 2.2%.[94] This is likely to worsen in the future as new housing and employment sites are built in these growth areas, but can be mitigated through development funding and other factors. Significant growth will require a continued commitment to providing a range of travel choices that ensure the network remains efficient as journeys continue to increase.

6.2.7. Data on travel to work self-containment is high within the county, illustrating the importance of maintaining good internal and external connectivity with neighbouring areas, so that Gloucestershire residents can benefit from local growth and businesses can benefit from retaining a high local skills base.

[93] Department for Transport (DfT) – Road Traffic Forecasts 2018

[94] www.gloucestershire.gov.uk/transport/gloucestershires-local-transport-plan-2015-2031/local-transport-plan-monitoring

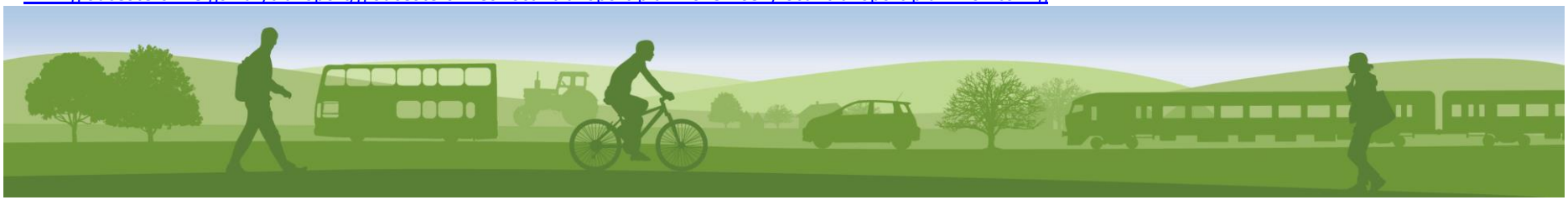
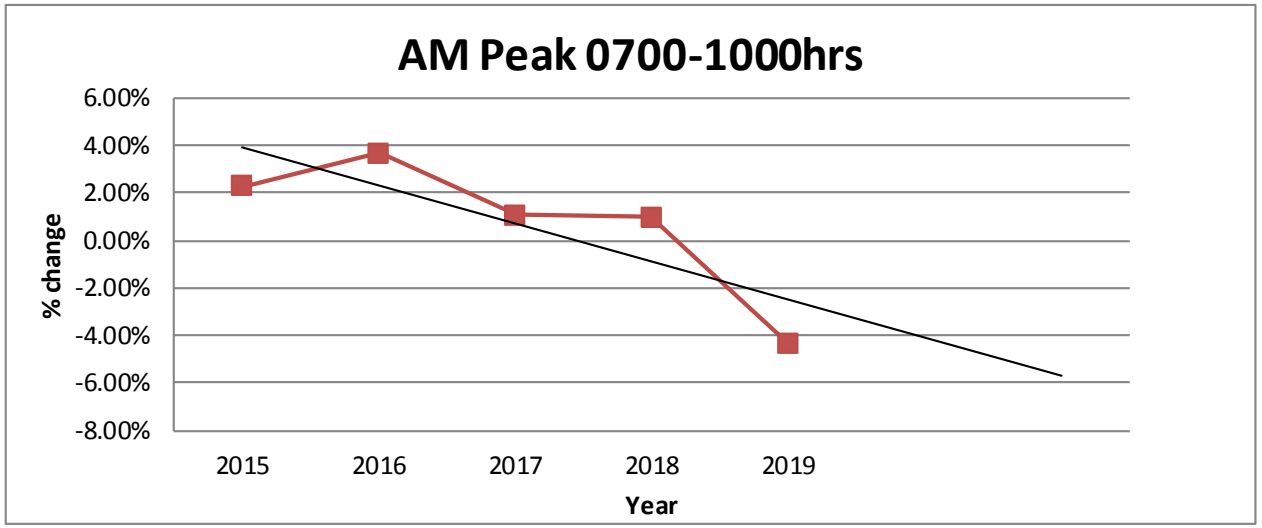
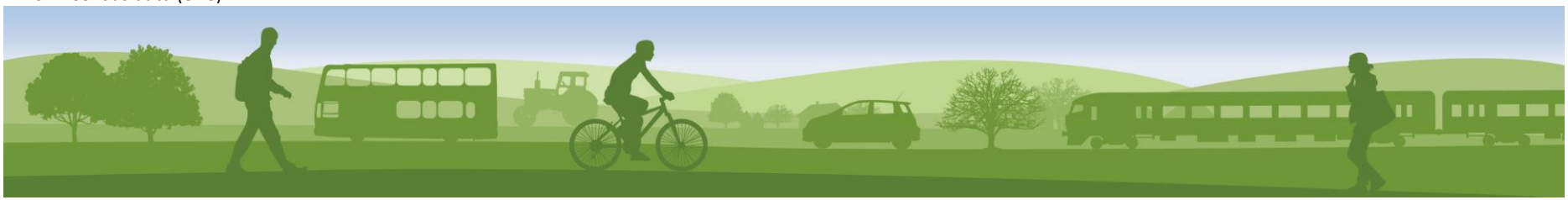


Figure PD4 (2) - Gloucestershire annual growth in the number of peak demand vehicle journeys (am peak)



6.2.8. The population and travel profiles for the county highlight where there is current and future demand for travel on our highways. Gloucestershire is a predominantly rural county. Car and van travel is the predominant choice of travel to work in Gloucestershire.[95] There is a culture of high car dependency and usage in the county. If unmitigated, this, combined with significant planned growth in the county, will place increasing pressure on transport networks across the county and on strategic links to neighbouring areas. This will result in increased journey times by car and bus. Equally, network saturation will have a detrimental impact on local business activity in the county, undermining its capacity to secure growth.

[95] 2011 Census data (ONS)



6.2.9. Nationally, greenhouse gas emissions from road passenger cars account for 55%, HGVs 16.4%, LGVs 15.4% and buses 2.6%[96] as seen earlier in **Figure PD0 (1)** – National Greenhouse Gas Emissions (by source 2017). GCC recognises the impact of emissions on health and is working together with Public Health, Environmental Protection and our partners through the Air Quality and Health Partnership to support the development of an emerging Air Quality & Health Strategy for Gloucestershire. Health, active travel, and electric vehicle sub-groups feed in to strategy development, bringing cross-sector expertise to the table.

6.2.10. The LTP's Overarching Strategy sets out GCC's policy position on environment and health & wellbeing. This plan aligns with the Gloucestershire Sustainable Energy Strategy and the revision of the corporate climate change strategy and action plan. Reducing transport carbon emissions to zero by 2045 is a LTP target (see **PI-14 - Reduce per capita transport carbon emissions**).

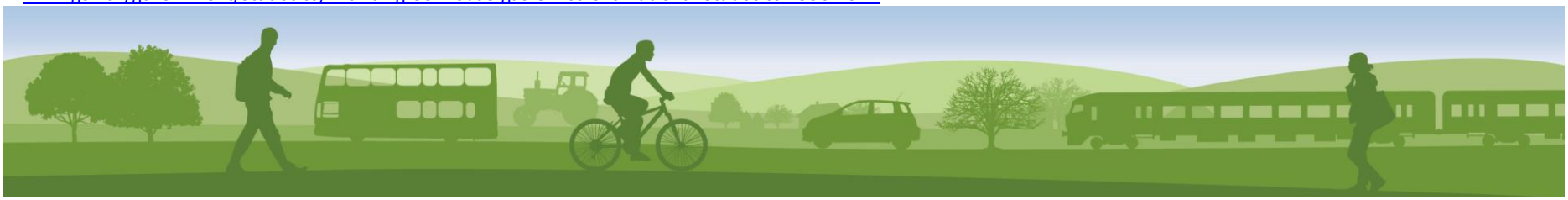
6.3. Policy LTP PD 4.2 – Highway Network Resilience – Supporting Evidence

6.3.1. Due regard for the strategic risk of climate change in line with the Corporate Risk Management Strategy and Gloucestershire Climate Change Strategy is of key importance to Gloucestershire's highway network resilience. Severe Weather Impacts Monitoring (SWIM) and the UK Climate Impacts Programme (UKCIP) monitors and evaluates; bringing resource knowledge to the council to better manage highway resilience in the face of climate change.

6.3.2. In 2007, Gloucestershire experienced an extreme flooding event, in which 5,000 homes and businesses were flooded and 10,000 motorists stranded on the county's highway network. Since then, the county has been hit by further adverse weather conditions. Partnership with district councils, the Environment Agency, GFirst LEP, Homes England, Highways England, Department for Transport (DfT) and any other necessary government bodies, seeks to secure investment in the county's transport network as funding opportunities arise to address highway network flood risk and build in long-term resilience.

6.3.3. There are a number of challenges to providing a resilient highway network as highlighted by the M48 Severn Bridge crossing. There are parts of the network where, under abnormal events, there can be significant impacts on the performance of the highway network as a whole due to

[96] www.gov.uk/government/statistics/final-uk-greenhouse-gas-emissions-national-statistics-1990-2017



limited route alternatives. Other examples include the limited crossing of the River Severn (A40) and Wye and routes through the Stroud Valleys. High winds also present a challenge. The M48 Severn Bridge currently operates under a High Winds Protocol, which dictates that once wind speeds reach a certain level, the bridge is closed to all traffic. The impact on road users is increased journey times, congestion on the M4 and increased use of the A48 and A40 for vehicles seeking alternative routes. There are various pinch points outside of the county that can impact on travel for people travelling to or from Gloucestershire. As well as the Severn Bridges (M4 and M48), there can be issues arising on the M5 at the Almondsbury Interchange and Avonmouth Bridge.

6.3.4. Advanced planning is critical; identifying vulnerable location using HIRAM, developing severe weather plans, having incident de-brief processes and research and development can all help to mitigate against situations, where the resilience of the highway network is under threat.

6.4. Policy LTP PD 4.3 – Highway Maintenance – Supporting Evidence

6.4.1. The 3,300 miles of local highway network in Gloucestershire comprises a range of assets, including carriageways, footways, bridges, traffic signals and street lighting. GCC as local highway authority is responsible for the management of this network. Maintenance of the network is delivered by a GCC appointed highway maintenance supplier.

6.4.2. How this service is delivered is informed by GCC's Transport Asset Management Plan (TAMP), which is the county's strategy for managing highway assets in Gloucestershire and forms part of the Highways Asset Management Framework.[97] Through the life cycle planning of maintenance set out in the Transport TAMP, routine carriageway maintenance has concentrated on safety defect repairs (potholes). Meanwhile, capital spending on structural maintenance has been used to increase patching work and surface dressing programmes.

6.4.3. The percentage of road network in need of maintenance has reduced for all classes of road between 2013 and 2017, as shown in **Figure PD4 (3)**.

[97] www.gloucestershire.gov.uk/transport/transport-asset-management-plan-tamp

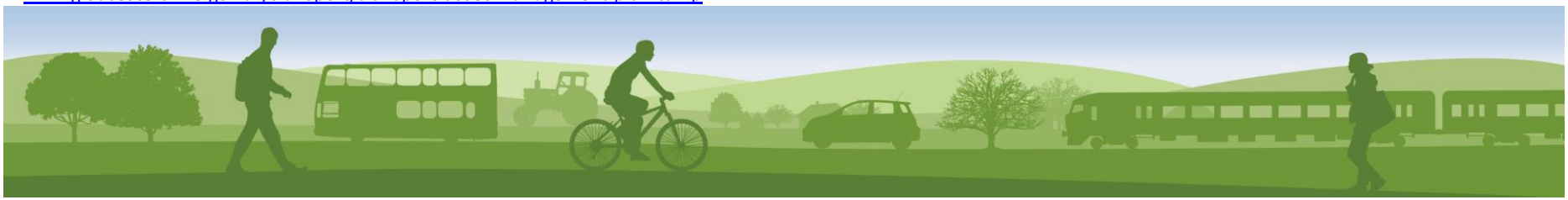
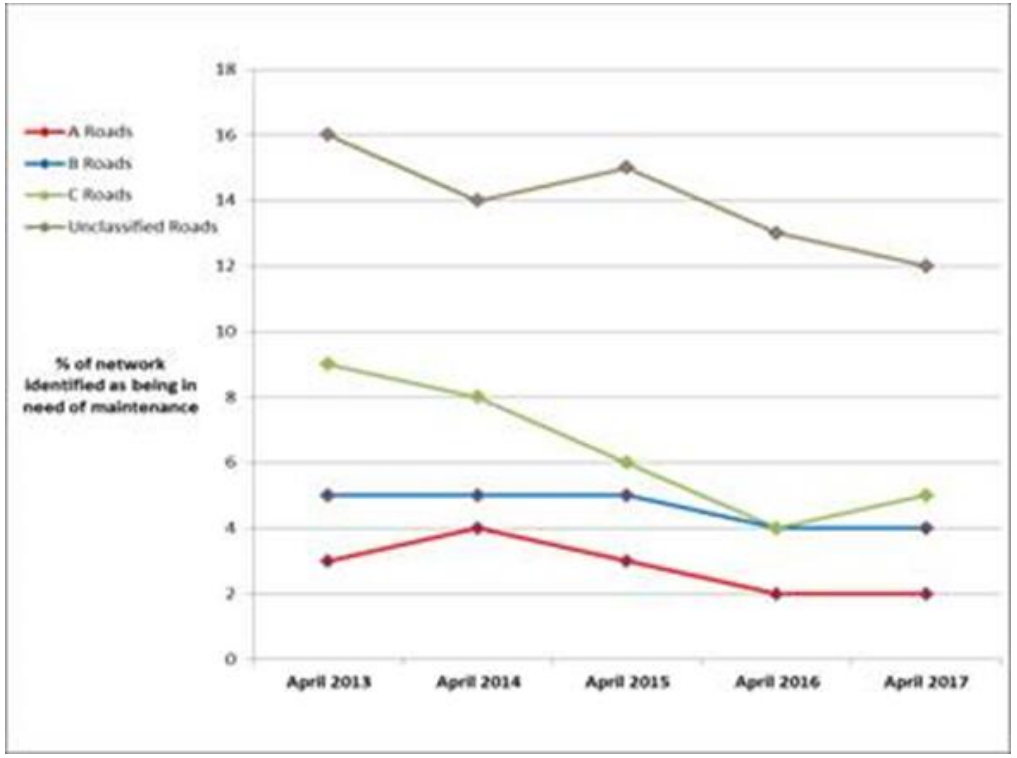
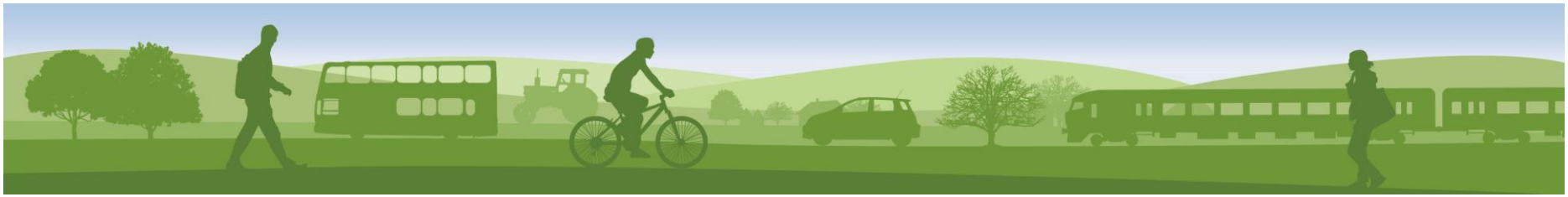


Figure PD4 (3) - TAMP Performance History





6.5. Policy LTP PD 4.4 – Road Safety – Supporting Evidence

6.5.1. The long term trend in the number of casualties in reported road accidents has been broadly flat from 1979 to 1998, allowing for natural variation in the number of casualties. Since 1998 there has been a downward trend in the number of casualties. Trend data shows the number of reported road casualties in Great Britain in 2017 decreased by 13%, against the 2010-14 average.[98]

6.5.2. Local reporting remains focussed on the actual numbers of KSI casualties rather than introducing rates. This data is collated by the Road Safety Hub. The Road Safety Hub collaborates with officers from Gloucestershire County Council's Road Safety Team, Fire and Rescue Service, Gloucestershire Constabulary, as well as officers from GCC Highways and reported in the LTP Progress Report.[99]

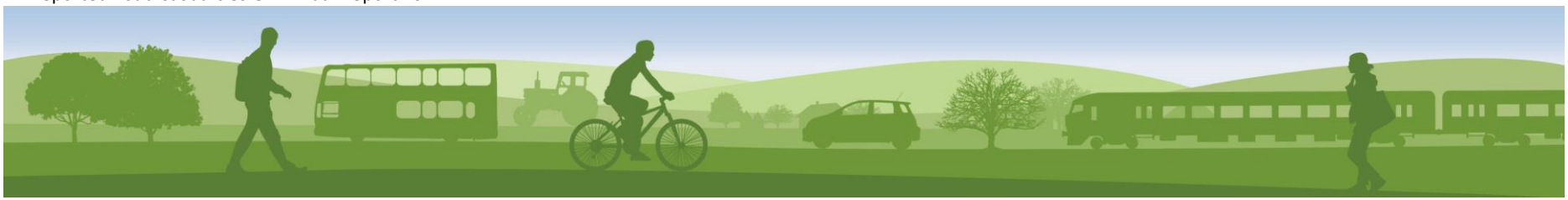
6.5.3. A change in the method of reporting injury collisions has resulted in an increase in the number of serious casualties both locally and nationally on the 2010-14 average (**LTP PI-11 Reduce the number of highway casualties**). Comparison with previous years reporting of all killed and serious injury (KSI) figures should be viewed with caution. The Office for National Statistics (ONS) Methodology Advisory Service have completed analysis to quantify the effect of the introduction of new injury based reporting systems (CRASH and COPA) on the number of slight and serious injuries reported to the police. This is described in detail in the ONS methodology paper.[100]

6.6. Policy LTP PD 4.5 – On -Street Car Parking – Supporting Evidence

6.6.1. The management of parking is one of the most effective means of managing congestion. As Gloucestershire is a two-tier authority, responsibility for parking in the county is shared between the county council and the six district authorities. The control and demand management of on-street parking and Transport Interchange Hubs (previously, traditional park and ride sites) is the responsibility of the county council as the highway authority. The district councils control and manage most public off-street car parks.

6.6.2. Wherever possible, the county council seeks to influence off-street car park charging regimes, specifically in the urban areas, to influence demand management and balance the needs of commuters or employees (i.e. long stay parking) and the requirements of local businesses and shoppers (i.e. short stay parking). GCC continues to review parking restrictions and work with the district councils. Details of the current policies on the provision and management of Residents' Parking can be found on our website, www.gloucestershire.gov.uk/parking.

[98] www.gov.uk/government/statistics/reported-road-casualties-great-britain-annual-report-2017
[99] https://www.gloucestershire.gov.uk/ltp/monitoring
[100] Reported Road Casualties GB Annual Report 2017



6.6.3. Where competition for spaces occurs, priority would normally be given to short stay parking. GCC encourages the development of strategies for town centre on-street car park charges and other controls that benefit short stay over long stay parking. This approach encourage shopping and support economic activity, incentivise more sustainable and congestion friendly travel to work.

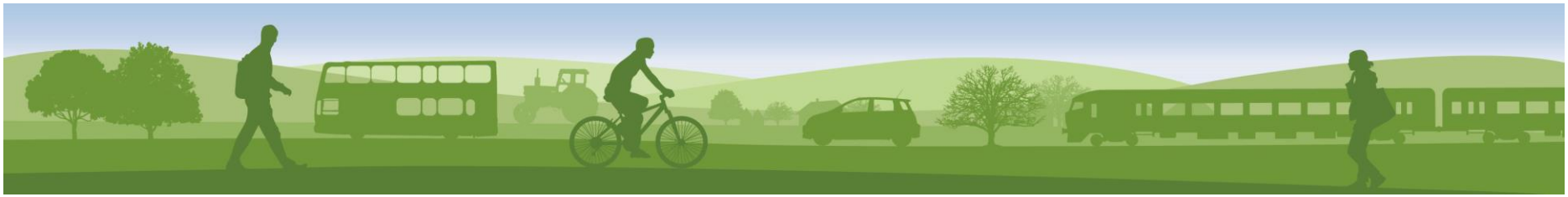
6.6.4. Longer stay commuter parking is discouraged in town centres as it reduces the opportunity for shorter stay parking which is vital to the local economy, subject to the needs of residents being safeguarded. Ongoing partnership with; district councils, local businesses and employees to encourage the use of long stay car parks, Transport Interchange Hubs, car sharing, public transport, cycling and walking for the work journey.

6.6.5. The main issue concerning designated areas of regulated parking is how controls are managed, charged and enforced. Parking controls will be applied selectively, in order to address specific problems. Limited waiting pay and display spaces close to neighborhood shopping centres may be introduced in order to provide adequate short stay spaces without the need for more extensive controls. In areas where conflicts are likely to be more widespread, Controlled Parking Zones (CPZ) or Permit Parking Areas (PPA) being introduced to manage area-wide parking issues. Additional CPZs or PPAs will be introduced as the need arises.

6.6.6. GCC continues to work with District Councils to ensure that adequate provision is made for ranks for the standing of licensed taxis. These provide for access to town centres in locations where parked vehicles do not hinder normal traffic flows. Additionally, part-time evening and overnight ranks are considered in locations which serve the night time economy.

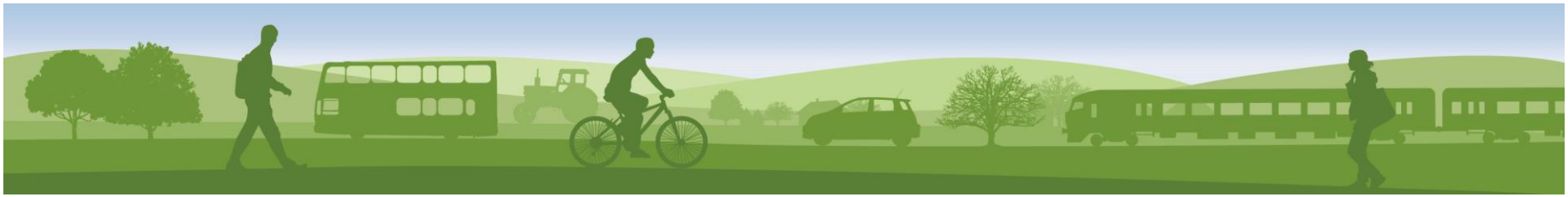
6.6.7. Where new development maximises density, sometimes at the expense of off street parking, this creates pressure for on-street parking spaces, which is not sustainable. Parking creates negative responses in towns and cities, as local residents fear that proposed development will increase pressure on parking in local streets nearby. GCC recognises this issue with examples of excess of 4 parking permits issued for each available on-street parking space in some controlled parking zones. GCC Highways Development Management will encourage where appropriate, 'car-free' or 'permit free' arrangements for new development, electric vehicle charge point and/or alternative infrastructure, 'EV-Car Clubs', as well as guidance for off-street parking to the scale and density it the development proposes and should this not be possible, the developer may be required to enter into an agreement whereby access to on-street permits can be restricted, so as to ensure new development is sustainable and impacts on local residents is minimised.

6.6.8. Electric vehicle charge points and the future proofing of electric vehicle EV-infrastructure will be required for all new development, to support private and community electric vehicle networks. Equally, there should be consideration for EV-Car Clubs associated with new development to



support a community EV-network and ensure a wider personal mobility offer. Car clubs can reduce the pressure on-street and also mitigate the scale and density of a development by providing a personal mobility choice to be used by the community; this is as effective in rural areas as in urban centres.

6.6.9. GCC is seeking clarification on policy guidance for on-street car parking, through the revised Manual for Gloucestershire Streets (MfGS). Guidance for new development should set out provision for, electric vehicle charge point and/or alternative infrastructure, 'EV-Car Clubs', 'car-free' or 'permit free' arrangements for new development, appropriate to location. MfGS can provide for exemplar on-street space, designed and allocated for pedestrians, cyclists, mobility users, deliveries, bus stops and bus priority measures before parking of private vehicles.



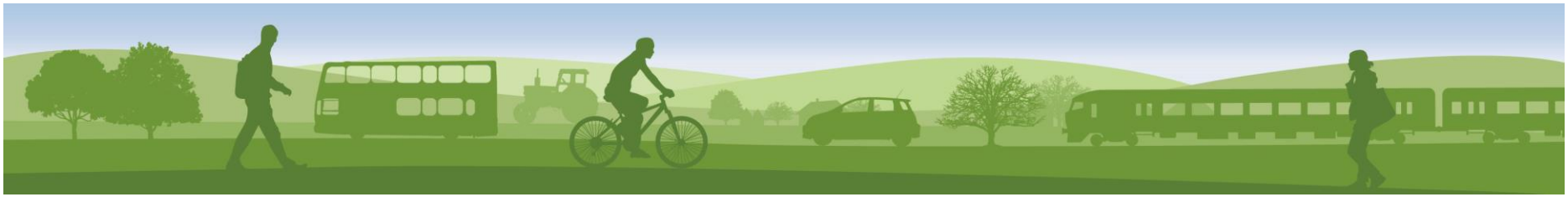
7. Summary of Evidence Supporting Rail Policies (PD5)

7.1. Rail Policies - Context

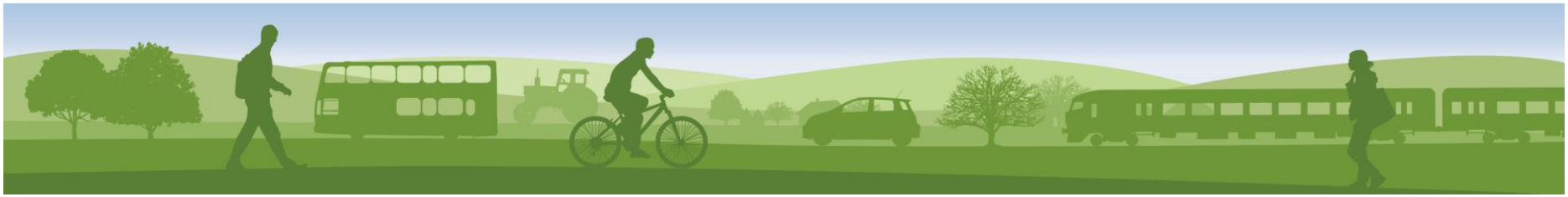
7.1.1. This chapter covers the LTP overarching policies set out below. The supporting summary evidence base is discussed for each policy in section 7.2 – section 7.4 inclusive.

Rail Policies
LTP PD 5.1 – Rail Infrastructure Improvements
LTP PD 5.2 – Rail Service Capacity Improvements
LTP PD 5.3 – Rail Station Improvements

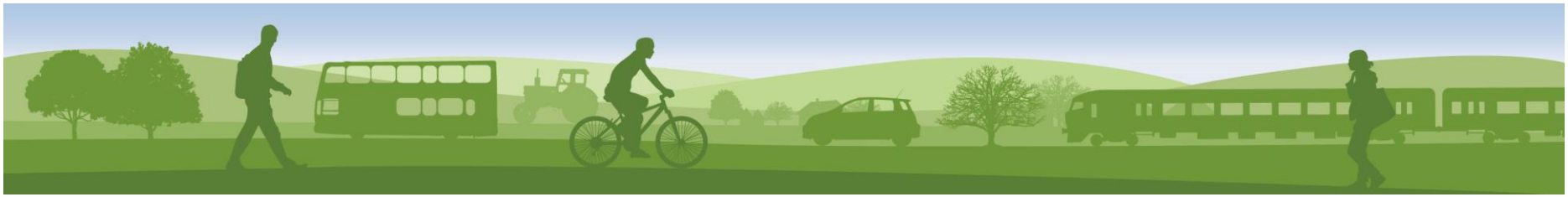
7.1.2. The graphic below shows how the LTP Rail policies link to the LTP Objectives and how Rail policies will contribute to achieving these objectives. It also clearly indicates the expected policy outcomes for each Rail policy as well as investment priorities needed to support these policies.



LTP objectives for Rail	LTP Rail policies
Protect and enhance the natural and built environment • Reduced transport-derived carbon emissions • A reduction in solo car use, and an Increased uptake of more sustainable transport modes (walking, cycling and public transport) • Transport schemes that minimise impact on Gloucestershire's natural, built and historic environments	**LTP PD5.1** **Rail Infrastructure Improvements**
Support sustainable economic growth • Gloucestershire is a place to do business and attract investment • The transport network is accessible, efficient, reliable, fit for purpose and demonstrates value for money • Increased journey time reliability • Greater economic activity • Increased footfall in retail areas • A thriving tourist industry, which benefits from ease of access to the county's natural, built and historic environmental assets	**LTP PD5.2** **Rail Service Capacity Improvements**
Enable safe and affordable community connectivity • A business community which benefits from connectivity with local, national and international markets • Individuals benefit from economic prosperity and social benefits such as being able to access employment, education and training • An integrated transport network which provides genuine transport choices for all ages and abilities	
Improve community health and wellbeing and promote equality of opportunity • Less car trips resulting in fewer journey delays • Improved air quality • Better safety, security and health by reducing the risk of death, injury or illness arising from transport • Access to services, employment, education, training, amenities and a social network	**LTP PD 5.3** **Railway Stations Improvements**



LTP Rail policies	Expected policy outcomes	Investment priorities include
LTP PD5.1 Rail Infrastructure Improvements	Implementation of this policy will result in improved infrastructure to facilitate the operation of service enhancements. This will make rail more attractive, reducing the number of car trips, and therefore carbon emissions and air pollution, and improving connectivity for those without access to a car. Increased connectivity will improve the desirability of Gloucestershire as a place to live, work or visit.	The priorities for rail infrastructure include: • Junction and capacity improvements (dynamic loops) to facilitate more trains and more stopping services, including possible new stations. • Electrification of Bristol to Birmingham mainline and other selective electrification as appropriate. • A new station south of Gloucester. The revenue generated may support the overall business case for the extension of MetroWest to Gloucester.
LTP PD5.2 Rail Service Capacity Improvements	Implementation of this policy will result in improved rail services, which will increase the desirability of using rail for both local and longer distance journeys. This increased level of accessibility will benefit business and individuals as well as reducing greenhouse gas emissions.	The priorities for rail service capacity improvements include: • An hourly service at Ashchurch for Tewkesbury, linked to proposed development. • An improved service linking Gloucester, Cam and Dursley with Bristol (MetroWest Phase 2). • Service enhancements for Lydney with better linkages for Birmingham-Gloucester-Cardiff services and to the Bristol area.
LTP PD 5.3 Railway Stations Improvements	The implementation of this policy will result in the promotion of an accessible rail service which provides safe and convenient transport choices. Facilities must be provided to meet demand and sustainable travel access improvements will increase the desirability of use.	The priorities for railway station access improvements include: • Investment in the improved integration of Cheltenham Spa and Gloucester stations into their surroundings, including local walking & cycling routes, making them attractive, effective gateways into the county's primary urban centres. • Continue to implement complementary enhancements to existing stations including the developments of travel plans, integration of bus services, improved car and cycle parking and customer facilities to help train stations fulfil their role as interchange hubs. • Work with partners to manage growing demand at Kemble Station. Promote this station as a Cirencester Parkway facility. This would require improvements to station facilities, improved sustainable transport linkages with the town and longer-term work alongside the wider rail industry to improve frequencies to Swindon and London services. • Resolving pedestrian access arrangements in Moreton-in-Marsh and increasing car parking capacity.



7.2. Policy LTP PD5.1 - Rail Infrastructure Improvements – Supporting Evidence

7.2.1. Gloucestershire is well placed on the UK rail network, with good connectivity both locally and further afield. Considering the low greenhouse gas emissions from rail transport, Gloucestershire has an interest in increasing rail passenger and rail freight transport in order to work towards achieving its target for transport carbon emissions to be zero by 2045 (see **LTP PI-7 –** Increase use of rail **LTP PI-14** – Reduce per capita transport carbon emissions).

7.2.2. To help manage and ensure that the rail system is planned, funded and operated in a cohesive manner, Network Rail uses a Continuous Modular Strategic Planning (CMSP) process. As well as providing the basis for planning within the rail industry, these processes enable stakeholders, including Local Transport Authorities, to understand the constraints and opportunities affecting the rail sector and how these link to their own plans for development.

7.2.3. Network Rail investments are subject to the eight stage GRIP (Governance for Railway Investment Projects) process which is used to ensure the appropriateness, effectiveness, deliverability and affordability of rail projects. This is effectively a business case process akin to that set out in the Treasury Green Book and in the Transport Business Case guidance. Delivery of infrastructure improvements are managed by Delivery Control Periods, with 5-year planning horizons, they help link investment options with demand models and manage the finance, scheme design and implementation process.

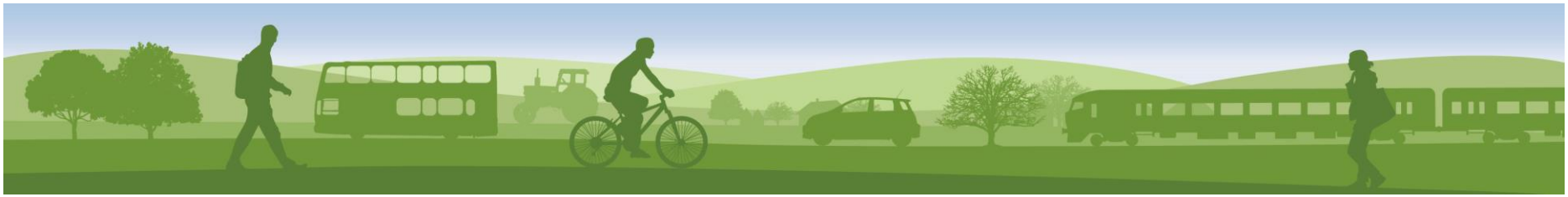
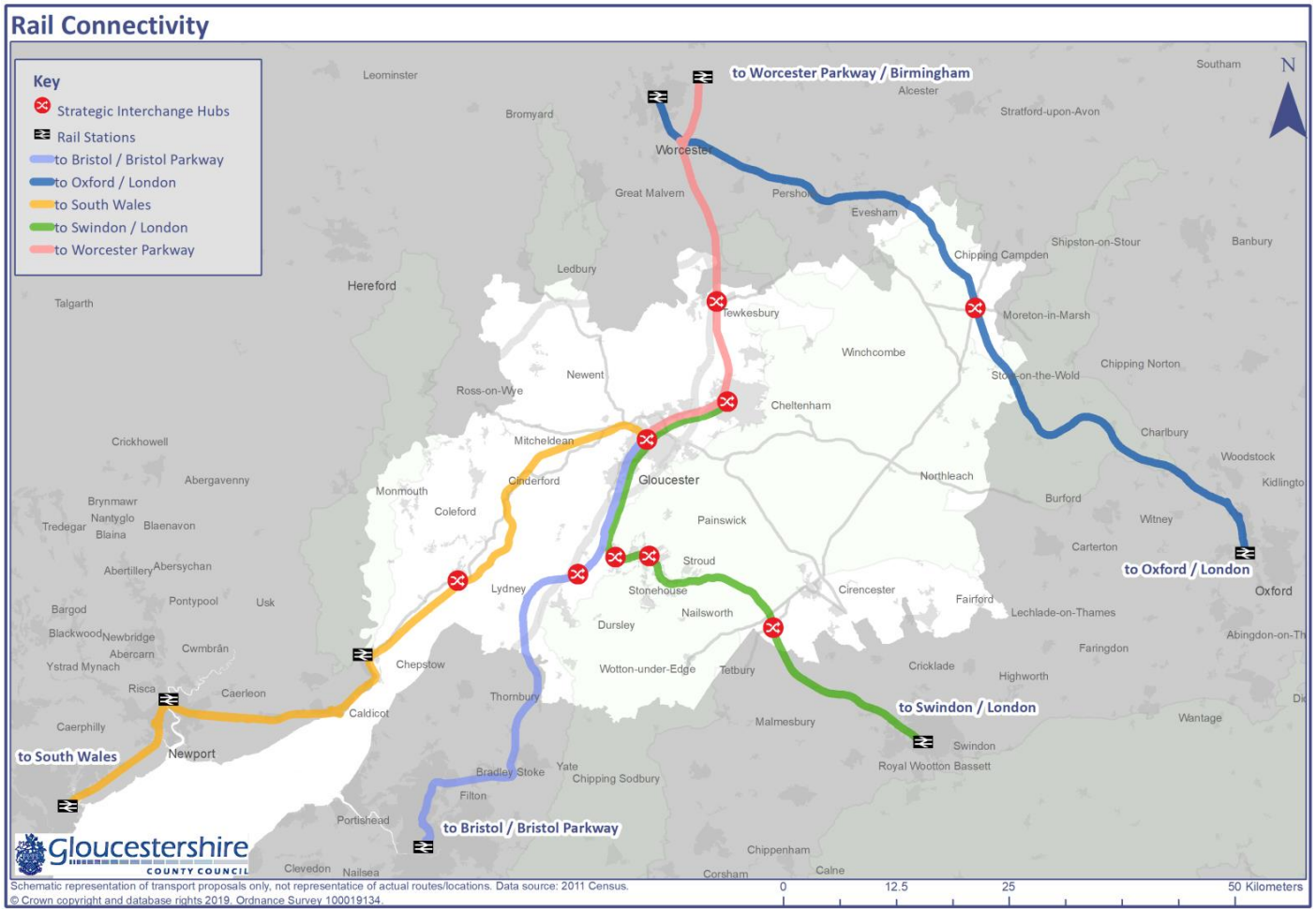
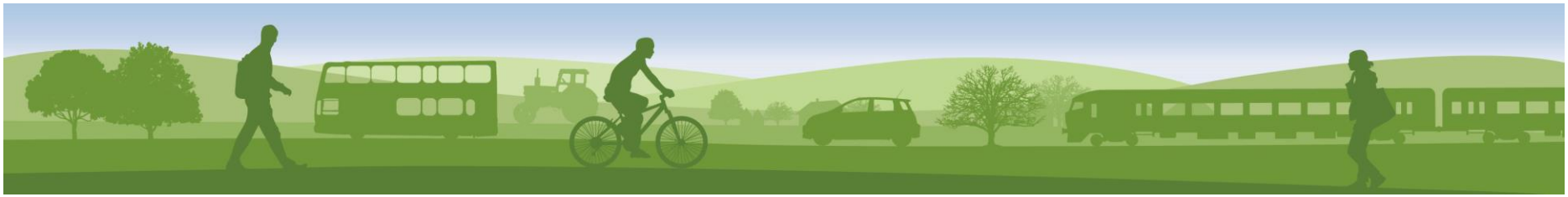


Figure PD5 (1) – Gloucestershire Rail Connectivity





7.3. Policy LTP PD5.2 - Rail Service Capacity Improvements – Supporting Evidence

7.3.1. Table PD5 (a) summarises the main destinations from stations in Gloucestershire. There are service gap impacting connectivity with Bristol, Cardiff and Birmingham, which need to be addressed for Gloucestershire to benefit from wider economic growth.

7.3.2. Improvements to passenger services at Ashchurch for Tewkesbury, as set out in its rail strategy, are important to support the proposed developments in the area. A constraint to improving the services is the shortage of rolling stock and capacity for additional services on the route. If this could be resolved and attendant staffing provided, an hourly service to Worcester and additional stops to Birmingham could be offered without the need for rail infrastructure changes. Any further frequency improvements would involve tackling more fundamental timetabling issues that arise from the mix of fast, slow and freight trains on the route. Such frequency enhancements would need to be considered post-2031.

7.3.3. On the network overseen by Transport for West Midlands (TfWM) is responsible for overseeing the current rail franchise covering the West Midlands with trains operated by West Midlands Trains. In the lead up to the award of this franchise, TfWM was able to secure service improvements and investment in new trains. There may be future potential for trains to extend south to Bristol/Cardiff calling at Ashchurch for Tewkesbury.

7.3.4. GCC is part of the Western Gateway Subnational Transport (SNTB) with which it will work closely to develop regional rail priorities. This will help to achieve the LTP's connectivity goals (e.g. improved services on the Bristol to Birmingham line) and will strengthen Gloucestershire's contribution to the economic development of the South West. The recently published Western Gateway SNTB Rail Strategy identifies Gloucestershire service gaps on the Birmingham to Exeter corridor, Cardiff to Birmingham corridor, Gloucester to Worcester and Bristol to Gloucester.

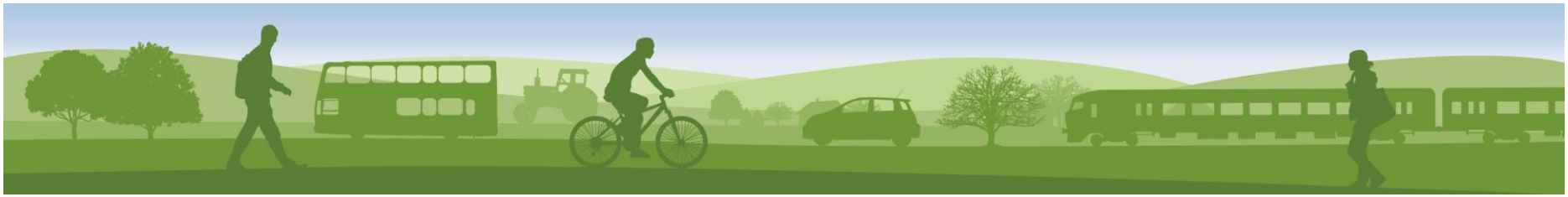
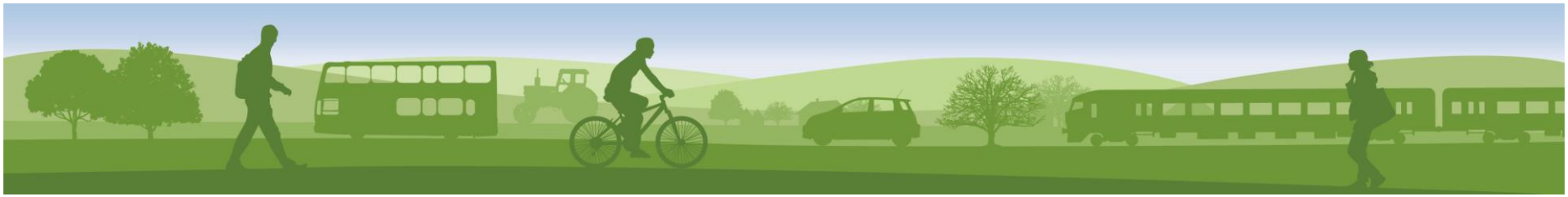


Table PD5 (a) - Summary of Current Rail Destinations

Destinations	Stations Served & Frequency	Franchise
Swindon, Reading and London	• Cheltenham Spa (hourly) • Gloucester (hourly) • Kemble (hourly) • Stonehouse (hourly) • Stroud (hourly)	• Great Western Railway • Runs until April 2020 (possible Direct Award)
Birmingham, Bristol, South-West, North-West and North-East	• Cheltenham Spa (2 per hour) • Gloucester (2 per hour) Connections at Cheltenham Spa	• Cross Country • Runs to November 2019 (extended due to the Government Rail Review)
South Wales	• Cheltenham Spa (2 per hour) • Gloucester (2 per hour) • Lydney (variable)	• Transport for Wales (KeolisAmey) • Runs to October 2033 • *Cross Country (hourly* and on to Birmingham/Derby/ Nottingham)
Bristol/Weymouth (stopping service)	• Cheltenham Spa (2-hourly) • Gloucester (2-hourly) • Ashchurch (2-hourly) • Cam and Dursley (2-hourly)	• Great Western Railway
Great Malvern/Worcester (stopping service)	• Cheltenham Spa (2-hourly) • Gloucester (2-hourly) • Ashchurch (2-hourly) • Cam and Dursley (2-hourly)	• Great Western Railway
Worcester / Oxford / Reading / London	• Moreton-in-Marsh (hourly)	• Great Western Railway • •



7.4. Policy LTP PD 5.3 – Railway Stations Improvements – Supporting Evidence

7.4.1. Rail travel in Gloucestershire increased by 17%, between 2014 and 2017, as shown in **Table PD5 (b)**. Passenger boarding in Cheltenham Spa and Gloucester account for about two thirds of all of the County's use. Service frequencies, especially to the less-used stations, have generally improved in recent times.

7.4.2. Despite this level of growth, there are some constraints that affect the desirability of access to rail services as follows:

- Cheltenham Spa station is about 2km from the town centre in a mature residential area. There is limited scope to provide additional facilities, such as car parking.
- Gloucester station is just off the Bristol to Birmingham mainline. Cross Country trains running to/from Bristol mainly do not stop at Gloucester, necessitating an interchange at Cheltenham Spa. Trains from Cheltenham Spa via Gloucester need to reverse, involving a time penalty of 10-12 minutes.
- Ashchurch for Tewkesbury station is located within a business park, close to M5 junction 9, and about 2.5km from Tewkesbury town centre. A limited train service exists and facilities at the station are basic.
- Lydney station is about 1.5km from the town. Whilst access for pedestrians and cyclists is being improved the value of the town's rail asset is currently limited.
- Kemble station serves the town of Cirencester, which is some 6km distant. GWR have recently built a new 330 space car park.
- Cam and Dursley station car park is usually full from early in the morning, leading to inappropriate parking in the surrounding area.
- Stonehouse station is in a residential area, limiting access and restricting the scope for car parking.

7.4.3. For reasons of ease of access, availability of car parking and cost of travel, some Gloucestershire residents use railway stations outside of the county. This may indicate that there is potential to grow the use of rail within the county if facilities and service are improved.

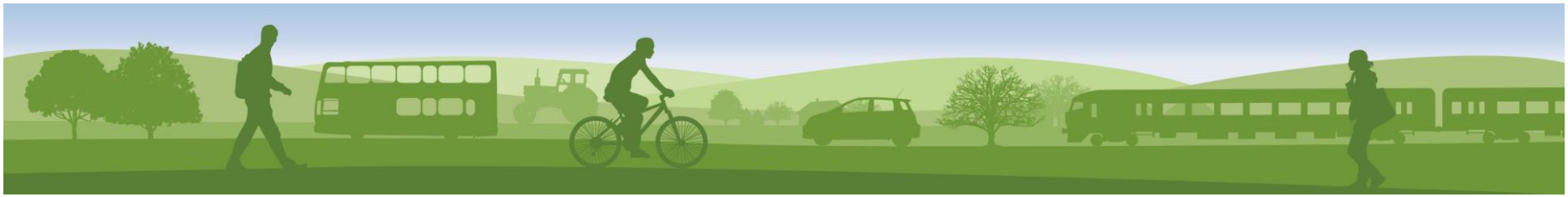
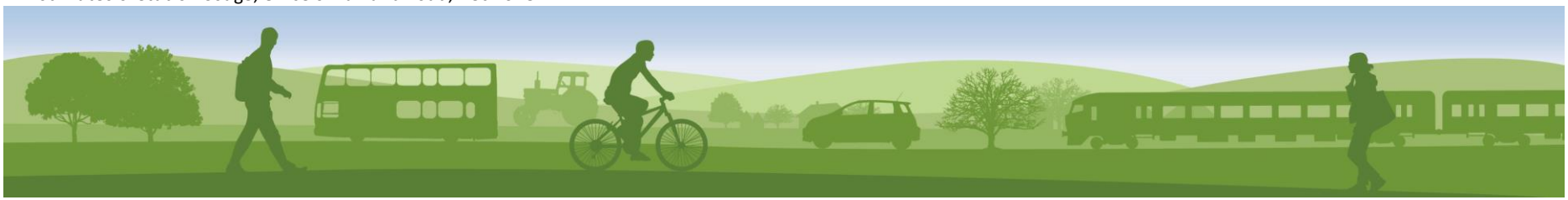


Table PD5 (b) - Station Patronage[101] (entrances and exits)

Station	2014/15	2018/19	Change %
Cheltenham*	2,038,404	2,467,768	21%
Ashchurch for Tewkesbury	87,384	102,688	18%
Stroud	490,546	561,892	15%
Moreton in Marsh	237,198	273,018	15%
Stonehouse	148,380	166,144	12%
Gloucester*	1,364,142	1,520,744	11%
Kemble	356,078	387,798	9%
Lydney*	192,032	198,752	3.5%
Cam and Dursley	185,504	191,426	3%
Gloucestershire	**5,099,668**	**5,870,230**	**15%**

***Office of Rail and Road (ORR) have revised 2018/19 figures.**

[101] Estimates of Station Usage, Office of Rail and Road, Dec 2018



7.4.4. While there are ongoing discussions with TOCs and Network Rail to improve station facilities, improving access to stations is an issue that GCC can directly influence. Each location has its own set of issues, as summarised below:

7.4.5. **Cheltenham Spa** is the county's busiest station, with over 2 million passengers per year. It is categorised by Network Rail, the same as Worcester Shrub Hill and Bath Spa. Although located almost 2km from the town centre, the station is an important asset and a gateway to the town and surrounding area. Following concerns about the lack of investment in the station, progress has been made to improve car parking, bus access on the forecourt and general station facilities with a package of different funding sources. Plans for improved connections to existing walking and cycling networks are also ongoing.

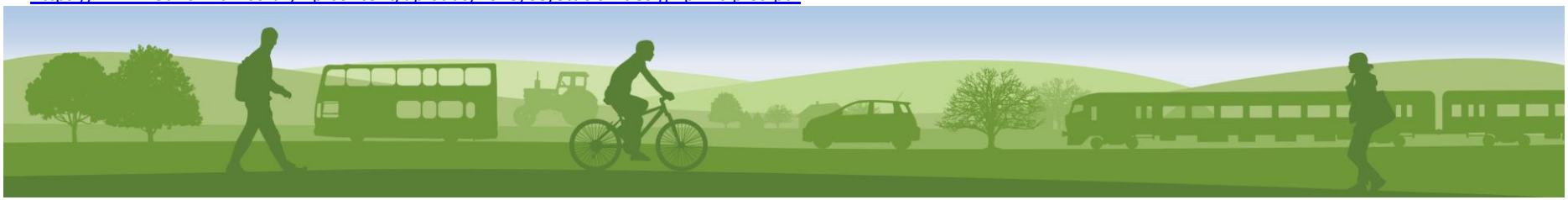
7.4.6. **Gloucester** has significant potential for growth. The centrally-located rail station is an asset and could assist in the provision of valuable development land attractive to high-value businesses. Improved links to London and access to Birmingham, Bristol and Cardiff are fundamental to this. However, the station is not on the Bristol to Birmingham mainline. Improvements in the area around the station will start to create an improved gateway to the city. The Gloucester Transport Hub has recently opened, which will facilitate public transport interchange. Furthermore, additional car parking has been provided on the north-side of the station, with a new direct access onto the platforms. There has been a successful bid for Growth Deal funding for rail station enhancements, including a separate entrance and exit to the car park, improved pedestrian and cycle routes and refurbishment of the station subway, including wheelchair access.

7.4.7. **Stroud and Stonehouse** stations need upgrading. Both require Disability Discrimination Act (DDA) compliant footbridges[102]. Stroud requires upgrading of station facilities' and improved forecourt arrangements for pedestrians and cyclists. The County Council will work with Stroud Town Council and other stakeholders to deliver these improvements. Stonehouse Station is surrounded by residential development, making access difficult and scope for car parking constrained.

7.4.8. **Cam and Dursley** is a popular station for travel to and from Bristol. Demand is likely to continue to grow with further development proposed in the area. GCC is looking at expanding the size of the car park and improving cycle links.

7.4.9. **Kemble** station is popular due to its wide catchment area and demand is likely to grow with development in and around Cirencester. Given Kemble's rail station's location as a 'parkway, and the hourly direct service to London demand will only continue to increase at the station. It is therefore important that access improvements, including bus and cycle access, are delivered as part of planned housing growth in the local area. GWR has recently built a new 330 space car park.

[102] https://www.networkrail.co.uk/wp-content/uploads/2019/03/Station-design-principles.pdf

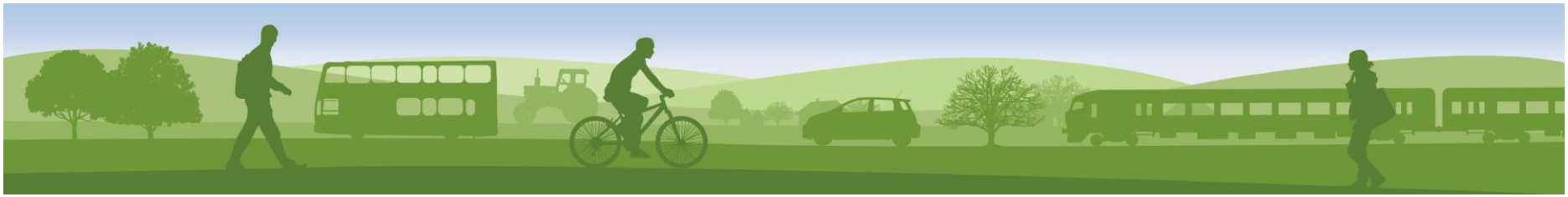


7.4.10. **Lydney** station is around 1.5km from the town. It is the only station in the Forest of Dean. Growth Deal funding has improved pedestrian and cycle links between the station and town centre. Forest of Dean District Council is keen to see improvements to the station, as currently facilities are poor. The train service has improved in recent years, but it would be useful if more trains stopped there. Further proposals are under consideration for redevelopment of the harbour just over 1km to the east of the station.

7.4.11. **Moreton-in-Marsh** station serves communities in the North Cotswold area, providing access to Worcester, Oxford, Reading and London. It also acts as a gateway to the Cotswolds for visitors to the area. The station is located in the town centre and is generally in good repair, requiring only minimal improvements. Pedestrian access over the A429 High Street railway bridge is an issue within the town, with many people choosing to use the station to cross the railway line. This informal arrangement is not being discouraged by Network Rail or Great Western Railway. However, there is a need to formalise access either with an arrangement with Network Rail or changes in the access arrangements for the A429 High Street Railway Bridge. There is an urgent need for an increase in station parking if the station is to benefit from increased services being worked up by the North Cotswold Line Task Force

7.4.12. **Ashchurch for Tewkesbury** station is only served by a train every two hours to Worcester and a couple of services to Birmingham. Increasing the frequency to at least hourly service is essential to help serve nearby development. The station has only basic facilities and there is a need for investment. Tewkesbury Borough Council commissioned a strategy for the station, in conjunction with the master plan for the area. It sets out a list of station and service improvements. In the short term, the priority for Ashchurch for Tewkesbury station is improved passenger facilities, including walk & cycle access, buses along the A46 / A438 corridor and car parking at the station. The recently completed rail strategy sets out a number of priorities for the station primarily improved connectivity to Birmingham, Worcester and enhanced station facilities.

7.4.13. Station access key finding and recommendations in the LTP (2020-2041) summarises the key findings and short-term recommendations for access improvements at each station.



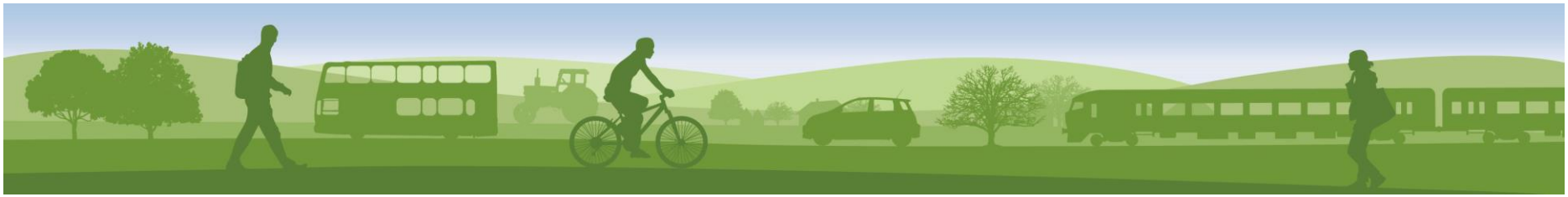
8. Summary of Evidence Supporting Walk Policies (PD6)

8.1. Walk Policies – Context

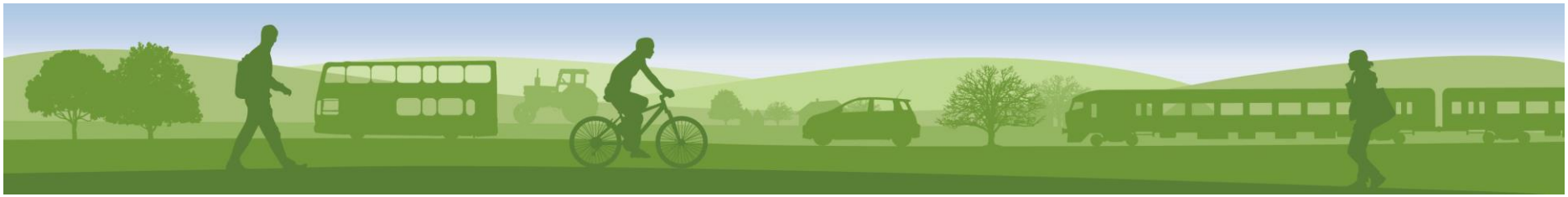
8.1.1. This chapter covers the LTP overarching policies set out below. The supporting summary evidence base is discussed for each policy in section 8.2 – section 8.5 inclusive.

Walking Policies
LTP PD 6.1 – Gloucestershire's Pedestrian Network
LTP PD 6.2 – Rights of Way
LTP PD 6.3 – Pedestrian Asset Management
LTP 6.4 – Pedestrian Safety

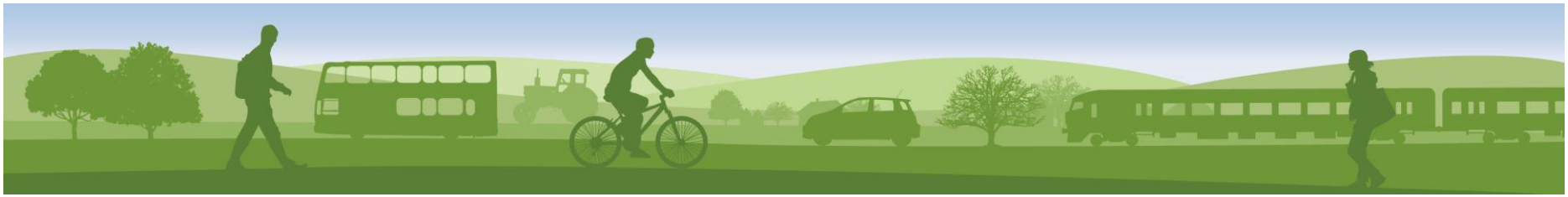
8.1.2. The graphic following shows how the LTP Walk policies link to the LTP Objectives and how policies will contribute to achieving these objectives. It also clearly indicates the expected policy outcomes for each Walk policy as well as investment priorities needed to support these policies.



LTP Objectives for Walking	LTP Walking Policies
Protect and enhance the natural and built environment • Reduced transport-derived carbon emissions • A reduction in solo car use, and an Increased uptake of more sustainable transport modes (walking, cycling and public transport) • Transport schemes that minimise impact on Gloucestershire's natural, built and historic environments	**LTP PD6.1** **Gloucestershire's Pedestrian Network**
Support sustainable economic growth • The transport network is accessible, efficient, reliable, fit for purpose and demonstrates value for money • Increased journey time reliability • Greater economic activity • Increased footfall in retail areas • A thriving tourist industry, which benefits from ease of access to the county's natural, built and historic environmental assets	**LTP PD6.2** **Rights of Way**
Enable safe and affordable community connectivity • Individuals benefit from economic prosperity and social benefits such as being able to access employment, education and training • An integrated transport network which provides genuine transport choices for all ages and abilities • A transport network which provides individuals with the confidence to consider all travel choices.	**LTP PD 6.3** **Pedestrian Asset Management**
Improve community health and wellbeing and promote equality of opportunity • Less car trips resulting in fewer journey delays • Increased number of walking trips • Improved air quality • A healthy more active population, supporting physical and mental health and wellbeing • Better safety, security and health by reducing the risk of death, injury or illness arising from transport • Access to services, employment, education, training, amenities and a social network	**LTP PD 6.4** **Pedestrian Safety**



LTP Walking Policies	Expected Policy Outcomes	Investment priorities include
LTP PD 6.1 Gloucestershire's Pedestrian Network	This policy will seek to improve walking routs and local networks by: • Utilising opportunities as they arise. • Responding to safety requirements. • Identifying and addressing barriers to pedestrian and mobility user movement. The implementation of this policy will result in a safe and well-connected pedestrian network that encourages walking, help to achieve a more physically active population and lower levels of pedestrian related road accidents. It will also support the county's tourist industry and will benefit from ease of access to the county's natural, built and historic environmental assets.	The priorities for supporting walking in Gloucestershire are identified in the schemes tables in the Delivery chapter.
LTP PD 6.2 Rights of Way	The implementation of this policy will contribute towards increased numbers of walking and cycling trips while supporting the county's tourist industry, which will benefit from ease of access to the county's natural, built and historic environmental assets. Access to the countryside will improve health and wellbeing. Planning for active travel will provide triple wins for the economy, health and the environment. As part of daily activity, environments promoting and supporting people's physical activity and access for mobility impaired individuals will achieve and sustain better health outcomes.	Support the Rights of Way and Countryside Access Improvement Plan.
LTP PD 6.3 Pedestrian Asset Management	The implementation of this policy will result in well maintained infrastructure, which offers significant benefit for pedestrians.	The priorities for maintaining a functioning pedestrian network will be prioritised in line with GCC's highway maintenance programme.
LTP PD 6.4 Pedestrian Safety	The outcome of this policy will be to identify and address the factors that improve pedestrian safety, ranging from the design of hard infrastructure to promoting active travel routes.	The main opportunities to improve pedestrian safety include: • Pedestrian safety training in schools. • Workplace Travel Plans. • Personalised Travel Planning for new development. • Increased awareness of Thinktravel programme, sustainable travel information and service delivery • Reduced speed limits.



8.2. Policy LTP PD 6.1 – Gloucestershire's Pedestrian Network – Supporting Evidence

8.2.1. Walking is the second most common mode for trips, but accounts for a small share of distance as walking trips tend to be shorter than average. Pedestrians make up 27% of all journeys nationally, but cover only 3% of distance. Walking is often an important part of longer public transport journeys. The average walking trip is 18 mins long.[103] A large proportion of journeys are local, typically less than five miles in length. Given this, most of our everyday journeys could be walked, travelled by mobility scooter or cycled.

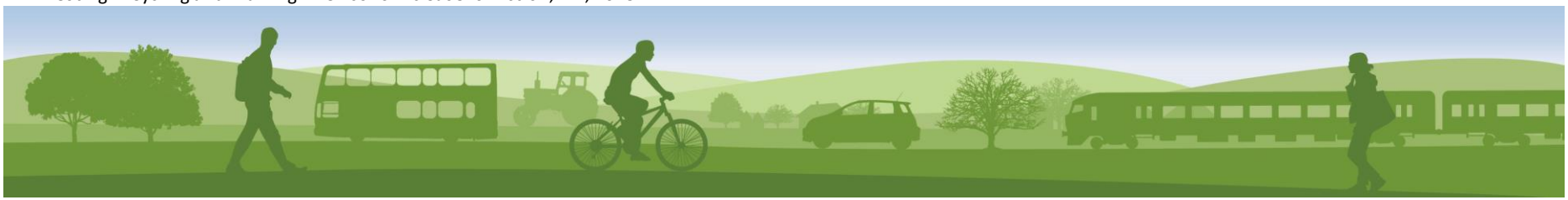
8.2.2. In 2017, the average person walked 206 miles and made 343 walking journey stages (journeys which may also form part of longer journeys involving other modes). 'Just Walk' is the most common trip purpose (23% of all walking trips) whilst commuting or business was the least common purpose (7% of all walking trips).[104] Further information on the frequency of walking in Gloucestershire, either for leisure or for travel, is available in the annual Active Lives Survey coordinated by Sport England.

8.2.3. High quality walking infrastructure is elemental to enabling travel choice; promotion of those choices in critical. Directing efforts to marketing and promoting of new and existing transport facilities not only helps spread the message and improve their economic viability but, over time, starts to shape new social norms.

8.2.4. Schemes to encourage travel behaviour change to sustainable transport modes have demonstrated an average benefit to cost ratio (BCR) of 5:1, which represents high value for money, with 90% of benefits attributable to congestion reduction.[105] This highlights the direct link between the promotion of non-car modes delivering local economic benefits, by relieving the pressure on the strategic road network creating efficiency and reliability for passenger and freight journeys.

8.2.5. The pedestrian route network is the most extensive of all transport networks since it includes the majority of the road network, including any associated footways, cycleways and bridle paths, public spaces and the network of pedestrian rights of way including public footpaths and other routes with public access.

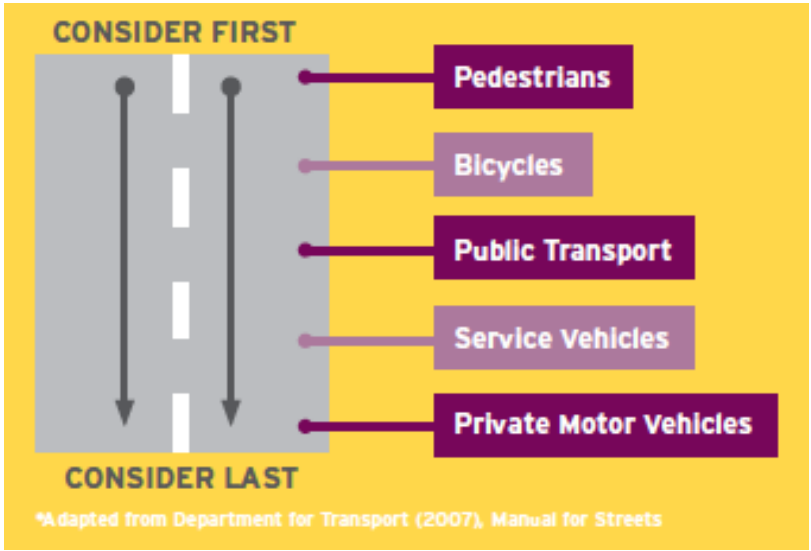
[103] Walking Factsheet, National Travel Survey 2018
[104] Walking and Cycling Statistics, England, DfT, 2017
[105] Investing in Cycling and Walking: The Economic Case for Action, DfT, 2015



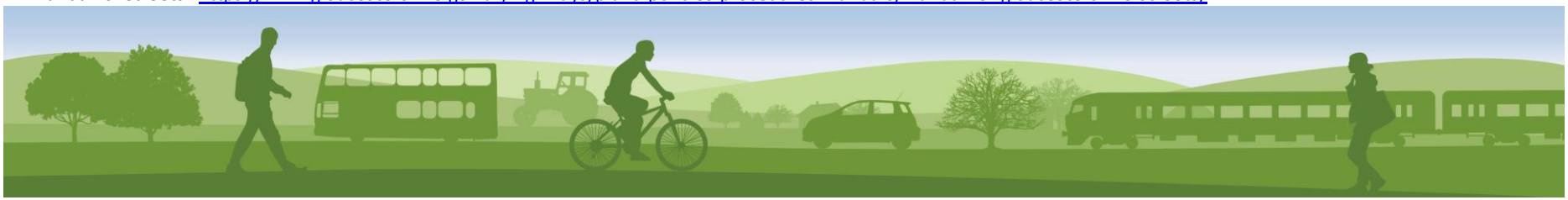
8.2.6. Topography, directness of route, route continuity, the quality of street lighting and extent of natural surveillance are other factors that can have a significant influence on pedestrian movements. Good street design and well managed footpath maintenance are vital to the safe interaction of pedestrians, mobility scooters and other road users and can address safety concerns which can discourage walking and can lead to social exclusion.

8.2.7. Pedestrians' needs are often considered last. Introducing a hierarchy of road users, as specified in Manual for Streets,[106] with pedestrian needs at the top can support pedestrian movements, shown in **Figure PD6 (1)**. There is also a need to closely consider the needs of 'protected groups' such as for the visually or hearing impaired, who may sometimes find traditional street layouts easier to navigate.

Figure PD6 (1): Road User Hierarchy (Manual for Streets)



[106] Manual for Streets - https://www.gloucestershire.gov.uk/highways/plans-policies-procedures-manuals/manual-for-gloucestershire-streets/



8.2.8. An important outcome of the LTP is to provide individuals with the confidence to consider all travel choices. This will be achieved on a scheme by scheme basis where a statement of background information on current or potential non-motorised users (NMUs) should be completed on issues relevant to the scheme. The NMU Context Report should ensure that appropriate decisions on scheme design are considered and particular attention is given to disabled people under the Design manual for Road and Bridges (DMRB) standard.[107]

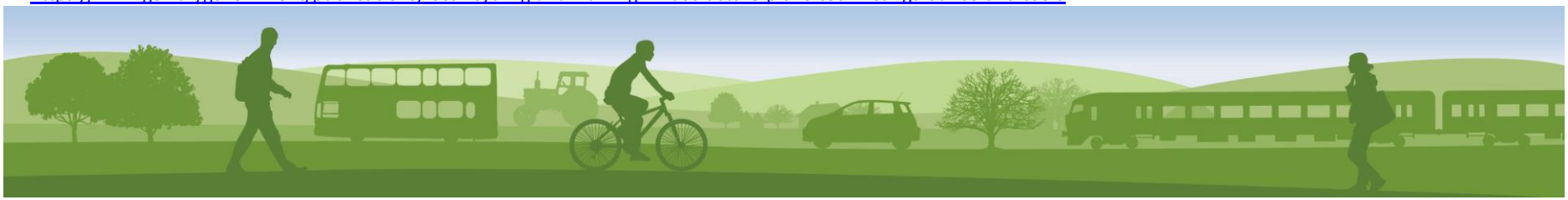
8.2.9. Gloucestershire's aging population will see an increase in the use of mobility scooters and powered mobility vehicles (PUVs), as forecast nationally. Mobility scooters differ from wheelchairs in a number of ways, including build specification, manoeuvrability and speed. The range of transport and road policy areas that could potentially be impacted by a significant growth in numbers of mobility scooter users is significant. "Best estimates" put the number of units sold per year at approximately 80,000 and total number of UK users at approximately 300-350,000. There remains an urgent need for accurate statistics on mobility scooter use for policy makers and those planning public transport, road and pedestrian infrastructure. Legally, mobility scooters are divided into two categories. Class 2 mobility scooters are intended for pavement use only and Class 3 mobility scooters are intended for use on the road or the pavement.

8.2.10. In response to the Government's Cycle and Walking Investment Strategy (2017), Gloucestershire County Council is developing a series of Local Cycling and Walking Infrastructure Plans (LCWIP). These will consider strategic walking routes and identify investment opportunities for improvements to encourage more walking along specified corridors and in walking hotspots or zones such as urban centres or public transport hubs. The LCWIP will work towards walking network maps, over time these will become available at www.gloucestershire.gov.uk/lcwip.

8.2.11. The first LCWIP is being developed for the Central Severn Vale area, which includes Cheltenham and Gloucester. This has considered main trip attractors and desire lines, used the Walking Route Audit Tool (WRAT)[108] to assess the current condition and suitability of the routes. In parallel, an Equalities Assessment Tool (EQAT) assessed routes in terms of their impacts on different groups. The results from these assessments, has provided evidence for our investment priorities.

8.2.12. Development patterns that reduce the need to travel long distances and encourage walking and cycling are an essential element of sustainable development. The location and nature of all new development, commercial and residential, has a major bearing on both the need to travel and how people choose to travel. New development provides an excellent opportunity to create better walking and cycling opportunities, suitable routes for all non-car users and travel practices by overcoming barriers and improving connectivity. Our Overarching Strategy provides further policy detail on integrating with new development **(PD0.4**).

[107] https://www.standardsforhighways.co.uk/dmrb/
[108] https://www.gov.uk/government/publications/local-cycling-and-walking-infrastructure-plans-technical-guidance-and-tools



8.3. Policy LTP PD 6.2 Rights of Way – Supporting Evidence

8.3.1. Gloucestershire has 3509 miles of public rights of way; one of the longest networks managed by any county. It is used predominantly by walkers, although 15% of it is bridleway - where horse riding and cycling are also lawful uses. The GCC Rights of Way and Countryside Access Improvement Plan[109] acts in tandem with the LTP to provide better connected rural access networks. Both public rights of way and unsurfaced roads available for non-motorised vehicular users are important to walkers, horse riders, carriage drivers and cyclists, as are many other routes with public access. They can provide links in the network of other paths to complete coherent routes.

8.3.2. The Public Rights of Way Improvement Plan (6.2.2/3) states that 'It is desirable that the pedestrian, cycle and horse riding routes are integrated with the road network. The danger to all vulnerable users; pedestrians, cyclists and horse riders, from traffic is very real and it is important to reduce the risks. Access needs to be considered in the context of the Local Transport Plan and with local planning processes. Encouraging people away from busy routes, agreeing measures to safeguard quieter routes and improving accessibility to and within green space'.

8.3.3. In some parts of the county increased safety and accessibility for vulnerable users may enable better community connectivity, support economic prosperity and provide wide social benefits. The county is a visitor destination for walkers and cyclists, and recreational horse riding is recognised as a significant element of the rural tourism economy.

8.3.4. Whilst the large number of tracks and bridleways in Gloucestershire are hugely valued by local people and the wider tourism industry, they are quite fragmented. Bridleway routes may involve cyclists and horse riders having to ride along busy roads in order to get between one stretch of track and another. There is a strong case for linking up some of these existing tracks and bridleways with new stretches of off-road track to create a more connected network of multi-user tracks, where practicable.

8.3.5. Across Gloucestershire, people have highlighted under utilised access opportunities within their communities, including bridleways or footpaths that could be upgraded, or by using disused linear transport infrastructure such as canal and rail corridors. Subject to issues of feasibility and delivery, funding will need to be identified for this purpose.

[109] Gloucestershire County Council, Rights of Way and Countryside Access Improvement Plan 2011 -2016

8.3.6. As a first principle it can be useful to agree what opportunities for walking, cycling and horse riding should be identified and secured through the production of Local and Neighbourhood Development Plans. When the local community, stakeholders and the local authority have agreed this in principle, and the relevant plans are adopted this will enable GCC to support the process of seeking funding opportunities.

8.4. Policy LTP PD6.3 - Pedestrian Asset Management – Supporting Evidence

8.4.1. The maintenance of the carriageway and footway contributes to pedestrian safety and amenity. Pedestrians are disproportionately affected by puddles in the road and loose or uneven flagstones. They will be affected by the maintenance schedule that is applied to the main, secondary and tertiary transport networks.

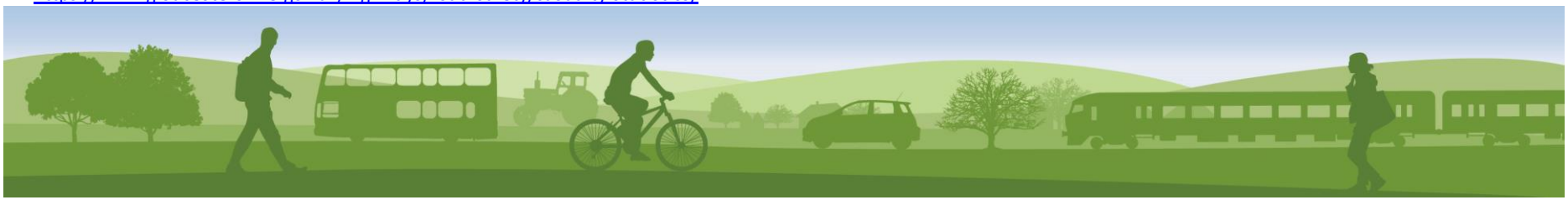
8.4.2. The maintenance of the pedestrian network is dependent on various factors. The network consists of; highway, footways, shared-use footways and bridleways, as well as bespoke cycle routes and other routes with public access. A co-ordinated approach to maintenance is needed across all these assets.

8.4.3. The Transport Asset Management Plan (TAMP)[110] provides the highway policy and guidance to cover general operation of the highway services in Gloucestershire. The TAMP and its associated appendices and guidance documents are part of the wider Gloucestershire Local Transport Plan.

8.5. Policy LTP PD 6.4 Pedestrian Safety – Supporting Evidence

8.5.1. In general terms, road safety is improving: the number of road casualties of all severities in reported road traffic accidents in 2018 was 6% lower then in 2017 and is the lowest level on recorded. Comparison with earlier years should be interpreted with caution due to changes in systems for severity and reporting by some police forces. The trend in the number of fatalities has been broadly flat since 2010.[111] In Gloucestershire, a change in method of reporting injury collisions has resulted in an increase in the number of serious casualties when compared with the 2015-2017 average. The Department for Transport is investigation nationally the effect of this change.[112]

[110] https://www.gloucestershire.gov.uk/highways/plans-policies-procedures-manuals/highways-policy-and-guidance-documents/
[111] Reported road casualties in Great Britain – annual report 2018
[112] https://www.gloucestershire.gov.uk/highways/road-safety/casualty-statistics/

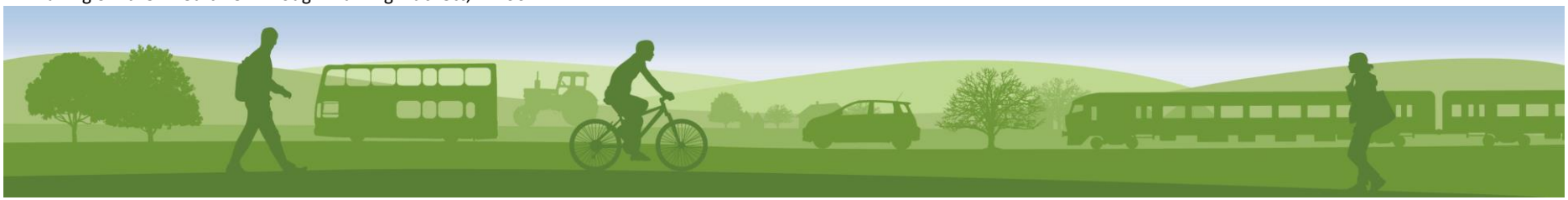


8.5.2. One fifth of mobility scooter users surveyed had experienced a safety or training issue.[113] As mobility scooter users increase, incidents from unsafe usage, risks of collisions with pedestrians, cyclists and road users are likely to follow. GCC would encourage local (community based) or national safety training programmes.

8.5.3. Nationally around half of all journeys to primary school are made on foot but many short journeys to school are still made by car. It is estimated that by 2050 with current trends, 70% of children will be affected by obesity.[114] Encouraging active travel by walking and cycling to school is one way of tackling this challenge.

8.5.4. Cooperation between Gloucestershire Police and GCC road safety team has included speed awareness and enforcement campaigns which can help improve pedestrian safety.

[113] www.ridc.org.uk/sites/default/files/documents/pdfs/research-consultancy/Rica%20Mobility%20scooter%20market%20study%20final.pdf
[114] Making Children Healthier Through Walking Mackett, P. 2004



9. Connecting Places Strategy – Supporting Evidence of Issues & Opportunities

9.1. Connecting Places Strategy

9.1.1. Each Connecting Places Strategy (CPS) area set out below, and illustrated in **Figure CPS (A)**, has identified transport related issues and opportunities that support the LTP vision and objectives. Central Severn Vale (CPS1) area aligns with the Joint Core Strategy area, that covers all of Cheltenham Borough and Gloucester City and parts of Tewkesbury Borough that sit on the fringes of Gloucester.

9.1.2. This chapter summarise a number of issues and opportunities that were identified during the evidence base update for the LTP and in conversions with our stakeholders. These issues and opportunities informed the CPS strategies in the LTP.

Connecting Places Strategy
Central Severn Vale (CSV) – Connecting Places Strategy (CPS1) area
Forest of Dean - Connecting Places Strategy (CPS2) area
North Cotswold - Connecting Places Strategy (CPS3) area
South Cotswold - Connecting Places Strategy (CPS4) area
Stroud - Connecting Places Strategy (CPS5) area
Tewkesbury - Connecting Places Strategy (CPS6) area

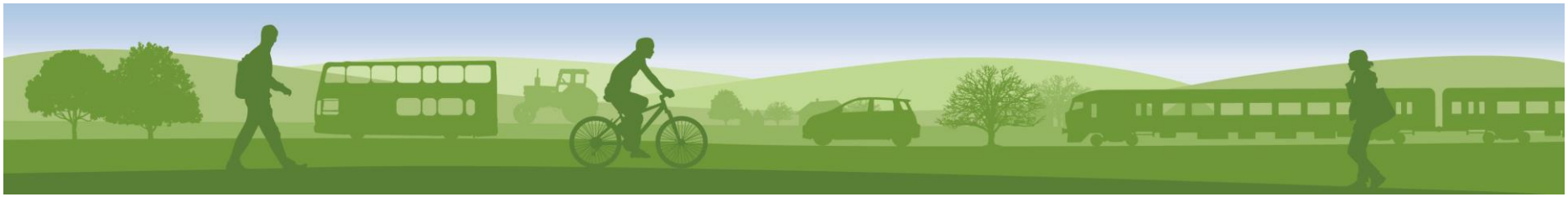
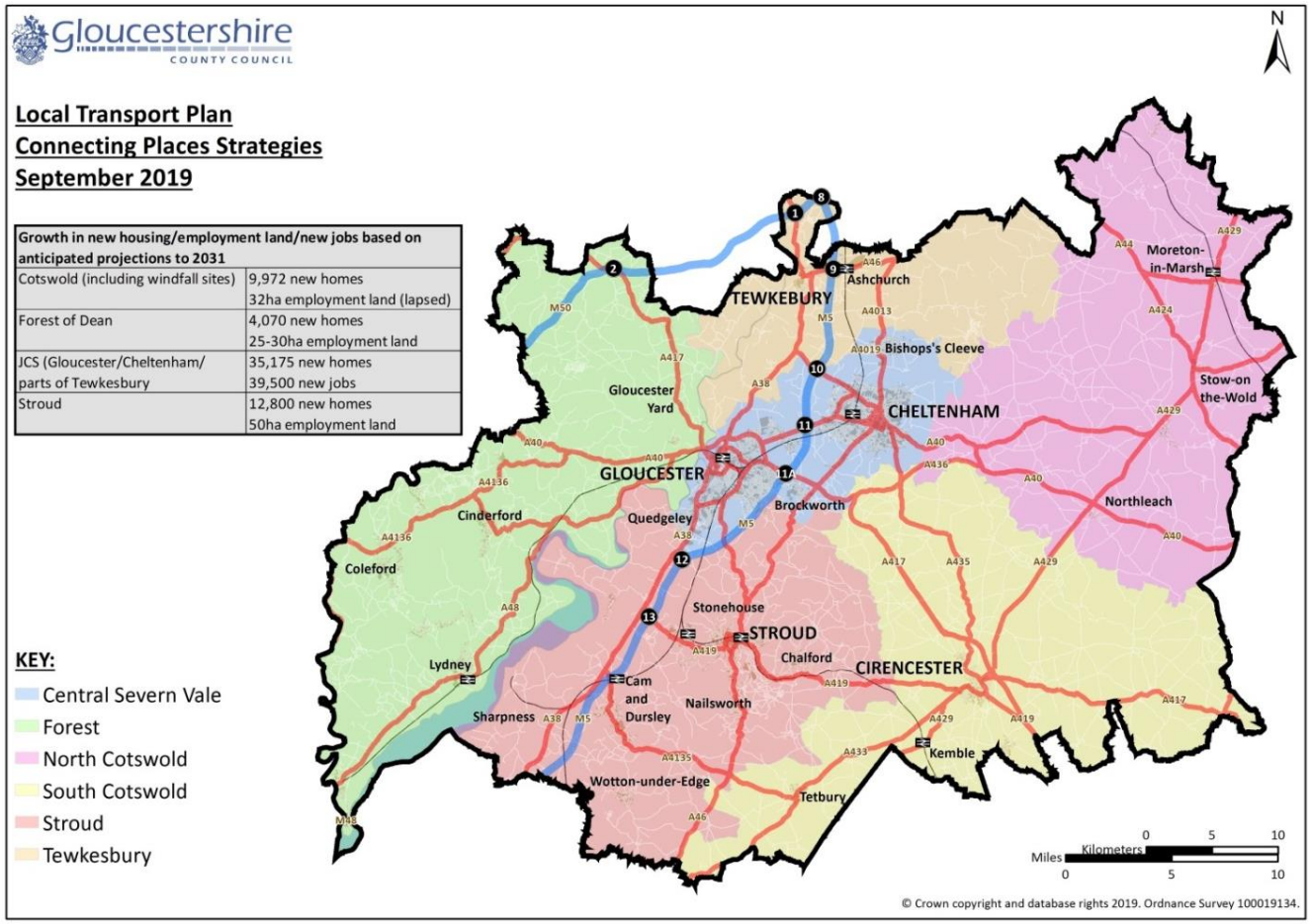
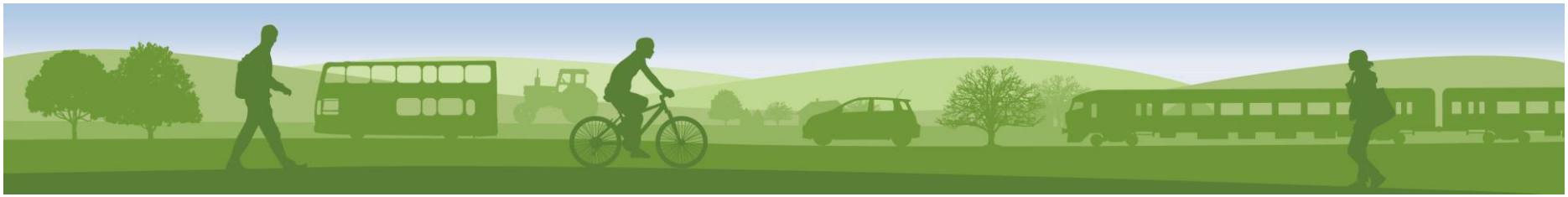


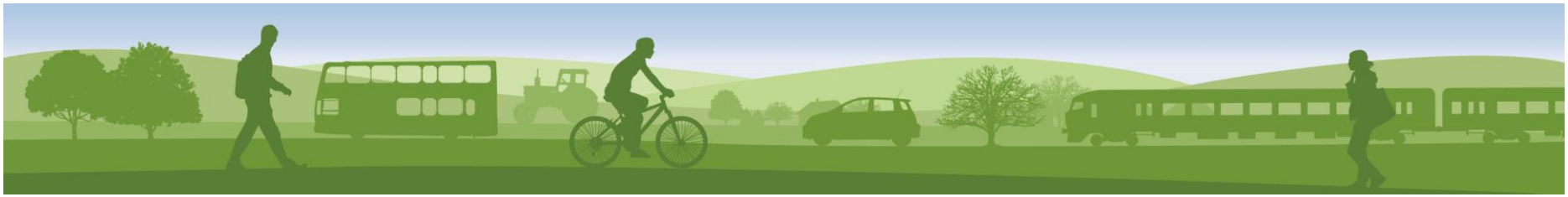
Figure CPS (a) – Connecting Places Strategy – area based strategy





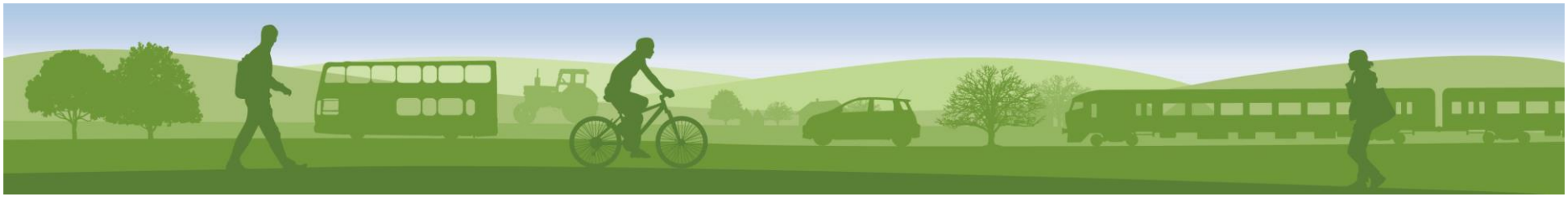
Central Severn Vale Connecting Places Strategy (CPS1 – Cheltenham & Gloucester)

Issues	*Opportunities*
• Congestion, limited capacity and poor network resilience • Ambitious growth objectives – restricted access at M5 J10 • Congestion at Strategic pinch points • A417 Missing Link • A40 West of Gloucester to Cheltenham • New areas of growth need to be facilitated • Regular occurrence of congestion on many urban corridors • Problems of parking within Cheltenham • Lack of on-site employee parking at local businesses • Bus journey time reliability suffers on key congested routes • Radial bus network which involves changing buses to reach key destinations. Lack of orbital services • Lack of coordination between traffic signals • Limited information regarding 'live' journeytimes • Rail and bus stations should be gateways to county • Lack of coordination between bus routes/companies and ticketing scheme/discount cards that can be used across providers • Lack of defined cycle routes • Fragmented cycle network linking communities	• The canal corridor is strategic for redevelopment, improved connectivity and economic growth, both through Gloucester and north and south of its urban fringes • Improvements to pedestrian/cycle facilities and connections between the rail station, Transport Hub and city centre. The regeneration of King's Square has the potential to create or expand on those links with additional pedestrianisation • Gloucester has a good opportunity to increase rail services to Bristol with the extension of the MetroWest service • Cycle improvements in and around the CSV to encourage increased usage on existing network. The proposed strategic cycle link along the B4063, between Gloucester and Cheltenham, will help to achieve this • Significant investment in transport infrastructure to support the delivery of the Golden Valley Development • Successful M5 J10 bid made by GCC to the Homes England Housing Infrastructure Fund (HIF) for all movement junction • A417 Missing Link with HE currently developing the scheme • HE Designated Funds for Cycling and Air Quality improvements • Close proximity of two urban centres (Cheltenham and Gloucester) and flat terrain make it ideal for increased cycling • Scope to provide additional and/or improved strategic park & interchange facilities on key routes into the area • Strong transport links by rail and road to London, Birmingham, Bristol, Cardiff, Oxford and Swindon



Forest of Dean Connecting Places Strategy Area (CPS2)

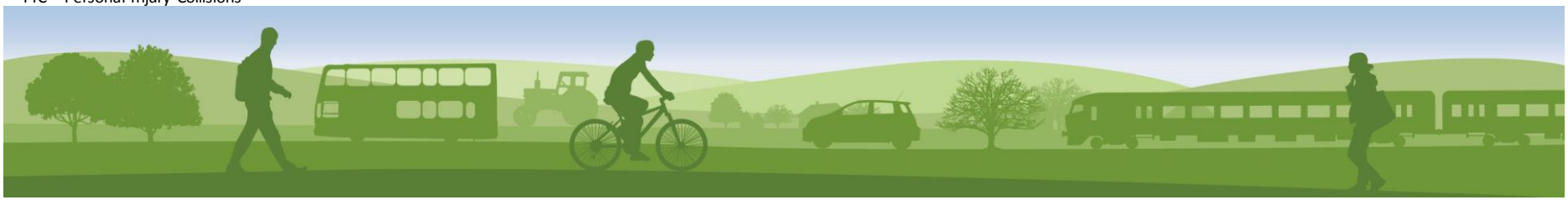
Issues	*Opportunities*
• The River Severn is a barrier to access • The A40 is heavily congested during peak periods, particularly the east approach to Highnam roundabout • Enforcement of highway speed limits and A48/ A4136/ A40 road safety concerns • Condition of highway network • The need for a joined up freight routing strategy with neighbouring authorities • Vulnerability of the railway and A40/A417 to River Severn flooding. • Location of the rail station with poor accessibility for all users and station facilities • Lack of direct rail link to Bristol • Availability of rolling stock • Many of the roads lack footpaths • Limited public transport access into Gloucester/Cheltenham • Off peak bus services are very limited • Future Impact of toll removal, in particular on the A48 • Broadband connectivity remains poor for some preventing home working • Poor sustainable travel options for young people to access work and/or educational facilities	• Building on the successes of the first phase of the Cinderford Northern Quarter regeneration project • CPS 2 southwest growth potential resulting from Severn Bridge toll removal • Creation of Hub and Spoke broadband facilities to improve home working/community capability reducing workplace travel need • Potential to regenerate Lydney Harbour and improve walking/cycle links to station and town centre • Future growth potential at the Beachley MOD site. • Potential to expand public transport links to South Wales/Gloucester from Lydney station • Expansion of community transport/DRT to reduce social isolation and provide better access for all to employment, medical and educational facilities. • Maximise CPS2's northern M50/M5 accessibility to Ross-on-Wye/Hereford and Worcester/Birmingham to provide socio-economic benefits • Tutshill and Sedbury strong southern connections with Monmouthshire • Diverse industrial make up allowing economic boosts including 3000 jobs in Mitcheldean



North Cotswold Connecting Places Strategy (CPS3)

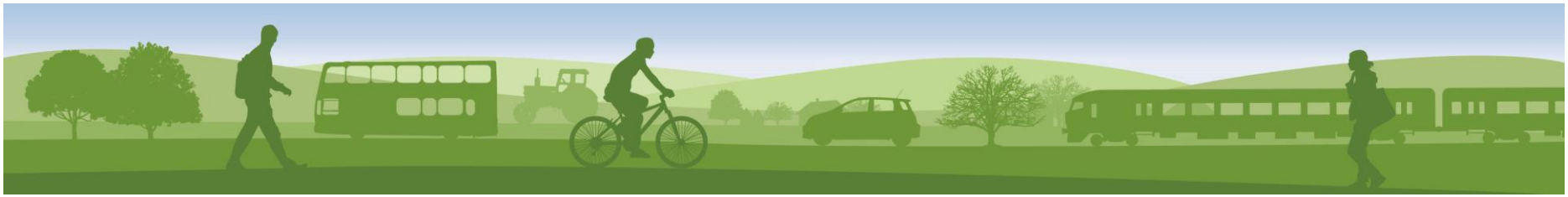
Issues	*Opportunities*
• Lack of lay-bys and resting points for HGVs and for buses when stopping to pick up / drop off passengers on the A429 • Excessive vehicle speeds on some roads • Highway safety (PIC's[115]) on the A429 • Limited car parking / EV charging infrastructure • Lack of pedestrian access within Moreton in Marsh • Limited bus services and inappropriate size of buses in some villages. Lack of incentive for commercial operators • Inadequate cycle facilities & busy roads acting as barriers to cycling • Mobility and accessibility constraints for an ageing population • The traffic created by tourist movements within the Cotswold area has different characteristics than commuter traffic and affects the area during the weekends, holidays, and particularly during the summer months, • Cross border connectivity • Adverse impact of the diversionary freight route Oxford / Burford to Northleach and north along A429 • Access to the Vale of Evesham consolidation and distribution centres from east –west movements • Lack of overtaking lanes on the A429 creates queues of slow traffic behind HGV's contributing to unsafe overtakes	• The Cotswold district may benefit from employees of high end jobs within the surrounding CPS areas living within the district • All future developments designed to enable EV/ULEV charging • Improved pedestrian and cycle accessibility between settlements to accord with the Gloucestershire Countywide Cycleway • Improvements to rural digital connectivity and/or Hub and Spoke facilities to increase home working • Very good rail connectivity to Hereford, Worcester, Evesham to the west and Oxford, Didcot, Reading and London • A417 missing link to improve congestion and safety • Gloucestershire's recognition as a key cyber security alliance location creates growth potential • Potential to create local interchange hubs at key transport locations such as Moreton in Marsh. • Improvements to leisure walking/cycling network to encourage sustainable tourism • Reducing congestion by using technology to inform, prepare and make people aware of travel conditions. • Using technology to make public transport travel planning easier • Public Transport improvements to enable accessibility to cross-border growth areas • Railway station accessibility improvements to grow the use of rail in Gloucestershire • Maximise the potential of the PROW and Bridleway network to improve facilities for walkers, cyclists and horse riders in the most rural areas

[115] PIC = Personal Injury Collisions



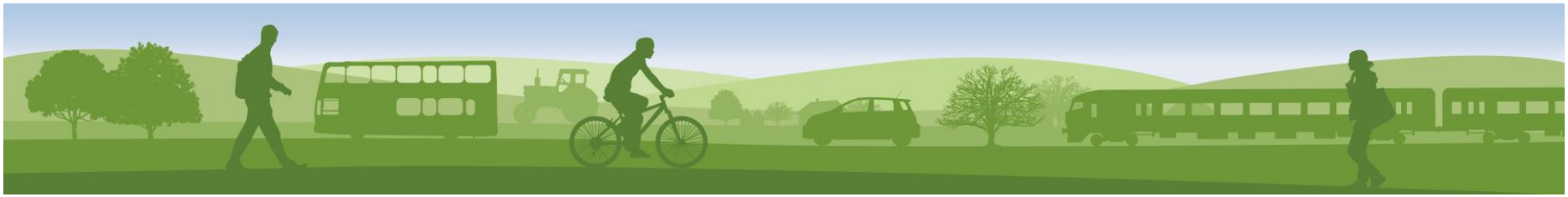
South Cotswold Connecting Places Strategy (CPS4)

Issues	*Opportunities*
• A417 causes congestion and road safety concerns without the Missing Link • A417 / A419 noise concerns caused by concrete highway surface • Vehicles rat running to avoid delays on A417 / A419 • Capacity issues on the Cirencester Ring road • Freight Routing especially for HGV's in and around quarries and using A417 through Fairford, Lechlade and in Cirencester town centre • Lack of lay-bys and resting points for HGVs and for buses when stopping to pick up / drop off passengers • Excessive vehicle speeds on some roads • Limited car parking / EV charging infrastructure in Cirencester • Lack of pedestrian access within Cirencester town centre • Inadequate access by sustainable modes to Kemble Station from Cirencester • Limited bus services and inappropriate size of buses in some villages. Lack of incentive for commercial operators • Lack of connectivity between Tetbury, Fairford and South Cerney in relation to Cirencester • Inadequate cycle facilities & busy roads acting as barriers to cycling • Mobility and accessibility constraints for an ageing population • The traffic created by tourist movements has different characteristics than commuter traffic and affects the area during the weekends, holidays, and particularly during the summer months • Lack of cross border sustainable transport connectivity from places such as Lechlade • Local impacts on the A417 as a result of RAF Fairford activity and future growth	• The Cotswold district may benefit from employees of high end jobs within the surrounding CPS areas living within the district • All future developments designed to enable EV/ULEV charging • Improved pedestrian and cycle accessibility between settlements to accord with the Gloucestershire Countywide Cycleway. • Improvements to rural digital connectivity and/or Hub and Spoke facilities to increase home working • Very good rail connectivity to Cheltenham, Gloucester, Swindon and London • A417 Missing Link to improve congestion and safety. • Gloucestershire's recognition as a key cyber security alliance location creates growth potential • Potential to create local interchange hubs at key transport locations such as Kemble • Improvements to leisure walking/cycling network to encourage sustainable tourism • Reducing congestion by using technology to inform, prepare and make people aware of travel conditions • Using technology to make public transport travel planning easier. • Public Transport improvements to enable accessibility to cross-border growth areas • Maximise the potential of the PROW and Bridleway network to improve facilities for walkers, cyclists and horse riders in the most rural areas



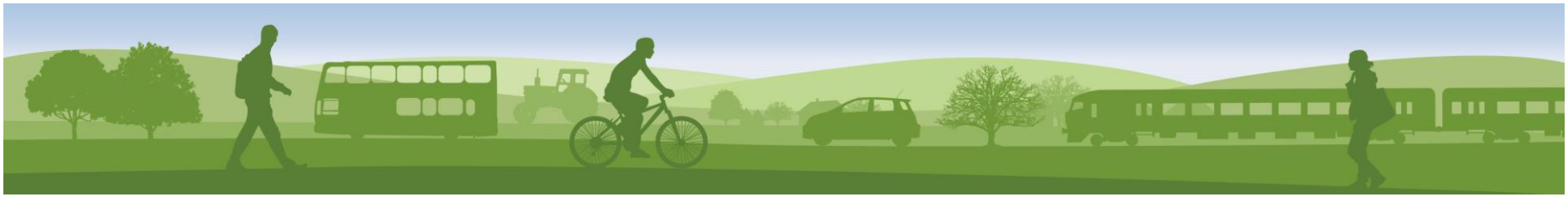
Stroud Connecting Places Strategy (CPS5)

Issues	*Opportunities*
• Proposed scale of growth will impact the transport network, including M5 J12, J13 and J14 in terms of capacity • Existing traffic congestion on the A419 corridor set to deteriorate with additional growth on the corridor. Delays and congestion at the A417 Missing Link increases use of roads through strategy area • The role and function of B4066 and Alkington Lane in supporting growth • The lack of long-term parking to support business and leisure activity • Merrywalks is a barrier to pedestrian and cycle movements • Narrow and restrictive access to vehicular traffic street pattern in Stroud town centre results in transport conflicts. Narrow street alignment in Silver Street, Dursley in combination with volume/proximity to traffic impacts on the retail • Network resilience during adverse weather events or when M5 is closed • Inadequate bus and rail services to Bristol, Gloucester and London • Limited transport links with Wotton-under-Edge, plus traffic and parking issues in the Wotton-under-Edge • Lack of bus timetable information and timing of rail connections • Limited active travel routes linking communities • Significance of Oldbury new nuclear power station • Consider east west movements. Access across the River Severn • A38 Cole Avenue – St Barnabas highway capacity issues may impact on the ability to meet housing supply targets • Proximity to South Gloucestershire and Bristol, impacts of their growth • Market town connectivity and accessibility to transport networks/services. • Rat-running and parking issues within common land.	• Collaborative Working with South Gloucestershire and Highways England to improve J14 • Working with Highways England to improve J12 & J13 • Opportunities to increase the number of trips made by active modes such as walking and cycling as well as by public transport to key public transport interchanges • Maximising the Canal network to create direct cycle routes North/South and East/West between the major urban centres in the district and to Gloucester as well as making the most of the National Cycle Network Routes • Maximise Public Transport along the A38 Corridor linking the district to the North (Gloucester) and South (Bristol), MetroBus expansion may facilitate this opportunity • Lobby for increased frequencies on the Cheltenham/Gloucester to Bristol and Cheltenham/Gloucester to London lines • Create circular walks around the urban areas and Stroud Valleys to minimise the impacts of tourism on the Commons and help to reduce environmental damage, providing potential to boost tourism in the nearby urban centres • Stroud District is to maximise its walking and cycle corridors to boost health and wellbeing • Investigate a new railway station south of Gloucester, north of Bristol without prejudicing intercity services • Expansion of the LCWIP to aid the planning of a network of walking and cycling routes within the Stroud District



Tewkesbury Connecting Places Strategy (CPS6)

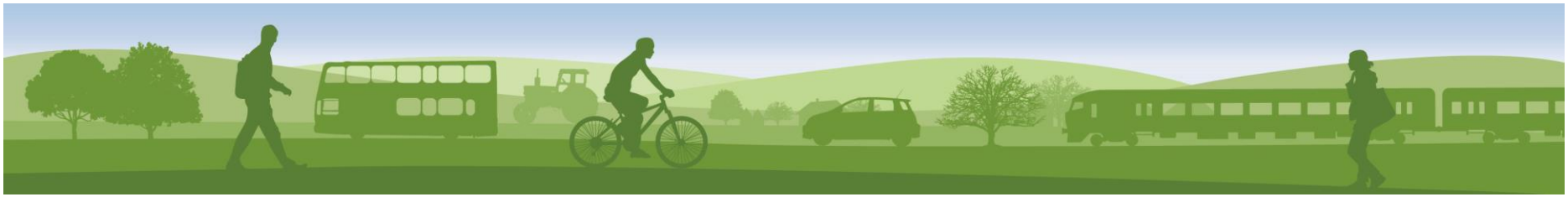
Issues	*Opportunities*
• Congestion and vehicle delay within the A438 / A46 corridor and around M5 Junction 9, including queuing on the M5 • Congestion impacting businesses located around M5 Junction 9 and the A46 corridor • Industrial/Business units do not have enough parking, • A46 Railway overbridge is a pinch point limiting road width to single lanes in either direction • Many rural roads used as rat runs to avoid issues on A438 / A38, A46 M5 J9 corridor(s) including HGV's using inappropriate routes • New development identified for A46 corridor needs to be fully mitigated or travel condition will continue to decline • Network resilience during adverse weather events • Parking and accompanying signage through Tewkesbury is inadequate • M5 and railway line acts as barriers to walking and cycling along the A46/A438 corridor • Public transport access outside Tewkesbury is very poor especially from Winchcombe • Rail service and station facilities are inadequate	• Good rail connectivity to Bristol and Birmingham via Cheltenham/Gloucester with potential for increased services as a result of Midlands Connect • Strong partnerships re: A46 & Midlands Connect • Old railway cycle way potential • Ashchurch Garden Town proposal allows for sustainable travel principles to be developed • Opportunity to create a central Transport Hub around Ashchurch for Tewkesbury Station as a result of Ashchurch growth • Active Travel routes to encourage sustainable travel and promote health and wellbeing, (Tewkesbury – Bishop's Cleeve) • Western Gateway SNTB supporting GCC with promotion of Off-line A46 improvement and improved M5 Junction 9 • Highways England support and promotion, through Road Investment Strategy, for improvements to M5 J9 and A46 through Ashchurch • Cross border active travel links Gloucestershire and Worcestershire • DRT emergence can provide inter-village transport with links to key services, bus routes and towns



10. LTP Targets – Performance Indicator Descriptions

LTP Targets measure performance against our policies and are monitored annually and published in the LTP Progress Report. A detailed description of each LTP Target is set out below.

Reference	Indicator name	Target
LTP PI-1	Journey time reliability on strategic important routes during the AM peak	Maintain annual average variance to + or – 1%
LTP PI-2	Number of peak hour vehicle journeys	Restrict annual growth to 1% per annum
LTP PI-3	Reduction in the inappropriate freight travel	To maintain the % of HGV traffic on inappropriate roads use to less than 5%
LTP PI-4	Principal road network condition	Maintain at or below 3%
LTP PI-5	Non-Principal road network condition	Maintain at or below 6%
LTP PI-6	Unclassified road network condition	Maintain at or below 14%
LTP PI-7	Increase use of rail	Increase by 30% from 2015 to 2031
LTP PI-8	Increase use of cycling	Increase by 50% from 2015 to 2031
LTP PI-9	Increase use of bus	Maintain bus passenger numbers in line with bus service reviews
LTP PI-10	Maintain bus passenger access	Maintain access within 45 minutes
LTP PI-11	Reduce the number of highway casualties	40% reduction (from the 2005-2009 average) by 2020
LTP PI-12a	Reduce the number of child highway casualties	40% reduction (from the 2005-2009 average) by 2020
LTP PI-12b	Reduce the number of older highway casualties	40% reduction (from the 2005-2009 average) by 2020
LTP PI-13	Reduce levels of traffic derived Nitrogen Dioxide	To reduce transport derived NO2 at each Air Quality Management Areas
LTP PI-14	Reduce per capita transport carbon emissions	Zero tonnes per capita by 2045



LTP PI-1 – Journey time reliability on strategic important routes during the AM peak. Outputs from this indicator will assist in understanding the impacts of LTP Policy Documents PD3 – Freight and PD4 – Highways. Gloucestershire's Link and Place spectrum (**Figure B of Overarching Strategy**) characterises the highway network within county depending on its role and function. National and primary links are strategically critical for the local economy and therefore journey time reliability is an important factor. The target is to maintain annual average AM peak hour journey time variance to + or – 1%.

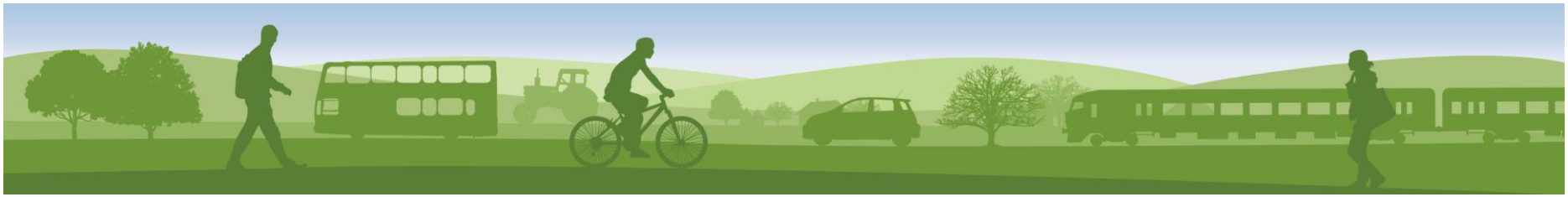
LTP PI-2 - Number of peak hour vehicle journeys. Between 2015 and 2031 Gloucestershire will see significant change in terms of population growth, housing development, its economy and technological advancement. This will result in an increase in travel demand, which will impact the operation of the highway network. The target is to restrict annual growth in the number peak demand vehicle journeys to 1% per annum.

LTP PI-3 - Reduction in inappropriate freight travel. Monitoring of HGV traffic will take place on and off the advisory freight map to assess if the advisory freight network is understood by its users. If it is not, it will be necessary to review the approach used to manage freight travel. The target is to maintain the % of HGV traffic on inappropriate roads to less than 5%.

LTP PI-4 - Principal road network condition. The principal road network (PRN) is designated as 'A roads' and provides regional and district distributor routes. There are currently 582 km of principal road network in Gloucestershire. The PRN is very important economically, and its condition impacts on network resilience and safety. The target is to maintain the percentage of principal road network requiring maintenance at or below 4%.

LTP PI-5 – Non-Principal road network condition. Non-principal roads are designated as B and C roads. In Gloucestershire there are 1966 km of classified non-principal road - B roads account for 407 km and 1559 km are C roads. These are main and secondary distributor routes, linking urban centres, larger villages and HGV generators to the strategic network. Preserving the condition of these routes ensures access and journey times are maintained into key service areas for health, education, retail and employment. The target is to maintain the percentage of non-principal classified road network where maintenance should be considered at or below 9%.

LTP PI-6 –Unclassified road network condition. Outputs from this indicator will assist in understanding the impacts of LTP Policy Documents 3 – Freight and 4 – Highways. The majority of the adopted highway network is comprised of unclassified roads. In Gloucestershire this amounts to 2935 km of network. This indicator will monitor the condition of these roads which, in rural areas, can link smaller villages to the distributor roads, serve small settlements and provide access to individual properties and land. In urban areas they are residential or industrial interconnecting roads, residential loop roads or cul-de-



sacs. These are fundamental to any business or resident accessing the transport network for any means. The target is to maintain the percentage of unclassified road network where maintenance should be considered at or below 18% (BVPI 224B Ref M7).

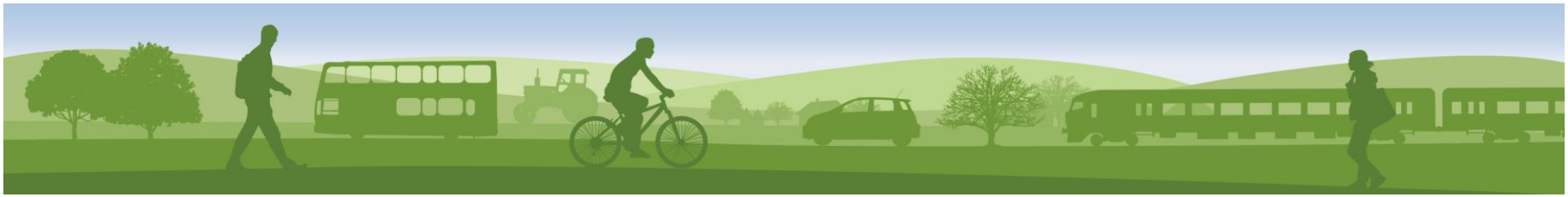
LTP PI-7 - Increase use of rail. Outputs from this indicator will assist in understanding the impacts of LTP Policy Documents 5 – Rail. This indicator shows rail station usage across the county. Rail use is important to economic sustainability by ensuring connectivity and reliable travel times to access employment and services. Rail is also a low emission active travel alternative to car use. The target is to increase rail use within the county by 30% from 2015 to 2031.

LTP PI-8 - Increase use of cycling. Outputs from this indicator will assist in understanding the impacts of LTP Policy Documents 2 Cycle. Cycling levels are important indicators of active and sustainable travel which benefit the environment, health and the economy. The target is to increase cycle use within the county by 50% from 2015 to 2031.

LTP PI-9 - Increase use of bus. Outputs from this indicator will assist in understanding the impacts of LTP Policy Document 1 Public & Community Transport. This indicator shows the actual number of journeys made on bus services running throughout the county. It covers both commercially provided and subsidised bus services and is therefore vulnerable to both economic trading conditions and council policy towards accessibility when considering whether or not to provide financial support for transport services that bus companies can no longer afford to run. The target is to maintain the number of bus passenger journeys in line with bus passenger reviews.

LTP PI-10 - Maintain bus passenger access. Outputs from this indicator will assist in understanding the impacts of LTP Policy Documents 1 Public & Community Transport. This indicator reports access by public transport within 45 minutes to GP surgeries it provides a good proxy for network coverage as GP surgeries tend to be located close to other local services. The target is to maintain level of access to GP services and facilities by public transport within 45 minutes.

LTP PI-11 - Reduce the number of highway casualties. Outputs from this indicator will assist in understanding the impacts of LTP Policy Documents 4 Highways. Gloucestershire has adopted the national aspiration for a 40% reduction (from the 2005-2009 average) in the number of Killed or Serious injuries (KSI) on the highway by 2020.



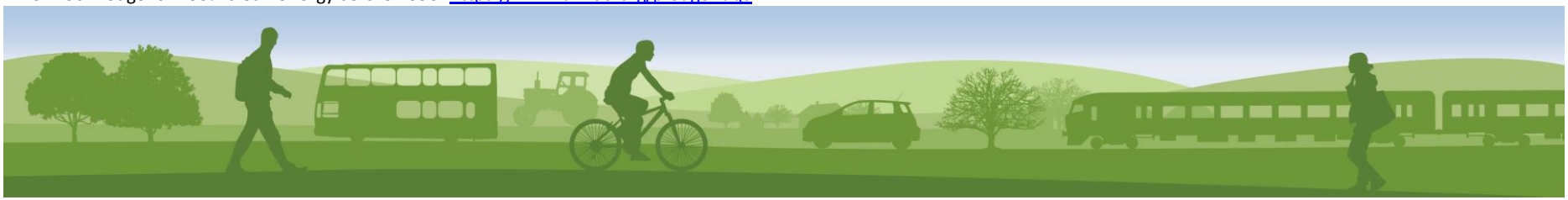
LTP PI-12a - Reduce the number of child highway casualties. Outputs from this indicator will assist in understanding the impacts of LTP Policy Documents 4 Highways. Gloucestershire has adopted the national aspiration for a 40% reduction (from the 2005-2009 average) in the number of child KSI on the highway by 2020.

LTP PI-12b - Reduce the number of older highway casualties. Outputs from this indicator will assist in understanding the impacts of LTP Policy Documents 4 Highways. Gloucestershire has adopted the national aspiration for a 40% reduction (from the 2005-2009 average) in the number of older KSI on the highway by 2020.

LTP PI-13 – Reduce levels of traffic derived Nitrogen Dioxide. Outputs from this indicator will assist in understanding the impacts of policies outlined across all policy documents. Air quality in Gloucestershire is good. However, currently the county has seven areas declared under Section 83 of the Environment Act 1995 by district councils as Air Quality Management Areas (AQMAs). The eight declared AQMAs in Gloucestershire test above the target objective levels for nitrogen dioxide (NO2) for relevant exposure to Gloucestershire residents. In each case traffic is the main source of air pollution. Under The Air Quality (England) Regulations 2002 the highway authority has a duty to work in partnership with the district with the aim of reducing AQMAs. The target to reduce the annual mean concentration level of transport derived NO2 at each of the county's AQMAs.

LTP PI-14 – Reduce per capita transport carbon emissions. Outputs from this indicator will assist in understanding the impacts of policies outlined across all policy documents. On the 12th December 2015 a historic new global climate agreement was struck at the United Nations conference on climate change in Paris. The deal sets out a clear long-term goal of net zero emissions by the end of the century. The target is to reduce per capita transport carbon emissions, in order to contribute to achieving the Government's climate change commitments, resulting in zero transport based carbon emissions. Resulting in an initial strengthening of the target following a review, and bringing it in line with the UK Climate Change Act amendment.[116] This revision supports the Government commitment to end the sale of all new conventional petrol and diesel cars and vans by 2030.[117] The strengthening of this target reflects national commitments and GCC's declaration of a climate change emergency in 2019.[118] Furthermore, in 2020, GCC made a further consideration to sign up to the UK100 Pledge and follow the pledge guidance to be net zero by 2045.[119]

[116] UK Climate Change Act 2008 (2050 Target Amendment) Order 2019 - https://www.legislation.gov.uk/ukdsi/2019/9780111187654
[117] https://www.gov.uk/government/news/government-takes-historic-step-towards-net-zero-with-end-of-sale-of-new-petrol-and-diesel-cars-by-2030
[118] Carbon action plan motion (836) at County Council (15 May 2019) https://glostext.gloucestershire.gov.uk/ieListDocuments.aspx?CId=333&MId=91
[119] UK100 Pledge for 100% clean energy before 2050- https://www.uk100.org/pledge-faqs



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